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TRANSFORMING RETINAL DISEASE MANAGEMENT WITH TECHNOLOGY



ABSTRACT BOOK

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FREE PAPERS

Intraocular Inflammation, Uveitis & Scleritis

Abstract No.: 200124
Nov 22, 2024 (Fri) 11:00 - 12:30
Venue: Room 334/335

A 52-Week Phase 2 Study of Brepocitinib in Active Non-Infectious Uveitis (NEPTUNE): Safety and Efficacy with Assessment of Macular Edema

*First Author: Akshay **THOMAS***
*Co-Author(s): Mark **DACEY**, Dilraj **GREWAL**, Paul **MUDD**, Quan Dong **NGUYEN**, Edmund **TSUI***

Purpose: To evaluate the safety and efficacy of oral brepocitinib for the treatment of active non-infectious intermediate, posterior, and panuveitis in a randomized, double-masked dose-ranging trial.

Methods: Adults (n=26) were randomized 2:1 to receive brepocitinib 45 mg or 15 mg QD for 52 weeks plus prednisone 60 mg/day tapered to 0 mg over 8 weeks. The primary efficacy endpoint was the proportion of participants meeting the treatment failure (TF) criteria (based on vitreous/anterior inflammation, lesion activity, visual acuity).

Results: At week 24, 29% (5/17) of patients in the 45 mg arm and 44% (4/9) in the 15 mg arm met TF criteria or were discontinued. Further reduction (-0.17% compared to best-state during prednisone burst) in central subfield thickness was observed in the 45 mg arm; 2.18% was observed in the 15 mg arm. In patients with macular edema (ME) at baseline, 43% (3/7) in 45 mg and 0% (0/3) in 15 mg achieved resolution of ME by week 24. In patients without ME at baseline, 0% (0/10) in 45 mg and 33% (2/6) in 15 mg developed ME by week 24. Adverse event rates were similar between arms.

Conclusions: Brepocitinib demonstrated dose-dependent clinically meaningful efficacy and an acceptable safety profile consistent with prior brepocitinib studies and pharmacologic class.

Abstract No.: 200636
Nov 22, 2024 (Fri) 11:00 - 12:30
Venue: Room 334/335

A National Survey on the Practice of Uveitis Among Ophthalmologists in the Philippines

*First Author: Jose Carlo **ARTIAGA***
*Co-Author(s): Teresita **CASTILLO**, Laurence Lester **TAN***

Purpose: To describe the practice and referral patterns of ophthalmologists in the diagnosis and management of uveitis in the Philippines.

Methods: Online survey distributed to members of the Philippine Academy of Ophthalmology.

Results: A total of 87 respondents completed the survey, representing 15 of the 17 geographic regions. Most of the survey respondents were less than five years into practice (47.1%) and were sub-specialists (52.9%). Most of the sub-specialists were retina specialists (28.8%), cataract and refractive surgeons (17.3%), and cornea specialists (13.5%). Fifty-five percent encountered a uveitis case at least once every two weeks. Anterior uveitis was the most common anatomical classification. The most commonly reported etiology was idiopathic. The most common infectious etiology was tuberculosis (86.2%), while the most common non-infectious etiology was lensinduced (86.2%). There were fair self-assessed skills in requesting and interpreting systemic (median 3, IQR 2) and initiating topical (median 4, IQR 3) and systemic (median 4, IQR 4) among respondents. Forty-five percent were likely to refer to a uveitis specialist >75% of the time. Majority (95%) of respondents would workup and treat prior to referral to a uveitis specialist.

Conclusions: This survey provided real-world perspectives on the practice of uveitis in the

Philippines in terms of case demographics and distribution, diagnostic and treatment skills and preferences, and referral patterns, based on the experiences of Filipino ophthalmologists. Results of the study will be helpful in the local training of Filipino general ophthalmologists and uveitis specialists.

Abstract No.: 201076
Nov 22, 2024 (Fri) 11:00 - 12:30
Venue: Room 334/335

Acute Zonal Occult Outer Retinopathy (AZOOR) – Ten-Year Retrospective Study in Tertiary Care Center in Thailand

*First Author: Ratima **CHOKCHAITANASIN***
*Co-Author(s): Tharikarn **SUJIRAKUL**, Somsiri **SUKAVATCHARIN**, Thitiporn **THONGBORISUTH***

Purpose: To demonstrate the diagnostic complexities and treatment outcome of acute zonal occult outer retinopathy (AZOOR) patients with multimodality investigation.

Methods: A single-tertiary center retrospective study on patients diagnosed with AZOOR from January 2011 to January 2021.

Results: Fifteen eyes from 9 patients met the diagnosis criteria. The median (interquartile range; IQR) age onset is 38 years (27.5–63.5). The median (IQR) follow-up duration was 45 months (28-48). 77.8% of participants were female. Bilaterality was reported in 6 patients (66.7%). Four patients (44.4%) reported underlying systemic autoimmune diseases. Eleven eyes (73.3%) had acute onset that typically spreads from peripapillary region, with unremarkable fundus or foveal-spare zonal defect. Final visual acuity was slightly reduced in twelve eyes (80.0%). Six eyes (40.0%) showed a typical trizonal pattern in fundus autofluorescence. Of the 14 eyes, 93.3% reported reduction of Arden ratio in EOG, whereas 9 eyes (60.0%) displayed ERG abnormalities. The initial visual field index (VFI) was reported as mean (SD) at 82.0% (14.3) and the final VFI as 88.4% (6.3), respectively (p=0.09). The initial and final mean deviation's mean (SD) was -8.6 (6.4) and -6.4 (4.3) decibels (p=0.10). Systemic corticosteroids were the first line of treatment for 7 patients (77.8%). Five patients (55%) required additional immunosuppressants. For two eyes, intravitreous corticosteroids were employed. Three eyes received adjunctive peribulbar corticosteroid treatment.

Conclusions: Perimetry and multimodal imaging might be beneficial in diagnosing and monitoring AZOOR patients. Appropriate therapy in the early stages of the disease can prevent it from progressing to trizonal degeneration over time.

Abstract No.: 201148
Nov 22, 2024 (Fri) 11:00 - 12:30
Venue: Room 334/335

Assessing Uveitis Risk Following Pediatric Down Syndrome Diagnosis: A TriNetX Database Study

*First Author: Chun-ju **LIN***

Purpose: This study aimed to determine the risk of uveitis following a diagnosis of DS.

Methods: The TriNetX registry was used to identify individuals aged 18 years and younger with and without a diagnosis of DS between January 1st, 2000, and December 31st, 2023. The non-DS cohort consisted of randomly selected control patients matched by selected variables, which included gender, age, ethnicity, and certain comorbidities. The primary outcome was the incidence of new-onset uveitis.

Results: A total of 353,993 individuals with DS (46.83% female, 58.26% white, mean age at index 5.21 ± 5.76 years) and 53,993 non-DS individuals (45.56% female, 58.28% white, mean age at index 5.21 ± 5.76 years) were recruited from the TriNetX database. Our analysis also showed no overall increased risk of uveitis among DS patients (HR: 1.33 [CI: 0.89-1.99]) compared to the non-DS cohort across the 23-year study period. Subgroup analyses based on different age groups showed that those aged 0 to 1 years (HR: 1.36 [CI: 0.68-2.72]), 0-5 years (HR: 1.34 [CI: 0.75-2.39]), and 6-18 years (HR: 1.15 [CI: 0.67-1.96]) were found to

have no association with uveitis risk compared to their respective non-DS comparators. There was also no increased risk of uveitis among females (HR: 1.49 [CI: 0.87-2.56]) or males (HR: 0.82 [CI: 0.48-1.41]) with DS compared to their respective non-DS comparators.

Conclusions: Our study found no overall increased risk of uveitis following a diagnosis of DS compared to a matched control population.

Abstract No.: 200790
Nov 22, 2024 (Fri) 11:00 - 12:30
Venue: Room 334/335

Differentiation of Posterior Nodular Scleritis and Large Focal Posterior Choroidal Granuloma on Multimodal Imaging

*First Author: Anup **KELGAONKAR***
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Purpose: To study and compare baseline clinical and swept source-optical coherence tomography (OCT) features of posterior unifocal - nodular scleritis (NS) with those of large unifocal choroidal granuloma (CG).

Methods: Retrospective, cross-sectional study to compare baseline clinical and imaging characteristics of NS and CG groups.

Results: NS group comprised 11 eyes (10 cases) while CG had 10 eyes (10 cases). CG had a mean age of 28.7 years ±6.94 compared to NS 41.70 years ±11.88. Angiography (indocyanine green and fluorescein) was considered the gold standard in diagnosing choroiditis. The CG lesions characteristically showed an 'M' spike pattern on the B-scan wherein hypo lesions bordered by hyper-reflectivity on both sides were noted. Inflammatory markers (outer retinal disruption, double layer sign, vitreous hyperreflective dots) were noted commonly in eyes with CG. Structural changes in the inner retina (ILM and inner retinal folds) and exudative changes (intraretinal fluid, subretinal fluid) were comparable in both groups. Choroid-scleral interface (CSI) at the edge of the NS lesion showed anterior bowing or 'up the hill' appearance while CG lesions showed posterior bowing or 'down the hill' appearance.

Conclusions: Angiography combined with ultrasound imaging was diagnostic to differentiate between NS and CG. OCT diagnostic markers such as the direction of CSI at the edge of the lesion and inflammatory markers in the vitreous and outer retina are helpful adjuvants in differentiating CG lesions from NS.

Abstract No.: 200103
Nov 22, 2024 (Fri) 11:00 - 12:30
Venue: Room 334/335

Exosomes Derived from Hypoxia-Treated Astrocytes Alleviate Retinal Ischemia/Reperfusion Injury

*First Author: Wei **CHI***
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Purpose: Retinal astrocytes are crucial to maintaining retinal homeostasis, but reactive retinal astrocytes can aggravate inflammation. Considering the dual role of astrocytes, the function of exosomes derived from hypoxia-treated retinal astrocytes remains unclear. Our study aims to explore the role of astrocyte-derived exosomes in the model of retinal ischemia/reperfusion (I/R) injury.

Methods: Exosomes were isolated from primary mouse astrocytes (MACs) and human retinal astrocytes (HRACs) under conditions of normoxia (norm-exo) or hypoxia (hypo-exo) for 24 hours. CD63-GFP/PKH26-labeled exosomes were used to observe the uptake process in retinal ganglion cells (RGCs). We screened for differentially expressed microRNAs and their binding sites. The retinal I/R model was established through anterior chamber perfusion, followed by intravitreal injection of exosomes or microRNAs.

Results: Hypoxia significantly increased the number of exosomes secreted by astrocytes. Fluorescent imaging showed that astrocyte-derived exosomes could be taken up by RGCs in vitro. Upregulation of miR-329-5p was observed in the hypo-exo. Intravitreal injection of hypo-exo or miR-329-5p rescued the thinned retinal thickness and decreased the proportion of apoptotic cells in the I/R model.

MiR-329-5p led to upregulation of Bcl-2 and downregulation of MAPK8/JNK1, p-JNK1, c-JUN, Bax, and cleaved Caspase-3. Moreover, we verified that miR-329-5p specifically targeted the binding site of MAPK8-WT1 to suppress MAPK8 expression.

Conclusions: Our study revealed that exosomes derived from hypoxia-treated astrocytes could mitigate retinal I/R injury by inhibiting the apoptosis of retinal cells, including RGCs. MiR-329-5p was enriched in the exosomes and directly targeted the binding site of MAPK8 mRNA, subsequently downregulating the JNK pathway and reducing cell apoptosis.

Abstract No.: 200284
Nov 22, 2024 (Fri) 11:00 - 12:30
Venue: Room 334/335

IL-6 Inhibition with Vamikibart in Patients with Uveitic Macular Edema: Phase 3 MEERKAT and SANDCAT Trials

*First Author: Hwang **YIH-SHIOU***
*Co-Author(s): Markus C. **ELZE**, Zdenka **HASKOVA**, Lachlan **MACGREGOR**, David **SILVERMAN**, Laura **STEEPLES***

Purpose: Vamikibart is a recombinant monoclonal antibody targeting interleukin-6 (IL-6), engineered for intravitreal (IVT) delivery. We report the designs of two ongoing phase 3 studies investigating IVT Vamikibart for uveitic macular edema (UME) secondary to non-infectious uveitis (NIU).

Methods: Two identical, global, randomized, double-masked, sham comparator–controlled phase 3 trials, MEERKAT (study GR44277, NCT05642312) and SANDCAT (study GR44278, NCT05642325), are investigating the efficacy, safety, and pharmacokinetics/pharmacodynamics of IVT Vamikibart in patients with UME (n = 225 per study). Patients with UME and BCVA scores between 73-19 ETDRS letters, with active or inactive, acute or chronic NIU of any etiology or anatomical type, are eligible to enroll. Patients are randomized into three arms: Vamikibart 0.25 mg, Vamikibart 1 mg, and sham. Treatment is administered four times every four weeks through Week 12, followed by as-needed dosing from Weeks 20 to 48. Predefined rescue criteria allow standard-of-care treatments for patients with worsening BCVA, UME, or inflammation.

Results: The primary outcome measure is the proportion of patients achieving a ≥15-letter improvement in BCVA from baseline at Week 16. Secondary endpoints include changes in BCVA and central subfield thickness, rescue medication requirements, adverse events, and concentrations of IL-6 and Vamikibart in aqueous humor and serum.

Conclusions: The ongoing MEERKAT and SANDCAT studies will evaluate Vamikibart and its potential to address the unmet need for effective non-corticosteroid treatments in UME.

Abstract No.: 200218
Nov 22, 2024 (Fri) 11:00 - 12:30
Venue: Room 334/335

Identification of Pathogens in the Intraocular Fluid Samples of Patients with Endogenous Endophthalmitis Using Rapid Nanopore Targeted Sequencing

*First Author: Xinlei **HAO***

Purpose: To evaluate the feasibility of the clinical application of nanopore targeted sequencing (NTS) for identifying pathogens in patients with endogenous endophthalmitis (EE), especially those with fungus-associated endophthalmitis.

Methods: In this retrospective study, medical records and etiological results of 27 patients (34 eyes) with EE were reviewed. Intraocular fluid samples were examined using both NTS and microbial culture. The results included comparisons of detection time, positivity rates of pathogen detection, and positivity rates of fungus identification between the two methods.

Results: NTS and microbial culture enabled the detection of etiologic agents in 89.28% and 35.71% of the samples, respectively. The difference of positivity rates between these methods was statistically significant ($P < 0.001$). NTS also showed high sensitivity in both culture-positive (100%) and culture-negative (83.33%) samples. With regard to culture-positive samples, NTS results displayed a

strong match with culture results. NTS showed a significantly higher positivity rate for fungal infections than microbial culture (46.43% vs. 7.14%, P = 0.002). The average detection time for NTS was 1.11 ± 0.31 days, which was shorter than the 2.50 ± 0.58 days for microbial culture (Z = −4.686, P < 0.001). NTS technology facilitated an informed switch of intravitreal antimicrobial agents in 13 eyes.

Conclusions: NTS, as a sensitive, specific, and timely complementary method, can be used alongside traditional methods for identifying pathogenic microorganisms in the intraocular fluid of patients with EE.

Abstract No.: 200230
Nov 22, 2024 (Fri) 11:00 - 12:30
Venue: Room 334/335

Intravitreal Interleukin-6 Inhibition with Vamikibart in Uveitic Macular Edema: Final Results from the Phase 1 DOVETAIL Study

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Purpose: DOVETAIL was a Phase 1, multicenter, non-randomized, open-label, multiple ascending dose study investigating the safety, tolerability, efficacy, and pharmacokinetics/pharmacodynamics of intravitreal (IVT) vamikibart in diabetic macular edema (DME) and uveitic macular edema (UME). Vamikibart is a recombinant monoclonal antibody that potently inhibits interleukin-6 signaling.

Methods: In the UME cohort, patients aged ≥18 years with UME secondary to non-infectious uveitis (n = 37) were enrolled in three dose groups: 0.25 mg (n = 12), 1 mg (n = 12), and 2.5 mg (n = 13). They received IVT vamikibart at weeks 0, 4, and 8, followed by observation until week 36.

Results: The mean age was 63.5 years, with baseline best corrected visual acuity (BCVA) and CST averaging 64 (range, 43–82) letters and 514 (range, 271–893) µm, respectively. The mean change from baseline to week 12 in BCVA was +9.9 (SD 8.9) letters, and in CST, it was –165 (SD 147) µm. Improvements in BCVA and CST were maintained during the observation period. All three doses were well tolerated. Ocular adverse events (AEs) were reported in 19 out of 37 patients, including one serious AE (worsening uveitis; unrelated to treatment). No patients withdrew from the study due to AEs, and no deaths were reported. There were no cases of treatment-related cataracts or sustained increases in intraocular pressure.

Conclusions: Vamikibart was well tolerated and improved BCVA and CST in UME patients. Clinical studies including Phase 2 ALLUVIUM and BARDENAS for DME, as well as Phase 3 MEERKAT and SANDCAT for UME are ongoing.

Abstract No.: 200691
Nov 22, 2024 (Fri) 11:00 - 12:30
Venue: Room 334/335

Microbiological Sampling has Limited Value in Managing Acute Postoperative Bacterial Endophthalmitis: A Multicentre Study

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Purpose: To determine whether intraocular fluid sampling impacts clinical management in acute postoperative endophthalmitis.

Methods: Multicentre retrospective cohort study encompassing three tertiary centres in the United Kingdom. Patients presenting with acute postoperative endophthalmitis from January 2016 to July 2022 were identified from hospital records. Data on visual acuity (VA), aetiology, microbiological results, initial and subsequent management, and complications were collated.

Results: Ninety-four eyes of 93 patients were included. Patients presented at a median of 4 days postoperatively (IQR 2-9) and were symptomatic for a median of 1 day (IQR 1-3). Sampling was predominantly obtained via vitreous tap alone (n=47/94,50%).,,Half were culture-positive (n=48/94,51%), and only bacterial pathogens were isolated. All culture-positive cases demonstrated in vitro sensitivity to the empirical intravitreal antibiotics administered. Positive microbiological cultures

were associated with worse final VA after adjusting for potential explanatory variables (OR4.3,95%CI 1.6-11.3) .,,Forty eyes(42%) had a change in management, defined as further intravitreal antibiotic therapy or surgery within 4 weeks of initial treatment. These took place within 48 hours of initial treatment in 60% (n=24/40), mainly due to lack of clinical improvement(n=28) or clinical deterioration(n=11). None of these changes were prompted or guided by culture or sensitivity results.

Conclusions: Microbiological sampling was of limited clinical utility here - all culture-positive cases demonstrated in vitro sensitivity to empirical antibiotics, and results did not affect subsequent management. In patients presenting with suspected bacterial endophthalmitis, consideration could be given to immediate intravitreal antibiotic treatment without microbiological sampling to optimise visual outcomes, rather than allow complexities in sampling delay treatment.

Abstract No.: 200959
Nov 22, 2024 (Fri) 11:00 - 12:30
Venue: Room 334/335

New Insights into Scleritis: Comprehensive Analysis of Demographics, Clinical Features, Treatment Approaches, and Complications in a Northern California Tertiary Referral Center

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*Co-Author(s): Frances Andrea **ANOVER**, Azadeh **MOBASSERIAN**, Celine **NGUYEN**, Alyce **OH**, Christopher **OR***

Purpose: This study aims to describe the demographics, clinical characteristics, and treatment outcomes of scleritis in patients treated at an Eye Institute of a comprehensive university medical institution in Northern California.

Methods: A retrospective cohort study of 409 confirmed scleritis cases was conducted, reviewing records of 1,007 patients from 2007 to 2024. Patients referred with suspected scleritis but diagnosed otherwise or with insufficient data were excluded.

Results: Among 409 scleritis patients, 67.48% were female, mean age 71±17.75 years. Racial distribution was 36.19% White, 25.43% Hispanic, 25.67% Asian, and 4.89% Black. Anterior scleritis was most common (86.31%), followed by posterior (6.36%) and panscleritis (6.6%). Systemic autoimmune diseases presented in 44% of patients, with rheumatoid arthritis (9.78%) and systemic lupus erythematosus (3.42%) being prevalent. Infectious causes, primarily tuberculosis, were identified in 2.93%.,,Treatment included topical medications (53.54%), systemic NSAIDs (47.92%), systemic steroids (50.12%), and immunomodulatory therapy (49.1%). Common IMTs were methotrexate (19.55%), azathioprine (4.40%), and mycophenolate mofetil (6.11%). Biologics used (18.09%) included adalimumab (6.8%), infliximab (2.68%), and rituximab (4.88%). Additionally, repository corticotropin injection (Acthar) (2.93%) and local steroids such as dexamethasone (Ozurdex) and triamcinolone were used (1.71%). Complications included cataract (9.54%), glaucoma (7.09%), cystoid macular edema (1.71%), and others (2.93%). Overall, 82.50% of patients showed disease stability and improved visual outcomes.

Conclusions: This study highlights trends in demographic and clinical features of scleritis patients in Northern America, especially at a tertiary referral center. It emphasizes the association with systemic autoimmune diseases and the importance of using IMTs and biologics to manage scleritis effectively and reduce complications.

Abstract No.: 200423
Nov 22, 2024 (Fri) 11:00 - 12:30
Venue: Room 334/335

Novel Automated Quantitative Analysis of Anterior Chamber Inflammation Based on a Deep Learning Model Using Anterior Segment Optical Coherence Tomography Images: A Prospective, Observational Study

*First Author: Ye **DAI***

Purpose: We aimed to develop an automated system for quantitatively analysing anterior chamber (AC) inflammation using different

types of anterior segment optical coherence tomography (AS-OCT) images, including swept-source OCT and spectral domain OCT images.

Methods: A prospective observational study enrolled 243 subjects with active uveitis (263 eyes), inactive uveitis (79 eyes), and controls (85 eyes), who underwent three types (CASIA 1, CASIA 2, and Visante) of AS-OCT and routine ocular examinations. An automated analysis system based on a deep learning model was used to measure parameters including hyperreflective dots and the aqueous-to-air relative intensity (ARI) index, which respectively represent AC cells and flares on AS-OCT images. Receiver operating characteristic (ROC) curves of these parameters for active uveitis diagnosis were generated.

Results: Significant correlations ($p<0.0001$) were found between the clinical SUN grade and the hyperreflective dots ($r=0.808$, 0.854, and 0.823) and ARI index ($r=0.727$, 0.715, and 0.788) detected by the automated analysis system on the three types of AS-OCT images. Additionally, significant correlations ($p<0.0001$) between manually and automatedly detected hyperreflective dots were found on the three types of AS-OCT images ($r=0.943$, 0.953, and 0.881). According to ROC curve analysis, both the ARI index and the number of hyperreflective dots generated by the proposed automated system were good indicators for diagnosing active uveitis, with the latter outperforming the former.

Conclusions: Our automated quantitative analysis system can identify markers of AC inflammation on different types of AS-OCT images. It is a novel, convenient, and precise tool for the objective evaluation of AC inflammation.

Abstract No.: 200515
Nov 22, 2024 (Fri) 11:00 - 12:30
Venue: Room 334/335

Quantity is Quality: Quantification of Vascular Leakage in Patients with Tubercular Vasculitis

*First Author: Atul **ARORA***
*Co-Author(s): Reema **BANSAL**, Vishali **GUPTA**, Vinay **PATIL**, Aman **SHARMA***

Purpose: Ultra-widefield Fundus Fluorescein Angiography (UWF-FFA) has revolutionized the diagnosis and monitoring of posterior uveitis, capturing more peripheral pathology than conventional imaging. The analysis of UWF-FFA images, however, remains subjective and relies on clinical identification of vascular leakage, introducing an inter-observer variability. This study quantitatively analyzes vascular leakage in tubercular vasculitis patients using an innovative algorithm.

Methods: In this longitudinal observational study, UWF-FFA images of patients with TB vasculitis were analyzed at presentation and after treatment. The images were exported into a third-party software ImageJ followed by image processing. Retinal blood vessels were removed by subtracting the early venous phase of the angiogram from the recirculation phase to isolate leakage areas, which were then binarized and processed with Otsu's thresholding to quantify leakage.

Results: The study included 27 patients (13 males; mean age: 34.81±10.31 years). Twelve patients had bilateral involvement. All patients received treatment with oral corticosteroids and four drug anti-tubercular therapies (Isoniazid, Rifampicin, Pyrazinamide, and Ethambutol). In 25.9% (7/20) of cases, additional immunosuppressive therapy (Azathioprine 2mg/kg/d) was required for inflammation control. A significant reduction in leakage area was observed following treatment in all patients (mean leakage area: 10.57±9.48 versus 25.39±12.47%, $p<0.00001$). A significant reduction was also seen upon adding IST in patients with persistent inflammation (10.31±5.23 versus 16.67±11.08%, $p<0.01$).

Conclusions: The study demonstrates that a novel algorithm for quantifying vascular leakage in UWF-FFA images can objectively evaluate treatment response in tubercular vasculitis. The significant reduction in leakage area after therapy highlights the effectiveness of the treatment regimen.

Abstract No.: 200912
Nov 22, 2024 (Fri) 11:00 - 12:30
Venue: Room 334/335

Role of Optical Coherence Tomography to Differentiate Etiological Agents in Fungal Endogenous Endophthalmitis

*First Author: Nitin **KUMAR***
*Co-Author(s): Aniruddha **AGARWAL**, Alessandro **INVERNIZZI***

Purpose: Fungal Endogenous Endophthalmitis (FEE) is a rare and sight-threatening disease with a plethora of presentations. The common fungal agents causing FEE include Candida and Aspergillus species, their correct identification is critical, as institution of specific therapy may be central to preventing sight-threatening disease. This study aimed to differentiate etiological fungi based on analysis of Optical Coherence Tomography (OCT) scans in patients with FEE.

Methods: In this retrospective observational study, OCT images of patients with FEE were analyzed at presentation and follow-up. All the patients were proven to have fungal etiology based on either vitreous biopsy cultures or blood cultures. The patterns specific to fungal etiologies were identified and analysed.

Results: The study included 25 patients (35 eyes), with unilateral involvement in 15 and bilateral in 20 eyes. The OCT findings analysed included outer retinal infiltration, vitreous infiltration, thickening of posterior hyaloid, saw-tooth pattern, full-thickness retinal involvement choroidal thickening and secondary epiretinal membrane (ERM) formation. The OCT findings were compared in the two groups (candida and Aspergillus) While full-thickness infiltration was common in Aspergillus species (7 out of 9 eyes), outer retinal infiltration was common in candida species (17 out of 23 eyes). The presence of sub-retinal fluid on OCT and secondary ERM formation was seen in eyes with candida infection only. The presence of peripheral infiltrates was statically significant (p-value <0.001) in candida infections as compared to aspergillus infection.

Conclusions: The study shows that specific patterns on OCT imaging can provide clues regarding the identification of underlying etiology in FEE.

Ocular Imaging

Abstract No.: 200044
Nov 24, 2024 (Sun) 14:00 - 15:30
Venue: Room 331/332

A Novel Exploration of the Choroidal Vortex Vein System: Incidence and Characteristics of Posterior Vortex Veins in Healthy Eyes

*First Author: Guiqin **HE***

Purpose: To investigate the incidence and characteristics of posterior vortex veins (PVVs) in healthy eyes and explore their relationship with age and refractive status.

Methods: This retrospective cross-sectional analysis encompassed 510 eyes from 255 consecutive healthy participants. Wide-field optical coherence tomography angiography (WF-OCTA) was used to assess the presence of PVVs. Eyes were classified according to refractive status (emmetropia, low and moderate myopia, and high myopia) and age (minors and adults). The incidence and characteristics of eyes with PVVs were analyzed.

Results: Participants (mean age: 30.60 ± 21.12 years, 47.4% male) showed a mean refractive error of -2.83 ± 3.10 D (range: -12.00 to +0.75). PVVs were observed in 16.1% (82/510) of eyes. Among these, 39% (32/82) had PVVs in one eye and 61% (50/82) had PVVs in both eyes. The mean number of PVVs per eye was 1.65 ± 1.05 (range: 1 to 6). The majority of PVVs were located around the optic disc (78%, 64/82), while fewer were found in the macular area (6.1%, 5/82) or elsewhere (15.9%, 13/82). The

incidence of PVVs correlated with refractive status: 10.3% (22/213) in emmetropia, 16.6% (31/187) in low to moderate myopia, and 26.4% (29/110) in high myopia (P = 0.001), but not with age. Refractive status was the key predictor of PVV occurrence (OR = 1.45, 95% CI: 1.02–2.06; P = 0.038).

Conclusions: This study confirms PVVs' presence in healthy eyes, highlighting their inherent existence and susceptibility to refractive conditions, thereby enhancing our understanding of the vortex vein system and its distribution within the eye.

Abstract No.: 200813
Nov 24, 2024 (Sun) 11:00 - 12:30
Venue: Room 334/335

A Novel Method of Measuring Foveal Displacement / Foveal Ectopia in Patients with Idiopathic Epiretinal Membrane (ERM) Compared to the Fellow Eye

*First Author: Christopher **GO***
*Co-Author(s): Cherlin **LEE**, Jordan **REED**, Teresa **SANDINHA**, David **STEELE**, Yalin **ZHANG***

Purpose: To investigate foveal ectopia in idiopathic ERMs and correlate this to pre-op parameters and post-op outcomes.

Methods: This is a 2-centre, retrospective, consecutive case series of unilateral ERM who underwent vitrectomy and membrane peel. Foveal location is measured using a semi-automated measurements. 4 points of interests are marked on the near infra-red image (NIR) on Heidelberg Spectralis; these include the foveola and 3 points on the optic disc (the most superior, inferior and temporal points visualised on the NIR). An automated system is then used to draw a circle of best fit around the optic disc to find the centre of the optic disc, and this is used to compare its location with the foveola marked. This is performed on both eyes pre-operatively as well as the operated eye post operatively to determine the degree of foveal displacement.

Results: There was a total of 167 patients (58% female) included across 2 sites. The mean age of the cohort was 68.3 years old. The mean pre-operative VA was 0.51logMAR and a mean central subfoveal thickness of 465.5um.,Pre-operatively, there was a mean horizontal difference of 122.64um more temporal and a mean vertical difference of 8.70um more inferiorly compared to the fellow eye. Post-operatively, the fovea shifted 176.98um nasally and a further 7.98um inferiorly.,Further statistical analysis will be conducted to correlate with post-operative results.

Conclusions: ERM was found to have minimal vertical fovea displacement but a significant temporal shift was noted compared to the fellow eye, and this displacement was corrected post-operatively.

Abstract No.: 200195
Nov 24, 2024 (Sun) 14:00 - 15:30
Venue: Room 331/332

A Study Analyzing Macular Microvasculature Features Before and After Vitrectomy Using OCT Angiography in Patients with Idiopathic Epiretinal Membrane

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Purpose: To identify macular microvasculature characteristics in idiopathic epiretinal membrane (iERM) patients with ectopic inner foveal layer (EIFL) and explore its association with visual outcomes using optical coherence tomography angiography (OCTA).

Methods: Patients were categorized into two groups based on the EIFL presence on OCT: group without EIFL (20 patients) and group with EIFL (20 patients). OCTA assessed the superficial capillary plexus (SCP) with 3 mm x 3 mm scans preoperatively and at 1, 2, and 3 months postoperatively. Parameters examined included foveal vessel density (FVD), parafoveal vessel density (PFVD), foveal avascular zone (FAZ) area, and best-corrected visual acuity (BCVA).

Results: Compared to healthy eyes, FVD and PFVD were higher, while FAZ area was lower in iERM eyes ($p < 0.05$). Postoperatively, FAZ area initially decreased at 1 month, followed

by increases at 2 and 3 months, while FVD and PFVD progressively decreased. The EIFL group consistently showed smaller FAZ area and higher FVD and PFVD than the group without EIFL at all survey times ($p < 0.01$). BCVA at 3 months was worse in the EIFL group. FVD and PFVD were negatively correlated with BCVA ($r = -0.528$, $p < 0.01$; $r = -0.529$, $p < 0.01$), while FAZ area showed a positive correlation ($r = 0.578$, $p < 0.01$).

Conclusions: FVD, PFVD, and FAZ area explain changes in BCVA in iERM. The EIFL group has higher FVD and PFVD, lower FAZ area, and lower postoperative visual acuity compared to the non-EIFL group, suggesting iERM without EIFL may require early surgical intervention.

Abstract No.: 200861
Nov 24, 2024 (Sun) 11:00 - 12:30
Venue: Room 334/335

Artificial Intelligence-Based Automatic Grading of Diabetic Retinopathy Using Ultra-Wide Field Swept-Source Optical Coherence Tomography Angiography

*First Author: Nuo **TANG***
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Purpose: This study aims to develop an artificial intelligence (AI) machine deep learning-based model to grade diabetic retinopathy (DR) using Ultra-wide Field Swept-Source Optical Coherence Tomography Angiography (UWF SS-OCTA) images and to verify the feasibility and accuracy of AI automatic grading of DR.

Methods: This is a cross-sectional study with a total of 100 datasets of 26 x21 mm2 UWF OCTA images obtained with all grades of DR. A convolutional neural network (CNN) machine learning algorithm was used to train the datasets with annotations made by two independent ophthalmologists and assessed by two retinal experts based on UWF fundus photography according to the international DR Grading standard. The AI model incorporated data enhancement and cross-validation techniques to improve performance. The accuracy of the model was evaluated by validation sets and compared with manual grading results.

Results: The AI-based DR grading model has a certain accuracy in the validation set of all stages of DR (from mild non-proliferative DR, NPDR to proliferative DR, PDR). Especially in the grading of PDR, the model shows high sensitivity and specificity based on UWF SS-OCTA images at the vitreoretinal interface segmentation. The strong ability of UWF SS-OCTA in identifying intraretinal microvascular abnormalities (IRMA) may enhance the accuracy of grading of severe NPDR.

Conclusions: The AI-based DR grading model using UWF SS-OCTA demonstrates significant potential in enhancing the feasibility and accuracy of DR diagnosis and classification. Further refinement of this model will enable ophthalmologists to perform clinical grading more efficiently and effectively, develop individualized treatment plans, and optimize clinical workflows.

Abstract No.: 200400
Nov 24, 2024 (Sun) 14:00 - 15:30
Venue: Room 331/332

Artificial Intelligence-Based Retinal Aging as a Predictor in Age-Related Ocular Diseases and Its Association with Chronic Kidney Disease

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Purpose: To determine biological aging in identifying individuals at high risk for age-related eye diseases (ARED) such as diabetic retinopathy (DR), age-related macular degeneration (AMD), and glaucoma, and to explore the influence of chronic kidney disease (CKD) on aging and ARED risk.

Methods: A prospective observational cohort study involved over 500,000 UK Biobank participants enrolled from 2006 to 2010, with up to 11 years of follow-up. Kidney function was evaluated using the estimated glomerular filtration rate (eGFR) calculated, while aging degree was assessed using AI-based retinal age gap (RAG) and PhenoAge acceleration (PAA).

Results: Increased RAG and PAA were linked to higher ARED risk. Each additional year in RAG raised the risk of DR by 7% (HR, 1.07; 95% CI, 1.04–1.09), AMD by 6% (HR, 1.06; 95% CI, 1.04–1.09), and glaucoma by 5% (HR, 1.05; 95% CI, 1.03–1.07). Renal function decline correlated significantly with increased RAG and PAA. Even after adjusting for confounders, the RAG was -0.20 (95% CI, -0.25 to -0.15; P < 0.001) in mild CKD and -0.35 (95% CI, -0.51 to -0.20; P < 0.001) in moderate-to-severe CKD (MS-CKD) groups. Analysis of genetic risks and renal function's joint effects on ARED revealed that MS-CKD individuals with a high polygenic risk score (PRS) had a 48% increased DR risk (HR, 0.48; 95% CI, 0.41–0.57), and 64% in the low-PRS group (HR, 0.64; 95% CI, 0.51–0.81) (all P < 0.05).

Conclusions: This study presents the inaugural longitudinal evidence demonstrating the efficacy of RAG and PAA in identifying the risk of ARED.

Abstract No.: 200297
Nov 24, 2024 (Sun) 14:00 - 15:30
Venue: Room 331/332

Associations of Retinal Microvascular Alterations with Diabetes Mellitus: An OCTA-Based Cross-sectional Study

*First Author: Yao **YAO***
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Purpose: This research aimed to identify the systemic determinants influencing the retinal microvascular network in patients with and without diabetes.

Methods: The Kailuan Eye Study is a cross-sectional study based on the community-based Kailuan Study cohort. Participants underwent optical coherence tomography angiography (OCTA) and a comprehensive systemic examination. Key metrics assessed included perfusion density (PD), vascular density (VD), and foveal avascular zone (FAZ) parameters of the superficial capillary plexus (SCP) in the macula.

Results: This study included 860 eligible participants (average age 62.75 ± 6.52 years; 21.9% female), of which 449 were diagnosed with diabetes. People with diabetes had diminished PD and VD in entire macular and parafoveal regions compared to people without diabetes. Reduced PD in the entire macular region correlated with higher fasting plasma glucose (FPG, mmol/L) concentrations (Beta= -0.19, P < 0.001), longer axial length (AL, mm) (Beta = -0.13, P = 0.002), and elevated heart rate (Beta = -0.10, P = 0.014), after adjusting for younger age (Beta = -0.18, P < 0.001), consistent with VD of the whole macular region. Higher FPG levels were significantly correlated with lower SCP density in both PD and VD in the macular and parafoveal regions, as well as increased systolic blood pressure and low-density lipoprotein cholesterol concentration.

Conclusions: OCTA evaluation revealed that a high prevalence of diabetes and elevated FPG levels were correlated with reduced retinal VD and PD. While hypertension and hyperlipidemia are important risk factors for the development of atherosclerotic cardiovascular disease, they have no significant effect on retinal microvascular abnormalities.

Abstract No.: 200755
Nov 24, 2024 (Sun) 11:00 - 12:30
Venue: Room 334/335

Automated Interpretation of Fundus Fluorescein Angiography with Multi-Retinal Lesion Segmentation

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Purpose: Fundus fluorescein angiography (FFA) is essential for diagnosing and managing retinal vascular diseases, while its evaluation is time-consuming and subject to inter-observer variability. We aim to develop a deep-learning-based model for accurate multi-lesion segmentation for these diseases.

Methods: A dataset comprising 428 standard 55° and 53 ultra-wide-field (UWF) FFA images was labeled for various lesions, including non-perfusion areas (NPA), microaneurysms (MA), neovascularization (NV), laser spots and hemorrhage (HE). A U-net-based network was

trained and validated (80%) to segment FFA lesions and then tested (20%), with performance assessed via Dice score and Intersection over Union (IoU).

Results: Our model achieved Dice scores for NPA, MA, NV, Laser, and HE on 55° FFA images at 0.65±0.24, 0.70±0.13, 0.73±0.23, 0.70±0.17 and 0.56±0.25, respectively. UWF results were slightly lower for NPA (0.48±0.21, p=0.02), MA (0.58±0.19, p=0.01), NV (0.50±0.34, p=0.14), but similar for Laser (0.74±0.03, p=0.90) and HE (0.62±0.15, p=0.68). Notably, NV segmentation in choroidal neovascularization achieved a high Dice score of 0.90±0.09, surpassing those in DR (0.68±0.22) and RVO (0.62±0.28), p<0.01. In RVO, NPA segmentation outperformed that in DR, scoring 0.77±0.25 versus 0.59±0.22, p<0.01, while in DR, MA segmentation was superior to that in RVO, with scores of 0.70±0.18 compared to 0.53±0.20, p<0.01. Moreover, NV segmentation was significantly stronger in venous phase (0.77±0.17) and late phase (0.75±0.24) compared to arteriovenous phase (0.50±0.32), p<0.05.

Conclusions: This study has established a model for precise multi-lesion segmentation in retinal vascular diseases using 55° and UWF FFA images, easing grader burden, standardizing FFA image interpretation, and thereby improving disease management.

Abstract No.: 200975
Nov 24, 2024 (Sun) 11:00 - 12:30
Venue: Room 334/335

Automated Posterior Scleral Topography Assessment for Enhanced Staphyloma Visualization and Quantification with Improved Maculopathy Correlation

*First Author: Xiaofei **WANG***
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Purpose: To quantitatively characterize the posterior morphology of high myopia eyes with posterior staphyloma.

Methods: Surface points of the eyeball were automatically extracted from MRI scans using deep learning. Subsequently, the topography of posterior staphylomas was constructed to facilitate accurate visualization and quantification of their location and severity. In the three-dimensional Cartesian coordinate system established with surface points, measurements of distances (D) from each point to the hypothetical pre-elongation eye center within the eyeball and local curvatures (C) at each point on the posterior sclera were computed. Utilizing this data, specific parameters were formulated. The concordance of these parameters with traditional staphyloma classification methods and their association with MTM grades based on the ATN classifications were investigated.

Results: The study included 102 eyes from 52 participants. The measured parameters, particularly the variance of distance (Dvar) and the maximum value of the curvature and distance product (C·Dmax), demonstrated efficacy in differentiating various types of posterior staphyloma and exhibited strong correlations with the grades of MTM.

Conclusions: The automated generation of the posterior scleral topography facilitated visualization and quantification of staphyloma location and severity. Simple geometric parameters can quantify staphyloma shape and correlate well with retinal complications. Future works on expanding these measures to more imaging modalities such as widefield OCT could improve their clinical use and deepen insights into the link between posterior staphyloma and related retinal diseases.

Abstract No.: 200979
Nov 24, 2024 (Sun) 11:00 - 12:30
Venue: Room 334/335

Automatic Detection of Retinal Vascular Leakage from Optical Coherence Tomography Angiography Images Using Deep Convolutional Neural Networks

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Purpose: Fluorescein angiogram (FA) is the gold standard test for detection of retinal vascular leakage, but it is an invasive test with

potential adverse effects. Optical coherence tomography angiography (OCTA) has emerged as an imaging method for retinal vasculature without need for a foreign dye, although it cannot directly assess for vascular leakage.

Methods: Patients who had at least one FA and corresponding OCTA scan between 2018-2023 were included. We trained an ensemble of five deep CNNs based on the EfficientNet-B1 architecture, using depth-encoded 2D OCTA fundus images as inputs and the FA leakage status as labels.

Results: FA and OCTA data from 130 patients was retrieved, resulting in a total of 259 OCTA images. Data was split by patient into training and testing sets (85/15% split). The trained ensembles of CNNs achieved median accuracies, F-scores and AUROCs of 75.0%, 73.8%, and 73.1% respectively which were statistically significantly greater than the baseline level of 50% corresponding to random guessing ($p < 0.05$). Further examination with gradient-weighted class activation mapping showed that our CNN ensemble uses structural information, likely from retinal vessels, to predict vascular leakage.

Conclusions: This feasibility study showed that an ensemble of five deep convolutional neural networks was able to predict presence of retinal vascular leakage from OCT angiography data alone with a high mean accuracy. Future work with larger datasets may determine the impact of integrating AI prediction of retinal vascular leakage from OCTA into current clinical workflows.

Abstract No.: 200601
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Venue: Room 331/332

Choroidal Circulation Time in Central Serous Chorioretinopathy

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Purpose: Central serous chorioretinopathy (CSC) is an entity of pachychoroid spectrum diseases, and indocyanine green (ICG) angiography revealed that dilated choroidal vessels and choroidal hyperpermeability are characteristics of CSC. However, the hemodynamics of choroidal circulation have not been fully elucidated. This study aims to investigate the choroidal circulation time of CSC compared to healthy subjects using ultra-widefield ICG video angiography.

Methods: ICG video angiography was performed using MiranteTM (Nidek, Aichi, Japan). Noise reduction was done using enhanced visibility software MIEr® (Logic & Design, Tokyo, Japan). Choroidal circulation time was defined as the time needed from the choroidal flush until evidence of staining of the vortex ampullae.

Results: Four CSC patients with a mean age of 48 and four age-matched control patients with a mean age of 42 were recruited. Choroidal thickness was greater in the CSC group compared to the age-matched control group. The mean choroidal circulation time was 8.8 seconds in the CSC group, which was significantly slower than the 4.5 seconds of the healthy control group.

Conclusions: Choroidal circulation time was two times longer in patients with CSC compared to healthy controls using ultra-widefield video angiography. Prolonged choroidal circulation time in CSC supports the theory of choroidal venous congestion underlying pathology in CSC.

Abstract No.: 200650
Nov 24, 2024 (Sun) 11:00 - 12:30
Venue: Room 334/335

Comparison of Optos and Clarus Ultrawidefield Imaging Systems with Standard 7-Field Fundus Photos – Identifying Differences in Diabetic Retinopathy Grading and Visible Retinal Area

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Purpose: To compare diabetic retinopathy (DR) severity assessed by 7 standard-field (7F) fundus photos versus ultra-wide field (UWF) Optos and Clarus photos.

Methods: 100 eyes (50 participants) were imaged with 45-degree fundus camera, Clarus and Optos in a single visit. DR was graded based on the International Clinical Diabetic Retinopathy severity scale (ICDRSS). Vertical (VD) and horizontal dimensions (HD) quantified in vertical disc diameters (DD) and visible retinal area (VRA) quantified in disc areas (DA) were also compared.

Results: Agreement in ICDRSS grading between 7F vs Optos and Clarus occurred in 65% (κ = 0.54) and 58.9% (κ = 0.46), respectively. Optos and Clarus grading was of higher severity in 10/60 (16.7%) and 14/56 (25.0%) cases respectively, from lesions peripheral to the field of view of 7F. Clarus grading was of higher severity in 5/56 (8.9%) cases from better visualization.,,Agreement between Optos and Clarus occurred in 73.7% (κ = 0.63). Clarus grading was higher in 20/99 (20.2%) of cases due to better visualization.,,Mean VD and HD was 23.4% (18.0 ± 2.4 DD vs 14.5 ± 2.2 DD, p<0.001) and 7.8% (26.3 ± 3.9 DD vs 24.4 ± 3.5 DD, p<0.001) greater in Optos than Clarus, respectively. Mean VRA was 34.0% greater In Optos than Clarus (583.20 ± 151.4 DA vs 435.14 ± 120.0 DA, p<0.001).

Conclusions: Compared to standard 7F photos, UWF detects a greater severity of DR up to a third of the time. Although Optos has a larger visible retinal area than Clarus, fewer lesions are visualised.

Abstract No.: 200750
Nov 24, 2024 (Sun) 11:00 - 12:30
Venue: Room 334/335

Comparison of Vision-Language Models for Detection of Inherited Retinal Disorders on Fundus Photographs

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Purpose: This study evaluated the performance of three visual large language models (VLLMs) — OpenAI's GPT-4omni, GPT-4.0, and Google's Gemini—on expert-level tasks for inherited retinal diseases (IRDs) using fundus photographs. We aimed to assess the clinical utility of VLLMs in assisting clinicians in the detection of IRDs.

Methods: We utilized 60 retinal fundus photographs from IRD patients at the National University Hosptial (NUH), representing six frequently encountered mutant genes. In addition, we included 10 normal fundus photographs extracted from an open-access dataset. The analysis used a three-point scale scored by three consultant-level IRD ophthalmologists, and was aligned with the clinical diagnosis.

Results: In the micro F1 score evaluation among the three VLLMs, GPT-4.0 achieved the highest score of 90.0%, followed by GPT-4omni at 84.3% and Google Gemini at 81.4%. Despite Google Gemini's high sensitivity (95%) for IRD detection, it had 0% sensitivity for normal fundus. In comparison, GPT-4.0 showed 91.7% sensitivity for IRDs and 80% for normal fundus, while GPT-4omni showed a sensitivity of 83.3% for IRDs and 90% for normal fundus. All three models achieved 100% alignment concordance in diagnosis and treatment.

Conclusions: This study demonstrates the robust expert-level performance of VLLMs in detecting IRDs from fundus photographs. Both OpenAI GPT-4.0 and GPT-4omni showed substantial sensitivity in detecting both IRDs and normal cases. Despite Google Gemini's high sensitivity for IRD detection, its inability to identify normal fundus highlights a significant limitation. These findings underscore the potential utility of VLLMs in clinical settings for IRD diagnosis and management.

Abstract No.: 200865
Nov 24, 2024 (Sun) 11:00 - 12:30
Venue: Room 334/335

Detection of Diabetic Macular Ischemia on Reconstructed 6×6mm Optical Coherence Tomography Angiography Images via Supervised and Unsupervised Deep Learning: A Cross-Sectional Comparative Study

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Purpose: To investigate the impact of supervised and unsupervised deep learning on resolution reconstruction on 6×6mm optical coherence tomography angiography (OCTA) images for the detection of diabetic macular ischemia (DMI)

Methods: This is a cross-sectional comparative study with 6×6mm OCTA images (DRI OCT Triton) collected from a local diabetic cohort of 567 participants. Two deep-learning models (i.e., supervised and unsupervised) were independently developed for images reconstruction. DMI assessment, defined as the disruption of foveal avascular zone (FAZ) area with or without capillary loss, was performed on three images group: original (group 1), unsupervised (group2) and supervised (group 3), with each OCTA image being classified as ①presence of DMI or ②absence of DMI or ③cannot define. Two experienced graders respectively graded all images, with the final label of each image being decided via mutual agreement.

Results: A total of 3,207 images, with 1,069 images in each group, were graded. Among three groups, the 6×6mm OCTA images reconstrued via supervised learning were presented with apparent background noise reduction and sharper contrast. The frequencies of 'presence of DMI' and 'cannot define' decreased significantly from 65.95% and 6.54% in group 1, 52.20% and 3.37% in group 2, to 41.44 % and 1.03%in group 3.

Conclusions: The reconstructed 6×6mm OCTA images via supervised learning were presented with high clarity and resolution, which might facilitate of DMI detection more efficiently and accurately. Longitudinal studies are warranted to reveal its prognostic values and whether it might outperform that of the original 6×6mm and the most commonly used 3×3mm OCTA images.

Abstract No.: 200439
Nov 24, 2024 (Sun) 14:00 - 15:30
Venue: Room 331/332

Diabetic Retinopathy and Retinal Vascular Measures with the Risk of Cardiovascular Events: A Cohort Study of Type 2 Diabetes in Singapore

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*Co-Author(s): Rose Ann **GOH**, Haslina **HAMZAH**, Jin Yi **HO**, Gavin Siew Wei **TAN**, Kelvin **TEO YI CHONG***

Purpose: Cardiovascular disease (CVD) risk assessment impacts the management of diabetic patients, and the presence of retinopathy is associated with an increased risk of systemic vascular diseases. We aim to evaluate the association between diabetic retinopathy and longitudinal cardiovascular outcomes in a multi-ethnic Asian diabetic population.

Methods: This retrospective cohort study enrolled 17,705 patients. The primary outcome was defined as a composite measure of non-fatal stroke, non-fatal myocardial infarction, and all-cause mortality (composite MACE) with an alternative definition treating all-cause mortality as a competing risk to non-fatal stroke and myocardial infarction (non-fatal MACE). Hazard ratios (HRs) for diabetic retinopathy, diabetic macular edema, and retinal vascular calibres among individuals with no prior history of cardiovascular disease at baseline were estimated using multivariable Cox and Fine-Gray models.

Results: Over a mean follow-up period of 4.4 years, 789 (4.46%) and 222 (1.25%) individuals experienced composite MACE and non-fatal MACE respectively. After adjustment, the presence of referable diabetic retinopathy (RDR) was associated with composite MACE

(HR 1.61, 95% CI 1.15-2.25), non-fatal MACE (2.62, 1.44-4.75), composite CVD (1.68, 1.36-2.08), and non-fatal CVD (1.86, 1.47-2.36). Retinal arteriolar calibre was associated with composite MACE (1.01, 1.00-1.01) and non-fatal MACE (1.02, 1.00-1.03). Inclusion of RDR into prognostic models improved the AUC (area under the Receiver Operating Characteristic Curve) for predicting composite and non-fatal MACE from 0.732 to 0.740 and from 0.688 to 0.710, respectively.

Conclusions: The presence of RDR significantly increases the risk of incident cardiovascular disease in diabetic Asians and may improve cardiovascular risk assessment.

Abstract No.: 200237
Nov 24, 2024 (Sun) 14:00 - 15:30
Venue: Room 331/332

Dual Watershed Zone: A Novel Hypothesis of AMN

*First Author: Jialiang **DUAN***

Purpose: To study the topographical relationship between acute macular neuroretinopathy (AMN) lesions and the choroidal watershed zone (CWZ) or patchy choroidal filling (PCF) using multimodal imaging, and to elucidate the dual watershed zone hypothesis of AMN.

Methods: Lesions in patients diagnosed with AMN were clinically examined using multimodal imaging, including fundus photography, near-infrared reflectance imaging, spectral-domain optical coherence tomography (OCT), fluorescein angiography, indocyanine green angiography, OCT angiography, and microperimetry. The topographical relationship between AMN and the CWZ or PCF was evaluated.

Results: Nine eyes of eight patients were included in the study. The mean age of patients was 35.4 ± 10.6 years. AMN lesions were collocated with the CWZ in eight eyes and PCF in one eye. Among these eyes, four had complete patterns, while four had partial patterns. Only one eye showed no topographical relationship between AMN and the CWZ or PCF.

Conclusions: The colocation of AMN and CWZ/PCF suggests that the AMN lesions occur in a dual-watershed zone: the watershed zone between the retinal deep capillary plexus and choriocapillaris, and the choroidal watershed zone or patchy choroidal filling. This retinal area is highly vulnerable to hypoperfusion. Our results suggest a novel pathophysiological mechanism for AMN.

Abstract No.: 200906
Nov 24, 2024 (Sun) 11:00 - 12:30
Venue: Room 334/335

Early Choroidal Thinning as a Predictor of Diabetic Retinopathy in Type 2 Diabetes: A Four-Year Prospective Study

*First Author: Kaiqun **LIU***
*Co-Author(s): Wenyong **HUANG***

Purpose: To investigate the relationship between early changes in peripapillary and macular choroidal thickness (CT), measured by swept-source optical coherence tomography (SS-OCT), and the incidence of diabetic retinopathy (DR) over 2-4 years.

Methods: We included 1,348 patients with type 2 diabetes mellitus (T2DM) who were free of DR at baseline and after the first year of follow-up. Participants were followed for four years, undergoing standard seven-field fundus photography and SS-OCT examinations. Multivariable logistic regression models evaluated the association between the early CT thinning rates and incident DR. The predictive value of CT for DR was assessed using the C-statistic, integrated discrimination improvement (IDI), and Brier score.

Results: Over the 2-4 year follow-up, 163 participants (12.1%) developed DR. Those who developed DR exhibited significantly faster early thinning rates of both peripapillary CT (pCT) and macular CT (mCT) compared to those who did not. After multivariable adjustment, early accelerated thinning of pCT and mCT was significantly associated with DR incidence (pCT: Odds ratio [OR] = 1.54, 95% CI: 1.26, 1.89, P

< 0.001; mCT: OR = 1.41, 95% CI: 1.12, 1.78, P = 0.003). Incorporating early thinning rates of pCT and mCT into the predictive model significantly improved DR prediction (C-statistic increased from 0.623 to 0.781, P < 0.001; IDI = 0.079, P < 0.001; Brier score = 0.085).

Conclusions: In a Chinese T2DM population, early accelerated CT thinning is associated with DR development and enhances predictive value beyond traditional risk factors and baseline CT. Monitoring early CT changes can guide population-based screening and personalized management.

Abstract No.: 200391
Nov 24, 2024 (Sun) 14:00 - 15:30
Venue: Room 331/332

Early Detection of Alzheimer's Disease and Mild Cognitive Impairment Using Combined OCT Measurements

*First Author: Lucius **HO***
*Co-Author(s): Christopher Li-hsian **CHEN**, Jacqueline **CHUA**, Chi **LI**, Leopold **SCHMETTERER***

Purpose: Alzheimer's Disease (AD) affects 5.2% of Singaporeans aged 60+, projected to reach 152,000 by 2030 due to aging. AD severely impacts cognition and lacks effective treatment, underscoring the urgency for early detection. Our study employs Optical Coherence Tomography (OCT) to detect AD and Mild Cognitive Impairment (MCI), aiming for early diagnosis and intervention.

Methods: Our cross-sectional study involves 62 AD (n=92 eyes), 108 MCI (n=158 eyes), and 55 cognitively normal controls (n=86 eyes). We have excluded subjects with underlying systemic conditions affecting the central nervous system, including but not limited to infections, vascular diseases, and substance abuse, as well as ocular diseases that could affect measurements, including glaucoma, age-related macular denegation, and vascular or nonvascular retinopathies. We then extracted macular ganglion cell complex (mGCC) thickness and accounted for several ocular factors in circumpapillary retinal nerve fiber layer (cpRNFL) measurements. The primary outcome measure was OCT thickness.

Results: Participants diagnosed with MCI/AD exhibited significantly thinner cpRNFL and mGCC, along with altered retinal vessel density ($p < 0.05$), particularly affecting the temporal cpRNFL quadrant which corresponds to the papillomacular bundle. Considering factors influencing RNFL thickness, compensated RNFL measurements demonstrated superior performance over raw RNFL measurements in distinguishing MCI/AD (AUC = 0.74 versus 0.69; $p = 0.026$). When combined with mGCC parameters, the detection accuracy for MCI/AD was the highest (AUC = 0.80 versus 0.69; $p < 0.001$).

Conclusions: Our study shows that combining mGCC and compensated cpRNFL measurements improves predictive accuracy in distinguishing between individuals with normal cognitive function and those with MCI or AD.

Abstract No.: 200633
Nov 24, 2024 (Sun) 11:00 - 12:30
Venue: Room 334/335

Efficacy of Diabetic Macular Edema Screening in Primary Care with Optical Coherence Tomography and Non-Physician Graders: A SiDRP Study

*First Author: See Teng **TAN***
*Co-Author(s): Binte Juhari **AMALIA**, Gavin Siew Wei **TAN***

Purpose: This study aimed to evaluate the efficacy of diabetic macular edema (DME) screening with optical coherence tomography (OCT) in primary care, and compared the agreement between trained non-clinician grader, ophthalmologist and standard of care photographic assessment.

Methods: A prospective observational study recruiting diabetic patients from a primary care polyclinic under the Singapore integrated diabetic retinopathy screening program (SiDRP). A combined fundus camera and OCT device (Cirrus photo, Carl Zeiss Meditec) was used to perform imaging. The images were graded at the SNEC ocular reading center (SORC) by a trained non-clinician grader using fundus photographs (standard of care) and a second independent grader using OCT macula images.

Sensitivity and specificity were calculated against the grading results of an independent ophthalmologist (reference standard).

Results: 700 diabetic patients (1400 eyes) were included in the study, with a mean age of 60 (± 9.1) years and 59% were male. The agreement of DME assessment between the non-clinician OCT grader and the ophthalmologist was substantial (k=0.78), while the agreement between the fundus photo screening and the ophthalmologist was poor (k=0.47). The non-clinician OCT-graders' assessment showed higher sensitivity (95.2% versus 61.9%) and comparable specificity (98.5% versus 97.1%) compared to fundus photo screening. The area under the receiver operating characteristics curve of non-clinician-OCT-graders' assessment of DME was significantly greater than that of standard of care photographic screening (0.98 versus 0.88, p<0.001).

Conclusions: OCT with a non-physician grader had a high accuracy level for detecting DME. While the incidence of DME in primary care was low, employing non-physicians can enhance cost-effectiveness.

Abstract No.: 200775
Nov 24, 2024 (Sun) 11:00 - 12:30
Venue: Room 334/335

Enabling Choroidal Thickness Measurement from Commercial SDOCT Using an Explainable Deep Learning Model

*First Author: Valentina **BELLEMO***
*Co-Author(s): Jacqueline **CHUA**, Leopold **SCHMETTERER**, Damon **WONG***

Purpose: Accurate measurement of choroidal thickness using commercial spectral-domain optical coherence tomography (SDOCT) is challenging. This study aims to utilize explainable deep learning (DL) to automatically identify choroidal thickness from SDOCT scans, employing transfer learning from non-commercial swept-source OCT (SSOCT) that provides clearer visibility of the choroid.

Methods: A DL classifier based on the ResNet-101 architecture, outputting additional attention maps to highlight the regions of the image contributing most to the model's decision-making process, was developed using paired SSOCT-SDOCT data to discriminate between thin and thick choroids. On the SDOCT test set, manual choroidal thickness measurements by a human grader and DL model predictions were assessed and compared. A total of 241 eyes from 154 healthy subjects were included in the study for each device.

Results: The model was trained and validated using a total of 61,200 B-scans from SSOCT and applied to 9,065 SDOCT scans from independent eyes. Considering choroidal measurements from SSOCT as ground truth, human grader SDOCT classifications achieved a 0.67 [0.56-0.78] AUC and only 0.33 % of the thick choroids detected; on the other hand, the DL model applied to the SDOCT dataset performed with sensitivity, specificity, and AUC of 0.92 [0.82-0.97], 1.00 [1.00-1.00], 0.83 [0.75-0.91], respectively, outperforming the human grader. The DL predictions were extensively analyzed and interpreted using the generated attention heatmaps.

Conclusions: The DL model's ability to automatically analyze choroids with high accuracy from commercial SDOCT scans, despite the device-specific limitations in clinical practice, highlights its potential for diagnosing and managing chorioretinal diseases, with attention to interpretability.

Abstract No.: 200265
Nov 24, 2024 (Sun) 14:00 - 15:30
Venue: Room 331/332

Enhancing CNN-Based Differentiation of SD-OCT Images of Age-Related Macular Degeneration with Histogram Equalization and Gaussian Smoothing: An Analysis of 35,400 B-Scans

*First Author: H Shafeeq **AHMED***

Purpose: This study aims to enhance convolutional neural network (CNN)-based differentiation of spectral domain optical coherence tomography (SD-OCT) images from age-related macular degeneration (AMD)

patients and normal subjects using advanced preprocessing techniques.

Methods: A total of 35,400 B-scans were acquired from 269 AMD patients and 115 normal subjects using SD-OCT imaging systems. Volumetric rectangular scans (~6.7 × ~6.7 mm) were obtained at 0° and 90° orientations centered at the fovea, with each scan volume consisting of 1000 A-scans per B-scan and 100 B-scans per volume, captured for both eyes. The dataset was divided into training (70%), validation (15%), and test (15%) sets. Two preprocessing techniques, histogram equalization and Gaussian smoothing, were applied to enhance image quality. The performance of the CNN models using these preprocessing methods was evaluated based on accuracy, sensitivity, specificity, and area under the receiver operating characteristic (ROC) curve.

Results: The CNN model with histogram equalization preprocessing achieved an accuracy of 97.1%, sensitivity of 95.4%, and specificity of 98.2%, with an area under the ROC curve of 0.99. The model with Gaussian smoothing preprocessing achieved an accuracy of 95.6%, sensitivity of 93.8%, and specificity of 96.7%, with an area under the ROC curve of 0.97. Both techniques enhanced the model's ability to detect subtle differences in retinal layer segmentation, particularly in the retinal pigment epithelium and photoreceptor layers, with histogram equalization showing superior performance.

Conclusions: Advanced preprocessing techniques significantly improve the performance of CNN-based models for differentiating AMD and normal SD-OCT images.

Abstract No.: 200514
Nov 24, 2024 (Sun) 14:00 - 15:30
Venue: Room 331/332

FFA-GPT: Automatic Fundus Fluorescein Angiography Image Interpretation with Large Language Models

*First Author: Xiaolan **CHEN***
*Co-Author(s): Mingguang **HE**, Danli **SHI**, Weiyi **ZHANG***

Purpose: Fundus fluorescein angiography (FFA) is crucial for chorioretinal disease diagnosis, yet its interpretation requires significant expertise and time and lacks interactive patient communication. We aim to use large language models (LLMs) to develop an automated interpretation pipeline for both report generation and medical question-answering (QA) for FFA images.

Methods: The pipeline comprises two components: an image-text alignment module (Bootstrapping Language-Image Pre-training) for report generation and an LLM-based module (Llama 2) for QA. We conducted automated and manual evaluations to assess the system's performance comprehensively. The automatic evaluation encompassed language-based metrics (BLEU, CIDEr, ROUGE, SPICE, BERTScore) and classification-based metrics (accuracy, sensitivity, specificity, precision, F1-score). Three ophthalmologists participated in a manual assessment, evaluating the completeness and correctness of generated reports, as well as accuracy, completeness, harm, and satisfaction of generated answers.

Results: Model development leveraged a dataset of 654,343 FFA images from 9392 participants. The automatic evaluation of the generated reports achieved scores of BLEU1=0.48, BLEU2=0.42, BLEU3=0.38, BLEU4=0.34, CIDEr=0.33, ROUGE=0.36, SPICE=0.18, and BERTScore=0.70. Notably, it exhibited strong specificity (≥0.94) and accuracy (ranging from 0.88 to 0.93), with F1-scores spanning from 0.64 to 0.82 for detecting top-5 retinal conditions. The manual evaluation revealed acceptable accuracy (68.3%, Kappa: 0.746) and completeness (62.3%, Kappa: 0.739) of the generated reports. The generated answers were evaluated manually, with the majority meeting the ophthalmologists' criteria (error-free: 70.7%, complete: 84.0%, harmless: 93.7%, satisfied: 65.3%, and Kappa: 0.762-0.834).

Conclusions: This study introduces an innovative framework that combines multi-modal transformers and LLMs, enhancing automatic FFA image interpretation and facilitating interactive communications during medical consultation.

Abstract No.: 200264
Nov 24, 2024 (Sun) 14:00 - 15:30
Venue: Room 331/332

Fingerprint Sign of the Henle Fibre Layer in Epiretinal Membrane: A Cross-Sectional and Longitudinal Study

*First Author: Jaeryung **OH***
*Co-Author(s): Young Ho **KIM**, Ariunaa **TOGLOOM***

Purpose: To investigate the incidence and distribution of fingerprint-like microwaves in the Henle fibre layer (HFL) in eyes with epiretinal membrane (ERM).

Methods: Patients with idiopathic ERM were included. The fingerprint sign was defined using en-face optical coherence tomography images of the HFL, and its extent was classified into three grades.

Results: At baseline, the fingerprint sign was found in 70 of 83 (84.3%) eyes with ERM and was more frequently observed in eyes with a higher ERM stage ($P < 0.001$). Its extent increased ($P < 0.001$) with an increase in ERM stage or the central macular thickness ($P < 0.001$). Best corrected visual acuity (BCVA) was worse in eyes with a fingerprint sign than in those without ($P = 0.024$). Metamorphopsia was more common in eyes with a greater extent of fingerprint-like microwaves ($P = 0.048$). The fingerprint sign persisted over a mean follow-up period of 18.0 ± 23.3 without surgery. In 45 eyes that underwent surgery, the extent of fingerprint-like microwaves decreased at 1.2 months ($P = 0.001$), and further decreased at 13.7 months postoperatively ($P = 0.019$). However, the proportion of eyes with a fingerprint sign remained similar pre- and postoperatively ($P = 0.912$).

Conclusions: Fingerprint-like microwaves were commonly found in eyes with ERM and were associated with ERM severity and BCVA. The microwaves remained long after surgery, although their extent may have decreased after the ERM had been resolved. These results suggest that ERM traction may cause lasting changes in the HFL in the long run.

Abstract No.: 200472
Nov 24, 2024 (Sun) 14:00 - 15:30
Venue: Room 331/332

OCT Predictors of Pneumatic Displacement Effect of Submacular Hemorrhage Secondary to Polypoidal choroidal Vasculopathy

*First Author: Fang **ZHENG***

Purpose: To investigate predictive OCT factors associated with early displacement of submacular hemorrhage (SMH) after intravitreous injections of C3F8 combined with tissue plasminogen activator (tPA) and anti-VEGF agent in PCV patients.

Methods: Patients with SMH secondary to PCV were enrolled in the retrospective study. All patients underwent intravitreous injections of C3F8, tPA, and anti-VEGF agent. Wide-filed swept-source OCT 3D-cube scans were obtained before and one week after the surgery. The displacement effect of SMH one week after surgery was graded as complete displacement (Group 1) and incomplete displacement (Group 2) based on the presence of SMH under the fovea according to OCT images. OCT measurements, including the area, height, volume, and contrast-to-noise ratio (CNR) of SMH and PED volume, were analyzed and associated with displacement grade.

Results: Thirty-three eyes of 33 patients were enrolled. SMH got displaced in all eyes after the treatment: SMH of 16 eyes got completely displaced (Group 1), SMH of 17 eyes got incompletely displaced (Group 2). The mean height and volume of SMH were 646.98 ± 205.81μm versus 459.95 ± 163.73 μm ($P=0.035$), and 0.55 ± 0.18 mm^3 versus 0.39 ± 0.13 mm^3 ($P=0.032$), suggesting Group 1 had much thicker SMH compared to Group 2. Lower CNR of SMH at baseline was found in Group 1 (82.32 ± 31.75 versus 114.24 ± 24.82, $P=0.018$) and was correlated with displacement grade ($P=0.02$, $r=1.2$).

Conclusions: Patients who got complete pneumatic displacement of SMH had thicker hemorrhage and lower CNR. The CNR of

SMH was a valuable predictor of early SMH displacement.

Abstract No.: 200513
Nov 24, 2024 (Sun) 14:00 - 15:30
Venue: Room 331/332
Oculomic Profile Improves Prediction of Individual Multi-Disease Outcomes
*First Author: Wei **WANG***

Purpose: To explore the potential of retinal biomarkers derived from multimodal imaging (oculomics) to provide insights into multi-disease risk associated with the onset of 24 common systemic conditions.

Methods: This multicenter, multi-ethnic cohort study included 35,803 participants with baseline ocular multimodal imaging from the UK Biobank (UKB) and 2975 participants from the Guangzhou Diabetic Eye Study (GDES). An elastic net model was trained on 112 imaging markers to learn disease-specific oculomic states, whose predictability was then compared against traditional clinical predictors in a fully withheld test set of the UKB participants. Model performance was evaluated using the C-statistic, net classification improvement (NRI), integrated discrimination improvement (IDI), calibration, and clinical utility, with external validation in the GDES cohort.

Results: Oculomic states were associated with the incidence of all examined conditions (all P<0.001). OCT-derived neurodegenerative metrics were more associated with neurological outcomes, while fundus photograph-derived microvascular metrics were more associated with cardiometabolic outcomes. Combining oculomic states with age and sex improved or matched the performance of existing predictors for 18 and 14 of the 24 outcomes over 5- and 10-year predictions, respectively. Moreover, oculomic state added predictive value over comprehensive clinical predictors for 11 common diseases (all P<0.05). Decision curve analyses confirmed the clinical utility of these improvements across various decision thresholds, with notable enhancements in NRIs and IDIs observed in both cohorts (all P<0.05).

Conclusions: Highly user-friendly and non-invasive oculomic profiling is effective in assessing and monitoring multiple organ systems. These biomarkers hold the promise of overcoming healthcare access barriers, especially in resource-limited settings.

Abstract No.: 200267
Nov 24, 2024 (Sun) 11:00 - 12:30
Venue: Room 334/335
Predicting the Genotype of Retinitis Pigmentosa from Ultra-Widefield Autofluorescence Imaging
*First Author: Beau **FENNER***
*Co-Author(s): Taro **KOMINAMI**, Koji **NISHIGUCHI**, Tien-en **TAN**, Hiroaki **USHIDA***

Purpose: To assess the clinical utility of ultra-widefield autofluorescence (UWF-AF) patterns for genotype prediction in patients with EYS-associated retinitis pigmentosa (RP).

Methods: A retrospective multi-institutional observational study evaluated UWF-AF images from RP patients enrolled in Singapore and Nagoya, Japan, between 2010 and 2023. Patients had genetically confirmed EYS or non-EYS RP. Seven UWF-AF patterns were analysed: localized macular and peripapillary sparing (infinity sign), broad-banded hyper-autofluorescent leading edge, hyper-autofluorescent crescent, focal foveal hyper-autofluorescence, inferior sectoral RP, parafoveal hyper-autofluorescent ring (Robson ring), and irregular sectoral areas of peripheral sparing. The presence of these patterns was evaluated with genotype blinding to determine their association with the EYS genotype. Sensitivity, specificity, and accuracy were calculated.

Results: A total of 200 eyes from 200 unrelated individuals were included in the study. The infinity sign and broad banded hyper-autofluorescent leading edge were significantly more frequent in eyes with EYS (p = 0.0014 and 0.036, respectively). Logistic regression analysis indicated that the infinity sign was predictive of EYS (p = 0.003). Overall, EYS was predicted with a specificity of 95.20%, while sensitivity

and accuracy were 25.68% and 69.50%, respectively.

Conclusions: This study demonstrates that specific UWF-AF patterns, particularly the infinity sign, have clinical utility in identifying EYS-associated RP. These findings can aid clinicians and geneticists in genotyping RP patients and enhance understanding of the underlying pathophysiology of EYS-associated RP, a prevalent cause of RP in Asia and other regions.

Abstract No.: 200255
Nov 24, 2024 (Sun) 14:00 - 15:30
Venue: Room 331/332

Progression Risk factors of Myopic Traction Maculopathy: A 3-Year Cohort Study

*First Author: Shida **CHEN***
*Co-Author(s): Yunyi **LIU**, Lin **LU**, Nan **LUO***

Purpose: To investigate the effect of preretinal tractional structures (PTS) and posterior scleral structures (PSS) on myopic traction maculopathy (MTM) progression.

Methods: This retrospective cohort study included 185 fellow highly myopic eyes from 185 participants who underwent surgery for MTM. MTM stage was graded according to the Myopic Traction Maculopathy Staging System. Optical coherence tomography was used to identify MTM progression, defined as an upgrade of MTM. The Kaplan-Meier method with log-rank test was used to assess MTM progression over the 3-year follow-up period. Risk factors for progression were identified using Cox regression analysis.

Results: MTM progression was observed in 48 eyes (25.9%). Three-year progression-free survival (PFS) rates for eyes with PTS, staphyloma, and DSM were 53.7%, 58.2%, and 90.7%, respectively. Eyes with PTS and staphyloma exhibited lower three-year PFS rates than those without PTS or staphyloma (P log-rank test =0.002 and <0.001), while eyes with DSM had a higher three-year PFS rate than eyes without DSM (P log-rank test = 0.01). Multivariate Cox regression analysis showed that PTS (hazard ratio [HR], 3.23; P < 0.001) and staphyloma (HR, 7.91; P < 0.001) were associated with MTM progression, whereas DSM (HR, 0.23; P = 0.046) was a protective factor.

Conclusions: Both PTS and PSS play a critical role in the progression of MTM. Addressing these factors can aid in the management of MTM.

Abstract No.: 200842
Nov 24, 2024 (Sun) 11:00 - 12:30
Venue: Room 334/335

Regional Variation of Choroidal Vascularity Index (CVI) in an Asian PCV Population Using Automated SS-OCT Algorithm

*First Author: Yu Jeat **CHONG***
*Co-Author(s): Masahiro **AKIBA**, Gemmy **CHEUNG**, Noa **GILEAD**, Kelvin **TEO YI CHONG***

Purpose: To investigate the regional variation in CVI in the macula of eyes with polypoidal choroidal vasculopathy (PCV) using a novel automated algorithm based on swept sources optical coherence tomography (SS-OCT)

Methods: 53 treatment naïve eyes with PCV were included. Volumetric scans over a 7x7mm area centred on the fovea were acquired using the DRI-OCT Triton device (Topcon, Japan). An automated algorithm delineated the Bruch's membrane and choroid-scleral interface (CSI). CVI was calculated using the Otsu method (lumen-choroidal area ratio). The scanned area was divided into 36 regions (1X1mm each), and CVI was displayed for each area. Regions were further subdivided: central, superior-nasal (SN), superior-temporal (ST), inferior-nasal (IN), and inferior-temporal (IT).

Results: The mean age of patients was 69.8 (+-5.6 years). Mean subfoveal choroidal thickness (SFCT) was 238.72 (+-99.68 um). CVI values were: mean whole macula 61.04 (+-1.45), central 60.93 (+-1.67), SN 60.97 (+-1.75), ST 61.06 (+-2.12), IN 61.03 (+-1.42), and IT 61.11 (+-1.59). Individual 1X1mm CVI areas ranged from 60.25 to 61.79.,Mean whole macula CVI and central CVI had significant positive correlations with the CVI of all 36 areas, SN,

ST, IN, and IT. There was a positive correlation between SFCT and whole mean macula CVI (Spearman rho=0.63, p=4.9 X 10-7) and central CVI (Spearman rho=0.58, p=5.65 X 10-6). CVI was also associated with the presence of intervortex anastomoses (OR 1.62, p=0.0472).

Conclusions: The automated CVI algorithm effectively assessed regional variation in CVI over the macula. CVI correlated with SFCT and intervortex anastomoses and has potential for evaluating choroidal architecture.

Abstract No.: 200438
Nov 24, 2024 (Sun) 11:00 - 12:30
Venue: Room 334/335

Retinal Neural Structure Alterations and Related Proteomics Variations in Depression: Insights from Cross-Center Study

*First Author: Shan **WANG***
*Co-Author(s): Cong **LI**, Yan **WANG**, Xiaohong **YANG**, Honghua **YU**, Xiayin **ZHANG***

Purpose: Little is known about the existence of potential retinal neuronal dysfunction and proteomic-specific markers in depressive disorder. This study aims to identify retinal neural structure changes associated with depression, and to explain correlations through proteomics.

Methods: Patients with depression and age-matched controls were recruited. Tilt angle and roundness of optic disc were quantified using automatic segmentation network. Proteomics were derived from Olink assays, encompassing analysis of 1463 distinct proteins. Logistic regression was employed to determine characteristics of optic disc in depression. Elastic network regression investigated depression-linked proteins, while multiple linear regression was utilized to ascertain their shared proteins. Protein expression profiles were determined through Genotype-Tissue Expression analysis.

Results: The study enrolled 178 cases and 142 controls from European cohort, 100 cases and 64 controls from GD-OPHS cohort. Results indicated greater tilt angle (OR=1.96, 95%CI=1.06-3.62, per 0.01°) and larger roundness of optic disc (OR=1.26*106, 95%CI: 11.50 to 1.39e+11) in depression group. GD-OPHS validation cohort confirmed larger tilt angle in depression (OR=1.81, 95%CI=1.06-3.08). Elastic network regression identified 183 depression-related proteins. Among them, roundness of optic disc was significantly associated with two proteins, LRRN1 (β=0.036, 95%CI=0.005-0.067) and FGFR2 (β=-0.054, 95%CI: -0.104 to -0.003). FGFR2 is predominantly localized in outer nuclear layer of retina, while LRRN1 exhibits enrichment in ventral posterior region. Both proteins are expressed in prefrontal cortex, temporal cortex, and hippocampus of brain.

Conclusions: Considering relationships between retinal and cerebral neurons, tilt angle and roundness of optic disc are potentially effective markers for depression. Their shared proteins may explain phenotypic correlations of both epidemiological analyses.

Abstract No.: 200637
Nov 24, 2024 (Sun) 14:00 - 15:30
Venue: Room 331/332

Screening for Polypoidal Choroidal Vasculopathy Among Filipino Eyes with Neovascular AMD Using the Asia-Pacific Ocular Imaging Society OCT Criteria

*First Author: Jose Carlo **ARTIAGA***
*Co-Author(s): Jonathan Paul **LACANILAO***

Purpose: To determine the proportion of eyes with optical coherence tomography (OCT) features of polypoidal choroidal vasculopathy (PCV) among patients diagnosed with neovascular age-related macular degeneration (nAMD) based on the Asia-Pacific Ocular Imaging Society (APOIS) Diagnostic Criteria.

Methods: This study was a retrospective cross-sectional review of OCT images. Medical records of treatment-naïve nAMD patients between January 2018 and June 2023 were reviewed. Clinical and demographic profiles at presentation were collected. Exclusion criteria were other macular diagnoses, media opacity, incomplete data and/or scans, and history of previous retinal procedures. OCT images were

evaluated by two masked graders. PCV was diagnosed based on the presence of ≥2 major OCT APOIS diagnostic criteria. PCV and non-PCV subgroups were compared.

Results: OCT scans of 45 eyes from 38 patients were analyzed. Mean age was 69.4 years old (range 53-83); 71.1% of patients were female, and 81.6% had unilateral disease. There was no statistically significant difference among clinical and demographic characteristics between PCV and non-PCV subgroups. Twenty-four eyes (53.3%) had ≥2 major APOIS criteria for PCV. Among PCV eyes, sub-RPE ring-like lesions and double-layer signs were the most common major (87.5%) and minor OCT criteria (100%), respectively. Sharp-peaked PED ($p<0.001$), sub-RPE ring-like lesion ($p<0.001$), en face OCT complex RPE elevation ($p=0.005$), and double-layer sign criteria ($p=0.007$) were more frequent in the PCV subgroup.

Conclusions: More than half of the Filipino eyes diagnosed with nAMD fulfilled the OCT criteria for PCV. The APOIS PCV Workgroup Criteria helps identify patients who will benefit from additional confirmatory and treatment options.

Abstract No.: 200702
Nov 24, 2024 (Sun) 11:00 - 12:30
Venue: Room 334/335

Supporting Diabetic Macular Edema Triage Screening by a Deep Learning-based OCT Image Analysis: A Prospective Study

*First Author: Shuyi **ZHANG***
*Co-Author(s): Carmen **CHAN**, Carol **CHEUNG**, Anran **RAN**, Simon **SZETO**, Gabriel **YANG***

Purpose: Retrospective studies have demonstrated artificial intelligence (AI) models can accurately identify diabetic macular edema (DME) from optical coherence tomography (OCT) images. However, prospective evidence studies are yet to assess their performance when integrated into healthcare. We aim to prospectively evaluate the performance of deploying an AI-OCT system in a triage unit of a tertiary eye hospital.

Methods: Our AI-OCT system is a customized AI-powered infrastructure with a user interface, an information management system, and two 3D deep-learning models based on our previously published work: image quality assessment (gradable/ungradable scan) and DME detection (yes/no DME). Individuals with diabetes mellitus (DM) referred to the Triage Unit of Hong Kong Eye Hospital were recruited. Participants underwent OCT scans, which were analyzed by the AI-OCT system in real-time. Only gradable scans would be further processed by the DME detection model. The performance of the AI-OCT system was measured against human reference standards.

Results: A total of 1200 eyes from 603 participants with DM were recruited in the Triage Unit. The performance of the image quality assessment model was evaluated, with a sensitivity (SEN) of 99% (95% CI 98%-100%), specificity (SPE) of 80% (70%-87%), and accuracy (ACC) of 98% (96%-98%). Among 1106 eyes with gradable scans (92%), the AI-OCT system had a SEN of 99% (93%-100%), SPE of 91% (89%-93%), and ACC of 92% (90%-93%) for DME detection.

Conclusions: The AI-OCT system showed good performance for DME triage screening, providing prospective evidence for AI implementation in healthcare.

Ocular Oncology & Pathology

Abstract No.: 200152
Nov 24, 2024 (Sun) 14:00 - 15:30
Venue: Room 334/335

Global Burden of Retinoblastoma from 1990 to 2021

*First Author: Zijing **LI***

Purpose: To investigate trends in the global burden of retinoblastoma from 1990 to 2021.

Methods: This cross-sectional study used data from the Global Burden of Diseases database 2021. Global incidence rates, death rates, disability-adjusted life years (DALYs) rates, and estimated annual percentage changes (EAPCs) were stratified by sex, age, sociodemographic index (SDI), and country.

Results: The 2021 global age-standardized incidence rate (ASIR) of retinoblastoma was 0.094 per 100,000. From 1990 to 2021, the ASIR increased by 23.9% (95% UI: -3.6% to 51.7%), with an EAPC of 1.347 (95% CI: 1.133 to 1.561). The age-standardized death rate (ASDR) in 2021 was 0.041 per 100,000, decreasing by 19.8% (95% UI: -39.3% to 4.9%), with an EAPC of -0.443 (95% CI: -0.553 to -0.332). The age-standardized DALYs rate (ASDAR) in 2021 was 3.654 per 100,000, decreasing by 19.5% (95% UI: -38.9% to 5.3%), with an EAPC of -0.422 (95% CI: -0.534 to -0.311). The low-SDI region had the highest ASDR (0.089 per 100,000) and ASDAR (7.799 per 100,000) in 2021. East Asia had the largest increases in EAPC for ASIR (5.550; 95% CI: 4.814 to 6.291), while southern sub-Saharan Africa had the largest increases in EAPCs for ASDR (1.937; 95% CI: 1.521 to 2.354) and ASDAR (1.953; 95% CI: 1.534 to 2.373). Armenia exhibited the largest increases in EAPCs for ASIR (18.065; 95% CI: 14.736 to 21.491), ASDR (14.172; 95% CI: 11.042 to 17.389), and ASDAR (14.289; 95% CI: 11.151 to 17.516).

Conclusions: Retinoblastoma is a global health concern, especially in low-SDI regions; cost-effective strategies are needed.

Abstract No.: 200469
Nov 24, 2024 (Sun) 14:00 - 15:30
Venue: Room 334/335

Global, Regional, and National Burden Due to Retinoblastoma in Children Aged Younger Than 10 Years from 1990 to 2021

*First Author: Cong **LI***
*Co-Author(s): Lei **LIU**, Xiaohong **YANG***

Purpose: To provide the incidence, mortality, and disability-adjusted life years (DALYs) associated with retinoblastoma (RB) among children, categorized by age, sex, and sociodemographic index (SDI) level, between 1990 and 2021.

Methods: Data were retrieved from the newly released Global Burden of Disease (GBD) study. The measures were estimated as numerical counts and age-standardised rates per 100,000 population. Joinpoint regression analysis was used to thoroughly examine temporal trends. Spearman's correlation test was used to examine the relationship between SDI and the burden of RB.

Results: Globally, the age-standardised rate of incidence (ASIR), mortality (ASMR), and DALYs (ASDR) for RB among young children in 2021 were 0.09 (95% uncertainty interval: 0.05 to 0.13), 0.04 (0.03 to 0.06), and 3.65 (2.21 to 4.96), respectively. Despite an overall increasing trend in ASIR of RB, downward trends were observed in ASMR and ASDR. Trends in ASIR varied across regions, and the increased trends of ASIR of RB were the highest in East Asia. Only Southern Sub-Saharan Africa exhibited increasing trends of mortality and DALYs rate. Gender comparisons showed negligible differences in disease burdens in 2021. Moreover, the highest disease burden was noted in early neonatal and 2- to 4-year-old children. The ASIR of RB increased along with the increase in SDI levels. In addition, regions with higher SDIs exhibited a higher incidence but lower mortality and DALYs rates in 2021.

Conclusions: RB-related incidence, mortality, and DALYs varied by age and location from 1990 to 2021, informing future targeted interventions aimed at reducing the disease burden of RB in children.

Other (General Ophthalmology)

Abstract No.: 200282
Nov 24, 2024 (Sun) 14:00 - 15:30
Venue: Room 334/335

A Study on the Dynamic Therapeutic Efficacy and Long-Term Safety of Ultrasound Cycloplasty in the Treatment of Glaucoma in a Northwestern Chinese Population

*First Author: Ping **GE***
*Co-Author(s): Yuan **HE**, Wei **SANG**, Jinwei **XI**, Xiangxiang **YANG***

Purpose: To evaluate the dynamic efficacy and long-term safety of ultrasound cycloplasty (UCP) in glaucoma patients from northwestern China.

Methods: This study included 12 patients with various types of glaucoma, totaling 15 eyes. All participants underwent routine ophthalmic examinations. Following UCP treatment, patients had follow-up examinations at various intervals: day 1, week 1, month 1, month 3, month 6, year 1, and year 2 postoperatively. These follow-ups aimed to assess the reduction in IOP, changes in visual acuity, postoperative pain levels, usage of antihypertensive medications, and occurrence of complications in the treated eyes. Additionally, 24-hour IOP monitoring was performed preoperatively and at each follow-up time point to investigate the dynamic effects of UCP on lowering IOP.

Results: Postoperatively, IOP dropped significantly by 62.9% from baseline, and UCP demonstrated a marked reduction in nocturnal IOP with the most pronounced effect observed beyond 24 hours post-surgery. Pain scores declined significantly at each follow-up, with 92.86% of patients scoring 0 and 7.14% scoring 1. Antihypertensive medications were gradually reduced from day 1 to 3 months. No major complications arose; conjunctival congestion (60%) resolved within a week with anti-inflammatory drops.

Conclusions: UCP demonstrates a significant reduction in IOP in the glaucoma population of Northwestern China, particularly for cases with isolated nocturnal IOP elevation. Furthermore, UCP effectively lowers pain scores, thereby improving the quality of life for glaucoma patients. As a safe, non-invasive, and low-complication treatment modality, UCP shows promising potential for managing glaucoma in the northwestern Chinese population.

Abstract No.: 200336
Nov 24, 2024 (Sun) 14:00 - 15:30
Venue: Room 334/335

Natural Living Environment and Myopia in the Remote Uygurs Area of China

*First Author: Xin Jun **REN***
*Co-Author(s): Mingxuan **ZHANG***

Purpose: Using quantitative information gleaned from high-resolution satellite images to assess the environment in different areas of Yecheng county and evaluate the relationship between environmental factors and the prevalence of myopia.

Methods: This cross-sectional study included 288,160 students aged 6 to 15 years in Yecheng county, Xinjiang Province, China, from April 2020 to November 2023. Using high-resolution satellite images, the values for nine environmental indicators were obtained via Google Earth Engine.

Results: The average age of the 288,160 students was 10.51, with 145,137 (50.4%) being male. This study found that a higher environmental score was associated with a reduction in the prevalence of myopia (β = -4.483, $P < 0.001$). After adjustment, an increase in the environmental score correlated with a lower risk of myopia (OR = 0.798, 95% CI: 0.790-0.807, $P < 0.001$). In 2020, the prevalence of myopia among Han ethnic students aged 6 to 13 were 38.9%, 45.3%, 51.6%, 59.6%, 69.1%, 85.1%, 89.1%, and 90.3%, respectively, which were higher than that of the same age groups for Uygurs (14.6%, 17.1%, 19.2%, 25.0%, 29.3%, 33.5%, 33.9%, and 31.4%) ($P < 0.001$). For Han students, there was no significant difference in the prevalence of myopia and SER among different environmental score groups ($P > 0.05$).

Conclusions: This study found that a higher environmental score is linked to a lower prevalence of myopia. Uygur students have a lower prevalence of myopia compared to Han students, suggesting environmental influence. However, while our research shows a correlation, further studies are needed to identify the exact causes.

Abstract No.: 200444
Nov 24, 2024 (Sun) 14:00 - 15:30
Venue: Room 334/335

Postprandial C-Peptide to Glucose Ratio as a Biomarker of Predicting Diabetic Retinopathy in Type 2 Diabetes Mellitus

*First Author: Zhaoxia **ZHENG***
*Co-Author(s): Xiaobing **YU***

Purpose: To assess the relationship between postprandial C-peptide to glucose ratio (PCGR) and diabetic retinopathy (DR) in type 2 diabetes mellitus (T2DM).

Methods: 544 T2DM patients were included in this cross-sectional study. Fasting C-peptide (FCP), postprandial C-peptide (PCP), fasting C-peptide to glucose ratio (FCGR), homeostasis model assessment of β-cell function, and insulin resistance (HOMA-B and HOMA-IR) were measured and compared in the groups of no DR (NDR), mild and moderate non-proliferative DR, and vision-threatening DR (VTDR). Odds ratios (ORs) of these indices for the presence and severity of DR were further estimated after adjusting for confounding factors. Multivariate logistic analysis was performed to evaluate the association between PCGR and DR according to PCGR quartiles. Receiver Operating Characteristics (ROC) curves were generated to determine the discrimination power of PCGR in predicting DR and VTDR.

Results: Among the above C-peptide-related indices, PCGR showed the most significant association with mild and moderate NPDR (per SD increase, OR=0.67 [0.50-0.91], P=0.01), and VTDR (per SD increase, OR=0.13 [0.05-0.34], P<0.01). When grouped by PCGR quartiles, patients in the lower quartile showed a higher risk of developing DR. Generally, PCGR was negatively associated with DR and VTDR independent of confounders (all P for trend < 0.001). The area under ROC curves (AUC) values were 0.69 and 0.80 in predicting DR and VTDR, respectively.

Conclusions: PCGR was significantly associated with the presence and progression of DR. PCGR could be a promising biomarker for identifying T2DM patients at a high risk of developing DR, especially VTDR.

Abstract No.: 200126
Nov 24, 2024 (Sun) 14:00 - 15:30
Venue: Room 334/335

The Association of ARR3 Genetic Polymorphisms with the Predisposition to High Myopia in the Northern Chinese Population: A Case-Control Study

*First Author: Wenna **GAO***
*Co-Author(s): Guangqi **AN**, Liping **DU**, Xuemin **JIN**, Min **ZHANG***

Purpose: The study aims to illustrate the relationship between ARR3 variations and high myopia (HM) susceptibility among the general population residing in Northern China.

Methods: Single nucleotide polymorphisms (SNPs) of the ARR3 gene, including rs10449043, rs11094147, rs1572732, rs1768567, rs3818861, rs4844220, and rs5936872, were genotyped using the iPLEX Gold Genotyping Assay. The SHEsis platform was employed to predict linkage disequilibrium and haplotype blocks, and the SPSS software was manipulated to evaluate connection intensity.

Results: A total of 575 HM subjects and 743 controls were enrolled. Overall, no significant association was identified between ARR3 SNPs and HM predisposition, regardless of the spherical equivalent of HM. Although heterozygotes for rs1572732, rs1768567, and rs4844220, as well as the CC homozygote for rs4844220, showed a slight association with female HM, statistical significance was not achieved after Bonferroni correction. Notably, the haplotype block A-A-C-T-A-T-T (SNPs in order: rs10449043, rs11094147, rs1572732, rs1768567, rs3818861, rs4844220, and rs5936872) yielded a catalytic role in HM (OR: 9.29, 95% CI: 2.12-40.76), especially in those from -10.00 D to -6.00 D (OR: 12.02, 95% CI: 2.41-59.87) and -15.00 D to -10.00 D (OR: 11.90, 95% CI: 2.38-59.37). Nevertheless, no correlation was detected in male HM subjects.

Conclusions: The study highlighted a possible connection between ARR3 variations and

female HM, which was not observed in male HM subjects.

Abstract No.: 200917
Nov 24, 2024 (Sun) 14:00 - 15:30
Venue: Room 334/335

The Prospective Myopia Cohort Study in Singapore (PROMYSE)

*First Author: Leila **EPPENBERGER***
*Co-Author(s): Marcus **ANG**, Maithily **BALAKRISHNAN**, Joey **CHUNG**, Leopold **SCHMETTERER**, Damon **WONG***

Purpose: High myopia is linked to severe complications such as retinal detachments and myopic macular degeneration (MMD). Despite these known associations, data on their prevalence and incidence are scarce.

Methods: This prospective observational study included Singaporean participants aged ≥16 years with a spherical equivalent refraction (SER) of ≤-0.5 diopters (D). Participants provided written informed consent and underwent comprehensive ophthalmological exams, repeated at one- and two-year follow-ups. Descriptive statistical analysis was performed.

Results: A total of 753 participants (mean age 36.5±12.3y; 60% male; 94% Chinese) were examined at baseline. The mean best-corrected visual acuity (BCVA) was decimal of 0.97±0.1, mean axial length (AL) of right eyes was 26±1.6mm, and mean SER was -5.4±3.6D. At baseline the prevalence of retinal tears was 0.4%, retinal detachment had occurred in 0.1%, and staphyloma was present in 5%. Dome-shaped macula, intrachoroidal cavitations, or myopic traction maculopathy were found in 0.7% of right eyes. Comparable results were noted for left eyes. After two years, 45% of participants returned for follow-up. AL and SER remained unchanged. MMD grade 1 in right eyes increased from 66% to 68%, and MMD grade 2 rose from 9% to 10%. There was a significant increase in peripheral lattice degeneration from 4% to 9% (p=0.01).

Conclusions: Over two years, AL and SER did not increase. Myopia-related complications were generally low. However, a significant rise in peripheral retinal changes was observed over two years. This dataset offers an overview of the prevalence of myopic macular degeneration and other complications in middle-aged Asian myopes.

Pediatric Retina

Abstract No.: 200624
Nov 22, 2024 (Fri) 09:00 - 10:30
Venue: Room 334/335

Clinical Presentation, Microbiology and Management Outcomes of Endogenous Endophthalmitis in 109 newborns

*First Author: Sameera **NAYAK***

Purpose: This study describes the epidemiology, clinical features, microbiological profile, and outcomes of neonatal endogenous endophthalmitis.

Methods: Clinical and microbiological data from April 2013 to January 2023 were analyzed for neonates diagnosed with endogenous endophthalmitis at four tertiary eye care centers in three Indian states. Data included demographic information, systemic comorbidities, perinatal history, ocular findings, microbiologic information, ophthalmic management, and outcomes.

Results: The study involved 109 babies (127 eyes) with a median gestational age of 38 ± 4.42 weeks (range: 26-40 weeks); 53.21% were female. A systemic infection focus was identified in 67.20%. Bilateral endophthalmitis occurred in 18 babies. The median birth weight was 1850 ± 836.73 grams (range: 860-4000 grams). Presentation occurred at a median postmenstrual age of 38 ± 5.01 weeks (range: 32-52 weeks) with a median follow-up of 5 ± 23.32 months (range: 0-96 months). Systemic associations included vaginal delivery (41.665%), NICU care (78.78%), oxygen therapy (54.4%), intravenous drug use (84.46%), and broad-spectrum antibiotics (84.40%). Typical presentation involved conjunctival congestion and cloudy cornea, but 33.94% had a white eye, and 36.66% had a clear cornea. Culture positivity from vitreous biopsy was 40% (30/79),

with gram-negative bacteria (15 cases), fungus (9 cases), and gram-positive cocci (6 cases). After follow-up, outcomes included phthisis bulbi (31 eyes), normal anatomy (24 eyes), and various sequelae.

Conclusions: Neonatal endogenous endophthalmitis is predominantly caused by gram-negative organisms and Candida spp., with poor overall outcomes despite prompt management.

Abstract No.: 201085
Nov 22, 2024 (Fri) 09:00 - 10:30
Venue: Room 334/335

Efficacy of Ultrawide Field Red-Free Imaging in Detecting Retinal Vascular Changes in Retinopathy of Prematurity

*First Author: Sushma **JAYANNA***
*Co-Author(s): Taraprasad **DAS**, Subhadra **JALALI**, Tapas **PADHI***

Purpose: To evaluate the efficacy of Scanning laser ophthalmoscope (SLO) -based ultrawide field red-free (UW-RF) imaging versus SLO-based ultrawide field colour fundus (UW-CF) imaging in detecting various retinal vascular changes in retinopathy of prematurity (ROP).

Methods: In our retrospective cross-sectional study, the SLO-based UW-RF and UW-CF images of babies with ROP were compared by two independent ROP specialists masked to the patient details. The analysis broadly measured the image quality (detection rate of new vessels, vascular-avascular junction, and additional subtle vascular changes), speed (average time taken to analyze), and ease (examiner's comfort).

Results: The study included 88 eyes of 44 babies with ROP of various profiles. It included 43.2% (n=38) eyes with aggressive ROP (aggressive ROP), and the remaining 56.8% (n=50) eyes staged ROP, including 36 eyes of them with plus disease. The detection rate of all the vascular changes was higher in the SLO-based UW-RF imaging group (new vessels, p = 0.03; fine vascular changes, p = 0.048; and detecting vascular-avascular junction, p =0.23). Analysing SLO-based UF-RF images was shorter than SLO-based UW-CF images (mean 0.33 vs. 0.5 minutes; p < 0.001). The comfort level of the examiner was higher in analysing the vascular changes in SLO-based UW-RF images (p < 0.001).

Conclusions: SLO-based ultra-widefield red-free imaging has greater efficacy in detecting various vascular lesions in ROP with greater ease and less time than ultra-widefield colour fundus imaging.

Abstract No.: 201149
Nov 22, 2024 (Fri) 09:00 - 10:30
Venue: Room 334/335

Factors Associated with Cataract Development Among Children with Uveitis

*First Author: Chun-ju **LIN***

Purpose: To describe factors associated with the development of cataract among children with uveitis.

Methods: TriNetX database was used to recruit pediatric patients with and without uveitis from January 1st, 2002, to December 31st, 2022. The non-uveitis cohort consisted of randomly selected control patients matched by age, gender, ethnicity, and specific comorbidities. Exposure is the diagnosis of uveitis. The outcome was the incidence of new-onset cataracts.

Results: A total of 22,687 pediatric patients with uveitis (54.2% male; 54.5% white; mean age [SD] 10.3 [5.6] years) and 22,687 non-uveitis comparators (54.5% male; 54.7% white; mean age [SD] 10.3 [5.6] years) were enrolled in the study. The risk of cataracts was increased among pediatric patients with uveitis up to a follow-up duration of 20 years (HR, 17.17 [CI: 12.90-22.80]) from the index date.,,Subgroup analysis revealed an elevated cataract risk across the age groups: 0-6 years (HR: 19.09 [CI: 10.10-36.00]), 7-12 years (HR, 27.16 [CI: 15.59-47.20]), 13-18 years (HR, 13.39 [CI: 8.84-20.30]) and among both male (HR, 11.97 [CI:8.47-16.91]) and female (HR, 13.76 [CI: 9.60-19.71]). Furthermore, increased cataract risks were also observed among those with and without a history of immunosuppressive agents (HR, 26.52

[CI: 16.75-41.90] and HR: 17.69 [CI: 11.39-27.40]); with and without a history of steroid eye drop usage (HR, 29.51 [CI: 14.56-59.70] and HR: 16.49 [11.92-22.70], respectively).

Conclusions: An elevated risk of cataracts following uveitis diagnosis was found among children with uveitis compared to children without uveitis.

Abstract No.: 200071
Nov 22, 2024 (Fri) 09:00 - 10:30
Venue: Room 334/335

Impact of Simultaneous Aggressive Anemia Correction and Intravitreal Anti-Vascular Endothelial Growth Factor Treatment for Aggressive Retinopathy of Prematurity: A Multimodal Assessment Study

*First Author: Akash **BELENJE***
*Co-Author(s): Subhadra **JALALI**, Tapas Ranjan **PADHI**, Ugandhar **REDDY**, Brijesh **TAKKAR***

Purpose: Evaluation of multimodal imaging biomarkers in assessing the impact of simultaneous aggressive anemia correction and intravitreal injection of the anti-vascular endothelial growth factor (anti-VEGF) Bevacizumab in aggressive retinopathy of prematurity (A-ROP).

Methods: Non-contact ultra-widefield (NC-UWF) fundus imaging, integrated with UWF guided swept-source optical coherence tomography (SS-OCT), was performed prospectively in preterm infants before and after intravitreal anti-VEGF (Bevacizumab) monotherapy. Infants with anemia, defined as a hemoglobin level of less than 10.00 gm percent, were simultaneously encouraged to undergo blood transfusion with the neonatologist. Imaging outcomes of infants who were transfused (Group 1, 40 eyes of 20 infants) were compared to those whose parents or neonatologist declined transfusion (Group 2, 40 eyes of 20 infants).

Results: Group 1 A-ROP eyes exhibited a faster reduction in multilayered hemorrhages (p-value: 0.030) and faster vascular progression to zone 3 (p-value: 0.004). Group 2 A-ROP eyes had a higher incidence of reactivation (p-value: 0.038), a higher incidence of peripheral avascular retina (PAR) (p-value: 0.044), and an increased need for retreatment with laser (p-value: 0.001) compared to Group 1. Additionally, the reduction in ischemic OCT biomarkers, such as the resolution of hyperreflectivity in the inner retinal layers and an improvement in choroidal thickness >250 microns, was more pronounced in Group 1, although this difference was not statistically significant.

Conclusions: Prompt correction of moderate to severe anemia with blood transfusion in anti-VEGF-treated A-ROP eyes resulted in faster reduction of retinal hemorrhages and faster retinal vascular progression to periphery, with lower rates of reactivation and PAR requiring retreatment with laser.

Abstract No.: 200494
Nov 22, 2024 (Fri) 09:00 - 10:30
Venue: Room 334/335

Incidental Ocular Pathologies Detected During the Screening of Retinopathy of Prematurity in Preterm Infants

First Author: Arthi M
*Co-Author(s): Supriya **DABIR**, Sivakumar **MUNUSAMY**, Mohan **RAJAN***

Purpose: The study aimed to report the spectrum of ocular pathologies other than retinopathy of prematurity (ROP) occurring in preterm infants, suggesting the need for universal screening in all infants.

Methods: Infants born before 34 weeks of gestational age (GA) and/or weighing <2000 g were screened at around 4 weeks of postnatal age, and those born before 28 weeks of GA and weighing <1200 g were examined at 2–3 weeks of postnatal age. Infants between 34 and 36 weeks of GA or with a birth weight of 1750–2000 g with additional risk factors were also screened. Pupils were dilated using a fixed dose combination of 0.4% tropicamide and 2.5% phenylephrine. The infants underwent retinal imaging by a skilled ophthalmic photographer using the 3nethra neo camera (Forus, India).

Results: A total of 1437 preterm infants were screened in an outreach project which spanned 18 hospitals equipped with neonatal intensive care centers (neonatal intensive care units) in an urban setting during the study period. A total of 4339 screening sessions were conducted. Among these infants, 754 (52.47%) were male and 683 (47.52%) were female. Among these enrolled infants, 165 (12.16%) had ocular findings other than ROP. Of the 165 cases, 70 (42.42%) were anterior segment and globe pathologies, whereas the remaining 95 (57.57%) were posterior segment pathologies.

Conclusions: Timely screening helps identify and manage potentially vision-threatening pathologies including ROP. This will help reduce the burden of childhood blindness worldwide.

Abstract No.: 200324
Nov 22, 2024 (Fri) 09:00 - 10:30
Venue: Room 334/335

Long-term Outcomes of Lens-Sparing Vitrectomy for Retinal Folds in Familial Exudative Vitreoretinopathy

*First Author: Huanyu **LIU***
*Co-Author(s): Victoria **GU**, Jie **PENG**, Wenting **ZHANG**, Xuerui **ZHANG**, Peiquan **ZHAO***

Purpose: To report the long-term outcomes of lens-sparing vitrectomy (LSV) for retinal folds (RF) extending from the temporal peripheral retina to the disc with vitreoretinal tractional tissue in eyes with familial exudative vitreoretinopathy (FEVR).

Methods: In this retrospective case series, data from patients who were diagnosed with RF of FEVR and underwent LSV between February 2014 and March 2021 were reviewed.

Results: Of the 14 patients (15 eyes) included in the study, 13 were male (92.9%), 9 were right eyes (60.0%), and all were Stage 4a. The median age at LSV was 18.5 (IQR 14.6) months. The median follow-up period was 46.8 (IQR 70.4) months. Retinal detachment (RD) improved in 9 eyes (60.0%), remained stable in 5 eyes (33.3%), and progressed in one eye (6.7%) after LSV. One eye required further procedure when vascular reactivation worsened seven years post-LSV. At the last visit, 14 eyes (93.3%) were phakic, and 7 eyes (46.7%) had visual acuity of counting fingers. The macula was reattached in 3 of 4 eyes operated on before 12 months of age, compared to 1 in 11 eyes operated on after that age (P = 0.033).

Conclusions: The retina in RF of FEVR eyes may be reattached by LSV.

Abstract No.: 200177
Nov 22, 2024 (Fri) 09:00 - 10:30
Venue: Room 334/335

Macula-Vitreous Interface Vitrectomy for Pediatric Epiretinal Membrane: Surgical Principles, Clinical Outcomes and Safety Profile

*First Author: Xiaoyan **DING***

Purpose: To develop and assess a modified, micro-invasive vitrectomy approach at the macula-vitreous interface, termed Macula-Vitreous Interface Vitrectomy (MVIV). This study focuses on evaluating the safety, effects, and clinical outcomes of MVIV in treating non-inflammatory ERM in pediatric patients.

Methods: In this retrospective cohort study, 42 pediatric patients (≤14 years) with unilateral ERM who underwent MVIV were included. All included patients underwent MVIV, which involved the precise removal of vitreous near the vitreoretinal interface, primarily around the optic disc, macula, and within the vascular arcades, while preserving central and peripheral vitreous. Patients were included if they had at least one year of follow-up visits after MVIV. Ophthalmologic examinations were performed preoperatively and postoperatively at 1, 3, 6 and 12 months.

Results: MVIV was performed in 42 pediatric ERM cases with a mean age of 7.63 (2.97) years (range, 3–14). The average follow-up period was 21.20 (10.30) months (range, 12–63). Mean BCVA was 1.15 (0.79) preoperatively versus logMAR 0.95 (0.86) postoperatively at the 12-month visit (P < 0.001). All eyes achieved anatomic removal of the ERM. Postoperative improvements in CFT/LT were statistically significant (691.09 [263.36] μm preoperatively

versus 438.41 [163.00] µm postoperatively at the 12-month visit, P < 0.001). No ERM recurrence was noted. All patients exhibited transparent lenses and retained anterior vitreous and posterior vitreoretinal adhesions after MVIV. No postoperative hyphema, intraocular inflammation, endophthalmitis, choroidal detachment, proliferative vitreoretinopathy, retinal detachment, or secondary cataracts were noted.

Conclusions: Macula-vitreous interface vitrectomy is a safe, effective, minimally invasive alternative for treating pediatric non-inflammatory ERM.

Abstract No.: 200304
Nov 22, 2024 (Fri) 09:00 - 10:30
Venue: Room 334/335

Miro-Metabolomics Analysis of Aqueous Humor from Infants with Reactivated Retinopathy of Prematurity

*First Author: Wen **FAN***
*Co-Author(s): Nianfeng **TANG**, Songtao **YUAN***

Purpose: To explore the metabolic status of infants with reactivated retinopathy of prematurity (ROP).

Methods: Eleven eyes from six infants with reactivated ROP were recruited from April 2022 to September 2023, and aqueous humor was obtained prior to each intravitreal ranibizumab (IVR). Metabolomics analysis was conducted using nano-electrospray mass spectrometry (nESI-MS).

Results: The average reactivation interval was 12.156 ± 2.262 weeks, with no correlation to baseline characteristics such as gestational age or birth weight (all p > 0.05). Compared to the first IVR, lactic acid (0.001 - Fold), pyruvic acid (0.090 - Fold), serine (0.088 - Fold), purine (0.119 - Fold), and acetic acid (0.207 - Fold) decreased significantly (all p < 0.05) when receiving the second IVR. In contrast, aspartic acid (164.180 - Fold), glycine (20.374 - Fold), and alanine (50.125 - Fold) increased (all p < 0.05). Pathway enrichment analysis revealed abnormalities primarily in glycine and serine metabolism, as well as glycolysis.

Conclusions: Micro-metabolomics analysis of aqueous humor was conducted for the first time in ROP infants with reactivation. The results suggest that neovascularisation in ROP infants with reactivation may be correlated with abnormalities in glycolysis levels, glycine, and serine metabolism during the reactivation interval.

Abstract No.: 201133
Nov 22, 2024 (Fri) 09:00 - 10:30
Venue: Room 334/335

The Effect of Umbilical Cord Milking in Reducing Retinopathy of Prematurity (ROP) in Preterm Infants

*First Author: Tariq **ALI***
*Co-Author(s): Shamima **AKHTER**, Ferdous Akhter **JOLLY**, Md.Abdul **MANNAN***

Purpose: To observe the effect of ROP with umbilical cord milking as it may reduce the incidence of ROP in preterm infants by reducing the need for blood transfusions.

Methods: Neonates born before 35 weeks of gestation and weight less than 2000 grams was assigned to either umbilical cord milking or non-milking group at a 1:1 ratio according to a computer generated randomized sequence. After delivery of a baby umbilical cord milking was performed by holding the infant at the level of the placenta. Eye evaluation for ROP was done by a trained ROP specialist according to protocol either on the 20th day or on the 30th day. The follow-up schedules were organized depending on the retinal findings. The patients were grouped as no ROP, mild ROP (stages i-ii ROP without plus disease, showed regression), and severe ROP (zone 1 or zone 2, stage iii, aggressive ROP without stages, stage ii with plus disease who required treatment).

Results: 114 newborns were enrolled in this study. 57 were randomized to umbilical cord milking group and 57 to no milking group. Baseline characteristics were almost similar between the two groups. There were significant increase in hematocrit level 57.3 ±3.5 V 47.4 ± 4.5 (P value less than 0.001), reduction in need

of blood transfusion 3.5% V 42.1% (P value less than 0.001) and reduction in ROP 3.5% V 19.3% (P=0.007).

Conclusions: Umbilical cord milking after delivery improves hematocrit levels, reduces the need for blood transfusion, and reduces the incidence of ROP in preterm infants.

Abstract No.: 200523
Nov 22, 2024 (Fri) 09:00 - 10:30
Venue: Room 334/335

The Potential of ACE and MTHFR Polymorphism as Genetic Biomarker of Retinopathy of Prematurity: A Systematic Review and Meta-Analysis

*First Author: Chandra **PRABASWARA***
*Co-Author(s): Rifat **NURFAHRI**, Wimbo **SASONO**, Yeremia **SURYO PRATAMA***

Purpose: To investigate common polymorphisms in angiotensin converting enzyme (ACE) and methylenetetrahydrofolate reductase (MTHFR) genes with retinopathy of prematurity (ROP) risk.

Methods: A literature search was conducted in PubMed, Scopus, and Epistemonikos databases to retrieve genetic studies evaluating the relationship between ACE I/D, MTHFR-C677T, and ROP risk. Relevant studies were selected and reviewed systematically according to the PRISMA guideline, and RevMan 5.4 was used for data analysis.

Results: There were 601 articles up to 2024 in the databases. Five articles were included for meta-analysis. Our analysis showed that ACE I/D was associated with ROP risk in II vs ID (odds ratio [OR]: 1.40, 95% confidence interval [CI] 1.12–1.74; I2: 76%) homozygous gene model II vs DD (OR: 1.58, 95% CI 1.22–2.04; I2: 54%), and the allele model I vs. D (OR: 1.23, 95% CI 1.08–1.40; I2: 0%) were associated with higher chances to develop ROP. However, no associations of MTHFR polymorphism with ROP risk were found.

Conclusions: ACE I/D polymorphism may serve as a genetic biomarker of increased ROP risk. The MTHFR polymorphisms do not appear to influence susceptibility to ROP.

Retina (Medical)

Abstract No.: 201054
Nov 22, 2024 (Fri) 15:15 - 16:45
Venue: Room 334/335

Association Between TNF-Alpha Genetic Polymorphism with the Risk of Retinopathy of Prematurity Incidence Among Neonates: A Systematic Review, Meta-Analysis, and Meta-Regression

*First Author: Wimbo **SASONO***
*Co-Author(s): Annisa **NUGRAHANI**, Rifat **NURFAHRI***

Purpose: This meta-analysis assesses the association between TNF-α polymorphism and ROP incidence in neonates. Tumor necrosis factor-alpha (TNF-α), a key inflammatory cytokine, has shown controversial associations with ROP, necessitating further investigation.

Methods: A systematic search of MEDLINE, Scopus, and Web of Science identified studies on the TNF-α -308G>A (rs1800629) polymorphism and ROP. Odds ratios (OR) and 95% confidence intervals (CI) were calculated to estimate association strength. Fixed/random effects models were used based on heterogeneity, with statistical analyses conducted using Review Manager 5.4.

Results: Four studies with 1992 subjects were included. The TNF-α -308G>A polymorphism was significantly associated with increased ROP incidence in the dominant models (AA+AG vs. GG: OR = 1.50 [1.20, 1.86], p = 0.0003).

Conclusions: The TNF-α -308G>A polymorphism increases ROP incidence under co-dominant and dominant models, laying the foundation for gene panel therapy in ROP.

Abstract No.: 200385
Nov 22, 2024 (Fri) 11:00 - 12:30
Venue: Summit 2

Brolucizumab for the Treatment of Diabetic Macular Edema in a Japanese Population: 100-Week Results from the KESTREL Study

*First Author: Toshinori **MURATA***
*Co-Author(s): Igwe **FRANKLIN**, Ken **HOSHIYAMA**, Ippei **NAGAMORI**, Barbier **NATHALIE**, Takao **HIRANO***

Purpose: To evaluate the efficacy and safety of brolucizumab (BRO) with Aflibercept (AFL) as a reference in Japanese patients with diabetic macular edema (DME).

Methods: Patients were randomized 1:1:1 to receive BRO 3 mg (n=20), BRO 6 mg (n=19), or AFL (n=22). BRO arms received five loading doses every six weeks (q6w) followed by q12w dosing, adjustable to q8w at predefined disease activity assessment visits. The AFL arm received five monthly loading doses followed by fixed q8w dosing.

Results: In Japanese patients, the least square (LS) mean best corrected visual acuity change from baseline at week 100 was 7.7 ± 1.87 letters for BRO 6 mg and 9.9 ± 1.74 letters for AFL. The LS mean central subfield thickness (CST) change at W4 for BRO 6 mg was -110.8 ± 16.12 µm and -69.5 ± 14.89 µm for AFL. At W100, the LS mean CST was -182.3 ± 14.59 µm for BRO 6 mg and -167.3 ± 13.48 µm for AFL. One intraocular inflammation event (5.3%) and one retinal vascular occlusion event (5.3%) were reported in the BRO 6 mg arm.

Conclusions: In Japanese patients with DME, BRO 6 mg demonstrated improvements in vision and numerically better anatomical outcomes compared to AFL, with no new or unexpected safety findings.

Abstract No.: 200346
Nov 22, 2024 (Fri) 11:00 - 12:30
Venue: Summit 2

Clinical Characteristics and Progression Rates of Geographic Atrophy in a Multiethnic Asian Population from Singapore

*First Author: Farah **IBRAHIM***
*Co-Author(s): Gemmy **CHEUNG**, Kenric **FAN**, Beau J **FENNER***

Purpose: To characterize geographic atrophy (GA) associated with age-related macular degeneration (AMD) and its progression rates in a multiethnic Asian cohort.

Methods: GA lesion area was quantified at baseline and follow-up using near-infrared (NIR), with spectral-domain optical coherence tomography (SD-OCT) verifying the presence of atrophy. GA lesion expansion and risk factors for high progression rates were determined using multivariate analysis.

Results: A total of 170 eyes from 170 patients were included (88.2% Chinese, 4.7% Malay, 3.5% Indian, and 3.5% Others), with a mean follow-up of 4.12 years (SD 2.95). The mean age at baseline was 78.4 years (SD 8.2), and 42.9% were males. The mean baseline GA area was 4.25 mm2 (SD 4.25), visual acuity was 0.71 logMAR (SD 0.52), and subfoveal choroidal thickness was 168.3 µm (SD 77.4). There were 97 (57.1%) eyes with multifocal GA, 42 (24.7%) with bilateral GA, and 135 (79.4%) with foveal involvement. Macular neovascularization was present in 48 (28.2%) eyes. The GA progression rate was 0.98 mm2/year (SD 1.26). Bilateral disease (OR 4.19; 95% CI 1.53–11.45; p = 0.005), reticular pseudodrusen (OR 3.24; 95% CI 1.21–8.68; p = 0.02), larger baseline GA area (OR 6.22; 95% CI 2.71–4.29; p < 0.001), and multifocal disease (OR 2.68; 95% CI 1.22–5.88; p = 0.01) were associated with faster GA progression.

Conclusions: This study evaluated AMD-associated GA in predominantly Chinese Asian patients. These findings are valuable for identifying patients at higher risk of GA progression and will inform future trials and

the clinical use of GA therapeutics in Asian populations.

Abstract No.: 201070
Nov 22, 2024 (Fri) 15:15 - 16:45
Venue: Room 334/335

Comparison of Biomarkers in Diabetic Retinopathy Between Young and Senior Patients Using Swept-Source Ultra-Widefield Optical Coherence Tomography Angiography

*First Author: Yusra **ASAD***
*Co-Author(s): Hnin Hnin **OO**, Wei Hing **SEAH**, Wenjun **SONG**, Wenting **ZHOU***

Purpose: To evaluate the differences in biomarkers of diabetic retinopathy (DR) between young and senior patients utilizing ultra-widefield (UWF) swept-source optical coherence tomography angiography (SS-OCTA).

Methods: This is a cross-sectional observational study. We recruited two groups of patients (young: diabetes diagnosed before the age of 45 vs. senior: diagnosed after the age of 45) with all grades of DR. Patients were imaged on UWF SS-OCTA using 6x6mm, 12x12mm and 26x21mm angiographic scans. OCT metrics analyzed included vessel density (VD) - both superficial and deep plexus, foveal avascular zone area (FAZ), and choroidal vascular index (CVI). Nonperfusion area (NPA) and neovascularization (NV) were calculated using a machine deep learning algorithm developed by our group. Differences in biomarkers between both groups were compared in different DR stages.

Results: A total of 108 eyes of 54 patients were included (24 eyes of 12 young patients and 84 eyes of 42 senior patients). The FAZ and CVI increased with increasing severity of DR while the VD decreased in both groups. The total NPA in a similar stage of DR was higher in the senior group compared to the younger group. In proliferative DR, a higher number of NVs were observed in young patients versus senior ones.

Conclusions: This study underscores the importance of using UWF OCTA as a quick, non-invasive method to assess key vascular characteristics in DR. It also improves our understanding of differences in these characteristics between young and senior diabetic patients. This insight could aid in personalizing monitoring and treatment regimens for both age groups.

Abstract No.: 200415
Nov 22, 2024 (Fri) 11:00 - 12:30
Venue: Summit 2

Deep Learning-Quantified Retinal Aging and Multi-Omics Underpinnings for Predicting Vascular Outcomes in Diabetes

*First Author: Pingting **ZHONG***
*Co-Author(s): Wenyong **HUANG**, Wei **WANG***

Purpose: Retinal age offers a novel approach for assessing biological aging, yet its potential in managing diabetes remains largely unexamined.

Methods: Cox proportional hazard models were used to examine the relationship between preceded retinal aging and the risk of diabetic vascular diseases (DVD) within the UKB cohort. Linear regression model was adopted to assess the correlation between accelerated retinal aging and the risk of cardiovascular diseases within the GDES cohort. The metabolites linked to both retinal age and DVD were identified utilizing metabolomic techniques.

Results: A strong association was revealed between preceded retinal aging and elevated risk of major DVD: individuals in the highest retinal age gap quartile demonstrated a 134% greater stroke risk (hazard ratio [HR]=2.34; 95% CI, 1.01-5.44, P=0.048), a 32% increased coronary heart disease risk (HR=1.32 [1.00-1.76], P=0.051), and a 117% elevated risk of microvascular complications (HR=2.17 [1.34-3.52], P=0.002) compared to those in the lowest quartile. This relationship persisted after adjusting for polygenic risk scores. In a separate diabetes cohort with distinct genetic profiles, an accelerated retinal aging was observed in those with new-onset DVD (β=15.7% [2.1%-29.3%], P=0.023). Metabolomic investigations across diverse ethnicities identified key

metabolites, including glutamine, creatinine, and lipoproteins, as pivotal connectors between retinal aging and DVD. Furthermore, the retinal aging profiling exhibited notable alignment with established epigenetic clocks (r=0.760 for AgeAccDiff_Hannum13y; r=0.714 for AgeAccDiff_Horvath13y; r=0.675 for AgeAccDiff_Horvath18y; r=0.575 for AgeAccDiff_PhenoAgey; r=0.821 for AgeAccDiff_Zhang19enpredy; all P<0.001).

Conclusions: The non-invasive and easily accessible retinal age may stand out as a promising tool for DVD management.

Abstract No.: 200386
Nov 22, 2024 (Fri) 11:00 - 12:30
Venue: Summit 2

Efficacy and Safety of Recombinant Humanized Anti-VEGF Monoclonal Antibody 601 for Macular Edema Due to Retinal Vein Occlusion

*First Author: Xiaorong **LI***

Purpose: To evaluate the efficacy and safety of recombinant humanized anti-vascular endothelial growth factor (VEGF) monoclonal antibody 601 compared to Ranibizumab in patients with macular edema secondary to Branch retinal vein occlusion (BRVO) and central retinal vein occlusion (CRVO).

Methods: Patients with macular edema caused by BRVO or CRVO were separately enrolled in two 52-week, randomized, double masked, active comparator-controlled Phase IIa studies. Patients were randomized 1:1 to receive intravitreal 601 (1.25mg/eye) or Ranibizumab (0.5mg/eye) every four weeks up to Week (W) 20, followed by pro re nata treatment up to W48. Major eligibility criteria included a BCVA of 78 to 19 ETDRS letters and CRT of ≥250 μm.

Results: In both trials, 60 patients were randomized to receive 601 (n=31 and 29) or Ranibizumab (n=29 and 30) between JAN2021 and NOV2022. Adjusted mean BCVA change from baseline to W24 was +16.52 letters in the 601 group versus +17.79 letters in the Ranibizumab group (adjusted mean differences "amd": -1.27 [95%CI, -5.439 to 2.891]) in BRVO, and +13.81 versus +16.79 letters (amd: -2.97 [95%CI, -10.488 to 4.540]) in CRVO. Adjusted mean CRT change from baseline to W24 was -300.11 versus -311.96 μm (amd: 11.86 [95%CI, -15.171 to 38.884]) in BRVO, and -418.12 versus -475.48 μm (amd: 57.36 [95%CI, -19.772 to 94.954]) in CRVO. BCVA gains and CRT reductions were maintained throughout W24–W52 for both groups.

Conclusions: The efficacy and safety of 601 for macular edema are demonstrated, with 1.25mg injections providing robust vision and anatomic improvement comparable to 0.5mg Ranibizumab and favorable safety profiles.

Abstract No.: 200369
Nov 22, 2024 (Fri) 11:00 - 12:30
Venue: Summit 2

Efficacy, Durability and Safety of Faricimab in DME: 2-Year Results from China Subpopulation of Phase 3 RHINE Trial

*First Author: Xiaodong **SUN***
*Co-Author(s): Qiuyu **CHEN**, Yanjun **SHI***

Purpose: The RHINE trial (NCT03622593) demonstrated that faricimab provided visual acuity and anatomic improvement from baseline and extended durability which was maintained through year 2 in diabetic macular edema (DME). This report focuses on the efficacy, durability, and safety of faricimab in the Chinese subpopulation at year 2.

Methods: Patients were randomised to receive faricimab 6.0 mg Q8W, faricimab 6.0 mg T&E, or aflibercept 2.0 mg Q8W. The T&E regimen used prespecified best-corrected visual acuity (BCVA)/central subfield thickness (CST) criteria to adjust dosing up to Q16W. The key 2-year outcome was the mean BCVA change from baseline averaged over weeks 92, 96, and 100. Other endpoints were assessed through week 100.

Results: 152 Chinese patients were enrolled (n=51 faricimab Q8W, n=49 faricimab T&E, n=52 aflibercept Q8W). Mean BCVA change from baseline at year 2 with faricimab Q8W (+12.4 letters), faricimab T&E (+11.8 letters) remained comparable with aflibercept

Q8W (+9.1 letters). At week 96, 60% of the faricimab T&E arm achieved Q16W dosing and 80% achieved ≥Q12W dosing. Robust CST reductions were observed in both faricimab arms through year 2. Faricimab was well tolerated as evidenced by the low incidence of AEs leading to treatment or study withdrawal throughout the study, and no new safety signals were identified.

Conclusions: The efficacy and durability profiles of faricimab observed from the primary analysis in year 1 were maintained through year 2 in the Chinese subpopulation, which are consistent with those of the global population.

Abstract No.: 200551
Nov 22, 2024 (Fri) 11:00 - 12:30
Venue: Summit 2

Faricimab in Diabetic Macular Edema: Results from the RHONE-X Long-Term Extension Trial

*First Author: Andrew **CHANG***
*Co-Author(s): Arshad **KHANANI**, Alex **KOTAK**, Aachal **KOTECHA**, Dawn **SIM**, Yannan **TANG***

Purpose: RHONE-X (NCT04432831) evaluated the long-term safety and efficacy of faricimab in patients with diabetic macular edema (DME).

Methods: RHONE-X was a 2-year, phase 3, multicenter, open-label extension trial. Patients with DME who completed either YOSEMITE (NCT03622580) or RHINE (NCT03622593) trials (parent trials) without treatment discontinuation were enrolled. All patients entering RHONE-X received faricimab 6 mg according to a treat-and-extend (T&E)-based regimen with up to Q16W dosing (based on prespecified vision and anatomic criteria per parent trials), irrespective of treatment assignment in parent trials. Patients were evaluated during masked monthly visits for the first 16 weeks of the trial; thereafter, study visits were open label and aligned with their T&E interval.

Results: RHONE-X included 1474 patients, with 81.6% (1204) completing the trial. Faricimab was well tolerated across the 2 years as demonstrated by the low rate of adverse event (AE)-related study discontinuation. Intraocular inflammation AE rates were low (1.3%). There were no cases of retinal vasculitis/retinal occlusive vasculitis. Vision gains and central subfield thickness (CST) reductions achieved during the parent trials were maintained at 1 and 2 years with faricimab T&E dosing. At RHONE-X trial conclusion, faricimab resulted in DME absence (CST <325 µm) in >90% of individuals regardless of treatment assignment in parent trials. Approximately 80% of patients were on extended dosing intervals.

Conclusions: RHONE-X shows that faricimab is well tolerated, with a safety profile consistent with parent trials. The efficacy and durability achieved with faricimab during the parent trials were maintained throughout this 2-year long-term extension trial.

Abstract No.: 200534
Nov 22, 2024 (Fri) 11:00 - 12:30
Venue: Summit 2

Genome-Wide Meta-Analysis for Subfoveal Choroidal Thickness in Asian Identified Novel Trans-Ethnic Susceptibility Loci

*First Author: Masahiro **MIYAKE***
*Co-Author(s): Jost **JONAS**, Fan **QIAO**, Kho-hei **SONODA**, Akitaka **TSUJIKAWA**, Mori **YUKI***

Purpose: To identify susceptibility genes for subfoveal choroidal thickness (SFCT).

Methods: A genome-wide meta-analysis was conducted using eight independent Asian GWASs comprising a total of 11,245 Asians (9267 Japanese, 1504 Chinese, 333 Malays, and 141 Indians). Meta-analyses were conducted using inverse-variance weighted model. As a replication study, SNPs showing a P-value of < 1.0 × 10^-5 were looked up from the genome-wide association study of SFCT conducted using a total of 38,485 Europeans from the UK Biobank.

Results: In the discovery stage, two previously reported SFCT susceptibility loci were successfully replicated; rs514591 at CFH and rs3793237 at VIPR2 (P = 1.31 × 10^-12 and 5.33 × 10^-10, respectively). Among seventeen loci evaluated in the replication study, rs1680419 at CFH (PEuropean = 8.62 × 10^-6), rs10199299 at USP21P1-LOC100289117 (PEuropean = 8.15

× 10^-5) and rs7243091 at BCL2 (PEuropean = 5.29 × 10^-5) showed a significant association after Bonferroni correction. By meta-analyzing Asian and European results, these three loci exceeded a genome-wide significance threshold (P = 4.86 × 10^-10, 1.09 × 10^-8, and 1.42 × 10^-9, respectively).

Conclusions: A large-scale Asian meta-GWAS identified two novel SFCT susceptibility loci. The association of CFH, USP21P1-LOC100289117, and BCL2 with SFCT were confirmed in both Asians and Europeans.

Abstract No.: 200454
Nov 22, 2024 (Fri) 11:00 - 12:30
Venue: Summit 2

Initial Retinal Nerve Fiber Layer Loss and Risk of Diabetic Retinopathy Over a Four-Year Period

*First Author: Huangdong **LI***
*Co-Author(s): Wei **WANG**, Shaopeng **YANG**, Ziyu **ZHU***

Purpose: To investigate whether the rapid rate of peripapillary retinal nerve fiber layer (pRNFL) thinning in the short term is associated with an increased future risk of developing diabetic retinopathy (DR).

Methods: This prospective cohort study utilized the four-year follow-up data from the Guangzhou Diabetic Eye Study. pRNFL thickness was measured by swept-source optical coherence tomography. DR was graded by seven-field fundus photography after pupil dilation. Correlations between pRNFL thinning rate and DR were analyzed using logistic regression. The additive predictive value of the prediction model was assessed using the C-index, net reclassification index (NRI), and integrated discriminant improvement index (IDI).

Results: A total of 1012 diabetic patients (1012 eyes) without DR at both baseline and one-year follow-up were included. Over the four-year follow-up, 132 eyes (13.04%) developed DR. After adjusting for confounding factors, a faster rate of initial pRNFL thinning was significantly associated with the risk of DR (odds ratio per SD decrease, 1.15; 95% CI: 1.08, 1.23; P < 0.001). Incorporating either the baseline pRNFL thickness or its thinning rate into conventional prediction models significantly improved discriminatory power. Adding the rate of pRNFL thinning further enhanced the discriminative power compared to models with only baseline pRNFL thickness (C-index increased from 0.685 to 0.731; P = 0.040). The IDI and NRI were 0.114 and 0.463 (P < 0.001).

Conclusions: The rate of initial pRNFL thinning was associated with DR occurrence and improved discriminatory power of traditional predictive models. This provides new insights into the management and screening of DR.

Abstract No.: 200963
Nov 22, 2024 (Fri) 15:15 - 16:45
Venue: Room 334/335

Intravitreal Sozinibercept (anti-VEGF-C/-D 'trap') Combined with Ranibizumab for the Treatment of Polypoidal Choroidal Vasculopathy: A Predefined Phase 2b Subgroup Analysis

*First Author: Gregg **KOKAME***

Purpose: To assess the efficacy and safety of sozinibercept, a biologic 'trap' inhibitor of VEGF-C and VEGF-D, when combined with ranibizumab for the treatment of polypoidal choroidal vasculopathy (PCV).

Methods: A prespecified subgroup analysis of a randomized, double-masked, sham-controlled phase 2b trial (NCT03345082) in patients with treatment-naïve neovascular age-related macular degeneration. Participants were randomized 1:1:1 to receive ranibizumab 0.5 mg every 4 weeks in combination with 0.5 mg sozinibercept, 2 mg sozinibercept, or sham injection (control). Diagnosis of PCV was made utilizing masked reading center (DARC, New York). The primary endpoint was mean change from baseline in best-corrected visual acuity (BCVA) at Week 24. Secondary endpoints included anatomical changes in lesion morphology, and safety/tolerability.

Results: PCV was identified in 66/336 participants (18%). Mean BCVA change from

baseline was +10.9 (0.5 mg sozinibercept, n=24), +13.5 (2 mg sozinibercept, n=22), and +6.9 letters (ranibizumab monotherapy, n=20). The 2 mg sozinibercept combination group had a statistically superior BCVA gain versus monotherapy control (+6.7 letter least squares mean difference; p=0.0253). At Week 24 eyes in the 2 mg sozinibercept combination group had less subretinal fluid (19% versus 42.1%) and less intraretinal cysts (9.1% versus 25%) than with ranibizumab monotherapy. Both sozinibercept doses were well tolerated, with a similar safety profile to ranibizumab in the PCV subgroup and the overall trial population.

Conclusions: In patients with PCV, 2 mg sozinibercept combination therapy provided better visual and anatomic outcomes than ranibizumab alone, warranting further study in this population.

Abstract No.: 200376
Nov 22, 2024 (Fri) 11:00 - 12:30
Venue: Summit 2

Long-Term Efficacy and Safety of Pegcetacoplan Over 36 Months Including 12-Month Results of the GALE Open-Label Extension Study

*First Author: Andrew **CHANG***
*Co-Author(s): Caroline **BAUMAL**, Jeff **HEIER**, Patricia **MEUSE**, Nathan **STEINLE**, Charles **WYKOFF***

Purpose: To report the 36-month efficacy and safety of pegcetacoplan in patients with geographic atrophy (GA) secondary to age-related macular degeneration.

Methods: Following the phase 3 OAKS/DERBY trials, patients could enroll in the 3-year open-label GALE extension. Pegcetacoplan-treated patients in OAKS/DERBY continued the same regimen, monthly (PM) or every other month (PEOM). Patients receiving sham crossed over to pegcetacoplan at the same dosing interval: sham monthly to PM or sham every other month to PEOM. Both subfoveal and nonsubfoveal GA were included. Safety and efficacy data over 36 months are reported.

Results: Overall, 83% (n=782) of patients who completed OAKS/DERBY entered GALE and 92% completed the first 12 months. Between Months 24 and 36, pegcetacoplan reduced GA growth vs projected sham in nonsubfoveal GA by 42% with PM (p<0.0001) and 28% with PEOM (p=0.0015), and in the overall population by 35% with PM and 24% with PEOM (both p<0.0001). In microperimetry, eyes treated with PM for 36 months had fewer new absolute scotomatous points compared to the pooled sham crossover arm (-2.9, confidence interval [CI] -5.3, -0.6, p=0.0156). The safety profile in the first 12 months was consistent with OAKS/DERBY. The estimated rate of post-marketing events of vasculitis remains ~1/10,000 per injection (>250,000 injections through March 2024) in the real-world setting; this appears to be a first injection phenomenon (rate of ~1/4000).

Conclusions: Pegcetacoplan long-term efficacy and safety were demonstrated in GA patients. GALE is the largest long-term extension in GA, and these 36-month results highlight the benefits of C3/C3b complement inhibition with pegcetacoplan.

Abstract No.: 200359
Nov 22, 2024 (Fri) 11:00 - 12:30
Venue: Summit 2

Patient Preference for the Port Delivery System With Ranibizumab (PDS) vs Intravitreal Injections: 1-Year Results from the Phase 3 Pagoda Trial in Patients With Diabetic Macular Edema (DME)

*First Author: Adrian **KOH***
*Co-Author(s): Kira **BALDONADO**, Margaret A. **CHANG**, Avril **DALY**, Dennis M. **MARCUS**, Kailin **TIAN***

Purpose: To evaluate patient preference for continuous delivery of ranibizumab 100 mg/mL via PDS with fixed refill exchanges every 24 weeks (PDS Q24W) versus intravitreal injections in patients with centre-involved DME.

Methods: Pagoda (NCT04108156) is an ongoing Phase 3 randomised trial comparing PDS Q24W (n = 381) with intravitreal

ranibizumab 0.5 mg injections every four weeks (n = 253). Patient preference was assessed using the PDS Patient Preference Questionnaire (PPPQ) at Week (W) 64.

Results: 245 of 250 patients (98.0%) who received PDS in the modified intent-to-treat population completed the PPPQ. At W64, the majority of PDS patients preferred treatment via PDS (82.4% [n=202/245]) over intravitreal injections (5.3% [n=13/245]); 12.2% (n=30/245) had no preference. Common reasons for preferring PDS included fewer treatments (73.8% [n=149/202]), less discomfort (57.4% [n=116/202]), and requiring less time for treatment (48.5% [n=98/202]). Among patients who preferred PDS, 97.0% (n=196/202) reported a very/fairly strong preference. Among PDS patients who received ≤4 intravitreal injections from baseline to W64, 80.7% (n=180/223) preferred PDS, while 5.8% (n=13/223) preferred intravitreal injections; of those who received 5–10 intravitreal injections, 100% preferred PDS. The majority of PDS patients who gained BCVA (≥1 letter) in the study eye from baseline at W64, and those with ≥1 adverse events of special interest in the study eye before W64, showed a preference for PDS over intravitreal injections (83.2% [n=178/214], 78.8% [n=52/66], versus 4.7% [n=10/214], 6.1% [n=4/66], respectively).

Conclusions: >80% DME patients preferred PDS over intravitreal injections, with almost three-quarters citing reduced treatment burden as the reason for preferring PDS.

Abstract No.: 201047
Nov 22, 2024 (Fri) 15:15 - 16:45
Venue: Room 334/335

Pooled Safety Analysis of the CANDELA, PHOTON, and PULSAR Trials Up to 96 Weeks Comparing Intravitreal Injections with Aflibercept 8 mg and 2 mg

*First Author: Tien-yin **WONG***
*Co-Author(s): Paolo **LANZETTA**, Sergio **LEAL**, Peter **MORGAN WARREN**, Eric **SCHNEIDER**, Andreas **STAHL***

Purpose: To compare the safety of aflibercept 8 mg versus 2 mg in the CANDELA, PHOTON, and PULSAR trials.

Methods: Phase 2 CANDELA was a single-masked, open-label, 44-week Phase 2 nAMD trial. Phase 3 PULSAR and Phase 2/3 PHOTON were double-masked, 96-week trials in nAMD and DMO, respectively. 1773 patients (aflibercept 8 mg: n=1217; aflibercept 2 mg: n=556) were evaluated.

Results: Ocular treatment-emergent adverse events (TEAEs) in the study eye were reported in 47.9% and 47.3% of patients receiving aflibercept 8mg and 2mg, respectively. The most common ocular TEAEs were cataract (8.2% and 5.0%, comparing aflibercept 8mg and 2mg), reduced visual acuity (4.4% and 5.4%), vitreous floaters (4.0% and 4.0%), conjunctival hemorrhage (3.8% and 3.1%), and retinal hemorrhage (3.6% and 4.0%). TEAEs of ocular hypertension and increased intraocular pressure (IOP) were reported in 1.0% and 0.5% of patients and 2.8% and 3.1% of patients with aflibercept 8mg and 2mg, respectively. Intraocular inflammation was reported in 1.3% and 1.6% of patients with aflibercept 8mg and 2mg respectively. No cases of occlusive retinal vasculitis were reported. Serious ocular TEAEs were reported in 2.3% and 1.3% of patients with aflibercept 8mg and 2mg: those occurring in >1 patient in either treatment group were retinal detachment (0.5% and 0.2%), cataract (0.4% and 0.2%), retinal hemorrhage (0.3% and 0.2%), increased IOP (0.2% and 0%), vitreous hemorrhage (0.2% and 0%), and retinal tear (0.2% and 0%).

Conclusions: Aflibercept 8 mg demonstrated comparable safety to 2 mg up to 96 weeks across the three large multi-center trials.

Abstract No.: 200380
Nov 22, 2024 (Fri) 11:00 - 12:30
Venue: Summit 2

Port Delivery System with Ranibizumab (PDS) for Continuous Treatment in Diabetic Retinopathy (DR) Without Centre-Involved Diabetic Macular Edema (CI-DME): 2-Year Data from the Phase 3 Pavilion Trial

First Author: Timothy ***LAI***
Co-Author(s): Carl C. ***AWH****, Margaret A.* ***CHANG****, Arshad* ***KHANANI****, Paul* ***LATKANY****, Kailin* ***TIAN***

Purpose: To evaluate the long-term (week 100) results of continuous ranibizumab 100 mg/mL delivery via the PDS with fixed refill exchanges every 36 weeks (PDS Q36W) in patients with DR without CI-DME.

Methods: In the phase 3 Pavilion trial (NCT04503551), patients were randomised in a 5:3 ratio to PDS Q36W or control. PDS Q36W patients received two ranibizumab 0.5 mg loading doses before PDS implantation at week (W) 4. Control patients received standard-of-care (monthly clinical monitoring) until W60; control patients then received two ranibizumab loading doses before PDS implantation at W64 (control-PDS Q36W). PDS refill-exchange procedures occurred Q36W through W100. Patients could receive supplemental ranibizumab treatment at each study visit except refill-exchange visits.

Results: In the PDS Q36W arm (n=106), 80.2% (95% CI, 72.6%–87.8%) of patients achieved a ≥2-step DR severity scale (DRSS) improvement from baseline at W100. Through W100, 2% of PDS Q36W patients received supplemental treatment. In the control arm, 29 patients were implanted, and 91.7% (95% CI, 80.6%–100.0%) achieved a ≥2-step DRSS improvement from baseline at W100 (observed data). No control-PDS Q36W patients received supplemental treatment after PDS implantation. Safety results were consistent with primary analysis. One PDS Q36W patient developed endophthalmitis and received a refill-exchange after successful treatment. No control-PDS Q36W patients developed endophthalmitis after PDS implantation. No device dislocation events were reported in either arm.

Conclusions: Long-term Pavilion results confirm PDS Q36W's sustained efficacy throughout two years. No new safety signals were observed through W100. PDS has potential for long-term disease control with one refill-exchange every 9 months.

Abstract No.: 200692
Nov 22, 2024 (Fri) 15:15 - 16:45
Venue: Room 334/335

Positive and Negative Associations of Myopia with Ocular Diseases in Population-Based Studies

First Author: Jost ***JONAS***
Co-Author(s): Mukharram M. ***BIKBOV****, Vinay* ***NANGIA****, Songhomitra* ***PANDA-JONAS****, Yaxing* ***WANG***

Purpose: To evaluate whether myopia is associated with ocular disorders other than myopic macular degeneration.

Methods: The Russian Ural Eye and Medical Study (UEMS) and the Beijing Eye Study (BES) included 5899 individuals and 4439 individuals (all aged 40+ years), respectively, and the Central India Eye and Medical Study (CIEMS) consisted of 4711 individuals, aged 30+ years. The studies were conducted in rural and urban regions in Bashkortostan/Russia, Nagpur/India, and Beijing/China. The participants underwent a series of ophthalmological and general medical examinations.

Results: In the UEMS, DR prevalence (OR:0.73;95%CI:0.56,0.96), AMD prevalence (OR:0.85;95%CI:0.74,0.98) and ACG prevalence (OR:0.72;95%CI:0.55,0.95) decreased, and OAG prevalence (OR:1.65;95%CI:1.45,1.88) increased with longer axial length in multivariable analyses. In the CIEMS, lower AMD prevalence (OR:0.81;95%CI:0.69,0.95) and lower ACG prevalence (OR:0.55;95%CI:0.36,0.83), and higher OAG

prevalence (OR:1.45;95%CI:1.15,1.83) were associated with longer axial length. DR prevalence (0.33%;95%CI:0.16,0.50) was too low for statistical analysis in the CIEMS. In the BES, prevalence (OR:0.64;95%CI:0.50,0.81) and 10-year incidence of DR (OR:0.48;95%CI:0.33,0.71) and prevalence (OR:0.83;95%CI:0.77,0.89) and 5-year incidence of AMD (OR:0.996;95%CI:0.993,0.999) decreased, and prevalence (OR:1.35;95% CI:1.17,1.56) and 10-year incidence of OAG (OR:1.40;95%CI:1.22,1.61) increased with longer axial length. In all three studies, the association between higher OAG prevalence and longer axial length was nonlinear with a slight increase for the moderate myopia range, and a steep increase in the highly myopic range.

Conclusions: Myopia is associated with a lower prevalence of DR, AMD and ACG and lower incidence of DR and AMD, while high myopia more than moderate myopia is associated with a higher prevalence and incidence of OAG.

Abstract No.: 200252
Nov 22, 2024 (Fri) 11:00 - 12:30
Venue: Summit 2

Real-World Efficacy and Safety of Faricimab in Neovascular Age-Related Macular Degeneration: Two-Year Results of the TRUCKEE Study

*First Author: Michael **SINGER***
*Co-Author(s): Aamir **AZIZ**, Hanah **KHAN**, Arshad **KHANANI**, Preston **OBRIEN***

Purpose: Faricimab received FDA approval in late January 2022 for the sustained treatment of neovascular age-related macular degeneration (nAMD). This real-world, multicenter retrospective study collects and analyzes the efficacy, safety, and durability of the bispecific faricimab in nAMD patients .

Methods: A retrospective chart review yielded data on demographics, treatment history, best-corrected visual acuity (BCVA), central subfield thickness (CST), and the presence of subretinal fluid (SRF) or intraretinal fluid (IRF). Improvements in visual acuity and CST were evaluated as averages, and retinal fluid improvements as proportions. Observed and calculated data were reported, along with safety outcomes.

Results: 3299 eyes from 2675 patients were recorded. The average age was 79.9; 55.0% were female and 42.7% had switched from aflibercept. All eyes switched from any anti-VEGF after one injection of faricimab (n = 2591) had a BCVA increase of +0.47 letters (p = 0.8554), a CST decrease of -13.58 µm (p = 0.0049), and SRF/IRF resolution rates of 25.6% and 22.2%. All eyes switched from any anti-VEGF after six injections of faricimab (n = 717) had a BCVA increase of +0.58 letters (p = 0.9296), a CST decrease of -47.05 µm (p < 0.00001), and SRF/IRF resolution rates of 31.2% and 24.7%. Intraocular inflammation occurred at a rate of 0.07% per injection.

Conclusions: Dual inhibition of VEGF-A and Ang-2 with faricimab improves all anatomic parameters in previously treated patients. Safety profiles are comparable to other commonly used agents. Future results will investigate faricimab in real-world nAMD patients. The latest data will be presented at APVRS 2024.

Abstract No.: 200100
Nov 22, 2024 (Fri) 11:00 - 12:30
Venue: Summit 2

Retinal Nerve Fiber Layer Defect as a Predictive Biomarker for Cerebral Stroke: A 5-Year Prospective Study

*First Author: Du **KUIFANG***
*Co-Author(s): Hongwei **JI**, Qian **WANG**, Yaxing **WANG**, Wenbin **WEI***

Purpose: To investigate the predictive value of retinal nerve fiber layer defect (RNFLD) for incident stroke.

Methods: The Kailuan Cohort Study included 101,510 participants, with follow-ups conducted every two years. A randomly selected subgroup of 14,440 participants underwent a detailed ophthalmologic assessment during 2014–2015. Fundus photographs were evaluated for the presence of RNFLD and other retinal lesions. Incident cerebrovascular strokes were recorded through December 2019.

Results: Among the 14,440 participants enrolled at baseline, 308 experienced a stroke over five years, with an incidence of 2.1 ± 0.1%. RNFLD was more frequently observed in the incident stroke group than the non-incident stroke group (43.3 ± 3.1% versus 11.2 ± 0.6%; odds ratio: 6.21, P < 0.001). Multivariate analysis revealed that baseline RNFLD was associated with increased risks of incident stroke, with a hazard ratio of 4.48 (95% CI: 3.47-5.78; P < 0.001) after controlling for age, sex, smoking, hypertension, and systolic blood pressure. After incorporating RNFLD into the Framingham Stroke Risk Profiles, the corresponding areas under the receiver operating characteristic curve in the low-risk group, medium-risk group, and high-risk group increased by 15.6%, 21.9%, and 17.4%, respectively (all P < 0.001). This improvement was further substantiated by notable enhancements in quantitative evaluations, including Harrell's C statistic, integrated discrimination improvement index, and net reclassification improvement index (all P < 0.001).

Conclusions: This prospective study demonstrates that RNFLD is an independent biomarker for incident stroke over 5 years, indicating a fivefold increased risk. Integrating RNFLD into routine risk assessment could enhance predictive value and improve patient outcomes.

Abstract No.: 200082
Nov 22, 2024 (Fri) 11:00 - 12:30
Venue: Summit 2

Safety and Dynamic Changes in Chorioretinal Circulation during Repeated Low-Level Red Light Therapy for Myopia in School-Aged Children

*First Author: Jin **MA***

Purpose: To evaluate the safety of repeated low-level red light (RLRL) therapy in children and the dynamic evolution of choroidal and retinal blood flow.

Methods: Seventy myopic children aged 8 to 15 years were randomly assigned to either the intervention group (receiving RLRL therapy plus single-vision spectacle [SVS]) or the control group (wearing SVS only). RLRL therapy was applied using a desktop light therapy device emitting red light at a wavelength of 650 nm. Participants underwent comprehensive ophthalmic examinations following their first irradiation, 9 months of continuous RLRL therapy, and the cessation of treatment.

Results: Over 9 months of continuous exposure, the RLRL treatment demonstrated significantly less increase in refractive error and axial length compared to the SVS treatment. Nevertheless, no abnormalities in fundus structure or visual function (mfERG, VEP, and microperimetry) were detected. A single red-light exposure did not exert a significant influence on choroidal thickness, but there was a marked escalation in choroidal microcirculation, retinal microcirculation, and retinal large vessel circulation. By the 9-month mark of continuous treatment, the RLRL group achieved peak values in these circulations, with discernible disparities between the two groups. Following cessation of exposure, all circulations exhibited a declining trend, reaching similar levels in both groups. As the frequency of red-light exposures intensified, there was a consistent surge observed in these circulations.

Conclusions: Nine months of continuous RLRL exposure does not cause toxic side effects on retinal or optic nerve functions, and there is a time-dependent cumulative response in choroidal microcirculation, retinal microcirculation, and retinal large vessel circulation.

Abstract No.: 201142
Nov 22, 2024 (Fri) 15:15 - 16:45
Venue: Room 334/335

Safety, Tolerability, and Efficacy of Tinlarebant: 24-Month Primary Outcomes of the Phase 2 Study in Adolescent Patients with Stargardt Disease

*First Author: Quan Dong **NGUYEN***
*Co-Author(s): Ta-ching **CHAN**, Fred **CHEN**, John **GRIGG**, N **MATA**, Michel **MICHAELIDES***

Purpose: This study presents data from a 24-month, phase 2 trial evaluating Tinlarebant,

an orally available retinol binding protein 4 (RBP4) antagonist, in adolescent patients with Stargardt Disease (STGD1).

Methods: Thirteen patients aged 12-18 with clinically and molecularly confirmed STGD1 and foveal-involved questionably decreased autofluorescence (QDAF) lesions at baseline were treated with Tinlarebant (5 mg, orally per day) for 24 months. Fundus autofluorescence (FAF) imaging identified definitely decreased autofluorescence (DDAF) lesions, quantitative autofluorescence (qAF), visual function, patient-reported visual impairment, and adverse events were monitored during treatment.

Results: All subjects had biallelic pathogenic ABCA4 mutations. Tinlarebant reduced RBP4 by 80-90%, reversible after 28 days of cessation. At Month 24, 5 of 12 subjects (42%) showed no incident DDAF lesions. For the 7 subjects with incident DDAF lesions, growth was significantly lower (~50%) compared to baseline controls ($p<0.001$). qAF evaluation in 3 subjects showed an overall decrease, with 2 subjects having no incident DDAF lesions by Month 24. Best-corrected visual acuity remained stable, with a mean loss of 5 letters. No visual impairment was reported. Thirty-eight mild, drug-related adverse events were noted, with transient xanthopsia/chromatopsia (76.9%) and delayed dark adaptation (69.2%) being the most common.

Conclusions: Tinlarebant produced a sustained and reversible RBP4 reduction over 24 months and was safe and well tolerated. The absence of transition from QDAF to atrophic lesions in 5 subjects and significantly reduced growth of incident atrophic lesions are promising. Tinlarebant is under investigation in the phase 3 DRAGON study for treating adolescent STGD1 patients.

Abstract No.: 201049
Nov 22, 2024 (Fri) 11:00 - 12:30
Venue: Summit 2

Similar Visual, Anatomic and Durability Gains are Observed with Aflibercept 8 mg Treatment in nAMD Irrespective of Baseline Characteristics: A Post-Hoc 96 Week PULSAR Analysis

*First Author: Andrew **CHANG***
*Co-Author(s): On Behalf Of The Pulsar Investigators ., Richard **GALE**, Justus **GARWEG**, Tobias **MACHEWITZ**, Xin **ZHANG***

Purpose: To determine the effect of baseline characteristics on the efficacy and durability of aflibercept 8 mg at Week 96 (W96) in patients with treatment-naïve neovascular age-related macular degeneration (nAMD) in PULSAR (NCT04423718), a double-masked, 96-week Phase 3 trial.

Methods: Patients were randomly assigned 1:1:1 to receive intravitreal aflibercept 8q12, 8q16, or 2q8 after three initial monthly injections. Outcomes stratified by key baseline characteristics (including BCVA and central retinal thickness [CRT]) were evaluated.

Results: At W96, mean increases from baseline BCVA were numerically larger in patients with lower (≤54 letters) vs higher (≥74 letters) baseline BCVA (range: 6.5–11.7 vs 0.9–1.5 letters, respectively) and were similar across the 8q12, 8q16, and 2q8 treatment groups. Mean decreases from baseline in CRT at W96 were numerically larger in patients in the higher (≥423 µm) vs lower (≤278 µm) baseline CRT quartiles. Absolute CRT values and BCVA gains were similar across the 8q12, 8q16, and 2q8 treatment groups across CRT quartiles. The proportion of patients on 8q12 and 8q16 extending dosing intervals through W96 will also be presented by subgroups.,,At W96, Mean±SD baseline BCVA, CRT, and CNV area, respectively, were 59.4±12.8 letters, 364±130 µm and 6.1±5.0 mm2 in patients assigned to q24; 61.0±13.0 letters, 352±122 µm and 6.2±5.1 mm2 in patients assigned to q16; and 60.6±10.6 letters, 400±128 µm, and 7.1±5.9 mm2 in 71/583 patients assigned to q8.

Conclusions: In nAMD, comparable sustained visual, anatomic and durability outcomes were achieved with aflibercept 8 mg irrespective of baseline characteristics and assigned interval.

Abstract No.: 200251
Nov 22, 2024 (Fri) 11:00 - 12:30
Venue: Summit 2

The Real-World Efficacy and Safety of Faricimab in Diabetic Macular Edema: One-Year Results of the TAHOE Study

*First Author: Michael **SINGER***
*Co-Author(s): Aamir **AZIZ**, Hanah **KHAN**, Arshad **KHANANI**, Preston **OBRIEN***

Purpose: Faricimab was approved by the FDA in late January 2022 for the sustained treatment of diabetic macular edema (DME). This real-world multicenter retrospective study collects and analyzes the efficacy, safety, and durability of bispecific faricimab in patients diagnosed with DME.

Methods: A retrospective chart review yielded data on demographics, treatment history, best-corrected visual acuity (BCVA), central subfield thickness (CST), and presence of subretinal or intraretinal fluid (SRF or IRF). Snellen visual acuity was converted to Early Treatment Diabetic Retinopathy Study (ETDRS) scoring. Improvements in visual acuity and CST were evaluated as averages, while improvements in retinal fluid were evaluated as proportions. Observed and calculated data were reported, along with a summary of safety outcomes.

Results: A total of 302 eyes from 178 patients were recorded. The average age was 66.9 years; 50.6% were female, and 28.1% had switched from aflibercept. A total of 1820 injections were administered. Following one injection of faricimab, all eyes (n = 302) had a BCVA increase of +2.4 letters and a CST decrease of -21.1 µm. Following three injections of faricimab, all eyes (n=189) had a BCVA increase of +4.1 letters and a CST decrease of -157.7 µm. No cases of intraocular inflammation, endophthalmitis, vasculitis, or retinal artery occlusion were observed.

Conclusions: Treatment with faricimab leads to improvements in both anatomic and visual outcomes for patients with DME. Safety profiles appear to be comparable to other commonly used agents, with no reported cases of intraocular inflammation to date. Latest data will be presented at APVRS 2024.

Abstract No.: 200816
Nov 24, 2024 (Sun) 11:00 - 12:30
Venue: Room 331/332

Association Between Mean Platelet Volume and Retinal Vein Occlusion (RVO): A Comparative Study

*First Author: Tariq **ALI***
*Co-Author(s): Shahreen **FERDOUS***

Purpose: To assess the association between mean platelet volume and retinal vein occlusion.

Methods: This was an observational cross-section study involving 30 cases of RVO and 30 cases of age and sex-matched control of 21-80 years. Following a brief history, general and ocular examination blood samples were taken from the subjects to measure platelet count and indices using the Electrical Impedance Cell Counting method in SYSMEX Automated Haematology Analyser.

Results: The mean age in the case was 51.1 (±11.9) years and that of the control was 54.5 (±12.7) years. The mean platelet count was 2,948,66 (±87772)/ mm3 and 2,97,667 (±60250)/mm3 respectively in cases and controls, respectively without any statistically significant,difference between these two groups (p=0.886). The mean MPV was 11 (±1.5) fl and 9.8 (±1.3) fl in the cases and controls, respectively and the difference between them was statistically significant (p=0.002). There was a positive correlation between MPV and RVO,(r=0.376; p=0.003) as well as logistic regression analysis demonstrated a 1.9 times higher likelihood of developing RVO for every femto litre increase in MPV (OR=1.949; p=0.001). ROC curve analysis also demonstrated that MPV has good sensitivity and specificity (70%,and 67% respectively for

an MPV cut-off of 10.35 fl) for the prediction of RVO (p=0.004; AUC=0.717).

Conclusions: Total platelet number and size have long been considered a causative factor for the development of RVO. Our study suggested that not platelet count, but mean platelet volume was an independent risk factor for the development of RVO.

Abstract No.: 200851
Nov 24, 2024 (Sun) 11:00 - 12:30
Venue: Room 331/332

Brolucizumab for the Treatment of Proliferative Diabetic Retinopathy in a Chinese Population: 54-Week Results from the CONDOR Study

*First Author: Youxin **CHEN***
*Co-Author(s): Yongsoo **KIM**, Li **XIAORONG**, Kang **YAN**, Song **YANPING**, Li **ZHU***

Purpose: To evaluate the 54-week efficacy and safety of brolucizumab (BRO) versus panretinal photocoagulation (PRP) in Chinese patients with proliferative diabetic retinopathy (PDR).

Methods: Patients were randomized 1:1 to BRO 6mg or PRP. The BRO arm (n=88) received 3 loading doses every 6 weeks (q6w), followed by every 12 weeks, with the option from W48 onward to extend the treatment interval by 6 weeks at a time up to 24 weeks based on disease activity. Q6w interval in the maintenance phase was possible if the disease worsened. PRP arm (n=75) received 1-4 sessions up to W12, followed by additional treatment as needed.

Results: The least square mean best-corrected visual acuity change at W54 for BRO 6mg compared to PRP was −0.8 and −6.9 letters, respectively; difference 6.1 letters (95% confidence interval [CI]: 1.5, 10.8). At W54, a higher proportion of BRO 6mg patients had no PDR in the study eye (63.0% versus 24.1%; difference 36.6% [95% CI: 20.6, 52.5]) and a lower proportion of BRO 6mg patients had at least one center-involved diabetic macular edema event in the study eye (25.0% versus 63.5%; difference −40.0% [95% CI: −54.3, −25.7]). Ocular adverse events and adverse events of special interest were reported in 37.5% and 4.5% of patients in the BRO 6mg arm, and in 64.0% and 2.7% of patients in the PRP arm, respectively.

Conclusions: In Chinese patients with PDR, BRO 6mg demonstrated numerically better visual outcomes compared to PRP with no new or unexpected safety findings.

Abstract No.: 200809
Nov 24, 2024 (Sun) 11:00 - 12:30
Venue: Room 331/332

Characterization of Eyes with Geographic Atrophy That Developed Macular Neovascularization in the GATHER Clinical Trials

*First Author: Kelvin **TEO YI CHONG***
*Co-Author(s): Divya D'**SOUZA**, Dilraj **GREWAL**, Glenn **JAFFE**, Don **LUO***

Purpose: The objective of this post hoc analysis was to characterize eyes with geographic atrophy (GA) that developed macular neovascularization (MNV) in the GATHER clinical trials and describe features of MNV in those eyes.

Methods: GATHER1 and GATHER2 were pivotal, randomized, double-masked, sham-controlled, multicenter trials that examined the safety and efficacy of intravitreal administration of avacincaptad pegol (ACP) in eyes with GA over 18 and 24 months, respectively. This post hoc analysis evaluated study eyes that developed MNV in GATHER1 and GATHER2 among patients who received ACP 2 mg or sham.

Results: Across GATHER1 and GATHER2, a total of 57 study eyes developed MNV (11.6% [34/292] in the ACP 2 mg arms and 6.9% [23/332] in the sham arms) and 567 did not develop MNV. Demographic characteristics among patients with study eyes that developed MNV were similar to those with study eyes that did not develop MNV.,,Among study eyes that developed MNV, there was an 18.6% reduction in GA growth with ACP 2 mg, compared to an 18.0% reduction in GA growth with ACP 2 mg in eyes that did not develop MNV.

Conclusions: Among eyes with GA that developed MNV in the GATHER trials, the GA growth rate in ACP-treated eyes was less than the growth rate in sham-treated eyes, and this finding was similar to what was observed in eyes that did not develop MNV.

Abstract No.: 200740
Nov 24, 2024 (Sun) 11:00 - 12:30
Venue: Room 331/332

Efficacy of an Indian Bevacizumab BIOSimilar (BEVATAS) for Type 1 and Aggressive Posterior Retinopathy of Prematurity (BIOS-ROP Study)

*First Author: Somnath **CHAKRABORTY***
*Co-Author(s): Jay **SHETH***

Purpose: To evaluate the role of an Indian bevacizumab biosimilar (Bevatas®), for the management of type 1 retinopathy of,prematurity (ROP) and aggressive posterior ROP (APROP) over 24-weeks

Methods: A retrospective, single-center, interventional study of 144 eyes of type 1 (100 eyes) and APROP (44 eyes).,All eyes received a single dose of 0.625mg Bevatas injection, and were advised additional laser therapy for suboptimal response.

Results: The study population had a mean gestational age of 28.94 (±2.32) weeks, an average birth weight of 1.2 (±0.34) kg, and,modest male predominance (52.05%). Complete regression of ROP was seen in 65.97% of 144 eyes after 24 weeks of bevacizumab,monotherapy, and in 97.22% of eyes (140 eyes) after adding laser photocoagulation. The remaining four eyes (all had APROP),developed Stage 4 ROP and needed vitreous surgery. After monotherapy with bevacizumab biosimilar, type 1 ROP eyes had,significantly higher rate of complete ROP regression than APROP eyes (87% vs 18.18%; P<0.00001). All eyes with type 1 ROP,,and 90.91% of eyes with APROP, regressed after receiving additional laser therapy. The study population experienced no ocular or,systemic adverse effects

Conclusions: The BIOS-ROP study demonstrates that intravitreal bevacizumab biosimilar monotherapy offers significant benefit for,type 1 ROP, but not APROP. Low-cost biosimilars can help sustain healthcare systems in lower-middle income countries (LMICs),with escalating healthcare expenditures. They can also improve healthcare equity by making vision-saving therapies like bevacizumab,more affordable and accessible

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Abstract No.: 200731
Nov 24, 2024 (Sun) 11:00 - 12:30
Venue: Room 331/332

Estimated Resting Metabolic Rate in Diabetic Retinopathy Progression and Blindness in Indonesian Adults with Type 2 Diabetes

*First Author: Frapti **INRAJAB***
*Co-Author(s): Moh Eko **PRAYOGO**, Muhammad Bayu **SASONGKO**, Supanji **SUPANJI**, Firman Setya **WARDHANA**, Felicia **WIDYAPUTRI***

Purpose: Diabetic retinopathy (DR) is the leading cause of blindness in the working-age population. Previous studies reported that patients with diabetes had a higher resting metabolic rate (RMR) than non-diabetic patients. This study aimed to investigate the association of RMR with DR progression and blindness incidence in Indonesian population.

Methods: This was a population-based prospective cohort study of patients with type 2 DM followed for 5 years period from the original JOGED.com study. DR was assessed from fundus photography and categorized as mild, moderate and severe non-proliferative DR, and proliferative DR. DR progression was defined as worsening by at least 1-step on DR severity scale in eyes with any DR at baseline. Blindness was defined as visual acuity ≤3/60. RMR was measured using automated body composition scan. Cox proportional hazard model was used for analysis.

Results: Overall, 695 subjects attended follow-up examinations. Mean age was 57.42 years (range 16-88); 500 (71.94%) were female, and mean diabetes duration was 6.15±5.85 years. DR progression and blindness rates were 35.1

and 8.33 per 1000 persons/year, respectively. After adjustment for age, sex, diabetes duration, systolic blood pressure, smoking status, and diabetic ulcer, the hazard ratio [HR] for DR progression and blindness incidence per 100 kcal increase in RMR was 1.17 (95%CI 1.10–1.24; P<0.001) and 1.20 (95%CI 1.05–1.36; P=0.006).

Conclusions: In this study, RMR was strongly associated with the progression of DR and incidence of blindness. These findings suggest that in patients with any DR, a higher RMR may worsen their DR condition.

Abstract No.: 200756
Nov 24, 2024 (Sun) 11:00 - 12:30
Venue: Room 331/332

Faricimab for Polypoidal Choroidal Vasculopathy: Week 16 Results From the Phase 3b/4 SALWEEN Trial

*First Author: Gemmy **CHEUNG***
*Co-Author(s): Ruobing **BAI**, Tomohiro **IIDA**, Timothy **LAI**, Philippe **MARGARON**, Anh **NGUYEN DUC***

Purpose: SALWEEN (ISRCTN69073386) is a phase 3b/4 multicentre, open-label trial evaluating effectiveness, safety, and durability of faricimab in patients with polypoidal choroidal vasculopathy (PCV) from Asian countries. Here, we present interim, week 16 results.

Methods: Patients with symptomatic macular PCV (N=135) received 4 initial every-4-week (Q4W) doses of faricimab 6.0 mg, followed by faricimab Q8W, Q12W or Q16W based on disease activity assessments at weeks 20/24. At weeks 44/48 through 104, patients will follow a treat-and-extend-based regimen with treatment intervals ranging from Q8W–Q20W. Primary endpoint: change from baseline best-corrected visual acuity (BCVA) averaged over weeks 40–48. Week 16 analyses: change from baseline BCVA and central subfield thickness (CST), proportion of patients with no intra- and subretinal fluid (IRF and SRF), resolution of polypoidal lesions (PL), as assessed by Indocyanine Green Angiography, and safety.

Results: Mean (95% CI) BCVA and CST changes from baseline at week 16 were +7.8 letters (+6.4, +9.3) and -144.6 µm (-167.0, -122.2), respectively. The proportion of patients with no IRF/SRF at week 16 was 80.3%. Amongst patients with baseline PL as confirmed by the central reading centre (CRC) and who attended week 16 visits (n=100), 51.0% had complete regression of PL. Faricimab was well tolerated. There was 1 reported case of retinal vasculitis, however, this was not supported by the independent CRC on review of images.

Conclusions: Dual angiopoietin-2/vascular endothelial growth factor-A inhibition with faricimab resulted in robust improvements in vision and anatomy, and regression of PL, after the loading period in patients with PCV from Asian countries.

Abstract No.: 200778
Nov 24, 2024 (Sun) 11:00 - 12:30
Venue: Room 331/332

Final Results and Exploratory Outcomes of the HORNBILL Study: A Phase I/IIa Trial of BI 764524 in Patients with Diabetic Macular Ischemia

*First Author: Quan Dong **NGUYEN***
*Co-Author(s): Martin **GLIEM**, Maged **HABIB**, Chirag **JHAVERI**, Bartlomiej **KRAWCZYK**, Sobha **SIVAPRASAD***

Purpose: To investigate the safety and efficacy of intravitreal anti-semaphorin 3A (Sema3A) antibody BI 764524 in patients with diabetic macular ischemia (DMI).

Methods: In the HORNBILL (NCT04424290) non-randomised, open-label single-rising-dose (SRD) part, patients received BI 764524 0.5 (n=3), 1.0 (n=3) or 2.5 mg (n=6). In the randomised, masked, multiple-dose (MD) part, patients received three injections of BI 764524 2.5 mg (n=21) or sham (n=10) at 4-week intervals (follow-up: 14 weeks). Primary endpoints assessed: SRD, dose-limiting events; MD, drug-related adverse events (AEs). Other endpoints measured: change in foveal avascular zone (FAZ) size over time, central retinal thickness, best-corrected visual acuity, and

aqueous humour concentration of BI 764524 and Sema3A at baseline and Weeks 8, 16 and 22 (if feasible).

Results: None of the nine AEs in the SRD part was dose-limiting or drug-related; two of 19 AEs in the MD part were drug-related (one mild, one moderate). Overall trend was toward stabilisation or reduction in FAZ area in most cases of BI 764524-treated patients throughout the study. At Week 8, total BI 764524 concentration in aqueous humour was substantially higher compared with Sema3A concentration. Such findings suggest that BI 764524 ocular exposure at Week 8 remained sufficient to achieve pharmacological action (neutralisation of Sema3A). Measurable drug concentration in aqueous humour at Week 22 (n=4) justifies the exploration of longer-dosing intervals.

Conclusions: BI 764524 was well-tolerated in patients with DMI and demonstrated early signs of potential efficacy. The CRIMSON phase IIb trial will evaluate BI 764524 in patients with moderately severe/severe non-proliferative diabetic retinopathy.

Abstract No.: 200673
Nov 24, 2024 (Sun) 11:00 - 12:30
Venue: Room 331/332

Genetic Abnormalities in Inherited Retinal Dystrophy-Causing Genes in Extremely Myopic Japanese

*First Author: Ai **NAKATA***
*Co-Author(s): Masahiro **MIYAKE**, Tsujikawa **AKITAKA**, Morino **KAZUYA**, Nagasaki **MASAO**, Mori **YUKI***

Purpose: Extreme myopia (EM) appears to differ from common myopia in its clinical course. Whole genome sequence of 159 European with high myopia (refraction < -10D) showed that they had a higher prevalence of mutations on inherited retinal dystrophy genes. To investigate the prevalence of genetic abnormalities in inherited retinal dystrophy (IRD)-causing genes among patients with EM in Japanese.

Methods: We conducted whole-genome sequencing (WGS) for 274 patients with EM defined by axial length of ≧ 29mm in at least one eye. By using in-house pipeline, joint-call was performed with 11,238 WGS data of Japanese. We screened protein-affecting variants in 317 IRD-causing genes listed in RetNet, identifying rare (allele frequency < 0.001 in general Japanese and gnomAD) variants predicted to be pathogenic or likely pathogenic using in-silico prediction.

Results: A total of 116 pathogenic (93 patients [33.9%]) or likely pathogenic variants were identified, of which 15 variants (12 genes) were known IRD-causing mutation (15 patients [5.5%]). Other 101 variants were observed in 84 patients (30.7%) on 54 IRD-causing genes.

Conclusions: Patients with EM have a higher risk of carrying rare, potentially pathogenic mutations in IRD-causing genes.

Abstract No.: 200769
Nov 24, 2024 (Sun) 11:00 - 12:30
Venue: Room 331/332

Global Clinical and Anatomical Outcomes with Faricimab in Treatment-Naïve Patients with Neovascular Age-Related Macular Degeneration or Diabetic Macular Edema from a Multi-Country Prospective Non-Interventional Study: The VOYAGER Study

*First Author: Adrian **KOH***
*Co-Author(s): Clare **BAILEY**, Gloria **CHI**, Robyn **GUYMER**, Beijue **SHI**, Diane **USCHNER***

Purpose: The global, prospective, non-interventional, 5-year VOYAGER (NCT05476926) study aims to provide insights on clinical and anatomical outcomes in ~5000 patients initiating faricimab for neovascular age-related macular degeneration (nAMD) or diabetic macular edema (DME) in routine clinical practice.

Methods: Data analysed from November 2022 to May 2024 included treatment-naïve patients (nAMD: 187 eyes from 179 patients; DME: 111 eyes from 89 patients) from 20 countries. Visual acuity (VA), central subfield thickness (CST), the percentage of eyes with sub-retinal fluid

(SRF), intra-retinal fluid (IRF) and active disease (investigator-determined presence/absence of SRF and IRF), and safety events were evaluated at baseline and 3 months. Descriptive analyses were performed.

Results: Mean VA (standard deviation [SD]) change from baseline to month 3 was +4.4 (13.0) letters in nAMD eyes and +5.7 (11.5) letters in DME eyes. Mean CST (SD) change from baseline to month 3 was -82.0 (98.2) µm in nAMD eyes and -106.4 (108.8) µm in DME eyes. At baseline and month 3, 70.6% and 11.7% of nAMD eyes had SRF, and 50.6% and 21.9% had IRF, respectively. At baseline and month 3, 24.3% and 6.0% of DME eyes had SRF and 89.7% and 78.3% had IRF, respectively. At baseline and month 3, active disease was present in 93.8% and 56.3% of nAMD eyes and 95.3% and 81.9% of DME eyes, respectively. Safety events were consistent with the pivotal phase 3 studies.

Conclusions: This analysis showed early clinical and anatomical improvements supporting the real-world effectiveness and safety of faricimab in a heterogeneous and multinational patient population.

Abstract No.: 200711
Nov 24, 2024 (Sun) 11:00 - 12:30
Venue: Room 331/332

Impact of Hyper-Reflective Material and Hypertransmission on Visual Acuity in Anti-VEGF Treated Neovascular AMD: Insights from Longitudinal Studies

*First Author: Lajos **CSINCSIK***
*Co-Author(s): Usha **CHAKRAVARTHY**, Taffeta **CHING NING YAMAGUCHI**, Laurent **KODJIKIAN**, Tunde **PETO**, Reinier **SCHLINGEMANN***

Purpose: Hyper-reflective material (HRM) and hypertransmission of signal into the choroid (HyperTC) on optical coherence tomography (OCT) are proxies for fibrosis and macular atrophy (MA) and occur despite anti vascular endothelial growth factor (aVEGF) therapy. We studied the development and effects of these on best corrected visual acuity (BCVA) after aVEGF.

Methods: Data from three randomised controlled trials, BRAMD and GEFAL (comparative-effectiveness-trials of aVEGF) and EDNA (diagnostic accuracy) were pooled for this analysis. OCT volume scans were graded for presence of HRM, HyperTC and MA features. We examined relationships between HRM thickness and HyperTC and their impact on visual acuity (BCVA) after 14.8(±5.1) months treatment.

Results: At baseline, 95.8% (507 out of 529) eyes had HRM, with 87.4% being subretinal (SR) and 12.6% sub-retinal pigment epithelial (SPE). Among eyes with HyperTC, constituting 30.6% (162), other features of MA were observed: OuterNuclearLayer(ONL)-narrowing 88.5%, OuterPlexiformLayer(OPL)-subsidence 59.4%, RPE-atrophy 74.4%, and InnerChoroidalLayer(ICL)-absence 45.1%.,At follow-up, HRM was present in 89% (471) of the eyes, with 61.8% being SR and 38.2% SPE. HyperTC occurred in 61.8% (327) of the eyes, with ONL-narrowing 94.3%, OPL-subsidence 65%, RPE-atrophy 75.3%, and ICL-absence 47.7%.,At follow-up, compared to eyes without HRM, BCVA was worse by 9.93 letters (P<0.001) in eyes with SR-HRM, while SPE-HRM did not affect BCVA. HyperTC and absent ICL reduced BCVA by 8.04 letters (P<0.001) and 6.55 letters (P=0.007), respectively. Thinner HRM (β: -51.89µm, CI: -72.43, -31.34; P<0.001) was associated with the development of HyperTC.

Conclusions: OCT detected fibrosis and atrophy have complex relationships and affect visual function over time.

Abstract No.: 200708
Nov 24, 2024 (Sun) 11:00 - 12:30
Venue: Room 331/332

Real-World Effectiveness of Faricimab in Patients with Diabetic Macular Edema: 12-Month Outcomes

*First Author: Simon **SZETO***
*Co-Author(s): Durga **BORKAR**, Parul **DAYAL**, Tunde **PETO**, Rishi P **SINGH**, David **TABANO***

Purpose: To evaluate real-world outcomes of faricimab in diabetic macular edema (DME).

Methods: FARETINA-DME and FARWIDE-DME utilized data (2022–2023) from the Intelligent Research,in Sight Registry (US) and Medisoft electronic health record (UK), respectively.

Results: Of the 6,343 patients (8,970 eyes) receiving faricimab in FARETINA-DME, 12.4% of eyes were,anti-vascular endothelial growth factor treatment naïve (TN) and the remainder were previously treated,(PT); 21.9% eyes had ≥12 months follow-up. Of the 1,921 patients (2,673 eyes) receiving faricimab in,FARWIDE-DME, 36% eyes were TN and the remainder were PT; 11.3% eyes had ≥12 months follow-up.,Mean (standard deviation [SD]) visual acuity change from baseline in TN and PT eyes was +3.8 (11.6),and +0.7 (12.2) letters in FARETINA-DME study; and +5.3 (1.2) and +0.8 (0.7) letters in FARWIDE-DME,study, respectively. In FARETINA-DME study, mean (SD) central subfield thickness (CST) change in TN,and PT eyes (n=1,377) was –81.0 (98.5) and –57.0 (104.6) µm, respectively.,Mean (SD) number of faricimab injections for months 1–6 vs 7–12 for TN and PT eyes was 3.5 (1.6) vs 1.7,(1.7) and 3.9 (1.4) vs 2.7 (1.6) in FARETINA-DME study; and 4.5 (0.9) vs 1.8 (1.3) and 4.6 (1.1) vs 2.5 (1.4),in FARWIDE-DME study, respectively.

Conclusions: Results from these studies demonstrated improved VA, reduced CST, and less injections,in the second 6 months, supporting the real-world effectiveness and durability of faricimab in DME.

Abstract No.: 200819
Nov 24, 2024 (Sun) 11:00 - 12:30
Venue: Room 331/332

Real-World Effectiveness of Faricimab in Patients with Neovascular Age-Related Macular Degeneration: 12-Month Outcomes from the FARETINA-nAMD and FARWIDE-nAMD Studies

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Purpose: To evaluate real-world outcomes of faricimab in neovascular age-related macular degeneration (nAMD).

Methods: FARETINA-nAMD and FARWIDE-nAMD utilized data (2022–2023) from the Intelligent Research in Sight Registry (US) and Medisoft electronic health record (UK), respectively.

Results: Of the 26,278 patients (32,124 eyes) receiving faricimab in FARETINA-nAMD, 7.4% of eyes were anti-vascular endothelial growth factor treatment-naïve (TN) and the remainder were previously treated (PT); 31.3% eyes had ≥12 months follow-up. Of the 5,804 patients (6,978 eyes) receiving faricimab in FARWIDE-nAMD, 28% eyes were TN and the remainder were PT; 10.6% eyes had ≥12 months follow-up.,,Mean (standard deviation [SD]) visual acuity (VA) change from baseline in TN and PT eyes was +3.9 (16.4) and –0.4 (12.0) letters in FARETINA-nAMD study; and +4.6 (1.1) and –0.9 (0.5) letters in FARWIDE-nAMD study, respectively. In FARETINA-nAMD study, mean (SD) central subfield thickness (CST) change in TN and PT eyes (n=5,143) was –63.1 (78.0) µm and –29.4 (82.3) µm, respectively.,,Mean (SD) number of faricimab injections for months 1–6 vs 7–12 for TN and PT eyes was 4.1 (1.3) vs 2.4 (1.6) and 4.3 (1.2) vs 3.3 (1.4) in FARETINA-nAMD study; and 4.7 (0.6) vs 2.0 (1.1) and 4.3 (1.0) vs 2.8 (1.3) in FARWIDE-nAMD study, respectively.

Conclusions: Results from these studies demonstrated improved VA, reduced CST, and less injections in the second 6 months, supporting the real-world effectiveness and durability of faricimab in nAMD.

Abstract No.: 200684
Nov 24, 2024 (Sun) 11:00 - 12:30
Venue: Room 331/332

Response of Large or Serous Pigment Epithelial Detachment to Faricimab versus Aflibercept in Patients with Neovascular Age-related Macular Degeneration: A Subgroup Analysis from TENAYA and LUCERNE

*First Author: Yi-ting **HSIEH***
*Co-Author(s): Emma **HARRELL**, Timothy **LAI**, Philippe **MARGARON**, Shriji **PATEL**, Ming **YANG***

Purpose: Post-hoc analysis of TENAYA (NCT03823287)/LUCERNE (NCT03823300)

trials to evaluate pigment epithelial detachment (PED) outcomes of faricimab treatment in patients with neovascular age-related macular degeneration (nAMD).

Methods: Treatment-naïve nAMD patients (n=1329) were randomized 1:1 to faricimab 6.0 mg up to every 16 weeks (n=665) or aflibercept 2.0 mg every 8 weeks (n=664) after loading. PED, defined as retinal pigment epithelium elevations ≥350 µm wide, was graded as predominantly/purely serous (serous PEDs) or predominantly/only fibrovascular (fibrovascular PEDs). The assessments included baseline PED characteristics, proportion of eyes with serous PED at baseline and week 12, time to first reduction (TTFR) of maximum PED thickness by 50% from baseline (TTFR 50%) through week 60 in eyes with baseline PED ≥ 125 µm/baseline serous PED.

Results: Baseline PED characteristics were balanced for presence of PED (faricimab: 97.4%; aflibercept: 96.2%), maximum PED thickness (median [Q1–Q3] µm) (faricimab: 185.0 [126.5–316.0]; aflibercept: 176.5 [125.0–300.5]), proportion of serous PED (faricimab: 20.1%; aflibercept: 17.8%), and mean serous PED thickness (faricimab: 462.8 µm; aflibercept: 432.1 µm). In eyes with baseline serous PED, serous PED at week 12 was 3.9% with faricimab versus 12.3% with aflibercept (nominal P=0.026). The 75th percentile of TTFR 50% was 52 weeks with faricimab versus not reached with aflibercept. In eyes with baseline PED ≥125 µm, TTFR 50% was 48 weeks with faricimab versus not reached with aflibercept.

Conclusions: In TENAYA/LUCERNE trials, faricimab elicited greater improvements in PED outcomes than aflibercept. These findings are consistent with the greater drying effect of retinal fluid observed with faricimab.

Abstract No.: 201044
Nov 24, 2024 (Sun) 11:00 - 12:30
Venue: Room 331/332

Similar Visual and Anatomic Outcomes Were Observed with Aflibercept 8 mg Treatment in Diabetic Macular Oedema (DMO) Irrespective of Baseline Vision and CRT: A Post-Hoc PHOTON Analysis

*First Author: Gemmy **CHUENG***
*Co-Author(s): On Behalf Of The Photon Investigators ., Sean **ADREAN**, Deepak **SAMBHARA***

Purpose: To determine the effect of baseline characteristics on the efficacy of aflibercept 8 mg in patients with treatment-naïve DMO in PHOTON (NCT04429503), a double-masked, 96-week, Phase 3 trial.

Methods: Patients were randomly assigned 1:1:1 to receive intravitreal aflibercept 8q12 or 8q16 after three initial monthly injections of aflibercept 2q8 after 5 monthly injections. Key baseline disease characteristics (including BCVA and central retinal thickness [CRT]) were evaluated post hoc for patients completing 48 weeks of treatment.

Results: At week 48 in patients with baseline BCVA ≤20/50, mean BCVA change from baseline in 2q8, 8q12, and 8q16 was 10.7, 10.5, and 9.2 letters, respectively, and mean CRT change from baseline was -195.0, -194.7, and -172.6 µm. In patients with baseline BCVA ≥20/40, mean BCVA change from baseline was 6.0, 6.0, and 5.6 letters, respectively, and mean CRT change from baseline was 99.4, -134.1, and -107.9 µm.,,Across baseline CRT quartiles (Q1: ≤360 µm; Q2: >360-≤430 µm; 03: >430-≤528 µm; Q4: >528 µm) aflibercept 8 mg resulted in meaningful BCVA and CRT improvements at week 48. In eyes with the highest CRT at baseline, fluid reaccumulation was numerically less 8 weeks after the last Initial monthly dose with aflibercept 8 mg versus 2 mg, suggesting a more durable treatment effect.

Conclusions: Comparable clinically meaningful and sustained visual and anatomic outcomes

were achieved with aflibercept 8 mg for DMO irrespective of baseline BCVA and CRT.

Abstract No.: 200810
Nov 24, 2024 (Sun) 11:00 - 12:30
Venue: Room 331/332

The Association of Visual Impairment with Cost of Medical Care and Risk of Falls and Fractures in Real-World Patients with Geographic Atrophy in the American Academy of Ophthalmology IRIS ® Registry

First Author: Colin ***TAN***
Co-Author(s): Dina ***ABULON****, Kristin* ***ARKIN-LEYDIG****, Durga* ***BORKAR****, Jennifer* ***HARRIS****, Aki* ***SHIOZAWA***

Purpose: We examined vision loss progression and associated medical costs in patients with geographic atrophy (GA), an advanced form of age-related macular degeneration.

Methods: This retrospective cohort study using the IRIS® Registry included patients with an ICD-10-CM diagnosis of GA between 01April 2016—31December2021; ≥50 years at diagnosis; ≥1 VA measurement at diagnosis and 1 year after (±90 days); VA better than 20/400 and no neovascular AMD diagnosis. In patients with VA better than 20/40 at diagnosis, time to VA of 20/40 or worse in ≥1 eye was examined. Healthcare resource costs from the Komodo Health Research Dataset were modelled through year-2. The relationship of VA with total cost and fall/fracture risk was analyzed using generalized linear models.

Results: VA was worse than 20/100 in 12.8% (8,143/63,616) of patients at diagnosis and 24.3% (6,162/25,359) by year-2. Median time to VA worse than 20/40 was 3.0 years; median time was shorter in patients with subfoveal involvement than without (2.2 vs 3.8 years). In the closed-claims subcohort, 41.7% (2,428/5,827) were followed for 2 years. Mild (20/25—20/40) and moderate (20/50—20/100) VA impairment were associated with >30% increase in total medical cost by adjusted cost ratio (1.31, P=0.061; 1.37, P=0.045, respectively). Mild, moderate, and severe (<20/200) VA impairment were associated with increased fall/fracture risk (odds ratio [OR]=2.1, P=0.019; OR=2.4, P=0.007; OR=2.4, P=0.014, respectively).

Conclusions: Patients with subfoveal involvement had a shorter time to vision loss than patients without subfoveal involvement. Vision impairment was associated with increased cost of care and risk of falls and fractures.

Abstract No.: 200808
Nov 24, 2024 (Sun) 11:00 - 12:30
Venue: Room 331/332

The Efficacy and Safety of Avacincaptad Pegol in Geographic Atrophy: 2-Year Results from GATHER2

First Author: Hemal ***MEHTA***
Co-Author(s): Jeff ***HEIER****, Glenn* ***JAFFE****, Peter K* ***KAISER****, Arshad* ***KHANANI****, Don* ***LUO***

Purpose: The pegylated RNA aptamer complement C5 inhibitor avacincaptad pegol (ACP) is an FDA-approved treatment for geographic atrophy (GA). We report 2-year results from the randomized, sham-controlled GATHER2 study.

Methods: In GATHER2, patients with non-centerpoint-involving GA were randomized 1:1 to monthly ACP 2-mg (n=225) or sham (n=222). At 1-year, ACP-treated patients were rerandomized 1:1 to monthly (n=96) or every-other-month (EOM) (n=93) ACP; sham patients continued on sham (n=203). The 2-year objective was to demonstrate if ACP reduced GA growth (slope) vs sham, assessed by measuring GA area on fundus autofluorescence at baseline, month 6, 12, 18, and 24. Safety outcomes were assessed.

Results: At 1-year, monthly ACP 2-mg treatment significantly reduced GA growth vs sham, square-root-transformed (0.056 mm/yr, p=0.006) and observed (0.376 mm2/yr, p=0.004), meeting the primary objective. At 2-years, ACP treatment demonstrated continued reduction in GA growth with both monthly and EOM dosing vs sham, consistent with the 2-year objective. Safety data were consistent over 1- and 2-years. Over 1-year,

no cases of endophthalmitis, intraocular inflammation, retinal vasculitis, or ischemic optic neuropathy were reported; over 2-years, no cases of retinal vasculitis or ischemic optic neuropathy and 1 case each of culture-positive endophthalmitis and non-serious intraocular inflammation were reported. Choroidal neovascularization occurred in the study eye at 1-year (ACP: 7%; sham: 4%) and 2-years (ACP: 12%; sham: 9%).

Conclusions: The 2-year results from GATHER2 demonstrated the continued safety and tolerability of ACP 2-mg. Monthly and EOM dosing regimens for ACP continued to slow the rate of GA growth vs sham.

Retina (Surgical)

Abstract No.: 200233
Nov 22, 2024 (Fri) 15:15 - 16:45
Venue: Room 334/335

Clinical Application of iPSC-Derived RPE Strip Transplantation as a Novel Graft Formulation

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Purpose: The retinal pigment epithelium (RPE) strip was developed as an advanced graft formulation that combines the robust engraftment of an RPE sheet with the minimally invasive surgical approach of an RPE cell suspension. This study aimed to explore the safety and efficacy of allogenic induced pluripotent stem cell (iPSC)-derived RPE strip transplantation in patients with RPE impairment disease.

Methods: This is a single-arm, open-label interventional study (jRCTa050210178) that included three eyes from three patients clinically diagnosed with RPE impairment disease. One patient had dry age-related macular degeneration, while the other two patients had MERTK-associated retinitis pigmentosa. We performed 25-gauge pars plana vitrectomy followed by transplantation of allogenic iPSC-derived RPE strips using a 31-gauge subretinal cannula. The primary endpoint was the reduction of the RPE abnormal area, determined by analyzing fluorescein angiography using an automated evaluation program at 52 weeks post-transplantation.

Results: The primary endpoint has been attained in all cases that showed a reduction in the RPE abnormal area due to substantial engraftment of grafted RPE cells at 52 weeks post-transplantation. Significant improvements in vision-related quality of life and potential retinal sensitivity restoration were observed in one patient. While no serious adverse events occurred, one patient showed a suspected immune reaction to graft cells, and another developed an epiretinal membrane.

Conclusions: This initial case series of allogenic iPSC-derived RPE strip transplantation demonstrated safe delivery and successful engraftment in three patients with RPE impairment disease.

Abstract No.: 200668
Nov 22, 2024 (Fri) 15:15 - 16:45
Venue: Room 334/335

Comparative Analysis of Cognitive Workload and Surgical Outcomes in Three-Dimensional versus Conventional Microscope Macular Hole Surgery

*First Author: Apurva **MUKADAM***
*Co-Author(s): Mounika **BOLISETTY**, Aditya **KELKAR**, Akshay **KOTHARI**, S **NATARAJAN***

Purpose: Performing a surgical task subjects the surgeon to multitudinal stressors, especially with the newer 3D technology. The quantum of cognitive workload using this 3D surgical system in comparison to the Conventional microscope system remains unexplored. We evaluate the surgeon's cognitive workload and the surgical outcomes of macular hole(MH) surgery performed on a 3D versus a Conventional microscope operating system.

Methods: : 51 eyes of 51 patients with MH undergoing surgery using the 3D or Conventional microscope visualization system. Cognitive workload assessment was done by real-time tools(Surgeons' heart rate [HR]

and oxygen saturation[SPO2]) and self-report tool(Surgery Task Load Index[SURG-TLX] questionnaire) of three Vitreoretinal surgeons. Based on the SURG-TLX questionnaire, an assessment of the workload was performed.

Results: Of the 51 eyes, 30 eyes and 21 eyes underwent surgery with the Conventional microscope and the 3D system, respectively. No difference was noted in the MH basal-diameter($p = 0.129$), total surgical-duration($p = 0.298$), internal-limiting membrane(ILM) peel time($p = 0.681$), and the final visual acuity (VA; $p = 0.515$) between the two groups. Both groups showed significant improvement in VA($p < 0.001$) with a 90% closure rate at one-month post-surgery. Cognitive workload comparison, the intraoperative HR($p = 0.024$), total workload score($P = 0.005$), and temporal-demand dimension($p = 0.004$) were significantly more in Conventional microscope group as compared to 3D group.

Conclusions: Surgeon's cognitive workload is markedly reduced with a 3D viewing system. Moreover, duration of surgery including ILM peel time, MH closure rates, and visual outcomes remains unaffected irrespective of the operating microscope system.

Abstract No.: 200669
Nov 22, 2024 (Fri) 15:15 - 16:45
Venue: Room 334/335

Comparative Assessment of Surgical Outcomes in Combined Cataract and Macular Hole Surgery Using Three Different Surgical Techniques

*First Author: Apurva **MUKADAM***
*Co-Author(s): Yash **GARG***

Purpose: This study aimed to compare the post-surgical outcomes of three surgical techniques—ILM peeling, Temporal flap, and ILM plug—in the combined surgery for cataract and macular hole.

Methods: This prospective observational study was conducted at a tertiary hospital in Western India from April 2023 to March 2024. It included 81 eyes of 81 patients, divided into three groups: ILM peeling (29 cases), Temporal flap (26 cases), and ILM plug (26 cases). Visual acuity was evaluated pre-operatively and at multiple post-operative time points (1 day, 1 week, 1 month, 3 months, and 6 months). Macular hole closure rates and the incidence of intra-operative and post-operative complications were assessed.

Results: The mean age of participants was 68.99 ± 6.81 years, ranging from 42 to 86 years, with a male-to-female ratio of 0.69:1. Across all follow-up periods, there were no statistically significant differences in visual acuity improvement, Intra-operative complications and post-operative complications (P-value > 0.05 for all) among the three techniques. The rates of successful macular hole closure also did not differ significantly between the groups, ILM peeling group, 26 (89.7%); Temporal flap group, 20 (76.9%) and ILM plug group, 24 (92.3%).

Conclusions: This study concludes that ILM peeling, Temporal flap, and ILM plug techniques are non-inferior to each other for combined surgery for cataract and macular hole in terms of visual outcomes, macular hole closure rates, or complication incidence among the techniques.

Abstract No.: 200217
Nov 22, 2024 (Fri) 15:15 - 16:45
Venue: Room 334/335

Examination of the Temporal Changes in the Retinal Pigment Epithelium–Bruch's Membrane Complex Thickness After Autologous Retinal Transplantation

*First Author: Shohei **KITAHATA***
*Co-Author(s): Yuhang Jacob **CHIN**, Kazuaki **KADONOSONO**, Maiko **MARUYAMA-INOUE**, Shin **TANAKA***

Purpose: Macular edema (ME) is a complication that can occur after autologous retinal transplantation (ART) for refractory macular hole (MH), impacting the postoperative course. This study aims to investigate the association between retinal pigment epithelium-Bruch's membrane (RPE-BM) complex thickness and the development of ME following ART.

Methods: We retrospectively examined the data of 28 eyes from 28 patients (male:female, 14:14; 61.5 ± 19.8 years) who underwent ART for refractory MH and were followed for 1 year post-surgery. The mean RPE-BM complex thickness was measured in an area 2000 µm from the fovea toward the periphery using the Image J analysis software. Graft blood flow was also evaluated via OCT angiography and fluorescein angiography.

Results: The minimum and maximum macular hole diameters were 711.2 ± 251.9 µm and 1299.9 ± 333.0 µm, respectively, and MH closure was achieved in all patients after the surgery. The mean RPE thickness decreased from 29.88 ± 4.99 µm before surgery to 25.54 ± 3.48 µm after surgery. The decrease in RPE-BM complex thickness was significantly greater in the group that developed ME post-surgery (ME-positive group). Additionally, the rates of ellipsoid zone recovery, alignment of neurosensory layers, and reperfusion of the graft were lower in the ME-positive group.

Conclusions: After ART, the RPE-BM complex thickness decreased, especially in cases that developed the complication of ME. This suggests a potential relationship between RPE function and postoperative graft morphology and complications, emphasizing the importance of monitoring RPE-BM complex thickness.

Abstract No.: 200852
Nov 22, 2024 (Fri) 15:15 - 16:45
Venue: Room 334/335

IRIS Registry Outcomes of Vitrectomy for Floaters

*First Author: Lawrence **CHAN***
*Co-Author(s): Shane **GRIFFIN**, Flora **LUM**, Gaurav **SHAH***

Purpose: This study aims to investigate the clinical outcomes and complication rates of vitrectomy for floaters to better inform patients who are considering this surgery.

Methods: This non-randomized retrospective cohort study examined IRIS Registry eyes with vitreous opacities by ICD-9/ICD-10 coding and vitrectomy by CPT coding. Exclusion criteria included prior YAG vitreolysis, epiretinal membrane (ERM), macular hole, proliferative vitreoretinopathy, and retinal detachment (RD). Baseline and demographic characteristics (e.g., age, gender, race/ethnicity, smoking status, region) were obtained. Outcomes of interest included incidence of subsequent retinal detachment repair, hypotony, vitreous hemorrhage (VH), ERM formation, proliferative vitreoretinopathy, and endophthalmitis.

Results: 42,047 eyes were included in the study population. The most common age group was 66-75 (37.5%). 52.4% of eyes were pseudophakic at baseline. The incidence of vitrectomy for floaters increased from 1,046 eyes in 2014 to 6,291 in 2021. 1,766 eyes (4.2%) required a subsequent procedure/surgery for RD repair within one year. 11,045 eyes (26.3%) developed VH, of which 49.3% did not have a prior diagnosis of proliferative diabetic retinopathy, branch retinal vein occlusion, or central retinal vein occlusion. Only 0.19% of eyes with VH required repeat vitrectomy within one year of original surgery. Endophthalmitis occurred in 3.7% of eyes (n=1,536). ERM developed in 10.4% of eyes (n=4,373).

Conclusions: Within one year after surgery, 26.3% of eyes developed VH, 4.2% of eyes required a subsequent RD repair, and 3.7% developed endophthalmitis. It is important to properly counsel patients regarding risks of vitrectomy for floaters and for surgeons to take steps to minimize complications.

Abstract No.: 201141
Nov 22, 2024 (Fri) 15:15 - 16:45
Venue: Room 334/335

One-Year Multicenter Study with a Novel Retinal Prosthesis on Treatments of Retinitis Pigmentosa

*First Author: Zhu **JINGYUAN***
*Co-Author(s): Mark S. **HUMAYUN**, Jinyuan **WANG**, Wenbin **WEI**, Huizhuo **XU***

Purpose: To report clinical outcomes of a 256-channel epiretinal prosthesis system (IMIE 256) in treatments of retinitis pigmentosa (RP) for one-year multicenter study.

Methods: The prostheses were implanted in the right eyes of six subjects with low-vision RP in year 2021 and 2022. The subjects underwent visual rehabilitation training and were followed up to 365 days. Their safety was evaluated using OCT and slit lamp examinations. Their efficacy was evaluated using visual function examinations.

Results: OCT shows that the electronic array gradually fits well with the inner layer of the retina and tends to be stable after six months. Subjects who wearing glasses connected with the IMIE 256 performed significantly better visual function (direction of motion, square localization, orientation and mobility test) compared with the baseline ($p<0.01$), except for grating and Tumbling E visual acuity tests. There was a steady improvement in performance especially till six months, indicating that the practice helped the subjects use the IMIE 256. Besides, the evaluations are more obvious on 200 Lux light rather than 1 Lux light with system on as compared with the system off. There were one adverse event—high intraocular pressure in one subject, which resolved with medicine and final surgery.

Conclusions: We reported on a novel epiretinal implant with high-density designed to help people to restore their lost vision due to retinal degenerative diseases like RP. This is the first one-year multicenter study for IMIE 256. These results show an improved safety and efficacy profile of IMIE 256 compared with the other artificial retina implants.

Abstract No.: 200632
Nov 22, 2024 (Fri) 15:15 - 16:45
Venue: Room 334/335

Outcomes of Sutureless Intrascleral Intraocular Lens Fixation in a Tertiary Referral Centre in Malaysia

*First Author: Lead Kert H'**NG***
*Co-Author(s): Ee Ling **ANG**, Rhuen Chiou **CHOW**, Jia Yee **KHAW**, Norlina **MOHD RAMLI***

Purpose: To report the characteristics and outcomes of sutureless intrascleral intraocular lens (IOL) procedures performed at the Vitreoretinal unit in a tertiary centre.

Methods: A retrospective analysis included 63 eyes that underwent sutureless intrascleral IOL fixation by a single surgeon over a 3-year period (1-January-2021 to 31-December-2023). Pre-, intra- and post-operative data were obtained from case notes including age, gender, ocular co-morbids, surgical indication, biometry, IOL implanted, visual outcome and surgical complications. Only eyes with a minimum follow-up of 1 month were included.

Results: Analysis included 63 eyes from 61 patients, with mean age of 62.08±12.37 years, and a strong male predominance (5:1 male to female ratio). Mean follow-up was 11.21±8.13 months. The commonest ocular co-morbids were existing glaucoma (23.81%), myopia (23.81%) and secondary raised intraocular pressure (IOP) (14.29%). 22.22% of eyes were vitrectomised. Surgical indications were dislocated or subluxated IOL (74.60%), or crystalline lens (15.87%). The remaining 9.52% required an aphakic correction. Mean axial length was 24.43±1.35mm. IOL implanted were primarily the Zeiss CT Lucia 202 (95.24%), and Biotech Eyecryl Plus TP613 (4.76%). Baseline and final visual acuity (VA) at 3 months were 1.34±0.65 LogMAR and 0.49±0.50 LogMAR respectively. Overall VA improvement was 0.85±0.73 logMAR. Post-operative refraction within 1.0DS and 1.0DC were achieved in 77.97% and 38.98% respectively. Most frequent post-operative complications observed were secondary elevated IOP (30.16%), prolonged anterior chamber inflammation (15.87%), self-limiting vitreous hemorrhage (15.87%). 11 eyes required re-interventions for post-operative complications.

Conclusions: Sutureless intrascleral IOL displays favourable outcomes, benefiting patients with compromised capsular support. Post-operative complications should be anticipated, nevertheless.

Abstract No.: 201129
Nov 22, 2024 (Fri) 15:15 - 16:45
Venue: Room 334/335

Vitrectomy Combined with Subretinal Fluid Extraction for the Treatment of Refractory Retinal Pigment Epithelial Detachment

*First Author: Shuai **SHENG***

Purpose: To assess the efficacy of subretinal fluid extraction after vitrectomy in managing refractory retinal pigment epithelial detachment (PED).

Methods: This study included 30 eyes from 30 patients diagnosed with PED at our hospital. Using a random number table, the patients were divided into two groups: group A (15 eyes) and group B (15 eyes). Best corrected visual acuity (BCVA) was measured preoperatively using the Snellen chart. Optical coherence tomography measured central retinal thickness, and the height and width of the detached retinal pigment epithelium at the foveal center. The area of the PED lesion was assessed preoperatively using a scanning laser ophthalmoscope. Group A received combined treatment, involving vitrectomy and subretinal fluid withdrawal through the edge of the PED lesion using a 38G transretinal puncture needle. This group also received a small amount of gas injection into the vitreous cavity. Group B received conventional intravitreal anti-VEGF therapy. Postoperative follow-up was conducted for 6 months, and the change in the height of the PED at the foveal center was evaluated.

Results: Six months post-surgery, group A experienced complete PED clearance in 9 eyes, partial in 5, and no clearance in 1. In contrast, group B saw complete clearance in 3 eyes, partial in 6, and none in 6.

Conclusions: Subretinal fluid extraction with vitrectomy effectively improves BCVA and reduces CRT and foveal PED parameters in refractory PED cases. BCVA changes correlate with CRT fluctuations, not with foveal PED dimensions.

Translational Medicine

Abstract No.: 200198
Nov 24, 2024 (Sun) 14:00 - 15:30
Venue: Room 334/335

Circular RNA Expression Profile and Functional Analysis of circUvrag in Light-Induced Photoreceptor Degeneration

*First Author: Kangjie **KONG***
*Co-Author(s): Yingqin **NI***

Purpose: Circular RNAs (circRNAs) are implicated in retinal pathophysiology; however, their expression profiles and functions in photoreceptor apoptosis are largely unknown. We explored circRNA expression profiles and circUvrag function in light-induced photoreceptor apoptosis.

Methods: Sprague–Dawley rats and 661 W photoreceptor cells were exposed to blue light to establish light-induced photoreceptor degeneration. Differentially expressed circRNAs were identified using microarrays. Potential functions of dysregulated circRNAs were analysed using Gene Ontology and Kyoto Encyclopedia of Genes and Genomes analyses. CircUvrag expression and localization were evaluated using quantitative RT-PCR and fluorescence in situ hybridization, respectively. CircUvrag overexpression and knockdown were induced using a plasmid and small interfering RNA, respectively, while retinal function and structure were assessed using scotopic elect roretinography,,hematoxylin–eosin staining, and TUNEL staining. Microglial migration was assessed using IBA1 immunostaining. The apoptosis ratio of photoreceptor cells in vitro was detected using flow cytometry.

Results: We identified 764 differentially expressed circRNAs, which were potentially related to the development of retinal structures, including,neurons, dendrites, and synapses, suggesting involvement in nervoussystem pathophysiology. Light exposure enriched circUvrag in the cytoplasm of photoreceptors in the outer nuclear layer (ONL). CircUvrag knockdown reduced photoreceptor apoptosis and microglial migration to the ONL after light

exposure, preserving ONL thickness and a-wave amplitude. In vitro, circUvrag knockdown inhibited photoreceptor apoptosis, while circUvrag overexpression slightly promoted photoreceptor apoptosis.

Conclusions: CircUvrag knockdown attenuated light-induced photoreceptor apoptosis and could be a potential target in retinal degeneration.

Abstract No.: 200517
Nov 24, 2024 (Sun) 14:00 - 15:30
Venue: Room 334/335

EyeGPT: Ophthalmic Assistant with Large Language Models

*First Author: Xiaolan **CHEN***
*Co-Author(s): Mingguang **HE**, Danli **SHI**, Ziwei **ZHAO***

Purpose: To refine a general large language model (LLM) into an ophthalmology-specialized assistant.

Methods: We transformed Llama2 into an ophthalmology-specialized LLM, termed EyeGPT, through three strategies: prompt engineering for role-playing, finetuning with publicly available datasets (N=83,919), and retrieval-augmented generation (RAG) leveraging a medical database and 14 ophthalmology textbooks. The efficacy of various EyeGPT variants was evaluated comprehensively by four board-certified ophthalmologists using 120 questions under different scenarios. The performance of the best EyeGPT model was then compared to that of human physicians. Four assessment metrics, including accuracy, understandability, trustworthiness, and empathy, along with the proportion of hallucinations, were reported.

Results: The best-finetuned model significantly outperformed Llama2 in providing informed advice (9.30 ± 4.42 vs. 13.79 ± 5.70, P<0.001) and mitigating hallucinations (80.8% vs. 44.2%, P<0.001). When RAG with reliable sources, particularly ophthalmology textbooks, the model demonstrated further improvement compared to the solely best-finetuned model (13.08 ± 5.43 vs. 15.14 ± 4.64, P=0.001) and reduced hallucinations (59.2% vs. 47.4%, P=0.017). Subgroup analysis revealed that EyeGPTs showed robustness across common diseases, different users and domains. Among the variants, the model integrating finetuning and book retrieval ranked highest, closely followed by the finetuning with manual database, standalone finetuning, and pure role-playing methods. In the comparative study with human physicians, the best-performing EyeGPT variant demonstrated comparable levels of understandability, trustworthiness, and empathy (all Ps>0.05).

Conclusions: We pioneering introduced EyeGPT by refining a general domain LLM and conducted a comprehensive evaluation of different optimization strategies. Our results highlight EyeGPT's potential to assist ophthalmologists and patients in medical consultation.

Abstract No.: 200040
Nov 24, 2024 (Sun) 14:00 - 15:30
Venue: Room 334/335

Gut Dysbiosis in People with Type 2 Diabetes Mellitus and Diabetic Retinopathy in India

*First Author: Taraprasad **DAS***
*Co-Author(s): Sisinthy **SHUVAJI**, Brijesh **TAKKAR***

Purpose: To investigate gut dysbiosis in individuals with Type 2 Diabetes Mellitus (T2DM) and Diabetic Retinopathy (DR) in India.

Methods: In this case-control study, we evaluated three groups: healthy controls (HC), individuals with T2DM without retinopathy, and individuals with retinopathy, across two southern states of India. Fecal samples (30-50 g), after amplicon sequencing, were analyzed for microbiome profiles (V3–V4 region of bacterial 16S rRNA gene) and mycobiome profiles (ITS2 region of the fungal rRNA gene). We measured α diversity using four indices (Shannon, Simpson, Observed Operational Taxonomic Units [OTUs], and Chao 1) and assessed β diversity using Non-metric Multidimensional Scaling (NMDS).

Results: We recruited 82 participants for the gut microbiome study (30 HC, 24 DM, and 28 DR) and 75 participants for the gut mycobiome study (30 HC, 21 DM, and 24 DR). It yielded 27.7 million high-quality bacterial microbiome reads and 36.5 million mycobiome reads. Microbiome: α diversity, as measured by the Shannon diversity index, significantly differed between HC and DR ($p < 0.05$) but not between the DM and DR groups. β diversity varied significantly across HC, DM, and DR ($p = 0.001$). There was a higher pro-inflammatory and decreased anti-inflammatory microbiome. Mycobiome: For α diversity, the Shannon and Simpson indices significantly differed between HC and DM. β diversity segregated the gut mycobiomes among HC-DM, HC-DR, and DM-DR (all $p = 0.001$). Increased fungal pathogens were detected in people with DM and DR.

Conclusions: In India, the gut microbiota of individuals with T2DM and DR differs from that of individuals without.

Abstract No.: 200042
Nov 24, 2024 (Sun) 14:00 - 15:30
Venue: Room 334/335

Single-Cell RNA-Seq Analysis Maps Early Development of Mouse and Human Retina

*First Author: Xi **CHEN***

Purpose: Vision starts with image formation at the retina, which contains diverse neuronal cell types that extract, process, and relay visual information to higher-order processing centers in the brain. Although there has been steady progress in defining retinal cell types, very little is known about early retinal development in mice and humans, which starts well before birth.

Methods: In this study, we performed transcriptomic profiling of developing mouse embryonic and early-born retinae, specifically at embryonic days (E) 14.5 and 17.5, as well as postnatal day (P) 3, which correspond to the early, intermediate, and late stages of retinal neurogenesis, respectively. Using single-cell RNA sequencing (scRNA-seq) and pseudotime analysis, the developmental trajectories of retinogenesis were reconstructed. Additionally, we analyzed human fetal retinae at gestational weeks 8 and 9.

Results: Our analysis revealed transcriptional programs that drive differentiation from retinal progenitor cells (RPCs) to fate-deciding RPCs and ciliary marginal zone cells, ultimately leading to three different cell types. This suggests that fate-deciding RPCs may serve as embryonic progenitors during early retinal development. In addition, we demonstrated that transcriptional differences led to the emergence of distinct subtypes and utilized this information to reconstruct RPC developmental trajectories and cell fate. Our results support a hierarchical program of differentiation that governs cell-type diversity in the developing mouse and human retina.

Conclusions: In summary, our work details a comprehensive molecular classification of retinal cells, reconstructs their relationships, and paves the way for future mechanistic studies on the impact of gene regulation on human retinogenesis.

Abstract No.: 200260
Nov 24, 2024 (Sun) 14:00 - 15:30
Venue: Room 334/335

Subretinal LX102 Gene Therapy for Neovascular Age-Related Macular Degeneration (nAMD): 2-Year Results of the First-in-Human Study and Preliminary Results of the Phase I Study

*First Author: Xiaodong **SUN***
*Co-Author(s): Fenghua **WANG**, Hong **WANG***

Purpose: nAMD causes central vision loss and typical treatments involve frequent intraocular injections of anti-VEGF agents. This first-in-human study and Phase I study aimed to assess the safety, tolerability, and preliminary efficacy of a single subretinal LX102 gene therapy injection in nAMD patients.

Methods: Six nAMD patients were enrolled for this open-label, first-in-human study. They were over 50, had active choroidal neovascularization secondary to nAMD, with BCVA of 5~63 letters measured on the ETDRS scale, and 20/400 or

better in the fellow eye. The study eye required at least two anti-VEGF treatments within the six months prior to screening. All subjects received a single intravitreal injection of aflibercept (2mg/0.05mL), followed by a subretinal LX102 injection (2×(10^10) vg) two weeks later. The study eye was evaluated for the need of anti-VEGF Rescue Injection during the follow-up. The Phase I study involved 12 subjects, receiving doses of 2×(10^10), 5×(10^10), or 1.25×(10^11) vg.

Results: Subretinal LX102 injection was reproducible and well-tolerated. No evidence of vasculitis, retinitis, choroiditis, vascular occlusions, or endophthalmitis was reported. One subject completed a two-year follow-up and the BCVA increased by 10 ETDRS letters compared to Baseline. The mean BCVA increased by 7.4 ETDRS letters over the follow-up period (8–24 months). All Phase I study subjects completed the 5-month follow-up, with a mean BCVA increase of 2.1 ETDRS letters and a mean central subfield thickness reduction of 196.2 µm.

Conclusions: Subretinal LX102 injection was well-tolerated in nAMD patients. It may reduce the need for frequent anti-VEGF treatments while maintaining long-term visual outcomes.

POSTERS

Intraocular Inflammation, Uveitis & Scleritis

Abstract No.: 201025
Poster No.: EX1-002
Panel No.: 002, Session: EX1
Bilateral Sequential Staphylococcus Epidermidis Subretinal Abscess Treated with Intravitreal Antibiotics vs. Pars Plana Vitrectomy

First Author: Oscar Jr ***ACOPIADO***
Co-Author(s): Jose Carlo ***ARTIAGA****, Miguel Antonio* ***PASCUAL***

Purpose: Subretinal abscess (SRA) is an uncommon manifestation of endogenous endophthalmitis. No guideline exists for its treatment, but common approaches include systemic antibiotics, intravitreal antibiotics, and vitrectomy. We aim to report a case of bilateral staphylococcal SRA from endogenous endophthalmitis treated with intravitreal antibiotics alone in one eye and with vitrectomy in the other eye.

Methods: Case report

Results: A 60-year old hypertensive male on chronic hemodialysis with a history of arm arteriovenous graft swelling and internal jugular catheter infection presented with a three day history of left eye blurring of vision, redness and swelling. Visual acuity was counting fingers, with severe anterior chamber inflammation and vitritis, and large patches of yellowish thick subretinal exudation on the posterior pole with gravity tracking. The right eye was unremarkable. Peripheral blood, IJ catheter, and vitreous cultures all isolated Staphylococcus epidermidis. Vitrectomy was performed due to poor response to systemic and intravitreal vancomycin, and afforded improvement in terms of both vision and inflammation. Several days after, patient presented with a visual acuity of 20/500 on the right eye, with vitritis and subretinal pseudo-hypopyon on the posterior pole. Intravitreal vancomycin was given for the right eye. Systemic vancomycin was continued, and AV graft and IJ catheter were removed, causing continued visual improvement and SRA resolution in both eyes.

Conclusions: This is the first report on SRA from Staphylococcus epidermidis. SRA presents with poor visual and anatomical outcomes, but responds well to source control and culture-guided antibiotics.

Abstract No.: 200961
Poster No.: EX1-005
Panel No.: 005, Session: EX1
Biologic Therapies for Treatment of Scleritis at a Northern California Tertiary Referral Center

First Author: Alyce ***OH***
Co-Author(s): Frances Andrea ***ANOVER****, Azadeh* ***MOBASSERIAN****, Celine* ***NGUYEN****, Christopher* ***OR****, Aim-on* ***SAENGSIRINAVIN***

Purpose: The proposed study aims to describe the biologic therapies used for treatment of scleritis at a Northern California Tertiary Referral Center.

Methods: A retrospective cohort study of 409 confirmed scleritis cases was conducted from 1,007 records of patients with an ICD-10 code of scleritis from 2007 to 2024.

Results: Of the 409 patients with scleritis, 33.99% (n=139) received steroid-sparing therapy. Among these patients, 51.80% (n=72) were treated with a biologic drug. Posterior scleritis had the greatest proportion of patients treated with a biologic drug (24%), followed by anterior necrotizing scleritis (22.58%), anterior nodular scleritis (22.58%), anterior diffuse scleritis (22.22%), panscleritis (22.22%), and anterior focal scleritis (14.73%).,,Among the biologics prescribed, TNF inhibitors constituted the largest category at 39.05% (n=41), including adalimumab (n=28), infliximab (n=11), golimumab (n=1), and etanercept (n=1). Rituximab, a CD20 inhibitor, represented 19.05% (n=20). Tocilizumab, an IL-6 inhibitor, accounted for 4.76% (n=5).

Risankizumab, an IL-12/IL-23 inhibitor, and abrocitinib, a Janus kinase inhibitor, were each prescribed to two patients. Additionally, secukinumab (IL-17A inhibitor), ustekinumab (IL-23 inhibitor), abatacept (CD80/86 inhibitor), and acalabrutinib (BTK inhibitor) were each prescribed once.,,Among patients, 88.24% (n=15) treated with TNF inhibitors and 87.5% (n=7) treated with rituximab had stable or improved clinical outcomes.

Conclusions: This study highlights the different types of biologic drugs used in the management of scleritis among patients at a tertiary referral center in Northern California. Biologic drugs are especially important in the treatment of posterior, necrotizing, and nodular scleritis which require more aggressive, systemic treatment.

Abstract No.: 200873
Poster No.: EX1-006
Panel No.: 006, Session: EX1
Case Series of Inflammation in Myopic Eyes: Clinical Characteristics and Treatment Outcomes of a Novel Entity
*First Author: Noa **GILEAD GILHAR***
*Co-Author(s): Yu Jeat **CHONG**, Joshua **LIM***

Purpose: This case series study aims to highlight an entity of myopic retinal inflammation

Methods: 19 patients with 22 myopic eyes experiencing retinal inflammatory lesions at the level of the photoreceptors were retrospectively reviewed, excluding typical PIC or MEWDS diagnoses.

Results: Mean spherical equivalence and axial length were -11.21 dioptres and 29.39mm. 3 patients had significant past medical history of intermediate uveitis and myasthenia gravis. Myopic macular degeneration was observed in all, with macular atrophy (MA) in 8 eyes. Preceding lacquer cracks (LC) and macular neo-vascularization (MNV) were seen in 8 and 13 eyes, respectively.,During inflammation, 8 patients reported new symptoms, including blurred vision (n=4) and central scotoma (n=2). Mean VA during the inflammatory episodes was 0.35 LogMAR, decreasing almost one line from baseline. Mean width of lesions were 184 µm, with mean choroidal thickness beneath them of 84.1 µm (a mean increase of 23.45 µm from baseline). 6 patients (7 eyes) received systemic immunosuppression with oral prednisolone and azathioprine. Inflammation resolved in 17 eyes, with immunosuppressed eyes showing faster resolution (mean 3.33 months) than non-treated eyes (mean 8.11 months).,Post-inflammatory MNV was seen in 11 eyes, requiring an average of 5.9 intravitreal anti-VEGF injections. MA growth was observed in all eyes, averaging 4.49 mm^2, mostly patchy, and fovea involving in 6 eyes. Recurrences were noted in 7 eyes of 6 patients.

Conclusions: We described myopia-induced MEWDS-like lesions potentially resulting from preceding retinal interruptions like MNV and LC, followed by atrophy. Systemic immunosuppression may aid in the resolution of these inflammatory lesions.

Abstract No.: 201053
Poster No.: EX1-001
Panel No.: 001, Session: EX1
Clinico-Microbiological Profile of Post-Cataract Surgery Endophthalmitis and Role of Polymerase Chain Reaction in the Management: A Report from Eastern India
*First Author: Kalpita **DAS***
*Co-Author(s): Surabhi **CHATTREE**, Maitreyi **CHOUDHURY**, Debmalya **DAS**, Eesh **NIGAM**, Rupak **ROY***

Purpose: To study the clinical and microbiological profile of post cataract surgery endophthalmitis and assess the utility of eubacterium and panfungal polymerase chain reaction (PCR).

Methods: It was a case series of consecutive post-cataract surgery endophthalmitis patients treated at a tertiary care centre in eastern India between January 2020 and December 2023. The data about clinical features, investigations, treatment and outcome was obtained from the medical records. Favorable anatomical and functional outcome were defined as clear media

and attached retina and best corrected visual acuity of 20/200 or better, respectively. Main outcome measure was defined as anatomical and functional outcomes in culture negative but PCR positive and negative cases. Chi square tests were performed for statistical analysis and a P value of less than 0.05 was considered significant.

Results: 132 patients were included. Culture was positive in 51 (38.6%) eyes. Gram negative bacilli (27; 51.9%) were the predominant microorganisms; Pseudomonas aeruginosa (11; 21.1%) being the commonest isolate. Eubacterium or panfungal PCR were positive 108 (81.8%) eyes. Among 81 culture negative patients, 57 had positive PCR (Group A) and 24 had negative PCR results (Group B). Favorable anatomical outcome was achieved in 51 (76.1%) patients in Group A and 10 (71.4%) in Group B (p=0.69). Favorable functional outcome was achieved in 50 (74.6%) patients in Group A and nine (64.3%) patients in Group B (p=0.44).

Conclusions: PCR positivity was higher than conventional culture. Eubacterium and panfungal PCR help in prompt decision making in culture negative endophthalmitis cases.

Abstract No.: 200858
Poster No.: EX1-008
Panel No.: 008, Session: EX1
Cryotherapy in Recalcitrant Focal Endogenous Endophthalmitis
First Author: Dhruv ***GOYAL***
Co-Author(s): Marina ***GER****, Megha* ***GULATI****, Prabhjot* ***KAUR****, Avinash* ***PATHENGAY***

Purpose: To Study the Response of Cryotherapy in 2 patients of EE who were Refractory to Standard therapy of PPV, IOAB and silicon oil injection , who finally responded to Trans scleral double freeze thaw Cryotherapy leading to resolution of infective retinitis.

Methods: Two patients were diagnosed as posterior focal endogenous endophthalmitis on basis of clinical examination and investigatory modalities.,Case 1,A 59 Yr old male presented with reduced vision in LE since 2 weeks, presented with LE focal retinitis lesion in periphery 2 weeks post Gastrointestinal surgery for adenocarcinoma of stomach. Diagnosis of endogenous endophthalmitis was made which was appearing candida endophthalmitis based on clinical and OCT presentation.,Case 2,A 50 Yr old diabetic female presented with reduced vision in RE since 10 days. She presented with RE focal retinitis lesion in periphery in SNQ along with disc oedema 2 weeks post episode of UTI and fever, diagnosis of endogenous endophthalmitis was made keeping differentials of fungal, tubercular or toxoplasma based on clinical and OCT presentation.,Both patients were managed with (in the following order):,1. Posterior vitreous biopsy + IOAB + oral antibiotics,2.PPV,3.Multiple IOAB,4.SOI,5. Cryotherapy to peripheral retinitis lesion

Results: Both patients of posterior focal endogenous endophthalmitis refractory to combination of intra-vitreal antibiotics, systemic antibiotics, PPV and silicon oil injection finally responded to cryotherapy to the retinitis lesion with no recurrence even after 6 months.

Conclusions: Cryotherapy can be used as an adjunct treatment for recalcitrant peripheral retinitis lesions in endogenous endophthalmitis not responding to modalities of treatment.

Abstract No.: 200097
Poster No.: EX1-012
Panel No.: 012, Session: EX1
Importance of Repeated Aqueous Humor Polymerase Chain Reaction in Suspected Viral Anterior Uveitis
First Author: Woong-sun ***YOO***
Co-Author(s): Seong-jae ***KIM****, Quan Dong* ***NGUYEN***

Purpose: In viral anterior uveitis (AU), identifying the virus is the most important step in the diagnosis and management. The importance of aqueous PCR to detect viral DNA has been demonstrated. This retrospective study evaluates clinical outcomes, utility of viral PCR, and the importance of repeated aqueous humor sampling in suspected viral AU cases, in which initial testing was negative.

Methods: Medical records of 89 consecutive patients with suspected characteristics for viral AU managed at a tertiary center were reviewed. To determine the etiology of AU, a comprehensive evaluation for infectious and non-infectious causes was performed. All patients underwent anterior chamber paracentesis by a single ophthalmologist. 0.15 mL of aqueous humor was collected, and multiplex PCR was performed for HSV, VZV, EBV, and CMV.

Results: Ninety-five eyes were enrolled in this study. Thirty-two eyes were PCR positive initially. Of the 63 eyes with initially negative PCR, 7 eyes underwent repeated anterior chamber paracentesis for aqueous PCR at the discretion of the treating physician. Three of the 7 eyes were positive for CMV. Subgroup analyses of the 7 eyes showed that those with positive repeated PCR were older, had lower BCVA and endothelial cell count than the negative group. Glaucoma surgery was performed in all patients with positive in repeat PCR.

Conclusions: The study revealed the importance of repeated aqueous PCR testing for identification, treatment and prognosis of viral AU. Large-scale, multi-centered studies to elucidate these findings for viral AU are needed.

Abstract No.: 200645
Poster No.: EX1-011
Panel No.: 011, Session: EX1
Incidence of Inflammatory Choroidal Neovascular Membrane (CNVM) Secondary to Vogt Koyanagi Harada (VKH) Disease - A 10-Year Study
*First Author: Sindhuja **SRINIVASAN***

Purpose: To report the incidence of inflammatory CNVM secondary to VKH. Multimodal imaging analysis, including the OCT-A, aiding the disease diagnosis and management. Management of these neovascular membranes consists of anti-vascular growth factor agents, corticosteroid therapy, with or without concomitant anti-inflammatory.

Methods: Retrospective consecutive observational electronic medical record-driven study. VKH cases at any stage with CNVM diagnosed and treated with follow-up were included. Twenty eyes were included in 10 years of retrospective analysis. Demographic and clinical data were recorded. Recurrent and responded CNVM were classified. P value < 0.05 was considered significant.

Results: The study included 20 eyes in 10 years. Males accounted for 25%. The mean age was 41.6+/-16.87 (median years 41.4). 75% had VKHsyndrome and 25% had VKH alongside glaucoma. 15% of CNVM was seen in chronic stage, 5% in resolved and 80% in recurrent VKH stage. The average Vision at presentation in logMAR was 0.895 (median 0.95). 60% had peripapillary type CNVM, 30% had sub foveal CNVM and 10% had juxtafoveal CNVM. All of them had Sub Retinal lesion on OCT. Average number of injections required were 3.2+/-2.91 (median of 2), with an average duration of follow up of 14.75+/-28.6 months (median of 4 months). Vision in logMAR at the last visit was a mean of 0.905+/-0.88 (median of 0.9). 90% responded to the treatment whereas 10% had recurrence.

Conclusions: Peripapillary Type CNVM in 60%. All had type 2 CNVM. 80% of the CNVM was seen in VKH Recurrent stage. A tenth of cases had recurrent lesions despite repeated injections.

Abstract No.: 200962
Poster No.: EX1-004
Panel No.: 004, Session: EX1
Management and Treatment of Scleritis at a Northern California Tertiary Referral Center
*First Author: Celine **NGUYEN***
*Co-Author(s): Frances Andrea **ANOVER**, Azadeh **MOBASSERIAN**, Alyce **OH**, Christopher **OR**, Aim-on **SAENGSIRINAVIN***

Purpose: The proposed study aims to describe the management, treatment, and clinical

outcomes of patients with scleritis, stratified by provider type.

Methods: A retrospective cohort study of 409 confirmed cases of scleritis was conducted from 1007 records of patients with an ICD-10 code of scleritis from 2007 to 2024. Management, treatment and clinical outcomes were collected.

Results: A total of 409 patients with scleritis were included. Among 290 patients with management data, 155 (53.45%) were managed independently by ophthalmology, 33 (11.38%) by rheumatology, and 53 (18.28%) by both. Regarding treatment, 111 patients were prescribed immunomodulatory therapies (IMTs): 58 (52.25%) were prescribed by ophthalmology (of these, 75.86% by uveitis or retina specialists), 41 (36.94%) by rheumatology, and 9 (8.11%) jointly. Of the 75 patients prescribed biologics, 26 (34.67%) were prescribed by ophthalmology (of these, 88.46% by uveitis or retina specialists), 29 (38.67%) by rheumatology, and 19 (25.33%) jointly. There were no statistically significant differences in ocular clinical outcomes between patients managed solely by ophthalmology or jointly with rheumatology ($p>0.05$). Patients managed by ophthalmology were 15.04% worsened, 30.08% stable, and 54.89% improved, compared to 16.28% worsened, 30.23% stable, and 53.49% improved in the joint management group.

Conclusions: This study highlights that ophthalmologists, particularly uveitis or retina specialists, at this tertiary care center frequently manage scleritis patients independently, prescribing IMTs and biologics. No significant differences in clinical outcomes were observed between patients managed independently by ophthalmology and those managed collaboratively with rheumatology. These findings provide a possible model for scleritis management at other healthcare settings.

Abstract No.: 200847
Poster No.: EX1-009
Panel No.: 009, Session: EX1

Ocular Manifestations of Blau-Syndrome in a North Indian Cohort

First Author: Nawazish ***SHAIKH***
Co-Author(s): Narendra ***BAGRI****, Rohan* ***CHAWLA****, Krithika* ***RAJKUMAR***

Purpose: To identify the common clinical manifestations of patients with genetically confirmed Blau-syndrome in a North Indian Cohort

Methods: In this retrospective study, we aimed to study the ocular manifestations and outcomes of children with Blau syndrome with proven NOD-2 mutation. The inclusion criteria included children with clinical features consistent with Blau syndrome such as boggy synovial swelling and dermatitis with ocular features and pathogenic or likely pathogenic variants in the NOD 2 gene determined using the next generation sequencing. Comprehensive ocular examination along with ancillary investigations such as anterior segment photo, fundus photo and OCT was done when required.

Results: In our series, twelve eyes of six children had ocular involvement in the form of panuveitis (n=8 eyes) and anterior uveitis (n=4 eyes). Four eyes of two children had no ocular involvement. Features of uveitis was seen in 50% of patients before the age of 5 years with the average age of onset of uveitis in these patients being 45.5 months (range 30-51 months). 2 patients in our series had no ocular manifestations while 2 other patients had onset of uveitis at 8 years and 14 years respectively.

Conclusions: Uveitis in Blau syndrome is usually chronic,relapsing and refractory in nature to the available therapeutic options. However, in our cases, patients were well maintained on IMT/ biologicals with no relapses during the follow-up period.

Abstract No.: 201003
Poster No.: EX1-003
Panel No.: 003, Session: EX1

Safety Profile of Intravitreal Dexamethasone Implant Versus Triamcinolone: A Systematic Review

*First Author: Albert **BROMEO***
*Co-Author(s): Hashem **GHORABA**, Irmak **KARACA**, Quan Dong **NGUYEN**, Ngoc **THAN**, Zheng Xian **THNG***

Purpose: To compare the safety profile of the intravitreal dexamethasone implant versus intravitreal triamcinolone in the management of retinal disease.

Methods: A literature search in 4 electronic databases (PubMed, SCOPUS, EMBASE, and MEDLINE) was performed. Studies comparing the safety profile of intravitreal dexamethasone implant versus triamcinolone were included. Primary outcomes included occurrence of complications such as cataract, IOP elevation, and endophthalmitis.

Results: Twelve studies with a total of 1637 eyes were selected from 732 abstracts retrieved by the initial search, comprising of 3 randomized controlled trials, 2 non-randomized controlled trials, and 7 retrospective cohort studies. The results shows comparable incidence of adverse events, namely IOP elevation, cataract development, and endophthalmitis. The evidence is limited by the heterogeneity by which studies report adverse outcomes associated with intravitreal injections.

Conclusions: Injection of intravitreal dexamethasone implant and intravitreal triamcinolone showed no significant differences in terms of safety profile.

Abstract No.: 200862
Poster No.: EX1-007
Panel No.: 007, Session: EX1

Severe Retinal Manifestations of Systemic Lupus Erythematosus in a 28-Year-Old Filipino Female: Diagnostic Challenges and Therapeutic Management

*First Author: Minerva **PARIS***
*Co-Author(s): Neil Gregory **ONGHANSENG**, Jocelyn **SY***

Purpose: This case report documents the diagnostic journey and management challenges of a 28-year-old Filipino female presenting with sudden right eye vision loss. Initially diagnosed with vitreous hemorrhage and retinal detachment, subsequent evaluations suggested vaso-occlusive disease or a uveitic process, leading to a diagnosis of systemic lupus erythematosus (SLE).

Methods: A comprehensive clinical evaluation included detailed medical history, ophthalmic examinations, imaging studies, laboratory investigations, and rheumatologic consultation.

Results: The patient initially had hand movement visual acuity in the right eye and progressive visual decline, due to a total retinal detachment with neovascular membranes and vitreous hemorrhage. The left eye showed a best-corrected visual acuity of 20/25 with dot-blot hemorrhages and neovascularization, initially suggesting Eales disease. Initial uveitic workups were inconclusive except for elevated erythrocyte sedimentation rate (ESR). Panretinal photocoagulation was performed on the left eye due to a poor prognosis and hesitancy towards surgery on the right. Subsequent systemic evaluation confirmed positive antinuclear antibodies (ANA) and persistently elevated ESR consistent with SLE. Treatment included oral hydroxychloroquine and prednisone, with interventions such as fluorescein angiography-guided laser therapy and anti-vascular endothelial growth factor injections for retinal neovascularization.

Conclusions: This case highlights the diagnostic complexity and the importance of a multidisciplinary approach in managing young

patients with atypical retinal presentations like SLE-related retinopathy. Early recognition and systemic evaluation are crucial for timely intervention and improving visual outcomes through comprehensive care and long-term monitoring.

Abstract No.: 200802
Poster No.: EX1-010
Panel No.: 010, Session: EX1
Unravelling the Mysteries of Atypical Uveal Effusion Syndrome Associated with Different Aetiologies: From Diagnosis to Treatment "A Case Series"
*First Author: Savithiri **PALANIVEL***
*Co-Author(s): Eliza **ANTHONY**, Anand **RAJENDRAN***

Purpose: This study explores the clinical manifestations, diagnostic methods, and treatment outcomes of uveal effusion syndrome (UES) associated with diabetes, ocular tuberculosis, ocular toxoplasmosis, and drug-induced causes, focusing on therapeutic challenges and approaches.

Methods: : A retrospective analysis included six eyes of four patients (age range: 27 to 55 years) diagnosed with UES and various etiologies. Clinical data encompassing demographics, visual acuity, severity of intraocular inflammation, diagnostic evaluations (e.g., imaging, laboratory tests), and treatment interventions (e.g., steroids, surgical procedures) were systematically reviewed.

Results: : All patients exhibited anterior segment inflammation, normal intraocular pressure, and uveal effusion. Visual acuity ranged from counting fingers to 20/60. Specific case presentations included:,1. Unilateral UES with proliferative diabetic retinopathy managed surgically with sclerostomy and subretinal fluid drainage.,2. Unilateral UES with a subretinal abscess and positive Mantoux test, successfully treated with oral steroids and antituberculosis therapy.,3. Bilateral UES associated with granulomatous anterior uveitis and elevated toxoplasma gondii IgG titers, managed with steroids and surgical sclerotomy.,4. Drug-induced- Amitriptyline-induced bilateral UES managed with steroids and intravitreal triamcinolone acetonide due to oral steroid intolerance.

Conclusions: This case series highlights the complexity of UES in diverse etiological contexts and advocates for a comprehensive, multimodal treatment approach. Effective management strategies, including intravitreal triamcinolone acetonide and surgical sclerotomy, emerged as valuable therapeutic options in addressing UES associated with diabetes, ocular tuberculosis, ocular toxoplasmosis, and drug-induced causes. Tailored approaches are essential for optimizing outcomes and preserving visual function in these challenging cases.

Ocular Imaging

Abstract No.: 200753
Poster No.: EX1-023
Panel No.: 023, Session: EX1
Automated Segmentation of Corneal Endothelial Cells in Specular Microscopy Images Using Deep Learning
*First Author: Khin **WIN***
*Co-Author(s): Marcus **ANG**, Leopold **SCHMETTERER**, Bingyao **TAN**, Wong Qiu **YING***

Purpose: The corneal endothelium, the innermost layer of the human cornea, mainly consists of hexagonal cells. The morphometric changes of these cells can provide critical information about corneal diseases. This study aims to develop a fully automated pipeline to segment corneal endothelial cells and to assess their cellular morphology.

Methods: We employed UNet++ model to segment the cells. To preserve cell shape, the model was trained with a combined loss function of weighted cross-entropy, dice loss, and shape-aware loss. Image augmentation was applied to increase the training size and introduce data variability. Morphological operations were used to refine the segmented cells and remove artifacts. Touching cells

were separated using the distance transform watershed method to accurately quantify the morphometric parameters of endothelial cells. The segmentation algorithm was trained and evaluated on a dataset consisting of 130 specular endothelial microscopy images from healthy individuals, Fuchs dystrophy and Descemet membrane endothelial keratoplasty patients. The ground truths were manually labelled by a trained expert.

Results: The method was tested on 39 images and achieved accuracy of 0.84, IoU of 0.65, and Dice score of 0.79. Our results demonstrate that this method works sufficiently well, even with a relatively small dataset. After segmentation, morphometric parameters were quantified for further analysis.

Conclusions: The proposed method is fully automated and capable of segmenting corneal endothelial cells of various shapes and sizes across different disease conditions and can measure their morphometric parameters accurately. The method can be used to develop clinical tools to analyse the endothelial microscopy images.

Abstract No.: 200110
Poster No.: EX1-034
Panel No.: 034, Session: EX1

Central and Peripheral Changes in Retinal Vein Occlusion and Fellow Eyes in Ultra-Widefield Optical Coherence Tomography Angiography

*First Author: Qing **ZHAO***
*Co-Author(s): Youxin **CHEN**, Xinyu **ZHAO***

Purpose: To explore the central and peripheral changes in retinal vein occlusion (RVO) and fellow eyes using ultra-wide-field swept-source optical coherence tomography angiography (UWF-SS-OCTA).

Methods: Fifteen ischemic central RVO (CRVO), 15 branch RVO (BRVO), and 15 age-matched healthy controls were recruited. Retinal and choroidal parameters, including retinal vessel flow density (VFD) and vessel linear density (VLD), choroidal vascularity volume (CVV), choroidal vascularity index (CVI), and VFD in the large and medium choroidal vessels (LMCV-VFD), were measured in the central and peripheral regions of the 24 × 20-mm UWF-SS-OCTA images.

Results: Ischemic CRVO and BRVO eyes showed increased foveal avascular zone area, perimeter, and acircularity index (AI) compared to their fellow eyes and healthy control eyes ($P < 0.05$). For ischemic CRVO and BRVO eyes versus control eyes, VFD, VLD, CVV, CVI, and LMCV-VFD decreased, but retinal thickness and volume in the superficial capillary plexus, deep capillary plexus, and whole retina increased ($P < 0.05$). Moreover, RVO fellow eyes also showed significantly decreased retinal VFD, LMCV-VFD, and CVI, as well as increased AI, retinal thickness, and retinal volume, compared with control eyes ($P < 0.05$). Alterations were inconsistent throughout the retina, as they involved only the peripheral or central regions in some cases.

Conclusions: The affected and unaffected fellow eyes of RVO patients both demonstrated central and/or peripheral structural and vascular alterations in the retina and choroid. Because UWF-SS-OCTA enables the visualization and evaluation of the vasculature outside the posterior pole, it presents a promising approach to more fully characterize vascular alterations in RVO.

Abstract No.: 201021
Poster No.: EX1-015
Panel No.: 015, Session: EX1

Characterization of Synthetic Circumpapillary Optical Coherence Tomography Images Produced Using Generative Deep Learning Models

*First Author: Ashish Jith **SREEJITH KUMAR***
*Co-Author(s): Jacqueline **CHUA**, Leopold **SCHMETTERER**, Damon **WONG***

Purpose: Synthetic OCT images produced by generative models have shown potential as proxy for real data in developing eye disease detection models, effectively addressing data scarcity while preserving privacy. However, ensuring quality of the synthetic

data remains crucial. This study aims to evaluate the variability of generated images by characterizing the synthetic circumpapillary OCT images for normal controls and glaucomatous eyes.

Methods: Progressively growing generative adversarial network model was trained on 990 normals and 862 glaucomatous circumpapillary cross-sectional OCT images with resolution of 188x256 obtained using Cirrus SD-OCT device, to generate 100,000 synthetic images for each category. UNet based segmentation model was applied on both real and synthetic images to measure RNFL thickness. Structural similarity index (SSIM) score was calculated for each real image, for both normals and glaucoma, relative to 100000 synthetic images in each category. Visual inspection was conducted on randomly sampled synthetic images from each of the 11 intervals, with SSIM scores ranging from the minimum to maximum, in 0.1 increments.

Results: The mean RNFL thickness was comparable between real and synthetic images: 102.7±10.5µm for real normals vs. 104.7±11.6µm for synthetic normals, and 76.2±14.3µm for real glaucoma vs. 78.2±13.4µm for synthetic glaucoma. SSIM scores for synthetic normals ranged from 0.19 to 0.45 and for synthetic glaucoma from 0.21 to 0.44. Images with SSIM scores <0.32 for both synthetic normals and glaucoma showed significant variations compared to real images upon visual inspection.

Conclusions: The results indicate that an SSIM-based cutoff approach can effectively curate synthetic OCT image datasets by selecting diverse samples.

Abstract No.: 200820
Poster No.: EX1-021
Panel No.: 021, Session: EX1

Classify Diabetic Retinopathy Stages Using Retinal Vascular Indicators Automatically Rendered by Deep Learning

*First Author: Keigo **MURATA***
*Co-Author(s): Daisuke **NAGASATO**, Yuta **NAKANIIDA**, Hitoshi **TABUCHI**, Mao **TANABE***

Purpose: In this preliminary study, we aimed to determine whether it is possible to classify the stages of diabetic retinopathy (DR) using indicators obtained from an AI-based retinal vascular identification system.

Methods: The study included 36 patients (mean age 61.4±10.3 years, 14 females (38.9%)) who were attending the DR patient at Tsukazaki Hospital. Fundus photography was performed using the Topcon LED light source slit-scan camera. The obtained images were analyzed using AutoMorph (Automated Retinal Vascular Morphology: 2022, TVST, Moorfields Eye Hospital) to extract various indicators (vascular density, vascular width, vascular tortuosity). Based on classifications made by DR specialists, patients were reclassified into two groups: the no-treatment-required group (14 cases) and the treatment-required group (22 cases). A binary classification was performed using a random forest model. Utilizing Python programming, we set a random seed value of "42" to ensure consistency and reproducibility in data splitting.,In this study, 25 cases were selected as training data and 11 cases as test data.

Results: The generated random forest model achieved an accuracy of 72.7% on the test data. Furthermore, the identification of the treatment-required group was accurate, with a recall (sensitivity) rate of 89% and a precision rate of 80%.

Conclusions: These results suggest that our model can accurately identify treatment-required group in the classification of DR using indicators obtained from retinal vascular identification AI. However, the sample size for the no-treatment-required group was particularly small in this study. Future research

should focus on expanding the dataset and optimizing feature selection.

Abstract No.: 200850
Poster No.: EX1-020
Panel No.: 020, Session: EX1
Conjunctival Hyperemia Segmentation Using a Semi-Supervised Deep Learning Approach
First Author: Bei Zhen ***NG***
Co-Author(s): Leopold ***SCHMETTERER****, Damon* ***WONG***

Purpose: Conjunctival hyperemia is a sign of acute anterior inflammation which can occur from instillation of medication in treating ocular conditions like glaucoma. Current approaches to evaluate hyperemia is manual and subjective. Deep-learning segmentation approach is proposed to segment conjunctiva and vessels from standard digital photography.

Methods: Semi-Supervised learning via Cross Teaching between Unet and Swin-Unet with combination of BCE and IOU loss function was used to segment conjunctiva and vessel. CLAHE was applied to enhance image contrast. Data augmentation was performed to increase conjunctiva dataset. Image size of 1280x980 were acquired using standard digital photography. Conjunctiva and visible vessels within conjunctiva were manually annotated by single grader. Reference grading using Efron severity scale was performed. Two models were separately developed for conjunctival and vascular segmentation. Full photograph was used for conjunctival segmentation. For vascular segmentation, a sliding window approach was used to generate 256X256 tiles with 50% overlap.

Results: Conjunctiva segmentation model was trained on 1,160 labelled and 3,422 unlabelled images and evaluated on 41 test set, achieving IOU of 0.968, Dice of 0.984 and accuracy of 0.969. Vascular segmentation model was trained on 1,696 labelled and 5,583 unlabelled image tiles, obtaining IOU of 0.432, Dice of 0.602 and accuracy of 0.972. Vessel density was calculated, and the correlation with Efron severity scale was 0.818.

Conclusions: A semi-supervised deep-learning approach was developed to automatically segment the conjunctiva and vessels. With segmented vessels, this can be further used to quantify vessel density, diameter and tortuosity. Further works will involve evaluating these parameters against severity.

Abstract No.: 200419
Poster No.: EX1-030
Panel No.: 030, Session: EX1
Correlation Study Between the Outcome of Choroidal Neovascularization Fibrosis and Lesion Characteristics
First Author: 方 赵

Purpose: To investigate the correlation between lesion characteristics of CNV and fibrotic scar, and the risk factors of fibrotic scar.

Methods: Retrospective clinical study. Patients with CNV diagnosed in Guangzhou Aier Eye Hospital from January 2016 to July 2021 who received anti-VEGF treatment and were followed up period for more than 6 months were included. The vascular network lesion area, CNV type, vascular width and vascular network morphology were compared between eyes with and without subretinal fibrosis. A logistic regression model was used to evaluate the risk factors of subretinal fibrosis.

Results: 109 eyes were included. All subjects was complicated with 4 diseases, including AMD, pathologic myopia (PM), polypoidal choroidal vasculopathy (PCV), idiopathic choroidal neovascularization (ICNV). At the last follow-up, 70 eyes had fibrous scar. Male, age ≥ 45 years, larger lesion area, mixed type or type 1 CNV or PCV, wider vascular width, root shape of vascular network and presence of CNV in contralateral eyes were associated with fibrotic scar. Male, age ≥ 45 years, CNV classification of mixed type or type 1 or PCV, and the presence of CNV in the contralateral eyes were the risk predictors for fibrotic scar occurrence in the logistic regression model.

Conclusions: The incidence of subretinal fibrosis after anti-VEGF therapy was 64.2% in eyes with CNV. Male, age ≥ 45 years, CNV

classification of mixed type or type 1 or PCV, and the presence of CNV in the contralateral eyes could serve as predictive risk factors of subretinal fibrosis after anti-VEGF treatment in patients with CNV.

Abstract No.: 200687
Poster No.: EX1-026
Panel No.: 026, Session: EX1
Deep Learning-Retinal Pigment Epithelium Segmentation for the Swept-Source Optical Coherence Tomography Device
*First Author: Ayaka **KAWAGUCHI***
*Co-Author(s): Kazunori **ASANUMA**, Naohumi **ISHITOBI**, Daisuke **NAGASATO**, Hitoshi **TABUCHI**, Mao **TANABE***

Purpose: To develop our proposed technology method to improve retinal pigment epithelium (RPE) visualization in optical coherence tomography (OCT) images and compare its efficacy with conventional methods across multiple retinal diseases and healthy eyes.

Methods: OCT images from 88 patients with age-related macular degeneration (AMD) were used for our proposed technology model training and validation. For testing with separate images were obtained from patients with AMD (100), diabetic retinopathy (DR; 50), epiretinal membrane (ERM; 50), branch retinal vein occlusion (BRVO; 50), and healthy eyes (50). The proposed technology was used to identify RPE in OCT images using the Pyramid Scene Parsing Network on top of ResNet-50. The accuracy of the proposed technology method in RPE visualization was measured using the mean absolute error (MAE) and compared with conventional methods for each retinal condition.

Results: As compared with conventional methods, the proposed technology showed significantly better MAEs across all conditions: AMD (2.18 vs. 4.79), DR (1.69 vs. 3.17), ERM (1.50 vs. 2.67), BRVO (1.86 vs. 2.98), and healthy eyes (1.59 vs. 2.28). Notably, the proposed technology's superiority was most evident in the AMD group.

Conclusions: The proposed technology method outperformed conventional methods in accurately visualizing RPE in OCT images across all tested conditions, especially in AMD. Our results indicate the proposed technology's potential to elevate the RPE segmentation which can lead to enhancing ophthalmology care by providing more accurate OCT imaging analyses. Future implementation of this proposed technology method in clinical settings is anticipated.

Abstract No.: 200925
Poster No.: EX1-018
Panel No.: 018, Session: EX1
Detection of Myopia Onset Using Deep Learning Based on Fundus Photographs from Table-Top and Handheld Cameras
*First Author: Joey **CHUNG***
*Co-Author(s): Marcus **ANG**, Yong **LI**, Angeline **TOH***

Purpose: To develop and validate deep learning (DL) algorithms based on baseline fundus photographs taken with table-top and handheld fundus cameras for detection of myopia onset in children.

Methods: Retrospective cohort study. A total of 348 subjects (698 eyes) who underwent fundus imaging with the table-top and handheld fundus cameras were included for analysis. DL algorithms were trained based on baseline fundus photographs to detect myopia onset, defined by spherical equivalent (SE) greater than or equal to -0.50 D. The performance of the DL models was evaluated using the area under the receiver operating characteristic curve (AUC), sensitivity, and specificity on both internal and external validation datasets.

Results: The handheld fundus photographs showed comparable quality to the table-top fundus photographs. The average performance of the DL models based on table-top fundus photographs was 0.94 (95% CI 0.90-0.96), while the average performance of the DL models based on handheld fundus photographs was 0.93 (95% CI 0.89-0.97). The heatmaps of fundus photographs in the DL models for the

detection of myopia onset highlighted the optic disc and peri macular areas.

Conclusions: The DL algorithms developed in this study demonstrate promising performance in detecting the onset of myopia using baseline fundus photographs. Handheld fundus cameras offers comparable image quality and model performance, making them a feasible alternative to table-top cameras. This supports the integration of handheld devices into routine clinical practice, potentially improving the accessibility and efficiency of myopia management in primary care settings.

Abstract No.: 200735
Poster No.: EX1-024
Panel No.: 024, Session: EX1
Diabetic Retinopathy Progression in a Multimodal Imaging-Based Virtual Clinic for Patients in Tertiary Care: The Retinal Observation Clinic Study
*First Author: Edwin **CHUA***
*Co-Author(s): Binte Juhari **AMALIA**, Haslina **HAMZAH**, Lin Jun **LEE**, Farah Nur Ilyana **MOHD IBRAHIM**, Gavin **TAN***

Purpose: The Retinal Observation Clinic (ROC) is an imaging-based care model used for monitoring of stable patients with diabetic retinopathy (DR) who are unsuitable for discharge. We aim to describe the rate of DR progression between 2 ROC visits from September 2020 to December 2023.

Methods: Patients undergo ocular evaluation including ultrawide fundus images (Clarus 500) and optical coherence tomography (Topcon Maestro). The images are primarily reviewed by trained non-physician graders based on standardized guidelines. All cases are arbitrated by retina specialists via telemedicine review. Patients with more than one visit were included in the analysis.

Results: 4471 patients with 9,373 completed visits were reviewed and a mean follow up of 9.5 months 3.6 SD. Out of 1982 patients with no DR, 232(16.09%) progressed to Mild DR and 7(0.49%) to Moderate DR. Of the 1442 patients with mild DR (32.25%), 114(7.91%), 10(0.69%) and 3(0.21%) progressed to moderate, severe, and proliferative DR respectively. Out of 336 patients with moderate DR; 10(2.24%) progressed to severe DR. All 711 patients post pan retinal photocoagulation remained stable. 40(0.89%) developed new DME, of which 9 were centre involved diabetic macular edema (CI-DME) that required referral for further management. Overall, 99.18% of patients continued to be monitored in ROC.

Conclusions: In patients with less than severe diabetic retinopathy without CI-DME; the risk of DR progression is low, and few patients developed CIDME. Most patients can be followed up without specialist referral in an imaging-based model of care.

Abstract No.: 200337
Poster No.: EX1-032
Panel No.: 032, Session: EX1
Diseases Other Than Retinopathy in Singapore's Diabetic Retinopathy Screening Programme: Prevalence and the Impact of Introducing an Artificial Intelligence Algorithm
*First Author: Bryan **PEH***
*Co-Author(s): Edwin **CHUA**, Haslina **HAMZAH**, Jin Yi **HO**, Gavin Siew Wei **TAN***

Purpose: Diabetic retinopathy screening primarily detects diabetic-related eye diseases. In Singapore, human readers also perform opportunistic screening for other ocular conditions. SELENA+ (Singapore Eye Lesion Analyzer +) is an artificial intelligence system detecting referrable diabetic retinopathy.,,The primary aim describe the prevalence of other retinal conditions in a cohort of diabetic retinopathy screening patients. The secondary aim evaluate if patients would have been referred if only screened by SELENA+.

Methods: A retrospective study analyzed 231,388 eyes between 2018 November to 2021 December.,,Non-mydriatic cameras captured retinal photography which were reviewed by human readers. 40.2% of images had SELENA+ applied to derive a referral diabetic retinopathy output. Defined as moderate or worse, non-

proliferative diabetic retinopathy or suspect macular edema.,,Images with other retinal conditions were evaluated if they would have been incidentally referred by SELENA+.

Results: 1555 (0.007%) eyes were reported to have other ocular conditions by human readers.,,The 3 most common conditions were Pseudo/Macular hole (P/MH) 142 (0.09%) eyes, Geographic Atrophy (GA) 79 (0.05%) eyes, Pigmented Epithelial Detachment (PED) 61 (0.04%) eyes.,,93,081 eyes (40.2%) were analyzed by SELENA+. This included 562 eyes (36.1%) with other ocular conditions, of which 265 (47.2%) were incidentally referred. The incidental referral rates were 46.8% (GA), 35.9% (P/MH), 34.4% (PED).

Conclusions: SELENA+ is designed to detect diabetic retinopathy. We do not expect it to detect other ocular conditions by opportunistic screening. Our study suggests more than half of these eyes will no longer be referred. Public health systems implementing artificial intelligence must understand these implications.

Abstract No.: 200220
Poster No.: EX1-033
Panel No.: 033, Session: EX1
Drusen Detection in Coloured Fundus Images

*First Author: Li Rong **WANG***
*Co-Author(s): Xiuyi **FAN**, Kelvin Zhenghao **LI**, Wei Kiong **NGO***

Purpose: Drusen are yellow deposits composed of lipids or proteins found under the retina. Large drusen are risk factors for age-related macular degeneration (AMD). Early detection and treatment of AMD reduce the severity of symptoms such as vision loss and slow disease progression. Drusen are often detected by ophthalmologists through retinal imaging, such as colored fundus images. While this method is reliable, it is also laborious. Hence, this study explores the possibility of automating drusen labeling in colored fundus images using deep neural network models.

Methods: We experimented with an open-source convolutional neural network, DenseNet-201, previously applied to detect ocular disorders such as glaucoma and diabetic retinopathy. Our model was initialized with ImageNet pre-trained weights and fine-tuned using a drusen detection dataset consisting of 20,593 normal samples and 1,191 drusen samples. To address class imbalance, we applied class weights during training. The model underwent two stages of fine-tuning to prevent catastrophic forgetting during transfer learning: first, fine-tuning the final block, and then fine-tuning both the penultimate and final blocks with reduced learning rates.

Results: Our model achieved an accuracy of 94.5% and an AUC of 0.817 (Area Under the Receiver Operating Characteristic Curve) on the testing set.

Conclusions: The results of this study indicate promising outcomes for automated drusen detection. Subsequent research could investigate automated drusen grading using the identified drusen images to provide a more nuanced risk assessment of AMD.

Abstract No.: 201007
Poster No.: EX1-017
Panel No.: 017, Session: EX1
Effect of Childhood Atropine Treatment on Adult Choroidal Thickness Using Sequential Deep Learning-Enabled Segmentation

*First Author: Angeline **TOH***
*Co-Author(s): Marcus **ANG**, Joey **CHUNG**, Yong **LI**, Syna **SRENG**, Damon **WONG***

Purpose: To describe choroidal thickness measurements using a sequential deep learning segmentation technique in adults who received childhood atropine treatment for myopia control.

Methods: Prospective, observational study. The Atropine Treatment Long-term Assessment Study analyzed adults who had previously participated in Atropine for the Treatment of Myopia (ATOM) randomized clinical trials: participants from the ATOM1 study (atropine 1% vs placebo, 1999-2003) and ATOM2 study (atropine 0.01%, 0.1%, and 0.5%, 2006-2012). Choroidal imaging was taken using

swept-source optical coherence tomography. Choroidal thickness was measured using a sequential deep learning approach.

Results: 94(22.3%) of 422 eyes had no previous exposure to atropine treatment, 328(77.7%) received topical atropine during childhood. After adjustment for age, sex, and axial length, exposure to childhood atropine was associated with a thicker choroid by 32.1μm (P=0.006) in the inner inferior, 23.5μm (P=0.03) in the outer inferior, 21.8μm (P=0.04) in the inner nasal, and 21.8μm (P=0.03) in the outer nasal. Multivariable analysis adjusted for age, sex, atropine, and axial length showed an independent association between central subfield choroidal thickness and the incidence of tessellated fundus (P<0.001).

Conclusions: Short-term (2-4 years) atropine treatment exposure during childhood was associated with a relatively thicker choroidal thickness in adulthood compared to placebo. We also observed an independent association between eyes with thicker central choroidal measurements and reduced incidence of tessellated fundus. Our study suggests that childhood exposure to atropine treatment might affect choroidal thickness in adulthood.

Abstract No.: 200758
Poster No.: EX1-022
Panel No.: 022, Session: EX1

Enhancing Volumetric Segmentation in Wide-Field OCT Images with a Semi-Supervised Learning Framework: Cross-Teaching CNN and Transformer Integration

*First Author: Syna **SRENG***
*Co-Author(s): Nur Fidyana **BINTE ABDUL GANI**, Jacqueline **CHUA**, Rahat **HUSAIN**, Leopold **SCHMETTERER**, Damon **WONG***

Purpose: Wide-field optical coherence tomography (OCT) imaging can enable monitoring of peripheral changes in the retina, beyond the conventional fields of view used in current clinical OCT imaging systems. This study aims to address the challenge of requiring extensive, high-quality annotated datasets for layer segmentation, particularly in wide-field OCT volumes using a cross-teaching semi-supervised learning (CT-SSL) framework that integrates the strengths of convolutional neural networks and transformers.

Methods: CT-SSL was trained on six distinct layers: retinal nerve fiber layer (RNFL), combined layers of ganglion cell and inner plexiform (GCL-IPL), inner nuclear and outer plexiform (INL-OPL), outer nuclear layer (ONL), inner segment/outer segment to retinal pigment epithelium (IS/OS-RPE), and choroidal layer. We assessed the model performance on 74 volumetric scans from a swept-source OCT with a 15x9 mm field of view, comprising 11,750 labeled and 29,016 unlabeled images.

Results: The proposed method significantly enhanced Intersection over Union (IoU) scores across all OCT layers (P-values < 0.001). The IoU improvements were notable, with scores of 0.857±0.037 for RNFL, 0.858±0.043 for GCL-IPL, 0.882±0.029 for INL-OPL, 0.914±0.018 for ONL, 0.925±0.025 for IS/OS-RPE, and 0.945±0.033 for Choroid, compared to the baseline UNet model's scores of 0.747±0.134, 0.782±0.119, 0.824±0.087, 0.893±0.053, 0.890±0.058, and 0.914±0.062 respectively.

Conclusions: This study demonstrates the efficacy of the CT-SSL framework for OCT layer segmentation. Significant improvements were observed across all OCT layers (P-value < 0.001), with increases of up to 11 % against a UNet baseline model. These findings highlight the effectiveness of our model for automated OCT layer segmentation.

Abstract No.: 200721
Poster No.: EX1-025
Panel No.: 025, Session: EX1

Evaluation of Posterior Vitreous Recession and Regression of Neovascularisation on Ultra-Wide-Field Optical Coherence Tomography Angiography in Proliferative Diabetic Retinopathy

*First Author: Hnin Hnin **OO***
*Co-Author(s): Yusra **ASAD**, Tai Yong **LOH**, Wenjun **SONG**, Sandy Wenting **ZHOU***

Purpose: To describe a case of neovascularisation regression concurrent with posterior vitreous recession observed through ultra-wide-field (UWF) swept-source optical coherence tomography angiography (SS-OCTA) in a young patient treated for proliferative diabetic retinopathy (PDR).

Methods: A young patient with PDR was imaged using UWF SS-OCTA with a 26x21mm scanning pattern. OCT angiographic and structural images, including B-scans with and without flow, were analysed at each visit to assess the dynamic relationship between the vitreous and neovascularisation.

Results: A 30-year-old Chinese female with bilateral PDR presented to the retina clinic. Visual acuity was 6/7.5 in the right eye and 6/9 in the left eye. Fundus examination revealed several active neovascular fronds. Vitreoretinal interface (VRI) slabs on UWF SS-OCTA and corresponding B-scans of the left eye demonstrated neovascularisation with adherent posterior hyaloid at the disc and along the vascular arcades, with overlying vitreoretinal traction. She was treated with panretinal photocoagulation and three intravitreal Ranibizumab injections. Serial SS-OCTA post-treatment showed progressive posterior vitreous recession, visualised as an enlarging ring extending towards the peripheral retina on en-face OCT images on VRI segmentation. Concurrently, we observed the release of traction on neovascularisation and regression of neovascular complexes on structural B-scans, resulting in vitreous haemorrhage.

Conclusions: UWF SS-OCTA is useful for longitudinally monitoring the progression or regression of neovascularisation post-treatment in diabetic retinopathy patients. It is also valuable in evaluating the three-dimensional dynamics between the posterior vitreous face and neovascularisation, crucial for assessing disease progression and predicting the risk of vitreous haemorrhage.

Abstract No.: 200387
Poster No.: EX1-031
Panel No.: 031, Session: EX1

Macular Microvasculature Changes in Diabetic Retinopathy Using Optical Coherence Tomography Angiography: Their Relationship with Disease Severity and Low Luminance Deficit

*First Author: Diego Louise **RAMOS***
*Co-Author(s): Neil Gregory **ONGHANSENG**, Joel **PEREZ**, Sherman **VALERO***

Purpose: Visual impairment in diabetic retinopathy (DR) is typically undetectable by conventional methods until later stages. Low luminance deficit (LLD) has been correlated with increasing DR severity, even at early stages. We aimed to determine the relationship of LLD and DR severity to macular changes seen on optical coherence tomography angiography (OCT-A).

Methods: Eyes of patients with diabetes mellitus were examined and assessed for DR. Best-corrected visual acuity was obtained. LLD was determined using a 2-log unit neutral density filter. Ultra-widefield photographs, optical coherence tomography, and OCT-A scans of the macula were obtained. Eyes with center-involved macular edema, other maculopathies, glaucoma, prior macular laser treatment, or significant media opacity were excluded. Scans were automatically processed and measured in ImageJ.

Results: Eyes with clinical DR varied significantly ($p < 0.05$) in vessel density (VD), perfusion density (PD), and skeleton vessel density (SVD) of the deep vascular complex (DVC). Changes in foveal avascular zone (FAZ) size and perimeter of the superficial vascular

complex (SVC) was seen in more severe DR. LLD had negative correlation with superficial VD and PD, and positive correlation with deep FAZ acircularity in eyes without clinical DR. Correlation of LLD with DVC FAZ area, SVC SVD, and SVD ratio was seen in more severe DR.

Conclusions: Deep overall microvascular variability is seen in eyes with DR. More severe disease tends to exhibit superficial FAZ enlargement. LLD may be an early marker for microvascular disease in subclinical DR, and an indicator for deep FAZ enlargement and superficial vessel reduction in more advanced DR.

Abstract No.: 201123
Poster No.: EX1-013
Panel No.: 013, Session: EX1
Natural History of Idiopathic Epiretinal Membrane from Optical Coherence Tomography
*First Author: Yolradee **WINUNTAMALAKUL***
*Co-Author(s): Yodpong **CHANTARASORN**, Kornwipa **HEMARAT**, Itsara **POKAWATTANA**, Plern **SUTRA***

Purpose: To evaluate the natural history of idiopathic epiretinal membrane (ERM) using optical coherence tomography (OCT).

Methods: A retrospective cohort observational study included patients with idiopathic ERM patients who had a follow-up period of at least one year. Best corrected visual acuity (BCVA), lens status, OCT findings and management were reviewed. We classified the idiopathic ERM and its variations into four types. Isolated idiopathic ERM was further divided into four stages. The OCT findings included ellipsoid zone (EZ) disruption, cotton ball sign, intraretinal (IR) cyst, and central subfield thickness (CST).

Results: 192 idiopathic ERM patients were included, with 162 eyes observed and 30 eyes underwent surgery. ERM progression in stage 1 to 4 were 33.8%, 39.1%, 15.2%, and 0%, respectively. BCVA logMAR of ERM stage 1 was 0.30±0.18 at baseline and 0.38±0.19 at last visit (P<0.001). In contrast, BCVA changes in the other stages did not reach statistically significant. Changes in BCVA were significantly associated with an increased risk of surgery, with a relative risk (RR) of 24.87 (95% CI: 3.585–172.563, p=0.001). Additionally, changes in CST were associated with increased risk of progression, with a RR of 1.02 (95% CI: 1.010–1.020, p<0.001). Other OCT findings did not show a statistically significant increase in risk of surgery or progression.

Conclusions: Idiopathic ERM generally remains stable across stages, some had progression and underwent surgery. Importance factors for predicting surgery or disease progression were BCVA and CST change.

Abstract No.: 201065
Poster No.: EX1-014
Panel No.: 014, Session: EX1
Optical Coherence Tomography Biomarkers as Predictive Factors for Visual Outcome in Diabetic Macular Edema Eyes Treated with Intravitreal Dexamethasone Implant: A Systematic Review and Meta-analysis
*First Author: Ditta **SUHADA***
*Co-Author(s): Samuel **MANURUNG**, Anggun Rama **YUDANTHA***

Purpose: This meta-analysis was conducted to evaluate the role of optical coherence tomography (OCT) biomarkers as predictors of visual outcome after intravitreal dexamethasone implant treatment in patients with diabetic macular edema (DME).

Methods: Reviewers performed a systematic literature search evaluating the predictive value of several OCT biomarkers such as subretinal fluid (SRF), disorganization of inner retinal layer (DRIL), hyper reflective foci (HRF), ellipsoid zone (EZ), hyper reflective spots (HRS), vitreo-retinal interface, and epiretinal membrane (ERM) for visual outcome in DME patients treated with intravitreal dexamethasone implant across Pubmed, EBSCOhost, SpringerLink, Scopus, and ClinicalKey. Quantitative analysis was performed with the RevMan 5.4.

Results: A total of 16 studies comprising 1278 eyes were included in our meta-analysis. Analysis showed that SRF was not statistically significant to final best corrected visual acuity (BCVA) with a risk ratio (RR) of 0.53 (95 % CI 0.17-1.59, P = 0.26), DRIL similarly showed no statistically significant result to final BCVA (RR = 9.80, 95 % CI -9.35-28.95, P = 0.32). Furthermore, HRF was also not statistically significant to final BCVA (RR = 1.44, 95 % CI 0.30-6.80, P = 0.65). Meta-analysis could not be performed to other biomarkers due to heterogeneity of the data. Disruption of the EZ and ELM are predictors of poor visual outcome in several studies, whereas attached vitreo-retinal interface served as biomarkers which can predict better visual outcome.

Conclusions: From our analysis, SRF, DRIL and HRF cannot be used as predictors of visual outcome for DME treated with intravitreal dexamethasone implant. However, further studies are necessary.

Abstract No.: 200867
Poster No.: EX1-019
Panel No.: 019, Session: EX1

Progression of Diabetic Macular Ischemia (DMI) in Pan Retinal Photocoagulation Treated Patients with Diabetic Retinopathy: A Cohort Study

*First Author: Noa **GILEAD GILHAR***
*Co-Author(s): Gemmy **CHEUNG**, Taffeta **CHING NING YAMAGUCHI**, Yu Jeat **CHONG**, Sobha **SIVAPRASAD***

Purpose: To examine 52-week changes in retinal vasculature and functional deficits in diabetic macular ischemia (DMI) eyes treated with pan-retinal photocoagulation.

Methods: A prospective cohort study was conducted with 53 patients (66 eyes) recruited between October 2021 and February 2023. Inclusion criteria included stable treated proliferative diabetic retinopathy or severe non-proliferative diabetic retinopathy with specific foveal avascular zone characteristics and a best corrected visual acuity (BCVA) of 54 letters or better. OCT and OCTA imaging, as well as retinal sensitivity (RS) via microperimetry, were assessed.

Results: : 42 patients (52 eyes) completed the 52-week follow-up. 9 eyes (17.3%) experienced a loss of ≥5 BCVA letters, and 17 eyes (32.6%) lost ≥5 low-luminance VA (LLVA) letters. Disorganization of retinal inner layers (DRIL) was observed in 71.4% of these patients compared to 38.7% of those who without BCVA letter loss, indicating a significant association with loss of VA (p=0.026). Baseline BCVA correlated positively with superficial vessel density (VD) (rho=0.4032, p=0.005), deep VD (rho=0.441, p=0.002), and parafoveal VD (rho=0.316, p=0.032). Baseline RS was significantly correlated with baseline parafoveal VD (rho=0.4425, p=0.003). At week-52 LLVA correlated with superficial VD (rho=0.378, p=0.0361).

Conclusions: Our study demonstrates significant correlations between retinal imaging parameters, and retinal functions, suggesting that these imaging-derived metrics are valuable indicators of visual acuity outcomes in ischemic diabetic retinopathy. DRIL appears to be an important biomarker for visual loss in ischemic diabetic retinopathy. Further research is necessary to standardize definitions for DMI and to better understand the role of these findings in managing diabetic retinopathy.

Abstract No.: 200461
Poster No.: EX1-029
Panel No.: 029, Session: EX1

Quantification of Ultra-Widefield Angiography Features Using Deep Learning and Assess Association Between Angiography Features and Centre-Involving Diabetic Macular Edema

*First Author: Dan **CAO***
*Co-Author(s): Huilin **LIANG***

Purpose: To investigate the relationship between center-involving diabetic macular edema (CI-DME) and quantitative ultra-widefield fluorescein angiography (UWFA) metrics, including leakage index, ischemia

index, and microaneurysm count, within different retinal zones.

Methods: A retrospective image analysis study was conducted on eyes with diabetic retinopathy (DR) that had undergone OCT and UWFA during the same period. Central subfield thickness (CST) on OCT images was analyzed to determine the presence of CI-DME. A deep learning model (Unet+ASPP+AGN+MCMSA) was used to segment ischemia, leakage, and microaneurysms in UWFA images, with manual corrections by experts as needed. Quantitative UWFA features in the panretinal, posterior, mid-periphery, and far-periphery area were correlated with CI-DME.

Results: This study included 85 eyes, comprising 29 with CI-DME, and 56 without CI-DME. Compared to eyes without DME, those with DME had significantly higher leakage index in the macular area ($P < 0.001$), higher microaneurysm count in the macular area ($p = 0.030$), and higher leakage index in the posterior area ($p = 0.014$). However, there were no significant differences in microaneurysm count in the posterior area or the ischemia index across retinal regions between eyes with and without DME.

Conclusions: The presence of CI-DME is associated with the microaneurysm count and leakage index in the macular area, as well as the leakage index in the posterior area. Clinically, in the treatment of DME, greater attention should be paid to stabilize microaneurysms in the macular region.

Abstract No.: 200608
Poster No.: EX1-027
Panel No.: 027, Session: EX1

Segmentation and Multi-Dimensional Feature Quantification of Choroidal Vascular from Indocyanine Green Angiography via Deep Learning

*First Author: Ruoyu **CHEN***
*Co-Author(s): Mingguang **HE**, Danli **SHI**, Ziwei **ZHAO***

Purpose: To develop a deep learning algorithm for choroidal vascular segmentation and automatic feature quantification on indocyanine green angiography (ICGA) images via a human-in-the-loop (HITL) strategy.

Methods: A multi-source ICGA dataset, including 55° view and 200° ultra-widefield ICGA (UWF-ICGA) images was utilized for training. The choroidal vessel network was pre-segmented by a pre-trained vessel segmentation model, and then manually modified by two ophthalmologists. The HITL cycles were repeated until the predicted vessel maps met visual satisfaction. One hundred and two choroidal vessel measurements covering diameter, density, complexity, tortuosity and branching angle were quantified based on the segmentation. The quantified parameters of 243 eyes with central serous chorioretinopathy (CSC), polypoidal choroidal vasculopathy (PCV), or pathological myopia (PM), were compared with those of 151 ICGA-normal eyes. The Dice coefficient, F1-score, the area under the receiver operating characteristic curve (AUC), accuracy, sensitivity, and specificity were measured.

Results: The first three cycles each involved fifty 55° view ICGA images, while the last included twenty UWF-ICGA images. We achieved high segmentation accuracy on both 55° view and UWF-ICGA images, with AUC 0.975 and accuracy 0.950 on 55° view ICGA images, AUC 0.937, accuracy 0.895 on UWF-ICGA images. Twenty-six, twenty-eight, and twenty-nine choroidal vascular measurements were significantly associated with CSC, PCV, and PM, respectively.

Conclusions: This study developed a high-precision choroidal vessel segmentation model with limited labor by leveraging HITL strategy. These auto-quantified vascular features were associated with various chorioretinal conditions, providing comprehensive insights into understanding pathological mechanisms underlying chorioretinal diseases and promoting feature-based management of these abnormalities.

Abstract No.: 201015
Poster No.: EX1-016
Panel No.: 016, Session: EX1

Temporal Retinal Vessel Angle as a Novel Biomarker for Familial Exudative Vitreoretinopathy

*First Author: Stephanie **WU***
*Co-Author(s): Gem **CHEW**, Hung-da **CHOU**, Alexander **MALOOF**, Wei-chi **WU***

Purpose: This study aims to investigate TVA measured from colour fundus photographs as a biomarker for assessing clinical outcomes in FEVR. The primary objectives were to establish correlations between TVA and key clinical parameters, evaluate the predictive power of TVA for poor visual acuity and foveal hypoplasia, and determine optimal threshold angles for risk stratification.

Methods: This retrospective case series included 65 patients (117 eyes) at Linkou Chang Gung Memorial Hospital, Taiwan. Ophthalmic examinations, imaging, and TVA measurements were conducted. Statistical analyses included correlation coefficients, logistic regressions, and ROC curves.

Results: TVA exhibited negative correlations with key clinical outcomes including best-corrected visual acuity. Logistic regressions identified significant associations between TVA and diverse outcomes. ROC curves demonstrated AUC values for predicting poor BCVA (0.80, 0.86) and foveal hypoplasia (0.83, 0.82) for TRAA and TRVA, respectively. Optimal thresholds were determined (TRAA: 65.02°, TRVA: 72.87°).

Conclusions: TVAs emerged as sensitive predictors of FEVR outcomes, showcasing robust correlations with disease severity and functional outcomes. It highlights TVA as a potential non-invasive biomarker for prognosis in FEVR, offering diagnostic precision and facilitating timely interventions. Future research with larger cohorts and longitudinal follow-up is warranted to validate the utility of TVA in clinical practice.

Abstract No.: 200464
Poster No.: EX1-028
Panel No.: 028, Session: EX1

Ultra-Wide-Field Fundus Fluorescein Angiography-Based Prediction of Proliferative Retinopathy in Retinal Vasculitis

*First Author: Devesh **KUMAWAT***
*Co-Author(s): Shorya Vardhan **AZAD**, Rohan **CHAWLA**, Pradeep **VENKATESH***

Purpose: To determine the association between ultra-wide-field fundus fluorescein angiography (UWFFA) features and risk of neovascularization (NV) in eyes with retinal vasculitis (RV).

Methods: In a retrospective study, UWFFA images (Optos, Scotland) of 171 eyes of 117 patients with RV were reviewed from May 2022 to May 2024 at a tertiary-care centre. Capillary non-perfusion (CNP) area was measured in clock-hours involvement in three zones- Central zone 1 (6mm radius), mid-peripheral zone 2 (radius 6mm to 15mm) and peripheral zone 3 (beyond 15mm radius). Logistic regression was performed to identify predictors of proliferative retinopathy (PR).

Results: Mean age was 30.3±9.6 years with males being 93.2%. RV was bilateral in 59.8% cases, active in 40.4% eyes, & predominantly venular (86% eyes). Moderate-severe disc leak and perivascular leak were present in 53.2% & 56.1% eyes respectively. PR was present in 54.4% eyes (93/171). CNP in zone 1, 2 & 3 in eyes with PR was 1.0±2.1 (0, 0-9), 4.5±2.7 (4, 0-12), and 7.5±3.1 (8, 0-12) compared to 0.58±1.49 (0, 0-6), 2.2±2.9 (1, 0-12), and 4.6±3.8 (4, 0-12) in eyes without PR ($p= 0.059$, <0.001, and <0.001 respectively). On logistic regression, zone 1 CNP was independently associated with NVD (Odds ratio OR 1.68 $p<0.001$), zone 2 CNP (OR 1.39 $p<0.001$) & disc activity (OR 0.05 $p<0.001$) with NVE, and zone 2 CNP (OR 1.39 $p<0.001$) & perivascular leak (OR 0.13 $p<0.001$) with any NV.

Conclusions: UWFFA helps in prediction of PR in patients with RV. Ischaemia in central and mid-peripheral zone poses risk of NVD and NVE respectively.

Ocular Oncology & Pathology

Abstract No.: 200411
Poster No.: EX1-039
Panel No.: 039, Session: EX1
A Rare Association of Reactive Retinal Astrocytic Tumor with Chronic Rhegmatogenous Retinal Detachment

First Author: Vicente Lorenzo ***CABAHUG***
Co-Author(s): Anita ***CHAN****, Andrew* ***TSAI***

Purpose: To report a case of reactive retinal astrocytic tumor (RRAT) associated with chronic rhegmatogenous retinal detachment.

Methods: Retrospective case report.

Results: An 82 year old male Malay patient had gradual blurring of vision of both eyes for one year. Visual acuity was 6/48 for the right and hand movement for the left. Slit lamp exam of the right eye revealed a moderately dense cataract but otherwise normal findings for other structures and the left eye showed a dense cataract complicated with 270 degrees posterior synechiae and a fairly mobile retinal detachment on B scan ultrasound. Combined phacoemulsification without intraocular lens implantation, scleral buckling, and pars plana vitrectomy with silicone oil tamponade was performed on the left eye to provide the best possible anatomic and functional outcome despite the guarded prognosis. Intraoperative findings revealed a total rhegmatogenous retinal detachment with multiple breaks and a small orange nodular mass incidentally overlying an inferotemporal break. Tumor was excised and histopathologic analysis showed the presence of GFAP glial tissue, CD31 vascular channels with moderately thick walls, and moderate CD163 macrophage infiltrate consistent with a benign reactive astrocytic tumor. Postoperatively, the retina remained attached and the patient noted some improvement in vision.

Conclusions: We report a rare association of Retinal RRAT presenting occultly with a chronic rhegmatogenous retinal detachment. Surgeons need to be aware as treatment may require tumor removal together with the repair of any accompanying structural complication. Histopathologic examination of such tumors ensures accurate diagnosis.

Abstract No.: 200582
Poster No.: EX1-037
Panel No.: 037, Session: EX1
Case Report and the Role of SIRT1 in the Pathogenesis of the Adenoma of the Retinal Pigment Epithelium

First Author: Xiaohua ***LI***
Co-Author(s): Ruijie ***YIN****, Min* ***YUAN***

Purpose: To report a rare case of RPE adenoma and discuss the role of SIRT1 in the pathogenesis of RPE adenoma.

Methods: Clinical examinations performed including B-scan, color Doppler, MRI, and histology; immunohistochemical analysis of the expression of HIC1, SIRT1, P53, and molecules such as cytokeratin, vimentin, S-100, NSE, HMB45, and Ki-67 was performed after enucleation. Clinical Examination revealed early hypofluorescence and late hyperfluorescence in the tumor and the existence of tumor-feeding vessels.

Results: There was high intensity on theT1-weighted magnetic resonance imaging (MRI) and low intensity on the T2-weighted MRI. Histopathologic analysis revealed the tumor cells were derived from adjacent normal RPE cells; the tumor was composed of cords and tubules of partially pigmented cells with round to oval nuclei. Immunohistochemical testing showed the tumor cells were positive for cytokeratin, vimentin, S-100, neuron-specific enolase, HMB45, and Ki-67. An important finding was that the abundant SIRT1 expression was associated with low levels of HIC1 and acetylated P53 in the RPE adenoma.

Conclusions: The diagnosis of RPE adenoma largely depends on histologic examination after enucleation. Deregulation of HIC1, SIRT1, and p53 may be the major event in the pathogenesis of RPE adenoma.

Abstract No.: 200557
Poster No.: EX1-038
Panel No.: 038, Session: EX1

Clinical Characteristics of Metastatic Uveal Tumor

*First Author: Minwoo **LEE***
*Co-Author(s): Seung-kyu **LEE***

Purpose: Metastatic uveal tumor is the most common intraocular tumor, but it has been difficult to analyze its characteristics because the absolute number of diseases is small. This author sought to obtain useful data for estimating the prognosis by analyzing the large data of metastatic uveal tumor.

Methods: The clinical data of 130 patients with metastatic uveal tumor (choroidal metastasis 127, Iris metastasis 3) were retrospectively analyzed by primary site, interval between primary cancer diagnosis and choroidal metastasis, associated systemic metastatic site, survival time after detection of uveal metastasis, and ophthalmologic clinical characteristics.

Results: The most common primary lesions were lung (57.7%) and breast (27.7%), and common metastases associated with choroidal metastases were analyzed in the following order: brain, bone, lung, and liver. The average time from primary cancer diagnosis to choroidal metastasis was 33.6 months, and lung cancer was the fastest with an average of 11.6 months. The average survival time after discovery of choroidal metastasis was 17.2 months, and survival time for patients with metastatic cancer caused by lung cancer was 14.2 months, which had a worse prognosis than breast cancer.

Conclusions: Uveal tumors metastasized from lung cancer and breast cancer are the most common, and systemic metastasis to other organs is common. The most common organ among choroidal metastases and metastases to other organs accompanying is brain, and it is inferred that this may be due to the fact that the eye and brain tissues are the same nervous system tissue.

Abstract No.: 200987
Poster No.: EX1-035
Panel No.: 035, Session: EX1

Clinical Outcomes of Retinoblastoma Patients in a Davao Tertiary Hospital in the Philippines

*First Author: Adriel Vincent **TE***
*Co-Author(s): Charmaine Grace **CABEBE**, Jocelyne **GONZALES-SY**, Melissa Anne **SANTOS-GONZALES**, Roland Joseph **TAN***

Purpose: To describe the demographics, clinical profile, treatment done, and outcomes of Retinoblastoma patients seen in a public tertiary referral center in Davao (Mindanao, Philippines) and to make available literature more representative of the status of Retinoblastoma in the Philippines.

Methods: Analytical cross-sectional study and chart review of Retinoblastoma patients seen in a tertiary government hospital in Davao Region, Philippines from January 2011 to December 2020.

Results: There are 157 patients with 207 eyes included. Seventy-three patients (46%) were female, with majority coming from the Davao Region (44%). One-hundred-seven (69%) patients had unilateral disease. Leukocoria was the most common initial presenting sign, followed by proptosis. Median age at initial consultation and symptom onset for patients with unilateral disease was significantly older than those with bilateral disease. Tumors were extra-ocular in 82 (40%) eyes. In the intraocular group, 76 (36%) eyes belonged to International Classification of Retinoblastoma (ICRB) Groups D and E. Enucleation was the most commonly performed treatment modality (123,eyes), while systemic chemotherapy was done on 112 patients (71%). Survival rate was 28%, and did not differ based on sex and laterality.

Conclusions: Advanced stages and extra-ocular disease remain significantly high in the country, even in Mindanao, warranting destructive eye procedures and chemotherapy for these patients. Despite these efforts, the advanced and high-risk presentation contributes to low survival rates.

Abstract No.: 200149
Poster No.: EX1-042
Panel No.: 042, Session: EX1

Morphological Characteristics and Longitudinal Structural Changes in Choroidal Osteoma: A Multimodal Imaging Study

First Author: Vishal ***RAVAL***
Co-Author(s): Niroj ***SAHOO***

Purpose: We conducted a retrospective, observational study to analyze the morphological characteristics and longitudinal changes in different parameters in eyes with CO.

Methods: Baseline demographics and longitudinal changes were assessed using fundus photography, OCT, and OCTA.

Results: 65 eyes (52 patients:17 males, 35 females) were included. Mean age of presentation was 31.2 ±15.3 years. Three different zones could be identified in most CO lesions: an ossified area, an ossified area with retinal pigment epithelium (RPE) atrophy, and a de-ossified area. At baseline, RPE atrophy was present in 46 eyes (71%), pigment clumping in 38 eyes (59%), deossification in 23 eyes (35%), CNV in 24 eyes (37%), SRF without CNV in 5 eyes (8%), osteoclastic cavitations in 31 eyes (48%), and focal choroidal excavation in 25 eyes (39%). OCTA showed a relatively well preserved choriocapillaris layer, except in areas of CNV and de-ossification. Patients with de-ossification were significantly older than those without (p=0.006). Out of 15 patients with good longitudinal imaging documentation, 8 patients showed a decrease in the size of CO, with increase in RPE atrophy, de-ossification, and appearance of osteoclastic clefts (median, 53.5 months), 3 patients did not show any change in the lesion size (mean follow-up 10.6 months), and 2 patients showed an increase in the lesion size (both were young patients) over a mean follow up of 14.2 months.

Conclusions: While younger patients with CO experience tumor growth, lesions in older patients undergo gradual de-ossification. The frequency of CNV is high, but SRF can be seen even without CNV.

Abstract No.: 200150
Poster No.: EX1-041
Panel No.: 041, Session: EX1

Oculodermal Melanocytosis in Asian Indian Patients: Prevalence, Clinical Presentation and Association with Choroidal Melanoma

First Author: Vishal ***RAVAL***
Co-Author(s): Prapti ***CHHEDA***

Purpose: To study the prevalence, clinical presentation, treatment, and follow-up of ocular(dermal) melanocytosis (ODM) and its association with choroidal melanoma (CM) in Asian Indian patients.

Methods: Retrospective interventional case series of patients with ODM conducted in a quaternary eye care center.

Results: Of the total 1.48 million patients during the study period, we identified 213 patients with ODM with a prevalence rate of 0.014%. Median age at presentation was 13 years (range 0-76 years). Unilateral presentation of ODM was noted in 87%. ODM involved the sclera in 100% cases, iris in 23%, choroid in 20%, eyelid in 29%, and V1 and V2 dermatomes in 53%. Nineteen patients (9%) were found to have CM, with 1.3 times increased risk of CM compared with the Caucasian population. The most common tumor location was in the inferior quadrant (n=8, 44%). The mean tumor thickness was 8.3±2.8 mm with a mean basal diameter of 14.0±4.3mm. Treatment of CM included plaque brachytherapy (n=6), enucleation (n=6), and extended enucleation (n=1). During a mean follow-up period of 21 months, 1 patient died because of lung metastasis.

Conclusions: Although rare, choroidal melanoma does occur in the presence of ODM with an increased risk in Asian Indians compared to the Caucasian population. Patients with ODM should be examined periodically for early detection of CM.

Abstract No.: 200148
Poster No.: EX1-043
Panel No.: 043, Session: EX1

Optical Coherence Tomography Imaging Biomarkers Associated with Primary Vitreoretinal Lymphoma

*First Author: Vishal **RAVAL***
*Co-Author(s): Mudit **TYAGI***

Purpose: To evaluate pre- and post-treatment SD-OCT features of biopsy-proven primary vitreoretinal lymphoma (PVRL).

Methods: Retrospective cross-sectional observational study of 18 eyes from 10 patients.

Results: The mean age at presentation was 63 years (range, 22-77 years). PVRL diagnosis was delayed by an average of 20 months with a prior history of corticosteroids usage in 40% of the patients. At presentation, SD-OCT features included vitreous cells (n = 13, 72%), intraretinal deposits (n = 5, 28%), subretinal deposits (n = 10, 56%), subretinal pigment epithelium (subRPE) deposits (n = 7, 39%), confluent RPE detachments (n = 16, 89%), and RPE undulations (n = 4, 22%). All eyes were treated with local intravitreal chemotherapy consisting of methotrexate (MTX) and/or rituximab (RTX) injections with an average of 9 MTX (range, 1-23) and 2 RTX (range, 1-6) injections. At last follow-up (mean, 9 months), complete resolution was noted in 14 eyes (78%). Post consolidation treatment SD-OCT showed complete resolution of subRPE lesions (n = 7, 100%) with reduction in confluent RPE detachments (n =14, 88%). Other features noted were subretinal fibrosis (n =3, 38%), photoreceptors and outer retinal abnormalities (n =5, 28%) and diffuse retinal atrophy (n =1, 5%). Five patients (50%) developed subsequent CNS compartment involvement at a mean interval of 12 months (range, 6-20 months).

Conclusions: PVRL is a well-known masquerade syndrome that may be challenging to diagnose. The characteristic SD-OCT of subRPE hyperreflective deposits is unique to PVRL and can aid in early diagnosis as well as assess response to treatment.

Abstract No.: 200875
Poster No.: EX1-036
Panel No.: 036, Session: EX1

Predicting the Long-Term Therapeutic Effect of Photodynamic Therapy in Circumscribed Choroidal Hemangioma

*First Author: Jehwi **JEON***
*Co-Author(s): Christopher Seungkyu **LEE***

Purpose: To evaluate predictive factors of therapeutic effect in the circumscribed choroidal hemangioma (CCH) patients treated with photodynamic therapy (PDT) and analyze serial anatomical changes of the outcomes focused on the changes of the visual acuity, tumor characteristics, and inner retina contacted to the tumor for 3 years.

Methods: The study included patients who visited outpatient clinics for CCH between January 2005 and December 2022 at Severance Eye Hospital, Yonsei University. We retrospectively reviewed medical records and multimodal imaging for the eyes of CCH patients and the following data were assessed: 1) demographics, including visual acuity changes post-PDT treatment, age, laterality, and sex; and 2) structural features of the multimodal images of tumor characteristics.

Results: In 125 CCH patients (82 men, mean age: 52.1±14.0 y), asymptomatic CCH was present in 50 and symptomatic CCH was present in 75; PDT therapy was applied in 56 among the symptomatic CCH, while other treatments were noted in 19. In the PDT-only groups (n=37), primary treatment outcomes were significantly better compared to non-PDT groups. In a subgroup analysis measuring to find the predictive factors before PDT, the subfoveal location of the tumor center is related to worse BCVA than other locations, and disruption of the External Limiting Membrane (ELM) layer was significantly associated with worse long-term outcomes after PDT treatment.

Conclusions: Description of the long-term outcome after PDT in CCH patients can be guidelines for deciding the PDT treatment and predicting the long-term outcomes. Disruption

of the ELM may serve as an important prognostic factor for PDT.

Abstract No.: 200222
Poster No.: EX1-040
Panel No.: 040, Session: EX1
Pseudogliomas – Mimickers of Small Retinoblastomas
*First Author: Prema **SUBRAMANIAM***
*Co-Author(s): Abhishek **DAS**, Parag **SHAH**, Narendran **VENKATAPATHY***

Purpose: To study different types of pseudogliomas (not presenting as leukocoria) detected on telescreening for retinopathy of prematurity (ROP) which can mimic as small retinoblastoma. To study differentiating features of these pseudogliomas from retinoblastoma which could help in diagnosing and managing these conditions further.

Methods: It is a retrospective analysis of the telescreening done at a tertiary care eye hospital in the department of pediatric retina and ocular oncology from Jan 2015 till March 2023 for ROP. 40 eyes of 26 patients diagnosed with retinoblastoma mimicking conditions were included in the study. Demographic data, characteristic features of each condition, differentiating features from retinoblastoma, further management and the follow up outcomes were studied.

Results: 40 eyes of 26 patients with pseudoglioma were studied, 14 had bilateral disease. Out of 40 eyes, 4 (10%) had Endogenous endophthalmitis, 10 (25%) had Congenital infections (7 had congenital toxoplasmosis and 3 had cytomegalovirus [CMV] retinitis), 6 (15%) had Retinocytoma, 16 (40%) had Astrocytic hamartoma, 3 (7.5%) had Combined Hamartoma of Retina and Retinal Pigment Epithelium (CHRRPE) and 1 (2.5%) was Granuloma. Infective lesions needed further systemic work up and treated with intravenous and intravitreal antibiotics. All retinocytoma eyes were observed and followed closely. Astrocytoma patients underwent systemic evaluation and CHRRPE patients were observed.

Conclusions: Pseudogliomas detected during neonatal and infancy can have vision-threatening implications. Knowledge of the characteristics, differentiating features, and proper management of each of these conditions is very important as they can mimic as retinoblastoma.

Other (General Ophthalmology)

Abstract No.: 200540
Poster No.: EX1-048
Panel No.: 048, Session: EX1
A Single Centre, Double-Blinded, Randomised Controlled Pilot Study Comparing Intracameral Levofloxacin and Intracameral Cefazolin in Reducing Rates of Post-Operative Endophthalmitis in Cataract Surgery
*First Author: Zhi Hong **TOH***
*Co-Author(s): Yan Tong **KOH**, Wei Kiong **NGO**, Don Chern Kuok **PEK**, John Xin Hao **WONG**, Tun Kuan **YEO***

Purpose: Intracameral cefazolin is typically given as prophylaxis for post-operative endophthalmitis in cataract surgery. However, patients with penicillin allergy are excluded. This pilot study aims to demonstrate the safety and efficacy of intracameral levofloxacin as an alternative.

Methods: Prospective, double-blinded randomised controlled pilot study of 50 patients. One arm (25) received intracameral cefazolin while the other arm (25) received intracameral levofloxacin at the end of uneventful cataract surgery by specialist cataract surgeons. Patients were reviewed at post-operative 1 week, 1 month and 3 months. Primary outcome measures on clinical safety were compared to baseline. These measures include endophthalmitis rate, central cornea thickness suggesting cornea edema (CCT), anterior chamber inflammation, intraocular pressure (IOP), endothelial cell density (ECD) and OCT measurements of central subfield thickness (CST) indicative of cystoid macula edema. Secondary outcome measure on efficacy was best-corrected visual acuity (BCVA).

Results: All 50 patients were included in the analysis. Mean age of both groups was similar at 69 years old. 33 (66.0%) patients were males and majority were Chinese (88%). There were no reported cases of endophthalmitis. In terms of primary outcome measures, there were no statistical difference in terms of CCT, anterior chamber inflammation, IOP, ECD and CST between both arms at post-operative 1 week, 1 month and 3 months. There was also no statistical difference in BCVA between both arms.

Conclusions: Intracameral levofloxacin appears to be a suitable alternative to intracameral cefazolin in patients with penicillin allergy in terms of safety and efficacy. A larger study can be performed to confirm the findings.

Abstract No.: 200061
Poster No.: EX1-056
Panel No.: 056, Session: EX1
Comparing the Clinical Outcome of Transepithelial and Conventional Photorefractive Keratectomy in Correction of Moderate Myopia
*First Author: Kourosh **SHEIBANI***
*Co-Author(s): Sara **KAVOUSNEZHAD**, Nader **NASSIRI***

Purpose: To compare the clinical outcomes of one-step transepithelial photorefractive keratectomy (tPRK) with those of conventional photorefractive keratectomy (PRK).

Methods: In this prospective, randomized case-control study consecutive patients with moderate myopia were randomly assigned to undergo either one-step tPRK or conventional PRK using the Schwind Amaris excimer laser system at Vanak Eye Surgery Center, Tehran, Iran from May to December 2020. Outcome measures included one and three months post-surgical uncorrected visual acuity (UCVA), best corrected visual acuity (BCVA), sphere, cylinder, spherical equivalent (SE), intraocular pressure, haze, and levels of pain and discomfort.

Results: One hundred and twenty eyes from 60 consecutive patients were evaluated. No statistically significant differences were observed in mean UCVA, BCVA, or SE at one and three months postoperatively. One month postoperatively, the mean haze was significantly lower in the tPRK group compared to the PRK group ($p < 0.001$), but this difference was not observed at three months. Patients undergoing tPRK experienced significantly less pain ($p = 0.027$) and discomfort ($p<0.001$) one day postoperatively. No differences between the two groups regarding postoperative intraocular pressure were observed.

Conclusions: The findings of the present study suggest that the tPRK method is associated with reduced early postoperative pain and discomfort at day one as well as less corneal haze at one month postoperatively, compared to the conventional PRK method. There were no significant differences between the two methods in terms of postoperative intraocular pressure, UCVA, BCVA, or SE.

Abstract No.: 200060
Poster No.: EX1-057
Panel No.: 057, Session: EX1
Comparison of Postoperative Haze in Photorefractive Keratectomy with and without Mitomycin C Among Patients with Low Myopia and Ablation Depth of Less Than 70 Micron
*First Author: Nader **NASSIRI***
*Co-Author(s): Sara **KAVOUSNEZHAD**, Kourosh **SHEIBANI***

Purpose: To evaluate the efficacy and safety of mitomycin C (MMC) application during photorefractive keratectomy (PRK) in patients with low myopia and an ablation depth of less than 70 microns.

Methods: This prospective, randomized, double-masked, placebo-controlled clinical trial included patients with low myopia (less than three diopters) and a corneal ablation depth of less than 70 microns, who were candidates for PRK in both eyes. In each patient, one eye was randomly treated with intraoperative topical MMC 0.02% for 20 to 30 seconds, while the contralateral eye received a placebo. The main outcome measures were corneal haze, as

assessed by confocal microscopy at six months postoperatively, and the mean endothelial cell density.

Results: Seventy eyes from thirty-five patients were evaluated. There was no statistically significant difference between the case and control groups in terms of mean preoperative best-corrected visual acuity, uncorrected visual acuity, sphere, cylinder, spherical equivalent, intraocular pressure, or endothelial cell count. The mean corneal haze, based on confocal microscopy readings at six months postoperatively, was significantly lower in the group receiving MMC ($p = 0.003$). The mean endothelial cell density at six months postoperatively was significantly lower in the MMC group compared to the control group ($p = 0.006$).

Conclusions: The application of MMC 0.02% reduces haze formation in eyes with low myopia undergoing PRK with an ablation depth of less than 70 microns, compared to placebo, up to six months postoperatively. However, it is associated with a significant reduction in endothelial cell count.

Abstract No.: 200273
Poster No.: EX1-053
Panel No.: 053, Session: EX1

Do We Need to Hold Aspirin Before Cataract Surgery? A Systematic Review and Meta-Analysis of 65,196 Subjects

*First Author: Hashem **ABU SERHAN***
*Co-Author(s): Mohamed **ABO ZEID**, Ahmad **ALKHEDER**, Hazim **ALKOUSHEH**, Amr **ELROSASY***

Purpose: Although aspirin is commonly used in elderly patients undergoing cataract surgery, there is no agreement on whether to continue or stop taking it before cataract surgery. This systematic review and meta-analysis attempt to assess the safety of continuing or discontinuing aspirin in the setting of cataract surgery.

Methods: We conducted a systematic review and meta-analysis following PRISMA guidelines. Four databases were searched until January 25, 2024, for studies assessing the safety and efficacy of aspirin continuation or discontinuation before cataract surgery. The risk ratios (RR) of the extracted data and their 95% confidence interval (95% CI) were pooled using RevMan 5.4 software. We registered our protocol in PROSPERO (CRD42024529986).

Results: We included nine studies with a total of 65,196 patients comprising various study designs and global populations. The analysis revealed a significant increase in subconjunctival hemorrhage risk with aspirin continuation (RR: 1.74, 95% CI: 1.22–2.50, $p = 0.002$). However, the risk of hyphema, retrobulbar hemorrhage, vitreous hemorrhage, intraocular pressure spike, corneal edema, posterior capsule rupture, and visual acuity changes did not significantly differ between aspirin continuation and discontinuation or aspirin and placebo groups.

Conclusions: Although the use of aspirin before cataract surgery raises the likelihood of subconjunctival bleeding, it does not increase the risk of potentially sight-threatening bleeding events. We recommend continuation of aspirin in patients undergoing cataract surgery.

Abstract No.: 201040
Poster No.: EX1-044
Panel No.: 044, Session: EX1

Evaluating Visual Acuity Done by Mobile App (EySEE) Versus Standard of Care (SOC) in Retina and General Ophthalmology Clinics

*First Author: Regine **GOH***
*Co-Author(s): Rose Ann **GOH**, Serene **SIM**, Gavin **TAN**, Kelvin **TEO**, Cedric **YEO***

Purpose: Visual acuity (VA) testing using a physical logMAR chart is performed at every visit, by healthcare professionals. We have developed, EySEE, a mobile app that measures VA, using standardized optotypes to test near and far vision, using an abbreviated logMAR protocol, at a calibration distance of 33cm. We aim to assess the accuracy and reliability of VA measurements, obtained with EySEE, as compared to the standard of care.

Methods: Data collection on a total of 262 patients (n = 486 eyes) was performed with 57 patients (n= 110 eyes) done in a retina clinic. Patients completed both EySEE and standard visual acuity tests within the same visit. In addition to analyzing the differences between both methods, the study also classified eyes into 2 groups: Good VA (6/12 or better) with 314 eyes, and Moderate VA (Worse than 6/12) with 172 eyes, respectively.

Results: For 80% (n = 389) of the overall eyes, EySEE measured within a 2-line difference when compared to SOC VA, with mean difference of -0.08. 80.45% of eyes were within 0.2 logMAR. Our further analysis showed 84.71% of eyes with Good VA and 72.62% of eyes with moderate or worse VA, were within 0.2 logMAR.,,Retina patients did worse than the overall cohort. With 60.78% of eyes with Good VA and 72.88% of eyes with moderate or worse VA, were within 0.2 logMAR.

Conclusions: EySEE has the potential to allow selected patients to perform their VA test at home which will decongest the clinics and reduce healthcare worker burden.

Abstract No.: 200275
Poster No.: EX1-052
Panel No.: 052, Session: EX1

Forecasting Myopic Maculopathy Risk Over a Decade: Development and Validation of an Interpretable Machine Learning Algorithm

*First Author: Yanping **CHEN***
*Co-Author(s): Mingguang **HE**, Wei **WANG**, Ruilin **XIONG***

Purpose: To develop and validate prediction model for myopic macular degeneration (MMD) progression in patients with high myopia.

Methods: The Zhongshan High Myopia Cohort for model development included 660 patients aged 7-70 years with a bilateral sphere of ≤-6.00D. 212 participants with an axial length (AL)≥25.5mm from the Chinese Ocular Imaging Project were used for external validation. Thirty-four clinical variables including demographics, lifestyle, myopia history, and swept source optical coherence tomography data were analyzed. Sequential forward selection was employed for predictor selection, and binary classification models were created using five machine learning algorithms to forecast the risk of MMD progression over 10 years.

Results: Over a median follow-up of 10.9 years, 133 patients (20.2%) showed MMD progression in the development cohort. Among them, 69 (51.9%) developed newly-onset MMD, 11 (8.3%) developed patchy atrophy from diffuse atrophy, 54 (40.6%) showed an enlargement of lesions and 9 (6.8%) developed plus signs. Top six predictors for MMD progression included thinner subfoveal choroidal thickness, longer AL, worse best-corrected visual acuity, older age, female gender, and shallower anterior chamber depth. The eXtreme Gradient Boosting algorithm yielded the best discriminative performance (AUROC=0.87±0.02) with good calibration in the training cohort. In a less myopic external validation group (median -5.38D), 48 patients (22.6%) developed MMD progression over four years, with the model's AUROC validated at 0.80±0.008.

Conclusions: Machine learning model effectively predicts MMD progression a decade ahead using clinical and imaging indicators. This tool shows promise for identifying "at-risk" high myopes for timely intervention and vision protection.

Abstract No.: 200893
Poster No.: EX1-045
Panel No.: 045, Session: EX1

Inter-Individual Topographic Variation of Choroidal Thickness in Healthy Eyes on Swept-Source Optical Coherence Tomography

*First Author: Zehua **JIANG***
*Co-Author(s): Haoyu **CHEN**, Aidi **LIN**, Tian **LIN**, Xujia **LIU***

Purpose: To investigate the topographic characters of inter-individual variations of the macular choroidal thickness (CT).

Methods: This was a retrospective study. Macular CT data for 900 0.2 × 0.2-mm grids

from 410 healthy eyes were collected from swept-source optical coherence tomography. Following the analysis of factors associated with mean CT, the β-coefficients of the included associated factors in each grid were summarized for choroidal thickness changes analysis. Additionally, the coefficient of variance (CoV), coefficient of determination (CoD), and coefficient of variance unexplained (CoVU) for CT were calculated in each individual grid to investigate the inter-individual choroidal variations pattern.

Results: Sex (β = -17.26, female vs. male), age (β = -1.61, per 1 year), and axial length (β = -18.62, per 1 mm) were associated with mean macular CT. Females had a thinner choroid in all 900 grids (0.5-26.9 μm). As age increased, the CT noticeably decreased (8.74-19.87 μm per 10 years) in the temporal regions. With axial length elongation, the thinning (7.94-24.91 μm per 1 mm) was more evident in subfoveal and nasal regions. Both the CoV (34.69%-58.00%) and CoVU (23.05%-40.78%) were lower in the temporal regions, whereas the CoD (18.41%-39.66%) was higher in the temporal regions.

Conclusions: Choroidal thinning is more predominant in the subfoveal and nasal regions with axial length elongation, but in the temporal region with aging. The inter-individual variation of CT is higher and less determined by sex, age, or axial length in the nasal regions.

Abstract No.: 200313
Poster No.: EX1-051
Panel No.: 051, Session: EX1
Novel Mutation in GJA3 Gene in a Filipino Patient with Congenital Cataract, Microcornea and Optic Disc Coloboma
*First Author: Elaine Marie **TAN***
*Co-Author(s): Manuel **IBANEZ***

Purpose: Congenital cataract is the most common cause of severe visual impairment in infants and children, half of which are genetic in etiology, and exhibit genotypic heterogeneity. Mutations in the GJA3 gene have been associated with multiple types of cataract, microcornea, and microphthalmia, anophthalmia, coloboma (MAC) spectrum (Phenotype MIM: 610885). In our case, we report a novel mutation in GJA3 in a Filipino male with bilateral congenital cataract and microcornea.

Methods: Case Report

Results: Our case is a 42 year old Filipino male patient with bilateral congenital cataracts, microcornea and optic disc coloboma. Family history revealed his 3 male offspring to have the same condition. At 3 months old, he underwent cataract surgery on both eyes and then proceeded to wear spectacles postoperatively. At 27 years old, he was diagnosed with secondary glaucoma in both eyes. Examination revealed a phthisical right eye and an aphakic left eye with a glaucoma drainage device. Corneal measurements of the right and left eye are 7x8.8mm and 7.5x9.2mm, respectively. Fundus photo of the left eye revealed an optic disc coloboma.,,Whole exome sequencing revealed a missense mutation in GJA3 c.55A>C which is associated with autosomal dominant cataract. This variant is predicted to be damaging and has not been reported in population datasets.

Conclusions: Mutations in the GJA3 gene have been reportedly associated with congenital cataract, microcornea and coloboma. Our study found a novel variant in GJA3 which may help expand our knowledge on this gene and its disease associations.

Abstract No.: 200341
Poster No.: EX1-050
Panel No.: 050, Session: EX1
Occupational Hazards in Ophthalmology Causing Bilateral Vision Loss
*First Author: Vipasha **SHARMA***
*Co-Author(s): Mousumi **BANERJEE***

Purpose: Intra-ocular foreign bodies are a major cause of visual impairment in the young population, with metal being the most common foreign body detected. We present two cases of bilateral IOFB resulting from gross negligence regarding workplace eye safety.

Methods: Case 1: A 45-year-old male, working as a welder in a steel manufacturing company, presented with left eye (OS) endophthalmitis with an alleged history of trauma with iron particle 2 years back.,Case 2: A 35-year-old male, working as a welder in a pipe manufacturing industry, presented with endophthalmitis and IOFB on radio-imaging OD, after alleged history of trauma with iron particle 3 months earlier. A temporal corneal scar with IOFB temporal to the fovea OS was incidentally detected.

Results: Case 1: NCCT orbit revealed an intraocular metallic foreign body of 6.5x2.2 mm embedded lateral to optic disc OS. PPV was performed with IOFB removal and intravitreal antibiotics injection OS. Patient presented again in 6 months later with alleged trauma to right eye. NCCT orbit depicted a radio opaque foreign body in the extraconal compartment inferomedial to right globe.,Case 2: BCVA of 6/9 was documented OS with decreased a and b waves on ERG, which further deteriorated to 6/18 at 6 months follow-up.

Conclusions: We highlight the importance of training for workplace safety and preventing work-related eye injury. Medical professionals should also emphasize the importance of wearing highly resistant polycarbonate glasses to protect the fellow eye when patients present with unilateral workplace ocular trauma.

Abstract No.: 200059
Poster No.: EX1-058
Panel No.: 058, Session: EX1
Partial Versus Full Thickness Limbal Relaxing Incisions During Phacoemulsification for Treatment of With-the-Rule Astigmatism

First Author: Nader ***NASSIRI***
Co-Author(s): Sara ***KAVOUSNEZHAD****, Kourosh* ***SHEIBANI***

Purpose: To compare the use of partial thickness and full thickness limbal relaxing incisions (LRI) during phacoemulsification for treatment of with-the-rule astigmatism in senile cataract patients.

Methods: In this prospective randomized controlled trial, 88 older than 65 years patients with by the rule astigmatism cylinder of over 1.25 were included. The patients were randomly divided and either received two partial thickness or one partial thickness and one full thickness corneal incision in limbus area to correct their astigmatism.

Results: One month postoperatively the mean BCVA (P=0.12) and UCVA (P=0.011) correction was higher in the partial thickness group but this difference was not significant at six months. There was no significant difference between the two groups regarding spectacle independence, photophobia, foreign body sensation and patient satisfaction.

Conclusions: Since a full thickness LRI might lead to complications (leakage, endophthalmitis) in rare cases and does not result in better astigmatism correction it is suggested that partial thickness LRI should be considered as the preferred method.

Abstract No.: 200485
Poster No.: EX1-049
Panel No.: 049, Session: EX1
Photofundus Characteristics of Diabetes Mellitus Patients in Primary and Secondary Health Care Centers

First Author: Winly ***WINLY***
Co-Author(s): Ari ***ANDAYANI****, Ni Made* ***ARI SURYATHI****, Ida Bagus* ***PUTRA MANUABA****, Ni Made* ***SURYANADI***

Purpose: The prevalence of diabetes mellitus (DM) increases over time in line with the prevalence of diabetic retinopathy is also expected to increase. It is not possible to determine which diabetic patients will have retinopathy, so therefore screening is needed. This study aims to have a better understanding in diagnosing DM patients, especially in primary, secondary and community health care centers.

Methods: A descriptive-analytical study. Data was collected retrospectively based on collected records of characteristic and portable

photo fundus from DM patients while doing social service at a health service center.

Results: Portable photo fundus in this study, screening 138 DM patients, with majority of subjects is in the range 44-64 year age group (68.1%). There was the same number of patient between gender or type. History of DM in the family (63.0%) with a duration of DM ≤ 5 years (56.5%), mostly the quality of photo fundus that can be assessed (97.1%), patients who needed further treatment were referred to the ophthalmologist 59 cases (42.8%).

Conclusions: Portable photo fundus giving better access to eyecare for people who live far away from cities and have limited access to health facilities. This preventive outlook is focused on a screening modality, so that blindness of not only diabetic retinopathy but also any causes in peripheral areas will be more easily detected by increasing referral to the ophthalmologist and may able to get appropriate management immediately.

Abstract No.: 200209
Poster No.: EX1-055
Panel No.: 055, Session: EX1

Polr1c Deficiency-Induced Photoreceptor Degeneration and Vision Impairment in a Model of POLRIII-Related Leukodystrophy

*First Author: Zulvikar Syambani **ULHAQ***
*Co-Author(s): William Ka Fai **TSE***

Purpose: To investigate the localization and function of polr1c in the retina using a zebrafish model of RNA polymerase III-related hypomyelinating leukodystrophy (POLR3-HLD)

Methods: Our study employed morphological analysis, sox10 lineage tracing, and neurological assessments to confirm whether depletion of polr1c recapitulates the clinical features of both Treacher Collins syndrome (TCS) and POLR3-HLD. Through double staining immunohistochemistry, we determined the localization of polr1c in the retina. Additionally, we utilized various techniques including qRT-PCR, immunostaining, in-situ hybridization, TUNEL assays, and behavioral analysis to elucidate the molecular mechanisms underlying photoreceptor degeneration in polr1c–/– mutants.

Results: Our results display attributes similar to both characteristic of TCS-3 and POLR3-HLD in polr1c–/– zebrafish. Furthermore, these mutants exhibited alterations in eye-to-body ratio, affecting retinal layers, leading to myopia, optic nerve (ON) atrophy, and diminished retinal nerve fibers. Polr1c was found to be exclusively expressed in photoreceptor outer segments (OS) and sensory cilia, impacting photopigments, particularly severely affecting blue opsin among other cone photopigments. Depletion of polr1c led to increased apoptosis in photoreceptor cells. Additionally, behavioral changes in polr1c–/– zebrafish correlated with shifts in photopigment expression.

Conclusions: In conclusion, our findings highlight the importance of polr1c in photoreceptor survival, and its absence may lead to secondary diseases related to photoreceptor function.

Abstract No.: 200272
Poster No.: EX1-054
Panel No.: 054, Session: EX1

The Characteristics and Visual Outcomes of Dialysis-Associated Non-Arteritic Ischemic Optic Neuropathy: A Comprehensive Systematic Review

*First Author: Hashem **ABU SERHAN***
*Co-Author(s): Ayman G **ELNAHRY**, Ahmed **MAHER**, Ibrahim **SAMIR ABDEL-BARY**, Abdulla **SHAHEEN***

Purpose: Non-arteritic ischemic optic neuropathy (NAION) is a common cause of sudden, painless vision loss, often triggered by inadequate blood supply. Dialysis, essential for end-stage renal disease (ESRD), can precipitate intradialytic hypotension, potentially leading to dialysis-associated NAION (DA-NAION).

Methods: Our protocol was prospectively registered on PROSPERO (CRD42023464202). On December 12, 2023, five databases were searched: PubMed, Scopus, Web of Science, Google Scholar, and Cochrane. We have included all primary studies reporting

NAION post-dialysis. Data about baseline characteristics, dialysis types, and NAION were extracted.

Results: From 250 identified papers, 24 studies involving 36 patients were included. Patients with DA-NAION presented at a younger age compared to non-dialysis NAION cases. Patients on continuous peritoneal dialysis (CPD) were significantly younger by about 17 years compared to those on hemodialysis. Visual outcomes were generally poor, with an average best corrected visual acuity (BCVA) of 1.33 logMAR (20/428 Snellen). Bilateral involvement was more common in CPD patients (100%) compared to hemodialysis patients (37.5%) (p=0.002). Progressive NAION was observed in 33.3% of cases, and 16.7% experienced recurrent episodes. Systemic comorbidities were common, with 47.2% of patients having systemic diseases and 55.6% suffering from cardiovascular diseases (CVD).

Conclusions: This systematic review highlights that dialysis, particularly CPD, is associated with the development of NAION. Younger age and systemic comorbidities may be notable risk factors. Bilateral involvement and poor visual outcomes are more common in DA-NAION compared to non-dialysis NAION.

Abstract No.: 200577
Poster No.: EX1-047
Panel No.: 047, Session: EX1
Therapeutic Potential of Astilbin on Diabetes and Related Secondary Complication, Including Diabetic Nephropathy
*First Author: Kanika **PATEL***
*Co-Author(s): Dinesh **PATEL***

Purpose: Astilbin is a natural flavonoid compound found to be present in the Smilax aristolochiifolia and Smilax glabra. Astilbin have been well known for their anti-inflammatory activity. Diabetic nephropathy is one of the major complication of all the diabetes patients and responsible for end-stage renal disorders of human being. Astilbin have been known for their inhibitory potential against carbohydrates-hydrolyzing enzymes which is one of the factors of hyperglycemic condition in the Human being.

Methods: In order to know the therapeutic effectiveness of astilbin for the treatment of diabetes and related secondary complication, here in the present investigation scientific data analysis of research works has been performed. However, biological effect of astilbin on α-amylase and yeast α-glucosidase has been also investigated in the present work to know their therapeutic potential against diabetes and related secondary complication. However, other scientific data of pharmacological activities have been also correlated with the present data of astilbin to get better results.

Results: Biological effects of astilbin against pancreatic α-amylase and yeast α-glucosidase have been investigated in the scientific research work in order to know their importance on diabetes mellitus and related secondary complications and revealed significant effect against both enzymes. Molecular docking study also signified their effectiveness against α-amylase and α-glucosidase in medicine. Another scientific study signified their inhibitory potential of rat lens and recombinant human aldose reductase which could be used to prevent osmotic pressure in the hyperglycemia condition.

Conclusions: Scientific data revealed the biological importance of astilbin for the treatment of diabetic and related secondary complications.

Abstract No.: 200638
Poster No.: EX1-046
Panel No.: 046, Session: EX1
Vision-Related Quality of Life, Psychological Status and Eye Care Seeking Barriers in Patients with Sight-Threatening Diabetic Retinopathy - A Large, Hospital-Based Study in South India
*First Author: Aahan **SHAH***
*Co-Author(s): Amit Kumar **DEB**, Vikas **MENON**, Shreyas **TEMKAR***

Purpose: To assess vision-related quality of life (QOL),psychological status and eye

care-seeking barriers in patients with Sight-Threatening Diabetic Retinopathy (STDR) using VFQ-25 questionnaire, Hospital Anxiety and Depression Scale (HADS) and validated Knowledge, Attitude, and Practice (KAP) questionnaire respectively.

Methods: This large cross-sectional analysis included 200 patients aged ≥18 years, diagnosed with STDR i.e. Proliferative Diabetic Retinopathy and/or Diabetic Macular Edema. The study included patients of diverse demographic and socioeconomic profiles and varying PDR/DME levels and co-morbidities.

Results: Of the 200 patients, 71% were male; 44% were from urban areas, 137 were literate, and 120 were employed. In the dependent eye, increasing severity of PDR strongly correlated ($p<0.001$) with poorer visual acuity and vision-related QOL, and increased depressive symptoms. DME severity also was linked to poorer visual acuity ($p<0.01$). Among patients with STDR, higher-income group, urban, and literate patients had better vision-related QOL ($p<0.001$) and lower anxiety ($p<0.01$), and depression scores ($p<0.01$). Good visual acuity correlated with better quality of life ($p<0.001$) and lower depression scores ($p<0.01$). Overall, females had higher anxiety scores ($p<0.01$).,Interventions for STDR improved knowledge, attitude and practice ($p=0.03$), but were also associated with poorer quality of life and mental health ($p<0.05$), probably due to advanced stage of retinopathy requiring these interventions.

Conclusions: Early detection and treatment of STDR can reduce the mental health burden and risk of losing daily activities, employment, and income. Our findings highlight the need for tailored healthcare strategies targeting female, rural, unemployed, and illiterate individuals. Increasing literacy rates could significantly reduce the overall burden of STDR.

Pediatric Retina

Abstract No.: 200299
Poster No.: EX1-066
Panel No.: 066, Session: EX1

Assessment of Macular Choroidal and Retinal Thickness: A Cohort Study in Tibetan Healthy Children

*First Author: Yao **YAO***
*Co-Author(s): Jing **FU***

Purpose: This research investigates the distribution, progressive changes, and contributing factors of macular choroidal and retinal thickness in Tibetan children utilizing swept-source optical coherence tomography (SS-OCT).

Methods: The Lhasa childhood study recruited 1632 students from seven primary schools in Lhasa. These participants underwent OCT and ophthalmological evaluations, encompassing retinal and choroidal thickness measurements, refractive error, axial length(AL), and systemic examinations.

Results: The median age of the scholars was 8.57±0.50 years with a median spherical equivalent (SE) of 0.19±1.28D. Multivariate regression analysis revealed that thinner macular choroid thickness was correlated with lower value of SE, worse best-corrected visual acuity, higher mean arterial blood pressure(MABP) and boys, while retinal thickness was associated with better image quality and lower value of SE. The choroid and retina were significantly thinner in myopic children. SE was positively related to the thickness of all choroidal and full retinal subregions. In comparison to baseline data from 20 months prior, most regions of the full retina had significantly thinned.

Conclusions: Choroidal thickness of Tibetan children is thinner than that of same-age children from other regions. A thicker choroid was associated with girls, higher values of SE, best-corrected vision acuity, mean arterial blood pressure and lower image quality. Choroid thinning may act as an earlier biomarker of myopia progression. Thinning of retina, the

outer-sector GCC and GCIPL may be specified as a follow-up and prognostic indicator for myopia.

Abstract No.: 200417
Poster No.: EX1-065
Panel No.: 065, Session: EX1
Clinical Features and Management Results of Progressive Familial Exudative Vitreoretinopathy in a Large Chinese Cohort with Long Follow-Up
*First Author: Tian **TIAN***
*Co-Author(s): Shipping **GUO**, Dian **JIAO**, Mingyang **WANG**, Peiquan **ZHAO***

Purpose: To describe the clinical features and management results of familial exudative vitreoretinopathy (FEVR) patients with unpredictable progression.

Methods: Retrospective chart review of 1009 patients diagnosed with FEVR between January 1, 2010 and May 31, 2024.

Results: Of the 1009 FEVR patients, a total of 81 eyes of 79 FEVR patients (7.83%; 52males [65.82%]) with unpredictable progression were collected, including 28 eyes without treatment history and 53 eyes with treatment before progression. For the progressive patients without treatment, the mean (SD) age at progression was 4.57 (3.66) years old. For the progressive patients with treatment, the mean (SD) age at progression 2.92 (6.96) years old. The most common clinical presentation was retinal fold, which was observed in 60 eyes (74.07%), followed by drag disc (10.8%), total retinal detachment (3.8%), proliferation with neovascularizaiton (NV) and exudation (3.8%), vitreous hemorrhage (3.8%), and avascular area with NV (3.8%). The total follow-up time was 81.3±35.1months. At the last follow-up, visual acuity improvement was observed in 32 eyes (38.6%), unchange in 35 eyes (43.7%) and dicreae in 14 eyes (17.7%).

Conclusions: Retinal folds in contact with lens, with or without NV and/or exudation is the most common initial presentation in FEVR patients with unpredictable progression. In this cohort, the progression mostly occurred in patients under 10 years old. Symptomatic treatments were effective to mitigate complications and prevent phthisis bulbi but the outcomes were generally poor.

Abstract No.: 200613
Poster No.: EX1-063
Panel No.: 063, Session: EX1
Clinical Outcomes and Treatment Approaches in Familial Exudative Vitreoretinopathy: A Case Series Featuring Genetic Data from Select Patients
*First Author: Vicente Lorenzo **CABAHUG***
*Co-Author(s): Gavin Siew Wei **TAN***

Purpose: To report clinical characteristics, management, and outcomes in patients with Familial Exudative Vitreoretinopathy (FEVR).

Methods: This retrospective case series includes 21 FEVR patients (42 eyes).

Results: The patients had a male-to-female ratio of 2:1, with a mean age of 8.5 years (range: 1 to 38 years). Ethnic backgrounds were predominantly Vietnamese (38%) and Chinese (33%). The mean follow-up duration was 31 months. The mean change in refraction was -4.99 diopters (SD: 8.57). The mean change in logMAR vision was -0.03 (SD: 0.36). Visual acuity improved in 30% of eyes, remained stable in 50%, and deteriorated in 20%. Fundus fluorescein angiography was performed in 72% of patients. Tractional retinal detachment was observed in 24% of eyes, retinal folds in 12%, and retinal dragging in 14%. Treatment modalities included laser therapy (50%), scleral buckling (9%), vitrectomy (18%), and one intravitreal injection of Bevacizumab. Genetic analysis of 2 patients revealed mutations in TSPAN12 and KIF11. In some infants, initial refraction and visual acuity measurements were not possible but were obtained later. A significant correlation was found between logMAR vision and disease stage ($r = 0.69$, $p = 0.003$), indicating that more advanced stages are associated with worse visual acuity.

Conclusions: This case series highlights the diverse outcomes and treatment responses in FEVR patients. Genetic insights, although

limited, provided valuable information on the disease's etiology. The correlation between logMAR vision and disease stage underscores the impact of disease severity on visual outcomes. Continued follow-up and broader genetic testing could enhance understanding and management of FEVR.

Abstract No.: 200432
Poster No.: EX1-064
Panel No.: 064, Session: EX1
Comparison of Safety and Efficacy of Bevacizumab, Ranibizumab and Ranibizumab Biosimilar in Retinopathy of Prematurity
*First Author: Prema **SUBRAMANIAM***
*Co-Author(s): Puja **MAITRA**, Abhishek **DAS**, Sujay **JAJU**, Parag **SHAH**, Narendran **VENKATAPATHY***

Purpose: To compare the safety and efficacy of Bevacizumab, Ranibizumab and Ranibizumab biosimilar in the treatment of retinopathy of prematurity.

Methods: Retrospective study of newborns diagnosed with type 1 ROP who received intravitreal Bevacizumab (Avastin) or Ranibizumab (Accentrix) or Ranibizumab biosimilar (Razumab). Babies were followed up as per protocol and retreatment with laser or Anti VEGF was done in case of reactivation and surgery in case of progression to traction. Outcome measures include need for retreatment and proportion of eyes achieving vascularization up to ora.

Results: 148 eyes of 75 babies received intravitreal injection of which 139 eyes of 70 babies were included in our analysis. 68 eyes received bevacizumab (IVB), 31 eyes received Accentrix (IVA), and 40 eyes received Razumab (IVR). All 3 drugs showed comparable rates of reactivation/ retreatment, bevacizumab showed a significantly delayed reactivation ($p<0.001$), while Ranibizumab and its biosimilar Razumab were comparable ($p=0.17$). 60%, 61% and 50% eyes in IVB, IVA and IVR group achieved vascularization up to ora ($p=0.76$) at a median of 27, 28 and 24 weeks ($p=0.09$). No eyes developed intraocular inflammation or cataract.

Conclusions: All three drugs were similar in their efficacy and safety profile with bevacizumab showing a later reactivation due to the longer acting nature of the molecule. This is the first of its sought to compare Bevacizumab, Ranibizumab and its Bio-similar.

Abstract No.: 200072
Poster No.: EX1-067
Panel No.: 067, Session: EX1
Evaluation of Optical Coherence Tomography Biomarkers to Differentiate Favorable and Unfavorable Responders to Intravitreal Anti-Vascular Endothelial Growth Factor Treatment in Retinopathy of Prematurity
*First Author: Akash **BELENJE***
*Co-Author(s): Subhadra **JALALI**, Tapas Ranjan **PADHI**, Ugandhar **REDDY***

Purpose: Evaluation of optical coherence tomography biomarkers in predicting treatment response to intravitreal injection of anti-vascular endothelial growth factor (anti-VEGF) Bevacizumab in aggressive retinopathy of prematurity (A-ROP).

Methods: Non-contact ultra-widefield (NC-UWF) fundus imaging with integrated UWF guided swept-source Optical coherence tomography (SS-OCT) was performed prospectively in preterm babies before and after intravitreal anti-VEGF (Bevacizumab) monotherapy. OCT biomarkers were analyzed in eyes that reached complete vascularization versus others.

Results: Eyes with retinal vessels reaching near ora serrata were labelled as regressed ROP and vascularized retina (Group 1). Eyes with reactivation of ROP needing laser or vitreoretinal surgery or eyes with peripheral avascular retina (PAR) at 16th week post-injection were considered as Group 2. Pre-injection baseline OCT showed a hyperreflectivity of inner retinal layers in 12 out of 46 eyes in Group 1 versus 30 out of 34 eyes in Group 2 (p value 0.002). None of the eyes in Group 1 showed choroidal thinning at posterior pole as compared to 14 out of 34 eyes in Group 2 (p value 0.001). Intraretinal

hypo reflective Cystic changes at fovea were seen in 16 out of 46 eyes in Group 1 and 2 out of 34 eyes in Group 2 (p value 0.012).

Conclusions: Pre-injection swept-source OCT biomarkers could predict the treatment outcomes of anti-VEGF (Bevacizumab) monotherapy in A-ROP eyes. Hyperreflectivity of inner retinal layers and choroidal thinning had poorer and unpredictable response to anti-VEGF injection, whereas cystic changes at fovea predicted favorable response.

Abstract No.: 200634
Poster No.: EX1-062
Panel No.: 062, Session: EX1
Fluorescein Angiography for Early Detection of Recurrent Retinal Avascularity and Neovascularization Post Retinal Ablation in Incontinentia Pigmenti
*First Author: Johnny **WU***
*Co-Author(s): Tze **LAI***

Purpose: Goldberg (1994) first published a case where fundus fluorescein angiography (FFA) demonstrated retinal avascularity not observed with ophthalmoscopic examination in Incontinentia Pigmenti. We report the first study to examine the role of FFA in treated cases of Incontinentia Pigmenti for detection of recurrent retinal disease.

Methods: Retrospective observational case-report.

Results: A 12-days old female with bilateral 360 degrees of cryotherapy for retinal avascularity rapidly developed a left vitreous fibrovascular membrane which progressed to total tractional retinal detachment despite supplementary left diode laser photocoagulation. The right eye remained normal with serial ophthalmoscopic examinations over the next 18 months, except for mild tortuosity and irregularity of terminal inferotemporal retinal arterioles. Digital FFA with RetCam revealed additional anastomotic vascular loops and late leakage from terminal arterioles and neovascularization posterior to a 6-clock hours area of avascular retina separating it from the more anterior cryotherapy atrophic scars.

Conclusions: Irrespective of how early IP retinal avascularity is diagnosed and treated with laser photocoagulation or cryotherapy, the disease had an unpredictably rapid course and variable prognosis. Meticulous follow-up by experienced specialist in the first few years of life is required despite previous retinal ablation therapy and apparently normal initial fundus examination. This is the first reported case to suggest the role of fundus fluorescein angiography in these treated cases for the accurate detection, localization, and further treatment of recurrent retinal ischaemic retinopathy in Incontinentia Pigmenti.

Abstract No.: 200649
Poster No.: EX1-061
Panel No.: 061, Session: EX1
Intravitreal Bevacizumab in the Management of Traction Without Detachment in Retinopathy of Prematurity
*First Author: Marina **GER***
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Purpose: Role of intravitreal bevacizumab in treatment of traction associated with retinopathy of prematurity

Methods: Eight cases of aggressive retinopathy of prematurity (AROP) referred from January 2023 to December 2023 for management with a tractional component. Cases were managed with a single half dose intravitreal injection of bevacizumab at presentation.

Results: 14 of the 16 eyes had significant traction without detachment in AROP. Mean gestational age was 30.75 weeks(28-34 weeks) and birth weight was 1.36 kg (1.1 -1.6 kgs). Post menstruation age (PMA) at the time of presentation was 38.25 weeks (35-39 weeks). 7 of the 8 cases were AROP, one case had pre-plus in Zone 2 stage 3. Traction of more than 2 clock hours up to 6 clock hours was noted in all cases. Post a single half dose intravitreal bevacizumab, regression of ROP to mature or near mature retina was observed in all cases. Mean follow up duration was 3.42 months (1-6 months) post injection. One eye was

observed to have a notch of immature retina with persistent traction at month 6. None of the cases had recurrence of ROP. Laser photocoagulation or surgical intervention was not required in any of the cases.

Conclusions: Traction in ROP was successfully managed with a single injection of half dose intravitreal bevacizumab. Only one eye of the 14 eyes had a persistent traction over a follow up of 6 months. Close observation following intravitreal bevacizumab without surgical intervention can be attempted to manage cases with traction without detachment in ROP.

Abstract No.: 201144
Poster No.: EX1-059
Panel No.: 059, Session: EX1
Pole to Pole: Economizing Paediatric Ophthalmology Imaging
*First Author: Prithvi **CHANDRAKANTH***
*Co-Author(s): Debolina **DEB**, Puja **MAITRA***

Purpose: To develop an economical solution for imaging the pediatric eye (anterior and posterior segments) without general anesthesia.

Methods: We designed two low-cost($10), DIY devices for imaging children (newborn to 12 years):,1.Anterior Segment Photography with Intraocular Lens (ASPI-$2) – Frugal DIY novel smartphone adapter for macro photography: 10cm x 1.5cm chart paper is cut, double-sided tape attached, Paper is folded into half, A hole punched at one end with paper puncher. Tape removed from other side, 15D intraocular lens(IOL) attached onto the site of punch. Chart paper is folded, ASPI is secured to a smartphone images/video are taken.,2. Trash-To-Treasure Retcam (T3R-$8) - Mark outer & inner circular outlines on reusable hand-sanitiser bottle, 0.6 cm apart. Cut out flaps and insert 20D lens into the circular hole at base. Smartphone attached to other end, aligning the lens with the camera screen and image/video taken.

Results: ASPI successfully imaged 62 eyes in uncooperative children, capturing anterior segment features in cases of trauma, cataract, lens subluxation, coloboma, limbal dermoid, and advanced retinoblastoma. T3R documented fundus findings in 79 eyes-retinopathy of prematurity (ROP) (n=51) and other conditions (n=28)- coloboma, myelinated nerve fibers, peripheral degenerations, retinal detachment, macular scars, retinal dystrophies, and albinotic fundus.

Conclusions: These images facilitated examination, documentation, and referral to subspecialty clinics. Our low-cost($10), portable devices enable effective documentation, referral, serial follow-up imaging, counselling apprehensive parents, good co-operation from paediatric patients, making it an excellent tool for basic subspecialty care via tele-ophthalmology.

Abstract No.: 200674
Poster No.: EX1-060
Panel No.: 060, Session: EX1
Profile of Retinopathy of Prematurity in Extreme Low Birth Weight Infants (<1000 gm)
First Author: Arthi M
*Co-Author(s): Supriya **DABIR**, Sivakumar **MUNUSAMY***

Purpose: To evaluate the impact of low birth weight (<1000 grams) in infants with retinopathy of prematurity (ROP) and report the severity and clinical characteristics.

Methods: In this retrospective study, preterm babies screened under an urban multicentric outreach project between April 2019 and August 2021 were included. Infant details like gender, birth weight, mode of conception, multiple gestation, gestational age, postmenstrual age, and risk factors were recorded.

Results: A total of 105 babies were recruited for the study. The Pearson correlation between BW and age was performed which correlated positively with an R-value of 0.45 and highly significant with a p-value <0.001. There is a highly significant negative correlation between birth weight and different stages of ROP (r = -0.299; p<0.001). There is a highly significant positive correlation between birth weight and

zones of ROP (r = 0.294; p<0.001). There is no significant correlation between birth weight and Plus disease.

Conclusions: Despite healthy Neonatal intensive care unit practices, extreme low birth weight in preterm infants negatively influences the outcome of retinopathy of prematurity.

Retina (Medical)

Abstract No.: 200583
Poster No.: EX1-076
Panel No.: 076, Session: EX1
AFG3L2F175S Mutation Impairs Mitochondrial Function and Visual Conduction via PHB2-Dependent OXA1L Regulation in Dominant Optic Atrophy

*First Author: Xiuxiu **JIN***
*Co-Author(s): Yan **LI**, Lin **YANG**, Bo **LEI***

Purpose: This study investigates the molecular mechanisms by which the AFG3L2F175S mutation affects mitochondrial morphology and function in dominant optic atrophy (DOA).

Methods: Heterozygous Afg3l2F174S mice were generated using CRISPR/Cas9. Cell models expressing Afg3l2F175S including induced fibroblasts, HEK-293T, and SH-SY5Y lines, were established. Retinal morphology and visual function were assessed using optical coherence tomography, H&E staining, flash electroretinography, and visual evoked potentials. Mitochondrial morphology was examined by electron microscopy. Mitochondrial respiration, reactive oxygen species levels, and mitochondrial membrane potential were measured with Seahorse technology, MitoSOX, DCFH-DA, and JC-1 assays. Proteomic and co-immunoprecipitation analyses identified interacting proteins, with further localization and expression studies conducted via immunofluorescence, western blot, and blue native-PAGE.

Results: Afg3l2F174S mice exhibit reduced ganglion cell count, decreased retinal thickness, and impaired visual nerve conduction. Abnormal mitochondrial morphology and ROS accumulation were observed in Afg3l2F174S retinas and AFG3L2F175S cell models. The F175S mutation disrupted mitochondrial complex assembly and reduced respiration. Proteomic analysis identified a strong association between AFG3L2F175S and mitochondrial respiration, highlighting OXA1L as a key affected protein. The F175S variant exhibited a 41-fold increased binding affinity for PHB2, conformed by immunofluorescence co-localization. Combined protein interaction analysis indicated that AFG3L2F175S regulatory effect on OXA1L is mediated through PHB2. Both AFG3L2F175S and PHB2 downregulation reduced OXA1L expression, but AFG3L2F175S did not further reduce OXA1L in PHB2 knockdown cells. Overexpression of OXA1L alleviated mitochondrial dysfunction caused by the AFG3L2F175S mutation.

Conclusions: The interaction between AFG3L2F175S and PHB2 disrupts OXA1L expression, impairing mitochondrial morphology and function, leading to defective visual nerve conduction in DOA.

Abstract No.: 200736
Poster No.: EX1-075
Panel No.: 075, Session: EX1
Comparison of One-Year Outcomes Between Aflibercept and Brolucizumab for Treatment-Naïve Pachychoroid Neovasculopathy

*First Author: Min **SAGONG***
*Co-Author(s): Seungchul **BAEK**, Areum **JEONG***

Purpose: To compare the one-year visual and anatomic outcomes between aflibercept and brolucizumab for treatment-naïve pachychoroid neovasculopathy (PNV).

Methods: A retrospective medical chart review was performed for consecutive 45 eyes with treatment-naïve PNV initially treated with thee monthly intravitreal aflibercept (n=28, 2.0 mg/0.05 ml) or brolucizumab (n=17, 6.0 mg/0.05 ml) followed by as-needed regimen. Best corrected visual acuity (BCVA) and OCT parameters including central macular thickness (CMT), subfoveal choroidal thickness (SFCT), changes in choriocapillaris (CC)/Sattler and Haller layer thicknesses, choroidal vascularity

index (CVI) were evaluated at baseline, 3-month, 6-month, and 12-month visits.

Results: At the 12-month visit, BCVA significantly improved from in the brolucizumab group (p=0.030) and in the aflibercept group (p=0.020). Changes of CMT for the brolucizumab group was greater than for the aflibercept group (p=0.038). Mean SFCT was reduced through 12 months in both groups (p=0.001 for both). Decrease in the mean SFCT and Haller layer thickness were greater for the brolucizumab group than that for the aflibercept group at month 3 and 6 (p=0.013 and p=0.035). An increase of the CVI from baseline was observed in the brolucizumab group at month 12 (p=0.041). The rate of dry macula at month 12 did not differ between the two groups (78.6% in aflibercept group vs. 82.4% in brolucizumab group, p=0.104).

Conclusions: While both aflibercept and brolucizumab had an impact on SFCT in treatment-naïve PNV, choroidal remodeling was observed only in eyes treated with brolucizumab, which is expected to be more effective in pachychoroid disease.

Abstract No.: 201005
Poster No.: EX1-070
Panel No.: 070, Session: EX1
Dengue Retinopathy: A Case Series from a Singular Facility in an Epidemic Zone of Taiwan
*First Author: Shu-chun **KUO***
*Co-Author(s): Chia-yi **LEE**, Wanju Annabelle **LEE**, Yu-shiuan **LIN**, Cheng-hao **SUNG***

Purpose: Assess dengue retinopathy prevalence in an endemic area and evaluate if specific blood test values can screen for dengue-related eye disease in hospitalized patients.

Methods: Conducted at Chimei Medical Center in Yongkang, a region frequently affected by dengue, the study analyzed data from 246 patients hospitalized with dengue fever from September to November, 2023. Patients were divided into four groups: dengue without eye disease (198), dengue with eye disease (13), severe dengue (13), and other diagnoses (22). The study compared demographic and clinical data across these groups and conducted comprehensive eye examinations using FAG, OCT, and ICGA.

Results: The prevalence of dengue retinopathy was 3.3%. Patients with eye disease were significantly younger, with a logistic regression showing an odds ratio (OR) of 0.956 (95% CI: 0.926-0.987) for age. No significant differences were noted in white blood cell count or platelet levels between group with eye disease and without eye disease. The median time from dengue diagnosis to eye symptoms was 7.5 days. OCT imaging showed intra-retinal hyper-reflective lesions in 80% and retinal hemorrhages in 70% of posterior segment eyes. Retinopathy types were ischemic (60%) and vasculitis (40%). The vasculitis group had a younger age and thicker central retinal thickness than the ischemic group, which had lower sodium levels. Initial CRT correlated strongly (R=0.8) with final visual acuity.

Conclusions: Dengue retinopathy prevalence was 3.3%, with significant differences in age and clinical characteristics between retinopathy types. CRT thickness and sodium levels effectively differentiate retinopathy types, and initial CRT measurements are closely linked to visual outcomes.

Abstract No.: 200889
Poster No.: EX1-072
Panel No.: 072, Session: EX1
Efficacy and Safety of Brolucizumab Versus Aflibercept in Chinese Patients with Visual Impairment Due to Diabetic Macular Edema: Evidence from the KINGLET Study
*First Author: Xiaorong **LI***
*Co-Author(s): Fanyin **HE**, Fang **LU**, Xun **XU**, Qing **ZHANG**, Li **ZHU***

Purpose: Evidence from the pivotal KESTREL and KITE trials demonstrated clinically meaningful visual acuity gains and anatomical improvements following 52-week treatment with brolucizumab 6 mg in diabetic macular edema (DME) patients. These KINGLET study

results (NCT04058067) detail the efficacy and safety of brolucizumab 6 mg vs aflibercept 2 mg in Chinese DME patients.

Methods: KINGLET was a double-masked, phase III, two-arm study with a total of N=263 eligible patients, randomized 1:1 at baseline into the two treatment arms (brolucizumab 6 mg, [n=132] and aflibercept 2 mg, [n=131]). Change from baseline in best-corrected visual acuity (BCVA), central subfield thickness (CSFT), and proportion of patients with a CSFT <280 µm at Week 52 were measured. Safety assessments included the incidence of ocular adverse events (AEs) and serious AEs (SAEs).

Results: Baseline characteristics were balanced between treatments. Brolucizumab was non-inferior to aflibercept in mean BCVA change at Week 52 (+10.6 vs +11.9; P =0.013, non-inferiority margin 4 letters). The mean change from baseline in CSFT at Week 52 was −225.2 µm (brolucizumab) vs −215.0 µm (aflibercept). At Week 52, a higher proportion of brolucizumab patients had a CSFT <280 µm (59.8% vs 42.7%). Brolucizumab patients had a lower median number of injections than aflibercept patients (7 vs 9). Ocular AEs were reported with 43.2%=brolucizumab vs 35.9%=aflibercept patients. Ocular SAEs were brolucizumab=3.0% vs aflibercept=3.1%.

Conclusions: In Chinese DME patients, brolucizumab 6 mg resulted in non-inferior VA gains and robust anatomical improvements despite fewer injections compared to aflibercept 2 mg with no new safety signals.

Abstract No.: 200043
Poster No.: EX1-092
Panel No.: 092, Session: EX1

Evaluation of Long-Term Renal Function after Intravitreal Bevacizumab Therapy (IVB)

First Author: Wanchana ***SOPITVIRIYAPORN***
Co-Author(s): Yodpong ***CHANTARASORN****, Kornwipa* ***HEMARAT****, Itsara* ***POKAWATTANA****, Plern* ***SUTRA***

Purpose: To evaluate the effect on kidney function of patients with retinopathy receiving IVB.

Methods: A retrospective observation cohort study of patients receiving IVB was performed on 103 patients, with 102 as controls. Serum creatinine (SCr), estimated glomerular filtration rate (eGFR), and urinary albumin to creatinine ratio (UACR) before injection, 3-6 months and one year after injection were collected. A subgroup analysis of patients with eGFR>=60 and <60, as well as T2DM, was performed. Univariate and multivariate linear regression modelling was used to assess the effects of IVB on renal function and the association between the number of IVB and changes in kidney function.

Results: 205 patients (103 as treatment groups, 102 as controls), were reviewed. No difference in demographic data was found. After subgroup analysis in patients with eGFR≥60, there was a significantly different in changes in SCr[0.05(0.0-0.135) vs. 0.02(-0.03-0.60),p=0.048] and eGFR[-4.70(-10.15-0.00) vs.-1.0(-5.7-2.1),p=0.015] at 3-6 months after IVB in the treatment group compared to control. Furthermore, changes in UACR at 3-6 months[387.0(47.2-1174.5)vs. 12.7(6.83-264.15),p=0.012] and changes in SCr at one year[0.09(0.0-0.25)vs.0.005(-0.05-0.12),p=0.012] in patients with eGFR<60 after injection were also significantly different. In T2DM, changes in SCr[0.07(-0.01-0.21)vs.0.01(-0.04-0.07), p=0.002] and eGFR[-5.1(-10.2-0.0) vs.-1.0(-5.0-1.9),p=0.002] at one year were significantly different. However, after univariate and multivariate analysis, only changes in UACR at 3-6 months(beta = 119.8, 95% CI: 13.3-226.3;p=0.027) were associated with the number of IVB injections.

Conclusions: Our study suggests that IVB might not affect long-term kidney function. There was no association between the number of IVB injections and changes in serum Cr, eGFR, and UACR over one year.

Abstract No.: 200463
Poster No.: EX1-080
Panel No.: 080, Session: EX1

Evaluation of Microaneurysm Leakage in Diabetic Retinopathy Using Early and Late Ultra-Widefield Fluorescein Angiography Images Registration

*First Author: Dan **CAO***
*Co-Author(s): Huilin **LIANG***

Purpose: To quantitatively assess microaneurysms (MAs) located in leaky areas in patients with diabetic retinopathy (DR) by using early and late registered ultra-wide field fluorescein angiography (UWFA) images.

Methods: A retrospective review of 90 eyes from 70 patients with DR. Early and late ultra-widefield fluorescein angiography (UWFA) images were obtained in the same session using a commercial device (California Optos). A deep learning model (Unet+ASPP+AGN+MCMSA) was used to segment and annotate MAs in early phase images and leakage areas in late phase images. Subsequently, annotated early and late phase images were registered and merged.LateUWFA images identified MAs can be classified, based on co-localized earlyimages, into MAs within leakage areas and those outside of leakage areas.The leakage area MAs ratio (LAMR, the number of MAs within leakage areas /total number of MAs) was quantified across different retinal regions.

Results: This study included 90 eyes, comprising 26 with mildnonproliferative DR (NPDR), 20 with moderate NPDR, 28 with severe NPDR, and 16with proliferative DR. The averageLAMR in panretinal, posterior, mid-periphery, and far-periphery area were 0.38, 0.30, 0.32, and 0.16, respectively.The LAMR in the far-periphery area was significantly lower than that in posterior area ($p < 0.005$) and the mid-periphery area ($p < 0.005$).

Conclusions: The count of MAs in leakage areas is lower in the far-periphery area than in the posterior and the mid-periphery area. MAs in the far-periphery area are less prone to leakage, indicating greater stability when compared to other retinal areas.

Abstract No.: 200425
Poster No.: EX1-083
Panel No.: 083, Session: EX1

Factors Affecting Visual Outcomes on Faricimab Use in Treatment-Resistant Neovascular Age-Related Macular Degeneration in Asian Patients

*First Author: Zhi Hong **TOH***
*Co-Author(s): Nicola Yi'an **GAN**, Kevin Wei Onn **LIANG**, Elvine **NEO**, Wei Kiong **NGO**, Rajesh **RAJAGOPALAN***

Purpose: To investigate factors affecting visual outcome after faricimab use in treatment-resistant neovascular age-related macular degeneration (nAMD).

Methods: Retrospective chart review (August 2022 to August 2023) of patients with nAMD (exudative AMD and polypoidal choroidopathy) previously treated with intravitreal ranibizumab or aflibercept and were switched to faricimab. Switch was done due to either ineffectiveness of prior agents to achieve retinal dryness or inadequate treatment intervals. Factors analysed included demographic data (age, gender, ethnicity, laterality), diagnosis, baseline best-corrected visual acuity (BCVA) and OCT measurements. These include central subfield thickness (CST), central choroidal thickness (CCT), presence or absence of intraretinal fluid (IRF), subretinal fluid (SRF), intraretinal cysts (ICT) and subretinal hyperreflective material (SRHM). Treatment history including number of prior injections, or any other ocular procedures were also analysed.

Results: One hundred and ten eyes were included in the analysis. Multinomial univariate regression analysis of demographic variables and diagnosis did not show statistical significance in affecting visual outcomes. Patients with poorer baseline BCVA appear to have better visual outcomes with faricimab which tended towards significance (p=0.083). The mean number and type of intravitreal anti-VEGF injections prior to switching to faricimab

or any prior ocular procedures were not statistically significant. Baseline CST, CCT, IRF, SRF and SHRM were not statistically significant. Baseline IRC was 2.71 times (95% CI, 0.99 – 7.46) more likely to result in better visual outcomes with faricimab which tended towards significance (p=0.053).

Conclusions: Patients with poorer baseline BCVA and IRC on OCT appear to have better visual outcomes from switching to faricimab.

Abstract No.: 200271
Poster No.: EX1-088
Panel No.: 088, Session: EX1
Foveal Avascular Zone Parameters Predict Progression of Diabetic Retinopathy

*First Author: Qianhui **YANG***
*Co-Author(s): Bingyao **TAN**, Gavin Siew Wei **TAN**, Kelvin **TEO YI CHONG***

Purpose: To evaluate retinal and choriocapillaris vasculature, combined with systemic risk factors, in predicting diabetic retinopathy (DR) progression.

Methods: We performed a prospective cohort study involving a total of 191 type 2 DM patients following up their DR status over 2 years. All participants underwent 3x3mm OCTA. OCTA variables were extracted from both the superficial and deep layers of the retina, as well as the choriocapillaris (CC), including vessel density (VD), perfusion density (PD), and CC flow deficit percentage (CC FD%). Univariate and multivariate logistic models were used to evaluate the association between OCTA variables and DR progression by 2 or more steps. Additionally, the prediction performance of our model was assessed.

Results: 49 (16%) in 306 eyes progressed over 2 years. Greater FAZ area (odds ratio [OR]: 8.254, 95%CI: 1.047-65.073, p = 0.045), greater FAZ perimeter (OR: 1.786, 95%CI: 1.247-2.56, p = 0.0016), greater FAZ circularity (OR: 5.035, 95%CI: 1.415-17.913, p = 0.013), fewer CC FV numbers (OR: 0.99, 95%CI: 0.99–1), p = 0.04) and more large vessel VD (OR: 2.898, 95%CI: 1.631-5.151, p < 0.001) were associated with DR progression. Compared with the model based on our established risk factors, adding FAZ perimeter and retina large vessel PD may lead to an improvement of the prediction performance (AUC 0.693 vs AUC 0.887).

Conclusions: FAZ area, perimeter, circularity, and CC FV numbers are associated with DR progression in T2DM patients. Using these OCTA metrics in DR prediction models may enhance the management of DR.

Abstract No.: 200433
Poster No.: EX1-082
Panel No.: 082, Session: EX1
Horizontal EZ Width Is a Candidate Biomarker to Monitor Progression of EYS-RP

*First Author: Marika **HIROTA***
*Co-Author(s): Yasuo **KURIMOTO**, Akiko **MAEDA**, Yuki **TOGASHI**, Satoshi **YOKOTA***

Purpose: To assess relationship between the changes of retinal sensitivity and retinal structure over a two-year period in patients with retinitis pigmentosa (RP) caused by EYS alterations (EYS-RP), and to discover biomarkers for monitoring disease-progression and for evaluating treatment efficacy.

Methods: This study was designed as a prospective observational study of 49 eyes from 49 EYS-RP patients (30 females, 19 males) who visited our hospital from March 2022 for three years. These patients were classified based on EYS variants into three groups: homozygous for a variant of c.4957dupA, p.Ser1653Lysfs*2 (3 cases, group A), a compound heterozygous of c.4957dupA variant (25 cases, group B), and other pathogenic variants in EYS (21 cases, group C). Visual acuity, MD values from HFA10-2 visual field tests, and ellipsoid zone (EZ) width in vertical and horizontal directions were measured and analyzed. EZ width was measured by three ophthalmologists, and the average value was used for analysis. Exclusion criteria included visual acuity poorer than 1.0 (logMAR), having glaucoma, and HFA-MD value below -30 dB.

Results: There were no significant changes in visual acuity or HFA-MD values over the two years. Notably, horizontal EZ width showed a

significant decrease in groups B and C, whereas vertical EZ width showed a significant decrease only in group C.

Conclusions: These data indicate that horizontal EZ width is a candidate biomarker to monitor progression of EYS-RP.

Abstract No.: 200296
Poster No.: EX1-086
Panel No.: 086, Session: EX1
Improvement of Fixation Stability and Retinal Sensitivity in Patients with Bietti Crystalline Dystrophy Following Subretinal Gene Therapy
*First Author: Shiyi **YIN***
*Co-Author(s): Ning **GUAN**, Hua **LV**, Wenbin **WEI**, Han **ZHANG***

Purpose: To evaluate fixation location and stability in patients with bietti crystalline dystrophy (BCD) who received a single subretinal injection of AAV2/8-hCYP4V2 gene therapy.

Methods: This study was an open-label, phase 1/2, dose-escalation clinical trial involving a single unilateral subretinal injection. We enrolled 12 subjects aged 18-70 with confirmed biallelic CYP4V2 gene mutations. Subjects received unilateral subretinal injections of the gene therapy across three dosage groups. Retinal sensitivity (RS) and fixation parameters in the macular region were assessed using the MP-3 system (NIDEK, Gamagori, Japan). Data were analyzed on April 30, 2024.

Results: Fixation assessment showed that 62.5% (5/8) of the target eyes had improved stability, with 4 eyes being "stable" at baseline. Retinal sensitivity (RS) evaluation indicated that in the low-dose group, 3 subjects completed visit on day 364, with an average RS change of +0.01±0.03 dB. Two subjects observed improvements of ≥7 dB at three and six points, respectively. In the medium-dose group, 3 subjects completed D252 visit, showing an average increase of 0.07±0.03 dB, with one subject showing ≥7 dB improvement at six points. The other 3 subjects, part of the dose escalation group, completed D168 visit, with an average RS increase of 0.08±0.03 dB. In the high-dose group, 3 patients completed D252 visit, with an average RS decrease of -0.06±0.01 dB.

Conclusions: Overall, after treating with VGR-R01, the microperimetry results indicate varying degrees of improvement in fixation stability and retinal sensitivity.

Abstract No.: 200055
Poster No.: EX1-091
Panel No.: 091, Session: EX1
Integrating Machine Learning and Traditional Survival Analysis to Identify Key Predictors of Foveal Involvement in Geographic Atrophy
*First Author: Maria Vittoria **CICINELLI***
*Co-Author(s): Francesco **BANDELLO**, Eugenio **BARLOCCI**, Chiara **GIUFFRÈ**, Ugo **INTROINI**, Federico **RISSOTTO***

Purpose: To investigate the incidence of foveal involvement in geographic atrophy (GA) secondary to age-related macular degeneration (AMD), using machine learning to assess the importance of risk factors.

Methods: Retrospective, longitudinal cohort study. Patients diagnosed with foveal-sparing GA, having GA size≥0.049 mm² and follow-up ≥6 months, were included. Baseline GA area, distance from the fovea, and perilesional patterns were measured using fundus autofluorescence. Optical coherence tomography assessed foveal involvement, structural biomarkers, and outer retinal layers thickness. Onset of foveal involvement was recorded. Foveal survival rates were estimated using Kaplan-Meier curves. Hazard ratios (HR) were assessed with mixed model Cox regression. Variable Importance (VIMP) was ranked with Random Survival Forests (RSF), with higher scores indicating greater predictive significance.

Results: 167 eyes (115 patients, average age 75.8±9.47 years) with mean follow-up of 50±29 months, were included. Median foveal survival time was 45 months (95% confidence interval[CI]: 38-55). Incidences of foveal involvement were 26% at 24 months and 67%

at 60 months. Risk factors were GA proximity to the fovea (HR=0.97 per 10-µm increase[95%CI 0.96-0.98]), worse baseline visual acuity (HR=1.37 per 0.1-LogMAR increase[95%CI 1.21-1.53]), and thinner outer nuclear layer (HR=0.59 per 10-µm increase[95%CI 0.46-0.74]). RSF analysis confirmed these as main predictors (VIMP=16.7,p=0.002; VIMP=6.2,p=0.003; VIMP=3.4,p=0.01). Lesser baseline GA area (HR=1.09 per 1-mm2 increase[95%CI 1.01-1.16]) and presence of a double layer sign (HR=0.42[95%CI 0.20-0.88]) were protective but less influential.

Conclusions: This study identifies anatomical and functional factors impacting the risk of foveal involvement in GA. These findings may help identify at-risk patients, enabling tailored preventive strategies.

Abstract No.: 200408
Poster No.: EX1-084
Panel No.: 084, Session: EX1

Intraocular Inflammation Following Intravitreal Injections of Anti-Vascular Endothelial Growth Factor Drugs

*First Author: Angela **CARNEIRO***
*Co-Author(s): João **BEATO**, Manuel **FALCÃO**, Ana **FERREIRA**, Ana **PEDROSA***

Purpose: To describe cases of infectious and non-infectious intraocular inflammation (NI-IOI) associated with intravitreal injections (IVI) of anti-vascular endothelial growth factor (VEGF) drugs in the largest tertiary center with the highest number of IVI in Portugal.

Methods: Prospective observational study including all patients diagnosed with infectious endophthalmitis (IE) or NI-IOI after IVI of different anti-VEGF drugs in a total of 83,145 IVI between 2018-2023. Indications for treatment were macular neovascularization or macular edema from different etiologies.

Results: Twenty-six eyes developed IE (mean incidence 0.031%) after IVI and 24 eyes were diagnosed with NI-IOI (mean incidence 0.025%), including anterior and intermediate uveitis, vitritis, and vasculitis. Regarding NI-IOI, eyes were under treatment with aflibercept (n=14), bevacizumab (n=11) and faricimab (n=1). The most common initial presentation was painless decrease in visual acuity (VA) at a mean of 8 days (range 1-20) after IVI in patients with NI-IOI versus red eye, pain and blurry vision, at a mean of 3 days (range 1-9) after IVI in the IE group. There was a significant improvement in VA between the initial and final visits (35±25 vs. 49±24 letters) in the NI-IOI group (p=0.022), while no significant differences were found between VA at the time of diagnosis and after treatment (25±28 vs. 26±25 letters) in the IE group (p=0.801).

Conclusions: NI-IOI represents an emergent treatment-related adverse event that can be reversible when adequately and timely managed, contrasting with the sight-threatening cases of IE. We emphasize the importance of maintaining an active surveillance in patients under IVI.

Abstract No.: 201095
Poster No.: EX1-068
Panel No.: 068, Session: EX1

Intravitreal Non-Steroidal Anti-Inflammatory Drugs vs. Implant or Intravitreal Steroids for Treating Macular Edema: A Systematic Review and Meta-Analysis of Randomized Controlled Trials

*First Author: Ditta **SUHADA***
*Co-Author(s): Samuel **MANURUNG**, Anggun Rama **YUDANTHA***

Purpose: To compare the efficacy of the use of intravitreal Non-steroidal anti-inflammatory drugs (NSAID) to implant or intravitreal steroids as a monotherapy for treating Macular Edema (ME).

Methods: A literature search for studies comparing the use of intravitreal NSAID to implant or intravitreal steroids for ME treatment that was published from 2011 to 2024 from Pubmed, EBSCOhost, SpringerLink, Scopus, and ClinicalKey databases was conducted. Primary outcomes measured in this study were mean central macular thickness (CMT), best-corrected visual acuity (BCVA) and intraocular

pressure (IOP) changes. Relevant data were collected and analyzed using RevMan 5.4.

Results: A total of 3 studies were included in our meta-analysis. All studies were Randomized Controlled Trial (RCT). Our analysis showed that the CMT in subjects treated with intravitreal NSAID compared to implant or intravitreal steroids was not statistically significant with a mean difference of -25.91 (95 % CI -123.12-71.31, P = 0.60). However, subjects with implant or intravitreal steroids were most likely to experience an increase of IOP, whereas subjects with intravitreal NSAID show no increase. Improvement of BCVA was seen in both groups and the BCVA difference between groups did not reach a significant level.

Conclusions: Intravitreal NSAID is an effective choice for treating ME, including Diabetic Macular Edema and Cystoid Macular Edema with no statistically significant outcome compared to intravitreal steroids. Furthermore, the use of intravitreal NSAID is promising to avoid IOP increase in ME patients. However, an enhanced understanding for the use of intravitreal NSAID is needed.

Abstract No.: 200792
Poster No.: EX1-074
Panel No.: 074, Session: EX1

Longitudinal Follow-Up and Rates of Progression of Early/Intermediate Age-Related Macular Degeneration in an Indian Cohort: An Electronic Medical Records-Based Big Data Analysis

*First Author: Jashandeep **SINGH***
*Co-Author(s): Raja **NARAYANAN**, Niroj **SAHOO***

Purpose: To analyze the longitudinal follow up and rates of progression of unilateral or bilateral early/intermediate age related macular degeneration (AMD), to geographic atrophy (GA) and choroidal neovascularization (CNVM).

Methods: Retrospective, multicentric, electronic medical records based analysis of patients with unilateral or bilateral early/intermediate AMD with a minimum follow up of 1 year. A total of 18986 records were retrieved, out of which 15445 records were excluded due to poor documentation. Baseline demographics and fellow eye status was also documented for all patients.

Results: A total of 3392 patients were included in the final analysis, with a mean age of 60.11+/- 17.08 years (1992 males and 1393 females). The mean baseline best corrected visual acuity was 0.26+/-0.31 logMAR. After a mean follow up of 3.3+/-1.9 years, the visual acuity decreased to 0.36+/- 0.49 logMAR. By the end of follow up, 450 (13.2 %) patients developed de novo CNVM and 63 (1.8%) patients progressed to GA in at least one eye. The final visual acuity was worse in eyes that progressed to GA (0.63+/-0.69 logMAR), than the eyes that developed CNVM (0.54+/- 0.58 logMAR) [Although the difference was not statistically significant]. On multivariate analysis, presence of advanced AMD in fellow eye and higher age were the most significant risk factors for development of de-novo CNV ($p=0.02$ and <0.001 respectively) and progression to GA ($p<0.001$ for both the variables).

Conclusions: Progression to advanced AMD was more commonly seen in older patients and eyes that have advanced AMD in the fellow eye.

Abstract No.: 200480
Poster No.: EX1-079
Panel No.: 079, Session: EX1

MeCP2-Mediated Epithelial–Mesenchymal Transition of RPE Cells Is Through the Regulation of Apoptosis

*First Author: Xiaohua **LI***
*Co-Author(s): Yongya **ZHANG***

Purpose: Proliferative vitreoretinopathy (PVR) is a complex disease contributing significantly to recurrent retinal detachment, influenced by epithelial–mesenchymal transition (EMT) and regulated by apoptosis. Understanding the role of MeCP2 in governing apoptosis and EMT in retinal pigment epithelial (RPE) cells is crucial for comprehending PVR development which remains to be revealed. Hence, we investigated MeCP2's impact on proliferation, migration,

apoptosis, and EMT in ARPE-19 cells to gain a new insight into the pathogenesis of PVR.

Methods: Wound healing assays evaluated cell migration effects. Cell proliferation was assessed using the CCK-8 assay and flow cytometry. Protein levels associated with apoptosis, cell cycle, and EMT were analyzed through Western blotting, quantitative reverse-transcriptase polymerase chain reaction (qRT-PCR) and immunofluorescence analysis.

Results: The CCK-8 assay showed that MeCP2 treatment enhances ARPE-19 cell proliferation, while MeCP2 knockdown inhibits it. MeCP2 treatment and knockdown altered ARPE-19 cell morphology. The wound healing assay demonstrated that MeCP2 knockdown inhibits cell migration, whereas MeCP2 treatment promotes it. MeCP2 knockdown induced a G0/G1 phase block, inhibiting cell growth, and qRT-PCR data indicated reduced expression of cell cycle-related genes. Increased apoptosis was observed following MeCP2 knockdown in ARPE-19 cells.

Conclusions: These findings demonstrated that MeCP2 regulates the pathogenesis of PVR through the modulation of RPE apoptosis, suggesting its potential as a therapeutic target for the treatment of PVR.

Abstract No.: 200258
Poster No.: EX1-090
Panel No.: 090, Session: EX1
Ophthalmic Steroids in the Management of Polypoidal Choroidal Vasculopathy: A Systematic Review
*First Author: Ichsan **TRIYOGA***
*Co-Author(s): Gitalisa **ADRIONO**, Marcello **KADHARUSMAN***

Purpose: Polypoidal choroidal vasculopathy (PCV) is a retinal disease that can cause irreversible vision loss. The best treatment strategy for PCV is debated, and the role of ophthalmic steroids is unclear. This review aims to clarify the role of ophthalmic steroids in PCV treatment.

Methods: A systematic literature search was performed using Scopus, PubMed, MEDLINE, Cochrane, ProQuest, and manual searches. The primary outcome was changes in best-corrected visual acuity (BCVA) from baseline. The secondary outcome was incidence of adverse events.

Results: Of 100 articles identified, 9 studies (139 eyes) were included: four for general cases, two for anti–vascular endothelial growth factor (anti-VEGF)-resistant patients, two involving hemorrhage, and one with pre-existing cardiovascular or cerebrovascular ischemia. Triamcinolone acetonide was administered in seven studies (2 - 40 mg), and dexamethasone in two (0.6 - 0.7 mg). Three studies demonstrated a significant improvement in mean BCVA (logMAR) at the first follow-up (0.20 ± 0.26 – 0.52 ± 0.37) compared to baseline (0.33 ± 0.29 – 0.66 ± 0.28), and two studies reported significant improvements from baseline (0.33 ± 0.29 and 0.66 ± 0.28) to the final follow-up (0.16 ± 0.27 and 0.36 ± 0.31). Adverse events were documented in six studies, with cataracts (6/96) and ocular hypertension (10/96) being the most common. However, only one study reported these adverse events as statistically significant.

Conclusions: Ophthalmic steroids may be an effective adjunctive therapy for PCV patients, regardless of anti-VEGF resistance or hemorrhagic involvement, with minimal side effects.

Abstract No.: 200493
Poster No.: EX1-078
Panel No.: 078, Session: EX1
Pharmacological Characterisation of the Novel Complement Component 3 Inhibitor BI-C
*First Author: Remko A. **BAKKER***
*Co-Author(s): Pankaj **GUPTA**, Stefan **KREIDEWEISS**, Daniel **LENHERR-FREY***

Purpose: Geographic atrophy (GA), an advanced form of age-related macular degeneration, leads to progressive and irreversible vision loss. These preclinical studies pharmacologically characterised the novel complement component 3 (C3) inhibitor BI-C, currently under clinical investigation for GA.

Methods: Kinetic parameters of BI-C binding to C3 and C3b were determined by surface plasmon resonance including C3 single nucleotide polymorphism (SNP) variants associated with GA. The ability of BI-C to inhibit membrane attack complex (MAC) formation after classical (CP), alternative (AP) and lectin pathway (LP) activation was determined in human serum. Comparisons to reference molecule APL-1 (short-acting C3-binding synthetic cyclic peptide) were made.

Results: The C3-binding polypeptide BI-C showed high affinity in the picomolar range for all tested C3 ligands, including the GA-associated C3 SNPs P314L and R102G, and an approximately twofold lower affinity for cynomolgus C3. APL-1 showed a lower affinity in the one-digit nanomolar range, comparable to published values. Structural analysis of BI-C bound to C3c showed that BI-C binds to an epitope partly overlapping, but not limited to, the compstatin binding site, which may explain the enhanced binding affinity. BI-C displayed dose-dependent inhibition of MAC formation via CP (mean IC50 79 nM), AP (344 nM), and LP (67 nM). BI-C exhibited enhanced potency for inhibiting CP- and LP-mediated complement activation versus APL-1.

Conclusions: BI-C is a potent and specific C3 inhibitor that displays dose-dependent inhibition of MAC formation across all three complement pathways. In line with these promising results, BI-C is now being investigated in humans.

Abstract No.: 200580
Poster No.: EX1-077
Panel No.: 077, Session: EX1

Pharmacological Characterization and Safety of the Nintedanib Intravitreal Implant in Applicator

*First Author: Remko A. **BAKKER***
*Co-Author(s): Paul **ASHTON**, Jianbing **CHEN**, Florian **COLBATZKY**, Holger **FUCHS**, Hong **GUO***

Purpose: Treatments targeting vascular endothelial growth factor-A (anti–VEGF-As) are an established standard of care for neovascular age-related macular degeneration (nAMD), but there remains high unmet need for new treatment options. Nintedanib is a tyrosine kinase inhibitor that simultaneously blocks the signaling of several receptors implicated in the pathology of nAMD, including VEGF receptor 2, fibroblast growth factor receptors 1–3, and platelet-derived growth factor receptors α and β. The pharmacokinetics of orally administered nintedanib are well known; this series of preclinical studies examined a new nintedanib intravitreal implant in applicator (Nintedanib IVT implant).

Methods: Nintedanib IVT implant is an intravitreally delivered ocular implant that releases nintedanib. One 4-week toxicity study in rabbits and one 13-week toxicology study in minipigs were conducted. In both studies, there were two dose groups: high (two implants/eye) and low (one implant/eye). Endpoints included ophthalmological investigations, optical coherence tomography (OCT) images, electroretinograms (ERGs), toxicokinetics (TK), and extended histopathology of the eyes. Local exposure of the vitreous, retina, lens, and all other localizations was measured.

Results: Prior in vitro investigations showed that the implant provides sustained release over approximately 3 months. There were no pertinent, drug- or treatment-related findings in the 4-week or the 13-week study. There were also no ocular changes noted through OCT, ERGs, or histopathology. TK analyses showed substantial local exposure of the eyes, including the retina.

Conclusions: Following these promising toxicology findings, Nintedanib IVT implant will be investigated in humans.

Abstract No.: 200323
Poster No.: EX1-085
Panel No.: 085, Session: EX1

Plasma Metabolomics Identifies Key Metabolites and Improves Prediction of Diabetic Retinopathy: Development and Validation Across Multi-National Cohorts

*First Author: Shaopeng **YANG***
*Co-Author(s): Huangdong **LI**, Riqian **LIU**, Wei **WANG**, Ziyu **ZHU***

Purpose: To identify longitudinal metabolomic fingerprints of diabetic retinopathy (DR) and evaluate their utility in predicting DR development and progression.

Methods: This study included 17,675 participants with baseline pre-diabetes/diabetes from the UK Biobank (UKB) and an additional 638 diabetic participants from the Guangzhou Diabetic Eye Study (GDES) for external validation. Longitudinal DR metabolomic fingerprints were identified through nuclear magnetic resonance assay in UKB participants. The predictive value of these fingerprints for predicting DR development were assessed in a fully withheld test set. External validations were conducted in the GDES cohort.

Results: Of 168 metabolites, 118 were identified as candidate metabolomic fingerprints for future DR development. These fingerprints significantly improved the predictability for DR development beyond traditional indicators (C-statistic: 0.802 [0.760–0.843] vs. 0.751 [0.706–0.796]; P = 5.56×10^−4). Glucose, lactate, and citrate were among the fingerprints validated in the GDES cohort. Using these parsimonious and replicable fingerprints yielded similar improvements for predicting DR development (C-statistic: 0.807 [0.711–0.903] vs. 0.617 [0.494, 0.740]; P = 1.68×10^−4) and progression (C-statistic: 0.797, [0.712–0.882] vs. 0.665 [0.545–0.784]; P = 0.003) in the external cohort. Improvements in NRIs, IDIs, and clinical utility were also evident in both cohorts (all P<0.05). In addition, lactate and citrate were associated to microvascular damage across macular and optic disc regions (all P<0.05).

Conclusions: Metabolomic profiling has proven effective in identifying robust fingerprints for predicting future DR development and progression, providing novel insights into the early and advanced stages of DR pathophysiology.

Abstract No.: 201020
Poster No.: EX1-069
Panel No.: 069, Session: EX1

Population Pharmacokinetic and Exposure-Response Analyses for Aflibercept

*First Author: Michael **STEWART***
*Co-Author(s): Sébastien **BIHOREL**, Joannellyn **CHIU**, Thomas **DICIOCCIO**, Kenneth **TURNER**, Torsten **ZIMMERMANN***

Purpose: To assess ocular clearance (QE) and for aflibercept 8-mg and 2-mg drug and ocular exposure for aflibercept 8mg using modeling and simulation (M&S).

Methods: A PopPK model was developed based on free and bound aflibercept concentrations in plasma from 2744 participants across 16 trials, including CANDELA, PHOTON, and PULSAR. Free aflibercept concentrations in the ocular space were simulated for aflibercept 8 mg and 2 mg following intravitreal dosing in a large group of DME and nAMD virtual patients using model derived QE estimates, and time above reference concentrations (model-estimated free aflibercept ocular concentration at the end of an 8-week dosing interval for aflibercept 2 mg and free aflibercept ocular concentrations set at 1x, 9x, and 99x the dissociation constant of in vitro aflibercept binding to VEGF-A [KD]) was determined.

Results: Free aflibercept QE was 34.4% lower than expected for aflibercept 8 mg vs 2 mg (0.410 vs 0.625 mL/day); median time above reference concentrations was 6.1–8.9 weeks longer for aflibercept 8 mg. Simulations also estimated that 49.5% and 37.7% of patients treated with aflibercept 8 mg maintained free aflibercept ocular concentrations above those required to bind 90% of VEGF-A for 20 and 24 weeks, respectively. Dosing intervals were extended to ≥20 and 24 weeks through Week

96 in 43% and 27% of aflibercept 8 mg-treated patients in both PHOTON and PULSAR.

Conclusions: M&S results are consistent with the extended durability observed for aflibercept 8 mg in trials.

Abstract No.: 200274
Poster No.: EX1-087
Panel No.: 087, Session: EX1
Quickly Diagnosing Bietti Crystalline Dystrophy with Deep Learning
*First Author: Han **ZHANG***
*Co-Author(s): Jinyuan **WANG**, Wenbin **WEI**, Shiyi **YIN**, Shicheng **YU***

Purpose: Bietti crystalline dystrophy (BCD) is an autosomal recessive inherited retinal disease (IRD) that results from variants in the CYP4V2 gene. The early precise diagnosis of this disease is much challenging. This study aims to diagnose BCD and classify the clinical stage based on ultra-wide-field (UWF) color fundus photographs (CFP) via deep learning (DL).

Methods: All CFPs were labeled as BCD, retinitis pigmentosa (RP) or normal, and the BCD patients were further divided into three stages. DL models were developed, and model performance was evaluated using accuracy and confusion matrix. Then the diagnostic interpretability is verified by the heatmaps.

Results: To distinguish between the BCD, RP and normal fundus, ResNeXt achieved a mean accuracy of 0.9850±0.0250 (95% CI (Confidence Interval) 0.9449 - 1.000); Wide ResNet achieved a mean accuracy of 0.9812±0.0197 (95% CI 0.9426 - 1.000); and ResNeSt achieved 0.9837±0.0150 (95% CI 0.9543 - 1.000) in the internal cross-validation dataset. To distinguish clinical stage of BCD patients, ResNeXt achieved a best accuracy of 0.8899±0.0873 (95% CI 0.618 - 0.9609) in the internal cross-validation dataset. In the external validation dataset, ResNeSt achieved a best accuracy of 1 for BCD diagnosis (95% CI 0.9437 - 1.0000), and the accuracy of clinical staging was 0.6260 (95% CI 0.5880 - 0.6568).

Conclusions: We developed a quick diagnosing method for BCD and evaluated the potential efficacy of an automatic diagnosis and grading DL algorithm based on UWF fundus photography in a Chinese cohort of BCD patients.

Abstract No.: 200270
Poster No.: EX1-089
Panel No.: 089, Session: EX1
Real-World Effectiveness and Safety of Faricimab for Treating Resistant Neovascular Age-Related Macular Degeneration in Asian Patients
*First Author: Wei Kiong **NGO***
*Co-Author(s): Nicola **GAN**, Kevin Wei Onn **LIANG**, Elvine Zhong Oen **NEO**, Rajesh **RAJAGOPALAN**, Zhi Hong **TOH***

Purpose: To describe efficacy and safety of faricimab in treatment-resistant neovascular age-related macular degeneration (nAMD).

Methods: Review of patients with treatment-resistant nAMD switched to faricimab because of the failure to achieve retinal dryness or inadequate treatment intervals. Primary outcomes included best-corrected visual acuity (BCVA) and OCT measurements including central subfield thickness (CST), presence of intraretinal fluid (IRF), subretinal fluid (SRF), intraretinal cysts and subretinal hyperreflective material (SRHM). Secondary outcomes included adverse events, number of injections and treatment intervals.

Results: One hundred and nineteen eyes (117 patients) with a mean age of 75.6 years were included. Mean number of injections received was 28.2 ± 19.5 prior to switching to faricimab. Most were switched from ranibizumab (26.1%) and aflibercept (73.1%). At baseline, BCVA was 62.7 ± 19.9 letter and mean CST was 352.5μm ± 128.5μm. Eleven (9.2%) eyes were dry on OCT at baseline: 39.5% had IRF, 72.3% had SRF, 41.2% had intraretinal cysts, and 50.4% had SRHM. After switching, the mean number of faricimab injections received was 4.8 ± 2.7. At final visit, the mean BCVA maintained at 60.3 ± 20.7 letter and mean CST reduction was -41.6μm ($p<0.001$). Compared to baseline, 49 (41.2%) were dry: 24.4% had IRF, 41.2% had

SRF, 29.4% had intraretinal cysts, and 48.7% had SRHM (all p<0.001). No serious adverse events were reported.

Conclusions: Switching to faricimab maintained vision while adding anatomical gains in those previously resistant to therapy. Faricimab is well-tolerated with no serious adverse events.

Abstract No.: 200941
Poster No.: EX1-071
Panel No.: 071, Session: EX1
Severe Intraocular Inflammation Following Switching to Faricimab for Neovascular Age-Related Macular Degeneration
*First Author: Charlotte **ROHART***
*Co-Author(s): Yves **COHEN**, Sarah **MREJEN**, Sophie **NAVARRE***

Purpose: Clinical trials have demonstrated the favorable safety profile of faricimab but we report 12 cases of severe intra-ocular inflammation following one or multiple intravitreal injection of this molecule.

Methods: We studied eyes of cases diagnosed with nAMD and focused on 12 eyes which developed IOI after faricimab injection. We evaluated clinical features and the course of treatment of a 3-month and 6-month follow-up after IOI occurred.

Results: Best-corrected visual acuity (BCVA) in ETDRS was before IOI occurred was 70 letters, and BCVA when IOI occurred was 40 letters. 11 eyes (91%) had symptoms such as visual loss or floaters when IOI occurred. One eye (8%) had no specific symptom. 12 eyes (100%) had IOI. 1 eye (8%) had only anterior inflammation. There was not perivascular sheathing in all eyes. Ocular hypertony was present in 4 eyes (33%) and was improved with local drops.,Initial oral steroid or relay by oral steroid was performed on 11 eye (92%), steroid eye drops in 12 eyes (100%), and intravenous steroids in 4 eyes (33%). A vitrectomy was performed in 1 eye (8%).,VA at 3 and 6 months after IOI occurred were improved to 60 and 65 letters ETDRS, respectively.

Conclusions: Intraocular inflammation with severe vision loss can occur after multiple intravitreal injection of faricimab even if no inflammation occurred after initial injection. All of which showed significant improvement with steroid treatment.

Abstract No.: 200453
Poster No.: EX1-081
Panel No.: 081, Session: EX1
Successful Implementation of Nurse-Administered Intravitreal Therapy Injections in a National Tertiary Eye Centre: A Retrospective Analysis
*First Author: Nazurah **LOH***
*Co-Author(s): Hla Myint **HTOON**, Ian Yew San **YEO**, Aw **AI TEE***

Purpose: This paper presents findings of a five-year service evaluation of the nurse-administered intravitreal therapy (IVT) injection service in a single, national tertiary eye centre, since its inception in 2019. The paper aims to evaluate if successful task shifting was achieved in enabling the enhancement of service capacity.

Methods: The team analyzed data retrieved from January 2019 till December 2023 using the electronic medical records, in accordance with the institution's Personal Data Protection Policy. Descriptive analysis was utilized to compare the 1) number of IVT injections performed, and 2) the complication rates post IVT injections, between medical practitioners and nursing professionals.

Results: A total of 107,968 IVT injections were administered during the study period. Of which, 92,521 IVT injections were administered by trained nursing professionals. Overall, there was an 86.1% increase in the number of nurse-administered IVT injections observed between the first year of service initiation and the fifth year demonstrating an increase in the service capacity achieved by task shifting. One of the main complications being evaluated in this study is the incidence of endophthalmitis post IVT injection. This was reported in seven (7) of 107,968 injections with an overall incidence rate of 0.006%, which is comparable to previous studies. Of which, six (6) in the nurse-

administered group (0.006%) and one (1) in the doctor-administered group (0.006%).

Conclusions: Based on the study findings, task-shifting for trained nursing professionals to administer IVT injections has shown to be safe and a feasible strategy to maximize productivity in meeting the ever-increasing demands of healthcare in Ophthalmology.

Abstract No.: 200837
Poster No.: EX1-073
Panel No.: 073, Session: EX1
The Fifth Zone Just Above the External Limiting Membrane of the Outer Retina in Retinoschisis
*First Author: Mizuha **KAKEHASHI***
*Co-Author(s): Taiji **HASEGAWA**, Nozomu **HASHIYA**, Tomohiro **IIDA**, Ichiro **MARUKO***

Purpose: Retinoschisis occurs in different layers of the retina, sometimes resulting in separation of the outer plexiform layer (OPL). However, the outer nuclear layer (ONL) side of the separation has not received much attention. In this study, we report our observation of the hyperreflective zone just above the external limiting membrane (ELM) in retinoschisis using optical coherence tomography (OCT).

Methods: Twenty-six eyes of 21 patients (9 males and 12 females, mean age 73.7 years) with retinoschisis observed by OCT were examined with swept-source OCT (Topcon). The images were scanned as horizontally as possible to clearly delineate the outer retina including the OPL and ONL.

Results: The mean spherical equivalent was -7.1±7.4 diopters. In 10 of the 26 eyes (38.4%), a hyperreflective zone at the schisis located in the OPL was observed just above the ELM, which appeared to be the fifth zone of the outer retina. At the same time, the intact ELM was well defined at the same area on OCT. Six of the 12 eyes had a highly myopic retinoschisis.

Conclusions: Since the ONL is hyporeflective on OCT, this fifth zone may be the interface between the remaining outside tissue of the OPL and the surface of the ONL, which is observed on OCT due to retinoschisis.

Retina (Surgical)

Abstract No.: 201120
Poster No.: EX1-094
Panel No.: 094, Session: EX1
A Rare and a Challenging Case of Postoperative Aspergillus Niger Endophthalmitis
*First Author: Vinata **RAJENDRAN***
*Co-Author(s): Garima **SHARMA***

Purpose: To discuss a rare case of postoperative Aspergillus Niger endophthalmitis in an immunocompetent patient, that proved to be challenging.

Methods: A 47-year-old lady presented with clinical picture of postoperative endophthalmitis, four months after cataract surgery. It was managed by pars plana vitrectomy with intraocular lens (IOL) explantation. Culture from vitreous aspirate and IOL was identified as Aspergillus Niger found sensitive to voriconazole. The lady received intravitreal voriconazole. After consulting an infectious disease specialist (IDS), systemic (oral and intravenous) voriconazole was started from tenth postoperative day, under regular serum voriconazole level monitoring. After initial good response, she was found to have increasing exudates and she underwent left eye revitrectomy on the fourteenth postoperative day. Subsequently she received multiple intravitreal injections of caspofungin and voriconazole. She remained on oral voriconazole for a total of two months and was monitored closely over the next four months. A repeat culture of vitreous chamber aspirate six weeks later was negative.

Results: At all subsequent follow ups from 4th till 9th, the anterior and posterior chamber had remained clear, with retina attached and no visible recurrence. The best-corrected visual acuity improved and has maintained till the last follow up.

Conclusions: This case highlights the importance of early recognition, prompt systemic and local management, close

monitoring and continued treatment for better visual outcome in cases of Aspergillus Niger endophthalmitis.

Abstract No.: 200869
Poster No.: EX1-097
Panel No.: 097, Session: EX1

Combined Treatment of Submacular Hemorrhage with Low-Dose Subretinal Recombinant Tissue Plasminogen Activator and Intravitreal Conbercept

*First Author: Xufang **SUN***
*Co-Author(s): Hao **DU**, Yunxi **MA***

Purpose: To evaluate Pars Plana Vitrectomy (PPV) combined with subretinal injection of low-dose recombinant tissue plasminogen activator (rt-PA) and intravitreal injection of Conbercept as a novel therapy for submacular hemorrhage (SMH).

Methods: In a retrospective interventional clinical study, 14 eyes of 14 patients with SMH underwent PPV along with rt-PA (subretinal) and Conbercept (intravitreal) injections. The main outcomes included best-corrected visual acuities (BCVAs), degrees of blood displacement, and adverse events. All patients completed at least 6-month follow-up visits.

Results: Mean BCVAs significantly improved at 7 days (22.29±15.35), 1 month (30.71±16.42), 3 months (38.29±13.72), 4 months (38.86±14.15), and 6 months (41.21±14.91) post-treatment compared to baseline (16.36±13.97) (F=12.89, P=0.004). The peak improvement in BCVAs occurred at 6 months postoperatively. The procedure effectively eliminated subfoveal hemorrhages in all eyes, with clots removal and absorption occurring within one month and complete regression by 3-month follow-up visits. Postoperatively, two cases of AMD resulted in discoid scars on the fundus. No instances of rt-PA-related retinal toxicity were observed during the follow-up period.

Conclusions: The combined therapy of PPV with low-dose rt-PA and Conbercept shows promise in enhancing both vision and anatomical structure in SMH therapy. Individualized treatment plans tailored to the primary disease should be developed to optimize visual prognoses.

Abstract No.: 200780
Poster No.: EX1-099
Panel No.: 099, Session: EX1

Construction of a Prediction Model to Identify Patients with Poor Visual Prognosis after RRD Surgery Using Machine Learning

*First Author: Kanae **FUKUTSU***
*Co-Author(s): Masato **AKIYAMA**, Ryoh **FUNATSU**, Akifumi **MATSUMOTO**, Masahiro **MIYAKE**, Ai **SAJIKI***

Purpose: To estimate poor postoperative visual acuity in patients with rhegmatogenous retinal detachment (RRD).

Methods: Data analysis was conducted using the Japan Retinal Detachment Registry. Patients whose visual acuity was documented six months following surgery for primary RRD were included. We estimated whether postoperative visual acuity at six months would be ≥ logMAR 1.0. The data were split into training and test sets. Then, after random undersampling at a 10:9 ratio, four machine learning (ML) models (Random Forest, Logistic Regression, XGBoost, and LightGBM) were developed with 46 preoperative clinical characteristics. Subsequently, we compared the discriminative accuracies of the constructed models with that of the PRO score, a previously developped prediction method of postoperative visual acuity, by evaluating AUROC of each model in the test data.

Results: A total of 2658 patients were included. We observed that all the constructed ML models showed higher discriminative accuracies (AUROC: 0.88-0.90) than PRO score (AUROC: 0.80). Of these ML models, only 95% confidence interval (CI) of the AUROC for lightGBM model overlapped with that of the PRO score. The Random Forest model achieved the highest discriminative accuracy with an AUROC of 0.90 (95% CI: 0.86—0.95). We confirmed that the sensitivity and specificity of the constructed Random Forest model were high (84%□and 86%, respectively), although

the 95% CIs overlapped with those of the PRO score.

Conclusions: ML models may predict poor postoperative visual acuity with high discriminative accuracy after surgery for RRD.

Abstract No.: 201128
Poster No.: EX1-093
Panel No.: 093, Session: EX1
Efficiency and Safety of Closed Globe Refixation Technique for Posteriorly Dislocated Intraocular Lenses
*First Author: Soema **TEBHLA***
*Co-Author(s): Nagesha **CK**, Chaitra **JAYADAV***

Purpose: - To investigate the visual outcomes and safety of an unconventional closed globe refixation technique for posteriorly dislocated intraocular lenses (IOLs).,- To examine the anatomical outcomes including lens centration, tilt and stability.

Methods: This study included 14 eyes with dislocated IOLs, all of which underwent closed globe refixation of IOL using 9-0 polypropylene sutures with an ab-externo 2-point exit single knot technique. The suture placement varied by IOL type, with 2-quadrant or 4-quadrant placement. Visual outcomes and lens centration were evaluated at 6 weeks postoperatively.

Results: The study included 14 eyes with various IOL types: 5 PMMA lenses with dialing holes, 3 acrylic lenses, 3 SFIOLs, and 3 others. Median visual acuity improved to 6/9 postoperatively. Lens centration and tilt were well-maintained, with most lenses showing <7° tilt and <1000 µm decentration. Complications, including vitreous hemorrhage, suture cheese-wiring, and elevated IOP, were generally managed conservatively, with one exception requiring re-surgery.

Conclusions: This study demonstrates the feasibility and safety of closed globe IOL fixation, a minimally invasive approach that eliminates the need for IOL explantation. This method also offers a cost-effective solution while preserving the optical properties of the original IOLs, making it a viable alternative to traditional techniques.

Abstract No.: 200626
Poster No.: EX1-102
Panel No.: 102, Session: EX1
Five Years Anatomical and Functional Outcome of Amniotic Membrane Graft in Macular Hole Surgery
*First Author: Sameera **NAYAK***

Purpose: To demonstrate the five-year anatomical and functional outcome of amniotic membrane graft in macular hole surgery.

Methods: Retrospective analyses of prospectively collected data on amniotic membrane graft for refractory macular hole between June 2016 and May 2023.The primary outcome measures: The outcome measures were best corrected visual acuity(BCVA) at baseline and at 1, 3, 6, 12, and 60 months post amniotic membrane grafting for closure of macular hole, hole closure status based on optical coherence tomography(OCT), graft integration, fundus autofluorescence characteristics, subretinal fibrosis, retinal pigment epithelium reactivation at 1, 6, 60 months post grafting.

Results: Of 14 eyes of 14 participants 8 were females 9 eyes had left eye involvement. For analysis, 10 eyes of 10 participants were included. The median age was 63.5 years(range 44-82). All had closure of holes at 1, 3, 6, 24, and 60 months post-grafting. Median hole size(base) was 1470 micron(SD 821.65, Range 1100-2542) with median hole duration 24 months(SD 31.11, Range, 1-48 months); Median BCVA at presentation was 0.08(SD 0.007; Range: 0.05-0.16); and at five year follow up was 0.1(SD 0.017; Range: 0.1-0.2). Graft integration was noticed in all 10 eyes based on OCT characteristics, sub-retinal fibrosis was not found, and 2 eyes developed RPE hyperplasia at the end of 5 years. Fundus autofluorescence showed characteristic hypo autofluorescence in all follow-up visits. There was no significant change in BCVA over the years.

Conclusions: Amniotic membrane grafting for a refractory macular hole is safe and effective in the closure of the hole, improvement of vision, and graft integration.

Abstract No.: 200158
Poster No.: EX1-107
Panel No.: 107, Session: EX1
Impact of Removal of Foveal Hard Exudates and Fluid By Sub-Retinal Balanced Salt Solution Injection Among Patients with Refractory Diabetic Macular Edema
*First Author: Xiang **MA***
*Co-Author(s): Cong **MA**, Naiwen **ZHANG***

Purpose: To assess the effects of sub-retinal balanced salt solution (BSS) injection during vitrectomy on the improvement of retinal anatomy and visual outcomes following the removal of foveal hard exudates and edema fluid.

Methods: This retrospective study encompassed 6 patients (7 eyes) diagnosed with refractory diabetic macular edema in our ophthalmology department, who underwent vitrectomy combined with sub-foveal hard exudates irrigation from March 2021 to May 2023. The postoperative follow-up period exceeded 6 months. Data on basic information, laboratory examination, and eye examination during follow-up were collected.

Results: The study population consisted of 6 female patients (100%) with a mean age of 64.17 years. Pan-retinal photocoagulation was performed in all patients prior to surgery, along with cataract intra-ocular lens surgery, internal limiting membrane (ILM) peeling, and C3F8 gas or sterile air filling during vitrectomy. During the procedure, a 38G cannula was used to manually inject the sub-retinal balanced salt solution into the ILM strip area, facilitating the removal of hard foveal exudation through water flow. Significant reductions in foveal hard exudates were observed at 1 month, 3 months, and 6 months post-surgery. The ratio of visual acuity improvement by more than 3 lines was 85.7%. The mean VA in LogMAR was 0.97 ± 0.23 preoperatively and 0.51 ± 0.31 at final visit. The mean CRT and SRD was 189 ± 53 μm preoperatively and 218 ± 53 μm at final visit. There was no recurrence of foveal hard exudates or ME.

Conclusions: Sub-retinal BSS injection during vitrectomy may improve retinal anatomy and visual prognosis.

Abstract No.: 200652
Poster No.: EX1-100
Panel No.: 100, Session: EX1
Indications and Outcomes of Scleral Buckle Removal: A 10-Year Retrospective Study
*First Author: Kerolos **BASSILIOUS***
*Co-Author(s): Soon **CH'NG**, Sam Yuen Sum **LEE**, Kim Son **LETT**, Arijit **MITRA**, Ash **SHARMA***

Purpose: Scleral buckle (SB) is a valuable surgical option for rhegmatogenous retinal detachment, typically performed without pars plana vitrectomy (PPV) in the United Kingdom (UK). This study evaluates the indications and outcomes of SB removal.

Methods: A retrospective review was conducted at a UK tertiary vitreoretinal department. All records of patients who underwent SB removal from April 2013 to July 2023 were analysed. Data included original SB indication, success of the initial surgery, SB duration, and intraoperative and postoperative complications.

Results: SB removal was performed on 42 eyes (40 patients) after a median of 2.5 years. Nine eyes had PPV with SB. The median follow-up time was 18 months. Indications for SB removal were non-infectious exposure (60%), infection/inflammation (10%), discomfort (10%), diplopia (7%), failed surgery (7%), new detachment (5%) and ptosis (2%). No intraoperative complications occurred. Postoperatively, 38 eyes (90%) of eyes had no complications. Two eyes (5%) had high intraocular pressure that resolved with treatment, and one eye (2%) with pre-existing optic atrophy progressed to no perception of light (NPL) vision. One patient had worsening of a pre-existing detachment. None of the patients with an attached retina

prior to removal (n=35, 83%) experienced subsequent detachment.

Conclusions: SB remains an important tool in the management of retinal detachments, however, removal is sometimes necessary. In patients with a stable attached retina, SB removal appears to be safe with low risk of subsequent retinal detachment. The most frequent indication of SB removal was exposure with or without infection.

Abstract No.: 200495
Poster No.: EX1-103
Panel No.: 103, Session: EX1

Internal Limiting Membrane Flap Versus Internal Limiting Membrane Peeling for Full-Thickness Macular Holes in Highly Myopic Eyes: A Multi-Center Interventional Study

*First Author: Chung Ting **WANG***
*Co-Author(s): Hung Da **CHOU**, Chi-chun **LAI**, Shu Yen **LEE**, Andrew **TSAI***

Purpose: To compare the outcomes of internal limiting membrane (ILM) peeling versus inverted ILM flap technique for full-thickness macular hole (FTMH) in highly myopic eyes.

Methods: Retrospective case series in tertiary referral centers in Singapore and Taiwan.,Eyes with FTMH and axial length greater than 26.0 mm that underwent vitrectomy with an inverted ILM flap (42 eyes) or ILM peeling (51 eyes) were included. Best-corrected visual acuity (BCVA) and optical coherence tomography (OCT) measurements were obtained preoperatively and at 1, 3, 6, and 12 months postoperatively.

Results: Baseline features were comparable between groups except for a significantly longer axial length in the flap group (29.03±2.16 mm) than in the peeling group (28.13±1.82 mm; p=0.028). The primary hole closure rate was significantly higher in the flap group (41/42 eyes, 98%) than in the peeling group (42/51 eyes, 82%, p=0.018). BCVA and BCVA change on were comparable in the two groups at all time points. Subgroup analyses showed that the patients who achieved primary hole closure were significantly younger, underwent ILM peeling, had a smaller hole diameter, and had significantly better BCVA at postoperative 12 months when compared to patients who had primary nonclosed holes.

Conclusions: For FTMH in highly myopic eyes, those who underwent vitrectomy with ILM flap had a higher primary hole closure rate than those with ILM peeling. Eyes that achieved primary anatomical success had better postoperative BCVA than those with primary failure, underscoring the importance of ensuring hole closure with a single surgery.

Abstract No.: 200236
Poster No.: EX1-105
Panel No.: 105, Session: EX1

Preoperative Estimation of Retinal Hole Location Using Ultra-Wide-Field Imaging

*First Author: Jialiang **DUAN***
*Co-Author(s): Qingli **SHANG***

Purpose: We aimed to verify the feasibility of using ultra-wide-field (UWF) imaging for preoperative estimation of retinal hole location.

Methods: We observed 21 eyes from 21 patients with rhegmatogenous retinal detachment (RRD) who underwent successful SB. They were treated at the Department of Ophthalmology of the Second Hospital of Hebei Medical University between November 2020 and November 2021. UWF fundus photography using an Optos device was performed at different steering positions 1 day before, 1 day after, and 1 month after SB. Using the preoperative fundus images, we measured the transverse diameter of the optic disc (D1) and the distance from the centre of the retinal holes to the ora serrata (D2). The accurate transverse diameter of the optic disc (Dd) was measured preoperatively using optical coherence tomography. The same surgeon measured the scleral chord lengths intraoperatively from the limbus to the located retinal hole marked on the sclera using an ophthalmic calliper. Statistical software was used to analyze the consistency of scleral chord length between the retinal hole and the limbus, which was estimated by preoperative

UWF imaging and was measured using an ophthalmic calliper intraoperatively.

Results: There was no statistically significant difference in the scleral chord length between the retinal holes and the limbus, which was estimated by preoperative UWF fundus photography and was measured by the calliper during surgery.

Conclusions: It is feasible to locate retinal holes using UWF fundus photography before SB, which is helpful for quick localization, thereby reducing the learning curve of SB surgery.

Abstract No.: 201119
Poster No.: EX1-095
Panel No.: 095, Session: EX1
Refractive Outcomes After Simultaneous Silicone Oil Removal and an Uneventful Phacoemulsification in Vitrectomized Eyes: An Observation in a Secondary Center
*First Author: Hong Nien **LEE***

Purpose: To study the refractive outcome accuracy of intraocular lens with partial coherence interferometry (IOL master) in post vitrectomized eyes undergoing silicone oil removal and an uneventful phacoemulsification and to aid IOL selection process in the future.

Methods: A one-year retrospective data analysis of cases performed by monthly visiting vitreoretinal surgeon in the secondary care center. Non trauma eyes with uneventful vitreoretinal or cataract surgeries that have undergone silicone oil removal with phacoemulsification in a single setting were chosen. Refractions were done at 6 weeks post operation. The preoperative predictive refractive outcomes were with IOL master and they were compared with the postoperative refraction.

Results: 25 cases of silicone oil removal were performed in a year. 12 cases were combined silicone oil removal with phacoemulsification and they were screened for analysis. Three patients defaulted follow-ups. Two had dull reflex on refraction. The remaining seven patients achieved fairly accurate preoperative predictive refractive outcomes.The mean difference between the predicted refraction and the post operative spherical equivalent was -0.5D.

Conclusions: The refractive outcomes after silicone oil removal and IOL implantation appeared fairly accurate. Measurement with partical coherence interferometry appeared accurate. Selection of IOL power can be based on the measurement.

Abstract No.: 200484
Poster No.: EX1-104
Panel No.: 104, Session: EX1
Retrolaminar versus Ventricular Silicone Oil Migration Post-Vitrectomy: A Logistic Regression Analysis of Risk Factors and Systematic Review of Literature
*First Author: Wing **WONG***
*Co-Author(s): Chi Lik **AU***

Purpose: Silicone oil (SiO) is commonly used in complex retinal detachment surgery as endotamponade. Extraocular retrolaminar migration of SiO is a rare complication of vitrectomy. Our study aims to review published cases of retrolaminar SiO migration, and analyse risk factors associated with cerebral ventricular SiO migration (CVSM).

Methods: PubMed, MEDLINE, EMBASE were searched on 1st June 2024, reference lists of resulting articles were screened for related publications. Only English articles were included, but not limited to case reports and series. Studies without radiological imaging of the cerebral ventricles were excluded. Patient demographics, presenting symptoms, SiO endotamponade eyes' ocular characteristics and vitrectomy surgical details were extracted. Visual acuities (VA) were converted to LogMAR. Retrolaminar migration with (Group1) and without (Group2) CVSM were analysed via binary logistic regression.

Results: Total 68 publications meeting the selection criteria were reviewed, excluding those without investigations on potential CVSM, 56 SiO eyes were included for analysis. Diabetic patients(p=0.037), LogMAR VA(p=0.011),

and intraocular pressure (IOP)(p=0.012) were found to be risk factors for CVSM. Otherwise, age(p=0.664), gender(p=0.152), optic nerve atrophy/cupping(p=0.790), presence of glaucoma drainage device (GDD)(p=0.242), trauma(p=0.051), usage of buckle during vitrectomy(p=0.696), endotamponade time(p=0.152), SiO emulsification(p=0.696) and presenting symptoms such as headache(p=0.869), mental change (p=0.424), visual field defect(p=0. 182) and painful eyes(p=0.696) were not associated.

Conclusions: Retrolaminar SiO migration is rare with limited publications. Our logistic regression analysis of the existing literature cases demonstrated having diabetes, poorer VA and higher post-vitrectomy IOP were associated with CVSM, whereas buckle use during vitrectomy, presence of GDD and SiO endotamponade time were not associated.

Abstract No.: 200225
Poster No.: EX1-106
Panel No.: 106, Session: EX1
Safety and Efficacy of 41G Microneedle Subretinal Injection of Balanced Salt Solution (BSS) for the Treatment of Refractory Macular Holes.
*First Author: Hanying **HU***

Purpose: Investigating the safety and efficacy of minimally invasive pars plana vitrectomy (PPV) combined with internal limiting membrane (ILM) peeling and 41G microneedle subretinal injection of balanced salt solution (BSS) for the treatment of refractory macular hole (MH).

Methods: 20 patients (20 eyes) with refractory MH were included and treated with PPV combined with ILM peeling and 41G microneedle subretinal injection of BSS. Best corrected visual acuity (BCVA), microperimetry, and optical coherence tomography angiography were performed before surgery and 1, 2, 3, and 6 months after surgery. The changes of average retinal sensitivity (MS) within the 12°, area of foveal avascular zone (FAZ), FAZ perimeter (PERIM), retinal vascular density (VLD), vascular perfusion density (VPD) closure status of the MD and the occurrence of complications were analyzed.

Results: At 6 months postoperatively, the closure rate of MH was 100%. LogMAR BCVA, MS, FAZ area, PERIM, VLD, and VPD showed statistically significant differences compared to preoperative values (P<0.05). Correlation analysis revealed a positive correlation between preoperative basal diameter and 6-month postoperative PERIM and VPD (P<0.05), a negative correlation between preoperative MD and 6-month postoperative VLD (P<0.05), and a negative correlation between preoperative MH index and 6-month postoperative logMAR BCVA and VPD (P<0.05). No related complications were observed in any of the eyes postoperatively.

Conclusions: Minimally invasive PPV combined with ILM peeling and 41G microneedle subretinal injection of BSS can effectively increase the closure rate of refractory MH, improve visual acuity, and demonstrates good safety in the short term.

Abstract No.: 200825
Poster No.: EX1-098
Panel No.: 098, Session: EX1
Successful Management of Persistent Subretinal Fluid Secondary to Optic Disc Pit Maculopathy with Repeat Vitrectomy and Adjunctive Dorzolamide: A Case Report
*First Author: Adrian Joseph **TOLENTINO***
*Co-Author(s): Amadeo **VELOSO***

Purpose: To report a case of persistent subretinal fluid (SRF) secondary to optic disc pit maculopathy treated successfully with repeat vitrectomy and adjunctive dorzolamide eye drops.

Methods: A 21-year-old male presented with blurred vision. His best-corrected visual acuity (BCVA) on initial examination was 20/80. Fundus examination revealed an optic disc pit associated with macular detachment. Optical coherence tomography (OCT) showed cystic spaces in both the inner and outer retinal layers, along with subretinal fluid. Initial treatment included pars plana vitrectomy,

internal limiting membrane (ILM) peel, and C3F8 gas tamponade, which resulted in some improvement but left persistent detachment. A repeat vitrectomy with more extensive ILM peeling and another C3F8 gas tamponade was performed. Postoperatively, persistent detachment led to the initiation of adjunctive dorzolamide eye drops.

Results: Serial OCT scans post-dorzolamide treatment demonstrated significant resolution of intraretinal fluid with minimal persistent subretinal fluid. BCVA improved from preoperative levels to 20/60.

Conclusions: In cases of optic disc pit maculopathy with persistent SRF after initial surgical intervention, repeat vitrectomy with more extensive ILM peeling combined with adjunctive dorzolamide eye drops can lead to significant anatomical and functional improvement. This case underscores the potential benefit of dorzolamide in managing residual SRF and improving visual outcomes.

Abstract No.: 200977
Poster No.: EX1-096
Panel No.: 096, Session: EX1
Surgical Outcome of Vitrectomy for Morning Glory Disc Anomaly
*First Author: Tadashi **YOKOI***
*Co-Author(s): Makoto **INOUE**, Takashi **KOTO**, Masaharu **MIZUNO***

Purpose: To report surgical outcomes of patients with retinal detachment (RD) caused by morning glory disc anomaly (MGDA) treated with vitrectomy.

Methods: We recruited patients with MGDA and RD treated with vitrectomy between April 2013 and May 2024 at Kyorin University Hospital. Patient demographics and surgical courses were reviewed from medical records. We excluded patients with follow-up periods of less than 3 months.

Results: Seven eyes of 7 MGDA patients (mean age: 32.0±22.5 years; Male: 2) underwent initial vitrectomy. Preoperative best-corrected visual acuity (BCVA) varied widely, from 20/2000 to 20/32, depending on foveal involvement. Only 3 eyes (42%) achieved reattachment with the initial vitrectomy; the other 4 required additional surgeries, totaling 15 vitreous surgeries. Six eyes (86%) achieved final reattachment. The original break was confirmed in only 3 eyes (42%): a macular hole in one eye, a hole in the anomalous disc, and a perivascular break outside the anomalous disc. Complete posterior vitreous detachment (PVD) was confirmed in only 1 eye (14%), and PVD creation was difficult due to firm vitreoretinal adhesion. In the series of surgeries, partial or complete laser treatment to the margin of the anomalous disc was required in 5 eyes (71%) to achieve final reattachment. Among the 6 eyes with reattachment, BCVA improved in 2 eyes (33%), remained unchanged in 2 eyes (33%), and deteriorated in 2 eyes (33%).

Conclusions: Vitrectomy for RD associated with MGDA remains challenging even in the MIVS era. Improved techniques are needed to avoid laser treatment to the margin of the anomalous disc.

Abstract No.: 200642
Poster No.: EX1-101
Panel No.: 101, Session: EX1
What Do Retina Fellows-in-Training Think About the Vitreoretinal Surgical Simulator: A Multicenter Survey
*First Author: Sukanya **MONDAL***
*Co-Author(s): Aditya **KELKAR**, Ramandeep **SINGH***

Purpose: To profile vitreoretinal (VR) fellows-in-training from India exposed to the Eyesi surgical simulator, identify potential barriers to voluntary use, and enumerate the most preferred tools and tasks before incorporating them into a formal skill transfer curriculum.

Methods: A questionnaire consisting of 22 questions was designed and circulated through an online portal (surveymonkey.com) to 4 different institutes of India having a VR surgical fellowship program and using a functional Eyesi (Haag-Streit) simulator. All trainees exposed to the simulator were eligible to participate,

irrespective of time spent on simulator and exposure to training steps on real patients.

Results: Of the 37 respondents, most (n=25, 68%) considered surgical-simulators to be the best training tool before operating on the human eye. Majority (n=35, 94.5%) participants spent <3 hour per week on the simulator, which most (n=30, 81%) felt was not enough. Main reasons for this underutilization were work-hour limitations (54.8%), lack of a structured training program (19.3%), or a dedicated supervisor (16.1%). Again, majority (n=33, 89%) participants responded that skills acquired during simulator training were transferable to the operating room, which was reflected by their response (n=31, 83.7%) that simulator-based training should be made mandatory before operating-room exposure.

Conclusions: This study gives an insight into the overall practice patterns and preferences in simulation training of surgical VR fellows-in-training across India. It indicates that the simulator is extremely helpful to fellows and if adopted, VR surgical simulators, with organized, directed, and supervised sessions, it will considerably improve the surgical training experience.

Translational Medicine

Abstract No.: 200455
Poster No.: EX1-109
Panel No.: 109, Session: EX1
Genetically Engineered Retinal Pigment Epithelium Strips Lacking MHC Class II Can Avoid Rejection in Non-Human Primate Eyes

*First Author: Atsuta **OZAKI***
*Co-Author(s): Mineo **KONDO**, Yasuo **KURIMOTO**, Michiko **MANDAI**, Sunao **SUGITA***

Purpose: We previously reported that suspensions of monkey induced pluripotent stem cell (moiPSC)-derived retinal pigment epithelium (RPE) lacking CIITA gene, the trans-activator of MHC class II, avoided rejection when transplanted in monkey eyes without systemic immunosuppression. In this study, we transplanted CIITA+/+ and CIITA-/- iPSC-derived RPE strips into monkey eyes with local RPE ablation and examined the immune response.

Methods: RPE strips were prepared from CIITA+/+ and CIITA-/- moiPSC-RPE. Two RPE strips were transplanted into both eyes of two monkeys (n=1 for each genotype) at the interval of 1-3 weeks after 2 days of local RPE ablation using a microsecond pulse laser. We monitored the engraftment using fundus camera, optical coherence tomography (OCT), and fluorescence fundus angiography (FA) for five months without systemic immunosuppression, followed by immunohistochemical assessment of graft survival and immune response.

Results: FA showed an evident leakage in both eyes with CIITA+/+ RPE strips transplantation beginning from 1 months after transplantation. At the same time, OCT showed a bulge at the graft site, suggestive of cellular infiltration. Immunostaining revealed a feature of immune rejection with accumulation of CD3, Iba1, and MHC class II positive cells. In contrast, transplantation of CIITA-/- RPE strips showed no signs of rejection in either eye for five months. Consistently, immunostaining showed few CD3, Iba1, or MHC class II positive cells.

Conclusions: Allogeneic transplantation of CIITA-/- RPE strips evoked no rejection without systemic immune suppression, even in RPE ablated disease model eyes. CIITA-/- RPE strips may ensure reliable engraftment in clinical applications.

Abstract No.: 200526
Poster No.: EX1-108
Panel No.: 108, Session: EX1
ICGA-GPT: Report Generation and Question Answering for Indocyanine Green Angiography Images

*First Author: Xiaolan **CHEN***
*Co-Author(s): Mingguang **HE**, Danli **SHI**, Weiyi **ZHANG***

Purpose: To develop a bilingual Indocyanine green angiography (ICGA) report generation and subsequent question-answering (QA) system.

Methods: Our dataset comprised 213,129 ICGA images from 2,919 participants. The system comprises two stages: a multimodal transformer architecture for report generation and a GPT model for QA with ICGA text reports and human-input questions. Model performance was assessed using both qualitative metrics (including Bilingual Evaluation Understudy (BLEU), Consensus-based Image Description Evaluation (CIDEr), Recall-Oriented Understudy for Gisting Evaluation-Longest Common Subsequence (ROUGE-L), Semantic Propositional Image Caption Evaluation (SPICE), accuracy, sensitivity, specificity, precision, and F1 score) and subjective evaluation by three experienced ophthalmologists using 5-point scales (5 refers to high quality).

Results: We produced 8,757 ICGA reports covering 39 disease-related conditions after bilingual translation (66.7% English, 33.3% Chinese). The ICGA-GPT model's report generation performance was evaluated with BLEU scores (1-4) of 0.48, 0.44, 0.40, and 0.37, CIDEr of 0.82, ROUGE of 0.41, and SPICE of 0.18. For disease-based metrics, the average specificity, accuracy, precision, sensitivity, and F1 score were 0.98, 0.94, 0.70, 0.68, and 0.64, respectively. Assessing the quality of 50 images (100 reports), three ophthalmologists achieved substantial agreement (kappa=0.723 for completeness, kappa=0.738 for accuracy), yielding scores from 3.20 to 3.55. In an interactive QA scenario involving 100 generated answers, the ophthalmologists provided scores of 4.24, 4.22, and 4.10, displaying good consistency (kappa=0.779).

Conclusions: This pioneering study introduces the ICGA-GPT model for report generation and interactive QA for the first time, underscoring the potential of LLMs in assisting with automatic ICGA image interpretation.

Abstract No.: 200219
Poster No.: EX1-110
Panel No.: 110, Session: EX1

Is the Use of a General Large language Model Helpful to Ophthalmology Residents on Call?

*First Author: Merrelynn **HONG***
*Co-Author(s): Kenric **FAN**, Yuan Yuh **LEONG**, Gavin **TAN**, Zhen Ling **TEO***

Purpose: This study aims to evaluate the diagnostic performance and management accuracy of a large language model (LLM), ChatGPT-4 for acute cases referred to ophthalmology in an Emergency Department (ED), and ChatGPT-4's utility to ophthalmological residents in this setting.

Methods: In the first four weeks of residency, clinical vignettes of patients seen by new and experienced ophthalmological residents at the ED were presented to ChatGPT-4. The top three differentials and management plan generated by ChatGPT-4 were compared against the residents against a ground truth of responses from senior residents whom completed at least 3 years of residency and obtained the Master of Medicine in Ophthalmology [MMed(Ophth)].

Results: 129 vignettes, consisting of 38 general ophthalmology, 37 anterior segment, 33 posterior segment, 17 external eye and extraocular, and 4 glaucoma cases, were presented. ChatGPT-4 achieved a 78.4% diagnostic accuracy, outperformed by the residents' combined diagnostic accuracy of 94.6% ($p<0.001$). ChatGPT-4 achieved a 93.0% accuracy of having the correct diagnosis within its top three differentials, matching that of the residents at 98.4% ($p=0.159$), and on average generated 57.6% of the correct top 3 differentials, comparable to the residents' average of 58.0% ($p=0.546$). ChatGPT-4 achieved a mean management score of 67.8%, while the residents achieved a significantly higher score of 76.9% ($p<0.001$).

Conclusions: ChatGPT-4 shows reasonable diagnostic accuracy and comparable performance in generating differentials and management plans to that of ophthalmological

residents for acute ophthalmological presentations. Further development of LLM with medical datasets may improve its synthesis of management plans and increase its utility for residents-in-training.

Abstract No.: 200173
Poster No.: EX1-111
Panel No.: 111, Session: EX1

Potential of Tetrahedral Framework Nucleic Acid Based Delivery of Dihydroartemisinin as Novel Therapy for Choroidal Neovascularization

*First Author: Xi **HUANG***
*Co-Author(s): Yingying **CHEN**, Xun **LI**, Meixia **ZHANG**, Xiaoxiao **XU***

Purpose: Tremendous unmet needs exist regarding the therapy of choroidal neovascularization (CNV). Dihydroartemisinin (DHA, artemisinin derivatives) is well known for its strong anti-inflammation and anti-angiogenesis effects, but the poor solubility, short half-life, and fast metabolism limit the application in ocular diseases. We used tetrahedral framework nucleic acids (tFNAs) to deliver DHA intraocularly to explore its effect in inhibiting CNV and the potential mechanism.

Methods: The nanoparticles of tFNAs carrying DHA (tFNAs-DHA) were synthesized based on standard protocol. Afterwards, the effect of tFNAs-DHA inhibiting CNV was evaluated both in vitro and in vivo. Furthermore, RNA-seq, RT-qPCR, western-blot, ELISA, and immunofluorescence were applied to study the underlying mechanism of this novel nanoparticles. Lastly, the toxicity of tFNAs-DHA was evaluated using IR fundus photography, SD-OCT, ERG, histopathology technique and TUNEL assay.

Results: The tFNAs-DHA was synthesized successfully and taken by HUVECs effectively, also potently inhibited CNV in vitro and in vivo and showed much less toxicity than DHA towards both morphology and function of the retina. In vitro, the tFNAs-DHA reduced ROS and avoided the apoptosis of mitochondrial of ARPE-19. In vivo, the tFNAs-DHA restrained inflammation cytokines of choroid flat mounts, increased Nrf2 and HO-1, inversely decreased NF-kB and VEGF, and alleviated the infiltration of macrophages in CNV sites .

Conclusions: The tFNAs-DHA nanoparticles could be easily synthesized and possess stable properties, good water solubility, superior biocompatibility, while improving DHA stability and enhancing its application in ocular diseases. These novel nanoparticles effectively inhibit laser-induced CNV in a rat model, likely through the Nrf2-ROS-NF-kB-VEGF pathway.

E-POSTERS

Intraocular Inflammation, Uveitis & Scleritis

Abstract No.: 200994
A Case of Serpiginous-Like Choroiditis: Unveiling Ocular Tuberculosis and the Importance of Tuberculosis Evaluation

First Author: Truong Dang Minh ***PHAM***
Co-Author(s): Luong Hien ***DOAN***

Purpose: Serpiginous-like choroiditis is an immunologic manifestation of ocular tuberculosis, often leading to poor vision. We report a case with such a lesion requiring tuberculosis exclusion or affirmation to tailor treatment.

Methods: This is a case report.

Results: A 13-year-old male patient sought medical care due to blurred vision in both eyes for months. He had a history of previous uveitis treated with systemic corticosteroid. His family history was insignificant. Systemic examination revealed no abnormality. His right eye (RE) and left eye (LE)'s best corrected visual acuity were 20/30 and counting fingers, respectively, with normal intraocular pressure. His anterior segment was unremarkable. Both eyes had inflammatory cells in the vitreous and multifocal serpentine lesions in the retina and choroid. There was optic disc edema in his RE and retinal scarring in his LE. Optical Coherence Tomography demonstrated subretinal fluid near the lesions' edge. He was negative for Toxoplasma, Toxocara, and he had a normal chest x-ray. However, his parents did not consent to tuberculosis tests. A diagnosis of serpiginous choroiditis was made, and a systemic corticosteroid was reinitiated. After one month, the lesions showed no signs of improvement. The parents agreed to have QuantiFERON-TB done, which returned positive. He was indicated with anti-tuberculosis therapy, in addition to ongoing systemic corticosteroid. This combined treatment halts the retinal lesion expansion, reducing subretinal fluid and optic disc edema during follow-ups.

Conclusions: Tuberculosis should always be excluded in cases with serpiginous choroiditis. Anti-tuberculosis therapy should be indicated, in addition to anti-inflammatory therapy, in ocular tuberculosis to enhance recovery.

Abstract No.: 200974
A Case of Vogt-Koyanagi-Harada-Like Panuveitis Induced by Cemiplimab Treatment

First Author: Erika ***SEO***
Co-Author(s): Kazusa ***KUWANO****, Tadashi* ***NAKANO****, Aikou* ***OKAMOTO****, Masataka* ***TAKENAKA****, Akira* ***WATANABE***

Purpose: Cemiplimab is an immune checkpoint inhibitor approved in 2023 for advanced or recurrent cervical cancer that progresses after chemotherapy. Here, we report a case of Vogt-Koyanagi-Harada (VKH)-like panuveitis that developed during treatment with cemiplimab.

Methods: Case Report.

Results: A 51-year-old female had been undergoing chemotherapy for stage IV-B cervical cancer since November 2021. Treatment with cemiplimab was initiated in April 2023. Seven months later, she was diagnosed with anterior chamber inflammation, vitreous opacity, retinal edema, hemorrhage, and serous retinal detachment by her previous doctor. Consequently, treatment with oral prednisolone 15 mg and topical betamethasone sodium phosphate was started. Although the serous retinal detachment diminished, it persisted, prompting a visit to our ophthalmology department. Visual acuity was 0.6 in both eyes. Both eyes showed anterior synechiae without anterior chamber inflammation. Optic disc edema and serous retinal detachment under the fovea were observed in both eyes. Fluorescein angiography revealed fluorescent pooling from the peripapillary area to the inferior retina in the right eye. After consulting with the gynecology department, cemiplimab

was suspended, and the oral steroid dose was increased to 50 mg. Although optic disc swelling persisted, retinal edema and macular serous detachment improved. Resumption of anti-cancer treatment will be considered after stabilization of her ocular findings.

Conclusions: The incidence of ocular complications due to immune-related adverse events induced by cemiplimab might increase in the future. However, since many patients require continued cancer treatment, it is important to establish treatment protocols that balance cancer therapy and ocular complications.

Abstract No.: 200788

A Combination Regimen of Intravitreal Clindamycin with Dexamethasone, Systemic Co-Trimoxazole, and Steroids for Macular Toxoplasma Retinochoroiditis in Immunocompetent Cases

*First Author: Anup **KELGAONKAR***
*Co-Author(s): Soumyava **BASU**, Avinash **PATHENGAY***

Purpose: To study the role of intravitreal clindamycin with dexamethasone as an adjuvant to systemic co-trimoxazole and steroids in macular Toxoplasma retinochoroiditis.

Methods: Retrospective study of Toxoplasma retinochoroiditis cases from January 2014 to December 2021 treated with a combination of oral and intravitreal therapy in immunocompetent cases.

Results: 39 eyes of 39 patients were included in this study after meeting the inclusion criteria with the mean age of presentation being 25.25 years (± 9.30; range 4–52 years). Male preponderance with 61.53 % of males (n = 24) and 38.47% of females (n = 15) was observed. Active retinitis was unilateral in all eyes (20 right eyes; 19 left eyes). The mean best corrected Log MAR visual acuity (BCVA) at baseline (1.09 ± 0.49) improved to mean logMAR BCVA at the final visit by 0.56 (± 0.31). The location of retinitis was either foveal (n=24) or extrafoveal (n=15). The mean size of retinitis was 1.24 ± 0.70-disc diameter. The mean number of injections given was 1.79 with a mean interval of 1.39 weeks.

Conclusions: Adjunctive use of intravitreal Clindamycin and dexamethasone showed significant recovery in BCVA and complete resolution in retinitis in foveal and extrafoveal macular toxoplasma retinitis with no significant complications.

Abstract No.: 200953

A Curious Case of Papillomacular Button Inflammation in a Known Case of Acute Retinal Necrosis and Its Surgical Management

*First Author: Hiteshi **JAIN***
*Co-Author(s): Jayesh **VIRA***

Purpose: To describe the varied manifestations of Acute retinal necrosis and a rare post operative complication in a patient with ARN and its surgical management thereafter.

Methods: An interventional case report.

Results: An 18 YO male came with C/O sudden DOV in the LE for 20 days. He had undergone treatment for genital herpes 6 months back with Tab. acyclovir. He had previously been treated with intravitreal ganciclovir thrice for ARN. On examination, his right eye was normal. His LE had a BCVA of 2/60. His anterior segment was WNL. His LE fundus showed Sub Hyaloid Hemorrhage obscuring the underlying,retina and fovea. He underwent a vitrectomy with endolaser with silicon oil insertion for the same. Post surgery, he developed a well-defined, circular edema of the papillomacular bundle, 1 DD in size. He was started on high-dose steroids. Over a month, the edema resolved and an LMH with pre-retinal fibrosis was formed. He underwent SOR+ ILM peeling in the LE. His vision improved to 6/18 and is now maintained.

Conclusions: This case report highlights the varied manifestations of ARN. It also describes a rare post-operative complication and its management, which has not been described in the literature before. It also emphasizes the irreplaceable place steroids hold in conditions

such as ARN and the protracted course of this disease.

Systemic steroid treatment is necessary specially when foveal involvement is noted.

Abstract No.: 201037
Acute Posterior Multifocal Placoid Pigment Epitheliopathy (APMPPE) in South Indian Patients: A Case Series

*First Author: Ritesh **CHAINANI***

Purpose: APMPPE, also known as acute multifocal ischemic choriocapillaritis (AMIC) is a part of White Dot Syndrome group of diseases. With this case series, the authors aim to highlight the demography and etiopathology of APMPPE patients in South India. The authors also highlight the importance of multimodal imaging in establishing the diagnosis of APMPPE and discuss it's management in each case.

Methods: This is a retrospective case series study. The hospital records with the diagnosis of APMPPE (from 2018 to 2023) were studied. The procedures performed at each visit include are the measurement of best corrected visual activity (BCVA) and complete ocular clinical examination. Multimodal imaging performed included spectral domain optical coherence tomography (SD-OCT), Ultrasonography B-scan and fundus fluorescein and indocyanine green angiography (FFA-ICG). Thorough uveitis workup was also done for each patient.

Results: Six out of the seven patients (85%) were female with ages from 13 years to 57 years. Three out of seven patients (42%) reported prodromal flu like symptoms. One out of seven (14%) patients reported symptoms following Coronavirus(COVID-19) vaccination. Six out of seven patients (85%) reported diminished vision as the presenting complaint. All cases had foveal involvement on SD-OCT. Six out of seven patients (85%) were treated with oral steroids. All the patients reported complete visual recovery following treatment.

Conclusions: APMPPE is a self limiting choriocapillaritis disease entity with total or near total visual recovery. Multimodal imaging is necessary for establishing the diagnosis.

Abstract No.: 200460
Application of CSF Multiplex PCR Panel to Patients with Suspected Viral Uveitis

*First Author: Young Hwan **JEONG***
*Co-Author(s): Sung-who **PARK***

Purpose: To investigate the application of multiplex PCR panel for CSF analysis to the diagnosis of suspected viral uveitis.

Methods: A retrospective analysis was conducted on the medical records of patients who underwent multiplex PCR testing using a kit designed for CSF analysis 2019 to 2023. Subjects were categorized based on clinical features into four groups: 1) anterior uveitis suspected of viral infection, 2) acute retinal necrosis (ARN), 3) cytomegalovirus retinitis (CMV retinitis), 4) Others. Baseline characteristics, positive rates, and viral prevalence were compared across these groups.

Results: A total of 148 eyes were included, with an overall PCR positivity rate of 24.3%(36/148 eyes). The group 1 had a positivity rate of 16.9%(12/71 eyes), with CMV being the most prevalent (66.7%). The group 2 had a positivity rate of 93.7%(15/16 eyes), predominantly VZV (73.3%). The group 3 showed a positivity rate of 66.7% (6/9 eyes), all being CMV (100%). The group 4 had a positivity rate of 5.8% (3/52 eyes), with one case of VZV and two cases of EBV.

Conclusions: The anterior uveitis group showed a lower positivity rate compared to previous studies, which is believed not to be due to the panel, but cohort differences.. The results for ARN and CMV retinitis patients were similar to those of existing studies. Therefore, the multiplex PCR kit for CSF analysis can be considered a useful alternative for diagnosing viral uveitis.

Abstract No.: 200101

Atypical Ocular Manifestations of Leptospirosis in a Developed Country

First Author: Zhi Hong ***TOH***
Co-Author(s): Su Ling ***HO****, Alex Koon Hin* ***LAU****, Elvine Zhong Oen* ***NEO***

Purpose: This report describes a patient with leptospirosis in a developed country with unusual ocular manifestations of bilateral severe chemosis and diffuse anterior and posterior scleritis.

Methods: This patient was co-managed in a tertiary hospital by both the general internist and ophthalmologists of varying subspecialities.

Results: A 45-year-old male pilot with a history of frequent travels presented with pyrexia of unknown origin and constitutional symptoms. While awaiting systemic workup for the cause of his fever, he developed bilateral increasingly severe chemosis associated with conjunctiva injection. Optic nerve function exam was normal. This was initially attributed to hypoalbuminemia secondary to ongoing systemic infection and symptomatic treatment was rendered. He then developed severe aching sensation associated with increasing bilateral diffuse injection. Magnetic resonance imaging of the brain and orbits revealed atypical soft tissue thickening and enhancement around the globes suggestive of scleritis. B-scan ultrasonography showed bilateral T-sign suggestive of posterior involvement. The patient was suspected and tested for leptospirosis, which turned out positive. He was treated with oral doxycycline and a short tapering course of oral steroids and he eventually recovered fully.

Conclusions: Leptospirosis is a zoonotic bacterial disease that is prevalent worldwide but typically seen in developing countries. It is usually transmitted through exposure to rodents. The low incidence of leptospirosis-related complications may be attributed to underdiagnosis due to the varying ophthalmic presentations. While uveitis is the most common ocular presentation in these patients, they can present with varying constellation of ocular signs and symptoms. Prompt diagnosis and appropriate treatment can lead to favorable outcomes.

Abstract No.: 200955

Bilateral Asymmetric Occlusive Retinal Vasculitis in a Patient with Positive Tuberculosis (TB) Interferon Gamma Assay (IGRA)

First Author: Rubamalar ***GUNATHEESAN***

Purpose: Tuberculosis rates are on the rise in Malaysia due to the high inflow of immigrants. Ocular TB is a rare extrapulmonary manifestation of systemic TB. Tubercular uveitis can present can present as anterior, intermediate, posterior uveitis, panuveitis or retinal vasculitis. The variability of presentation of ocular TB together with the multiple phenotypes of active versus latent TB, add to the diagnostic dilemma of tubercular retinal vasculitis.,,Here we report a case of a 26 yo gentleman bilateral occlusive retinal vasculitis of varying severity. He was asymptomatic in his right eye with 6/6 vision and left eye counting finger vision.

Methods: A 26 yo Malaysian Indian gentleman presented with sudden onset left eye blurred vision. He complained of a cough but was otherwise well. Fundus examination revealed right eye peripheral retinal neovascularization with occluded vessels, noevascular fronds, and fibrosis. Left eye poor vision was due to extensive subhyaloid haemorrhage with vitreous haemorrhage and fibrovascular membranes. He was also quantiferon gold positive.

Results: He was treated with left eye pars plana vitrectomy with membrane excision, cryotherapy and intravitreal avastin and dexamethasone injections. He later had laser panretinal photocoagulation to the right eye. Anti-tuberculous therapy was instituted and an immunosuppressive tapering dose of steroids commenced.

Conclusions: We present a case of bilateral occlusive retinal vasculitis with asymmetric disease presentations. With expedient surgical

and medical management, the patient achieved 6/6 vision in both eyes.

Abstract No.: 200998

Bilateral Chronic Anterior Uveitis in a Herpes Simplex Virus IgM Positive Immunocompetent Patient

*First Author: Jan Patrick **CHU***
*Co-Author(s): Jagjit **GILHOTRA***

Purpose: To present a case of bilateral herpes simplex anterior uveitis in an immunocompetent patient.

Methods: Case Report

Results: This is a case of a 42-year old female from Kenya with a 2-year history of intermittent painful eye redness associated with blurring of vision of both eyes. There were no associated systemic symptoms. She presented with a visual acuity (VA) of 6/18 and 6/30 on the right and left eyes, respectively. On examination, conjunctival hyperemia, keratic precipitates, posterior synechiae, poorly dilating pupil, anterior subcapsular cataract and +2 anterior chamber (AC) cells and flare were noted on both eyes. Intraocular pressure (IOP) were within normal limits. Optical coherence tomography (OCT) showed bilateral macular edema. Herpes simplex virus (HSV) IgM was detected whereas autoimmune and other infectious etiologies were excluded.,,Bilateral 20mg subtenon triamcinolone injection was given in addition to dexamethasone 0.1% eye drops 6 times a day and atropine 1.0% eye drops 3 time a day. Subsequent visit showed an improvement of VA to 6/12 and 6/9 on the right and left eyes, respectively. Only 0.5 AC cells with resolution of flare and macular edema on OCT were noted. Topical antiglaucomatous medication was started due to IOP >30mmHg on both eyes, and Valacyclovir 1g three times a day was initiated.

Conclusions: The diagnosis of bilateral herpetic anterior uveitis was based on the criteria set by The Herpetic Eye Disease Study (HEDS). Although bilateral cases occur, it is usually associated with immunodeficiency. Aqueous humor samples from both eyes were submitted test for HSV to support diagnosis.

Abstract No.: 201139

Cerebral Toxoplasmosis with Retinal Necrosis in an Human Immunodeficiency Virus Patient: Highlighting the Spectrum of Ocular Manifestations in Immunosuppressed Patient

*First Author: Sri Hudaya **WIDIHASTHA***
*Co-Author(s): Raisha Pratiwi **INDRAWATI***

Purpose: This case report describes a 31-year-old female patient with Human Immunodeficiency Virus patient presenting with cerebral toxoplasmosis and retinal necrosis, and discusses various ocular conditions associated with HIV.

Methods: Case Report

Results: A 31-year-old female with HIV/AIDS presented with severe headaches, confusion, and progressive vision loss since 8 months ago. Brain MRI revealed multiple ring-enhancing lesions consistent with toxoplasmosis. The patient was treated with anti-toxoplasmosis treatment, in conjunction with antiretroviral therapy. Despite appropriate anti-toxoplasmosis treatment intervention, the patient was still experiencing progressive vision loss. The patient then referred to ophthalmologist and the funduscopy examination showed extensive retinal necrosis, characterized by areas of retinal whitening and necrotic tissue. Although, neurological symptoms improved with follow-up brain imaging showed a reduction in cerebral lesions, the retinal necrosis resulted in permanent vision loss. This case emphasizes the need for vigilant ophthalmologic evaluation and management in HIV patients with ocular symptoms.

Conclusions: This case underscores the necessity for healthcare providers to maintain a high index of suspicion for a broad range of ocular manifestations in HIV patients. Multidisciplinary care involving infectious disease specialists, neurologists, and ophthalmologists is essential for optimizing outcomes.

Abstract No.: 201124

Changing trends and clinical characteristics of acquired Syphilitic posterior and pan uveitis

*First Author: Devesh **KUMAWAT***
*Co-Author(s): Shorya Vardhan **AZAD**, Vinod **KUMAR**, Pradeep **VENKATESH**, Saurabh **VERMA***

Purpose: To describe the clinical features, visual outcomes & changing trends of syphilitic posterior and pan uveitis

Methods: In an ambispective study, clinical characteristics of patients with syphilitic posterior and pan uveitis were assessed between January 2017 to June 2024 at a tertiary-care eye centre

Results: 20 patients (35 eyes) were included; 5 presented before COVID-19 (2017 to 2020) & 15 after COVID-19 (2022 to 2024). Mean age was 38.9±11.8 years with 100% males. 11/20 cases had HIV (6 known & 5 diagnosed on follow-up). Median duration of ocular symptoms was 20 days (5- 180 days). 9 cases worsened due to misdiagnosis as acute retinal necrosis or CMV retinitis. Median VA at baseline was 20/400 (HMCF to 20/20). Morphology was pan uveitis (22eyes), posterior (chorioretinitis in 11 eyes, vasculitis in 1eye) or intermediate uveitis (1eye). Placoid lesions were seen in 22eyes & punctate inner retinitis was seen in 7 eyes. Definitive treatment included intravenous ceftriaxone (alone in 14 cases; with steroids in 3 cases) or intramuscular penicillin (alone in 2 cases; with steroids in 1 case). At median follow-up of 6months (2- 36 months), disease had resolved in all eyes except one where atrophic bulbi set in. Visual acuity improved slowly in few weeks/ month period to a median of 20/40 (PL to 20/20). Sequelae included disc pallor, arteriolar sclerosis and macular atrophy.

Conclusions: There is an upsurge noted in syphilitic posterior and pan uveitis cases post COVID-19. Although a great mimicker, definitive treatment leads to slow yet good visual recovery despite certain sequelae.

Abstract No.: 200786

Choroidal Neovascular Membranes Associated with Toxoplasma Retinitis

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Purpose: To study the clinical pattern, imaging characteristics and outcomes of CNVM associated with Toxoplasma retinochoroiditis (TRC).

Methods: Retrospective, case series.

Results: CNVM was a rare complication (6%; 15 eyes of 15 cases) in cases TRC (248 cases). Mean age of presentation was young at 19.85±10.12 years with male preponderance (M11; F4). We observed four patterns of presentation:,Group A: Active retinitis; early CNVM (within 6 weeks of TRC),Group B: resolving/partially active retinitis; late CNVM (≥6weeks),Group C: healed retinitis, active CNVM,Group D: healed retinitis. Predominantly Scarred CNVM.,A total of 24 antiVEGFs (Bevacizumab 18, Ranibizumab 6). Mean number of injections/eye needed was 2.18. Group A-C had four cases each while group D had three cases.,Of the 12 active CNVMs – classic CNVMs (10 eyes); RAP lesion (2 eyes); All the cases the CNVM was seen adjacent to the TRC lesion. OCT was used to monitor treatment response while OCTA and FFA were required for initial diagnosis.,The resulting scarring of the CNVM could be identified as a subretinal fibrotic scar with variable thickening as compared to pigmented, atrophic, thinned and variable excavated scar of TRC.

Conclusions: CNVM in TRC is a rare association seen more commonly in young adults. CNVM could be noted either during early (6 weeks) or late (>6 weeks) after presentation as active TRC; or later after healing of TRC. The CNVMs resolved faster with mean 2.18 injection with subretinal fibrotic scar which could be distinctly differentiated from adjacent healed retinitis lesion.

Abstract No.: 200322

Clinical Manifestations and Risk Factors of Intraocular Inflammation in Brolucizumab Treatment for Recalcitrant Wet Age-Related Macular Degeneration Cases: A Real-World Analysis in Taiwan

First Author: Yi-hsing ***CHEN***
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Purpose: To assess the clinical manifestations and the potential risk factors of intraocular inflammation (IOI) after brolucizumab (Beovu, Norvatis®) in pretreated neovascular age-related macular degeneration (nAMD) patients.

Methods: A multicenter, retrospective cohort study. 109 eyes (93 patients) with nAMD, switching from other anti-vascular endothelial growth factor (VEGF) agents and receiving ≥ 1 Beovu injection were included. Demographic data and detailed ophthalmological examination profiles were collected and reviewed. Characteristics, potential risk factors and initial presentation of IOI (anterior uveitis (AU), intermediate uveitis (IU), panuveitis+/- retinal vasculitis (RV) were investigated. Correlation between the onset time and the remission time of IOI and association between the onset time and the different IOI types were analyzed.

Results: There were 17 of 109 patient-eyes (15.6%) demonstrated IOI. The median time of IOI occurrence was 26 days following the latest brolucizumab and 2/17 (11.8%) were asymptomatic. Overall, the IOI group had more prior total intravitreal anti-VEGF injections (P = 0.006) and intravitreal aflibercept (P = 0.008) 1 year before first Beovu than the non-IOI group. Compared to non-IOI patients, panuveitis and/or RV patients had higher comorbidity rates (diabetes mellitus: P = 0.005, hypertension: P = 0.012, and hyperlipidemia: P = 0.005), more aflibercept in the year prior (P = 0.047) and overall (P = 0.011), as well as more total intravitreal injections in the year preceding brolucizumab (P = 0.023).

Conclusions: Our findings suggest that the IOI presentation may be asymptomatic. Key risk factors for IOI included frequent prior intravitreal anti-VEGF injections and comorbidities.

Abstract No.: 200393

Clinical Profile and Management Outcomes of Vogt-Koyanagi-Harada (VKH) Disease at a Tertiary Care Institute: A Case Series

First Author: Kirti ***JAISINGH***
Co-Author(s): Nikhil ***AGRAWAL****, Kavita R* ***BHATNAGAR****, Nidhi* ***PAHARIA****, Jyoti* ***SHAKRAWAL****, Manjari* ***TANDON***

Purpose: VKH disease is an autoimmune bilateral granulomatous uveitis with or without extraocular manifestations affecting young adults. It presents in a myriad of ways ranging from probable to complete forms as per the revised diagnostic criteria. The presentations may have regional differences which could affect the timely recognition and treatment outcomes. Systemic steroids along with immunomodulation are often required for management.

Methods: A prospective observational study was undertaken on all ocular VKH patients from November 2021 to April 2024 at a tertiary care institute in Rajasthan. All patients were managed with pulse steroid therapy followed by oral steroids. Immunosuppression was added in all. Visual outcomes, response to therapy and any complications were noted.

Results: A total of 8 patients (15 eyes) were evaluated. The mean age of presentation was 36+6.6 years with a female predominance(5 out of 8 patients, 62.5%). 7 patients (87.5%) had bilateral presentation. All had acute uveitis. Mean duration of symptoms was 10 days. 5 patients had posterior and remaining had panuveitis. 25% were diagnosed as incomplete form with sensorineural hearing loss in one and skin lesions in other. Remaining 75% were diagnosed as probable forms of VKH. Best corrected visual acuity at presentation was hand movements in 50% patients. It improved to more than 6/12 in 75% patients. Major complications were cataract and central serous chorioretinopathy (CSCR) in 2 patients.

Conclusions: Extraocular features of VKH are rare in this region. Early recognition and advent of immunomodulatory therapy helps in prevention of unfavourable outcomes.

Abstract No.: 200980
Cytomegalovirus Retinitis; A Silent Menace to Vision

*First Author: Sydney Sheldon **TOLENTINO***

Purpose: Cytomegalovirus Retinitis (CMVR) has been the most common opportunistic ocular infection and causes visual loss in Autoimmune Deficiency Syndrome (AIDS) patients. CMVR presents in late cases of untreated AIDS, and with scarcity of intravitreal ganciclovir, can lead to poorer prognosis. Early referral and recognition prevents developing and progressing of CMVR through dilated fundoscopy and through early procurement of intravitreal ganciclovir respectively.

Methods: A 31 year-old male came with complaints of painless sudden blurring of vision of both eyes with no associated photopsia and scotoma four days prior to consult. He had social history of eight male sexual partners, with significant weight loss for the past five months. Visual acuity at this time was 15/200 on the right, hand movement on the left. Ophthalmologic examination showed perivascular sheathing, areas of cream-colored retina, and necrosis in both eyes. Pertinent laboratory findings include positive HIV antibodies with CD4 count <1. Ocular Coherence Tomography (OCT) of both eyes showed loss of foveal depression and disruption of inner and outer retinal layers. Fluorescein Angiography (FA) of both eyes showed vascular leakage with multiple hyperfluorescent dots.

Results: Patient was immediately initiated with systemic treatment. However, intravitreal ganciclovir was administered late due to poor availability of the drug.

Conclusions: For the past four years, this is the only case of CMVR in our institution. This lead to a breakthrough of routine referral of all HIV cases for dilated fundoscopy, before they present signs and symptoms of CMVR because the disease is fulminant, and for earlier drug procurement.

Abstract No.: 200648
Depot Anterior Subconjunctival Triamcinolone Acetonide Injection for the Treatment of Non-Necrotizing, Non-Infectious Anterior Scleritis – A Retrospective Case Series

*First Author: Aahan **SHAH***
*Co-Author(s): Shreyas **TEMKAR**, Kumaradharshini V M*

Purpose: To evaluate the efficacy and safety of anterior subconjunctival triamcinolone injection for resistant, non-necrotizing anterior scleritis.

Methods: This retrospective analysis included 5 patients (5 eyes) who received localised depot anterior subconjunctival injections of preservative-free triamcinolone acetonide for non-infectious, non-necrotizing anterior scleritis (diffuse/nodular). Patients having recurrences despite systemic immunosuppression or having adverse effects from systemic therapy were included, while those with a history of glaucoma, steroid response, and suspected infectious etiology were excluded. Depot injections (0.05-0.1ml) were administered subconjunctivally at the epicentre of scleral inflammation using a 26-gauge needle under topical anaesthesia.

Results: The mean age of patients was 48.2 years. Workup did not reveal systemic association in any of the patients. The mean follow-up period was 10±6.5 months, ranging from 3 to 18 months. All cases showed subjective improvement with good pain reduction and decreased scleral inflammatory activity. The average symptom-free interval was 4.4 months. One patient had intraocular pressure rise (managed medically), and one patient had progression of pre-existing cataract. No patient had evidence of scleral melt at the site of injection. Scleritis activity recurred in 2 out of 5 eyes, requiring repeat injections. Three patients were completely stopped of systemic steroids/immunosuppressants. Two patients

were on maintenance doses of steroids (≤10mg) and immunosuppressants.

Conclusions: Depot injection of anterior subconjunctival triamcinolone acetonide is an effective option in managing recurrent, non-necrotizing, non-infectious scleritis without risk of scleral melt. It can achieve good symptom-free remission and reduce the risks and burden associated with escalation of systemic immunosuppression.

Abstract No.: 200760
Eye for a Tooth: a Trigger for Uveitis

*First Author: Xin Le **NG***
*Co-Author(s): Anita **CHAN***

Purpose: Dysbiosis of the oral microbiome secondary to tooth decay can be a trigger for uveitis. We present a case of a patient with previously well-controlled chronic anterior uveitis who presented with an acute uveitis flare concurrent with a decayed tooth.

Methods: Case report of a subject on regular follow up with our center.

Results: A 68 year old Chinese male under our care for cytomegalovirus (CMV) anterior uveitis, presented with fresh small to medium sized keratic precipitates and anterior segment cells 2+ and blurring of vision. He failed to respond with topical ganciclovir/steroid therapy. On further investigation, he was found to have a decayed tooth that started hurting just prior to his flare. He was referred for a dental extraction and his uveitis flare improved within a week after the surgery.

Conclusions: The prior lack of response and resolution shortly after dental extraction whilst on the same topical therapy suggests that the active tooth decay was the main trigger of uveitis. Periodontal disease is known to trigger uveitis and is an under-recognised trigger that can be easily resolved with careful history. This case highlights the importance of a holistic approach and detailed history when assessing causes of uveitis.

Abstract No.: 200298
First Case Series of Enterococcus Casseliflavus Endogenous Endophthalmitis in Healthy Individuals in Australia

*First Author: Ye **LI***
*Co-Author(s): Fraser **IMRIE**, Jacob **SMITH**, Khoi **TRAN***

Purpose: To report a case series of endogenous endophthalmitis secondary to Enterococcus casseliflavus in Gold Coast, Australia.

Methods: Case series over twelve months.

Results: A 27-year-old female presented with two-days of left eye pain and reduced vision. VA was light perception with an IOP of 62mmHg. Due to severe panuveitis with no fundus view, she underwent vitreous tap and intravitreal foscarnet, vancomycin, and ceftazidime. Following return of E.casseliflavus, she was treated with intravenous vancomycin and further intravitreal vancomycin, followed by vitrectomy with silicone oil(SO). Following removal of SO, VA improved to 6/60 with inner retinal irregularity twelve-months later.,,A 54-year-old male presented one-day of left eye pain and reduced vision. VA was light with an IOP of 36mmHg. He underwent vitreous tap and intravitreal foscarnet, vancomycin, and ceftazidime. Oral linezolid and further intravitreal ampicillin were given. Vitrectomy with lensectomy and SO was performed, which showed occlusive vasculitis and subretinal abscess intraoperatively. He underwent repeat vitrectomy with retinectomy and SO for a rhegmatogenous retinal detachment one-week later. One-month post-operatively, VA improved to 6/90 with resolving retinal haemorrhages under SO. He continues to be observed with a plan for a secondary intraocular lens.,,No clear source was elicited in either case following extensive serological and radiologic investigation.

Conclusions: E.casseliflavus is an uncommon cause of exogenous endophthalmitis that usually occurs following ocular trauma, while endogenous endophthalmitis is extremely rare. Both cases exhibited an insidious and aggressive onset. Urgent vitreous tap

with broad-spectrum antibiotics should be performed. Subsequent sensitivity-guided treatment with timely surgical intervention enabled limited visual recovery.

Abstract No.: 200890
From Current to Consequence: Pigmentary Retinopathy Following Electric Shock – a Case Report

*First Author: Ghina **FEDORA***
*Co-Author(s): Gitalisa **ADRIONO**, Izza **ZUKHRUFIA***

Purpose: Electric shock is an uncommon injury yet results in multiple organ abnormalities, including the eye. Damages to lens and retina could arise from electrical currents that break down cell membranes, produce heat, cause vasoconstriction, and ischemia. Pigmentary retinopathy due to retinal pigment epithelium (RPE) damage is one of the retinal manifestations of ocular electrical injury. We present a case of pigmentary retinopathy following electric shock.

Methods: Case report

Results: 33-year-old male came with bilateral loss of vision for three weeks after electrical shock injury from an exposed electric wire. Patient experienced seizure then lost consciousness for 30 minutes after incident. Next day, patient noticed total loss of vision in the right eye with light perception visual acuity followed by the left eye with visual acuity 3 m CF. Fundus examination revealed multiple chorioretinal atrophy on peripapillary and peripheral areas. Fundus fluorescein angiography (FFA) showed hyperfluorescence indicating window defect on the right eye while left eye showed hypofluorescence indicating hypoperfusion with geographic atrophy. Optical coherence tomography (OCT) showed thinning of the retinal and choroid with intraretinal fluid. NSAID drops were given to minimize the inflammatory reaction. Unfortunately, the patient refused any further diagnostic procedures and treatment.

Conclusions: Electric injuries cause direct electrical currents transmission through ocular tissue, resulting in retinal tissue injury. Direct heat causes damage to the RPE by immediate coagulation of proteins and cells. Currents conducted through optic nerve resulted in injuries on peripheral retina. This case underscores the need for awareness among ophthalmologists regarding the ocular sequelae of electrical injuries.

Abstract No.: 200257
Humanistic Burden of Non-Infectious Uveitis: A Systematic Review and Meta-Analysis

*First Author: Aswen **SRIRANGANATHAN***
*Co-Author(s): Jobanpreet **DHILLON**, Tina **FELFELI**, Justin **GRAD**, Rafael **MIRANDA***

Purpose: To evaluate the humanistic burden of non-infectious uveitis (NIU).

Methods: A comprehensive search was conducted across Medline, Embase, and Scopus databases from inception to March 2023. Studies pertaining to the health-related quality of life (HRQoL) of patients with NIU in both adult and pediatric populations were included.

Results: A total of 68 studies involving were included, and 10 studies were included in the meta-analysis. Across 14 HRQoL instruments used across the studies, Visual Function Questionnaire 25 (VFQ-25) was the most frequently used (n=35), followed by the 36-Item Short Form Survey (SF-36) and 8-Item Short Form Survey (SF-8) (n=30). Patients with JIA-U had poorer HRQoL scores than non-uveitic JIA by 5.26 (95% CI –7.24, –3.28; $P < .05$) on the Effects of Youngsters' Eyesight on Quality of Life (EYE-Q) questionnaire and the Childhood Health Assessment Questionnaire (CHAQ). Adults with NIU with systemic disease scored notably lower on both Mental Component Summary (MCS) (mean difference (MD): –5.63; 95% CI –9.37, –1.88; $P < .01$) and Physical Component Summary (PCS) (MD: –4.99; 95% CI –11.71, 1.73; $P < .01$) segments of the 36-Item Short Form Survey (SF-36) compared to healthy controls.

Conclusions: HRQoL was significantly reduced in NIU patients among physical and mental

components compared to healthy controls. HRQoL was significantly lower in JIA patients with uveitis compared to JIA patients without. This study finds that NIU poses a significant QoL impact from a physical health, mental health, daily functioning, and caregiving perspective.

Abstract No.: 201098

More Than Meets the Eye: A case of Multifocal Tuberculosis

*First Author: Shasta Grace **TIRO***
*Co-Author(s): Mayjane Joan **TUMULAK***

Purpose: This report discusses a case of confirmed tuberculosis with ocular manifestations observed from February 2021 to July 2024. It includes clinical characteristics, laboratory and radiologic findings, treatment modalities and current patient status.

Methods: A retrospective case study was conducted using outpatient charts, laboratory and imaging results, focusing on a patient with ocular manifestations and a history of confirmed tuberculosis of the liver, lymph nodes and cervical spine between February 2021 to July 2024.

Results: This study describes an 11-year-old female who presented with leukocoria, exotropia and blurring of vision in left eye. She was previously diagnosed with multifocal tuberculosis and treated in 2021, during which leukocoria was noted but dismissed as trick of the light. She had unexplained weight loss prompting consult. A positive TB quantiferon and whole abdomen ultrasound showed multiple tuberculosis granulomas warranting further investigation. Non-contrast cervical and thoracolumbar spine magnetic resonance imaging revealed left temporal lobe mass, spinal changes, bilateral pulmonary nodules and numerous hepatic lesions consistent with tuberculosis. Persistence of ophthalmologic symptoms resulted to referral to eye department. Presenting visual acuity was 20/20 in the right eye and 20/200 in left eye. Funduscopy revealed round, white lesion obscuring macula in left eye, likely a granulomatous reaction leading to scarring. Patient currently wears graded lens with best corrected visual acuity.

Conclusions: In a country where tuberculosis is endemic, this case highlights diverse manifestations of the disease across different organ systems. Although tuberculosis affects primarily the pulmonary system, through physical examination and due diligence are crucial for comprehensive diagnosis and treatment.

Abstract No.: 200392

Navigating the Diagnostic and Therapeutic Challenges in the Management of Ocular Behçet's Disease in India

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Purpose: Behcet's disease is a relatively uncommon but highly underdiagnosed and underreported blinding disease in India. Diagnosis is often challenging as ocular features may be the only presenting features of this systemic vasculitis.

Methods: A retrospective observational study analyzed the records of all patients presenting to uveitis clinic in a tertiary hospital between January 2021 and May 2024. Each patient underwent a comprehensive ophthalmic and systemic evaluation. Those diagnosed with Behcet's disease were evaluated for their clinical features, response to therapy and visual outcomes.

Results: 18 eyes of 10 patients were evaluated. The mean age of presentation was 31.33 ± 9 years with male preponderance (70%). Bilateral involvement was observed in eight (80%) patients. Panuveitis was the most common presentation (61%), isolated vasculitis in 6 eyes (33%) followed by intermediate uveitis in 1 eye (11%). Hypopyon was seen in two eyes, and posterior synechiae were seen in five eyes. Posterior segment findings included vitritis, vasculitis, retinitis, disc hyperemia, disc pallor and macular edema. Oral ulcers were

found in 80% patients while genital ulcers were seen in 2 patients only. None of them had any skin lesions. 1 patient had central nervous system involvement too. All patients received systemic steroids and eight patients received immunosuppressive agents, most common being azathioprine alone or in combination with cyclosporine or mycophenolate mofetil. Most common complications were central serous chorioretinopathy, optic atrophy and complicated cataract.

Conclusions: High clinical suspicion is required for early diagnosis and inclusion of immunosuppressants to improve the visual outcomes of this disease.

Abstract No.: 200130

Netarsudil/Latanoprost Fixed-Dose Combination Therapy for Primary Open-Angle Glaucoma (POAG): A Systematic Review and Pooled Analysis of 2484 Patients

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Purpose: Glaucoma, caused by fluid buildup leading to increased intraocular pressure (IOP), can damage the optic nerve and result in blindness if untreated. This study aims to compare the efficacy and safety of a fixed-dose combination of Latanoprost and Netarsudil in reducing IOP in patients with open-angle glaucoma (OAG).

Methods: We searched PubMed, Scopus, Web of Science, and Cochrane until October 2023 and updated the search till July 2022 for randomized clinical trials (RCTs) that follow the inclusion criteria. The data were pooled as mean difference (MD) or risk ratio (RR) with 95% confidence interval (CI) using Review Manager Software (Version 5.4).

Results: The pooled analysis revealed that using a fixed-dose combination of Latanoprost and Netarsudil has significantly decreased the IOP compared to using Latanoprost as monotherapy (MD=-2.29; 95% CI: [-2.67, -1.90], P<0.00001) after two weeks follow-up. The changes in IOP favoured using a fixed-dose combination following six weeks, and three months time intervals (MD = -2.37; 95% CI: [-2.72, -2.01]; P<0.0001) (MD = -2.57; 95% CI: [-2.91, -2.22], P < 0.0001) respectively. Regarding the mean diurnal intraocular pressure, the analysis has also favored the fixed-dose combination. Notably, despite some adverse effects, noted more with using the fixed-dose combination than using Latanoprost as monotherapy, they are usually well-tolerated and rarely led to drug discontinuation.

Conclusions: The overall efficacy of the combination therapy is highly accountable. Its safety profile is high and tolerable by the patients. Using fixed-dose combination as first-line therapy should be considered for ocular hypertensive patients.

Abstract No.: 200477

Occlusive Retinal Vasculitis with Neovascularization in a Case of Dengue Retinopathy

*First Author: Chynna Pearl Tana **BACCAY***
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Purpose: To report a rare but sight-threatening complication of dengue fever presenting with occlusive retinal vasculitis and proliferative retinopathy.

Methods: Case Report

Results: A 21 year old male with a prior history of dengue fever presented with blurring of vision in both eyes (OU). The visual acuity (VA) on presentation was hand movement in the right eye (OD) and 20/63 in the left eye (OS). Fundus examination revealed cotton wool spots and retinal hemorrhages OU. OCT showed cystoid macular edema with subretinal fluid OU. He was diagnosed with dengue retinopathy OU. Further work-up was recommended but the patient was lost to follow-up. He returned 4 months later, reporting worsening of vision in OS. The VA was hand motions OU. Fundus examination showed proliferative retinopathy with florid neovascularization and preretinal

hemorrhages OU. Fluorescein angiography showed occlusive retinal vasculitis with widespread retinal ischemia OU. OCT revealed macular atrophy OU. The patient was treated with a course of systemic corticosteroids, which resulted in resolution of the retinal vasculitis. However, there was progression of neovascularization with new-onset vitreous hemorrhage in the right eye, prompting panretinal photocoagulation OU. There was regression of neovascularization OU, but vision only improved counting fingers OD and 20/800 OS due to macular ischemia.

Conclusions: Although rare, ocular complications of dengue fever can lead to permanent visual impairment if left untreated. Clinicians should keep this disease entity in mind while evaluating febrile patients with visual complaints in dengue endemic regions.

Abstract No.: 200127
Orbital Cellulitis with Panophthalmitis During Pregnancy: A Rare Case in Bangladesh

*First Author: Md Iftekher **IQBAL***
*Co-Author(s): Fariah **OSMAN***

Purpose: To report an unusual case of orbital cellulitis who later developed panophthalmitis during her pregnancy.

Methods: This is a case report of a 22-year-old woman in her third trimester of pregnancy who encountered orbital cellulitis with panophthalmitis caused by methicillin-positive Staphylococcus aureus (MSSA).

Results: Despite rigorous intravenous and topical antibiotics, she underwent evisceration of the affected eye. However, the pregnancy progressed without incident, with the delivery of a healthy baby at full term.

Conclusions: Bacterial infection is uncommon during pregnancy but may cause endogenous panophthalmitis and orbital cellulitis, especially in immunosuppression and anemia, with a poor visual outcome.

Abstract No.: 200128
Panophthalmitis after Aurolab Aqueous Drainage Implant (AADI) in Refractory Glaucoma with Vogt-Koyanagi-Harada Syndrome (VKH): A Case Report

*First Author: Md Iftekher **IQBAL***

Purpose: To report a case of a refractory glaucoma patient who underwent the Aurolab Aqueous Drainage Implant (AADI), a non-valved device, to control intraocular pressure but later developed panophthalmitis.

Methods: This is the case of a male aged 26 who presented with sudden visual loss, moderate pain, redness, and purulent discharge in the right eye for 6 days. He underwent an AADI on his right eye 2 months ago for refractory glaucoma due to VKH. Examination revealed that the vision in his right eye had deteriorated to NPL, with a slightly swollen eyelid and matted eyelashes.,Slit-lamp examination showed severe conjunctival and ciliary congestion, a total hypopyon with the melted cornea, an exposed corneal stitch at around 11 o'clock, and an AADI plate in the superotemporal quadrant, and the scleral patch graft was used to cover the tube.,B-scan showed moderate to dense vitreous opacities that persist in low gain as well. A complete blood count showed neutrophilic leukocytosis. Panophthalmitis of the right eye was the patient's diagnosis.

Results: This is a rare case of panophthalmitis after AADI surgery, which was managed with evisceration and complete removal of the device, including the tube and plate.

Conclusions: Endophthalmitis is an uncommon and typically delayed consequence following GDD implantation. GDD-associated endophthalmitis can be fatal and requires immediate treatment. In the case of panophthalmitis, this may be due to a comparatively long delay between symptom onset and presentation.

Abstract No.: 201045

Papillitis as a rare complication of Human Leukocyte Antigen-B27 (HLA-B27) uveitis

First Author: Xin Le ***NG***
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Purpose: Human Leukocyte Antigen B27(HLA-B27) associated uveitis can be florid, manifesting with marked anterior chamber activity and hypopyon formation. More rarely, it can manifest with papillitis.

Methods: Case report

Results: We present a case of a 41 year old Chinese male with known HLA-B27 who presents with papillitis. The patient presented to the general ophthalmological service with a flare of right eye acute anterior uveitis. Two weeks after his initial presentation, he was found to have disc swelling in the affected eye, confirmed on Optical Coherence Tomography (OCT) with disk leakage on Fundus Fluorescein Angiography (FFA). The patient underwent neuroimaging to exclude a compressive lesion and no posterior scleritis or posterior optic neuritis was detected. Humphrey Visual Fields (HVF 24-2) did not show any significant defects.

Conclusions: Papillitis has been reported in up to 50% of HLA-B27 acute anterior uveitis cases. We can differentiate it from optic neuritis and papilloma by its association with anterior uveitis, lack of HVF defects and neuroimaging.

Abstract No.: 200294

Predictive Factors of Visual Prognosis of Vitrectomy for Post-Surgical Endophthalmitis: A 5-Year Retrospective Study

First Author: Ohisa ***HARLEY***
Co-Author(s): Yufilia Suci ***AMELIA****, Arief* ***KARTASASMITA***

Purpose: To analyze baseline predictive factors as useful prognostic indicators in evaluating the potential treatment outcomes.

Methods: Retrospective cohort study involving 41 cases of post-surgical endophthalmitis treated with vitrectomy between 2019 and 2023. Patients were monitored until 1 month after vitrectomy.

Results: PPatients were categorized based on final visual acuity (VA) outcomes: good prognosis (VA ≥0.3) for 28 eyes (63.6%) and bad prognosis (VA <0.3) for 16 eyes (36.6%). Initial VA:<1/60 (63.4%), 1/60 - 0.8 (29.3%), and ≥0.7 in logMAR (6.8%). Factors contributing to poor VA outcomes included hypopyon, increased intraocular pressure (IOP), and a history of surgery within 7 days prior. Multivariate regression analysis indicated that poor final visual acuity was significantly associated with the time interval between the previous surgery and vitrectomy (P = 0.016; ß coefficient 2.52; OR 25.31 95%CI (1.59-98.81)) as well as IOP (P = 0.003; ß coefficient: 3.23; OR 25.31 95%CI (2.98-214.97)). Other factors: baseline VA, presence of fibrinous membrane, dense vitreous haze, and positive retinal signs did not significantly contribute. Out of 25 vitreous samples analyzed, 16 tested positive (9 gram-positive and 7 gram-negative cases), with a Pseudomonas fluorescens infection resulting in good VA, whereas a Serratia marcescens infection led to poor VA. Positive retinal signs were observed in 61% of patients, with 61.5% experiencing poor visual outcomes. Final VA showed significant improvement.

Conclusions: The study identified hypopyon, increased IOP, and surgical history in less than 7 days as negative predictive factors for visual prognosis. Early vitrectomy may restore the visual acuity.

Abstract No.: 200146

Prevalence and Correlates of Cytomegalovirus Retinitis Among Newly Diagnosed HIV/AIDS Patients in a Level III Government Hospital in the Philippines

First Author: Carlson ***DAVID***
Co-Author(s): Edwin ***PASUMBAL****, Katrina Charisse* ***TORRES-MAGNO***

Purpose: We determine the prevalence and identify the association of demographic characteristics, personal and social risk factors, CD4 T-cell count, blood examination, ocular

symptoms, and visual acuity to CMV retinitis. It aims to identify the clinical variables that elevate the risk of CMV retinitis.

Methods: This is a single center, analytical cross-sectional study. Thorough history, laboratory examination, ocular examination and baseline 5-field fundus photos were done to all participants. Fisher's Exact Test was utilized to test the association of variables. Bivariate logistic regression was used to determine factors predictive of CMV retinitis.

Results: From the 91 patients, 9 patients were diagnosed with CMV retinitis, with a prevalence of 9.89%. No significant predictor to CMV retinitis was found when personal and social risk factors were compared between those with and without CMV retinitis. Having a visual complaint, symptom of blurring of vision and visual acuity of less than 20/20 is significantly associated with CMV retinitis. On logistic regression analysis, presence of visual complaints or symptoms (p=0.028) and having blurred vision (p=0.001) were both significant predictors. Having visual complaints has 10.743 times odds and having a blurred vision is 11.667 times more likely to have CMV retinitis compared to those without.

Conclusions: Presence of visual complaints and symptom of blurred vision were the only significant predictors of CMV retinitis in our study. It can be inferred that a good history taking is beneficial. Knowing such predictors would support a baseline CMV retinitis screening to all patients newly diagnosed with HIV regardless of clinical and immunological status.

Abstract No.: 200183
Prognostic Factors Associated with Acute Retinal Necrosis Treated Non-Surgically

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Purpose: To analyze the prognostic factors for visual acuity in acute retinal necrosis (ARN) patients treated non-surgically.

Methods: Retrospectively analyzed the clinical data of ARN patients.

Results: Twenty-four patients (29 eyes) were included. Aqueous humor samples were collected from 20 eyes, and PCR confirmed that 85% were VZV infection, 10% CMV, and 5% HSV. All patients were treated with intravenous antiviral agents. Intravitreal ganciclovir and oral corticosteroids were given according to the patients' wishes. A comparison of visual acuity at the time of first identification of inactive ARN with that at the first visit revealed that 55.2% eyes improved and 44.8% not improved. Logistic regression analysis revealed that risk factors for failure to improve vision included retinal detachment (odds ratio [OR],33.75; 95%CI,3.245-351.067; P=0.003), necrotizing retinitis involving the posterior pole (odds ratio [OR],8.167; 95%CI ,1.297-51.403, P=0.025), and arteritis involving the large retinal arteries (odds ratio [OR],9.167; 95% CI, 1.493-56.297; P=0.017). The VZV viral load in the aqueous humor at initial presentation was significantly associated with visual prognosis (r=0.688, P=0.013), retinal detachment (τ=0.597, P=0.021) and the extent of retinal necrosis (τ=0.57, P=0.027. The neutrophil to lymphocyte ratio (NLR) of VZV-infected patients at first presentation was significantly correlated with the visual prognosis (r=0.616, P=0.033) and retinal detachment (τ=0.728, P=0.004).

Conclusions: High NLR and viral DNA load in the aqueous humor at the initial presentation, as well as subsequent retinal detachment, necrotizing retinitis involving the posterior pole, and arteritis involving the large retinal arteries were risk factors for poor visual prognosis in VZV-infected patients.

Abstract No.: 200136
Recurrent Delayed Fulminant Endophthalmitis with Occlusive Vasculitis Post Vitrectomy

*First Author: Bhuvan **CHANANA***

Purpose: To describe a case of recurrent fulminant endophthalmitis accompanied by occlusive vasculitis, 5 months after primary vitrectomy for post-cataract endophthalmitis.

Methods: A 60-year old male patient presented with loss of vision 7 days after uneventful phacoemulsification in his right

eye. The best corrected visual acuity (BCVA) was hand movements. On examination the intra-ocular pressure was 17mmHg. Anterior segment examination showed a hypopyon with severe inflammation. Ultrasonography revealed exudates in vitreous. Based on these findings, a diagnosis of Endophthalmitis was made and urgent vitrectomy, with intravitreal antibiotics was performed. The vitreous aspirate was sent for culture. The patient received topical and systemic post-op antibiotics and steriods. His BCVA improved to 6/9 OD.,,Five months post vitrectomy, the patient presented again with sudden painful deterioration of vision to hand movements. Slit lamp examination showed a hypopyon and ultrasonography revealed vitreous cavity full of exudates. The patient underwent surgical intervention immediately.

Results: The vitreous aspirate from primary vitrectomy for endophthalmitis showed infective organism as Staphylococcus Aureus. The second surgery intra-operatively showed severe occlusive vasculitis with severe involvement of the posterior pole. Silicone oil was injected and the intra-ocular lens was planned not to be removed.,,Two weeks post-operation, the patient recovered significantly with reperfusion of retinal vessels, and resolution of inflammation. The BCVA improved to 6/12 OD.

Conclusions: The present case is very unique as there was recurrent endophthalmitis after 5 months of complete resolution. The recurrent episode was more aggressive and accompanied by occlusive vasculitis. The patient however recovered completely again with good visual outcomes.

Abstract No.: 200402
Retinal Detachment After Acute Retinal Necrosis: A Retrospective Analysis of Hospitalized Patients

*First Author: Sukhoon **JUNG***
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Purpose: To review hospitalized patients with Acute Retinal Necrosis (ARN) and investigate factors associated with subsequent retinal detachment (RD).

Methods: This study included 40 patients (42 eyes), divided into non-RD (23 eyes) and RD (19 eyes) groups. Patient characteristics, treatment details, and outcomes were assessed, including demographic factors, ocular findings, treatment history, and visual outcomes.

Results: The RD group had higher diabetes prevalence and worse initial and final visual acuity than the non-RD group (p=0.035, p=0.002, p=0.000). The extent of retinal involvement was greater in the RD group (p=0.000). The total steroid dose up to RD occurrence was significantly lower in the RD group (p=0.023). Greater retinal involvement increased the risk of RD (OR=1.35, p=0.048). In the RD group, the time from initial symptoms to RD occurrence positively correlated with the duration of oral antivirals, the number of intravitreal antiviral injections, and the duration of oral steroids and immunosuppressants (p=0.000, p=0.023, p=0.018, p=0.001). The use of oral antivirals, steroids, and immunosuppressants was associated with longer median survival times compared to non-use (p=0.000, p=0.000, p=0.048). The group receiving 9-11 intravitreal antiviral injections had a longer median survival time than the 0-4 and 5-8 injection groups (p=0.009, p=0.032).

Conclusions: In ARN, reduced steroid use due to diabetes may be associated with RD occurrence through inflammatory changes. The greater the extent of retinal lesions, the higher the risk of RD. Oral antivirals, intravitreal antiviral injections, oral steroids, and oral immunosuppressants may be effective in delaying RD occurrence.

Abstract No.: 201150
STAYING POSITIVE: Acute Endogenous Syphilitic Panophthalmitis in a 32-Year-Old Male

*First Author: Sharimayne Edelweiss **NATIVIDAD***
*Co-Author(s): Redentor **GONZALES***

Purpose: We report a case of acute endogenous syphilitic panophthalmitis

Methods: Setting/Venue: Southern Philippines Medical Center – a tertiary government hospital in Davao Region, Philippines,,Methodology: Case report

Results: A 35 year-old male presented at the emergency department with severe right eye pain associated with vision loss and inability to open eyes. Medical history indicated a positive HIV status on antiretroviral therapy. Ophthalmologic examination of the right eye revealed orbital cellulitis causing mechanical ptosis, restricted extraocular movement, exophthalmos, with marked chemosis, and anterior chamber cells and flare. B-scan ultrasonography revealed dense membranous vitreous with thickened choroid. Orbital computed tomography of the right globe demonstrated proptosis with thickened sclera and lacrimal glands associated with intraorbital fat stranding. The patient's history and presentation were directed towards establishing bacterial etiologies from an endogenous source. Syphilis testing was positive. Patient was managed as acute endogenous syphilitic panophthalmitis. The patient showed marked improvement with intravenous penicillin therapy.

Conclusions: Given the patient's presentation and risk factors, treatment was initially directed towards establishing endogenous bacterial etiology. Ocular syphilis has a varied presentation and is considered a great mimicker. Early recognition and prompt intervention are cornerstone in preventing the devastating visual sequelae from syphilitic infection.

Abstract No.: 201067
Similar Field Defect Yet Poles Apart Pathology – A Story – What's Behind the Disc Oedema

First Author: Dhruv ***GOYAL***
Co-Author(s): Marina ***GER****, Megha* ***GULATI***

Purpose: To study the Clinical features and diagnostic differences in patients presenting with complains of unilateral diminution of vision, disc oedema and altitudnal field defect on HVF but different causes – one being NAION with secondary BRAO and other being Optic disc Toxoplasma retinochoroiditis with BRAO.

Methods: Case 1,A 49-year-old male presented with reduced vision in his LE since 1 week. He presented LE findings of blurring of disc margins with peripapillary haemorrhages and retinal whitening. On OCT prominent middle limiting membrane, hyperreflective dots in the vitreous cavity with full-thickness retinal hyperreflectivity and back shadowing giving an impression of full thicknesses retinitis and branch retinal artery occlusion, diagnosis being toxoplasma retinochoroiditis, starting on broad spectrum antibiotics which resolved on the 1-month follow-up.,Case 2,A 57-year-old male presented with reduced vision in his RE since one week, presented with RE disc oedema , peri papillary haemorrhages, dilated and tortuous veins in the superior arcade, and retinal whitening in the same area. Given the suspicion of disc at risk in fellow eye, it was most probably a case of NAION with secondary vascular occlusion and was confirmed on OCT and HVF. The patient was given intravitreal anti-VEGF injection and control of systemic parameters, such as blood pressure and cholesterol levels.

Results: Both patients of disc oedema , secondary vascular occlusion treated for different cause resolved completely.

Conclusions: Various Signs of OCT and clinical examination can help to diagnose case of Optic disc toxoplasmosis and differentiate from other causes of disc oedema.

Abstract No.: 200221
Subconjunctival Dexamethasone Implant (Ozurdex®) in the Management of Refractory Non-Infectious Anterior Scleritis

First Author: Battuya ***GANBOLD***
Co-Author(s): Jia-horung ***HUNG****, Ba Trung* ***NGUYEN****, Quan Dong* ***NGUYEN****, Christopher* ***OR****, Zheng Xian* ***THNG***

Purpose: To report a case series of non-infectious anterior scleritis resistant to multiple

lines of conventional therapies which were eventually successfully treated with off-label subconjunctival dexamethasone implant (Ozurdex®) injection (SDI).

Methods: A retrospective, interventional case series of 4 patients (6 eyes).

Results: In the index case series, the patients had a mean age of 57.2 years (range 36 to 82 years, SD 19.2 years) with 50% being female. Two patients had underlying autoimmune diseases: rheumatoid arthritis (n=1), and granulomatosis with polyangiitis (GPA) (n=1). The other patients were diagnosed with idiopathic anterior scleritis after extensive systemic investigations (n=2). The mean follow-up duration and the mean number of concomitant therapies prior to SDI was 27 (SD 17.7) months and 2 (SD 0.81), respectively. In all patients, symptom resolution and significant improvement in disease activity were achieved after SDI, persisting for an extended period following the resorption of the implant. No scleral melt, infection or ocular hypertension were noted following SDI.

Conclusions: SDI may be a safe and effective therapeutic option for resistant non-infectious anterior scleritis.

Abstract No.: 200968
The Challenges in Managing Ocular Tuberculosis Presenting with Recurrent Vitreous Hemorrhage: A Case Report

*First Author: Sindy **SEMBIRING***
*Co-Author(s): Christina **BANGUN**, Andrea **SILITONGA***

Purpose: This report aims to highlight the difficulties faced in managing ocular tuberculosis that presents with recurrent vitreous hemorrhage.

Methods: This is a case report involving a 31-year-old female who experienced a sudden decrease in vision in her left eye (LE) two weeks prior to examination. At the time of examination, the visual acuity of the LE was hand movement, and there was observed vitreous hemorrhage in the LE. Fibrovascular membrane was found in the optic disc of the LE, as well as sclerosed vessels in the periphery suggesting an ischemic retina in both eyes. The patient underwent further investigation to identify the underlying cause, indicative of pulmonary tuberculosis. Despite receiving treatment in the form of oral anti-tuberculosis medication and both oral and topical steroids, the vitreous hemorrhage recurred, and the patient developed a subcapsular posterior cataract. Subsequently, the patient underwent concurrent vitrectomy and phacoemulsification.

Results: After two months, the patient's visual acuity improved to 20/40, notwithstanding the presence of cystoid macular edema revealed by OCT macula.

Conclusions: The management of ocular tuberculosis presents formidable challenges. However, the decision to pursue concurrent vitrectomy and phacoemulsification decisively led to a positive visual outcome in this case.

Abstract No.: 200625
The Seriousness of Bacillus Cereus

*First Author: Nurul Ashikin **ABDULLAH***

Purpose: To report a case of endogenous endophthalmitis with concurrent dengue infection

Methods: A case report

Results: A 24-year-old Malay lady who was initially treated as left eye dengue occlusive vasculitis presented with left eye sudden onset blurred vision for one day on day 7 of admission for dengue fever. On initial examination, right eye vision was 6/9 and left eye was 6/24. Left eye anterior examination showed severe anterior chamber inflammation with hypopyon and posterior segment revealed retinal vasculitic changes with pre-retinal hemorrhages while right eye was normal. The diagnosis was then revised to left eye endogenous endophthalmitis in view of dropped in vision and worsening of inflammation after patient was started with intensive topical steroids for 24 hours. Left eye vitreous sample was taken and patient was empirically started with intravitreal Vancomycin/ Ceftazidime injection

with systemic antibiotics. The final culture grew Bacillus Cereus which sensitive to Vancomycin. She responded well with 4 times intravitreal Vancomycin every 48 to 72 hours.

Conclusions: Rapid replication of Bacillus Cereus that contribute the cause of endophthalmitis reaches the top of blinding ocular disease. Thus, high index suspicion of ocular infection should be the most top of differential diagnosis of pan-uveitis with recent history of systemic illness.

Abstract No.: 200888

The Sight Imperilled: Addressing Mumps-Associated Uveitis

*First Author: Radhika **SRIRAM***
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Purpose: Mumps virus is known to cause varied systemic manifestations including fever, parotitis, orchitis etc. The ophthalmic manifestation of this virus is relatively rare and includes keratitis, endothelitiis, kerato-uveitis, neuroretinitis ,retinitis. Via this case series, we would like to highlight the diagnostic and therapeutic challenges associated with this entity and its importance in public health.

Methods: Retrospective observational case series

Results: This case series of 3 patients of mumps associated uveitis, two young Indian male aged 8(patient 1) and 16 years (patient 2) respectively developed vision threatening bilateral retinitis which had a cerebriform pattern with perivascular clearing present in all quadrants. Optical coherence tomography showed outer retinitis in both the eyes (OU). Tear cytokine profiling done for patient 1. The patients were treated with systemic antiviral, systemic steroid therapy. These patients were also subjected to hyperbaric oxygen therapy for a period of 40 days. The visual acuity in patient one improved to CF@20 cm in one eye and 6/12 in the other eye from positive to perception of light in OU pre-treatment. In patient 2 the visual acuity improved to CF @40 cm in both eyes from being positive to perception of light in OU pretreatment. The third patient had mumps associated unilateral hypertensive anterior uveitis with visual acuity of 6/36 at presentation improving to 6/9. All the patients had a positive serum mumps IgM and IgG levels.

Conclusions: Indian national immunization schedule does not include mumps vaccine, highlighting the public health importance of its inclusion in its vaccination program.

Abstract No.: 200448

Tocilizumab for Cystoid Macular Edema Secondary to Immune Recovery Uveitis in a Patient with Contraindications to Long-Term Systemic Corticosteroid

*First Author: Ba Trung **NGUYEN***
*Co-Author(s): Jia-horung **HUNG**, Quan **NGUYEN**, Zheng Xian **THNG**, Woong-sun **YOO***

Purpose: To report a case of cystoid macular edema (CME) secondary to immune recovery uveitis (IRU) in a patient with previous history of cytomegalovirus (CMV) retinitis and leukemia, which was successfully treated with tocilizumab, an interleukin-6 (IL-6) receptor antagonist

Methods: The clinical records of the case were reviewed, focusing on demographics, image findings, and clinical course

Results: A 17-year-old female with a past medical history of T-cell acute lymphoblastic leukemia undergoing chemotherapy for two years presented with active CMV retinitis. She was successfully treated with intravitreal foscarnet injections and systemic ganciclovir. After five months of systemic valganciclovir maintenance and following cessation of chemotherapy, the patient developed bilateral CME and vasculitis, and was diagnosed with IRU. CME management was challenging due to a history of bilateral avascular necrosis of the femoral head resulting from prolonged systemic corticosteroid use. Two cycles of monthly tocilizumab infusions were administered at the dosage of 8mg/kg. Subsequently, the CME and retinal vasculitis resolved significantly without any evidence of inflammation in the anterior chamber and vitreous

Conclusions: The index case report demonstrated the safety and efficacy of the IL-6 receptor antagonist tocilizumab in treating CME associated with IRU in a non-HIV CMV retinitis patient

Abstract No.: 201048

Triple Trouble: A Case of Bilateral Neuroretinitis with Toxoplasmosis, Cytomegalovirus, and Hepatitis B

First Author: Nur Hafizah ***MAFFAR***
Co-Author(s): Yaakub ***AZHANY****, Shahidatul Adha* ***MOHAMAD***

Purpose: To report a case of bilateral neuroretinitis associated with acquired toxoplasmosis, cytomegalovirus and hepatitis B

Methods: A case report

Results: A 49-year-old woman with no prior comorbidities presented with a one-week history of painless, central blurry vision in her left eye. She had no focal neurological symptoms, ophthalmodynia, pain on eye movement, or other systemic issues. She had not engaged in outdoor activities or had contact with domestic animals, particularly cats.,,Ocular examination revealed 20/20 vision in the right eye and 20/200 in the left, with a positive relative afferent pupillary defect and diminished optic nerve function in the left eye. Both eyes had normal anterior segments and IOP. The right eye showed temporal optic disc swelling with arteriolitis, while the left eye eye exhibited 360° optic disc swelling, a partial macular star, and arteriolitis. Diagnostic tests revealed high IgG-toxoplasma antibodies, reactive but low IgG-cytomegalovirus antibodies and positive hepatitis B serology, while other results were normal. Initial treatment with oral Azithromycin and a tapering dose of prednisolone was started, but the response was poor. The patient was then referred to an infectious disease specialist, who recommended treating her as immunocompromised due to hepatitis B, leading to the addition of oral Acyclovir. Over two months, the patient experienced improvement in visual acuity, with resolution of optic disc swelling and macular exudates.

Conclusions: This case highlights the need for a thorough approach, even in seemingly straightforward cases. It underscores the importance of tailoring treatment strategies to individual patient contexts.

Abstract No.: 200936

Uncommon Incidence of Endophthalmitis Following Pars Plana Vitrectomy Surgery: A Case Report

First Author: Hilda ***ERIAWAN***

Purpose: To report an unusual case, risk factor and management of endophthalmitis post pars plana vitrectomy (PPV).

Methods: Diagnosis was based on history taking ophthalmology examination and included ocular finding on slit lamp biomicroscopy, ultrasonography (USG) and Microbiology culture.

Results: The reported rates of post-PPV endophthalmitis have been decreasing over the last decade ranging between 0.03% and 0.14% for 20G PPV. Factors increasing the incidence of post-PPV endophthalmitis include inadequate wound closure, post operative hypotony wherein microorganisms can migrate from the exterior into the vitreous cavity along a strand of vitreous prolapsing out of the unsutured sclerotomy wound. A 65 -year-old woman presented with reduced visual acuity and pain on left eye three days post pars plana vitrectomy because polypoidal choroidal vasculopathy (PCV). Biomicroscopy revealed eyelid oedema and spasm, conjunctival and peri corneal injection, hypopyon on 1/3 COA, cornea oedema and significant flare and cells. USG showed vitritis indicating a strong suspicion of endophthalmitis. The vitreous tap was negative on Gram stain and culture, likely due to prior antibiotics use. Therapeutics involved intravitreal broad-spectrum antibiotics, specifically vancomycin (1 mg) and ceftazidime (2,25 mg) which are widely recommended in clinical practice. Following the intravitreal antibiotic injection, the patient's condition improved from light perception to hand motion after several check up.

Conclusions: Endophthalmitis following PPV is a rare but potentially serious event. It requires a comprehensive approach, including appropriate prevention and prophylaxis, rapid recognition, and aggressive management

Abstract No.: 200079
Unilateral Choroidal Granuloma: A Masquerade

First Author: Bhuvan ***CHANANA***

Purpose: To report a rare case of unilateral choroidal granuloma.

Methods: A 29-year-old African origin female presented to us with complaints of diminution of vision in right eye for 3 weeks. Her best corrected visual acuity (BCVA) was finger counting in the right eye and 20/20 in left eye. Her intraocular pressures were 18mmHg in both eyes. Anterior segment examination was normal in both eyes. Fundus examination showed vitreous inflammation with inferior exudative retinal detachment in the right eye. A yellowish-orange choroidal mass approximately 3-Disc Area in size, with surrounding exudative detachment, was observed below the infratemporal arcade in the right eye.

Results: Fundus fluorescein angiography and Indocyanine green angiography showed diffuse early hyperfluoresence which gradually increased in intensity suggesting possibility of a choroidal granuloma. Ultrasonography of the mass revealed a homogenous hyperechoic mass with absence of underlying shadowing. Based on these clinical features a differential diagnosis of Tubercular granuloma or Sarcoidosis was made.,Blood investigation were normal. However, Chest X ray revealed a homogenous opacity with pleural effusion and underlying collapse of the middle and lower lobe of right lung. Further relevant investigations like HRCT chest, MRI brain and Bronchial lavage were performed. The final diagnosis turned out to be moderately differentiated stage IV pulmonary adenocarcinoma with metastasis to brain, right eye and multiple organs.

Conclusions: Choroidal metastasis can be a rare presenting feature of lung adenocarcinoma. Atypical unilateral presentation in young female with secondaries from lung is not reported till now in world literature, which makes this case report unique.

Abstract No.: 200597
Visual Impairment After Leprosy

First Author: Vania ***PINONTOAN***

Purpose: To describe a visual acuity deterioration after the complete treatment of leprosy.

Methods: A case report.

Results: As a 41-year-old female with low vision on both eyes, the patient had a history of a complete treatment of leprosy. The patient had blurred vision for three months after having completed the leprosy treatment. We found her best corrected visual acuity as 20/200 in the right eye and 20/70 in the left eye. Tonometry showed intraocular pressures of 20 mmHg and 24 mmHg in her right and left eyes, respectively. Signs of cataract were shown during the examination. Fundus photograph showed vitreous opacity with fibrosis tissue in the right eye. The patient received a multi-drug treatment consisting of rifampicin, clofazimine and dapsone with a high dose of methylprenisolone for the leprosy treatment. Optical coherence tomography examination showed signs of epiretinal membrane in the right eye.

Conclusions: The case report presented a characteristic of uveitis involving the posterior segment of the eye, cataract and signs of glaucoma due to side effects of the treatment. Although the patient with leprosy had a good prognosis after having completed the treatment, in this case there was a complication of leprosy with permanent visual impairment.

Abstract No.: 200940
XIAP Deficiency: A Rare and Significant Etiology of Pediatric Uveitis

First Author: Siti ***HAMDAN***
Co-Author(s): Hanizasurana ***HASHIM***

Purpose: The aim of this case report is to share with the medical community of a rare case of

child with mix parentage, presented with typical features of Chron's disease with extraintestinal manifestation that poorly response to medical treatment and finally diagnose to has XIAP deficiency.

Methods: Case report

Results: An 8-year-old boy presented with sclerouveitis, optic neuropathy and multiple episodes of recurrent anterior uveitis. He also exhibited systemic features including joint pain, episodes of bloody diarrhoea and multiple perianal fissure resembling Chron's disease with extraintestinal manifestation. His ocular condition further complicated with development of right eye cataract and both eye secondary high intraocular pressure secondary to steroid responder. A suboptimal response towards medical treatment prompted consideration after his brother's diagnosis with Chron's disease highlighted the necessity for genetic screening, ultimately revealing x-linked inhibitor of apoptosis deficiency.

Conclusions: Recognizing XIAP deficiency in pediatric case of recurrent uveitis with refractory inflammatory bowel disease can facilitate prompt, targeted therapy and help mitigate serious morbidity and mortality risks.

Ocular Imaging

Abstract No.: 200985
Application of Ultrawide Field (UWF) Swept Source Optical Coherence Tomography/ Angiography (SS-OCT/OCTA) in Real-World Clinical Practice

*First Author: Wenting **ZHOU***
*Co-Author(s): Min **WANG***

Purpose: To demonstrate the advantages of using Ultrawide Field (UWF) Swept Source Optical Coherence Tomography/Angiography (SS-OCT/OCTA) in evaluating retinal disorders in clinical settings.

Methods: Patients with various retinal diseases participated in this study. They were scanned using an investigational SS-OCT/OCTA with a standardised UWF imaging protocol (26 mm x 21 mm) with or without montage. The images were assessed for the field-of-view (FOV) impact on visualizing clinical features across different conditions. Diabetic retinopathy (DR) datasets were also analysed using a self-developed machine deep learning algorithm to identify and quantify OCT vascular parameters such as nonperfusion areas (NPAs) and neovascularisations (NVs).

Results: UWF SS-OCTA provided a quick, non-invasive and repeatable method to accurately detect peripheral vascular abnormalities, especially NPAs, collaterals and NVs. Our machine learning algorithm enhanced the assessment of peripheral vascular perfusion in DR by automatically identifying and quantifying NPAs and NVs, crucial for staging, prognostication and treatment guidance. Additionally, UWF-OCT served as a valuable tool for detecting and evaluating vitreoretinal traction, posterior vitreous detachment and peripheral retinal degeneration due to its larger FOV, aiding therapeutic decisions concerning a patient's eligibility for surgical procedures. The ultra-depth feature in UWF-OCT was essential for characterizing high myopia features, including posterior staphylomas, dome-shaped maculopathy and retinoschisis.

Conclusions: UWF OCT/OCTA provides substantial information on retinal disorders involving the peripheral retina. UWF OCTA is progressing towards becoming a rapid and repeatable alternative to FFA. The reliability and widespread adoption of UWF-OCT/OCTA are closely linked to technological advancements that continually improve scanning speeds, enhance resolution and expand fields of view.

Abstract No.: 200412
Case Report: Multimodal Imaging of a Bilateral Choroidal Osteoma in an Adult Filipino Female

*First Author: Jordan **PINZON***

Purpose: To present a case of bilateral choroidal osteoma, bringing into attention its presentation using various imaging modalities.

Methods: This is a case of a 26-year-old Filipino female with progressive left-sided blurring of vision since childhood. Initially managed by an ophthalmologist, she was referred for subspecialty care. Upon examination, right-sided corrected visual acuity was 20/30 and counting fingers of the nasal field on the left. Abnormal retinal findings prompted ordering of diagnostic imaging studies.

Results: Right-sided fundus imaging revealed a juxtapapillary subretinal yellowish-orange lesion with pigment clumping extending to the midperiphery and proximal temporal arcades. Fundus autofluorescence showed concentric layering of central hypoautofluoresence and peripheral hyperautofluorescence. A previously done fluorescein angiogram (FA) showed exudative changes, confirmed by subretinal fluid collection on spectral domain optical coherence tomography (SD-OCT).,Left-sided fundus imaging showed a similar juxtapapillary lesion extending to the midperiphery with macular changes, which on FA showed transmitted fluorescence of macular episcleral circulation. On SD-OCT, there is RPE thinning overlying an excavated nasal macula with obliteration of the choroidal layers. Subretinal amorphous hyperreflectivity overlying the scleral bed is seen from the fovea extending temporally where there is sharp steepening of the retinal configuration with retinoschitic changes. Bilateral B-scan ultrasonography showed dense material with high internal reflectivity with posterior shadowing forming a pseudo-optic nerve.

Conclusions: Choroidal osteomas are rare, benign intraocular ossifications seen mostly in healthy young females. The etiology is unknown but natural progression may lead to expansion, choroidal neovascular, and decalcification with RPE thinning. These changes are captured and documented using various imaging modalities.

Abstract No.: 201106

Correlation between the intensity of the blood flow signal in the polyp and the disease activity in polypoidal choroidal vasculopathy detected by optical coherence tomography angiography

*First Author: Yi-chieh **LEE***

Purpose: To investigate the association between blood flow signals of polyps in optical coherence tomography angiography (OCTA) and the disease activity of polypoidal choroidal vasculopathy (PCV).

Methods: Patients diagnosed with PCV who were followed up for more than six months at National Taiwan University Hospital and Hsin-Chu branch of National Taiwan University Hospital from January 2017 to December 2022 were enrolled. The patients received OCTA, ICGA, and FAG, followed by PDT with anti-VEGF combination therapy. We identified the blood flow signal of the polyp in OCTA and quantified its intensity by using free software, ImageJ. The correlation between the intensity of the blood flow signal and the disease activity of PCV was analyzed using R.

Results: A total of 75 eyes from 75 patients were reviewed. A similar trend was observed between the low-intensity (≤170 pixels) and high-intensity (>170 pixels) groups in terms of patient age, subfoveal choroid thickness (SFCT) under OCTA, and visual acuity. When correlating the disease activity of PCV, a positive correlation was found between the intensity of the flow signal and the presence of intraretinal cysts (p=0.035) and subretinal fluid (p=0.192) in OCT.

Conclusions: OCTA is a safe, time-efficient, and non-invasive diagnostic tool for PCV lesions. The positive correlation between the intensity of the blood flow signal in polyps and the disease activity of PCV may aid in better evaluation or prediction of visual prognosis.

Abstract No.: 200879

Distinguishing Characteristics of Acute Vogt-Koyanagi-Harada Disease from Acute Central Serous Chorioretinopathy Using the Zeiss Cirrus™ HD-Optical Coherence Tomography

*First Author: Ronnie **MANAYSAY***

Purpose: To determine the distinctive characteristics and difference between acute VKH and acute CSCR using the enhanced depth imaging technique of the Zeiss Cirrus™ HD-optical coherence tomography.

Methods: Macular OCT scans of patients diagnosed and confirmed to have acute VKH and acute CSCR were reviewed. Characteristics of their imaging scans were evaluated specifically the sub-foveal choroidal thickness, central retinal thickness, presence of retinal pigment epithelium detachment, presence of retinal pigment surface irregularities, and presence of sub-retinal septa.

Results: Twenty eyes from 11 patients with acute VKH disease, and 31 eyes from 28 patients with acute CSCR were included. Eyes with acute CSCR showed thicker choroids compared to acute VKH on either left and right eye (p=0.0087, p=0.0065 respectively). Pigment epithelial detachments were likewise seen in the CSCR (58.06%) group than in the VKH group (0%). Presence of RPE surface irregularity (81.82%) and sub-retinal septa (81.82%) were seen among the VKH group while none among the CSCR group presented with such.

Conclusions: Presence of thicker choroid and PED's points out to the diagnosis of acute CSCR while the presence of RPE surface irregularity and sub-retinal septa suggests a diagnosis of an acute VKH.

Abstract No.: 200350

Dose Optimization for Safe and Efficient Fluorescein Angiography: A Randomized Clinical Trial

*First Author: Seok Hyeon **SONG***
*Co-Author(s): Kwangsic **JOO**, Min Seok **KIM**, Se Joon **WOO***

Purpose: To compare the image quality and safety of ultra-widefield fluorescein angiography (UWFA) using 3 ml (300 mg) versus 1 ml (100 mg) of 10% fluorescein.

Methods: This prospective, randomized clinical trial involved 144 patients requiring UWFA for various retinal diseases. Patients were randomized 1:1 to receive either 300 mg or 100 mg of fluorescein. Images were qualitatively graded by three retinal specialists and quantitatively analyzed. The primary outcome measure was the assessment of image quality (scored in a five-point scale). Quantitative sub-analysis among normal UWFA images through vascular pixel intensity in posterior and mid-peripheral zone was also performed.

Results: A total of 67 participants in each group were included in the analysis. The mean difference of image quality between two dose groups was within the predefined non-inferiority margin of 0.5 (0.005; 95% confidence interval, -0.145 to 0.154). The vascular pixel intensity showed no significant differences in both posterior and mid-peripheral zone (P = 0.988 and 0.726, respectively). In the safety analysis, significantly fewer adverse events were observed with the lower dose (300 mg, 10 of 67 [14.9%] vs. 100 mg, 3 of 67 [4.5%], P = 0.041).

Conclusions: We demonstrated the non-inferiority of image quality of low-dose fluorescein (100 mg) compared to a 300 mg dose with a reduction in the rate of adverse events associated with fluorescein angiography.

Abstract No.: 201031

Evaluation of Inflammatory Deep Choroidal Mass Associated with Exudative Retinal Detachment with Multi-Modal Imaging – A Case Report

*First Author: Sowkath **ALI***
*Co-Author(s): Hnin Hnin **OO**, Zheng Xian **THNG**, Wenting **ZHOU***

Purpose: To describe a case of deep inflammatory choroidal mass associated with exudative retinal detachment and its spontaneous resolution using multi-modal imaging.

Methods: Observational case report.

Results: A 42-years-old Chinese male, with history of Diabetes mellitus, hypertension, hyperlipidaemia presented with acute visual loss in left eye for 2 days. On examination his visual acuity was RE 6/6 LE 6/15 respectively. An elevated yellowish choroidal lesion with overlying exudative retinal detachment extended inferiorly in the macula was noted in right eye. B scan ultrasonography showed dome shaped elevated lesion with high internal reflectivity with evidence of inferior retinal detachment without any T-sign. Fundus fluorescein angiogram showed multiple pinpoint areas of leakage and pooling of posterior pole in left eye. ICG showed dilated choroidal vessels with no washout. Ultrawide field (UWF) Swept source OCT angiography (SS-OCTA) showed the lesion in entirety and found to be avascular, located in deep choroidal level. MRI orbit showed mild irregular plaque-like thickening and enhancement along the posterior aspect of uvea and on the temporal side of optic disc, likely choroid with scleral involvement. A provisional diagnosis of exudative retinal detachment secondary to suspected posterior scleritis with ill-defined inflammatory choroidal mass was made. His systemic workup was normal. He was started on tapering dose of oral steroids. On follow-up the choroidal mass lesion was found to be fully resolving on UWF SS-OCTA with corresponding improvement in BCVA.

Conclusions: UWF SS-OCT/OCTA emerges as a novel, fast, safe, and easily repeatable imaging modality, providing valuable insights into large and deep choroidal masses.

Abstract No.: 201004

Evaluation of Trabeculectomy Bleb Characteristics in Relation to Bleb Success using Anterior Segment Optical Coherence Tomography – A Systematic Review

*First Author: Jackie **SIM***
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Purpose: Trabeculectomy surgery has been widely performed in the surgical treatment of glaucoma. Whilst anterior segment optical coherence tomography (ASOCT) has been increasingly utilized to study the structure and characteristics of filtration blebs, there has been no conclusive synthesis relating bleb characteristics on ASOCT with surgical outcomes. This is a systematic review and random effects meta-analysis to evaluate this relationship.

Methods: We searched Medline, Embase, Cochrane, and Scopus for studies from the past 20 years from 3rd March 2004 until 3rd March 2024 on "glaucoma", "trabeculectomy", and "ASOCT". We collected data on patient characteristics, each study's definition of bleb success, and clinical outcomes focusing on bleb characteristics. We performed a literature review on studies which did not provide quantitative data that could be used for meta-analysis.

Results: We included 12 studies, with a pooled total of 627 eyes from 611 patients, for our meta-analysis. Successful blebs had significantly higher mean bleb height (SMD 0.28mm, 95%-CI: 0.08-0.49mm, p=0.013), greater maximum bleb wall thickness (SMD 0.19mm, 95%-CI: 0.08-0.30mm, p=0.004), and decreased reflectivity (48.9%, 95%-CI: 19.4-78.3%, p=0.010) compared to failed blebs. No significant differences were found in bleb fluid cavity height and bleb area. Qualitative analysis revealed that successful blebs had more microcysts, larger filtration opening widths,

a more extensive hyporeflective area, and multiform rather than uniform bleb walls. These characteristics may reflect weaker scarring tendency and more effective bleb filtration.

Conclusions: The ASOCT is useful in demonstrating bleb characteristics which may be associated with surgical outcomes following trabeculectomy surgery.

Abstract No.: 200986
Identification of Perfluorocarbon Using Hyperspectral Image

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Purpose: In vitrectomy, substances such as balanced saline solution (BSS), perfluorocarbon (PFC), and silicone oil (SO) are colorless and transparent, and they are distinguished by differences in refractive index and specific gravity. Hyperspectral image (HSI) extends the color information usually captured in Red, Blue, and Green to cover multiple wavelengths. To investigate the potential of HSI in identifying these substances.

Methods: A hyperspectral camera (NH-8, Eva Japan) with a wavelength resolution of 5nm, covering the range from 380nm to 1000nm, was used for HSI acquisition. A halogen light source was used. The BSS, PFC, and SO were placed in petri dishes, and the transmitted light was measured to determine the spectral characteristics. The sclera of an enucleated porcine eye was cut at the equator and the eye was filled with a BSS. Subsequently, SO and PFC were injected onto the retina, and PFC was also injected into the subretinal space. The resulting HSI were color-coded using indicators of spectral differences. The concordance between the PFC and SO on the retina in the RGB images and HSI was measured using the Dice coefficient.

Results: The BSS showed an absorption peak at 960nm, PFC exhibited uniform absorption, and SO had an absorption peak at 910nm. In the porcine eye experiment, the Dice coefficient for PFC on the retina was 0.87±0.05. SO could not be distinguished. Subretinal PFC could not be identified in RGB images but was identifiable in HSI.

Conclusions: HSI was able to identify PFC on and under the retina.

Abstract No.: 200241
Macular Microvasculature Changes in Diabetic Retinopathy Using Optical Coherence Tomography Angiography: Their Relationship with Disease Severity and Low Luminance Deficit

*First Author: Diego Louise **RAMOS***
*Co-Author(s): Neil Gregory **ONGHANSENG**, Joel **PEREZ**, Sherman **VALERO***

Purpose: Visual impairment in diabetic retinopathy (DR) is typically undetectable by conventional methods until later stages. Low luminance deficit (LLD) has been correlated with increasing DR severity, even at early stages. We aimed to determine the relationship of LLD and DR severity to macular changes seen on optical coherence tomography angiography (OCT-A).

Methods: Eyes of patients with diabetes mellitus were examined and assessed for DR. Best-corrected visual acuity was obtained. LLD was determined using a 2-log unit neutral density filter. Ultra-widefield photographs, optical coherence tomography, and OCT-A scans of the macula were obtained. Eyes with center-involved macular edema, other maculopathies, glaucoma, prior macular laser treatment, or significant media opacity were excluded. Scans were automatically processed and measured in ImageJ.

Results: Eyes with clinical DR varied significantly ($p < 0.05$) in vessel density (VD), perfusion density (PD), and skeleton vessel density (SVD) of the deep vascular complex (DVC). Changes in foveal avascular zone (FAZ) size and perimeter of the superficial vascular complex (SVC) was seen in more severe DR. LLD had negative correlation with superficial VD and PD, and positive correlation with deep FAZ acircularity in eyes without clinical DR. Correlation of LLD with DVC FAZ area, SVC

SVD, and SVD ratio was seen in more severe DR.

Conclusions: Deep overall microvascular variability is seen in eyes with DR. More severe disease tends to exhibit superficial FAZ enlargement. LLD may be an early marker for microvascular disease in subclinical DR, and an indicator for deep FAZ enlargement and superficial vessel reduction in more advanced DR.

Abstract No.: 200904

Macular Vessel Density and Its Correlation with Clinical Parameters in Diabetes Mellitus Type 2

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Purpose: This study wants to evaluate the macular vessel density with certain clinical parameters in patient with type 2 diabetes mellitus (DM) without retinopathy.

Methods: This cross-sectional study enrolled 32 participants (64 eyes) between 40 and 60 years old who meet the inclusion criteria. Group 1 includes 32 eyes of DM type 2 patient, and the rests are without DM. Ophthalmic examination was performed. Macular vessel density was measured with optical coherence tomography angiography (OCTA) with 6x6 mm scan. The macular vessel density then correlated with the patient's age, HbA1c values, duration of the disease, and contrast sensitivity. The data were analyzed using spearman's rank correlation and independent t test.

Results: Central (foveal area) macular vessel density on diabetic group (5.36±2.87) were significantly lower than healthy participant (7.82±3.05)(p=0.002). Whole macular vessel density (foveal and parafoveal area) also lower in DM group than healthy subjects (15.76±3.38 vs 17.18±1.92) but not statistically significant (p=0.070). The age of DM patients has correlation with central (r=-0.522; p=0.002) and whole macular vessel density (p=0.038). HbA1c, duration of diabetes and contrast sensitivity have no correlation with macular vessel density.

Conclusions: The macular vessel density already decreases in DM patients without retinopathy compared to healthy subject. In DM patients macular vessel density decreases with increasing age. We failed to find the correlation between macular vessel density and HbA1c value, duration of the disease, also contrast sensitivity.

Abstract No.: 200555

Multimodal Imaging of Fludarabine Ocular Toxicity: A Case Report

*First Author: Jeffrey **LO***
*Co-Author(s): Angie **FONG**, Christopher **GO***

Purpose: Ocular toxicity from systemic medications may pose a diagnostic challenge to physicians and ophthalmologists. We present an unusual case of subacute visual impairment followed by gross neurological decline 3 weeks after fludarabine treatment.

Methods: This is an observational case report of a patient treated with fludarabine. Clinical examination including dilated fundal examinations, optical coherence tomography (OCT), fundus autofluorescence (FAF), visual evoked potential (VEP), and full-field electroretinogram (ffERG) were performed. Ancillary tests including antiretinal antibodies serology and imaging with magnetic resonance imaging (MRI) were also performed.

Results: We report a 61-year-old woman with lymphoma who was treated with fludarabine prior to hematopoietic stem cell transplant. She received reduced intensity conditioning regimen of fludarabine at 30mg/m2 for 5 days and experienced progressive blurring of vision starting 15 days post transplantation and 21 days post initiation of fludarabine. An ophthalmologist was consulted for her rapid and severe visual decline.

Conclusions: Fludarabine toxicity is rare, but associated with severe, irreversible visual loss and neurological impairment. This case illustrates the importance for early detection

and suggests a role for multi-modal imaging with FAF that may potentially exhibit early cellular changes before permanent retinal degeneration.

Abstract No.: 200231
Possibilities of Differential Diagnostics of Exudative Form of Age-Related Macular Degeneration and Chronic Central Serous Chorioretinopathy

First Author: Anastasia ***KIRSON***
Co-Author(s): Natalia ***POMYTKINA***

Purpose: To evaluate the possibilities of differential diagnosis of exudative form of age-related macular degeneration (AMD) and chronic central serous chorioretinopathy (CSC) using a multimodal approach.

Methods: Clinical material was presented by 37 patients (24 men and 13 women), whose average age was 58.6 years. In all 37 patient's ophthalmoscopy revealed signs of local neuroepithelial detachment (NED) at the macular area. To determine the reason of NED, all 37 patients underwent in-depth examination of the macular zone, which included analysis of autofluorescence, optical coherence tomography (OCT), and OCT angiography (OCTA).

Results: Based on the results of multimodal diagnostic methods, in 21 cases the subretinal neovascular membrane (SNM) with exudative activity was identified, and considering age, changes in the fellow eye and characteristics of the OCT picture, they were diagnosed with "exudative AMD". They were recommended anti-VEGF therapy. The remaining 16 patients, based on their age, absence changes in the fellow eye and results of the OCT picture, they were diagnosed with "chronic CSC". They were recommended subthreshold micropulse laser exposure. In 4 cases, according to OCTA data, the SNM with exudative activity was identified, then they were diagnosed with "chronic CSC, complicated by secondary SNM". They were recommended anti-VEGF therapy.

Conclusions: 1. Multimodal diagnostic, including OCT, OCTA and analysis of autofluorescence is the most effective method for differential diagnosis of the chronic CSC and the exudative AMD and the identification of SNM. 2. The correct diagnosis is important for the timely selection of correct treatment tactics to prevent irreversible vision loss.

Abstract No.: 200688
Quantitative Analysis of Retinal Microvasculature Using Retinal Vascularity Index in a Large Population-Based Study: HELIOS (Health for Life in Singapore)

First Author: Xin ***WEI***
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Purpose: Alterations in retinal microvasculature are known to correlate with ocular and systemic diseases. This study aims to assess retinal vascularity index (RVI) as measured by retinal arteriolar and venular diameters and arteriole-venule ratio (AVR) in HELIOS study participants.

Methods: This study included 1000 consecutive HELIOS study participants with gradable ocular images (both color fundus photos and optical coherence tomography scans). All color fundus photos were obtained using standardized protocol with a field angle of 45 degrees and the image centered on the macula. RVI parameters were measured using a purpose-built software over selected points in 3 concentric zones of various distances from the optic disc (inner zone, 0-3 disc radii from disc; middle zone, 3-7 disc radii from disc; outer zone, 7-10 disc radii from disc). Only the right eyes were selected in the statistical analysis.

Results: The overall mean diameter of retinal arterioles was 64.37 µm and this is significantly narrower than that of retinal venules which was 99.81 µm ($p<0.001$, Wilcoxon Rank test). Similarly retinal arterioles in the inner, middle and outer zones were narrower than their corresponding venules (all $p<0.001$). There was narrowing of retinal arterioles and venules as they coursed from the optic disc to the retina periphery ($p<0.001$, ANOVA). The overall mean

AVR was 0.66 and it was similar in inner, middle and outer zones.

Conclusions: Retinal microvasculature could be quantitatively assessed using RVI parameters on fundus photographs. This allows for future studies evaluating the association between retinal microvascular alterations and demographic/physiological characteristics of HELIOS participants.

Abstract No.: 200468

Quantitative Assessment of Minimum Intensity-Based Changes in Fluid on En-Face OCT Imaging Following Ranibizumab Biosimilar Treatment in Neovascular AMD

*First Author: Jay **SHETH***
*Co-Author(s): Ankit **BHOPALKA***

Purpose: This prospective study aimed to evaluate the efficacy of a new regulatory approved ranibizumab biosimilar (RzB), Oceva (Sun Pharmaceuticals, India), in treating neovascular age-related macular degeneration (nAMD) using Minimum-Intensity based changes observed on en-face optical coherence tomography (OCT) (en-face MI OCT).

Methods: Fifteen eyes with treatment-naïve nAMD underwent three loading doses of RzB. Best-corrected visual acuity (BCVA) and the proportions of eyes with subretinal fluid (SRF), intraretinal fluid (IRF), and subretinal hyperreflective material (SHRM) were assessed. En-face MI OCT-based analysis was conducted to quantify changes in fluid area and perimeter.

Results: At 12 weeks, there was a statistically significant improvement in BCVA from 0.94 {≈20/174} (± 0.59) logMAR to 0.84 {≈20/138} (± 0.61) logMAR (P=0.04). En-face MI OCT revealed a significant reduction in the median area of fluid from 0.9 mm^2 (IQR 0.62–4.56) to 0.32 mm^2 (IQR 0.1–0.64) (P=0.007), and in the median perimeter of fluid from 10.95 mm (IQR 7.26–25.67) to 6.02 mm (IQR 1.76–7.93) (P=0.0005). The proportion of eyes with SRF, IRF, and SHRM decreased from baseline (86.87%, 66.67%, and 60% respectively) to 12 weeks (60%, 46.67%, and 13.33%). No adverse events were reported.

Conclusions: Treatment with ranibizumab biosimilar Oceva showed promising outcomes in improving visual parameters and reducing fluid accumulation in patients with nAMD. Minimum Intensity-based analysis provided detailed insights into fluid dynamics, demonstrating its utility in evaluating treatment responses in nAMD. This study contributes to the initial assessment of Oceva in clinical practice, highlighting its potential efficacy in managing nAMD.

Abstract No.: 200952

Short-Term Longitudinal Analysis of Non-Exudative Polypoidal Choroidal Vasculopathy (PCV) on Swept-Source Optical Coherence Tomography and Angiography (SS-OCT/OCTA)

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Purpose: To investigate the short-term changes in different parameters on SS-OCT/OCTA among patients with PCV without exudative changes.

Methods: Patients met the diagnostic criteria of PCV without exudative changes (no subretinal/intraretinal fluid or SHRM noted on OCT) were recruited. The diagnosis of PCV was based on SS-OCT/OCTA, fluorescein angiography and indocyanine green angiography (ICGA). All patients were imaged with 6x6 mm2 SS-OCTA at baseline and follow-up visits. Multiple imaging features were evaluated including the size and density of branching vascular network (BVN), the height and internal structure of polypoidal lesion, the size of pigment epithelial detachment (PED), choroidal thickness (CT) and choroidal vascular index (CVI). The clinical features of contralateral eyes were assessed to interpret the prognosis of nonexudative PCV and explore the potential biomarker related to progression of nonexudative lesion.

Results: 4 patients were included in the study. 2 of them had exudative PCV in the contralateral eye undergoing treatment. The follow-up duration is 6-9 months. None of them

developed exudation during the follow-up period. The size and density of BVN remained unchanged in all cases. Increased height of polyp was noted in 1 case without sign of exudation. The CT and CVI was similar in all visits among all cases. Visual acuity remained stable in all eyes with non-exudative PCV during the follow-up.

Conclusions: Non-exudative PCV patients can be monitored without treatment if they remain asymptomatic. The growth of polypoidal lesions and exudative changes in the contralateral eye may indicate a higher risk of exudation onset, necessitating more frequent follow-up visits.

Abstract No.: 200764
The Association Between Retinal Vascular Fractal Dimension and Cognitive Function in the Community-Dwelling Older Adults Cohort TIGER

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Purpose: The small retinal vessels reflect cerebral microcirculation and its fractal dimension (Df), representing the complexity of the retinal microcirculation. However, the connection between retinal circulation and cognitive function lacked consistent and longitudinal evidence. This study aimed to explore the association between retinal vascular complexity and cognitive impairment over time in non-demented community-dwelling older adults.

Methods: This four-year prospective cohort study (2015e2019) is part of the ongoing Taiwan Initiative for Geriatric Epidemiological Research (TIGER, 2011 to present). Of the 434 older adults (age >65) recruited, 207 participants were included for analysis. The retinal vascular Df was assessed by baseline images from fundus photography (2015-2017). Global (Montreal Cognitive Assessment-Taiwanese version, MoCA-T) and domain-specific cognition were assessed at the baseline and 2-year follow-up (2017-2019). The multivariable linear regression models and generalized linear mixed models were used to evaluate the association of Df with cognitive decline/impairment over time.

Results: Decreased left retinal vascular complexity was associated with poor attention performance (beta=0.40). As follow-up time increased, decreased vascular complexity was associated with poor memory performance (right: beta=0.25; left: beta=0.19), and decreased right vascular complexity was associated with poor attention performance (beta=0.18).

Conclusions: Low retinal vascular complexity of the right or left eye may be differentially associated with cognitive domains in community-dwelling older adults over two years. The retinal vascular Df of either eye may be served as a screening tool for detecting cognitive impairment in the preclinical phase of dementia.

Abstract No.: 200845
The Leaky Mulberry – Multimodal Imaging for Diagnostic and Monitoring Approach to a Rare case of Haemorrhagic Retinal Astrocytoma in Tuberous Sclerosis

*First Author: Mohd Hikmi **RAZALI***
*Co-Author(s): Mae-lynn **BASTION**, Jemaima **CHE HAMZAH**, Jing **LEE**, Rona Asnida **NASARUDDIN***

Purpose: To illustrate a rare case of haemorrhagic retinal astrocytoma detected with the aid of optical coherence tomography angiography (OCTA) and fundus photography

Methods: Case report

Results: A 50-year-old lady with underlying tuberous sclerosis (TS) and bilateral retinal astrocytomata, presented with acute right eye (RE) floaters for 4 days. Clinical assessment noted RE visual acuity of 6/12 with presence of vitreous haemorrhage (VH).,Twenty years ago, her left eye had been diagnosed with haemorrhagic retinal astrocytoma (HRA) with proliferative retinopathy, which had responded well to pan-retinal laser photocoagulation and vitrectomy.,Enhanced resolution imaging with

Clarus fundus photography and Cirrus OCTA was able to detect and record the presence of a fine network of vessels overlying the tiny retinal astrocytoma at the right macula region. Subsequently, serial intravitreal ranibizumab was given and succeeded in aiding the resolution of her RE VH.

Conclusions: Haemorrhagic retinal astrocytoma is a disease diagnosed mainly clinically, supported by ancillary tests. With the current advancement of technology, modalities such as Cirrus OCTA and fundus photography offer a non-invasive and reliable option to aid in diagnosis and monitoring of the disease.

Abstract No.: 200501

To characterize fundus autofluorescence (FAF) images for differentiating serpiginous choroiditis (SC) from tubercular serpiginous-like choroiditis (TB SLC).

*First Author: Ashma **KC***

Purpose: To characterize fundus autofluorescence (FAF) images for differentiating serpiginous choroiditis (SC) from tubercular serpiginous-like choroiditis (TB SLC).

Methods: The index study is a retrospective comparative analysis of FAF images of 25 consecutive patients, 11 with TB SLC and 14 with SC. The diagnosis of SC was made based on the clinical appearance and FAF findings, while TB SLC was additionally considered in patients with positive laboratory investigations and/or radiological tests for tuberculosis (TB) exposure or infection and therapeutic response to anti-tubercular therapy. The characteristic features evaluated on FAF images were centrality, multifocality, and parapapillary involvement of the lesion with or without extension.

Results: Twenty-five patients (13 males, 12 females) with a mean age of 46.2 (SD 10.08) years were enrolled in the study. SC lesions were more central (ρ=0.92) and confluent (ρ=0.774). Parapapillary involvement was found to be associated with SC (ρ=0.690), and with extensions of the lesions along the arcades or the macular region, the association increased (ρ=0.786). Multifocality with peripheral lesions was negatively associated with SC (ρ=-0.831).

Conclusions: Centrally involving lesions with confluency on FAF is strongly associated with SC. Parapapillary involvement alone is considered characteristic for SC, but the current study has demonstrated that extension of this lesion along the arcades or the macular region is even more characteristic for SC.

Abstract No.: 201014

Ultra High-Speed, High-Resolution Swept Source Optical Coherence Tomography for Retinal Blood Flow Quantification

*First Author: Sanathanan **MUTTIKULANGARA***
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Purpose: Optical coherence tomography angiography (OCTA) provides detailed visualization of retinal vasculature, aiding in early diagnosis and monitoring of retinal diseases. This study aims to extend OCTA's capabilities to include quantitative analysis of retinal microvascular structures, enhancing understanding of retinal diseases associated with blood flow changes.

Methods: A 1064-nm, 1.6-MHz A-scan rate swept source optical coherence tomography (SSOCT) system was used to image a volumetric region of the retinal vasculature, covering a 3mm x 3mm area in the macula. Variable interscan time analysis between the B-scan images was employed to assess and differentiate various degrees of retinal blood flow. The high-speed imaging capabilities of the system minimized motion artifacts and improved patient comfort.

Results: The advanced OCT system successfully captured detailed images of the retinal vasculature, revealing significant microvascular variations. Quantitative analysis demonstrated notable differences in vessel density and perfusion between inter-scan angiography images, providing insights into the pathological states of retinal blood flow. The high-resolution images facilitated precise measurements of

retinal microvasculature, essential for accurate diagnosis and monitoring.

Conclusions: The detailed visualization and quantitative assessment of retinal vasculature as potential biomarkers are crucial for the early diagnosis and management of retinal diseases involving ischemia. This technology has the potential to transform retinal disease management, offering clinicians a powerful tool for early detection and monitoring of retinal vascular health. Further clinical validation is ongoing to confirm these promising results, underscoring the technology's potential to revolutionize retinal disease diagnostics and treatment.

Abstract No.: 200907

Validation of a Portable 3D-Printed Smartphone-Based Fundus Photography (Ret-InnoQ) with Automated Software (m-RADR) for Diabetic Retinopathy Screening

*First Author: Mohammad **PRAYOGO***
*Co-Author(s): Jarir **AT THOBARI**, Muhammad Bayu **SASONGKO***

Purpose: To develop a low cost 3D-printed portable smartphone-based fundus photography (Ret-InnoQ) and its automated software for detecting DR (m-RADR), as well as to validate these both inventions.

Methods: This was a cross-sectional, observational diagnostic study preceded by research and development process. It was divided into 4 phases: (1) development and production of device, (2) technical trials of device, (3) validation study of device, and (4) development and validation study of software. Retinal photographs of 834 eyes with DR from 624 DM patients were obtained using Ret-InnoQ and Topcon TRC-50DX as gold standard. These photographs were masked and graded by two vitreoretinal specialists to be given classifications of non-VTDR and VTDR.

Results: Ret-InnoQ sensitivity in detecting referable DR (VTDR) is 92,15% and its specificity is 89,46%. m-RADR sensitivity in detecting DR from retinal photographs obtained using Ret-InnoQ is 93,05%, however the specificity was only 31,21%.

Conclusions: Ret-InnoQ is potential to be used for obtaining retinal photographs in DR screening programmes. As its supporting software, m-RADR could help in automatic detection of VTDR, albeit with much needed improvements.

Abstract No.: 200141

Visualizing Aqueous Humour Outflow Using Imaging-Based Techniques in Angle-Based Minimally Invasive Glaucoma Surgery: A Systematic Review

*First Author: Selvie **YEO***
*Co-Author(s): Bryan **ANG**, Eric **JIN***

Purpose: This systematic review explores the application of imaging-based techniques to visualize aqueous humour outflow (AHO) in angle-based minimally invasive glaucoma surgery (MIGS).

Methods: A literature search was performed on PubMed, EMBASE, and Cochrane Library from inception to 26 November 2023. Cohort, cross-sectional and observational studies reporting the use of imaging-based techniques to visualize AHO in angle-based MIGS were included.

Results: An initial 393 studies were identified, with 27 studies included in final analysis. Imaging techniques described included observation of the episcleral veins, hemoglobin venous imaging (HVI), fluorescein and indocyanine green (ICG) aqueous angiography, anterior segment optical coherence tomography angiography (AS-OCTA) and ex-vivo observation of the rate and morphology of outflow facility. Visualization of the AHO pre-operatively, intra-operatively and post-operatively may predict post-operative surgical outcomes, thus aiding in patient selection and post-operative prognostication. Pre-operative imaging may suggest targeted placement of MIGS in areas of initial angiographically-low or high areas of AHO. Visualization of AHO intra-operatively and post-operatively may facilitate more objective assessment of post-operative

success and comparison of efficacy between various angle-based MIGS.

Conclusions: Imaging-based techniques to visualize AHO may be useful in the context of angle-based MIGS. However, larger in-vivo studies are required to better evaluate the feasibility and clinical utility of these imaging techniques in MIGS.

Ocular Oncology & Pathology

Abstract No.: 201108
A Rare Case of Multiple Cavernous Hemangiomas in the Orbit

First Author: Mary Juneve ***PANGILINAN***
Co-Author(s): Marco ***TUMALAD***

Purpose: This case report details the clinical presentation, diagnosis, and surgical management of a 38-year-old female patient with a long-standing history of progressive right upper lid swelling and right eye proptosis, ultimately identified as a rare case of multiple orbital cavernous hemangiomas.

Methods: The patient reported an unusual presentation of 20-year history of gradually increasing right upper eyelid swelling, lid retraction and inferolateral proptosis of the right eye. A thorough ophthalmologic examination, MRI, and subsequent surgical intervention were conducted. An anterior orbitotomy was performed, facilitating the excision of the masses. Histopathological analysis was conducted to establish the definitive diagnosis.

Results: Surgical findings revealed two distinct cavernous hemangiomas, one bilobed mass located superomedially and another oval mass located inferoposteriorly within the orbit. Histopathological examination revealed endothelial-lined dilated vascular channels, consistent with cavernous hemangioma, showcasing an unusual occurrence of multiple lesions within a single orbit. Postoperatively, the patient exhibited significant improvement in eyelid swelling and proptosis, with no reports of recurrence during follow-up.

Conclusions: This case emphasizes the rare presentation of multiple cavernous hemangiomas within one orbit, contrasting with the more typical solitary lesions. It underscores the importance of considering a systematic approach in diagnosing cases presenting with chronic orbital swelling and proptosis. This case contributes valuable insights into the diverse presentations of orbital cavernous hemangiomas and their surgical management. It also highlights the effective therapeutic role of proper surgical excision in managing these lesions. Further studies are warranted to explore the etiology and optimal management strategies for orbital vascular tumors to enhance patient outcomes.

Abstract No.: 200107
AIP1 Modulates Pyroptosis-Induced Angiogenesis via Atypical NLRP12-ASC-Caspase-8 Inflammasome in Retinal Neovascularization

First Author: Yimeng ***SUN***
Co-Author(s): Wei ***CHI****, Yonghao* ***LI***

Purpose: Angiogenesis and inflammation are closely integrated in retinal neovascularization (RNV). Our single-cell sequencing data indicates a marked decrease in AIP1 and enrichment in inflammatory and angiogenesis pathways in vascular endothelial cells (VECs) of oxygen-induced retinopathy (OIR). We hypothesize that AIP1, as an anti-angiogenetic factor, suppresses an inflammatory angiogenic process via a noncanonical inflammation assembly of NLRP12, ASC and caspase-8 inflammasome through pyroptosis in VECs.

Methods: We employed an overexpression and knockdown strategy on AIP1, caspase-8, NLRP12, and GSDMD in the HUVEC cell line under hypoxia. We used WB, IF and co-IP to show assembly of inflammasome and measure the changes in pyroptosis and VEGF release. Tube formation and scratch assays were performed to reflect the angiogenesis. We also used AIP1, NLRP12, GSDMD knockout mice, and casp8+/- mice to build the OIR model. Retinal flat mounts stained for IB4 were employed to examine RNV.

Results: AIP1 downregulation promoted the formation of the NLRP12-ASC-caspase-8 inflammasome and activated the pyroptosis in VECs. Meanwhile, activation of NLRP12-ASC-caspase-8 inflammasome induced aberrant VEGF release and attenuated endothelial dysfunction through pyroptosis. In vivo experiments also corroborated that deletion of NLRP12, caspase-8, and GSDMD maintained vascular integrity and reduced RNV. However, deleting AIP1 as endogenous protective molecules presented an opposite trend.

Conclusions: AIP1 negatively modulates the NLRP12-ASC-caspase-8 mediated-pyroptosis pathway and exerts a dual inhibitory effect on inflammatory response and release of VEGF. This inflammatory angiogenesis mechanism offers an opportunity to develop an intervention to position AIP1 as a vulnerable candidate to address the complex interplay between inflammation and neovascularization in RNV.

Abstract No.: 200340

Assessment of the Myriad Manifestations of Isolated Optic Nerve Infiltration in Acute Lymphoblastic Leukemia (ALL)

First Author: Shorya ***AZAD***
Co-Author(s): Mousumi ***BANERJEE****, Pradeep* ***VENKATESH***

Purpose: To study the varied presentations of optic nerve infiltration in patients with ALL without any associated systemic manifestations of relapse.

Methods: A prospective interventional study comprising of five ALL patients with optic nerve head (ONH) involvement as first sign of CNS relapse. All patients were on remission with normal CSF cytology, no evidence of blood/bone marrow relapse. MRI brain and orbit revealed ONH infiltration.

Results: Case 1: 14-year-old female presented with optic disc edema (ODE) OS. BCVA of no PL improved to 6/18 OS post chemotherapy.,Case 2: 15-year-old male presented with ODE with secondary CRVO OS. Patient was lost to follow-up post chemotherapy.,Case 3:16-year-old male presented with bilateral ODE with combined CRVO and CRAO OS. Resolution of edema was noted post chemotherapy OU.,Case 4:13-year-old male presented with peripapillary elevated lesion OD. Increase in the lesion noted within two weeks due to delayed treatment.,Case 5:31-year-old male presented with blurred disc margin OS. Grade V ODE noted after delayed treatment.

Conclusions: Eyes can detect early relapse of ALL in presence of normal CSF cytology, blood, and bone marrow parameters. A high degree of suspicion in patients having visual dysfunction in ALL may help in early diagnosis and prompt initiation of treatment. Though it is difficult to objectively specify a window period during which initiation of treatment can maximize the chances of visual recovery, we can emphasize that prompt initiation of treatment (preferably not exceeding more than a week interval) might have a more favourable visual outcome.

Abstract No.: 200600

Blindness from Recurrent Retinoblastoma: A Mother's Sacrifice

First Author: Jason Allan Seng Soon ***CHEAH***
Co-Author(s): Li Yen ***CHAN****, Jamalia* ***RAHMAT***

Purpose: To report a very late recurrence of retinoblastoma in pregnancy.

Methods: Case Report

Results: A 26-year-old female in her third trimester of pregnancy presented with a large tumour in the the vitreous cavity of her left eye. Diagnosed with advanced retinoblastoma in both eyes at 2.5 years old, she underwent right eye enucleation and systemic chemotherapy. Focal therapies and radiotherapy targeted the residual disease in her left eye. Following 13 years of tumour remission, she underwent uncomplicated cataract surgery with intraocular lens implantation. No intraocular recurrence was seen after the surgery and she underwent surgical removal dense posterior capsule opacification 9 years (22 years of remission) after cataract surgery. Very low vision has been recorded as counting fingers over the years. Twenty two years after remission, a large tumour was seen on slit lamp examination.

Further evaluation with B-scan ultrasonography and MRI supported suspicions of recurrent retinoblastoma with significant posterior segment involvement. A multidisciplinary team performed a caesarean section and left eye enucleation at 31-32 weeks of gestation. Histopathological results are pending to guide the next steps in treatment.

Conclusions: There are no documented cases of intraocular tumor recurrence after 22 years in the literature. Nonetheless, it is crucial to acknowledge that recurrence can still happen after such a long period of remission. This underscores the vital importance of lifelong surveillance in patients with a history of retinoblastoma to detect any possible reemergence of the disease.

Abstract No.: 200599
Clinical Characteristics and Outcomes of Choroidal Osteoma Associated with Choroidal Neovascular Membrane

*First Author: Ninan **JACOB***
*Co-Author(s): Niroj **SAHOO**, Vishal **RAVAL***

Purpose: To analyze the clinical characteristics and outcomes of choroidal neovascular membrane (CNVM) associated with choroidal osteoma.

Methods: A retrospective, single-centre observational study in eyes with choroidal neovascularization associated with choroidal osteoma. Long-term visual acuity outcomes and the number of injections required were analyzed.

Results: A total of 85 patients with choroidal osteoma were included, out of which 36 (42.4%) patients (46 eyes), had a diagnosis of CNVM. The mean age was 34.7+/-12.9 years and 26 patients had a unilateral presentation (72.2%). All eyes were treated with intravitreal anti-vascular endothelial growth factor (ant-VEGF) injections with a mean of 4.1 +/- 3.7 injections. At a mean follow-up of 14.9 +/- 21.7 months, CNV regressed in 22 eyes (56.4%) with improved or stable visual acuity in 12 eyes (30.7%). No eyes showed any lateral growth or decalcification of osteoma over the longitudinal follow-up.

Conclusions: Although rare, choroidal osteoma is associated with increased risk of CNV (42%). Post treatment with anti-VEGF injections, CNV regressed with stabilization of vision in most eyes.

Abstract No.: 201023
Clinical Features, Multimodal Imaging Findings and Long-Term Outcomes of Posterior Nodular Scleritis Initially Misdiagnosed as Choroidal Tumor

*First Author: Seung Min **LEE***
*Co-Author(s): Min **KIM***

Purpose: To investigate the clinical features, OCT findings and long-term outcomes of posterior nodular scleritis that were initially misdiagnosed as choroidal tumor.

Methods: Patients diagnosed with posterior nodular scleritis between November 2005 and January 2024 were included. The study assessed the clinical characteristics, treatment methods, recurrence, and complications for all enrolled patients.

Results: This study examined 7 eyes from 7 patients with posterior nodular scleritis, initially misdiagnosed as choroidal tumors. Patients were mostly female (71.4%) with unilateral involvement, averaging 36 years old. Visual acuity remained unchanged between the first (logMAR 0.33)and the last visits (logMAR 0.20) (P=0.463). Lesions were primarily dome-shaped, yellow-whitish masses in the posterior pole and mid-periphery, averaging 7.96mm diameter. Imaging showed distinct features: FA revealed hyperfluorescence, ICGA showed hypofluorescence, and OCT indicated choroidal elevation with intraretinal and subretinal fluid. Ultrasonography demonstrated significant reduction in nodule thickness (4.07mm to 2.06mm) and central subfield thickness (426µm to 288.5µm) post-treatment. Oral corticosteroids were administered for the treatment in all of them, and 6 out of 7 cases resolved completely after 8 to 12 weeks. Among 6patients that reached complete

resolution, 2 patients experienced recurrence after cessation of oral corticosteroid (after 6 weeks and 10 months, respectively). After treatment, the intensity of leakage in FA was reduced, and subretinal and intraretinal fluids were resolved to a variable degree on OCT.

Conclusions: Posterior nodular scleritis, often misdiagnosed as choroidal tumors, primarily affects younger women, typically resolves with oral corticosteroids without vision loss, but requires accurate diagnosis and follow-up due to recurrence risk.

Abstract No.: 200363
Clinical Outcome of Photodynamic Therapy for Choroidal Nevus with Subfoveal Fluid

*First Author: Jin Yeong **KIM***
*Co-Author(s): Christopher Seungkyu **LEE***

Purpose: To evaluate and report the outcome of photodynamic therapy (PDT) for choroidal nevus associated with subfoveal fluid.

Methods: Electronic medical records and ophthalmologic images of patients diagnosed with choroidal nevus and treated with PDT at a single center between January 2000 and February 2024 were retrospectively reviewed. The main outcome measures were resolution of subfoveal fluid, central subfield thickness (CST), corrected distant visual acuity (CDVA), and the recurrence of fluid.

Results: This study included seven eyes of seven patients, with a mean age at diagnosis of 45.0 years. All patients had nevus-related visual symptoms and the locations of all choroidal nevi and subretinal fluid involved the subfovea. The mean diameter and thickness of tumors were 4.20mm and 0.96mm, respectively. All patients received only one PDT session, and the mean follow-up period was 20.6 months from PDT. Subfoveal fluid decreased in six patients (85.7%), with complete resolution in four patients (57.1%), and there was no significant change in one patient (14.3%). Consequently, the mean CST was markedly reduced from 365.7μm at baseline to 258.1μm. CDVA after PDT improved in one patient (14.3%), remained stable in three patients (42.9%), and decreased in two patients (28.6%). Three patients (50.0%) experienced a recurrence of initially reduced fluid at 3, 3 and 21 months after PDT, respectively.

Conclusions: PDT is an effective treatment for reducing subfoveal fluid associated with choroidal nevus. Given the potential for subretinal fluid recurrence, ongoing careful monitoring and follow-up are essential after PDT.

Abstract No.: 200823
Clinical Profile and Treatment Outcomes of Patients with Retinoblastoma in Mariano Marcos Memorial Hospital and Medical Center: 2014-2021

*First Author: Knedrick Kevin **MACALMA***
*Co-Author(s): Sofia Cecilia **SIPIN***

Purpose: To provide a detailed assessment of the clinical profile, and treatment outcomes of patients with retinoblastoma, and to identify the areas for improvement in the management of retinoblastoma in the Mariano Marcos Memorial Hospital and Medical Center (MMMH & MC)

Methods: An eight-year retrospective cross-sectional study of the patients with retinoblastoma in the MMMH & MC from 2014 to 2021.

Results: The study assessed the demographics of 15 patients involving 19 globes. The participants of the study were diagnosed at a mean age of 20±10 months with leukocoria as the most common presenting symptom. 14 of the patients received treatments by enucleation and chemotherapy with 21 cycles of VEC. The management of the disease saved 2 (40%) patients within the five-year monitoring period, 1 out of 5 (20%) right eye-enucleated patients expired, and 1 out of 3 (33.33%) patients with bilateral retinoblastoma expired and the rest (66.67%) are under the monitoring window from 2021 onwards.

Conclusions: The data of patients with retinoblastoma in MMMH & MC were assessed to obtain substantial information for the

management of retinoblastoma. The number of patients is considerably diagnosed was low compared to the nearby hospital in the region and the occurrence of RB in the Philippine General Hospital (PGH), contributed to very low percentage of RB patients in Asia-Pacific. The primary goal of the treatment procedures given to the patients is to preserve life by enucleation and chemotherapy. The clinical routes do not involve globe preservation due to the limitations in the treatment procedures for managing retinoblastoma.

Abstract No.: 200277
Emergence of Granular Corneal Dystrophy (GCD) After Radial Keratotomy (RK)

*First Author: Felicia **FOO YUEN CHENG***
*Co-Author(s): Liew **ON HEONG**, Sujaya **SINGH**, Lim **YI WEN***

Purpose: To report a rare case of 64-year-old lady whom manifested with both eyes granular corneal dystrophy after bilateral uncomplicated RK.

Methods: The patient's demographic and clinical presentation were described.

Results: A 64-year-old Chinese woman with background history of hypertension, diabetes and dyslipidemia reported a progressive deterioration in left eye vision over a two-month period. She had previously undergone uncomplicated RK in 1990 for myopia correction. Cataract surgeries were performed in both eyes in 2017 and 2019. Her visions remained good until current presentation in two months ago. Upon examination, the right eye had a best-corrected visual acuity(BCVA) of 6/10 while the left eye had a BCVA of 6/12 with refraction of +2.50 DS. Numerous distinct whitish lesions were observed on the anterior surface of the cornea, as well as along the RK incisions at the center, sparing the corneal periphery. Evaluation of the fundus revealed no noteworthy abnormalities. Anterior segment optical coherence tomography (AS OCT) revealed the deposition of hyper-reflective lesions involving both the Bowman and stromal layers, consistent with the diagnosis of GCD.

Conclusions: The diagnosis of GCD was solely clinical. Prior to the identification of the specific genes responsible for these conditions, there was no available method to verify or confirm the accuracy of the diagnosis. Patients with GCD may never necessitate corneal grafting since their vision typically remains relatively unaffected. However, in certain instances, severe visual impairment can occur, prompting the need for multiple therapeutic interventions.

Abstract No.: 200989
Metastatic Retinoblastoma Mimicking a Bone Sarcoma in a 5-Year-Old Female with Treatment-Naive Unilateral Retinoblastoma

*First Author: Adriel Vincent **TE***
*Co-Author(s): Maria Angelica **VILLANO-TORRES***

Purpose: To report a unique case of treatment-naïve metastatic retinoblastoma presenting as a right upper limb mass.

Methods: Case report

Results: A 5-year-old female was referred for an incidental finding of right leukocoria. She was initially treated for an upper arm mass whose biopsy revealed a round cell bone tumor with positive CD99 staining suggestive of Ewing sarcoma. B-scan ultrasonography revealed an intraocular mass with high spikes. CT scans done ruled out any gross orbital, optic nerve and intracranial involvement. Hence, the patient was managed as a case of Retinoblastoma ICRB Group E, on the right eye. Enucleation with orbital implant was done, revealing high-risk features without cut-end involvement of the optic nerve. Further studies revealed positive staining of CRX and synaptophysin, essentially clinching the diagnosis of Retinoblastoma and ruling out Ewing. The patient was subjected to intravenous chemotherapy and radiotherapy with gross decrease of the mass size.

Conclusions: This case highlights possible distant bone metastasis even in a unilateral treatment naïve and intraocular retinoblastoma. Bone tumors associated with retinoblastoma can be highly similar to other bone sarcomas - further stressing the need for proper

immunohistology stains. Vigilance with these considerations must be employed to ensure proper treatment be done.

Abstract No.: 200293

Neovascular Glaucoma: Rare Presentation of Intraocular Metastasis of Systemic Diffuse Large B-Cell Lymphoma

First Author: Zhi Ling ***YEAP***
Co-Author(s): Sujaya ***SINGH****, Rohana* ***TAHARIN****, Shu Yu* ***TAN****, Yew* ***YIH CHIAN***

Purpose: To report a case of intraocular metastasis of systemic Diffuse large B-cell lymphoma (DLBCL) masquerading as panuveitis with neovascular glaucoma (NVG).

Methods: Case report

Results: A 55-year-old Malay gentleman with underlying stage IV DLBCL, completed 9 cycles of chemotherapy, presented with right eye (OD) painless progressively worsening blurring of vision for a month, preceded by floaters, associated with redness for 2 weeks. Systemic review was unremarkable. OD visual acuity was hand movement with presence of reverse relative afferent pupillary defect. Left eye visual acuity was 6/12. OD examination showed circumciliary injection, hazy cornea, diffuse keratic precipitates, 360-degree rubeosis iridis, posterior synechiae, deep anterior chamber with fibrin, intraocular pressure of 38 mmHg, and no fundus view. Gonioscopy OD revealed an open angle with new vessels and blood clot at angle. Left eye examination was unremarkable. B scan of OD showed dense vitritis and scleral thickening with T sign. Investigations for infection were negative. An urgent magnetic resonance imaging of brain and orbit revealed right intraocular lymphoma, evidenced by diffuse right scleral thickening with enhancement, right lacrimal gland enlargement, and right optic nerve enhancement. Diagnosis of right panuveitis with NVG, secondary to intraocular metastasis of systemic DLBCL was established. He was treated symptomatically with topical antiglaucoma, corticosteroid and mydriatics and co-managed with oncologist for chemotherapy.

Conclusions: This case illustrated the rare presentation of metastatic systemic lymphoma, masquerading as uveitis with neovascular glaucoma. High suspicion of uveitis masquerade syndrome in the background of systemic hematological malignancy aids in timely investigations and imaging, facilitating prompt definitive treatment.

Abstract No.: 200046

Prevalence of Eyelid Tumors in a Tertiary Government Hospital in the Philippines: A 5-Year Review

First Author: Allyson ***FACUNDO***

Purpose: Tumors of the eyelid are rare diseases and the histological spectrum is different among Asian countries. Eyelid cancers mainly include basal cell carcinoma (BCC), squamous cell carcinoma (SCC), malignant melanoma (MM), and sebaceous gland carcinoma (SGC) among others.,,We describe the epidemiology of primary eyelid tumors over a 5-year period in a tertiary government hospital in the Philippines. We determine the age distribution, sex distribution, tumor location, and laterality with respect to pathological subtype origin.

Methods: This retrospective study examined the histopathology of eyelid tumors treated from 2015 - 2020. Demographic profile were also collected like age, gender, and laterality of lesion. Descriptive statistics were used to identify the study subgroups. A total of 148 eyelid tumors comprised the study sample. 72 were excluded; 76 were included based on eligibility criteria. There were 14 (18%) malignant cases and 62 (82%) benign cases.

Results: The benign eyelid lesions were comprised of 12% nevi, 11% dermoid cysts, 8% keratinous cysts, and 8% seborrheic keratosis. For malignant tumors, there were 57% basal cell carcinomas, 14% sebaceous gland carcinoma, 7% squamous cell carcinomas, and 7% lymphoma. Benign eyelid lesions occurred with equal frequency in the left and right lids. Malignant lesions were more frequently located in the left lid.

Conclusions: Benign lesions constitute the majority of these tumors. The relative frequencies of the most common malignant tumors were similar from those recorded in other Asian countries.

Abstract No.: 200243

Rescue Therapy with Intravitreal Aflibercept for Refractory CNVM Secondary to Choroidal Osteoma

First Author: Suganya N
*Co-Author(s): George Joseph **MANAYATH**, Narendran **VENKATAPATHY***

Purpose: To investigate the effect of Aflibercept in a rare case of Type 1 CNVM with subretinal fluid secondary to choroidal osteoma (CO) and refractory to ranibizumab and bevacizumab.

Methods: A 35-year-old female with choroidal osteoma-related CNVM in her LE received prior two injections of bevacizumab and one injection of ranibizumab without anatomic and visual improvement was switched to Aflibercept intravitreal injection showed complete resolution of subretinal fluid with a single dose. The treatment effect persisted during a 4-month follow-up period.

Results: Choroidal osteoma per se may need only close observation. However, presence of SRF in the absence of CNVM may resolve spontaneously or respond with anti-VEGF or resistant to injection, if associated with CNVM- then Anti-VEGF is the first line of treatment. Newer anti-VEGF agents may be tried in refractory cases.

Conclusions: Our case suggests that intravitreal Aflibercept can be a promising option for CNVM secondary to Choroidal osteoma not responding to traditional anti-VEGF agents.

Abstract No.: 200242

Retinochoroidal Manifestations on Multimodal Imaging and Management of a Case Series of Choroidal Osteoma: A Long-Term Study

First Author: Suganya N
*Co-Author(s): George Joseph **MANAYATH**, Narendran **VENKATAPATHY***

Purpose: Choroidal osteoma (CO) is a rare benign tumor of the choroid that leads to visual decline over time due to macular complications such as subretinal fluid (SRF), choroidal neovascular membrane (CNVM), and decalcification. Literature on its imaging features and long-term outcomes is limited.

Methods: This retrospective single-center study included 19 eyes from 17 patients with CO. Demographic variables such as age, gender, and laterality were analyzed, along with retinochoroidal manifestations on multimodal imaging, including non-neovascular SRF, CNVM, decalcification, and RPE atrophy.

Results: The range of age group was 19-79 yrs with a mean follow up of 36 months, 11 of 17 (65%) were females, 15 (88%) were unilateral, median baseline vision was 6/24, perpapillary lesions were seen in 4 eyes (21%), submacular lesions seen in 9 eyes (47%), 6 had extramacular osteoma (32%), decreased visual acuity seen in 7 (41%) at baseline, CNVM was seen in 3 eyes (16%), non neovascular SRF was seen in 6 eyes (32%), spontaneous resolution of SRF was in one case (5%), resolution post PDT was seen in one case (5%). Resolution with conventional anivegfs were seen in 3 cases (16%), resolution with aflibercept switch was seen in one case (6%), OCT findings included horizontal choroidal lamella in 9 eyes (47%), vertical lamella 3 eyes (16%), Cement lines in 4 eyes (21%), and choroidal loculation of fluid and choroidal cavern in one case (5%).

Conclusions: New multimodal imaging aids in early diagnosis and management of CO complications, improving outcomes.

Abstract No.: 200891

The First 15 Cases of Plaque Brachytherapy for Uveal Melanoma in Singapore

*First Author: Joshua **LIM***
*Co-Author(s): Gavin Siew Wei **TAN**, Siow **TIAN RUI***

Purpose: To assess the outcomes of choroidal melanoma following episcleral plaque brachytherapy.

Methods: 15 Patients with choroidal melanoma underwent episcleral plaque brachytherapy. Initial and final visual acuity, change in tumor dimensions, dosimetry data, patient survival and complications from brachytherapy were collected from patients. Statistical analysis was performed using Paired T Tests, Kaplan Meir Survival Analysis and General Estimating Equations (GEE).

Results: Per The Collaborative Ocular Melanoma Study (COMS), there was 1 small, 13 medium and 1 large tumor. The mean follow-up duration was 2 ± 1.6 years (range 0.3 – 5.5 years). Both Iodine125 (86.7%) and Ruthenium-106 (13.3%) isotopes were utilized for treatment at a minimum of 85 Grays, at exposure duration ranges of 33 – 160 hours. Mean initial tumor height was 6.8 ± 2.4 mm, and at final review was 4.9 ± 2.6mm ($P<0.05$). Mean LogMAR Visual Acuity (VA) was 0.5 ± 0.4 at presentation, and 1.9 ± 0.7 at final review ($P<0.001$). At final review 2 patients had presumed systemic metastasis, with 1 finally succumbing to liver failure. 1 globe was enucleated. GEE analysis did not find tumor height or base to be a predictor for metastatic outcomes. The most common side effect of brachytherapy was post-radiation cataract formation followed by radiation retinopathy.

Conclusions: Plaque brachytherapy has good treatment outcomes for overall patient mortality and globe preservation. Visual outcomes remain guarded and could be influenced by factors such as location of tumor and subsequent radiation side effects.

Abstract No.: 201038

The Spectrum of Vitreoretinal Diseases and Benign intraocular Tumors often misdiagnosed as intraocular malignancies

*First Author: Young Je **CHOI***
*Co-Author(s): Min **KIM***

Purpose: To analyze the frequency with which benign intraocular tumors or vitreoretinal disorders are initially suspected as intraocular malignant tumors upon referral and describe their clinical features distinct from intraocular malignancies.

Methods: Patients referred with suspicion of intraocular tumors between January 1, 2020, and January 3, 2024, were included. Through a retrospective review of medical charts, we identified the number of cases diagnosed with benign disorders, such as benign tumors or vitreoretinal disorders, rather than malignancies.

Results: Over the 4-year period, 416 patients were referred with suspected intraocular tumors. Among them, 109 (26.2%) were newly diagnosed with malignant tumors: 83 (20.0%) with melanoma, 12 (2.9%) with choroidal metastatic tumors, and 14 (3.4%) with retinoblastoma. Among these 203 patients, 67 individuals (33.0%) were finally diagnosed with choroidal nevus, 8 of them being amelanotic. Other diagnoses included 30 cases (14.8%) of CHRPE, 26 cases (12.8%) of choroidal hemangioma, 9 cases (4.4%) of optic disc melanocytoma, 8 cases (3.9%) of choroidal osteoma, 6 cases (3.0%) of RPE hyperplasia, 6 cases (3.0%) of CNV, 5 cases (2.5%) of focal scleral nodule, 4 cases (2.0%) of retinal astrocytic hamartoma, 3 cases (1.5%) of neovascular AMD, and 3 cases (1.5%) of iris cyst.

Conclusions: Intraocular benign tumors and vitreoretinal diseases both have the potential to mimic the appearance of malignant tumors. Therefore, meticulous differentiation between benign tumors and vitreoretinal diseases and malignant tumors is crucial to mitigate the risk of unnecessary cancer treatments and

to establish correct diagnosis of intraocular malignancies.

Abstract No.: 200892

The Unseen Challenge: Navigating Multiple Primary Malignancies in Retinoblastoma Survivors

First Author:

Purpose: This study aims to evaluate the long-term risk and prevalence of secondary primary malignancies among survivors of retinoblastoma. Additionally, it seeks to identify and characterize the most frequent sites of these secondary malignancies.

Methods: We analyzed retinoblastoma patient data from 2020-2021 using the SEER database. Through the MP-SIR session, we assessed the risk of second primary malignancies (SPMs) and calculated the Standardized Incidence Ratio (SIR) as observed/expected (O/E) with a 95% confidence interval. Excess absolute risk (EAR) was measured per 10,000.

Results: Our study reveals that survivors of retinoblastoma face a significantly increased risk of developing second primary malignancies (SPMs) at various intervals post-diagnosis. Between 12-59 months, the observed-to-expected ratio (O/E) for all-site SPMs is 6.32, with brain and nervous system SPMs reaching an O/E of 19.72. In the 60-119 month interval, the risk of all-site SPMs rises to an O/E of 13.32, and solid tumors have an O/E of 19.72. Specific cancers show extremely high risks: colon, rectal, and anus SPMs with an O/E of 163.22, sigmoid colon at 5,850.54, bone and joint cancers at 112.41, and miscellaneous SPMs at 72.45. After ten years, the risk of all-site SPMs remains elevated with an O/E of 8.97, all solid tumors at 14.15, and bone and joint SPMs at 102.20. These findings highlight the urgent need for vigilant, long-term monitoring and preventive strategies for retinoblastoma survivors.

Conclusions: Retinoblastoma survivors are at a high risk of developing SPMs, particularly in the brain, colon, and bones, necessitating continuous monitoring and research to develop effective preventive measures.

Other (General Ophthalmology)

Abstract No.: 200589

A Case of Multifocal Posterior Pigment Epitheliopathy After Ahmed Glaucoma Valve Implantation Surgery

*First Author: Mayu **KATSUME***
*Co-Author(s): Takayuki **BABA**, Yuto **KAWAMATA**, Yuta **KITAMURA***

Purpose: We describe a case of multifocal posterior pigment epitheliopathy (MPPE) after Ahmed Glaucoma Valve (AGV) implantation surgery on a patient with pseudoexfoliation glaucoma (PEG).

Methods: The patient is a male in his 80s with PEG in the right eye. He underwent AGV implantation surgery due to poorly controlled intraocular pressure (IOP) of 48 mmHg in the right eye with maximum medical therapy. Preoperative visual acuity was 20/20. The fundus showed drusen in both eyes, but no retinal pigment epithelial detachment (PED) or choroidal neovascularization was observed.

Results: Postoperative IOP remained at 6-9 mmHg without significant complications, but multiple PEDs and serous retinal detachment in the macula of the right eye were observed one month after surgery. Fluorescein angiography showed multiple fluorescent leakage in the superior and nasal macula. Based on these findings, we diagnosed MPPE. After focal laser photocoagulation, the serous retinal detachment gradually disappeared and was completely resolved on postoperative day 93. Right visual acuity was 20/320 at the last visit due to glaucomatous progression and outer retinal damage.

Conclusions: We experienced a case of MPPE after AGV implantation surgery. A possible mechanism of pathogenesis was suggested to be the involvement of choroidal circulation disturbance caused by a sudden decrease in IOP due to glaucoma surgery. Although the focal photocoagulation was effective, the visual prognosis was poor because of the progression of glaucoma and persistent retinal damage.

Abstract No.: 201117

A Comparative Analysis of Information Dissemination: ChatGPT vs Human-Crafted Pamphlets in Educating on Diabetic Retinopathy and Nephropathy

*First Author: Ashley **HONG***
*Co-Author(s): Liu **HUI**, Gavin **TAN***

Purpose: This study aimed to compare the effectiveness of ChatGPT-generated educational pamphlets against existing human-crafted pamphlets in educating patients about diabetic retinopathy and nephropathy.

Methods: A prospective randomised observational trial was conducted with 80 diabetic patients, who were randomly assigned to two groups: Group A (ChatGPT-generated pamphlets) and Group B (human-crafted pamphlets). Each group received pamphlets on diabetic retinopathy and nephropathy and subsequently completed a questionnaire assessing their knowledge, understanding, and retention of the information. The questionnaire responses were analysed using unpaired t-tests and non-inferiority tests, with a non-inferiority margin set at 0.5.

Results: Participants in Group A rated the ChatGPT-generated pamphlets higher for explaining diabetic retinopathy and ease of understanding (Q1: Mean Difference 0.175, 95% CI: -0.20, 0.55; Q2: Mean Difference 0.3, 95% CI: -0.061, 0.66). However, Group B rated the human-crafted pamphlets higher for detailing treatment options and providing actionable steps (Q3: Mean Difference -0.5, 95% CI: -0.91, -0.094; Q4: Mean Difference -0.1, 95% CI: -0.43, 0.23). For diabetic nephropathy, human-crafted pamphlets were rated higher for clarity, practical guidance, and overall satisfaction (Q1: Mean Difference -0.25, 95% CI: -0.60, 0.096; Q2: Mean Difference -0.25, 95% CI: -0.68, 0.18). The non-inferiority tests indicated that ChatGPT-generated pamphlets are non-inferior to human-crafted pamphlets.

Conclusions: The overall effectiveness of ChatGPT-generated versus human-crafted pamphlets was similar, showing ChatGPT could be a potential means for generating patient education material. AI-generated content excelled in simplifying and conveying basic information, while human-crafted materials provided more detailed and practical information. A combined approach may enhance patient education for complex medical conditions.

Abstract No.: 200349

A Dormant Menace that Hits When You Weak

*First Author: Nurul Hamiza **BINTI MOHD RASHID***
*Co-Author(s): Nor Fadhilah **BINTI MOHAMAD**, Nur Amni Hajar **BINTI SUHAIMI**, Nurhamiza **BINTI BUANG***

Purpose: Herpes zoster optic neuritis (HZON) is a rare vision-threatening sequalae of herpes zoster ophthalmicus (HZO). We report the clinical presentation and treatment response of a case of retrobulbar optic neuritis in immunocompetent patient.

Methods: A Case report

Results: A 22-year-old immunocompetent lady presented with left eye reduced vision for three days. She was diagnosed with left herpes zoster anterior uveitis with increased intraocular pressure (IOP) two weeks prior. She had completed 14 days treatment of oral antiviral and was on two topical antiglaucoma and topical steroid for her left eye. Her visual acuity (VA) for right eye (OD) and left eye (OS) were 6/6 and hand movement, respectively with left positive relative afferent pupillary defect. Her IOP were normal. The OS showed occasional cells in the anterior chamber with normal optic nerve and retina appearance. Computed Tomography of the brain and orbit were normal. She was clinically diagnosed with left retrobulbar optic neuritis. Left HZON was likely the aetiology given the close temporal relationship with her history of HZO. Oral antiviral medication, intravenous corticosteroid and topical steroid were started. Her OS VA dropped to no light perception after given four doses of intravenous corticosteroid and it was stopped. Oral antiviral was changed to

intravenous for two weeks and continued orally for another two weeks. Her final VA improved to 6/6 for both eyes.

Conclusions: A high index of suspicion for retrobulbar HZON is crucial when occurred in the setting of recent HZO. Prompt and appropriate treatment can prevent detrimental visual outcome.

Abstract No.: 200578

Age-Related Macular Degeneration and the Risk of Secondary Fractures in Patients with Hip Fractures

*First Author: Seung Hoon **KIM***
*Co-Author(s): Yonghan **CHA**, Minah **PARK***

Purpose: Secondary fractures in hip fracture patients are associated with higher mortality rates, yet research on ophthalmologic conditions as risk factors for secondary fractures is notably scarce. This study aimed to examine the impact of age-related macular degeneration (AMD) on the risk of secondary fractures following hip fractures.

Methods: This observational, retrospective, cohort study was conducted using data from the National Health Insurance Service-Senior cohort from 2002 to 2019. Secondary fractures included hip, wrist, humerus, spine, ankle, and pelvis fractures that occurred within 6 months after hip fracture. Patients with newly diagnosed AMD within 6 months after hip fracture surgery were identified. The impact of AMD on secondary fractures was analyzed using Cox proportional hazards models.

Results: Among the 18,611 (5749 males, 12,862 females) hip fracture patients, 93 were newly diagnosed with AMD. The cumulative incidence of secondary fractures was higher in patients with AMD than in patients without AMD (P =0.003). Patients with AMD had a higher risk of secondary fractures than those without AMD (adjusted hazard ratio[aHR]=1.70, 95% confidence interval[CI]=1.16–2.51, P=0.007). This increased risk of secondary fractures was particularly pronounced in males (aHR=2.22, 95% CI=1.09–4.52, P=0.028), patients aged ≥ 80 years (aHR=2.26, 95% CI=1.27–4.08, P=0.006), and those with higher CCI (aHR=1.75, 95% CI=1.05–2.92, P=0.032).

Conclusions: Among patients who have experienced a hip fracture, those with AMD have a 1.70 times higher risk of secondary fractures compared to those without AMD. Proper AMD management can reduce the likelihood of subsequent fractures, leading to better patient outcomes and quality of life.

Abstract No.: 200777

An Unusual Case of Sub-Internal Limiting Membrane Haemorrhage

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*Co-Author(s): Grimaldi **IHSAN**, Made **INDRA**, Erwin **ISKANDAR**, Arief **KARTASASMITA**, Rova **VIRGANA***

Purpose: To report an unusual case that accompanying sub-ILM haemorrhage

Methods: This is a case study reporting A-61-years old woman who came with blurred vision in her left eye in past week

Results: She describes it as a black shadow obstructing the vision. No history of trauma, eye surgery, cough, straining, or frequent heavy lifting. Ophthalmology examination shows visual acuity 1/300, intraocular pressure 9 mmHg with anterior segment within normal limit. Posterior segment shows hazy media with round shadowy papil, vitreous haemorrhage, well demarcated preretinal haemorrhage with boat shape appearance. Ancillary test was done. Optical computed tomography (OCT) hyperreflectivity with dome shape hypo-reflectivity and hyperreflectivity between ILM and retinal nerve fibre layer. Patients was diagnosed with vitreous haemorrhage LE + sub-ILM haemorrhage LE et causa suspect CNV and scheduled for pars plana vitrectomy (PPV) + Anti- vascular endothelial growth factor (VEGF) injection.

Conclusions: Sub-ILM haemorrhage is one of the manifestations of preretinal haemorrhage. Prompt removal and management of haemorrhage could improve visual acuity.

Abstract No.: 200996

Association Between Screen Time and Vision Difficulty in Children: A Population-Based Analysis

*First Author: Andrew **MIHALACHE***
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Purpose: To investigate associations between screen time and vision difficulties among paediatric populations in the United States.

Methods: Using data from the 2020 and 2022 National Health Interview Survey, this population-based analysis included participants under 18 years old with available data pertaining to their vision status. We performed logistic regressions on Stata v17.0 to explore associations between screen time and vision difficulties, adjusting for sociodemographic confounders. Subgroup analyses were conducted based on sex, age, and geographic region.

Results: Across 11,585 children (mean age: 10.0 ± 4.7 years old), 7,419 (64%) had a screen time of >2 hours/day and 549 (5%) had vision problems. In our univariable analysis, children who had a screen time of >2 hours/day had a higher odds of vision difficulty in 2020 (n=5,112; OR=1.53, 95%CI=[1.08, 2.16], p=0.017) and in 2022 (n=6,473; OR=1.38, 95%CI=[1.02, 1.86], p=0.038). These findings were consistent in a subgroup of females (p=0.002 in 2020 and p=0.014 in 2022). Our multivariable analysis of 2020 data found that the odds of having vision difficulty among children with a screen time of >2 hours/day was significantly higher in the following subgroups: children aged 5-12 years old (OR=0.59, 95%CI=[0.35, 1.00], p=0.049) and children residing in the Midwest (OR=2.28, 95%CI=[1.02, 5.09], p=0.045). No findings were significant in our adjusted analysis of 2022 data.

Conclusions: Screen time was associated with vision difficulties in paediatric populations in the United States. Public health initiatives aimed at promoting healthy screen time habits and regular eye care among vulnerable groups of children and adolescents are imperative.

Abstract No.: 200576

Biological Potential of Tectoridin in Medicine for Its Effectiveness Against Rat Lens Aldose Reductase with Underlying Molecular Mechanism

*First Author: Kanika **PATEL***
*Co-Author(s): Dinesh **PATEL***

Purpose: Polyphenols are a group of plant secondary metabolites found to be present in the plants and their derived products. Polyphenols are natural antioxidants and are produced in plants against pathogens and oxidative stress. Fruits, vegetables, cereals, legumes are some of the main source of polyphenols. Tectoridin was found to be present in the Pueraria thunbergiana and Belamcanda chinensis.

Methods: Biological importance of tectoridin in the medicine has been investigated through scientific data analysis of different scientific research works. Biological importance of tectoridin has been tested for their aldose reductases inhibitory potential against rat lens through scientific data analysis of different scientific research work to know their biological importance in the diabetes.

Results: Scientific data analysis of different research works revealed the biological importance of tectoridin in the medicine. Scientific data analysis of different scientific research work revealed the therapeutic potential of tectoridin in the medicine. Scientific research data analysis signified the biological importance of tectoridin on rat lens aldose reductase enzymes.

Conclusions: Scientific data analysis of different research work revealed the biological importance of tectoridin.

Abstract No.: 200047

Burnout Among Ophthalmology Residents in the Philippines: A Multicenter Study

*First Author: Allyson **FACUNDO***

Purpose: To determine the percentage of burnout among Ophthalmology residents in the Philippines.

Methods: A cross-sectional study was conducted on all ophthalmology residents in Philippines in January 2023 using Maslach Burnout Inventory for Medical Personnel that was used in previous published studies. The questionnaire consists of three subscales: Emotional Exhaustion, Depersonalization and Personal Accomplishment. The survey also collected demographic data to identify correlation with burnout.

Results: 74% Ophthalmology residents had a positive burnout result on the subscales. 55% scored high on Emotional Exhaustion. 59% scored high on Depersonalization subscale. The majority of the respondents are third year residents with a 33%. 62% are from training programs of government institution; 58% are from Luzon. Majority of the respondents are seeing more than 200 cases per week, spend 40-80 hours in clinic per week, 0-5 hours of OR in a week, 0-10 hours of hospital administrative duty (triage officer, officer of the day) in a week. Almost all residents, 99% would have chosen Ophthalmology again as a residency choice. However, only 63% would have chosen Medicine as their graduate level study. Further sub-analysis of the data showed that the number of sleep hours was negatively correlated with emotional exhaustion and levels of the ophthalmology residents.

Conclusions: Prevalence of burnout among Ophthalmology residents (74%) was lower compared to General Surgery (85%) in the Philippines. Low numbers of sleep and more junior residents were correlated with higher levels of burnout especially on the emotional exhaustion subscale. An alarming percentage because it might affect the quality of care provided.

Abstract No.: 200970
Central Retinal Artery Occlusion and Carotid Artery Disease in a Pregnant 27-Year-Old with Antiphospholipid Antibodies: A Case Report

*First Author: Eric Nathaniel **REYES***

Purpose: To document a case of a 27-year-old female who was diagnosed as Central Retinal Artery Occlusion with Carotid Artery Disease presenting as a ipsilateral near total occlusion of the left internal carotid artery secondary to a hypercoagulable state caused by pregnancy and antiphospholipid antibodies.

Methods: This is a report of a 27-year-old female who presented with sudden, painless, and total loss of vision on her left eye of 9 hours duration. The patient had a pale retina with a cherry red spot, consistent with CRAO. After further tests, a state of pregnancy, near total occlusion of the left internal carotid artery, and the presence of anti-phospholipid antibodies were revealed. After ocular treatment, left internal carotid arterial endarterectomy was presented as an option, however, the patient was managed conservatively with Aspirin 80 milligram tablet once daily and Enoxaparin 0.6mL subcutaneously twice a day.

Results: Ocular examination revealed visual acuity of 20/20 on the right eye and no light perception on the left affected eye. The right pupil was reactive to light with the left pupil being 5 millimeters pharmacologically dilated. Intraocular pressures were 14 and 11, respectively. Despite intraocular pressure lowering medications and systemic anticoagulants, the vision remained no light perception.

Conclusions: This case reminds us that CRAO may occur in young individuals. Proper history and physical examination as well as prompt neurologic, hematologic, and cardiovascular referrals are warranted to rule out stroke, vascular disease, and states of hypercoagulability such as pregnancy and the presence of antiphospholipid antibodies.

Abstract No.: 200062
Comparative Analysis of Mechanical and Tetracaine-Assisted Epithelial Debridement in PRK

*First Author: Kourosh **SHEIBANI***
*Co-Author(s): Sara **KAVOUSNEZHAD**, Nader **NASSIRI***

Purpose: This study aimed to compare the effects on central corneal endothelial cells

after photorefractive keratectomy (PRK) with mitomycin C (MMC) using two epithelial debridement techniques: mechanical and tetracaine-assisted.

Methods: In this prospective, randomized, comparative study, 44 patients (88 eyes) with myopia of up to -6.00 diopters were enrolled. Each patient's right eye was randomly assigned to either the tetracaine-assisted or the mechanical debridement group, with the left eye assigned to the alternate method. Preoperative and 3-month postoperative assessments were conducted using confocal microscopy. These assessments concentrated on measuring epithelial thickness, counting the number of keratocytes in the anterior, mid, and posterior stroma, and evaluating the characteristics of central corneal endothelial cells. These characteristics included cell density, mean cell area, polymegathism, and hexagonality.

Results: At the 3-month follow-up, no statistically significant differences were observed between the two groups regarding mean epithelial thickness. Additionally, there were no significant differences in the central corneal endothelial cells in terms of mean cell density, mean cell area, hexagonality, or polymegathism. The density of mid and posterior stromal keratocytes remained unchanged compared to baseline in both groups. However, a significant decrease in anterior stromal keratocyte density was observed in both groups three months after surgery, with no significant difference between the two debridement methods.

Conclusions: Our results indicate that the effects of PRK with MMC on central corneal endothelial cells are similar, regardless of whether mechanical or tetracaine-assisted epithelial debridement is used. Additionally, both techniques lead to comparable reductions in stromal keratocyte density in anterior stromal layer.

Abstract No.: 200144

Consensus of Experts on Imaging and Biometric Measurements for Combined Anterior and Posterior Segment Eye Surgery (2024)

*First Author: Yanlong **BI***
*Co-Author(s): Bing **LI**, Wenqing **SHI**, Zhen **WANG**, Yule **XU***

Purpose: Establish an expert consensus on imaging and biometry standards for combined anterior and posterior segment eye surgeries.

Methods: In 2023, a nationwide survey among ophthalmologist gathered information on challenges and standards related to ocular biometry measurements in such surgeries. Literature was collected from PubMed, CNKI (China National Knowledge Infrastructure), and other databases. Expert panel discussions led to a consensus draft, which underwent iterative revisions through feedback from experts via email and WeChat, and was refined in online meetings until finalization.

Results: The consensus categorized combined surgeries into three groups: anterior segment disease with cataract, cataract with vitreoretinal disease, and surgeries involving multiple ocular tissues. Recommended imaging technologies include Optical Coherence Tomography, A-scan and B-scan ultrasound, corneal topography, multifunctional optical biometers, slit lamp microscopy, ultrasound biomicroscopy, and wide-angle fundus photography for evaluating refractive media status and optimizing intraocular lens calculation and implantation strategies.

Conclusions: This comprehensive guideline aims to standardize imaging and biometry practices to enhance surgical precision and patient outcomes. By addressing inconsistencies in measuring and applying ocular biometric parameters, the consensus is expected to improve the predictability and efficacy of combined surgeries, benefiting patients by improving visual outcomes and quality of life.

Abstract No.: 200647

Determination of Patient Expectations on Eye Care in a Philippine Tertiary Government Eye Center Using a Modified Eye Care Expectations Survey

*First Author: Gillian Louise **SAQUIAN***
*Co-Author(s): Ricardo **VENTURA***

Purpose: Patient-centered care is heath care that is responsive to patients' wants, needs, and preferences. In 2005, the Eye Care Expectations Survey (ECES), a 27-item questionnaire, has been developed by Dawn et al to identify and quantify the expectations of patients visiting eye care providers.

Methods: This study utilized a cross-sectional survey validation design consist of three-hundred sixty-four (364) new patients as sample size who sought consult at the General Ophthalmology Clinic of the DOH Eye Center from January to May 2024. The study was divided into three parts: first was the 'Translation and Validation of Research Instrument'; the second, the 'Survey Administration and Implementation; and the outcome. Frequency distribution and percentage were used to summarize the sociodemographic profile. Shapiro-Wilk test was performed to determine whether the mean scores on the four constructs followed a normal distribution, and Spearman Rank Correlation Rank Biserial test were used to test the relationship between expectations and sociodemographic profiles.

Results: Results show that the patients' interest in active involvement in their eye care rated most items as of high importance. Responses related to the interpersonal manner that patients rated most important were the doctor being patient and maintaining a professional relationship. In terms of information, patients put a high regard on understanding the prognosis of their condition. Most of the sociodemographic variables exhibited very weak relationships with patient expectations on involvement in eye care.

Conclusions: Based on this study, the 27-item ECES appears to be a useful tool for better understanding patients' expectations regarding eye care.

Abstract No.: 200734

Effectiveness of Ocular Surface Reconstruction with Limbal Stem Cell Autograft and Mitomycin C in Preventing Pterygium Recurrence: A Retrospective Chart Review

*First Author: Ji Hyun **KIM***
*Co-Author(s): Benjamin **KIM**, Donald **KIM**, John **KIM***

Purpose: Adjunctive Mitomycin C (MMC) and Conjunctival Autograft (CAG) have been suggested to be the most effective in preventing pterygium recurrence. We hypothesized that harvesting of Limbal Stem Cell (LSC) along with the conjunctiva and the use of MMC will enhance recurrence prevention.

Methods: 100 patients who received Ocular Surface Reconstruction (OSR) with LSC Autograft at 3 surgery centers from January 8, 2020 to August 4, 2021 were included in this study (data obtained from electronic medical records). Out of 100 patients, 59 were Hispanic/Latino (see Demographics Table for details). 28 patients were lost to follow-up. Demographic information (age, race, ethnicity, and sex) and recurrence were analyzed at multiple time points (6-months, 1-year, 2-year, 3-year, and 4-year follow-up). We also investigated whether each factor would predict the attendance of follow-up. R Studio was used for statistical analysis.

Results: 0 out of 100 patients who received OSR with limbal autograft and MMC showed recurrence at 6-months with 2 patients showing recurrence at 1-year. Logistic regression showed that sex was the only significant predictor factor for attending at least 1 follow-up: males had 19% lower odds compared to females (95% CI [0.68, 0.97], p = 0.021).

Conclusions: OSR with LSC autograft and adjunctive MMC was shown to be highly effective in preventing recurrence (2 recurrence at 1-year follow-up) compared to literature

findings (recurrence rate of 31.3% with CAG in unilateral pterygium excision). Further studies should investigate the long-term effects in a larger sample size, explore relevant pathophysiology and mechanisms, and identify predictors of recurrence.

Abstract No.: 200612

Efficacy and Safety of NOV03 in the Treatment of Dry Eye Disease: A Systematic Review and Meta/Trial Sequential Analysis

*First Author: Mohamed **ABO ZEID***
*Co-Author(s): Eslam **AFIFI**, Sara Chikh **AISSA**, Alina **GHAZOU**, Ahmed **NAZAR***

Purpose: The aim of this meta-analysis is to evaluate the safety and efficacy of the recently developed eye drop perfluorohexyloctane (NOV03) in the management of dry eye disease (DED) compared to placebo.

Methods: We conducted this meta-analysis following the 2020 PRISMA guidelines. We systematically searched throughout the online databases. The screening was done on Rayyan evaluating the eligibility of the title and abstract first, and then we screened the whole text of the potentially eligible trials. Two independent reviewers extracted the data and then analyzed the mean differences (MD) and their 95% confidence intervals (CI) using the RevMan 5.4 software.

Results: This meta-analysis included a total of five trials (RCTs) consisting of 1913 patients. NOV03 proved to be superior to placebo in reducing total corneal staining score (tCSF), Eye dryness score VAS and Central Corneal Fluorescein Staining with (MD = -1.04, 95% CI [-1.29 to -0.80], P>0.00001), (MD = -7.98, 95% CI [-12.07 to -3.89], P=0.0001) and (MD = -0.28, 95% CI [-0.37 to -0.19], P>0.00001) respectively. Most adverse events did not show any statistical difference between NOV03 and the placebo. Trial Sequential Analysis considering Type 1 error control and sequential boundaries, supports a robust and statistically significant effect of perfluorohexyloctane in treating dry eye disease.

Conclusions: This study indicates that NOV03 could be a reliable and safe drug for the management of DED. However, RCTs for longer durations are needed to establish the long term efficacy and safety of this drug.

Abstract No.: 200618

Efficacy and Safety of Rebamipide Solution for Patients with Dry Eye Disease: A Systematic Review and Meta-Analysis of Randomized Controlled Trials

*First Author: Amr **ELROSASY***
*Co-Author(s): Ahmed W **ABBAS**, Ahmad **ALKHEDER**, Raghad **SAMHA***

Purpose: This meta-analysis aims to assess the effectiveness and safety of rebamipide ophthalmic solution in improving dryness and tear functions in individuals with DED, compared to the use of artificial tears (diquafosol and sodium hyaluronate) or a placebo after 12 weeks of treatment.

Methods: This meta-analysis adheres to PRISMA 2020 guidelines. A literature search encompassed several online databases. The included outcomes were tear break-up time (TBUT), fluorescein staining score (FCS), dryness score, and adverse events (AEs). Pooled mean differences (MD), risk ratios (RR), and their 95% confidence intervals (CI) were calculated using RevMan 5.4 software.

Results: Nine studies, with a total of 1,076 patients, were included. The rebamipide group demonstrated significant improvements compared to the artificial tears and placebo groups in TBUT (MD = 0.49, 95% CI [0.03, 0.95], P = 0.04 and MD = 0.93, 95% CI [0.40, 1.46], P = 0.006), FCS (MD = -0.78, 95% CI [-1.43, -0.13], P = 0.02 and MD = -1.81, 95% CI [-2.36, -1.25], P < 0.00001), and dryness score (MD = -0.29, 95% CI [-0.50, -0.08], P = 0.006 and MD = -0.65, 95% CI [-0.85, -0.45], P < 0.00001). The overall RR for adverse events did not favor any of the three groups.

Conclusions: Rebamipide emerges as an effective intervention for DED, demonstrating improvements in TBUT, FCS, and dryness score. Its safety profile is comparable to control

groups. Further randomized controlled trials with a more diverse and larger population over longer periods are needed to establish its efficacy and safety

Abstract No.: 200611
Efficacy of Combined Intracameral Phenylephrine and Ketorolac in Cataract Surgery: A Systematic Review and Meta-Analysis

*First Author: Mohamed **ABO ZEID***
*Co-Author(s): Shrouk **MOSTAFA**, Kareem Khalefa **KHALEFA***

Purpose: This meta-analysis aims to evaluate the efficacy and safety of intracameral phenylephrine and ketorolac (PE/K) 1.0%/0.3% in maintaining mydriasis and managing postoperative ocular pain compared to vehicle and epinephrine.

Methods: We conducted this meta-analysis according to the PRISMA guidelines 2020. We searched Pubmed, Scopus, Web of Science, Cochrane, and Embase, and screened the retrieved records using Rayyan to detect the included studies. The data were extracted by two independent authors using standardized online sheets and then the risk ratios (RR) and their 95% confidence intervals (CI) were analyzed using RevMan 5.4 software.

Results: We included seven studies with a total of 219,675 patients. Compared to the vehicle and epinephrine groups, the PE/K group showed a significantly lower number of patients taking any pain medications (RR = 0.72, 95% CI [0.60 to 0.86], P =0.0003) and (RR = 0.44, 95% CI [0.24 to 0.81], P =0.008) respectively. Patients with pupil diameter less than 6.0 mm in the PE/K group were also significantly less than the vehicle and epinephrine groups (RR = 0.16, 95% CI [0.10 to 0.26], P < 0.00003) and (RR = 0.26, 95% CI [0.08 to 0.87], P =0.03) respectively.

Conclusions: Intracameral PE/K 1.0%/0.3% effectively maintains mydriasis and reduces postoperative ocular pain better than vehicle and epinephrine, requiring less pain medications and achieving optimal pupil dilation.

Abstract No.: 200325
Evaluation of Anxiety and Depression Using Hospital Anxiety and Depression Scale in Patients with Advanced Diabetic Eye Disease

*First Author: Daniel **PHANG***
*Co-Author(s): Shew Fei **CHEE**, Zunaina **EMBONG***

Purpose: To assess anxiety and depression using Malay version Hospital anxiety and depression scale (HADS) in ADED patients and to determine its association factors.

Methods: A cross-sectional study was conducted involving ADED patients from Hospital Universiti Sains Malaysia (USM) and Hospital Sultanah Aminah Johor Bharu from 1 May 2022 till December 2023.

Results: A total of 108 diabetic patients were included in this study (54 ADED and 54 no DR). Percentage of ADED patients with anxiety and depression based on HADS score cut-off point 8 were 64.8% and 61.1% respectively. The mean HADS-A score was significantly higher in ADED (8.15 SD 4.42) than in no DR (4.15 SD 3.02) ($p<0.001$). The mean HADS-D score was significantly higher in ADED (7.69 SD 3.29) than in no DR (4.28 SD 3.45) ($p<0.001$). Foot amputation and severe visual impairment to blindness were the factors that significantly associated with anxiety and depression. Other factors that significantly associated with anxiety was living alone. Whereas other factors that significantly associated with depression were male gender and had cerebrovascular accident.

Conclusions: ADED is more susceptible to psychological stress due to visual impairment and chronic medical illness related to complication of DM. A holistic approach to the management of ADED patients should include a thorough evaluation of their mental health status and early referral for mental health care, which may aid in optimising patients' care and disease outcome.

Abstract No.: 200616

Impact of Aspirin Use on Age-Related Cataract Development and Extraction: A Systematic Review and Meta-Analysis

*First Author: Amr **ELROSASY***
*Co-Author(s): Ahmad **ALKHEDER***

Purpose: This meta-analysis aims to evaluate the impact of aspirin use on the risk of age-related cataract development and cataract extraction, using data from randomized trials and observational studies.

Methods: We conducted this meta-analysis according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. We searched online databases, and two authors independently screened the retrieved records. The included studies were collected to extract the relevant data. Odds ratios (OR) and their 95% confidence intervals (CI) were analyzed using inverse-variance in RevMan 5.4 software. The quality of the included studies was assessed using Cochrane Risk of Bias (RoB 2.0) and the Newcastle-Ottawa Scale (NOS). All the included studies showed fair to good quality.

Results: We included nine studies with a total of 256,044 patients. The aspirin group did not show statistically significant differences in lowering the incidence of cataract development or cataract extraction (RR = 0.99, 95% CI [0.91 to 1.08], P = 0.85) and (RR = 1.06, 95% CI [0.99 to 1.13], P = 0.08) respectively.

Conclusions: This meta-analysis indicates that aspirin use does not significantly decrease the risk of developing age-related cataracts or the need for cataract extraction. Further research may be needed to explore any potential long-term effects of aspirin use on cataract progression.

Abstract No.: 200449

Improving Low Myopia Diagnosis: Quantitative Vascular Analysis from Ultra-Widefield Fundus Images Using Deep Learning

*First Author: Wen-li **DENG***
*Co-Author(s): Ke-yu **LIU**, Wen-juan **WAN**, Yan-lai **ZHANG***

Purpose: High myopia often leads to blindness. Current research mainly spots on high myopia, ignoring its early stages—low myopia. We use deep learning to analyze wide-field fundus images, aiming to find quick and better diagnostic signs for early intervention.

Methods: 256 myopia eyes of wide-field fundus (high=104, moderate=98, low=35, pre=19) were analyzed using ResNet and Transformer modules, resulting in 48 parameters related to vessels, chorioretinal atrophy, fundus tessellation and the optic disk. Machine learning SVM selected 15 key parameters for diagnosis. Those parameters were subjected to normality tests, one-way ANOVA, Kruskal-Wallis test, Spearman correlation analysis, principal component analysis, binary logistic regression, and ROC analysis. Validation was done on 247 eyes using the same techniques.

Results: The test set showed that axial length negatively correlated with 5 vascular factors and positively correlated with 3 fundus tessellation and 7 chorioretinal atrophy factors. The diagnostic efficiency of the model of different stages of myopia was: low vs high vs moderate, AUC=0.94 vs 0.88 vs 0.75, P<0.0001; for vascular 5 factors: low vs high vs myopia, AUC=0.91 vs 0.84 vs 0.68, P<0.0001; for fundus tessellation 3 factors: AUC=0.77 vs 0.70 vs 0.63, P<0.0001, for chorioretinal atrophy 7 factors: AUC=0.71 vs 0.80 vs 0.62, P<0.0001. The validation set demonstrated the same trends.

Conclusions: The quantitative analysis of wide-field fundus images in myopia patients using deep learning revealed that vascular factors are the most sensitive compared to fundus tessellation and chorioretinal atrophy factors,

offering an efficient and accurate diagnosis in the early stages of low myopia.

Abstract No.: 201134
Inception: Unlocking the Future of Frugal Retina Care

*First Author: Prithvi **CHANDRAKANTH***
*Co-Author(s): Shishir **VERGHESE***

Purpose: To develop cost-effective solutions to address four different limitations in vitreoretinal diagnostics and surgery, enhancing accessibility and efficiency.

Methods: A 3D-printed 20D condensing lens cover box/holder tranforming itself into a smartphone assisted retcam when one opens and extends it enabling compact and easy use by post-graduates and fellows to capture retina images in OPD($20),,A DIY illuminated scleral indenter made using a sterile hypodermic needle cap into which an endoilluminatoris inserted and attached using a sterile adhesive tape, which can be used as an illuminated scleral depressor, reducing dependence on assistants during base shaving/endolaser hence minimizing slippage, miscommunication, and accidental retinotomies (no additional cost due to usage of reusable materials),,A 3D-printed detachable adapter connecting endoilluminators(any machine) to alternative illumination sources(like LED bulb/torch/ microscope illumination source),plugged to a power bank ensuring uninterrupted surgery during machine shutdowns ($50),,A 3D-printed glow-in-the-dark port accessory, facilitating port identification in dark rooms, streamlining surgery, and reducing illumination adjustments, with a simple, cost-effective design ($1)

Results: Marking the dawn of a new era in retina surgery, our innovations ignite a revolution in frugal retina care. Our RetCam adapter enables compact and easy use, while the illuminated scleral indenter enhances safety and precision. The endoilluminator adapter ensures uninterrupted surgery, and the glow-in-the-dark port additionally streamlines workflow. These groundbreaking innovations transform retina surgery, heralding new beginning in frugal retina innovation.

Conclusions: These out of the box frugal innovations demonstrate significant potential to enhance vitreoretinal diagnostics and surgery, improving accessibility, efficiency, and patient outcomes for post graduates, fellows and also VR consultants.

Abstract No.: 200920
Long-Term Incidence and Progression of Vision-Threatening Diabetic Retinopathy in Asian Populations

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Purpose: To evaluate the incidence, progression and risk factors of vision-threatening diabetic retinopathy (VTDR) in two Asian populations with diabetes.

Methods: We included data from 1177 Malay and Indian adults aged 40-80 years with diabetes, who participated in the baseline (2004-2009) and 12-year follow-up (2017-2023) of the Singapore Epidemiology of Eye Diseases study (SEED). Two field retinal photographs were graded for presence and severity of DR using the ETDRS severity scale. Incidence of VTDR was assessed in participants who were free of VTDR (n=1132) while progression in those with any mild or moderate DR at baseline (n=211). We combined the two populations for analysis. Risk factors considered included age, sex, ethnicity, education, smoking, body mass index, blood pressure (BP), total and HDL Cholesterol, duration of diabetes, and HbA1c. Associations between risk factors and outcomes were evaluated using Poisson regression models, and the results were presented as relative risks (RR) with 95% confidence intervals (CI).

Results: The 12-year cumulative incidence of VTDR was 3.8% (Indians:4.4%; Malays:3.0%) and progression to VTDR was 17.1% (Indians:18.4%; Malays:14%). In multivariable models, Indian ethnicity (RR [95% CI] = 2.02

(1.02-4.01), higher systolic BP (1.01 [1.00-1.03]), longer duration of diabetes (1.07 [1.02-1.12]), and higher HbA1c (1.46 [1.30-1.65]) were positively associated whereas older age (0.95 [0.91-1.00]) was negatively associated with incident VTDR. Higher HbA1c (1.23 [1.08-1.42]) was associated with VTDR progression.

Conclusions: Our findings suggest that targeted interventions focusing on glycemic control and BP management, especially in high-risk ethnic groups, may help reduce the burden of VTDR.

Abstract No.: 200882
Macular Hole with Retinal Detachment Following Sports-Related Eye Injuries

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*Co-Author(s): Yoshinori **MITAMURA**, Daisuke **NAGASATO**, Hitoshi **TABUCHI**, Mao **TANABE***

Purpose: Trauma is a leading cause of visual impairment in young people.

Methods: This report describes a case of a young male who developed a macular hole (MH) and retinal detachment (RD) due to sports trauma, with spontaneous closure of the MH.

Results: A 16-year-old male presented to our department after being struck in the left eye by a handball thrown at close range. The left BCVA was 30cm counting fingers, and fundus examination revealed left vitreous hemorrhage (VH), a MH with retinal detachment in the macula, and retinal concussion with retinal hemorrhage in the temporal retina. After two weeks, the macular retina reattached, and the MH closed. After six weeks, the VH disappeared, but retinal atrophy in the macular area and a retinal tear in the superior temporal quadrant were observed, so retinal photocoagulation (PC) was performed. After 12 months, fundus examination revealed retinal atrophy and fibrotic proliferative changes along the superior temporal retinal artery. OCT of the macula showed retinal atrophy, but no progression to RD. The left BCVA was 20/200.

Conclusions: In this case, the MH closed early, the retina reattached, and the VH resolved spontaneously. However, we believe that the visual loss was caused by RD in the macula associated with trauma or retinal damage in the macula associated with traumatic macular bruising. Regarding the development of permanent visual impairment due to sports-related trauma in high school students, we believe that ophthalmology needs to be more proactive in educating the public about preventive medicine regarding safety aspects in sports.

Abstract No.: 200993
Mental Health and Vision Difficulty in Adults: A Population-Based Analysis

*First Author: Andrew **MIHALACHE***
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Purpose: Mental Health and Vision Difficulty in Adults: A Population-Based Analysis

Methods: This population-based analysis of the 2022 National Health Interview Survey included participants aged 18 years and older who provided data pertaining to their vision status. The primary outcome was the association between vision difficulty and diagnoses of an anxiety or depressive disorder. The secondary analysis elicited associations between vision difficulties with the severity of anxiety or depressive symptoms, and whether participants received mental health care. Multivariable logistic and ordinal regression models were conducted on Stata v17.0, adjusting for sociodemographic confounders.

Results: 27,640 adults (mean age: 53 ± 19 years old) were included, of which 5,210 (19%) reported vision difficulties. Adults self-reporting vision difficulty had a higher odds of having an anxiety disorder (OR=2.0, 95%CI=[1.83, 2.19], p<0.001) and more severe anxiety symptoms per the GAD-7 scale (OR=2.5, 95%CI=[2.3, 2.8], p<0.001). Likewise, adults self-reporting vision difficulty had a higher odds of having depression (OR=2.3, 95%CI=[2.12, 2.52], p<0.001) and more severe depressive symptoms per the PHQ-8 scale (OR=3.0, 95%CI=[2.7, 3.2], p<0.001). Vision difficulty

was associated with a higher odds of taking medication for a mental health condition (OR=1.69, 95%CI=[1.34, 2.14], p<0.001) and receiving therapy from a mental health professional (OR=1.70, 95%CI=[1.53, 1.90], p<0.001).

Conclusions: There are robust associations between vision difficulty and psychosocial wellbeing in the United States. Increased collaboration between eye care and mental health professionals is needed, and public health officials are urged to proactively address these associations through multidisciplinary interventions.

Abstract No.: 200202

Ocular Decompression Retinopathy after Anterior Vitreous Tapping in a Patient with Acute Angle-Closure Glaucoma

*First Author: Huika **XIA***
*Co-Author(s): Fang **FAN**, Zhiyang **JIA***

Purpose: To describe a case of ocular decompression retinopathy(ODR) following anterior vitreous tapping in a patient with acute angle-closure glaucoma.

Methods: Case report with fundus imaging, optical coherence tomography.

Results: A 57-year-old woman with acute angle-closure glaucoma presented 1day after anterior vitreous tapping of the right eye with light perception vision. She was found to have decompression retinopathy with retinal hemorrhage and optic disc edema. By 4 months postoperatively, the ODR had resolved with visual acuity of 20/25 and normal fundoscopy except for decreased retinal nerve fiber layer(RNFL) thickness.

Conclusions: ODR is a rare complication of filtering surgery. To the best of our knowledge, We are the first to report a case of decompression retinopathy after anterior vitreous tapping in a patient with acute angle-closure glaucoma. This report expands upon the procedures after which decompression retinopathy has been diagnosed and suggest high preoperative intraocular pressure (IOP) seems to be the most important risk factor for this complication.

Abstract No.: 201116

Ouch! My eye was hit by Jellyfish!

*First Author: Hong Nien **LEE***

Purpose: To highlight a plausible treatment for a case of right eye anterior stromal keratitis post jellyfish sting.

Methods: Case report.

Results: A 55 years old man complained of right eye redness and blurred vison after allegedly hit by jellyfish while fishing. His right eye vision was 6/24. Cornea showed multiple round anterior stromal edema, ranging in 0.2 – 1.0mm sizes. No epithelial defect. The conjunctiva was injected with chemosis nasally. No inflammatory reaction seen in the anterior chamber. The intraocular pressure of both eyes were 12. He was commenced on hypertonic saline 3% every four hour with ointment dexamethasone 0.1%. During the follow-ups, he showed improvement clinically and functionally. After a week, the cornea lesions were minimal and his vision recovered to 6/9.

Conclusions: The nematocysts at the tentacles of jellyfish contains venom that is toxic to human. Exposure to fresh water may cause the nematocysts to discharge its venom. Hence treatment is aim to prevent further discharge of nematocysts and to reduce the inflammatory reaction to the venom.

Abstract No.: 200058

Pathological Manifestations of the Iris in Primary Chronic Open-Angle Glaucoma

*First Author: Nader **NASSIRI***
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Purpose: This study aims to assess the histopathological changes in the iris of patients with primary chronic open-angle glaucoma (PCOAG) who are undergoing trabeculectomy surgery.

Methods: Conducted at the Imam Hossein Medical Center in Tehran, Iran, this case series

included patients diagnosed with PCOAG scheduled for trabeculectomy. Exclusion criteria encompassed diabetes mellitus, systemic hypertension, uveitis, vascular lesions, central retinal vein occlusion, pseudoexfoliation, iris neovascularization, and previous Xalatan usage. Following peripheral iridectomy, iris specimens were fixed in 10% formalin, processed, and stained with hematoxylin and eosin for histopathological examination. The evaluation focused on vascular hyalinization, anterior border layer (ABL) thickness, stromal pigmentation, and pigmented epithelium characteristics.

Results: Twenty-five patients (mean age 64.4 ± 8.8 years) participated in the study. Notable findings included vascular hyalinization in 72% of patients, ABL thickening in 48%, severe stromal pigmentation in 40%, and vacuolated or depigmented epithelium in 32% and 4% of patients, respectively. Intranuclear inclusions and nuclear invaginations were noted in 88% of cases. The average number of glaucoma medications used per patient was 1.3 ± 1.1.

Conclusions: The study underscores significant histopathological alterations in the iris in PCOAG patients. These changes are likely influenced by factors such as aging, patient ethnicity, and increased intraocular pressure. Gaining a deeper understanding of these changes is vital for the advancement of PCOAG management and treatment methodologies.

Abstract No.: 200176

Prevalence and ROC Curve Analysis of Related Factors of High Myopia Among Adults Aged 50 Years and Older in Fujian Eye Study

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*Co-Author(s): Qinrui **HU**, Yonghua **HU**, Xiaoxin **LI**, Bin **WANG***

Purpose: To investigate the prevalence of high myopia and its associated demographic and ocular factors among residents aged 50 years and older in Fujian Province, southeast China.

Methods: A population based cross-sectional eye study was performed and residents aged 50 years and older were enrolled from May 2018 to October 2019. Participants underwent a questionnaire, physical and ocular examinations. High myopia was defined as diopters ⍰ -6.00. Stata software was used for statistic analysis, a multivariate logistic regression model was used to identify associated factors for high myopia and the ROC curve analysis was used to verify the credibility.

Results: A total of 8211 residents were finally included in our study. Of these, 8024 residents accepted the refraction examination. A total of 309 participants had high myopia, of whom 179 (57.9%) were female, 177 (57.3%) were from urban area, 222 (71.8%) were from coastal region. The prevalence of high myopia was 3.85% [95%CI 3.43%-4.27%]. Multiple logistic analysis found that high myopia was associated with higher IOP (OR=1.07, p=0.001) and more educated (OR=1.71, p<0.001), and ROC curve analysis finally demonstrated that IOP (AUC=0.5740) and educational background (AUC=0.6107) could relatively accurately predict high myopia.

Conclusions: High myopia is common among Chinese adults and considered to be the primary cause in 3.85% of all eyes, which suggested more investment in accessible services and policy to enhance eye health on elderly with higher IOP and more educated.

Abstract No.: 201027

Pupillary Block Due to Reverse Implantation of a Sulcus Intraocular Lens

*First Author: Nur Hanna Illyana **MOHD ZULKIFLI***
*Co-Author(s): Marium **AHMAD**, Tengku Ain Fathlun **TENGKU KAMALDEN***

Purpose: To report acute pupillary block glaucoma caused by a sulcus intraocular lens (IOL) placed in reverse position.

Methods: A single case report.

Results: A 48-year-old male presented with a painful right eye with blurred vision associated with headache, nausea and epiphora. In the preceding year, he had sulcus IOL in the right eye placed following a posterior capsule

rupture. He denied any recent ocular trauma. Visual acuities were OD CF and OS 6/9. The right eye showed acute pupillary block with high intraocular pressure (IOP) measuring 44mHg. The pupil was almond-shaped and completely occluded by a anteriorly dislocated intraocular lens with iris bombe and shallow anterior chamber. The haptics were behind the pupil. There was no sign of infection. The fellow eye was unremarkable.,An urgent right peripheral laser iridotomy and anti-glaucoma treatment was commenced, which normalised the IOP. During explantation, the orientation of the IOL was observed to be reversed position (S-configuration). A sulcus fixated IOL was placed in the correct orientation, He made good recovery postoperatively with OD 6/12 vision and normal IOP.

Conclusions: Correct positioning of intraocular lens is imperative to ensure proper placement in the posterior chamber. Reversed positioning of the IOL in sulcus can lead to complications like pseudophakic pupillary block as highlighted in this case report. Definitive management include acute control of IOP, IOL explantation and secondary IOL in the correct position.

Abstract No.: 200591
Safety and Efficacy of Pilocarpine in Presbyopic Patients: A Systematic Review and Meta-Analysis

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*Co-Author(s): Hazim **ALKOUSHEH**, Kareem Khalefa **KHALEFA***

Purpose: This meta-analysis aims to assess the safety and efficacy of the cholinergic agonist pilocarpine in presbyopic patients.

Methods: We conducted a meta-analysis following PRISMA guidelines. Four databases were searched until 1st of July 2024 to identify articles related to the use of pilocarpine in presbyopic patients and assessing participants with a ≥ 3-line improvement in distance-corrected near visual acuity (DCNVA) at 40 cm and no loss of ≥ 1 line in Corrected Distance Visual Acuity (CDVA) and safety outcomes. The risk ratios (RR) and mean difference (MD) of the extracted data and their 95% confidence interval (95% CI) were pooled using RevMan 5.4 software

Results: Four studies were included in our analysis comprising a combined total of 1023 patients. Pilocarpine demonstrated significant better results when compared to the vehicle in patients achieving: ≥ 3-line DCNVA at 40 cm after 3 hours and 30 days (RR = 3.30, $p < 0.00001$), (RR = 2.03, $p < 0.00001$) respectively, 20/40 or better photopic DCNVA after 3 hours (RR = 1.30, $p = 0.004$), higher mesopic NVPTQ score after 3 hours (MD = 0.84, $p < 0.00001$), and smaller pupil size in the non-dominant eye (MD = -1.75, $p < 0.00001$). For Safety outcomes pilocarpine showed significant higher risk of developing headache, Facial pain and blurred vision (RR = 2.49, $p = 0.006$), (RR = 4.48, $p = 0.001$), (RR = 4.93, $p = 0.002$) respectively

Conclusions: Despite the promising results pilocarpine demonstrated in improving the symptoms of presbyopia, it also raised concerns regarding its safety.

Abstract No.: 200866
Secondary Intraocular Lens Options in Intraocular Lens Dislocation: A Review

*First Author: Alexander **MALOOF***
*Co-Author(s): Christopher **GO**, Ava **JAMES**, Nicholas **PAVIC**, Stephanie **WU**, Shane **ZHANG***

Purpose: Intraocular lens dislocation is an uncommon complication of cataract surgery. This review aims to provide clinicians with an updated review of secondary intraocular lens (IOL) options to aid clinical decision making when managing IOL subluxation or dislocation.

Methods: A broad review of the literature was performed. We evaluated different techniques for both IOL lens rescue and secondary IOLs, with a focus on the latter. We structured our review of each option by the salvageability of the IOL, the preservation of the bag and subsequently the adequacy of capsular support.

Results: We evaluated the techniques available for each IOL option with a clinical focus on the anatomical indications, technical considerations,

advantages and potential complications. We then proposed an algorithm for determining the selection of each major secondary IOL implantation technique. Unfortunately there is a paucity of high quality evidence, such as randomised controlled trials.

Conclusions: While there are numerous IOL techniques and lens options for addressing IOL dislocation, there is currently no consensus on the optimal method. The choice of secondary IOL and fixation techniques are often guided by patient anatomy and the nature of the dislocation, but in many cases are decided upon the surgeon's experience and preference.

Abstract No.: 200830
Sociodemographic Disparities in Eye Examinations: A Nationally Representative Survey Analysis

First Author: Ryan ***HUANG***
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Purpose: Regular eye examinations are a key component to improving eye health, however several major barriers to eye care services around the globe still exist. This study aims to investigate the associations between sociodemographic factors and whether adults received an eye examination within the past year in the United States.

Methods: Data from the 2022 National Health Interview Survey (NHIS) were pooled, including participants aged 18 years or older in the United States. Univariable and multivariable logistic regression models were used to examine associations between sociodemographic variables and odds of undergoing an eye examination in the past year using Stata version 17.0 (StataCorp LLC, College Station, Texas).

Results: Across 27,246 adults, 14,812 (53.57%) had an eye examination in the past year. In multivariable analysis, the following sociodemographic factors were associated with an increased odds of having undergone an eye examination in the past year: self-identifying as female (OR=1.49, 95%CI=[1.39, 1.61, p<0.01), Hispanic (OR=1.25, 95%CI=[1.11, 1.41], p<0.01) or Asian (OR=1.30, 95%CI=[1.13, 1.51], p<0.01). The following factors were associated with a reduced odds of having undergone an eye examination: being single (OR=0.91, 95%CI=[0.83, 0.99], p=0.02) compared to being married, residing in the West compared to the Northeast (OR=0.87, 95%CI=[0.77, 0.99], p=0.04), and lacking citizenship status (OR=0.69, 95%CI=[0.59, 0.81], p<0.01), insurance (OR=0.55, 95%CI=[0.47, 0.63], p<0.01) or a usual place of care (OR=0.54, 95%CI=[0.48, 0.61], p<0.01).

Conclusions: Several sociodemographic factors were associated with whether adults recently underwent an eye examination. Public health efforts dedicated to addressing inequities in vision screening are imperative.

Abstract No.: 201115
Squishy wiggly larvae in my eye!

First Author: Hong Nien ***LEE***

Purpose: To highlight the possible asphyxiating effect of topical fucidic acid ointment in a case of eyelid ophthalmomyiasis externa.

Methods: A case report

Results: A preadolescent girl with known case of harlequin ichthyosis was brought to our emergency clinic with right eye upper lid swelling for two days. On examination, her right eye vision was 6/18. Upper and lower lids ectropion with skin breaks. The upper lid appeared swollen and chemotic. A small punctum noted at the lateral part of the upper eyelid with no discharge. An epithelial defect was seen on the cornea. She was diagnosed with preseptal cellulitis and subsequently admitted, commenced on topical fucidic acid ointment and intravenous antibiotic and scheduled for an imaging investigation in the following day. During the examination prior to the imaging study, a small larvae was seen protruding from the lateral punctum. It was removed and the area was thoroughly examined. The contrasted computed tomography showed diffuse thickening and

enhancement of preseptal soft tissue and two small locules at the right upper lid. She undergone examination under anesthesia and right upper lid incision, drainage and curettage. No other larvae was found.

Conclusions: A complete removal of larvae is the vital in human ophthalmomyiasis externa. It can be done via chemically and mechanically. A possible suffocating effect of a viscous agent such as fucidic acid ointment forces the larvae to the surface. Contrary to the commonly-used turpentine, it is safe to use.

Abstract No.: 200117

The Correlation Between C-Reactive Protein and Normal Tension Glaucoma Disease: A Meta-Analysis

*First Author: Yen **LE***

Purpose: Normal tension glaucoma (NTG) is a prevalent condition that, if not promptly addressed, can result in irreversible vision impairment. C-reactive protein (CRP) serves as a prognostic indicator in various diseases, particularly those involving inflammatory responses and atherosclerosis. However, its association with NTG remains uncertain. In this meta-analysis, we explore the relationship between CRP levels in patients with and without NTG.

Methods: PubMed, Embase, and Scopus were searched for relevant studies published before October 2023. Observational studies investigating the correlation between CRP levels in patients diagnosed with NTG and controls were included. The difference in CRP levels between the NTG group and the non-NTG group was measured as standardized mean differences (SMDs) and 95% confidence intervals (CIs).

Results: Ten case-control studies with a total of 698 patients were included. Among them, 9 studies used to analyze CRP levels in the NTG group and control group showed that the NTG group was significantly higher than the control group (SMD: 0.736, 95% CI: 0.149–1.323; P<0.05). However, when analyzing 3 studies comparing the NTG group and the POAG group on CRP levels, there was no significant difference (SMD: 0.189, 95% CI: -0.104–0.482; P=0.207).

Conclusions: Our study underscores the prognostic significance of CRP levels across different pathologies, particularly in NTG. Higher CRP levels are associated with an increased risk of NTG, suggesting CRP's potential as a predictor for this condition. Further research is needed to validate CRP's predictive capacity in clinical settings and explore its implications for treatment strategies and patient management.

Abstract No.: 200814

The Health Economics and Patient Experience of Removing Day 1 Post Vitreo-Retinal (VR) Surgery Clinic Visit

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Purpose: To investigate the health economics and patient experience of day 1 post VR surgery clinic visit and explore the feasibility of removing day-1 post operative review (D1POR).

Methods: This is a prospective study comparing the economic cost and patient experience in the immediate 2-4 weeks post-operative period in patients who had (control) versus who had not (study) had D1POR. Patients' follow up schedule was at the surgeons' discretion. Patient survey was used to explore the cost associated with D1POR including carers and unintended medical visits.

Results: Preliminary results over 4 weeks included 57 patients and a further 4 weeks of collection is ongoing. There were 17 patients in the study group and 40 patients in the control group. Overall, 33% preferred medical contact (phone call or clinic visit) for D1POR, but only 26% (n=5) in the study group and all would have been satisfied with phone call for reassurance. There was no significant difference (16% vs 10%) between the study and control group, in seeking extra medical attention between surgery and scheduled appointment

. When asked about absolute cost, only 14 responded with a mean cost of 36£. However, the true cost is significantly higher with transport cost and accompanying person time often not considered. A more in-depth mathematical model will be used to calculate the projected cost following complete data collection in August 2024.

Conclusions: There is significant cost associated with attending in-person D1POR and most patients were happy without any D1POR and those who did, were satisfied with phone calls only.

Abstract No.: 201052

The Overlooked Trauma: Monocular Temporal Hemianopia from a Stretched Optic Nerve Injury

*First Author: Nur Amalina **MOHD SHUKRI***
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Purpose: To report a rare case of delayed monocular hemianopia presenting after 2 years post motor vehicle accident (MVA).

Methods: A case report.

Results: A 35-year-old male with underlying hypertension, presented with right-sided visual field loss for 6 weeks, described as black patches in the outer visual field of the right eye that has led to several near-miss accidents. He had an MVA one-year ago, sustained a moderate traumatic brain injury, right orbital floor fracture with periorbital hematoma, along with nasal bone fracture, closed fracture of the right scapula, and right acromioclavicular joint disruption in the MVA. Otherwise, he denied any associated visual disturbance following the incidence.,Ocular examination revealed a visual acuity of 6/9 OD and 6/6 OS, with negative relative afferent pupillary defect (RAPD). The anterior and posterior segment examination were normal, with normal IOP. Humphrey visual fields (HVF) revealed right temporal hemianopia. Urgent MRI done revealed normal imaging. Previous CT scan during MVA was reviewed, formally reported with evidence of mild proptosis and a stretched right optic nerve. A final diagnosis of right traumatic optic neuropathy, likely posterior ischemic optic neuropathy secondary to the stretched optic nerve was made.

Conclusions: This case highlights the importance of thorough ophthalmic and neurological evaluations in patients post head trauma. The delayed presentation and absence of RAPD underscore the variability in clinical manifestations of traumatic optic neuropathy. Patient was informed regarding the visual prognosis that his visual field loss is permanent and will be managed conservatively.

Abstract No.: 200822

Unilateral Visual Impairment Prevalence of Myopia: A Community-Based Study

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Purpose: This study aims to explore the prevalence of visual impairment (VI) among individuals with myopia using a community-based health dataset, providing insights for monitoring low and high myopia.

Methods: A community-based cohort of 4,045 myopia subjects was analyzed and only the poorer-seeing eyes were included. All eyes were divided into two groups: 2,002 low myopia eyes (-6.00D < Refractive error ≤ -1.00D) and 2,043 high myopia eyes (Refractive error ≤ -6.00D). The prevalence of VI was calculated based on presenting visual acuity and analyzed further by severity (mild, moderate, severe, and blindness according to WHO standards), age (in 10-year intervals), and refraction (in -1.00 diopter intervals).

Results: VI prevalence was 3.85% in the low myopia and 12.29% in the high myopia group ($p<0.001$). VI prevalence significantly increased with age, particularly for individuals over 50 ($p<0.001$). VI prevalence was three times higher in those over 50 (7.85% vs. 21.69%) and continued to increase with each additional decade in high myopia group, while low myopia group, prevalence was twice as high (3.24% vs. 6.62%). For advancing refraction,

VI prevalence was three times higher (4.42% vs. 11.08%) with refraction less than -6.00D and further increased with refraction less than -10.00D (11.22% vs. 29.00%). Severity of VI increased with age (blindness rising from 0% to 15.69%) and refraction (from 0% to 20.83%) in the high myopia group.

Conclusions: Individuals with high myopia experience significantly higher and more severe VI compared to low myopia, particularly those over 50 years old, and with refraction below -6.00 and -10.00 diopters.

Abstract No.: 200972

Visual Outcome and Complications of Retropupillary Iris Claw and Scleral-Fixated Intraocular Lens Implantation in Hospital Raja Perempuan Zainab II, Kelantan, Malaysia: A Two-Year Retrospective Audit

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Purpose: To study the visual outcomes and complications between the eyes receiving retropupillary iris claw intraocular lens (ICIOL) and scleral-fixated IOL (SFIOL).

Methods: A retrospective study of patients that underwent ICIOL and SFIOL implantation from January 2022 to December 2023 at Hospital Raja Perempuan Zainab II, Kelantan, Malaysia.

Results: A total of 63 patients (63 eyes) underwent either SFIOL or ICIOL implantation with mean age of 62, with age ranged from 24 to 90. ICIOL was implanted in 43 eyes (68.3%) and SFIOL in 20 eyes (31.7%). Intraoperative iatrogenic iris injury was more commonly seen in the retropupillary ICIOL group (16%) compared to SFIOL (10%). Other intraoperative complications recorded include Descemet tear and vitreous loss. In the ICIOL group, five eyes developed high postoperative intraocular pressure (IOP), two had cornea oedema, three haptic disenclavation that require repositioning surgery, two had retinal detachment and one cystoid macular oedema (CMO). SFIOL group had one case each for CMO, high IOP, and cornea oedema. There were four cases of SFIOL decentration but only one require repositioning. Overall, there was a significant improvement in the final best-corrected visual acuity (BCVA) for both groups. Only three eyes (7%) in ICIOL group and one eye (5%) had worse final BCVA than the pre-operative visual acuity.

Conclusions: ICIOL and SFIOL comparatively have good overall visual outcomes on follow-ups as alternative for correction of aphakia in an inadequate capsular support. More comprehensive comparison studies with increased sample size and extended follow-up is warranted to assess the long-term visual outcome and complication profiles.

Abstract No.: 200931

Yogic Pranayama and Diaphragmatic Breathing: Adjunct Therapy for IOP in Patients with Primary Open-Angle Glaucoma: RCT

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Purpose: •Intraocular pressure maintenance is influenced by autonomic activity (sympathetic and parasympathetic).,•Yogic pranayama and Abdominal breathing are exercises that can affect autonomic activity by stimulating a wakeful hypo-metabolic state of parasympathetic dominance.,•To assess the effect of yogic pranayama and diaphragmatic breathing on intraocular pressure to determine whether it can be recommended for individuals with established glaucoma (POAG) in combination with glaucoma medication as an adjuvant therapy.

Methods: In this prospective, randomized trial, 90 patients with primary open-angle glaucoma (180 eyes, age: above 40 y) were assigned to either the control or yogic pranayama and diaphragmatic breathing exercise group. In the latter group, yogic pranayama and diaphragmatic breathing were practiced

daily for 6 months. Intraocular pressure was measured at presentation and subsequently after 1, 3, and 6 months.

Results: 40 (89%) participants who completed the Yogic pranayama and diaphragmatic breathing (YPDB) exercises showed a >28% IOP reduction.

Conclusions: This study provides scientific evidence for lowering eye pressure with yogic breathing exercise (Pranayama and Diaphragmatic breathing).,Yogic exercises can be recommended as an adjunctive therapy for glaucoma patients and not as a substitute for medicines/eye drops as per our study.

Pediatric Retina

Abstract No.: 200768
A Case Report of Pediatric Retinal Detachment Associated with Chorioretinal Coloboma in CHARGE Syndrome and the Potential Role of Wide-Field Retinal Imaging

*First Author: Tanapat **RATANAPAKORN***
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Purpose: CHARGE syndrome is a rare genetic disorder commonly associated with ocular manifestations, particularly colobomas. Chorioretinal coloboma increases the risk of complications like rhegmatogenous retinal detachment (RRD).

Methods: We reported a 9-year-old male with CHARGE syndrome and bilateral chorioretinal coloboma, who experienced sudden blurry vision in his right eye for one week after a history of being hit at school. His visual acuity (VA) was 6/60, consistent with his baseline. Posterior pole chorioretinal colobomas with a vertical fibrous band were observed in the right eye, but peripheral fundus visualization by indirect ophthalmoscopy was limited. B-scan ultrasonography revealed a membrane-like lesion with a high spike in the right eye, leading to a diagnosis of superior retinal detachment (RD).

Results: Intraoperatively, a large inferior chorioretinal coloboma and superior RD were found. The patient underwent pars plana vitrectomy with endolaser photocoagulation and heavy silicone oil tamponade.

Conclusions: Diagnosing RD in pediatric patients, especially those with CHARGE syndrome, can be challenging without full peripheral retinal visualization. We emphasize the importance of wide-field retinal imaging for early diagnosis and management of pediatric RD in these patients. Incorporating wide-field retinal imaging into routine fundus examinations can facilitate diagnosis, allow for baseline image documentation, and enable specialist consultations. This technology will surely transform our way of managing retinal disease.

Abstract No.: 200948
A Comparative Study on the Role of Innovator Bevacizumab vs. Biosimilar Bevacizumab in the Management of ROP

*First Author: Rahul **PRASAD***
*Co-Author(s): Varsha **BHAGHAT**, Jennifer **GARGAI***

Purpose: To study and compare the role of innovator bevacizumab with a biosimilar Bevacizumab for the management of type 1 ROP.

Methods: A Retrospective single center interventional study was carried out on 72 eyes having type 1 ROP. 36 eyes having type 1 ROP were treated with intravitreal injection of innovator bevacizumab and the second group of 36 eyes were managed by intravitreal injection of biosimilar bevacizumab.

Results: Complete regression of ROP was seen in 68.06% of babies receiving innovator bevacizumab and 67.92% of babies receiving the Indian biosimilar bevacizumab monotherapy. In those babies having residual ROP , complete regression was seen in both group after adding laser photocoagulation. The study population experienced no ocular or systemic adverse effects in either group.

Conclusions: Our study demonstrated that both innovator bevacizumab and biosimilar bevacizumab offer similar benefit in type 1

ROP. The biosimilar bevacizumab offered a cost effective tool for treatment of ROP.

Abstract No.: 200446

A Retrospective Study on the Anatomical and Visual Outcomes After Vitrectomy for Infants with Stage 4 and 5 Retinopathy of Prematurity in Hospital Kuala Lumpur

First Author: Jason Allan Seng Soon ***CHEAH***
Co-Author(s): Li Yen ***CHAN****, Jamalia* ***RAHMAT****, Wan Wen* ***SOH***

Purpose: To determine the postoperative anatomical and visual outcomes after vitrectomy in infants with stage 4 and 5 retinopathy of prematurity (ROP).

Methods: A retrospective study.

Results: Eighteen eyes of 11 infants, including 4 eyes with stage 4A ROP, 4 eyes with stage 4B ROP and 10 eyes with stage 5 ROP, were examined. The mean gestational age was 27.8 weeks (23 – 33 weeks) and mean birth weight was 1095g (560 – 1680g). Mean corrected gestation age at surgery was 54.2 weeks (38 – 88 weeks). Vitrectomy-lensectomy was performed in 13 eyes (72.2%), which included all eyes of stage 5 ROP and 3 stage 4B ROP, with remaining patients underwent lens-sparing vitrectomy. Retinal reattachment was achieved in 5 out of 18 eyes (27.8%), 2 in stage 4A, 2 in stage 4B, and 1 in stage 5 ROP. Four eyes (22.2%) subsequently underwent a second surgery. The mean follow-up period was 57.1 months. In stage 4A and 4B, visual acuity better than light perception was obtained in 75% (3/4 eyes) and 25% (1/4 eyes) respectively. No light perception was present in 25% (1/4 eyes) of stage 4B and 50% (5/10 eyes) of stage 5 ROP. Postoperative intraocular hemorrhage occurred in 3 eyes (16.7%). Long term complication includes cataract, cornea opacity, glaucoma and phthisis.

Conclusions: The anatomical and visual outcomes for stage 4A of retinopathy of prematurity are the most favorable. It is crucial to place significant emphasis on the prevention of retinal detachment in premature infants to ensure the best possible outcomes.

Abstract No.: 200944

A Study to Analyze Decrease in Absolute Platelet Count as a Marker for Severe ROP in Premature Infants

First Author: Rahul ***PRASAD***
Co-Author(s): Varsha ***BHAGHAT****, Jennifer* ***GARGAI***

Purpose: To determine the association of decrease in absolute platelet count with ROP in premature babies.

Methods: Study was conducted in 90 babies with birth weight <1500 gram, < 30 weeks gestation and decrease in serum Platelet count. Babies,with decrease in absolute platelet count were divided into 2 groups: Group 1: Babies requiring platelet transfusion, Group 2: Babies not,requiring Platelet transfusion. Each group was sub divided into- Babies with severe ROP that needs treatment and mild ROP that,didn't meet criteria for treatment. The absolute platelet count was recorded at the 1st visit and its association with severity of ROP were,noted.

Results: Among 90 babies, 30 had no ROP, 27 mild ROP, 33 severe ROP. The mean absolute platelet counts for Severe, mild, no ROP were 47778±15574.90, 55000±17176.57 & 71412±23179.29/µL and it showed that there is a significant difference between absolute platelet count and retinal findings(P=0.000). Among 33 severe ROP cases, group 1 had 22 cases and group 2 had 11 cases with the mean absolute platelet counts in group 1 and 2 were 43958±14698 and 55416±14988/micro-L respectively. This shows that there is significant difference between severe ROP in both the groups and which is found to be statistically significant (P = 0.035). Mean difference = -11458.

Conclusions: Statistical analysis showed that, there is an association between decrease in serum absolute platelet count in babies with severe ROP.

Abstract No.: 200206

Abusive Head Trauma in an 8-Month-Old Female

*First Author: Sharimayne Edelweiss **NATIVIDAD***
*Co-Author(s): Charmaine Grace **CABEBE**, Esther Carmen Arvella **EREÑO**, Melissa Anne **SANTOS-GONZALES***

Purpose: To report a case of pediatric abusive head trauma.

Methods: Case report

Results: An 8-month-old infant was admitted to the emergency department due to decrease in sensorium. Patient was allegedly left with her stepfather when the mother noted a sudden decrease in sensorium and spasm of extremities. Upon examination, the patient had episodes of desaturations with a GCS of 7. On inspection, hematoma was noted over the right parietal area measuring 3x4cm. Evaluation by our service revealed anisocoric pupils. Fundus examination showed diffuse bilateral, multiple, and multi-layered retinal hemorrhages. Coagulation profile and skeletal survey were unremarkable. Cranial CT scan revealed acute subdural bleed on right cerebral and left fronto-parietal convexities with interhemispheric and tentorium cerebelli extensions; right temporal and bilateral parietal bone fractures. A medicolegal report was submitted to social service. Due to the extensive brain injury, the patient expired on the 5th hospital day.

Conclusions: Child abuse is a significant social dilemma. The expertise of ophthalmologists are indispensable in recognizing the distinctive ocular findings associated with abusive head trauma. Moreover, it aids in early detection, leading to better outcomes.

Abstract No.: 200318

Angiographic Features of Pediatric Stage 4 Familial Exudative Vitreoretinopathy with Radial Retinal Folds

*First Author: Wenting **ZHANG***
*Co-Author(s): Jie **PENG**, Haodong **XIAO**, Jiawei **YIN**, Peiquan **ZHAO***

Purpose: To describe vascular anomalies and nonperfusion areas (NPAs) of stage 4 familial exudative vitreoretinopathy (FEVR) with radial retinal folds (RFs) and analyze their potential clinical significance.

Methods: Fluorescein fundus angiography (FFA) and risk factors for progression of pediatric stage 4 FEVR patients with radial RFs were respectively explored.

Results: Fifty-eight eyes with RFs from 49 stage 4 pediatric FEVR patients were studied. Various angiographic changes were noted, including peripheral NPAs (93.1%), thinning retinal arteries (48.3%), straightened retinal vessels (34.5%), supernumerary vascular branching (32.8%), arteriovenous shunt (20.7%), aberrant circumferential vessels (13.8%), bulbous vascular endings (10.3%) and peripheral vascular dilation (6.9%). Nineteen (35.2%), 21(38.2%), and 14 (25.9%) of 58 eyes showed severe, moderate, and mild peripheral NPAs, respectively. The rate of retinal detachment (RD) was higher in eyes with severe peripheral NPAs (p=0.004). The severity of the nonperfusion area (p=0.040) was higher in eyes with exudation. Eight eyes (42.1%) with exudation and 12 eyes (30.8%) without exudation on color fundus pictures exhibited fluorescein leakage (p=0.394). The rate of RD was 26.3% in eyes with exudation, and 2.6% in eyes without exudation (p=0.012).

Conclusions: The majority of stage 4 FEVR eyes with RFs have severe peripheral NPAs. Exudation is related to more severe peripheral NPAs. Exudation and NPAs are predictive factors for RD.

Abstract No.: 201112

Characteristic artefacts in Color fundus imaging of preterm babies with Retinopathy of Prematurity

*First Author: Sushma **JAYANNA***
*Co-Author(s): Akash **BELENJE**, Subhadra **JALALI**, Tapas Ranjan **PADHI***

Purpose: Purpose: To describe the characteristic artefacts seen in color fundus images of pediatric fundus camera ,3NETRA neo(Bangalore, India) and ultra-wide field cameras.

Methods: artefacts seen in color fundus images of babies with ROP captured using 3Netra neo, Ret cam, optos and clarus has been described

Results: Artefacts found in images of 3Netra neo and Ret cam are similar. It included circumferential yellow crescent artefacts mimicking a ridge, brown crescent artefact which can be mistaken as blood streak, para central whitish haze artefact which can mimic as avascular area. Less common but significant artefact include those created by fingerprints or foreign body on the camera lens. Characteristic artefacts seen in color fundus images of babies with ROP captured using optos camera using flying baby position included eye speculum, eyelash and eyelid in vertical quadrants.

Conclusions: Through our descriptive study, we have for the first time addressed, in detail, the artefacts associated with color fundus images of pediatric fundus cameras especially those which are actively used in tele screening of ROP (Forus and Retcam) and its significance. It is vital to understand these artefacts to avoid misinterpretation or under diagnosis of sight threatening disease like ROP

Abstract No.: 200602

Clinical Features and Outcomes of Vitrectomy in Non-Accidental Injury (NAI) Infants with Intraocular Hemorrhage in Hospital Tunku Azizah

*First Author: Jason Allan Seng Soon **CHEAH***
*Co-Author(s): Norhafizah **HAMZAH**, Zhen Ning **LOW**, Sangeetha **THARMATHURAI***

Purpose: To describe the clinical features of infants with intraocular hemorrhage secondary to Non Accidental Injury (NAI) and their surgical outcome post pars plana vitrectomy (PPV).

Methods: A case series of five patients diagnosed with intraocular hemorrhage in NAI who underwent PPV between June 2023 and December 2023 in a single center, Hospital Tunku Azizah (HTA), Malaysia.

Results: Ten eyes of five patients were included. The patients were between the ages of 3 to 6 months old at time of presentation. Four patients presented to the emergency department with seizures while one patient was brought in unresponsive. Three patients sustained frontotemporal parietal subdural hemorrhage (SDH), one patient sustained tentorium cerebellum SDH while one had intracranial hemorrhage. All 10 eyes had subhyaloid hemorrhage involving the macula and optic disc. All patients were treated with topical NSAIDS and topical steroids. PPV was performed in all patients between 4 to 8 weeks from diagnosis. 7 out of 12 eyes had visual improvement while 3 eyes had no improvements at 2 months post PPV. Fundus examination of all patients revealed resolved premacular hemorrhage.

Conclusions: Pars plana vitrectomy (PPV) in the management of intraocular hemorrhage in NAI infants is safe and effective. A favorable visual and anatomical outcome can be achieved when PPV is performed at 3-5 weeks post trauma.

Abstract No.: 200360

Clinical Manifestations of Refractory Coats Disease and its Treatment Strategy

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Purpose: To report the clinical manifestations of eyes with Coats disease after repetitive non-endolaser therapies and discuss its subsequent treatment strategies.

Methods: In this retrospective case series, data from patients who were diagnosed with Coats disease and received at least 5 times of non-endolaser treatment between May 2015 and June 2024 was reviewed.

Results: Of the 17 patients (18 eyes) included in the study, thirteen were male (76.5%). The median (range) previous treatment period was 10.0 (4 mos - 2 years) months. Seventeen eyes were treated with a median (range) of 4 (1 - 8) photocoagulation sessions, and four were treated with 2.5 (1-5) cryotherapy sessions. The median (range) sessions of anti-vascular endothelial growth factor injection were 5 (0 - 9) times. After the above, the number of eyes with stage 2, 3a1, 3a2, and 3b was two (11.1%), ten (55.6%), four (22.2%), and two (11.1%), respectively. There were 13 (72.2%), 6 (33.3%), and 6 (33.3%) eyes with vitreoretinal fibrosis, subretinal fibrosis, and submacular nodules, respectively. One eye had predisc neovascularization, and one had cataract. Eyes with stage 2 underwent repeated photocoagulation. Eyes with stage 3 were treated with two-port non-vitrectomy endolaser therapy (5 eyes) or pars plana vitrectomy (11 eyes). After a median of 16.4 months of follow-up, all eyes had retina reattached. Sixteen (88.9%) eyes had ablation of the abnormal vessels. Nine (50.0%) eyes had improved visual acuity.

Conclusions: Coats eyes may continue to show activity and retinal detachment after repetitive therapies and call for more effective treatment.

Abstract No.: 200639

Clinical Performance of 18-Millimeter Short Vitrectomy Probe in Pediatric Retinal Surgery

*First Author: Margaret Ming-chih **HO***

Purpose: Surgical treatment of pediatric retinal diseases has become more common with the evolution of small gauge vitrectomy. However, the anatomical structure of children was different from adults, as they have smaller eyeballs and shorter axial lengths. This study investigates the safety, effectiveness, and reliability of using an 18-millimeter short vitrectomy probe in pediatric vitreoretinal surgery.

Methods: In this prospective study, we recruited patients under 18 years old undergoing vitrectomy with 18-millimeter short vitrectomy probe in Chang Gung Memorial Hospital, Linkou branch from 2022 to 2024. The primary outcome measures the safety of the instrument, including the durability and incidence of iatrogenic complications such as lens touch and retinal injury. The secondary outcome measures the overall comfortability and reliability of the instrument during surgery, assessed by the retinal surgeon.

Results: Eleven children undergoing vitrectomy (13 eyes; 8 right, 5 left) were enrolled. No incidence of instrument bending, iatrogenic retinal injury, or other complications occurred during any procedure. The instrument received a top rating of 5 out of 5 for the overall comfortability rating by the surgeon. Average ease of instrument rotation, ease of instrument extension to the peripheral retina, and ease of eyeball rotation were rated as 4.9 ± 0.3, 3.5 ± 0.5, and 4.6 ± 0.5 out of 5 points, respectively.

Conclusions: In conclusion, the 18-millimeter short vitrectomy probe proves to be a safe and effective surgical instrument for pediatric vitrectomy. The instrument also improved the overall comfortability of retinal surgeons, enhancing surgical success in pediatric vitreoretinal surgeries.

Abstract No.: 200772

Clinical, Microbiological Profile & Treatment Outcomes of Traumatic Endophthalmitis in Pediatric Population in South India

First Author: Ram Sudarsan R
*Co-Author(s): Syed Mohideen **ABDUL KHADER***

Purpose: To study the clinical , microbiological profile and treatment outcomes of Paediatric patients with traumatic endophthalmitis.

Methods: A retrospective study of 16 eyes of pediatric patients (<15 yrs) diagnosed with endophthalmitis secondary to trauma between 2022-2023. Details of the patients were collected using electronic medical records.

Results: Mean age at presentation was 7.6 years (median 8 years, range: 2 months to 18 years). Broomstick was the most common cause for injury (n=4). Time of presentation varied from 24 hours to 7 days. Common presenting features were cataract (n=6), full thickness corneal tear (n=6) and hypopyon (n=3). Culture was positive in 8 of 16 patients; most common species isolated was bacillus followed by alpha hemolyitic streptococcus. Patients who received treatment within 24 h were 3.6 and 9 times more likely to have better anatomical outcome than those treated at 2–7 days.

Conclusions: Post-traumatic endophthalmitis in children is more common in boys and most often caused by injury with organic matter. Successful anatomical and functional outcome can be attained in children with post traumatic endophthalmitis with early presentation, and prompt and aggressive treatment.

Abstract No.: 200292

Coats Disease in Infants, Toddlers and Preschoolers: Clinical Presentation and Treatment Outcomes

*First Author: Saarang **HANSRAJ***
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Purpose: To study the clinical presentation and treatment outcomes of patients diagnosed with Coats disease aged ≤ 5 years.

Methods: A retrospective review of patients of Coats disease aged ≤ 5 years who presented t between August 2010 and January 2021 to tertiary care center was done.

Results: A total of 98 eyes were included. The mean age of presentation was 30 months (4–60 months). The majority were males (73%) with a unilateral presentation (100%). The most common stage at presentation was total retinal detachment (stage 3B; 36%), advanced end-stage disease (stage 5; 22%), and total retinal detachment with secondary glaucoma (stage 4; 16%). The most common cause of referral to our institute was Coats disease (49%), followed by retinoblastoma (36%). The most common presenting symptom was a white reflex (50%) or squint observed by the parents (35%). Treatment modalities included observation (31%), surgical intervention (subretinal fluid drainage) (22%), and laser photocoagulation +/- cryotherapy (21%). At a mean follow-up of 29 months (1–100 months), the anatomical status of the disease remained unchanged in 35 eyes (36%), worsened in 18 eyes (18%), and resolved in 15 eyes (15%). Ten eyes (10%) underwent enucleation. At the last follow-up, two-thirds of eyes (n=76) had visual acuity ≤ 20/400 and were categorized as blind.

Conclusions: Coats disease in patients ≤ 5 years presents at an advanced stage (3B or more). At the last follow-up, the disease stabilized in half of the eyes, whereas two-thirds of the eyes were blind necessitating early diagnosis and treatment.

Abstract No.: 200828

Evaluation of Mean Macular Thickness and Factors Affecting Macular Thickness in Children with Chronic Kidney Disease

*First Author: Mohd Yazid **AIMAN-MARDHIYYAH***
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Purpose: Chronic kidney disease (CKD) in children is a common complication of primary and secondary renal disease causing complications like band keratopathy and

cataract. Posterior segment abnormality including macular changes can be monitored non-invasively via measurement of macular thickness. Thinning of retinal neural layer is a predictive tools for early detection of visual prognosis. We aimed to evaluate mean macular thickness and factors affecting mean macular thickness in children with CKD.

Methods: The study, conducted at a tertiary center compared children with CKD aged six to 17 with healthy children. Participants underwent ophthalmology assessment, macular thickness measurement, and analyzed serum urea, creatinine, and albumin levels.

Results: A total of 47 children with CKD and 47 healthy children were studied, with CKD mean age of 11.64 (3.19) years and a mean duration of 59.04 (48.34) months for early CKD and 62.90 (45.63) months for advanced CKD. The mean central macular thickness was 255.46 (24.98) µm for early CKD, 253.52 (23.86) µm for advance CKD, and 246.15 (31.55) µm for healthy children. There were significant differences in mean macular thickness for inner and nasal outer quadrants thicker in CKD children and thinner inferior outer quadrants in advance CKD. No significant association was found between mean macular thickness and age, gender, blood pressure, duration, or other factors.

Conclusions: The study found that children with CKD have thicker mean macular thickness compared to healthy children (all inner and nasal outer quadrants), while those with advanced CKD have thinner thickness (inferior outer quadrant). No significant association was found.

Abstract No.: 200442
Immediate Sequential Bilateral Vitreoretinal Surgery (ISBVS): An Enormous Need

First Author: Manu ***SHARMA***
Co-Author(s): Deeksha ***KATOCH****, Simar Rajan* ***SINGH***

Purpose: To determine the efficacy, safety and anatomical outcome of bilateral simultaneous vitreoretinal surgery in advanced Retinopathy of prematurity (ROP).

Methods: It is a retrospective, interventional study at a tertiary care institute in North India. 55 eyes of 28 babies underwent ISBVS under general anesthesia from September 2019 to January 2024 with a maximum follow- up of 3 months. Outcomes in terms of anatomical success, and ocular and systemic safety were noted.

Results: 55 eyes of 28 babies, 19 (67.86%) males and 9(32.14%) females with mean birth weight of 1188 ± 441.625 grams and mean period of gestation of 29.69 ± 2.516 weeks. 16 (29.09%) eyes had stage 4A, 36 (65.45%) eyes had stage 4B, 2 (3.64%) eyes had stage 5, and 1(1.81%) had Vitreous hemorrhage(VH). Lens-sparing vitrectomy (LSV) was performed in 50(90.91%) eyes and lensectomy vitrectomy(LV) in rest 5 (9.09%) eyes. Laser photocoagulation was done in all the eyes before surgery. Preoperative Razumab was given in 21(38.18%) eyes. 2(3.64%) babies had anesthesia-related complications, so the procedure was abandoned in one eye. Ocular complications like hypotony in 2(3.64%) eyes, choroidals in 1(1.81%), loose blood in 7(12.73%), no endophthalmitis was noticed in any eye. Anatomical outcomes were recorded as complete success (attached retina) in 24 (43.64%) eyes, incomplete success (macular drag, fold, pucker) in 13(23.64%) eyes, and failure (detached retina) in 18 (32.72%) eyes.

Conclusions: ISBVS is a safe and feasible option with good anesthetic care in such babies with bilateral symmetrical and progressive disease where repeat anesthesia can be a problem.

Abstract No.: 201145
Incidence of Aggressive Retinopathy of Prematurity (AROP) and Management with Biosimilar Ranibizumab and Laser in a Tertiary Eye Centre in Eastern India

First Author: Sudipta ***DAS***

Purpose: To find out the Incidence of AROP among screened babies and the efficacy of intravitreal biosimilar Ranibizumab followed by

laser photocoagulation to avascular retina with specified treatment criteria in regression of the disease in those treated babies

Methods: AROP(aggressive disease in zone 1 and posterior zone 2) was calculated retrospectively. AROP infants received biosimilar Ranibizumab (0.25 mg/0.025 ml). Monthly follow-up was done till maximum retinal vascularisation was achieved. Persistent avascular retina, recurrence of plus/ neovascularisation was treated with laser photocoagulation to the avascular retina.

Results: We included 48 AROP eyes in 24 babies with a mean gestational age of 29.7 weeks and a mean birth weight of 1302 grams. AROP was found in 24 (4.5%) out of 522 babies. Type 1 disease, seen in 50 (9.5%), was treated with laser photocoagulation. AROP (100%) babies were lasered after a mean interval of 3-6 weeks after Intravitreal injection. Complete resolution of ROP was seen in 46 eyes (95%) at a median of 5 weeks(4–6 weeks). 4 eyes (8.3%) had flat fibrous ridge at the posterior laser margin. There was no eye with tractional retinal detachment.

Conclusions: The incidence of AROP is not insignificant in Eastern India. Ranibizumab biosimilar followed by laser photocoagulation appears to be safe and effective in having excellent structural outcomes in AROP in a short-term follow-up.

Abstract No.: 201051

Laser Retreatment in ROP after Intravitreal Anti-VEGF - A retrospective analysis

First Author: Aswin ***PR***
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Purpose: This study retrospectively analyzes ROP cases requiring laser retreatment after initial intravitreal anti-VEGF injections, comparing Bevacizumab and Ranibizumab, and identifying factors influencing the need for additional treatment.

Methods: A retrospective review of 9 neonates initially treated for ROP with intravitreal injections of Bevacizumab or Ranibizumab who later required laser re-treatment was conducted. Data collected over three years included demographics, clinical characteristics, treatment details, and outcomes. The primary outcome was the requirement for laser retreatment. Statistical analysis identified factors associated with retreatment.

Results: The study included 9 neonates (1 male, 8 female) with a mean gestational age of 29.56 weeks (SD 2.01, range 27-32 weeks) and a mean birth weight of 1365 grams (SD 254.78, range 1000-1800 grams). Six neonates received Bevacizumab and three received Ranibizumab. The mean interval from birth to first treatment was 1.26 months (SD 0.57, range 0.70-2.30 months), and the mean duration from injection to laser treatment was 74.33 days (SD 35.82, range 8-123 days). In the Bevacizumab group, Zone 2 involvement was 100%, and 66.7% had plus disease. In the Ranibizumab group, Zone 1 involvement was 66.7%, and 100% had plus disease. The Ranibizumab group had a shorter interval to laser retreatment (mean 71.67 days) compared to the Bevacizumab group (mean 75.67 days).

Conclusions: Laser retreatment after initial anti-VEGF injections in ROP is influenced by disease severity. Both Bevacizumab and Ranibizumab are effective, but higher severity cases, especially in the Ranibizumab group, may need earlier retreatment. Early identification of high-risk features can improve outcomes.

Abstract No.: 200191

Non-Contact Widefield Neonatal Retinal Imaging for Retinopathy of Prematurity Using the Clarus 700 High Resolution True Colour Reflectance Imaging

First Author: Sindhuja ***SRINIVASAN***

Purpose: Retinopathy of Prematurity is a potentially blinding disease if not screened and treated timely. The aim of this case series is to describe for the first time, the observations of utilising a true colour reflectance imaging system like the clarus 700 in accurate diagnosis and grading of Retinopathy of prematurity.

Methods: All babies were examined by vitreoretinal faculty at a tertiary eye care centre over a period of 9 months. The babies were covered with warm clothing and held in the modified "flying baby" position, with one arm supporting the chin/chest, the other supporting the head. 2.5mm Pupillary diameter and 25mm working distance used. A single image when measured from the centre gives a widefield 133 degree wide by 133 degree high field of view. Two images when stitched together gives ultrawidefield 200 degree wide in one of the dimensions and 133 degree high in the other dimension.

Results: A total of 22 babies (44 eyes) underwent NC-WFI from period of March 2021 to November 2021. 13 unique cases of retinopathy of prematurity with images captured on Clarus 700. Preterm babies with gestational age as low as 24 weeks and birth weight as low as 770 grams were imaged. It has the advantage of capturing high resolution, true colour reflectance images, hence more accurate.

Conclusions: Clarus is a non-contact widefield imaging system that captures high-resolution, true-color images for accurate diagnosis and grading of Retinopathy of Prematurity. Its non-contact design minimizes infection risk and simplifies training for professionals in image acquisition.

Abstract No.: 200848
Perfluoro-n-Octane as Short-Term Tamponade in Pediatric Rhegmatogenous Retinal Detachment with PVR

*First Author: Vineet **BATWANI***
*Co-Author(s): Karthikeya **CHATRA**, Rohan **CHAWLA**, Sabir **MOHAMMED**, Nawazish **SHAIKH***

Purpose: To evaluate outcomes of short-term tamponade using Perfluoro-n-octane in Paediatric Rhegmatogenous Retinal Detachments with Proliferative Vitreoretinopathy.

Methods: Retrospective analysis of children (<12 years) who underwent 25G PPV for paediatric RRD with PVR using PFO as short-term intraocular tamponade at tertiary eye care centre in northern India. Only patients with at-least 3 months of follow-up after PFO removal were included. The primary outcome was the reattachment rate after at-least 3 months of follow-up.,Secondary outcome was changes in visual acuity, complications due to PFO use, and necessity for further surgeries

Results: 7/9 eyes had reattachment at 3 months (78%) whereas 2 eyes had re-detachment and underwent additional surgery with ultimately 8/9 eyes having reattachment (89%). Mean LogMar pre-operative visual acuity was 2.13 ± 0.28 while post-operative visual acuity was 1.27±0.52 ($p<0.05$). No sight-threatening complications of PFO was seen in any patient. Only 2 eyes required an additional surgery for retinal reattachment.

Conclusions: Successful retinal reattachment was seen in 89% of eyes at the end of 3 months of PFO removal. PFO as a short-term tamponade is safe and effective in paediatric retinal detachment with PVR changes. A median period of 10 days provided sufficient retinal support and did not cause any sight-threatening complications.

Abstract No.: 200123
Purtscher-Like Retinopathy Secondary to Febrile Illnesses in Pediatric Patients

*First Author: Ping **FEI***
*Co-Author(s): Mengxiao **WU**, Peiquan **ZHAO***

Purpose: Purtscher-like retinopathy is a rare microvascular occlusive disease that has been reported on sparsely in the literature, especially in pediatric patients. The ocular manifestation is associated with various systemic disorders, though its distinct pathophysiology and appropriate therapies remain unclear. Thus, early detection and prompt intervention for Purtscher-like retinopathy is highly important for clinicians.

Methods: We describe three pediatric patients who experienced sudden bilateral blurred vision and were diagnosed with Purtscher-

like retinopathy secondary to different febrile disorders.

Results: In this report, we describe a series of three pediatric patients (age range, 7-13 years) who experienced sudden bilateral blurred vision and were diagnosed with Purtscher-like retinopathy, secondary to febrile illnesses, including systemic juvenile idiopathic arthritis (sJIA), thrombotic microangiopathy (TMA), and COVID-19 infection. The most widely-accepted theory puts forth that microembolization of retinal vasculature can lead to arteriolar precapillary occlusion and microvascular infarct of retinal nerve fiber layer, resulting in the characteristic cotton-wool spots. All patients received steroidal therapy to control underlying conditions and ocular disease. Final vision acuities varied from 20/20 to 20/320, which is related to the severity of the diseases and the promptness of the treatment.

Conclusions: Clinician awareness of Purtscher-like retinopathy is crucial for the prompt diagnosis and treatment of pediatric patients with protracted high fevers and febrile viral illnesses.

Abstract No.: 200556

Retinotomy Combined with Short-Term Postoperative Perfluorocarbon Liquids Tamponade for Pediatric Complex Retinal Detachment

*First Author: Shipeng **GUO***
*Co-Author(s): Jie **PENG**, Peiquan **ZHAO***

Purpose: To describe a series of pediatric patients with complex retinal detachment treated with retinotomy combined with short-term postoperative perfluorocarbon liquids (PFCLs) tamponade.

Methods: 10 eyes of 10 children (8 boys and 2 girls) treated with retinotomy combined with short-term PFCLs tamponade for complex retinal detachment were retrospectively analyzed. Median PFCLs tamponade duration was 14 days and mean follow-up time was 27.7 months after PFCLs removal.

Results: A total of 10 eyes of 10 children were reviewed, with an average age of 7.2 years at the time of PFCLs tamponade. Causes of retinal detachment included rhegmatogenous retinal detachment (RRD), familial exudative vitreoretinopathy (FEVR), Coats disease, intraocular foreign bodies and high myopia. The children suffered 2 operations on average before PFCLs tamponade. Emulsification of PFCLs and transient fibrous exudative membrane in pupil area was observed in 3 and 2 eyes respectively during PFCLs tamponade. At the last follow-up, the posterior pole of retina remained reattached in 10/10 eyes. Except for 1 boy who suffered additional surgery for secondary glaucoma after PFCLs removal, no apparent adverse events were observed in other children.

Conclusions: Retinotomy combined with short-term postoperative PFCLs tamponade showed satisfactory efficacy in the management of pediatric complex retinal detachment, especially in cases where severe proliferative vitreoretinopathy (PVR) obstructed retinal reattachment and caused multiple surgeries. However, since reports about short-term postoperative PFCLs tamponade in children were limited, more studies were needed to confirm the safety and efficacy of short-term postoperative PFCLs tamponade in pediatric retinal detachment.

Abstract No.: 201068

Subtenon Implantation of Mesenchymal Stem Cells in Leber's Hereditary Optic Neuropathy

*First Author: Adeline **LOW***

Purpose: Case report

Methods: This is a case of a healthy 13-year-old Chinese boy who presented with bilateral, painless, subacute loss of central vision (more severe in the left eye than the right eye) for one month. Bilateral pupillary reflexes were brisk with no relative afferent pupillary defect. Anterior segments were unremarkable. Bilateral fundi showed hyperaemic discs. No abnormalities were detected on magnetic resonance imaging of the brain and orbit. An

initial diagnosis of bilateral retrobulbar optic neuritis was made. A trial of steroid therapy, followed by intravenous immunoglobulin therapy was given with not much improvement in the patient's vision. Humphrey visual field test showed a centrocaecal scotoma. Cerebrospinal fluid samples and blood investigations showed normal results. A blood sample was sent for LHON genetic testing and a mitochondrial DNA (mtDNA) G11778A pathogenic mutation was detected. The same mutation was also present in the patient's maternal uncle. Subsequently, patient underwent three injections of subtenon mesenchymal stem cells in each eye. The child is currently legally blind with best-corrected visual acuity of 3/60 in the right eye and counting finger in the left eye. At the time of writing, he is registered in a special education school.

Results: Mesenchymal stem cells(MSC) are multipotent stromal cells with self-renewal and multi-differentiation abilities into various mesenchymal tissues, most notably bone, cartilage and adipose. Studies have also described the ability of MSC to differentiate into retinal progenitor cells, photoreceptors and retina neural-like cells.

Conclusions: At six-months follow-up, there was no serious adverse events nor further deterioration in visual acuity.

Abstract No.: 201071
Successful Treatment of a Unilateral Idiopathic Full-Thickness Macular Hole in a 10-Year-Old Girl with Vitrectomy: A Rare Case

*First Author: Fariza **SAFIRA***

Purpose: To report a case of unilateral idiopathic full-thickness macular hole (FTMH) in a child that was successfully treated with vitrectomy.

Methods: a 10-year-old girl presented with diminution of central vision in the right eye without any history of trauma, inflammation, or night blindness in either eye. Best-corrected visual acuity (BCVA) was 20/240 in the right eye and 20/20 in the left eye. Ocular examination was unremarkable except for the presence of a FTMH in the right eye. There were no objective signs of trauma, inflammation, or retinal dystrophy. Intraocular pressure was 20 mmHg and 19 mmHg in the right and left eye, respectively. Optical coherence tomography (OCT) showed a large FTMH (minimum linear diameter of 670 microns) with no posterior vitreous detachment (PVD) or vitreomacular traction. The patient was diagnosed with idiopathic FTMH. A 25-gauge pars plana vitrectomy, followed by PVD induction, internal limiting membrane (ILM) peeling, ILM flap, and tamponade with perfluoropropane (C3F8) gas under general anesthesia, was performed. She was advised to maintain a facedown position for 5 days postoperatively.

Results: BCVA was 20/200 with OCT evidence of hole closure at postoperative month 1. At the end of 5 months of follow-up, BCVA improved to 20/100, and the macular hole remained closed. Ocular hypertension occurred as a postoperative complication at 1 week, and was manageable with topical anti-glaucoma medication.

Conclusions: Idiopathic macular hole in pediatric age group is extremely rare. In this case, pars plana vitrectomy with ILM-peeling and additional ILM flap provided good visual and anatomic outcomes.

Retina (Medical)

Abstract No.: 200715
10-Year Follow-Up of Half-Dose Verteporfin Photodynamic Therapy for Central Serous Chorioretinopathy with OCT-Angiography Detected Choroidal Neovascularization

*First Author: Jian-sheng **WU***
*Co-Author(s): San-ni **CHEN**, Yi-ling **CHEN**, Min-yen **SU***

Purpose: To evaluated the proportion of choroidal neovascularization (CNV) detected by spectral-domain optical coherence tomography angiography (OCTA) in eyes with chronic central serous chorioretinopathy (CSC) (more

than 3 months) with previous treatment via half-dose photodynamic therapy (PDT).

Methods: All patients were followed up with at least ten years. Macular angiograms were obtained using spectral-domain OCT (SD-OCT, RTVue XR; Optovue). CNV was defined as flow in the outer retinal slab between the outer plexiform layer and Bruch's membrane. Clinical characteristics were compared between CNV and non-CNV groups.

Results: Twenty-four eyes of 24 patients (19 male and 5 female) were included. The average age at diagnosis was 44 years old. All patients were treated with half-dose PDT initially. Three eyes (12.5%) received more than one session of PDT, and all of them were in CNV group. CNV was diagnosed in 18 of 24 eyes (75%) based on OCTA and most CNV (14 of 18 eyes, 77.8%) was detected after 60-month period of PDT. Female ($p = 0.011$), larger PDT spot size ($p = 0.045$), and presence of retinal pigment epithelial detachment (RPED) on OCT ($p = 0.003$) were noted in CNV group.

Conclusions: Choroidal neovascularization detected by OCTA rapidly increased after 60-month period of half-dose PDT for chronic CSC. Female, larger PDT spot size, and presence of RPED on OCT were risk factors. OCTA may be considered as a first step in identifying CNV in chronic CSC following PDT.

Abstract No.: 200153
5-Year Prospective Study of Hyperbaric Oxygen Therapy for Central Retinal Artery Occlusion: The HORA Study Report

First Author: Chi Lik ***AU***

Purpose: Hyperbaric Oxygen Therapy (HBOT) is one of the standard treatments offered to patients suffering from Central Retinal Artery Occlusion (CRAO) in Hong Kong territory-wide since 2018. Our study aims to evaluate the outcomes of these patients after 5 years of follow-up.

Methods: Patients were prospectively followed-up for 5 years since the onset of CRAO. Visual acuity (VA), symptom-to-door time, symptom-to-HBOT time, details of HBOT, and patients' systemic medical history were recorded. Over the span of 5 years, new ocular pathologies were monitored. Strokes and cardiovascular events were reviewed. Mortality was also calculated. Finger counting (FC) was equivalent to 1.7 logMAR; whereas hand movement =2.0; light perception =2.3, and no light perception (NLP) =3.0 were used for calculation. Wilcoxon signed ranks test and Spearman's correlation analyses were done.

Results: 65 patients (38 males) with mean age 66.8±15.8 (range 11-89) years old were recruited. 18.5% died within 5 years. Pre-HBOT logMAR VA was 2.0±0.4, post-HBOT and 5-year VA were 1.5±0.6 ($p<0.001$) and 1.5 ± 1.0 ($p=0.02$) respectively. 57.7% of patients had VA poorer/ equal to FC at 5-year. 14.3% patients developed neovascular glaucoma, all underwent panretinal photocoagulation, while 80.0% of them required cyclophotocoagulation, and with NLP vision. 12.3% developed cerebral stroke upon follow up, which half of them died within the study period. Symptom-to-door time was associated with 5-year VA (Spearman coefficient -0.45, $p=0.02$), otherwise symptom-to-HBOT time were not associated to VA at any time points.

Conclusions: There was statistically significant VA gain after HBOT, but more than half patients remained blind after 5 years.

Abstract No.: 201110
A 14 year-old female with Eales' disease: case report

First Author: Lisa Katrina ***LIBERATO***

Purpose: Eales' disease is an idiopathic occlusive peripheral retinal vasculopathy characterized by recurrent vitreous hemorrhages commonly seen in young adult males. Several infectious and inflammatory conditions have similar ocular manifestations making the diagnosis of Eales' disease challenging. We present a case of a healthy Filipino female teen with sudden monocular eye pain and blurring of vision.

Methods: A comprehensive ophthalmic exam was performed, supplemented by B scan ultrasonography for the right eye where there is poor view of the posterior segment due to hazy media. Widefield fundus photo, macular optical coherence tomography, and fluorescein angiography were also done. Complete laboratory workup was done, as well as a contrast-enhanced cranial magnetic resonance imaging with orbital cuts.

Results: On ophthalmic exam, the right eye had elevated intraocular pressure with a funduscopy finding of vitreous hemorrhage. The left eye, on the other hand, had multiple peripheral epiretinal and preretinal membranes with some telangiectasias. All laboratory studies done were unremarkable. Infectious and inflammatory entities were considered less likely and Eales' disease was deemed a more probable diagnosis.

Conclusions: Similar to other vasoocclusive diseases, the management of Eales' disease is focused on the prevention of further ischemia and neovascularization. Panretinal photocoagulation was then done on the left eye to avoid further disease progression. The right eye was assessed to attain little benefit from surgical management and was, therefore, maintained on anti-glaucoma medications. After one month, visual acuity remained without light perception on the right eye and 20/20 on the left eye.

Abstract No.: 200938

A Case of Bilateral Choroidal Infarction in Rapid Blood Pressure Control in Hypertensive Crisis

First Author: Rachel ***CHEUNG***

Purpose: We report a case of subacute bilateral profound visual loss due to bilateral choroidal infarction after rapid blood pressure control in a patient admitted for hypertensive crisis with acute heart failure.

Methods: A 28-year-old male admitted for hypertensive crisis and severe heart failure presented with subacute bilateral asymmetrical painless visual loss on the third day of admission after rapid blood pressure control from systolic blood pressure of 270mmHg to 120/70mmHg over two days. Visual acuity dropped from 20/25 bilaterally on third day of admission down to light perception bilaterally on fifth day. Fundal exam was relatively unremarkable, revealing only scattered peripheral dot blot retinal haemorrhages and cotton wool spots, without any other signs of hypertensive retinopathy or central retinal artery occlusion.

Results: He was initially treated with a trial of steroids with a working diagnosis of bilateral posterior ischaemic optic neuropathy. Visual acuity improved to 20/50 in right eye and finger counting in left eye on day 6 of steroids. More lenient blood pressure control was also allowed from cardiac team. Fundus fluorescein and indocyanine green angiography showed bilateral choroidal hypoperfusion, suggestive of bilateral massive choroidal infarction.

Conclusions: Hypertension can cause ocular damage through choroidopathy, retinopathy, and optic neuropathy; and may not always present with the classical signs of hypertensive retinopathy. Close monitoring and early recognition of ocular complications is essential as hypertensive crisis and relative hypotension leading to hypoperfusion of end target organs can have devastating irreversible damage.

Abstract No.: 200405

A Case of Post-Operative Endophthalmitis Treated with Topical Fortified Imipenem

First Author: Jose Leandro Manuel ***AMORADO***
Co-Author(s): Jocelyn ***SY***

Purpose: To report a case of post-operative endophthalmitis treated with fortified imipenem. To the author's knowledge, there are only a few published journals reporting the use of topical imipenem and there have been none reported regarding its use for endophthalmitis at the time of this writing.

Methods: This is a case report of a 60-year-old female who underwent phacoemulsification of the left eye. Intra-operatively, there was a posterior capsular rupture and she also

underwent anterior vitrectomy. One day post-operatively, vision of the left eye was 20/50 with noted vitreous strand extending to the main port. The rest of the exam was unremarkable. Six days post-operatively, she experienced sudden blurring of vision of the operated eye which was now hand movement. She was managed as case of endophthalmitis and underwent PPV and intravitreal injection of antibiotics. Fortified Vancomycin and Ceftazidime eye drops were started. Vitreous tap culture revealed Acinetobacter lwoffi which was sensitive to Imipenem. The fortified antibiotics were then shifted to Fortified Imipenem.

Results: The improvement in visual acuity and vitreous inflammation coincided with the initiation of fortified imipenem. The patient did not experience any adverse effect to the medication such as corneal toxicity nor conjunctival hyperemia. The patient's vision gradually improved from hand movement post-vitrectomy to 20/50. Currently, the left eye is quiet with an unremarkable fundus examination.

Conclusions: Fortified Vancomycin and Ceftazidime are commonly used topical medications for endophthalmitis. However, it is important to report the use of other fortified antibiotics as this will add information regarding its efficacy and adverse effects.

Abstract No.: 201109

A Follow-Up Survey on the Knowledge of Age-Related Macular Degeneration and its Risk Factors among Singapore Residents after 15 Years of Nation-Wide Annual Awareness Campaigns

*First Author: Tian Wei Jonathan **AU EONG***
*Co-Author(s): Kah-guan **AU EONG**, Bakthavatsalu **MAHESHWAR**, Liang **SHEN**, Priyenka A. **VIJAY**, Chee-chew **YIP***

Purpose: Age-related macular degeneration (AMD) is a leading cause of irreversible blindness and visual impairment worldwide. The AMD Awareness Week is a public health campaign organised annually in Singapore since 2005 to raise awareness of AMD. Previous surveys in 2006, 2011 and 2016 found that 7.3, 28.1 and 31.0% of Singapore residents were familiar with AMD respectively. This study is a follow-up investigation on the awareness of AMD and its risk factors among Singapore residents in 2021 after 15 years of awareness campaigns.

Methods: A cross-sectional questionnaire-based online survey using a snowballing subject recruitment method on Singapore residents aged 21 years and above was conducted. Detailed demographic information such as gender, age, educational level, occupation, current smoking status as well as awareness of AMD, its risk factors and AMD Awareness Week were collected. Informed consent was obtained through participation in the survey.

Results: Among 1350 respondents, 50.5% were male. Median (interquartile range) age was 42 (24,53) years. 40.1% of respondents were aware of AMD. Respondents who were aware of AMD were older than those unaware. Females were significantly associated with greater awareness of AMD (43.3% vs 37.1%, p=0.021). 79.3%, 55.7% and 42.7% were aware that age, genetics and smoking are risk factors for AMD respectively, but only 17.4% and 27.3% for gender and unprotected exposure to light respectively. 10.3% of the respondents were aware of AMD Awareness Week.

Conclusions: The awareness of AMD among Singapore residents has increased since 2006. However, awareness of certain risk factors of AMD remains low.

Abstract No.: 200157

A Rare Case of Radiation Retinopathy Presenting as Central Foveal Retinal Angiomatous Proliferation in a Young Filipino After Radiotherapy for Salivary Gland Adenocarcinoma

*First Author: Sharmaine Anjanette **NG***
*Co-Author(s): Marie Joan **LOY**, Lloyd Thomas **YAP***

Purpose: To describe the ophthalmologic findings and treatment course in a case of radiation retinopathy (RR) presenting as central

foveal retinal angiomatous proliferation (RAP) in a young patient.

Methods: A 46-year-old non-hypertensive, non-diabetic Filipino, known case of right salivary gland adenocarcinoma stage IVC underwent external beam radiotherapy without barrier (25 sessions) followed by Cisplatin and Docetaxel chemotherapy (18 cycles), presented with two-year progressive blurring of vision and metamorphopsia of the right eye noted few months after completing radiotherapy.

Results: Examination revealed BCVA of 20/63 with central negative scotoma and metamorphopsia on the right, and BCVA of 20/25 on the left. On fundoscopy of the right eye, there was a 2-disc diameter (DD) blister-like elevation with 1/4 DD central subfoveal hemorrhage at the macula. FA showed hyperfluorescent dot which increases in size and intensity, and leakage of undetermined source. OCT showed intraretinal hyporeflective cystic spaces, an optically clear space between the NSR and RPE, and focal hyperreflective area with posterior shadowing which corresponds to the reddish patch seen on color photo. OCT Angiography showed abnormal vessels with high flow signals seen in the deep capillary plexus and avascular layer. Patient underwent three monthly intravitreal injections of aflibercept on the right eye. BCVA improved to 20/32 one month after the third injection. Repeat OCT showed good foveal contour, well delineated retinal layers, and resolution of intraretinal and subretinal hyporeflective space.

Conclusions: RAP may develop as a rare complication of radiation retinopathy. High index of suspicion, multimodal imaging, and timely management can be sight-saving among patients.

Abstract No.: 201103

A case of combined progressive paracentral acute middle maculopathy with central retinal vein occlusion treated with hyperbaric oxygen therapy

*First Author: Elizabeth Jiahui **CHEN***
*Co-Author(s): Helen **MI***

Purpose: To report a case of combined progressive paracentral acute middle maculopathy (PAMM) with central retinal vein occlusion (CRVO) in a middle aged female, who was treated with hyperbaric oxygen therapy (HBOT).

Methods: We describe an interesting case of combined progressive PAMM with CRVO, which resulted in some visual recovery, albeit limited, after 3 cycles of HBOT.

Results: We report a case of a 62 year old Chinese female, who presented with new onset left eye PAMM with CRVO one week after left eye intravitreal ranibizumab for cystoid macular edema secondary to ischemic branch retinal vein occlusion. Other past ocular history was significant for right eye childhood traumatic injury with resultant poor vision. Past medical history included white coat hypertension, left breast carcinoma which she underwent surgical resection and radiotherapy 14 years ago. After the diagnosis of PAMM, she was started on oral aspirin. The PAMM lesion continued to progress, with increasing size and number of PAMM lesions over 3 days, with a corresponding marked drop in vision as well. With a view of the left eye being the only seeing eye, the patient was commenced on HBOT. After completion of 3 cycles of HBOT, the patient reported subjective improvement in vision, and visual acuity had improved as well from counting fingers to 20/100.

Conclusions: While most cases of PAMM are associated with good visual prognosis, this unusual case highlights that possibility of PAMM progressing with worsening vision, as well as the potential of HBOT to recover vision in such debilitating circumstances.

Abstract No.: 200933

Accurate Diagnosis and Real-Time Treatment of Intraoperative Macular Edema in Patients with Diabetic Retinopathy

*First Author: Jian **ZHU***
*Co-Author(s): Rongrong **ZHU***

Purpose: Utilize multimodal intraoperative optical coherence tomography (MIOCT) for precise diagnosis of diabetic macular edema (DME) during vitrectomy in patients with proliferative diabetic retinopathy (PDR). Additionally, assess various treatment options for DME immediately post-surgery and compare the efficacy of different treatment strategies.

Methods: In this prospective randomized controlled study, PDR patients with concurrent DME diagnosed using MIOCT during PPV surgery were divided into three groups: Group A received postoperative intravitreal injections of ranibizumab; Group B received conbercept; Group C received ranibizumab one month post-surgery. Baseline BCVA and CMT were analyzed for intra-group differences at various postoperative time points and between groups.

Results: The study included 102 cases (109 eyes): 35 eyes in Group A, 38 eyes in Group B, and 36 eyes in Group C. BCVA significantly improved in Group A at 1 week, 3 months, and 6 months postoperatively; in Group B at all time points; and in Group C at 3 and 6 months. CMT significantly decreased at all postoperative time points in Groups A and B and in Group C at 3 and 6 months. Group B showed superior BCVA and CMT outcomes compared to Groups A and C at various time points.

Conclusions: MIOCT enables real-time assessment of macular morphology and DME status during PPV in PDR patients. All of three different treatment methods can effectively improve postoperative BCVA and reduce macular edema. Immediate postoperative intravitreal injections of anti-VEGF drugs, especially conbercept, improve BCVA and reduce macular edema more effectively than delayed injections, offering more durable and stable efficacy.

Abstract No.: 200443

Agreement Between Graders for Diabetic Retinopathy Screening Between Smartphone-Based Retinal Camera and Traditional Fundus Camera in Low- and Middle-Income Countries (LMIC)

*First Author: Arshad **MEHMOOD***
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Purpose: Diabetic retinopathy (DR) is one of the leading cause of blindness worldwide. The gold standard DR screening is stereoscopic fundus photography with desktop cameras. VistaView (Volk Optical Inc, Ohio) is a smartphone-based retinal camera which offers mydriatic retinal imaging.

Methods: This prospective study took place between December 2021 and June 2022 at a hospital in Karachi, Pakistan. Diabetic patients were imaged following mydriasis using both VistaView and Topcon cameras. All images were graded independently by two graders based on the International Classification of Diabetic Retinopathy (ICDR) criteria. Individual grades were assigned for DR and maculopathy in each image. Agreement between graders for each device was calculated as intraclass correlation coefficient (ICC) and Cohen's weighted kappa (95% CI).

Results: A total of 1428 images were available from 371 patients with both cameras. A total of 1231 images were graded. For VistaView, the ICC of DR grades was 78% (95% CI) between the two graders while that of maculopathy grades was 66% (95% CI). The Cohen's kappa for DR grades of VistaView images was 0.61 (95% CI), while that for maculopathy grades it was 0.49 (95% CI). For images from desktop camera, the ICC of DR grades was 85% (95% CI, 83–87%), while that of maculopathy grades was 79% (95% CI, 75– 82%). The Cohen's kappa for DR grades of desktop images was 0.68 (95% CI), while that for maculopathy grades was 0.65 (95% CI).

Conclusions: Agreement levels between graders using both fundus cameras are

comparable. VistaView may be utilized for DR screening in teleophthalmology.

Abstract No.: 200339
Assessment of Platelet Indices in Type 2 Diabetes Mellitus Across Different Retinopathy Stages

*First Author: Mousumi **BANERJEE***

Purpose: Evaluation of platelet indices in type 2 Diabetic patients with various stages of retinopathy and to investigate the association of these platelet indices with severity of retinopathy, if any.

Methods: This prospective case-control study included 80 patients with type 2 DM and healthy controls. All diabetic patients were treatment-naïve for any retinopathy-related complications. Platelet indices assessed included platelet count, mean platelet volume (MPV), platelet large cell count (P-LCC), platelet large cell ratio (P-LCR), plateletcrit (PCT), platelet distribution width standard deviation (PDW-SD), and platelet distribution width coefficient of variation (PDW-CV). Each patient underwent a dilated fundus examination and was categorized into three groups: no retinopathy, NPDR and PDR.

Results: Platelet indices were significantly higher in diabetic patients compared to healthy controls ($p<0.001$). Although P-LCR, MPV, PCT, and PDW-SD were elevated in patients with DR compared to those without DR, these differences were not statistically significant. A non-significant increase in platelet indices was observed in patients with PDR compared to those with NPDR. A moderate positive correlation between HbA1C and platelet indices was noted. Patients with microalbuminuria had higher platelet indices compared to those without microalbuminuria. A positive correlation was noted between serum cholesterol and triglycerides with MPV and PDW-CV.

Conclusions: Elevated platelet indices indicate an ongoing inflammatory process in DM. While the presence of retinopathy alone in Type 2 DM may not independently increase vascular pathologies, the combination with factors like dyslipidemia, microalbuminuria, and poorly controlled blood sugar can accelerate cardiovascular risks, as indicated by changes in platelet indices.

Abstract No.: 200338
Assessment of Quality and Adequacy of Pan Retinal Photocoagulation in Proliferative Diabetic Retinopathy Using Ultra-Side Field Imaging

*First Author: Mousumi **BANERJEE***
*Co-Author(s): Shorya **AZAD**, Sowmya **LAKSHMIKANTH**, Pradeep **VENKATESH***

Purpose: To assess the characteristics of completed PRP using UWF in PDR.

Methods: Retrospective descriptive study. 133 patients with PDR with history of completed PRP , with or without pharmacotherapy, baseline documentation of visual acuity and DR stage were recruited. Quantitative assessment of UWF images was made using Image J software. The parameters assessed included distance of laser spots from the optic disc, foveal centre, superior and inferior arcade, and extent of maximum width of laser. Areas assessed were total area of the image , area of the inner limit within which laser spots are restricted, areas of unlasered patches, total area lasered, ideal area to be covered by PRP.

Results: 201 images were analyzed for final analysis. The mean distance of laser spots from the optic disc (nasal) was 4.2 mm ± 2.4 mm and from the foveal centre (temporal) was 6.6 mm ± 2.5 mm The mean distance of laser spots from the superior arcade vessel was 3.2mm ± 1.9 mm and 6.2mm ± 4.4 mm from the inferior arcade vessel. The mean area of the retina that should have been ideally lasered was found to be 900 mm2 ± 267 mm2 and actual area lasered was found to be 681 mm2 ± 254.4 mm2 .

Conclusions: About a quarter area of the retina continues to remain ischemic by the lack of inadequate coverage of PRP in real world situation. These necessitates improvement of training in retinal laser delivery, particularly PRP,

using objective methods for both teaching and evaluation.

Abstract No.: 200394
Association Between Obstructive Sleep Apnea and Diabetic Retinopathy in Type II Diabetes Mellitus Patients

*First Author: Kirti **JAISINGH***
*Co-Author(s): Kavita R **BHATNAGAR**, Seema **MEENA**, Manjari **TANDON**, Kiran **YADAV***

Purpose: Obstructive Sleep Apnea (OSA) causes hypoxia leading to microvascular complications like diabetic retinopathy (DR). Its treatment can alleviate the progression to proliferative diabetic retinopathy (PDR). This study aimed to find any association between OSA and DR in type II diabetes mellitus (DM) patients.

Methods: A Prospective observational Study was conducted on all type II DM patients visiting the retina clinic between October 2022 and December 2023. All patients were subjected to STOP-Bang Questionnaire (SBQ) and Epworth Sleepiness Scale (ESS) score to assess their severity of OSA. Patients at high OSA risk (SBQ score ≥5 and ESS score ≥10) were referred to Department of Pulmonary Medicine (sleep clinic) for polysomnography. Based on Apnea Hypopnea Index (AHI), OSA was graded as mild (AHI = 5-14/h), moderate (AHI = 15-30/h), and severe (AHI >30/h).

Results: Out of 85 patients with type II DM, 45 had DR while 40 had no DR. Both groups were age and sex-matched. High risk of OSA was significantly associated with duration of DM, HbA1c levels, deranged lipid profile, Body mass index, neck circumference, and hypertension. Higher prevalence of DR (54%) and PDR (58%) was seen in high-risk OSA patients, but not statistically significant. 9 patients underwent polysomnography. DR group had greater oxygen desaturation index and AHI but statistically insignificant.

Conclusions: Though higher prevalence of DR and PDR was seen with high-risk OSA, significant causal relationship could not be established. Thus, management of OSA may lead to better glycemic control in diabetic patients, halting the progression of DR.

Abstract No.: 200067
Atypical Central Serous Chorioretinopathy Masquerading as Systemic Lupus Erythematosus Choroidopathy

*First Author: Akshi **SHARMA***
Co-Author(s): Maj.Naveen K

Purpose: Systemic Lupus Erythematosus (SLE) is an autoimmune disease with multiple organ involvement. Choroidopathy is a rare presentation. Atypical central serous chorioretinopathy (CSCR) can present with similar clinical findings. Thus, it is important to differentiate the two for correct management.

Methods: 39 year old lady presented with left eye (LE) diminution of vision since 5 days. She was diagnosed case of ANA positive renal SLE since 3 years. She was on Tab Mycophenolate mofetil and Tab Prednisolone 20mg. LE visual acuity was 20/80. LE fundus showed multiple choroid patches with exudative retinal detachment inferiorly appearing as bullous CSCR with fibrin exudates. LE fundus fluorescein angiography (FFA) showed multiple areas of leakage. On OCT, neurosensory detachment with pachychoroid was noted.,Differential diagnosis of LE SLE choroidopathy v/s atypical CSCR was made.,Rheumatologist and nephrologist consult was advised to rule out SLE flare up.

Results: It was gathered on follow up after 1 month that nephrologist had stopped steroids before renal biopsy and advised rituximab injections. However, when she presented to us, her rituximab had not been started and visual acuity improved to 20/40. Sub retinal lesions resolved with fibrin organization and neuro sensory detachment also showed near complete resolution. Considering that she responded after stopping steroids suggested that she had CSCR along with choroidopathy.

Conclusions: Choroidopathy is a rare manifestation of SLE. Management with steroids can lead to CSCR. It is paramount to identify CSCR and stop steroids as it worsens

with steroids. It is equally important to differentiate the two for correct management.

Abstract No.: 200320
Atypical Plight Case of Monocular Central Retinal Artery Occlusion: A Race Against Time

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Purpose: To report an atypical acute case of central retinal artery occlusion (CRAO); a harbinger for cerebrovascular and cardiovascular disease and its prompt management as an emergency.

Methods: A case report of a Southeast Asian female with acute CRAO. Visual acuity (VA), intraocular pressure (IOP), slit lamp examination (SLE), fundoscopy, optical coherence tomography (OCT) and Brain CT-Scan were evaluated.

Results: A 43 year old female complaints sudden blurred vision of right eye (RE) 1 day prior. On examination blood pressure (BP) 226/132 mmHg, heart rate 89x/ minute. Ophthalmologic evaluation RE VA light perception, IOP 13 mmHg, positive relative afferent pupillary reflex (RAPD), cherry red spot macula. OCT revealed characteristic sign indicating CRAO; edematous inner retinal layer (IRL) hyperreflectivity, unidentifiable IRL, outer retinal layer (ORL) shadowing. LE VA 6/6 IOP 17 mmHg, SLE normal findings. Immediate hospital admission and management were done; RE ocular massage and paracentesis, emergent consultation to Neurologist and Cardiologist. CT-Scan showed multiple cerebral hypodense lesion indicating silent infarction, antiplatelet regimen administered immediately for patient.,On the first day after a holistic multidisciplinary management; BP 150/100 mmHg, RE VA 1/60, IOP 12 mmHg other RE findings and OCT remains unchanged. Patient monitored for disease progression.

Conclusions: CRAO is an acute ischemic eye stroke with fewer than 20% patients regaining their VA. Treatment for CRAO lacks clinical evidence prompting for definitive management guideline to be established. Early recognition and triage of CRAO is crucial for disease resolution and preventing unwanted life-threatening complications.

Abstract No.: 200118
Best Vitelliform Macular Dystrophy: A Clinical Analysis of a Series of Cases

*First Author: Jasmin **AHMAD***

Purpose: To report a clinical analysis on five rare cases of Best Vitelliform Macular Dystrophy.

Methods: An observational case series of five cases of of Best Vitelliform Macular Dystrophy (VMD) presented at Chittagong Eye Infirmary & Training Complex. Detail history, thorough clinical examination, best corrected visual acuity, slit lamp examination, indirect ophthalmoscopy, Fundus Fluorescein Angiography (FFA), Optical Coherence Tomography (OCT) scan were performed according to the cases. Diagnosis was made clinically.,An internet search (Medline search) and review of current literature on VMD were done and information relevant to our objectives were obtained.

Results: Five patients presented with blurring of vision both eyes. All of them were male & at or bellow 20 years of age except one who was a female of 33years. Ten eyes of five patients were analysed. Vision in seven eyes out of ten were 6/18 or better, three eyes showed 6/60 or worse. Their anterior segment showed no abnormality. Fundus showed round lesion on macula at different stages of disease. Two eyes showed pseudohypopyon stage, three eyes vitelloruptive stage, three eyes atrophic stage & two eyes in cicatricial stage. In addition three eyes showed choroidal neovascular membrane (CNVM). FFA revealed hyper & hypofluorescein at macular area and OCT showed subretinal hyper reflectivity with increased thickening.

Conclusions: BVD is a rare disease; usually, even in full range of the disease, visual acuity may remain satisfactory. However, loss of vision can occur due to complications.

Abstract No.: 200161

Bibliometric Analysis of Research on the Trends in Traditional Chinese Medicine to Treat Diabetic Retinopathy

*First Author: Kexin **SUN***

Purpose: There are thousands of publications in traditional Chinese Medicine (TCM) to treat diabetic retinopathy (DR) have been reported. Bibliometric analysis of these publications is rare. Using bibliometric analysis to analyze the research of TCM to treat DR, to characterize the current international status of DR research, and to describe the effective factors and research hotspots in DR research.

Methods: Based on the Web of Science (WoS), Dimensions, and PubMed, 3 kinds of bibliometric analysis were conducted to investigate the trends of research related to TCM to treat DR. Visualized maps were constructed by VOS viewer and R Studio. The distribution of paper types, authors, source journals, keywords, open access, and research hotspots in this field were analyzed and compared.

Results: Publications retrieved results among the 3 databases are different. WOS is the largest database to obtain publications with a huge data volume. Dimensions as a new literature database have much broader indexing and higher data quality. PubMed is the most common database which is easy to use. Journal of Ethnopharmacology was the most prolific journal. The number of publications had increased. Hotspots mainly focused on the pathogenesis and image technology in diagnosing DR. Radix Salviae, Coptidis Rhizoma, and licorice have existed in ancient prescriptions with a high frequency of utilization to treat DR.

Conclusions: Based on data extracted from different databases, our study provides a view of the current status and trends in TCM to treat DR and might help other ophthalmologists in research and choosing journals.

Abstract No.: 200982

Bidirectional Relationship Between Retinal and Choroidal Circulation in Patients with Retinal Vein Occlusion

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*Co-Author(s): Sang Uk **CHOI**, Junyeop **LEE**, Young Hee **YOON***

Purpose: The choroid supplies the outer retina with oxygen and nutrients, however, the impact of retinal vascular circulation on choroid has not been fully investigated. This study analyzed whether the ischemic change in retina from RVO affects choroidal circulation using multimodal imaging and evaluated associated factors affecting changed in choroid and visual prognosis.

Methods: This study is a retrospective, single-center, case-control study of 33 unilateral RVO patients, and the unaffected contralateral eyes were included as the control group. All patients underwent wide-field indocyanine green angiography (wICGA), wide-field fluorescein angiography (wFA), wide-field optical coherence tomography (wOCT), and optical coherence tomography angiography (OCTA). The primary outcome measures included choroidal vascular density (CVD) and choroidal vascular fractal dimension (CFD) from wICGA; non-perfusion area (NPA) from wFA; vascular densities (VD), foveal avascular zone (FAZ) area, and FAZ perimeter from OCTA.

Results: RVO eyes showed increased CVD but reduced CFD compared to the unaffected eyes ($P < 0.05$). The affected eyes also reported lower SCP and DCP VD and increased choriocapillaris flow void area ($P<0.01$). These ischemic changes observed in wICGA and OCTA were significantly correlated with final BCVA ($P<0.01$).

Conclusions: Vascular occlusion in retina not only incites ischemic changes on retinal level but also instigates vascular changes in choroid. This study demonstrates strong evidence of bidirectional interaction between retina and choroid. We hereby suggest that the loss of compensatory mechanism in choroid when coping with retinal vascular insufficiency may be

one of the important causes of photoreceptor loss in RVO.

Abstract No.: 201030
Bilateral Diffuse Uveal Melanocytic Proliferation Associated with Multiple Myeloma

First Author: Oscar Jr ***ACOPIADO***
Co-Author(s): Jose Carlo ***ARTIAGA****, Anna Victoria* ***SAN PEDRO***

Purpose: Bilateral diffuse uveal melanocytic proliferation (BDUMP) is a rare paraneoplastic syndrome in patients with a remote neoplasm. It is commonly associated with systemic carcinomas, and it may present as a first sign of an underlying occult malignancy. We aim to report a case of an incidental finding of BDUMP in a patient with well-controlled multiple myeloma and report its associated imaging findings.

Methods: Case report

Results: A 57-year old female with controlled multiple myeloma on stringent complete response with Bortezomib maintenance consulted for a 2-year history of progressive cloudy blurring of vision of the right eye. Examination revealed the right eye with a visual acuity of 20/50 with a significant posterior subcapsular cataract and 20/20 for the left with a mild nuclear cataract. Fundoscopy showed multiple round subretinal hyperpigmented lesions in a reticular pattern at the posterior pole for both eyes. Right eye showed a large area of peripheral chorioretinal atrophy adjacent to peripheral vascular changes. Optical coherence tomography showed mild RPE elevations, intact photoreceptor layers, with signs of pigment migration. Fundus autofluorescence showed central hyperautofluorescence of the lesions. Fluorescein angiography revealed hypofluorescence corresponding to the pigmented lesions, with surrounding early hyperfluorescence. The patient was advised to continue treatment.

Conclusions: BDUMP is a rare paraneoplastic ocular condition that may have varied clinical presentations and comorbid malignant associations. This is the first report of BDUMP in a patient with multiple myeloma. Screening and recognition of this entity may aid in advising patients regarding the conditions associated with their disease.

Abstract No.: 200080
Bilateral Multifocal Central Serous Chorioretinopathy with Subretinal Fibrosis in a 57-Year-Old Male: A Case Report

First Author: Arianne Angeli ***BALUYUT-PAVON***
Co-Author(s): Ronnie ***MANAYSAY***

Purpose: The objective of this study is to report a case of a patient with bilateral serous retinal detachment who was initially treated as a case of Vogt-Koyanagi-Harada Syndrome with oral corticosteroids, but whose condition worsened with the oral corticosteroids, hence revising the diagnosis to bilateral multifocal central serous chorioretinopathy with serous retinal detachment and subretinal fibrosis, right eye.

Methods: This is a descriptive case study report.

Results: The patient is a 57-year-old male with the chief complaint of sudden blurring of vision in the right eye, who was initially assessed to have bilateral multifocal serous retinal detachment and treated as a case of Vogt-Koyanagi-Harada Syndrome with oral corticosteroids for a month. However, the patient's vision worsened, and the patient subsequently developed serous retinal detachment with subretinal fibrosis in the right eye. The corticosteroid was tapered to discontinuation, and the patient was started on oral azathioprine, oral spironolactone, and topical brinzolamide. After six months, the patient had an improvement in visual acuity, had flattening of the initially noted serous retinal detachment in the right eye, and a slight decrease in the size of the subretinal fibrosis seen on repeat OCT scans of the macula.

Conclusions: This case highlights that a misdiagnosis of Vogt-Koyanagi-Harada disease can be made in a patient presenting with bilateral multifocal serous retinal detachment. This study suggests that care must be taken

before initiating corticosteroid therapy in a patient with serous retinal detachment, as using exogenous corticosteroids may aggravate if it were the case of a central serous chorioretinopathy.

Abstract No.: 201034
Bilateral Ocular Ischemic Syndrome in Takayasu Arteritis

*First Author: Anna Victoria **SAN PEDRO***
*Co-Author(s): Bryan Vincent **MESINA***

Purpose: Ocular ischemic syndrome is characterized by ischemia of the anterior and/or posterior segment of the eyes secondary to chronic vascular insufficiency, primarily caused by stenosis of the carotid artery. This report aims to present a rare condition caused by bilateral ocular ischemic syndrome in Takayasu arteritis and its components, natural history and management.

Methods: Case report

Results: This is a case of 26-year-old female with bilateral vision loss with development of hypotony, cataract, anterior chamber inflammation, retinal neovascularization with decreased distal pulses and blood pressure difference of more than 10 millimeters mercury. Optical coherence tomography of both eyes showed retinal nerve fiber layer thinning. Fluorescein angiography showed diffuse retinal occlusive vasculopathy with neovascularizations, macular edema and ocular ischemia. Transcranial doppler studies, carotid duplex scan and color doppler flow pointed to an ischemic process, showing diffuse concentric thickening of the common carotid arteries and internal carotid arteries. On cranial/neck arteriogram and computed tomography aortogram, arterial wall thickening with luminal stenosis involving the aortic arch branches was seen, suggestive of medium to large vessel arteritis with common carotid and subclavian artery stenosis consistent with Takayasu arteritis. Cataract surgery was deferred due to risk of phthisis bulbi. Patient was managed with topical and systemic steroids, cycloplegic agents and immunosuppressants with subjective improvement of vision.

Conclusions: This case presents a rare condition of bilateral ocular ischemic syndrome from Takayasu Arteritis. An ophthalmologist's role may be critical in assessing a life-threatening disease. Detailed history and examination as well as multi-disciplinary management is necessary in such cases.

Abstract No.: 200964
Biomechanics Considerations in Suprachoroidal Drug Delivery

*First Author: Cherry **WAN***
*Co-Author(s): Victor **CHONG***

Purpose: Drug delivery in the suprachoroidal space (SCS) is becoming increasingly mainstream, validated with the first FDA approved therapeutic, XIPERE®. Therapeutic agents, ranging from small molecule suspensions to gene therapy, have been administered into the SCS clinically. The importance of the biomechanical interplay between drug product formulation and suprachoroidal drug delivery coverage is paramount to design a safe and effective therapy. This abstract summarizes the current thinking of the biomechanical considerations of drug delivery in the SCS.

Methods: Current published evidence was reviewed for suprachoroidal injection with the latest progress in suprachoroidal delivery of injectates varying in physical and fluidic properties, such as volume, viscosity, particle size, osmotic pressure and ionic charge. The extent of opening of the SCS and drug product spread were evaluated relative to the fluid characteristics.

Results: Drug formulations can be tailored to the desired target product profile. Physical and fluidic properties of injectates into the SCS can impact the spread and extent of opening of the SCS. For instance, drug spread is directly proportional to the injected volume and inversely proportional to the viscosity.,,Suspension formulations with low solubility exhibit sustained pharmacokinetics

in the SCS, demonstrated by the clinical trials involving the use of suprachoroidally injected triamcinolone acetonide and axitinib.

Conclusions: Suprachoroidal drug delivery for chorioretinal diseases has the potential to maximize efficacy, while compartmentalizing therapies away from the unaffected tissues to potentially enhance safety. These delivery attributes, along with fluid transport properties and formula customization, may allow for more tailored treatment of retinal diseases.

Abstract No.: 200887

Brolucizumab Versus Aflibercept in a Chinese nAMD Population: The HOBBY Study

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Purpose: To assess the efficacy and safety of brolucizumab 6mg (BRO) versus aflibercept 2mg (AFL) in Chinese neovascular age-related macular degeneration (nAMD) patients.

Methods: A total of 397 nAMD patients were randomized in a 1:1 ratio to BRO (n=199) or AFL (n=198). BRO patients received three intravitreal injections (q4w) up to Week 8, followed by q12w/q8w up to Week 40 or Week 44, depending on disease activity. AFL patients received three intravitreal injections (q4w) up to Week 8 followed by q8w up to Week 40.

Results: For the primary endpoint at Week 48, the least square (LS) mean (SE) change in best corrected visual acuity (BCVA) from baseline was 9.9 (0.82) letters and 10.9 (0.82) letters in the BRO and AFL arms, respectively (difference: -1.1 letters [90% CI: -3.0, 0.9], confirmed non-inferiority margin: -4 letters, [p=0.006]). 59.5% of BRO-treated patients maintained q12w dosing up to Week 48. At Week 48, 17.6% and 26.3% of eyes in the BRO and AFL arms, respectively, had presence of sub-retinal fluid (SRF) and/or intraretinal fluid (IRF) (difference: -8.8% [90% CI: -15.8%, -2.4%]). Ocular adverse events and adverse events of special interest were reported in 29.1% and 4.5% of BRO patients, respectively, and 24.2% and 0% of AFL patients, respectively.

Conclusions: BRO was non-inferior to AFL in terms of visual improvement, with the majority of BRO-treated patients maintained on 12-week dosing. Anatomic outcomes favored BRO compared to AFL. BRO demonstrated a favorable benefit/risk profile with no new or unexpected safety findings.

Abstract No.: 201036

Central Retinal Artery Occlusion in a Pediatric Patient with an Undiagnosed Rheumatic Heart Disease

*First Author: Frances Abigail **TESORO***
*Co-Author(s): Junn **PAJARILLO***

Purpose: Central Retinal Artery Occlusion (CRAO) is a true ophthalmology emergency presenting with sudden, painless, and severe loss of vision from diminished flow through the central retinal artery. While CRAO in adults is already rare, it is mostly unheard of in the pediatric population. This report is to discuss a case of CRAO in a 16-year-old healthy male with undiagnosed Rheumatic Heart Disease (RHD).

Methods: Case Report

Results: A 16-year-old male consulted due to a sudden, painless loss of vision of the left eye. Past medical, ocular, and social history were unremarkable. Ophthalmologic examination revealed a CRAO, evidenced by a whitened retina. Hence, an anterior chamber paracentesis and digital massage were done, and ocular hypotensive agents were given. There was minimal improvement in visual acuity despite these interventions. Patient was referred to pediatric service and a systemic evaluation revealed a heart murmur; the echocardiogram showed severe mitral valve regurgitation, mild aortic insufficiency, and trivial pulmonary regurgitation which were probably Rheumatic in origin. Patient was then started on Digoxin and Furosemide 20mg/tab. On subsequent follow-ups, no improvement on visual acuity was noted, and repeat fundus examination still revealed a whitened retina with a chico-brown spot. Despite this, his right eye remained healthy and the patient was closely monitored

by both the ophthalmology and pediatric service for any possible complications.

Conclusions: CRAO in the young can present in a healthy individual and could be a key in diagnosing underlying systemic diseases such as RHD. A multidisciplinary approach is key in properly diagnosing and managing these cases.

Abstract No.: 200703
Challenges and Successes in Polypoidal Choroidal Vasculopathy Management: A Case Report

*First Author: Adrian Joseph **TOLENTINO***
*Co-Author(s): Patricia **QUILENDRINO***

Purpose: To present the clinical course, treatment challenges, and outcomes in a 60-year-old female with polypoidal choroidal vasculopathy (PCV)

Methods: A 60-year-old female presented with blurring vision and metamorphopsia in the right eye. Initial best-corrected visual acuity (BCVA) was 20/50, with unremarkable anterior segment findings. Fundus examination identified a solitary red-orange nodule in the parafoveal area. Optical coherence tomography (OCT) showed a large retinal pigment epithelium (RPE) detachment with intraretinal hyporeflective spaces. The patient underwent multiple treatment regimens, including aflibercept, brolucizumab, and faricimab, over two years.

Results: Four monthly doses of aflibercept showed minimal response. A single dose of brolucizumab led to intraocular inflammation with redness and floaters five days post-injection, despite which OCT showed marked improvement. The inflammation was resolved with topical and oral steroids. Due to recurrence and new polypoidal lesions, the patient reverted to aflibercept, which showed poor response. Faricimab, administered as four monthly injections, resulted in the resolution of lesions and edema. The patient transitioned to a treat-and-extend regimen with faricimab every four months. BCVA improved to 20/25 and J1. The patient is currently asymptomatic, with OCT scans showing RPE bumps with high reflectivity consistent with subretinal fibrosis

Conclusions: This case highlights the complexity of PCV management and the varied responses to anti-VEGF therapies. Faricimab provided significant anatomical and visual improvement after other treatments failed. Continuous monitoring and individualized treatment strategies are essential for effective management.

Abstract No.: 200832
Changes in Retinal Sensitivity Detected by Microperimetry in Pachychoroid Spectrum Diseases

*First Author: Seung-mo **KIM***
*Co-Author(s): Junyeop **LEE**, Yea Eun **LEE***

Purpose: We aimed to analyze alterations in retinal sensitivity in patients with pachychoroid spectrum diseases using microperimetry.

Methods: A retrospective analysis was conducted on 23 eyes of 23 pachychoroid spectrum diseases patients without presenting subretinal fluid. The patients underwent optical coherence tomography (OCT), fluorescein angiography, and microperimetry to determine the alterations in retinal sensitivity. Central retinal thickness was assessed using central subfield of the 9 macular sectors defined by the ETDRS (Early Treatment Diabetic Retinopathy Study) grid on OCT. We analyzed the mean retinal sensitivity corresponding to the ETDRS central subfield area calculated from the microperimetry data.

Results: A total of 23 eyes from 23 patients were included in the study, with a mean age of 62.5±9.6 years. The average central retinal thickness in the ETDRS central subfield was 232.4±47.3 um, and the mean choroidal thickness was significantly greater compared to the fellow eye. The mean retinal sensitivity at the central fovea measured by microperimetry was 28.8±2.1 dB. There was no significant correlation between age and mean retinal sensitivity, (p=0.738) however, the mean retinal sensitivity at the cetral fovea of the affected eye was significantly reduced compared to the fellow eye.(-2.40±2.34, p=0.007)

Conclusions: Significant retinal sensitivity reduction was observed in the lesion areas of patients with pachychoroid spectrum diseases as measured by microperimetry. Future assessments of retinal sensitivity may aid in the early detection of retinal function deterioration.

Abstract No.: 200476

Changes in Subfoveal Choroidal Thickness (SFCT) and Choroidal Vascular Index (CVI) After Intravitreal Injection of Anti-Vascular Endothelial Growth Factor (Anti-VEGF) in Retinal Vein Occlusion (RVO)

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*Co-Author(s): Md Tangil **AHMED**, Abu Faisal Md Jahangir **ALAM**, Muhammad **MONIRUZZAMAN**, Abrar Ahmed **NABIL**, Mizanur **RAHMAN***

Purpose: To evaluate changes in SFCT and CVI after intravitreal anti-VEGF injection therapy for RVO.

Methods: An observational case series was studied of 173 patients (173 eyes) who underwent anti-vascular endothelial growth factor (anti-VEGF) therapy for RVO. The 173 fellow eyes in these patients were used as controls. All eyes were evaluated with swept-source optical coherence tomography (SS-OCT).

Results: Mean patient age was 54.98 ± SD 12.70 years. Follow up was after giving 3 doses of intravitreal anti-VEGF injection. Subfoveal choroidal thickness (SFCT) decreased significantly from mean of 284.29 ± 69.47 µm to 236.88 ± 71.55 µm. SFCT decreased by 16.68%, P value was 0.0001. Before giving anti-VEGF mean CVI was 62.10 ± 3.59 %. And after giving 3 doses of anti-VEGF mean CVI was 63.48 ± 3.63 %. After giving anti-VEGF CVI increased by 2.22%, P value was 0.0001.

Conclusions: SFCT decrease and CVI increase significantly after giving 3 doses of anti-VEGF injections in RVO. To study changes in choroidal vascular index, larger study numbers are required and more standardized methods of CVI calculation must be adopted.

Abstract No.: 200479

Changes of Subfoveal Choroidal Thickness (SFCT) and Choroidal Vascular Index (CVI) in Affected Eyes and Fellow Eyes After Intravitreal Injection of Anti-Vascular Endothelial Growth Factor (Anti-VEGF) in Retinal Vein Occlusion (RVO)

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Purpose: To evaluate changes of SFCT and CVI in affected eyes and fellow eyes after intravitreal anti VEGF injection therapy for RVO.

Methods: An observational case series was studied of 25 patients (50 eyes) who underwent anti vascular endothelial growth factor (anti-VEGF) therapy for RVO. All eyes were evaluated with swept source optical coherence tomography (SS-OCT).

Results: Mean patient age was 56.04 ± SD 12.81 years. Follow up was after giving 3 doses of intravitreal anti VEGF injection. Sub foveal choroidal thickness (SFCT) decreased significantly from mean of 259.84 ± 68.70 µm to 214.24 ± 67.53 µm. SFCT decreased by 17.55%, P value was 0.0005. SFCT also decreased significantly in fellow eyes from mean of 194.44 ± 34.99 µm to 159.24 ± 33.30 µm. SFCT decreased in fellow eyes by 18.10%. P value was 0.0001. CVI increased significantly in affected eyes from mean of 61.89 ± 4.45 % to 63.26 ± 4.46 %. CVI increased by 2.21%. P value was 0.0016. But CVI decreased significantly in fellow eyes from mean of 59.60 ± 5.82 % to 58.14 ± 6.40 %. CVI decreased by 2.45%. P value was 0.0005.

Conclusions: SFCT decrease significantly in both eyes and CVI increase significantly in affected eyes but decrease in fellow eyes after giving 3 doses of anti-VEGF injections in RVO. To study changes in choroidal vascular index, larger study numbers are required and more standardized methods of CVI calculation must be adopted.

Abstract No.: 200895

Choroidal Changes After Loading Injections of Faricimab in Neovascular Age-Related Macular Degeneration

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Purpose: The study aimed to evaluate the changes in choroidal structure in patients with neovascular age-related macular degeneration (nAMD) following an initial three intravitreal faricimab loading injections.

Methods: Patients over 50 years old with newly diagnosed nAMD and no prior treatment history received intravitreal faricimab injections at monthly intervals. Assessments included best-corrected visual acuity (BCVA), central macular thickness (CMT), subfoveal choroidal thickness (SFCT), subfoveal Sattler's layer thickness, subfoveal Haller's layer thickness, choroidal vascularity index (CVI) for Sattler's and Haller's layers within a 3.0mm zone, and the area ratio of Sattler's to Haller's layers. Examinations were conducted two weeks after the first injection to evaluate therapeutic effects and monitor for adverse events.

Results: The study included 20 eyes from 20 patients with a mean age of 71.9 years. Patients were observed for an average of one month following three consecutive injections. Significant improvements in BCVA were noted after the three injections. There were significant reductions in CMT, SFCT, subfoveal Sattler's layer thickness, and the area ratio of Sattler's to Haller's layers. However, the subfoveal Haller's layer thickness remained unchanged, while the CVI of Sattler's layer increased. One case of increased intraocular pressure (IOP) post-injection was managed with topical IOP-lowering medication, which was discontinued as IOP normalized.

Conclusions: Initial treatments with faricimab in nAMD patients improved visual acuity and anatomical structures both in the retina and choroid.

Abstract No.: 200156

Cilioretinal Artery-Sparing Central Retinal Artery Occlusion as the Primary Manifestation of Anti-Phospholipid Antibody Syndrome in a Young Male

*First Author: Sharmaine Anjanette **NG***
*Co-Author(s): Buenjim **MARIANO***

Purpose: To present a case of cilioretinal artery-sparing central retinal artery occlusion in a young patient found to have Anti-phospholipid Antibody Syndrome who recovered vision after five days.

Methods: A 27-year-old male, non-smoker with no known comorbidities, consulted for sudden painless profound vision loss of the right eye for 9 hours. The patient denied any medication use, past ocular trauma, bone fracture, or surgery.

Results: On examination, the best-corrected visual acuity (BCVA) was 20/500 in the right eye and 20/20 in the left eye. Poor color vision, 5 mm dilated pupil, positive reverse afferent pupillary defect were observed on the right eye. Fundus examination showed a pale white mottled retina sparing an area nasal to the macula supplied by the cilioretinal artery, box-carring of the arterioles, and macular cherry-red spot. Fluorescein angiography showed early filling of the cilioretinal artery and delayed central retinal arterial filling. Optical coherence tomography angiography showed absence of flow signal at the superficial and deep capillary plexus. CRAO was diagnosed in an otherwise healthy young male. Initial management encompassed ocular massage, hyperventilation into a paper bag, oral acetazolamide, topical beta-blocker, and oral anticoagulant. Systemic work-ups were normal except for presence of lupus anticoagulant and protein S deficiency. BCVA improved to 20/20 after five days.

Conclusions: CRAO in young patients has diverse causes, which necessitates wide-range systemic work-ups. Standardized treatment for CRAO remains undefined. High index of suspicion with the ophthalmologic findings of

CRAO and early treatment may be sight-saving to patients.

Abstract No.: 200835
Classification of Neovascularization Using Wide-Field Optical Coherence Angiography in PDR

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*Co-Author(s): Shorya **AZAD**, Akshaya **BALAJI**, Rajpal **VOHRA***

Purpose: To classify neovascularization in treatment naïve patients of PDR based on wide-field Optical Coherence Tomography – Angiography (OCT-A).

Methods: 9 eyes of 6 patients with PDR underwent detailed ocular examination including optical coherence tomography angiography (ZEISS AngioplexTM) using 14 x 14mm scan (50° field of view). Vitreo-retinal interface (VRI) segmentation was done to study the topography of NVE.

Results: On Clinical examination, 9 eyes were identified with neovascularization with no distinct morphology suggestive of elevated neovascularization. In 4/9 eyes, VRI interface revealed elevated neovascularization.,Varying degrees of capillary drop-out areas and increased inter-capillary distance was seen in all eyes.

Conclusions: OCTA provides succinct segmentation and thus allows us to objectively visualise subtle topographical changes of the NVE.,Due to restricted field of view, OCTA was far from being comparable to fluorescein angiography or clinical examination but VRI segmentation has allowed us to visualise elevated NVE and propose prognosticating them objectively. These raised fronds are more likely to cause vitreous haemorrhage in patients even with small amount of vitreous traction on these fragile elevated fronds.,Use of montage OCTA allows us to objectively visualise these elevated NV and eventually identify patients with PDR likely to have VH following interventions like PRP and anti-vascular endothelial growth factor injections (anti-VEGF).

Abstract No.: 200352
Clinical Outcome of Immunosuppressive Therapy in Autoimmune Retinopathy

*First Author: Seok Hyeon **SONG***
*Co-Author(s): Min Seok **KIM**, Christopher Seungkyu **LEE**, Min **SAGONG**, Se Joon **WOO***

Purpose: To evaluate long-term outcomes of immunosuppressive therapy in autoimmune retinopathy (AIR) patients and assess differences based on anti-retinal antibody (ARA) profiles.

Methods: This retrospective multicenter observational study included 26 AIR patients who received immunosuppressive therapy for at least six months. Clinical information, ophthalmic examinations, and ARA profiles were collected from three hospitals between March 2011 and November 2023. Quantitative and qualitative comparisons of pre- and post-treatment ophthalmic examinations were performed. Association and logistic regression analyses were conducted to determine the relationship between ARA profiles and functional and anatomical outcomes.

Results: The mean duration of immunosuppressive therapy was 25.3 ± 30.4 months. Among the 52 eyes (26 patients), 61% (32 eyes) exhibited worsening best-corrected visual acuity (BCVA), while 10% (5 eyes) improved. Initial BCVA was 0.67 ± 0.77 logMAR, significantly declining to 1.07 ± 1.02 at final follow-up ($p<0.001$). Optical coherence tomography (OCT) revealed worsening in 35% (18 eyes), improvement in 4% (2 eyes), and no change in 61% (32 eyes). No improvement was observed in electroretinogram components. Visual field tests indicated worsening in 66% (19/29 eyes). Notably, patients with recoverin antibodies had a higher risk of visual impairment (lift value 1.238 from association analysis). Multivariate logistic regression analysis revealed no significant associations between the number of ARAs and BCVA or OCT worsening.

Conclusions: Despite prolonged immunosuppressive therapy, AIR patients experienced poor functional and anatomical outcomes. The presence of recoverin

antibodies was associated with a higher risk of visual impairment, while the number of ARAs did not significantly correlate with BCVA or OCT worsening.

Abstract No.: 200946
Clinical Outcomes of Intravitreal Faricimab Injection: Initial Experiences at a Tertiary Eye Center

*First Author: Frances Andrea **ANOVER***
*Co-Author(s): Diana **DO**, Jia-horung **HUNG**, Christopher **OR***

Purpose: Faricimab is a monoclonal antibody that binds to vascular endothelial growth factor A (VEGF-A) and angiopoietin-2. The proposed study examined the outcomes of patients treated with intravitreal faricimab, which has recently been employed at our center.

Methods: In this retrospective study, patients with at least three consecutive intravitreal faricimab injections (IVFI) in one or both eyes, documented visual acuity (VA), central subfield thickness (CST), and slit-lamp with funduscopic examinations were included. Patients with ocular conditions that could interfere with study results were excluded.

Results: 137 cases (162 eyes) were analyzed. Mean age was 78.26 ± 10.95 years, and 56.93% were female. Mean pre-IVFI VA was 0.4554 ± 0.403 logMAR and mean pre-IVFI CST was 291.47 ± 102.11µm. There was a significant reduction in post-IVFI CST (mean change 29.24 µm, p=0.0066). Post-IVFI VA was stable in 61.11%, improved in 22.22%, and declined in 16.67%. However, the mean change in logMAR VA did not reach statistical significance (p=0.8382). Most common treatment indications were: neovascular age-related macular degeneration (62.77%), diabetic macular edema (26.28%), and branch retinal vein occlusion (3.65%), among others. Two patients had side effects: one with anterior uveitis and one with new-onset pigment epithelial detachment. 17.9% were shifted to a different anti-VEGF agent due to non-response.

Conclusions: Faricimab effectively reduces macular edema with minimal side effects. Majority of cases had stable or improved VA, but changes did not reach statistical significance in our study. Further post-marketing surveillance with larger sample sizes and longer follow-up periods is needed to understand its long-term efficacy and safety.

Abstract No.: 200782
Combined Cytomegalovirus (CMV) and Epstein–Barr Virus (EBV) Retinitis Mimicking Neuroretinitis: A Single-Case Report

*First Author: Nattaporn **VONGSA***
*Co-Author(s): Peranut **CHOTCOMWONGSE***

Purpose: To report an interesting case of combined CMV and EBV retinitis mimicking neuroretinitis.

Methods: A single-case report describing a case of optic disc swelling and macular star secondary to combined CMV and EBV co-infection.

Results: A 37-year-old woman with no known underlying disease presented with blurred vision in her right eye for 10 days. On the initial presentation, her visual acuity was 20/100. Her posterior segment of the right eye revealed optic disc swelling with patches of cotton wool spots at peripapillary area and macular star. Optical coherence tomography (OCT) showed hyperreflective spots in the outer plexiform layer (OPL) and subretinal fluid at the macular area. Fluorescein angiography demonstrated leakage hyperfluorescence at peripapillary area and blockage hypofluorescence corresponding to hemorrhage and cotton wool spots. She was initially diagnosed with neuroretinitis and received oral ciprofloxacin and doxycycline. After 1-week, the lesions were partially improved and the serological examination reported anti-HIV positive. Vitreous tapping was subsequently performed, and the result showed CMV and EBV co-detection from Polymerase Chain Reaction (PCR). After her treatment was switched to intravitreal ganciclovir for two weeks, her visual acuity improved to 20/63 and the lesions were completely resolved and turned to retinal scars. The resolution of both

hyperreflective spots and subretinal fluid was also observed in the OCT.

Conclusions: This case highlights that combined CMV and EBV retinitis can present with uncommon manifestations. In cases of atypical neuroretinitis, identifying risk factors and using vitreous PCR can be crucial for accurate diagnosis and appropriate treatment decisions.

Abstract No.: 200663

Comparative Analysis of Faricimab Versus Aflibercept and Ranibizumab in Patients with Substantial Subretinal Hyperreflective Material (SHRM)

*First Author: Noa **GILEAD***
*Co-Author(s): Yu Jeat **CHONG**, Kelvin **TEO YI CHONG***

Purpose: This descriptive study aims to compare the efficacy of faricimab with aflibercept and ranibizumab in reducing SHRM size and preventing fibrosis development in treatment-naive neovascular Age-related Macular Degeneration (nnAMD) patients.

Methods: A cohort of 21 nnAMD patients with SHRM >100μm was analyzed. Six patients received faricimab, while nine received ranibizumab and six aflibercept, serving as controls. Baseline characteristics, including age, gender, eye involvement, number of intravitreal injections (IVTs) in the first year, and SHRM features (height, size, definition), were recorded. Outcome measures included changes in SHRM size at three months and the incidence of fibrosis at 12 months.

Results: Baseline characteristics showed comparable SHRM involvement in both groups. The faricimab group had a mean SHRM size reduction of -3.23mm2 (SD=3.95) at 3 months, while the aflibercept/ranibizumab group had a mean decrease of -2.09mm2 (SD=2.14), with no statistically significant difference (p=0.6222). At 12 months, fibrosis incidence was observed in 50% of the faricimab group compared to 66.6% in the aflibercept/ranibizumab group. The mean fibrosis size was 0.74 mm2 in the faricimab group and 1.11 mm2 in the aflibercept/ Ranibizumab group.

Conclusions: While there appears to be a trend suggesting that faricimab may lead to greater SHRM size reduction and lower incidence of fibrosis compared to aflibercept and ranibizumab, the small sample size limits our ability to achieve statistical certainty. These preliminary findings indicate a potential benefit of faricimab in managing nAMD patients with significant SHRM. However, further studies are necessary to confirm these results and draw definitive conclusions.

Abstract No.: 201147

Comparing Treatment Outcomes of Local intra-arterial Fibrinolysis (LIF), Hyperbaric Oxygen (HBO) and Conservative Treatment (CT) in Central Retinal Artery Occlusion (CRAO) Patients Beyond the Time Window

*First Author: Chi-chun **YANG***
*Co-Author(s): Tai-chi **LIN***

Purpose: Central retinal artery occlusion (CRAO) is a vision-devastating ophthalmic emergency. However, widely-acknowledged treatment consensus is lacking, and prehospital delays commonly occur. Therefore, our study aims to compare the outcomes of conservative treatments (CT) with local intra-arterial fibrinolysis (LIF) and hyperbaric oxygen (HBO) for non-arteritic CRAO (NA-CRAO) patients beyond the traditional time frame with an observational period over 6 months.

Methods: We retrospectively reviewed patients newly diagnosed with NA-CRAO between 2005 and 2023, treated by either LIF, HBO or CT and followed up for over 6 months. Subjects with transient and postoperative CRAO were excluded. Characteristics and outcomes were compared among 3 groups using the Kruskal-Wallis and post-hoc test.

Results: 99 individuals with monocular NA-CRAO were analyzed, comprising the CT (50 patients), HBO (39 patients) and LIF (10 patients) groups. No heterogeneity regarding demographics was identified. The HBO group had a delayed onset (median 6.0 days) and

more advanced-stage CRAO cases (41% stage III) than the CT (median 4.0 days, 14% stage III) and LIF (median 0.6 days, 20% stage III) groups. The HBO group had a higher proportion of significant vision improvement (ΔlogMAR ≧ 0.3) than the CT group (51.3% vs. 24.0%, P<0.05), while no difference was detected in the remaining comparisons at the final assessment.

Conclusions: Our study provided a concurrent comparison across 3 approaches and demonstrated that HBO therapy beyond the time window remained more effective in improving vision than CT alone for NA-CRAO patients, which had not been proposed by prior studies.

Abstract No.: 201082

Comparison of Adverse Renal Events Between Ranibizumab and Aflibercept in Patients with Diabetic Macular Edema: A multinational cohort study

*First Author: Wan-ju annabelle **LEE***
*Co-Author(s): Michael Chun-yuan **CHENG**, Edward Chia-cheng **LAI**, Chia-yi **LEE**, Shih-chieh **SHAO**, Daniel Hsiang-te **TSAI***

Purpose: Diabetic macular edema (DME) is a leading cause of vision impairment in patients with diabetes mellitus (DM), who are also susceptible to renal injuries. This study compares the incidence of renal side effects, including acute kidney injury (AKI), end-stage renal disease (ESRD), and all-cause mortality, in patients with DME receiving aflibercept or ranibizumab.

Methods: We emulated a target trial and included patients with DME receiving either ranibizumab or aflibercept using the TriNetX Global Collaborative Network. We used propensity score matching to mimic randomization between the ranibizumab and aflibercept users. We followed up patients from the initiation of each treatment strategy to the occurrence of outcome, death, or the end of the study period. Primary outcomes were the incidences of renal side effects including AKI or ESRD. We used the cox proportional hazard models to estimate the effect of aflibercept on AKI, ESRD and mortality by hazard ratios and 95% confidence intervals.

Results: Among 12,628 DME patients, 3,422 received ranibizumab, and 9,206 received aflibercept. The average age was 64.0±12.4 years, and 51.5% were male. Aflibercept use was not associated with an increased risk of ESRD (HR: 1.03, 95% CI: 0.90-1.19) or AKI (HR: 0.98, 95% CI: 0.89-1.08) compared to ranibizumab. Similarly, no increased mortality risk was observed with aflibercept use (HR: 0.99, 95% CI: 0.88-1.10).

Conclusions: Our research comparing the renal safety of aflibercept and ranibizumab in patients with DME showed that both treatments are similarly safe for the kidneys.

Abstract No.: 200855

Comparison of Contrast Sensitivity Between the Selenium Ingested and Non-Ingested Diabetic Groups

*First Author: Seongjoo **SHIN***

Purpose: To compare the contrast sensitivities of selenium ingested group and those non ingested group and to assess the risk factors associated with a change in contrast sensitivity.

Methods: A total of 75 (diabetic patients with selenium ingested) and 41 (diabetic patients without selenium ingested) eyes were reviewed from the medical records. The threshold of contrast sensitivity was measured at 6.3°, 4.0°, 2.5°, 1.6°, 1.0°, and 0.64° under scotopic and photopic states. Optical coherence tomography (OCT) imaging was used to measure the retinal nerve fiber layer (RNFL) thickness and ganglion cell-inner plexiform layer (GC-IPL) thickness in diabetic patients.

Results: Diabetic patients without selenium showed a lower threshold of contrast sensitivity at all degree measures than did the controls under both scotopic and photopic states. In subgroup analyses, diabetic with abnormal contrast sensitivity showed a longer duration of diabetes, decreased total retinal thickness, and decreased average GC-IPL, superior RNFL, superior GC-IPL, and temporal GC-IPL

thicknesses. Multivariate logistic regression analyses showed that the duration of diabetes and total retinal thickness were significant predictive factors of decreased contrast sensitivity (odds ratio = 1.117 and 0.942, respectively).

Conclusions: As the duration of diabetes increased, the contrast sensitivity decreased in type 2 diabetic patients. Neuroretinal degeneration changes both the inner retinal thickness and total retinal thickness and affects contrast sensitivity. But selenium ingested group may slow down the decrease in contrast sensitivity. Further studies are needed on how long-term ingestion of selenium affects diabetic retinopathy progression.

Abstract No.: 200140

Descriptive Cross-Sectional Study of Normal Central Macular Thickness in Healthy Cambodian Population

*First Author: Channkosal **HENG***
*Co-Author(s): Kossama **CHUKMOL**, Piseth **KONG**, Amarin **MAR**, Thorn **POK**, Sarin **SUN***

Purpose: The aim of this study is to assess the mean central macular thickness of healthy eyes in Cambodian population, and its correlation with gender, ocular laterality and age.

Methods: It is a descriptive cross-sectional study, conducted in the three months period, from 28th January 2022 to 28th April 2022. Study populations over 18 years old were evaluated. SD-OCT (NIDEK RS-330 Retinal Scan Duo, Tokyo, Japan) were used to evaluate various macular thickness parameters. Participants' demographic data, related ocular information and central macular thickness were recorded and analyzed by SPSS Version 29 for Mac.

Results: Among 129 participants, there was 74 women (57.4%) and 55 men (42.6%), with mean age of 42.6 ± 14.187 years old (range=18-71 years old). the mean central macular thickness in healthy Cambodian population is 254.21 ± 13.057 µm. The Inner Superior region of the ETDRS map is the thickest, follow closely by Inner Nasal region, while the Central 1mm zone is the thinnest. There was no statistically significant correlation between ocular laterality (Left and right) and CMT (Diff = 0.163 ± 1.629 µm, p=0.92). There is a statistically significant difference between Male and female Central macular thickness, with the difference of 4.605 ± 1.622 µm ($p<0.05$). There is no significant correlation between Central macular thickness with and age (r= - 0.102, p=0.102).

Conclusions: In normal Cambodian eyes, the mean Central macular thickness is 254.21 ± 13.057 µm, which significantly correlated with gender, but not with age. This study also shows interocular symmetry of central macular thickness in healthy eyes.

Abstract No.: 200361

Descriptive Cross-Sectional Study of Normal Central Macular Thickness in Healthy Cambodian Population

*First Author: Channkosal **HENG***
*Co-Author(s): Kossama **CHUKMOL**, Piseth **KONG**, Amarin **MAR**, Thorn **POK**, Sarin **SUN***

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significant correlation between ocular laterality (Left and right) and CMT (Diff = 0.163 ± 1.629 µm, p=0.92). There is a statistically significant difference between Male and female Central macular thickness, with the difference of 4.605 ± 1.622 µm (p<0.05). There is no significant correlation between Central macular thickness with and age (r= -0.102, p=0.102).

Conclusions: In normal Cambodian eyes, the mean Central macular thickness is 254.21 ± 13.057 µm, which significantly correlated with gender, but not with age. This study also shows interocular symmetry of central macular thickness in healthy eyes.

Abstract No.: 200471
Developing and Evaluating an AI-Based Computer-Aided Diagnosis System for Retinal Disease

*First Author: Daniel Duck-jin **HWANG***

Purpose: This diagnostic study aimed to determine the usefulness of a proposed artificial intelligence (AI)–based computer-aided diagnosis (AI-CAD) system in assisting ophthalmologists with the diagnosis of retinal disease using optical coherence tomography (OCT) images.

Methods: For the proposed deep learning model, 1693 OCT images were collected and annotated. The data set included 929 and 764 cases of acute and chronic central serous chorioretinopathy (CSC), respectively. Sixty-six ophthalmologists (36 retina specialists and 30 nonretina specialists) participated in a test involving 100 randomly selected OCT images. They diagnosed CSC subtypes under three conditions: (1) without AI assistance, (2) with AI assistance providing a probability score, and (3) with AI assistance plus a visual evidence heatmap. The sensitivity, specificity, and area under the receiver operating characteristic curve (AUROC) were used to measure the diagnostic performance of the model and ophthalmologists.

Results: The proposed system achieved a high detection performance (99% of the AUROC) for CSC, outperforming the 66 ophthalmologists who participated in the observer performance test. In both groups, ophthalmologists with the support of AI assistance with a probability score and visual evidence heatmap achieved the highest mean diagnostic performance compared with those subjected to other conditions (without AI assistance or with AI assistance with a probability score). Nonretina specialists achieved expert-level diagnostic performance with the support of the proposed AI-CAD system.

Conclusions: The implementation of our AI-CAD system significantly improved the accuracy of CSC diagnoses by ophthalmologists, potentially improving decision-making in retinal disease management and reducing ophthalmologists' workload.

Abstract No.: 200056
Dim Vision in a Single Eye of a Young Female

*First Author: Ning **CHIU***
*Co-Author(s): Shawn **TSAI***

Purpose: In hereditary retinal diseases, bilateral negative ERG is typically observed, while acquired diseases often manifest with unilateral negative ERG. Here, we present the case of a 26-year-old woman experiencing idiopathic unilateral night blindness.

Methods: A 26-year-old woman with a past history of asthma, allergic rhinitis, and atopic dermatitis, presented with a gradual onset of reduced night vision specifically in her left eye over the course of several months. She reported no additional accompanying symptoms and had not been taking any long-term medications. There was no family history of night blindness. Initial examination revealed her best-corrected visual acuity (BCVA) to be 20/30 in both eyes. Upon retinal examination, multiple white spots were observed around the disc in her left eye. No abnormalities in autofluorescence were noted in either eye. Spectral domain optical coherence tomography (SD-OCT) indicated an intact ellipsoid zone and normal central foveal thickness bilaterally. Electrophysiological testing revealed a negative

ERG with a normal a-wave specifically in her left eye.

Results: No abnormalities were detected upon systemic examination. No infectious sources could be identified, and no autoantibodies to retinal proteins were found in the serum. Over the course of our 1-year follow-up, her symptoms showed improvement, but the negative ERG in her left eye persisted.

Conclusions: Unilateral negative ERG of idiopathic origin represents a rare condition. It's imperative to exclude other possible causes of unilateral negative ERG. Identifying additional cases is vital for unraveling the underlying pathogenesis. Consistent follow-up appointments with ophthalmologists are indispensable for tracking any alterations in visual function.

Abstract No.: 200470

Early Real-World Experience with Faricimab in Retinal Vein Occlusion in Thailand

*First Author: Nuntachai **SURAWATSATIEN***

Purpose: To investigate the efficacy and safety of intravitreal faricimab for treatment of macular edema from retinal vein occlusion (RVO).

Methods: This retrospective study analyzed outcomes after 1 and 3 injections of faricimab in both treatment-naïve and treatment-resistant macular edema from RVO. 12 eyes that received first intravitreal injection of faricimab from October 2023 to June 2024 were included in this study. Injection decision and interval were decided by treating retinal specialist. Best-corrected visual acuity (BCVA), central subfield thickness (CST), intraretinal fluid (IRF) status, and adverse events were assessed.

Results: 3 treatment-naïve and 9 treatment-resistant patients were included. All treatment-resistant patients received aflibercept before switching to faricimab. Average number of injections in treatment-resistant group was 19 (95%CI 7.21–31.01). 2 patients were diagnosed with branch RVO and 9 were diagnosed with central RVO. After the first injection, BCVA and CST showed trend of improvement (difference: -0.045 logMAR (95%CI -0.12–0.03) and -37.5 um (95%CI -97.32–22.32) respectively). In 8 patients who received at least 3 injections, both BCVA and CST showed significant improvement after 3 injections (difference: -0.32 logMAR (95%CI -0.60 – -0.03) and -202.17 (95%CI -364.08–-40.26) respectively). Subgroup analysis showed that CST was decreased significantly after the first injection in naïve group (difference -49 um (95%CI -61.71 – -36.29). No serious adverse event was report.

Conclusions: In real-world setting, faricimab shows good functional and anatomical outcomes in macular edema from retinal vein occlusion in both treatment-naïve and treatment-resistant patients.

Abstract No.: 201050

Effects of antiplatelet and antioxidant agents on drusen progression: A pilot, prospective cohort study

*First Author: Yolradee **WINUNTAMALAKUL***
*Co-Author(s): Yodpong **CHANTARASORN***

Purpose: To evaluate the effect of combined antiplatelet and antioxidant medications on the progression of intermediate stage of non-neovascular age-related macular degeneration (dry AMD).

Methods: In this prospective cohort study, patients diagnosed with large or confluent soft drusen who had a regular intake of antiplatelets (aspirin 81 mg or clopidogrel 75 mg daily) were prescribed an antioxidant supplementation (N-acetylcysteine 600 mg daily) (intervention group). Patients with subdrusenoid deposits, atrophic AMD, and neovascular AMD were excluded from the study. Standard ocular parameters optical coherence tomography (OCT) angiography metrics at baseline and every three months were recorded throughout the 12 months period.

Results: Of the enrolled 20 eyes (10 patients), three eyes in the control group were exclude from the analysis due to insufficient number. At baseline, central 3-mm2 drusen volume was 0.17±0.31 mm^3, which statistically significantly decreased to 0.10±0.12 mm^3 at 12 months

(p=0.021). Similarly, the drusen volume within a 5 mm circle was 0.22±0.46 mm^3 at baseline and reduced to 0.12±0.15 mm^3 at 12 months (p=0.034). Choroidal vascularity index (CVI) demonstrated a slight, yet significant reduction from 0.57 at baseline to 0.55 at 12 months (p=0.008). Other parameters including subfoveal choroidal thickness (SFCT) (p=0.236), central subfield thickness (CST) (p=0.35), and choroidal volume (p=0.577), did not show significant changes. None of the patients developed geographic atrophy, neovascular AMD, or side effects from the medications.

Conclusions: The 12-month use of a combination of antiplatelet and antioxidant medications was associated with reduction in soft drusen deposit in intermediate AMD without development of advance-staged AMD.

Abstract No.: 200169

Efffect of the Change of Blood Pressure in Untreated Branch Retinal Vein Occlusion

*First Author: Kento **WATANABE***
*Co-Author(s): Shun **KUMASHIRO**, Seiji **TAKAGI**, Yuichi **HORI**, Tatsuhiko **KOBAYASHI**, Tadashi **MATSUMOTO***

Purpose: The current study investigated relationships between blood pressure and visual acuity, structural changes, recurrence, and treatment frequency in patients with untreated branch retinal vein occlusion (BRVO).

Methods: Twenty-four consecutive patients diagnosed with untreated BRVO were included in the study. Based on blood pressure at their initial visit they were divided into a hypertensive group (systolic blood pressure ≥ 140 mmHg and/or diastolic blood pressure ≥ 90 mmHg) and a non-hypertensive group. Change rate of logMAR visual acuity and central retinal thickness (CRT), microaneurysm incidence, aflibercept injection frequency, and recurrence (CRT ≥ 300 μm) in 1 year were compared in the two groups. In the hypertensive group the same comparisons were conducted between patients who became non-hypertensive at 3 or 6 months (antihypertensive group) and those who did not (non-antihypertensive group).

Results: There were no significant differences in change rate of visual acuity and CRT, microaneurysm incidence, aflibercept injection frequency, or recurrence in 1 year between the hypertensive and non-hypertensive groups. Aflibercept injection frequency (0.3±0.6 vs. 3.1±1.8 times, p = 0.037), recurrence (0% vs. 63%, p = 0.026), and microaneurysm incidence (0% vs. 64%, p = 0.028) in 1 year were lower in the antihypertensive group than in the non-antihypertensive group at 3 months. There were no significant differences in any of the evaluated parameters between the antihypertensive and non-antihypertensive groups at 6 months.

Conclusions: In patients with BRVO and hypertension, post-onset blood pressure reduction within 3 months may be associated with microaneurysm incidence, aflibercept injection frequency, and recurrence in the first year.

Abstract No.: 200508

Efficacy and Safety of Faricimab in Patients with Macular Edema Secondary to Branch Retinal Vein Occlusion: 24-Week Results from the China Subpopulation of the Phase 3 BALATON Trial

*First Author: Dawei **SUN***
*Co-Author(s): Liliana P **PARIS**, Zongming **SONG**, Xun **XU**, Ming **ZHANG***

Purpose: This BALATON (NCT04740905) subpopulation analysis evaluated faricimab in patients with macular edema (ME) due to branch retinal vein occlusion (BRVO) from mainland China, Hong Kong, and Taiwan.

Methods: Patients were randomized to faricimab 6.0 mg or aflibercept 2.0 mg Q4W. After 6 initial doses, faricimab-treated patients were dosed at up to every 16 weeks (Q16W) intervals per a modified treat-and-extend (T&E)–based dosing regimen based on changes in central subfield thickness (CST) and best-corrected visual acuity (BCVA) at active dosing visits.The primary endpoint was the change in BCVA from baseline at week 24. Other efficacy/safety outcomes were assessed through week 24.

Results: 85 Chinese patients were randomized to the faricimab Q4W arm (n=42) or the aflibercept Q4W arm (n=43). At week 24, the adjusted mean change from baseline in BCVA (ETDRS letter score) at Week 24 was +18.0 letters and +17.1 letters in the faricimab Q4W and aflibercept Q4W arms respectively, the adjusted mean change from baseline in CST was -320.6μm and -318.2μm, the proportion of patients with the absence of macular leakage (prespecified exploratory endpoint) was 31.3% and 14.8%. Faricimab had a comparable safety profile to aflibercept and was well tolerated as evidenced by no adverse events leading to treatment withdrawal.

Conclusions: The results of the China subpopulation (n=85) in the BALATON trial showed comparable treatment effects in the change from baseline in BCVA and CST following faricimab treatment compared to aflibercept. Faricimab was well tolerated in the China subpopulation.

Abstract No.: 200238

Efficacy and Safety of Intravitreal Conbercept with T&E Regimens in Age-Related Macular Degeneration: 1-year Finding

*First Author: Hui **PENG***
*Co-Author(s): Xing **WANG***

Purpose: To explore the therapeutic effect, safety and numbers of injection with wet age-related macular degeneration (wAMD) under 2 weeks or 4 weeks injection interval adjustment degrees of a modified "treat-and-extend (T&E)" treatment regimen.

Methods: We collected data on wAMD patients who have never received relevant treatment. Treatment was an intravitreal injection of 0.5 mg conbercept using modified "T&E" treatment plans. The best-corrected visual acuity (BCVA), central macular thickness (CMT), last injection interval and number of injections were recorded at 3, 6, and 12 months to evaluate treatment efficacy.

Results: 42 eyes were included (n=21 each). At 3, 6 ,12 months, the mean change in BCVA from baseline was+8.95, +9.9, +10.48 letters, and +9.71, +12.29, +14.19 letters in the 2-week and 4-week groups, respectively; the mean change in CMT (μm) was 107.29, -114.81, -112.71 and -61.29, -69.14, -70.19, respectively. The mean number of injections was 5.4 and 5.3, and the mean last injection interval was 8.8 weeks and 13.3 weeks in the 2- and 4-week groups, respectively. The interval of the last injections was at least 8 weeks take up 61.9% patients in 2-week group, and at least 12 weeks take up 81% patients in 4-week group.

Conclusions: Modified T&E regimens were effective and safe. There was no significant difference in the therapeutic effect between the 2-week group and the 4-week group. Patients can achieve similar outcomes with either interval mode; therefore, flexible treatment options could be selected according to the patient's time requirements.

Abstract No.: 201111

Efficacy and Safety of Ranibizumab versus subthreshold micropulse laser (SMPL) with Ranibizumab (IVR) in treatment of Diabetic Macular Edema (DME): Real World Study

*First Author: Debolina **DEB***
*Co-Author(s): Aditya **MAITRAY**, Anand **RAJENDRAN***

Purpose: To assess the efficacy of adding SMPL to DME patients, prior to IVR.

Methods: Prospective, randomised, pilot study in a tertiary eye centre in South India. 16 age and sex-matched patients with Centre involving DME recruited- Group A (8) receiving SMPL, followed by IVR in 3 days, Group B (8) - receiving IVR. Study was conducted over 1 year, with monthly follow up for next 4 months and repeat injections given on PRN basis based on fixed regimen. Primary outcome: improvement in Best corrected visual acuity (BCVA) and subfoveal central macular thickness (CMT); secondary outcomes: number of injections needed and any adverse events. Main inclusion criterias- BCVA 6/9- 3/60, CMT < 450 μ.

Results: 3 patients lost to follow up. Final regrouping- Group A (6) and Group B (7) completed 4 month follow up. On third month,

CMT reduced in group A, not statistically significant (p=0.08). On paired T-test between baseline BCVA and final follow up, both groups improved, but not statistically significant. CMT significantly reduced from baseline in Group A (p=0.04), whereas group B had an improvement but not significant (p=0.07). All patients in group A required only 1 IVR, except 1 patient who received 2 IVR during study period. 3 patients in group B required 2 IVR, 2 patients recovered with only 1 injection, and 2 patients required 3 injections.

Conclusions: The study appears to show an advantage of additional SMPL along with traditional IVR in improving CI-DME in terms of CMT and also reducing the number of injections.

Abstract No.: 200192

Efficacy of Switching to Aflibercept 8 mg in Refractory nAMD

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Purpose: To evaluate the switching efficacy of aflibercept 8 mg in eyes with neovascular age-related macular degeneration (nAMD) refractory to monthly anti-vascular endothelial growth factor (VEGF) therapy.

Methods: This multicenter retrospective observational study included 37 eyes of 37 patients with nAMD requiring monthly anti-VEGF injections and switched to aflibercept 8 mg in April–May 2024. Best-corrected visual acuity (BCVA, logMAR), central retinal thickness (CRT), maximum height of pigment epithelial detachment (PED), subfoveal choroidal thickness (SFCT), and presence of exudation including intraretinal fluid, subretinal fluid, and sub-retinal pigment epithelium fluid were assessed using OCT before and one month after switching.

Results: One eye that developed intraocular inflammation post-switching was excluded, leaving 36 eyes of 36 patients for analysis. BCVA remained unchanged from 0.3 ± 0.3 before to 0.3 ± 0.3 after switching (P = 0.10). The mean CRT and maximum PED height significantly decreased from 349 ± 172 µm to 312 ± 144 µm and from 300 ± 200 µm to 263 ± 149 µm (P = 0.004 and P < 0.001), respectively. The mean SFCT decreased from 197 ± 102 µm to 177 ± 93 µm, but this was not statistically significant (P = 0.05). Exudation resolved or decreased in 27 eyes (75%), remained unchanged in 8 eyes (22%), and worsened in 1 eye (3%).

Conclusions: In patients with nAMD refractory to previous anti-VEGF therapy, a single aflibercept 8 mg injection resulted in anatomical improvement in 75% of eyes. Further studies are needed to evaluate long-term efficacy.

Abstract No.: 201026

Elevated Density of Macrophage Like Cells (MLCs) Is Associated with Diabetic Macular Edema (DME) Refractory to Anti-VEGF Treatment Alone

*First Author: Cheng-kuo **CHENG***
*Co-Author(s): Ching-chun **LIN***

Purpose: To investigate the role of macrophage-like cells (MLC) in the treatment of diabetic macular edema (DME).

Methods: This retrospective, cross-sectional study involved 45 treatment naïve eyes with diabetic macular edema (DME), including 34 eyes received intravitreal injection of anti-VEGF and 11 eyes not responded well to anti-VEGF, subsequently received intravitreal steroids. MLC were quantified to determine MLC density using en face optical coherence tomography (OCT) over macular region. We collected demographic, best corrected visual acuity (BCVA), imaging characteristics and number of intravitreal injections at 12 months post-treatment.

Results: MLC density was significantly elevated in DME cases treated with additional intravitreal steroids compared to those treated with intravitreal anti-VEGF alone (p<0.001). The mean central retinal thickness (CRT) was correlated with macular MLC density (r = 0.57, p<0.001). MLC density was positively correlated

with the number of intravitreal injections at 12 months (r = 0.66, p <0.001) post-treatment.

Conclusions: Macular MLC density is a potential imaging biomarker for identifying the need for anti-inflammatory therapy in DME. Elevated MLC density is associated with cases requiring intravitreal steroids and higher frequency of intravitreal injections, suggesting that MLC is a biomarker for anti-VEGF resistant DME.

Abstract No.: 200747

Escitalopram-Induced Subretinal Fluid Foci Mimicking MEK-Inhibitors Associated Maculopathy: A Single-Case Report

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Purpose: To report an interesting case of Escitalopram-induced maculopathy.

Methods: A single-case report describing a first case of subretinal fluid foci and retinoschisis-like subretinal fluid secondary to Escitalopram.

Results: A 41-year-old male with well-controlled major depressive disorder under Escitalopram treatment for four years. Besides having visual acuity of 20/20 in both eyes, he complained of blurry vision for three days. His fundus revealed bilateral multifocal serous retinal detachment. Optical coherence tomography (OCT) captured multiple subretinal fluid accumulations and extensive retinoschisis-like intraretinal fluid. The surrounding subretinal fluid was smaller and shallower compared to the central dome-shape lesion resembling the subretinal fluid foci that occurred in mitogen-activated protein kinase (MEK) inhibitors toxicity. Fundus autofluorescence showed multiple discrete hyper-autofluorescence at macular area. Fluorescein angiography demonstrated multiple small hazy leakage hyperfluorescence and pooling effect at the area of subretinal fluid. Following consultation with his psychiatrist, he was advised to discontinue his medication. After three weeks, the retinoschisis-like intraretinal fluid had completely disappeared. The subretinal fluid had significantly decreased, then completely resolved after four months of follow-up. He reported regaining of his visual function after 3 weeks of drug discontinuation. Fluorescein angiography revealed multiple hyperfluorescence dot corresponding with multiple minute RPE window defect without leakage detected.

Conclusions: Escitalopram-induced retinopathy is a rare ocular side effect characterized by subretinal fluid foci and retinoschisis-like intraretinal fluid. After drug discontinuation, spontaneously remission has been observed. This report could raise the importance of comprehensive eye examination from healthcare providers in patients experiencing blurred vision while using Escitalopram.

Abstract No.: 200420

Essential Thrombocythemia (ET) Presenting as a Combined Cilioretinal Artery Occlusion (Cil.RAO) and Central Retinal Vein Occlusion (CRVO)

*First Author: Thushara **KALUARACHCHIGE***
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Purpose: To report a case presented with sudden vision loss due to combined Cil.RAO and CRVO which was diagnosed with essential thrombocythemia following a multidisciplinary workup.

Methods: 35-year-old male presented with sudden vision loss in his left eye for one day and was diagnosed with combined cilioretinal artery occlusion (Cil.RAO) and central retinal vein occlusion (CRVO). A multidisciplinary clinical work up was conducted to determine the underlying cause for combined retinal vascular disease. Full blood count in basic investigations directed for hematological investigations. Ophthalmic complications were managed both medically and surgically.

Results: A full blood count revealed a very high platelet count (1,147,000/mm3), prompting further hematological investigation. Peripheral blood smear showed abundant platelet clumps, and the bone marrow trephine biopsy indicated megakaryocytic hyperplasia and reticulin fibrosis (grade 1). The patient tested heterozygous for the JAK2 V617F mutation, a genetic marker

for myeloproliferative disorders, and was diagnosed with essential thrombocythemia (ET). After a month of treatment with Hydroxyurea 500mg daily, his platelet count returned to normal.

Conclusions: Thrombocythemia is associated with systemic and ocular thrombotic and embolic complications. A full blood count was pivotal in diagnosing and managing ET in this patient with combined retinal vascular disease.

Abstract No.: 201088
Expert Guidance of Suprachoroidal Space Injection Technique

*First Author: Judy **KIM***
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Purpose: In-office suprachoroidal space (SCS) injections of various therapeutic agents have rapidly gained popularity recently, with six ongoing clinical trials worldwide, including Asia, and an FDA approved product in US. This abstract is to summarize the professional guidelines for best practices for SCS injection for retinal therapeutic delivery, based on current published evidence and clinical experience.

Methods: A panel of expert ophthalmologists reviewed current published evidence and clinical experience during a live working group meeting to define points of consensus and key clinical considerations to inform the development of guidelines for in-office SCS injection.

Results: Core consensus guidelines for in-office SCS injection were reached and reported by the expert panel. Current clinical evidence and physician experience supported SCS injection as a safe and effective method for delivering retinal and choroidal therapeutics. The panel established consensus on the rationale for SCS injection, including potential benefits relative to other intraocular delivery methods and current best practices in patient preparation, pre- and peri-injection management, SCS-specific injection techniques, and post-injection management and follow-up. The presentation will cover key pearls.

Conclusions: These expert panel guidelines may support and promote standardization of SCS injection technique, with the goal of optimizing patient safety and outcomes. Some aspects of the procedure may reasonably be modified based on the clinical setting and physician judgment, as well as additional study.

Abstract No.: 200770
Exploring Vogt-Koyanagi-Harada Syndrome: Pathways to Clarity

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Purpose: Vogt-Koyanagi-Harada (VKH) syndrome is a rare multisystem autoimmune disorder characterized by inflammation of melanocyte-rich tissues. This case series presents clinical profiles, management strategies, and outcomes of three patients diagnosed with VKH syndrome at a tertiary care centre over one-year period.

Methods: Case series

Results: The series involved 3 patients, aged between 16 to 55, among two of them were female. They had varied initial presentations. Although all of them had bilateral blurred vision, they had different associated symptoms. One patient had headache and tinnitus; the other patient had integumentary changes such as vitiligo. Third patient presented with symptoms on meningism such as fever, headache and neck stiffness. The worst presenting visual acuity was hand movement (HM). All 3 patients had bilateral panuveitis on initial ophthalmological examination. Optical coherence tomography (OCT) showed varied findings between these 3 patients, including indulating retinal pigment epithelium (RPE), exudative retinal detachment (ERD), optic disc swelling, vitritis, and disruption of ellipsoid zone. Two patients underwent fluorescein angiography and showed multifocal well-demarcated hyperfluorescence areas and pinpoint hyperfluorescence at posterior pole and mid periphery. Other diagnostic evaluation involved hearing test, neuroimaging and cerebrospinal fluid analysis. Early initiation of

systemic corticosteroids, supplemented by topical corticosteroids, achieved disease control in all cases, albeit with varying degrees of visual recovery. Long-term follow-up underscored the importance of prompt diagnosis and multidisciplinary management in mitigating complications and preserving visual function.

Conclusions: This case series contributes to the evolving understanding and management of VKH syndrome, emphasizing individualized treatment approaches tailored to clinical manifestations and disease severity.

Abstract No.: 200864

Factors Associated with Diabetic Macular Edema and Vitreous Hemorrhage After Treatment for Proliferative Diabetic Retinopathy

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Purpose: This study evaluated the cumulative incidences and risk factors of diabetic macular edema (DME) and vitreous hemorrhage (VH) after panretinal photocoagulation (PRP) or combined anti-VEGF therapy for proliferative diabetic retinopathy (PDR).

Methods: Patients receiving PRP or combined three consecutive anti-VEGF injections for PDR and monitored for a minimum duration of 12 months were retrospectively enrolled. The risk factors associated with the cumulative incidences of the first occurrence of DME and VH were identified. In clinical practice, patients who already developed the first DME were still at risk for developing the first VH during follow-up, and vice versa. We employed the Fine and Gray's subdistribution hazards model to model the rate of cause-specific event (eg. VH) given that PDR eyes were event-free or had already developed DME at a time point.

Results: We recruited 95 eyes from 69 patients (37 eyes received combined therapy and 58 eyes received PRP). The cumulative incidences of the first DME and VH at one year were 8% and 19% (combined group), and 31% and 19% (PRP group), respectively.,PRP treatment (sdHR: 4.270, p=0.017), poor sugar control (HbA1c ≥8.4%) (sdHR: 2.861, p=0.001), thicker baseline CRT in non-high-risk PDR (sdHR: 1.053, p=0.008), baseline CRT <233μm in high-risk PDR were associated with higher cumulative incidence of first DME. Cumulative first VH incidence decreased with age (sdHR: 0.956, p=0.009) and higher HbA1c (sdHR: 0.426, p=0.044).

Conclusions: PRP treatment, higher HbA1c level, thicker baseline CRT and high-risk PDR were associated with higher cumulative incidence of DME after PDR treatment.

Abstract No.: 200310

Factors Associated with the Development of Exudation in Treatment-Naive Eyes with Nonexudative Macular Neovascularization

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Purpose: To identify the predictive factors for development of exudation in patients with treatment-naïve nonexudative macular neovascularization (MNV).

Methods: Sixty-one treatment-naïve patients with nonexudative MNV were retrospectively analyzed. All patients were not treated for the nonexudative MNV before the development of exudation. Baseline characteristics and changes in MNV were evaluated using multivariate modeling to determine the potential risk factors for exudative conversion.

Results: The development of exudation was identified in 31.1% (19/61 eyes) of study eyes during the mean 46.2 ± 8.2 months follow-up period. The mean period of development of exudation from the baseline was 21.5 ± 6.7 months. Multivariate Cox regression analysis identified that older age (Hazard ratio [HR] of 1.380, 95% confidence interval [CI] 1.129–1.688, P = 0.008), larger MNV area at baseline (HR of 1.715, CI 1.288–2.308; P = 0.006), increase of MNV area by doubling (HR of 4.992, CI 1.932–9.246; P = 0.002), and retinal pigment epithelium (RPE) elevation more than 100 μm (HR of 1.017, CI 1.006–1.233; P = 0.015)

were associated with increased risk of the development of exudation.

Conclusions: Older age, larger MNV area, increasing MNV area, and higher RPE elevation were associated with an increased risk of exudative conversion in patients with treatment-naïve nonexudative MNV. Identifying these risk factors may be helpful in establishing treatment strategies and monitoring patients.

Abstract No.: 200334
Floaters in a Young Girl

*First Author: Zhi Ling **YEAP***
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Purpose: To report a case of Retinal cavernous hemangioma in a young girl.

Methods: Case report

Results: A 10-year-old healthy Malay girl presented with left eye floaters for 3 weeks. On presentation, visual acuity over both eyes were 6/9. Anterior segments were normal. Fundus examinations of left eye revealed multiple cystic, grape like lesions over temporal retina, measured 6 disc diameter in size, with pre-retinal haemorrhage. Adjacent peripheral vessels appeared dilated and slight tortous, with vitreous haemorrhage at inferior. Macula was flat. Optical coherence tomography of macula was normal. Contrast enhanced computed tomography of brain and orbit was done, no evidence of cerebral hemangioma or focal brain lesion.,,This patient was diagnosed as Left eye retinal cavernous hemongioma, planned for photodynamic therapy to control bleeding in view of vitreous haemorrhage. However subsequent follow up showed improvement with regressing pre-retinal haemorrhage and vitreous haemorrhage. She is currently be followed with periodic observation.

Conclusions: Retinal Cavernous Hemangioma is a rare, benign vascular tumour. Treatment is usually not indicated unless complications occur such as vitreous haemorrhage or hyphema. Despite the benign course, retinal cavernous hemangioma may be associated with intracranial lesion which may cause seizures, intracranial hemorrhages and death. Thus it is crucial to investigate with the help of imaging. Early detection and diagnosis can prevent complication and preserve vision.

Abstract No.: 201084
Forme Fruste Ocular Sarcoidosis with Vascularised Retinal Granuloma

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*Co-Author(s): Vanaja **JAIN**, Surabhi **SAHAY**, Ayushi **SINHA***

Purpose: Case report of vascularised peripheral Retinal granuloma in a case of forme fruste ocular sarcoidosis and its management

Methods: 32 year old lady presented with painless diminution of vision in BE. BCVA was 20/60 and 20/80 in OD and OS respectively. AS evaluation was unremarkable. Posterior segment OD revealed yellow lesions with ill-defined borders along the vascular arcades with disc edema, OS had macular edema. Exudate along the inferior arcade appeared to have a vascular network, highlighted on the FFA and OCTA.OCT through the exudate appeared as a focal nodulE with full thickness retinal thickening. S.ACE level of the patient was 55 microgram/L. CECT scan of the chest was normal. Presumptive diagnosis of vasculitis with a focal vascularised perivascular retinal granuloma was made and systemic steroids were started.Significant improvement was noted on OCT and the vascularisation also reduced on OCTA and BCVA improved to 20/20 in both eyes with steroids. As the case did not satisfy IWOScriteria, we labelled it as Forme Fruste Ocular Sarcoidosis.

Results: This highlights a special scenario where patient did not satisfy the IWOS criteria for diagnosis of Ocular Sarcoidosis but had raised S. ACE levels so was labelled as forme fruste ocular sarcoidosis.Commonly encountered finding in ocular sarcoidosis is a choroidal granuloma while our case had a peripheral granuloma with exclusive retinal involvement.

Conclusions: We can conclude that ocular sarcoidosis may have varied presentations

including exclusive vascularised retinal granuloma and a term forme fruste OS may be used for cases that do not satisfy IWOS criteria for diagnosis.

Abstract No.: 201022

Full-Thickness Macular Hole after Intravitreal Brolucizumab Injection in Neovascular Age-Related Macular Degeneration

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Purpose: To present a case of a full-thickness macular hole after intravitreal brolucizumab injections for the treatment of neovascular age-related macular degeneration, which has not been reported to date.

Methods: A 65-year-old male patient received intravitreal brolucizumab injection as the anti-vascular endothelial growth factor (VEGF) therapy for neovascular macular degeneration of the right eye. After multiple intravitreal anti-VEGF injections on a pro re nata regimen, a full thickness macular hole was detected.

Results: The pateint underwent surgical treatment of pars plana vitrectomy on the right eye. Successful closure of the full-thickness macular hole was acheived in this case.

Conclusions: In conclusion, full-thickness macular hole formation is a potential complication after intravitreal brolucizumab injection in neovascular age-related macular degeneration. Although it is an uncommon complication, caution is needed.

Abstract No.: 200401

Functional and Protein Structure Analysis of a Novel FZD4 Variant c.428T>C: Further Understanding of Angle Closure in a Familial Exudative Vitreoretinopathy Pedigree

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Purpose: To present clinical features while elucidating the mechanism of a novel FZD4 variant.

Methods: Records of a pedigree with familial exudative vitreoretinopathy (FEVR) were reviewed. Cellular models and protein structure analysis were tested to understand the functional consequences of the novel FZD4 variant.

Results: The proband, with a history of nystagmus, presented with acute angle closure in the left eye. Following uneventful cataract surgery, intraocular pressure normalized postoperatively. Genetic analysis and familial segregation confirmed the presence of an FZD4 (NM_012193.4): c.428T>C (p.Leu143Pro) variant. Western blotting revealed that the FZD4 level was reduced in cells expressing the FZD4 variant, and MG-132, a proteasome inhibitor, could attenuate the reduction. In addition, protein structure analysis demonstrated that the L143P change within FZD4 may disrupt a helical structure in the wild-type protein.

Conclusions: Lens aspiration could alleviate acute angle closure in FEVR, a rare but devastating condition. The pathogenic FZD4 variant L143P is associated with protein instability mediated by proteasomal degradation.

Abstract No.: 200159

Genipin Ameliorates Diabetic Retinopathy via the HIF-1α and AGEs-RAGE Pathways

*First Author: Kexin **SUN***

Purpose: A network pharmacology (NP)-based approach was employed to investigate the therapeutic mechanisms underlying genipin administration in diabetic retinopathy (DR).

Methods: Traditional Chinese medicine (TCM) database screening and NP were used to predict the potential active targets and pathways of genipin in DR.

Results: The NP approach identiffed the HIF-1α and AGEs-RAGE pathways, with the EGR1 and UCP2 genes, as key targets of genipin in DR. In the in vitro and in vivo models, we discovered that high glucose increased cell proliferation, apoptosis, angiogenesis,

ROS, and inffammation. Genipin application regulated cell proliferation and apoptosis, inhibited angiogenesis, and reduced ROS and inffammation in the HRMECs exposed to high glucose. Retinal thickness in the genipin-treated group was lower than that in the untreated group. AKT/ PI3K/ HIF-1α and AGEs/ RAGE signaling was is the mainly pathway. Genipin also increased HIF-1α phosphorylation, oxidative phosphorylation of ATP synthesis, lipid peroxidation, and the upregulation of oxidoreductase. Genipin was found to protect HG-induced hRMECs and the retina of STZ-mice, based on: 1) the inhibition of UCP2 and Glut1 decreased intracellular glucose, and glycosylation; 2) the increased presence of HIF1α, which increased oxidative phosphorylation and decreased substrate phosphorylation; 3) the increase in oxidative phosphorylation from ATP synthesis increased lipid peroxidation and oxidoreductase activity; 4) the parallel effect of phosphorylation and glycosylation on vascular endothelial growth factor (VEGF), MMP9, and Scg3.

Conclusions: Based on NP, we demonstrated genipin protects cells and tissues from high glucose levels by regulating phosphorylation and glycosylation.

Abstract No.: 200680

Hydroxychloroquine (HCQ) Monitoring Audit: Evaluating Retinopathy Screening and Referral Practices in a Virtual Service

*First Author: Hemalatha **KOLLI***
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Purpose: This audit evaluates HCQ monitoring and referral practices at our hospital, particularly focusing on our virtual service, to ensure compliance with Royal College of Ophthalmologists guidelines and assess the prevalence of HCQ-induced retinopathy in our patient cohort.

Methods: A prospective audit was conducted from January to December 2021, involving 298 patients referred for HCQ screening.

Results: Of the 298 patients, 275 were on HCQ. The mean age was 62.3 years (±13). 72% of patients were female. The ethnicity of our patients was 78% white, followed by 12% Asian, and 4% Afro-Caribbean/black. The majority (84.7%) had been on HCQ for over five years. The indications for HCQ use included rheumatoid arthritis (62%), Sjogren's syndrome (12%), systemic lupus erythematosus (11%), inflammatory arthritis (7%), fibromyalgia (2%), myositis (2%), mixed connective tissue disease (3%), and inflammatory bowel disease (1%). Twenty patients had an eGFR < 60, which is a risk factor for HCQ toxicity. Screening identified possible toxicity in 2 (0.72%) of patients, significantly lower than the prevalence reported in recent studies. The two patients with OCT abnormalities were on HCQ for more than five years, and both had a confirmed diagnosis of bull's eye maculopathy with additional testing.

Conclusions: The prevalence of HCQ-induced retinopathy in our cohort is notably lower than the reported rate of up to 7.5%. This highlights the importance of tailored screening protocols and continuous re-evaluation of guidelines to ensure optimal patient outcomes.

Abstract No.: 201087

Hyperviscosity Syndrome After Preemptive Kidney Transplantation: A Case Report

*First Author: Mary Juneve **PANGILINAN***
*Co-Author(s): Neil Gregory **ONGHANSENG***

Purpose: This case report describes a rare case of hyperviscosity syndrome in a patient who underwent pre-emptive kidney transplantation, discusses its clinical presentation, pathophysiology, and management. It is a rare complication usually among monoclonal and polyclonal disorders associated with elevation of immunoglobulins presenting with the triad of neurological deficits, visual changes, and mucosal bleeding. Because of its rarity, variable course, and nature of the disease, present understanding of this syndrome remains limited and long-term management a challenge.

Methods: Fundus photography and optical coherence tomography (OCT) were used

as imaging modalities to characterize this pathology.

Results: Here, we present a rare case of hyperviscosity syndrome in a 41-year old female who underwent pre-emptive kidney transplantation secondary to IgA Nephropathy. She presented with a chief complaint of 1-month history of bilateral, painless blurring of vision, floaters with associated headache, dizziness, tinnitus, abdominal pain, diarrhea and gum bleeding. Ophthalmic examination, fundus photography and optical coherence tomography (OCT) revealed hemorrhages and cotton wool spots with subsequent spontaneous disappearance on follow-up, drusenoid exudates near macula and tortuous vessels on both eyes. Patient was initially managed as a case of CMV retinitis, however, due the patient's clinical course and correlation with previous diagnostic examinations such as blood parameters, a high index of suspicion for hyperviscosity syndrome was made.

Conclusions: Comprehensive ophthalmic, systemic examination and clinical correlation should be performed in patients presenting with hyperviscosity retinopathy. Ocular manifestation may be the initial manifestation of a potentially life-threatening hematologic illness. Early recognition and referral can lead to timely diagnosis and appropriate management.

Abstract No.: 200069

Impact of Atopic Dermatitis on the Occurrence of Proliferative Vitreoretinopathy Following Rhegmatogenous Retinal Detachment: An Aggregated Electronic Health Record Data Study

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Purpose: Rhegmatogenous retinal detachment (RRD) associated with atopic dermatitis (AD) has an unfavourable prognosis because of an elevated proliferative vitreoretinopathy (PVR) rate. Nevertheless, global data regarding the initial RRD type and PVR risk among patients with AD-associated RRD (ADRD) are absent. Therefore, we aimed to compare the risk of PVR and the initial RRD type between patients with and without AD.

Methods: In this retrospective cohort analysis, surgically treated RRD patients between January 2004 and October 2023 were identified using the TriNetX database and allocated to the ADRD and non-ADRD groups. A 1:1 propensity score matching was performed to control for baseline characteristics and comorbidities. The risks of developing PVR after the initial RRD occurrence were compared between groups. The initial RRD types were also compared.

Results: 44,180 RRD patients were identified; 125 were allocated to the ADRD group. PVR primarily developed within 30 days post-initial RRD occurred in the ADRD group with significantly higher risks than that in the non-ADRD group (hazard ratio: 2.556; 95% confidence interval: 1.183–5.524), consistent across different follow-up periods. Initial RRD types did not differ significantly between the groups.

Conclusions: The type of initial RRD in patients with ADRD closely resembled that of the general RRD population. However, patients with ADRD have a significantly higher risk of developing PVR after the initial RRD occurrence.

Abstract No.: 200554

Impact of Bevacizumab on Functional and Anatomical Outcomes in Branch Retinal Vein Occlusion

*First Author: Md **RAHMAN***

Purpose: To evaluate the efficacy of intravitreal bevacizumab on functional and anatomical outcomes in patients with branch retinal vein occlusion.

Methods: A prospective non-randomized experimental study was conducted among 96 patients with BRVO and macular edema at a tertiary institute , Dhaka, Bangladesh from September 2021 to September 2022. Patients received intravitreal bevacizumab injections. Visual acuity and macular thickness were measured using Snellen chart and

optical coherence tomography, respectively, before and after treatment. Data analysis was performed using SPSS

Results: : The mean age was 59.43±7.71 years with a male predominance (68.8%). Intravitreal bevacizumab significantly improved visual acuity and reduced macular thickness in patients with branch retinal vein occlusion. Mean visual acuity improved from 0.62±0.30 logMAR to 0.38±0.25 logMAR in the right eye (p<0.001) and from 0.58±0.31 logMAR to 0.47±0.26 logMAR in the left eye (p=0.002). Macular thickness decreased from 504.43±98.37 μm to 302.04±90.23 μm (p<0.001). However, complications including increased intraocular pressure (3.1%), vitreous hemorrhage (2.1%), cataract (1%), and endophthalmitis (1%) were observed.

Conclusions: Bevacizumab is an effective treatment for macular edema secondary to branch retinal vein occlusion in patients, leading to improved visual acuity and reduced retinal thickness.

Abstract No.: 200565

Implications of Coexisting Different Drusen Subtypes in Intermediate Age-Related Macular Degeneration

*First Author: Yeon Ju **LIM***
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Purpose: This study aimed to compare the clinical characteristics of intermediate agerelated macular degeneration (AMD) patients with both reticular pseudodrusen (RPD) and soft drusen versus RPD only.

Methods: Intermediate AMD patients aged over 50, without preexisting neovascular AMD (nAMD) or other macular diseases, were enrolled. Multimodal imaging was used to classify different drusen subtypes. Patients with coexisting RPD and soft drusen and RPD only were identified. Initial and final best-corrected visual acuity (BCVA), RPD subtypes (dot, ribbon, and both), and progression to late AMD (nAMD or geographic atrophy) were compared between the two groups.

Results: Among patients, 113 had both RPD and soft drusen, and 36 had RPD only. Demographics were similar except for a higher rate of hypertension (P = 0.040) in the RPD only group. The dot type was most prevalent in the RPD only group (41.7%), while both dot and ribbon were common in the RPD plus soft drusen group (48.7%). Per eye, 180 eyes had both RPD and soft drusen, and 61 had RPD only. The RPD only group showed worse initial BCVA (p=0.036) but similar final BCVA. The RPD plus soft drusen group had a marginally higher progression rate to nAMD (16.7% vs 6.6%, P =0.050), while progression to GA was similar. Type 3 was the most common MNV type in both groups.

Conclusions: Both groups showed similar baseline demographics and final visual outcomes. Progression to nAMD was higher in the RPD plus soft drusen group, while progression to GA was similar.

Abstract No.: 200240

Increased Intraocular Pressure Immediately After Aflibercept 8 mg Intravitreal Injection for Neovascular Age-Related Macular Degeneration (nAMD)

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Purpose: This study compared intraocular pressure (IOP) changes before and after intravitreal injection (IVA) of aflibercept 8 mg for neovascular age-related macular degeneration (nAMD).

Methods: Eleven eyes of 11 patients received 8 mg IVA for nAMD (8 mg group) and 10 eyes of 10 patients received 2 mg IVA as control (2 mg group). IOP was measured immediately before and after injection (supine position) using a rebound tonometer (iCare®) in both groups, and 30 minutes after injection (seated position) using a non-contact tonometer in the 8 mg group. One case, in which an anterior chamber puncture was performed due to angle closure, was excluded.

Results: The mean IOP in the 8 mg group was 22.2 ± 3.2 mmHg before injection and 66.3 ± 4.6 mmHg after, while in the 2 mg group it was 16.7 ± 3.6 mmHg before and 46.7 ± 8.0 mmHg after. Both groups showed a rapid IOP increase immediately after injection (both P<0.01), with a more significant increase in the 8 mg group (P=0.002). Thirty minutes after injection, the mean IOP in the 8 mg group was 20.7 ± 6.6 mmHg, significantly higher than the pre-injection value of 14.2 ± 2.1 mmHg (P=0.0007). Due to the high IOP of 38 mmHg at 30 minutes in one glaucoma case, glaucoma medications were administered.

Conclusions: Aflibercept 8 mg significantly increased IOP immediately after injection compared to 2 mg; however, 30-minute post-injection IOP returned to within normal range. Caution is advised for patients with pre-existing glaucoma.

Abstract No.: 201018

Initial Real-World Experience with Faricimab in treatment-naïve Neovascular Age-Related Macular Degeneration

*First Author: Woohyok **CHANG***

Purpose: This study aimed to assess the short-term effectiveness and safety of faricimab in treatment-naïve patients with neovascular age-related macular degeneration (nAMD).

Methods: This single-center retrospective study included 24 eyes of 24 patients with treatment-naïve nAMD who received four consecutive monthly intravitreal faricimab injections (week 0, 4, 8, and 12) as loading therapy between October 2023 and April 2024. The best corrected visual acuity (BCVA), the central subfield thickness (CST), the proportion of eyes with dry macula, the thickness of maximum pigment epithelial detachment (PED), and subfoveal choroidal thickness at each time point were evaluated.

Results: The mean logarithm of minimum angle of resolution BCVA changed from 0.507±0.38 to 0.327±0.36 (p < 0.05) at week 16. Moreover, the CST decreased significantly at 4, 8, 12, and 16 weeks compared to baseline (-135.2, -160.3, -161.1, and -165.8 μm, respectively. p < 0.05). At 16 weeks after initiation, a dry macula (defined as the absence of intraretinal or subretinal fluid) was achieved in 83.3% of the eyes. A total of 21 eyes showed PED at baseline, the maximum PED thickness was decreased at 4, 8, 12, and 16 weeks (-82.9, -109.9, -112.6, and -125.3 μm). The mean baseline subfoveal choroidal thickness was 247μm, which decreased to 206μm at week 16. There were no significant ocular or systemic complications during the loading period.

Conclusions: Loading therapy using faricimab improved visual acuity and retinal morphology in patients with treatment naïve nAMD without particular safety issues.

Abstract No.: 200475

Intravitreal Dexamethasone Implant vs. Brolucizumab Injection in the Treatment of Diabetic Macular Edema with Hyperreflective Intraretinal Dots

*First Author: Jay **SHETH***
*Co-Author(s): Somnath **CHAKRABORTY***

Purpose: To compare the efficacy and safety of intravitreal Dexamethasone Implant (DEX) and Brolucizumab Injection in treating Diabetic Macular Edema (DME) with Hyperreflective Intraretinal Dots (HRID).

Methods: A retrospective study of 40 eyes with DME and HRID on optical coherence tomography examined best-corrected visual acuity (BCVA), central macular thickness (CMT), and safety parameters up to 24 weeks after receiving DEX or Brolucizumab (20 eyes each).

Results: Both treatments significantly improved the BCVA with the DEX implant showing significantly better results at week 12 than brolucizumab (P=0.04). In treatment-naïve eyes, BCVA improvements were similar across all time points. In recalcitrant DME eyes, DEX showed significant BCVA improvements at all time points, while brolucizumab showed significant improvements only at weeks 4 (P=0.005) and 24 (P=0.04). The CMT also improved with both treatments, with DEX showing superior reduction at weeks 4 (P=0.003), 12 (P=0.003),

and 24 (P=0.002) respectively. In treatment-naïve eyes, DEX showed consistently better CMT reductions. In refractory DME eyes, both treatments significantly reduced CMT, with DEX performing better at week 12 (P=0.042). DEX required fewer injections (DEX: 1.5±0.61; brolucizumab: 2.4±0.82; P=0.0002) and less supplementary laser treatment (DEX:8/20, 40% eyes; brolucizumab: 16/20, 80%; P=0.01) compared to brolucizumab. No adverse events were observed in either group.

Conclusions: The study suggests the potential superiority of intravitreal DEX implant over brolucizumab in managing DME with HRID. DEX exhibited sustained positive responses in BCVA and CMT, requiring fewer injections and supplementary interventions. Future research should explore extended follow-up durations, personalized treatment strategies, and refined biomarkers to optimize DME management.

Abstract No.: 200525
Intravitreal Injection of Conbercept for Chronic Central Serous Chorioretinopathy with Occult CNV: A Retrospective Clinical Study

*First Author: Suyu **WANG***
*Co-Author(s): Keran **LI***

Purpose: The presence of occult CNV secondary to chronic central serous chorioretinopathy (cCSC) constitutes an underappreciated, yet visually significant ocular condition, where specific therapeutic modalities remain elusive. This study aims to explore the effectiveness and safety of Conbercept, an anti-VEGF agent, in managing cCSC with occult CNV.

Methods: In this retrospective, longitudinal, comparative study, we assessed the therapeutic efficacy and prognostic factors of intravitreal Conbercept in 27 cCSC patients with occult CNV over six months. We analyzed key ophthalmic metrics at multiple pre- and post-treatment time points. Through the analysis of the response of different agents in patients with eye index differences, determine the critical eye factors affecting drug reaction.

Results: All 28 eyes in 27 patients saw significant improvements in mean BCVA, CMT, SRF status, SFCT, FAZ area, and CNV area from baseline during therapy and follow-up, with the exception of one eye. Pearson correlation analysis demonstrated a positive correlation between baseline BCVA and CMT. Moreover, changes in BCVA post-treatment correlated with alterations in CMT, SRF diameter, and CNV area. Patients with a favorable treatment response exhibited significantly lower baseline CMT and CNV vessel diameter compared to those with an unfavorable response.

Conclusions: Conbercept intravitreal injection safely and effectively improves BCVA and various ocular parameters in patients with cCSC complicated with occult CNV, demonstrating no significant adverse effects over a period of time. CMT, SRF diameter, CNV area, and mean CNV vessel diameter may serve as ocular indicators for assessing treatment response and prognosis.

Abstract No.: 200081
Large Colloid Drusen in a Young Adult Filipino Female: A Case Report

*First Author: Maria Giselle **DY***
*Co-Author(s): Jazel **VERDE***

Purpose: This aims to describe a case of a young adult Filipino female with bilateral large colloid drusen.

Methods: This is a case report.

Results: A 38 year-old Filipino female consulted at our institution for progressive bilateral blurring of vision without other ophthalmologic symptoms. Review of systems, as well as her past medical, family, personal and social histories were unremarkable. Visual acuity was 6/30 on the right, and 6/20 on the left, with both eyes improved to 6/10 on pinhole examination. Gross, pupillary, extraocular muscle movement, color, anterior segment and intraocular pressure examinations were normal. On dilated fundus examination, there were bilaterally symmetrical multiple large yellowish subretinal lesions at the temporal macula extending to the temporal near periphery. The

lesions exhibited hyperautofluorescence on fundus autofluorescence imaging, and multiple dome-shaped elevations of the retinal pigment epithelium with variable internal reflectivity and attenuation of the overlying ellipsoid zone on macular spectral-domain optical coherence tomography. These findings were compatible with bilateral large colloid drusen. Patient was then given refraction with improvement in vision on both eyes and was advised regular dilated fundus examinations for monitoring.

Conclusions: Large colloid drusen, considered as one of the early-onset drusenoid macular dystrophies, are rarely seen in clinical practice, with affected individuals having relatively good visual function. Nevertheless, these cases, such as in our patient, should be advised of their condition and monitored regularly since currently the clinical significance and risk of long-term evolution to advanced age-related macular degeneration of large colloid drusen is still unknown.

Abstract No.: 200722
Laser Treatment for Peripapillary Intrachoroidal Cavitation Complicated with Macular Detachment

*First Author: Ting-yu **WU***

Purpose: To report a case with peripapillary intrachoroidal cavitation and macular detachment, which resolved after laser treatment.

Methods: A case report.

Results: The 67-year-old woman has underlying disease of hypertension. She denied history of myopia and ocular surgery or trauma. She came to our clinic due to blurred vision of her left eye for months. The visual acuity was 20/200. Fundus exam and macular Optical coherence tomography (OCT) showed subretinal fluid of macula. There was no obvious leakage in fluorescein angiography (FAG). OCT near disc revealed intrachoroidal cavitation inferior to the disc and the communication to the macular detachment was found.,Three times of macular peripapillary laser were performed on the region of the communication. The subretinal fluid decreased gradually and finally reabsorbed 1 year after the first laser treatment. The visual acuity of her left eye was also improved to 20/25.

Conclusions: Peripapillary intrachoroidal cavitation may occur in patient without myopia. Peripapillary laser is a acceptable treatment for ones complicated with macular detachment.

Abstract No.: 200995
Linezolid-Associated Optic Neuropathy in Drug-Resistant Tuberculosis (DR TB) Patients in Indonesia

*First Author: Andrea **SILITONGA***
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Purpose: The incidence of linezolid-induced optic neuropathy is about 5% among patients receiving treatment for DR TB. Although rare, its significant visual debilitating effect makes it important for ophthalmologists to recognize such a disease.

Methods: A case report of two patients. The first patient is 32 year old female complained of rapid, painless diminution of vision in both eyes for 1 month. She was under medication for DR TB for 17 months with linezolid 600mg. Visual acuity both eyes were counting finger 1 meter. Fundus examination showed slightly hyperaemic optic disc with blurred edges. Optical Coherence Tomography (OCT) showed thickening of the retinal nerve fiber layer (RNFL) in both eyes. The second patient is 49 years old male, with visual acuity in both eyes of counting finger at 2 meters. He had consumed DR-TB drugs including linezolid for 14 months. Fundus examination, optic disc OCT were similar to the first patient. Visual field examination showed a local scotoma in both eyes. Both patients were advised to stop linezolid immediately.

Results: After stopping Linezolid treatment and follow up monthly for 3 months, there was remarkable visual acuity and visual field improvement. The female patient had best corrected visual acuity of 20/20 in month 3 and full recovery of optic disc OCT and visual field. The male patient had visual acuity improved to

20/200 in both eyes and normal OCT scan and visual field tests.

Conclusions: Ophthalmologists need to proactively monitor and quickly recognized linezolid neurotoxicity in DR TB to avoid permanent visual loss.

Abstract No.: 200041

Long-Term Efficacy of Anti-VEGF Therapy Combined with Cataract Surgery in Preventing Diabetic Macular Edema Recurrence: A Five-Year Prospective Cohort Study

*First Author: Xi **CHEN***

Purpose: This investigation sought to evaluate the efficacy of concurrent administration of anti-vascular endothelial growth factor (VEGF) therapy during cataract surgery in reducing the recurrence of diabetic macular edema (DME) among patients undergoing cataract surgery.

Methods: This retrospective study involved 576 diabetic patients diagnosed with DME who were scheduled for cataract surgery. Prior to surgery, DME needed to be adequately controlled to ensure stability before proceeding with cataract surgery. The participants were divided into two groups: 280 patients underwent cataract surgery alone, while 296 received both cataract surgery and anti-VEGF therapy concurrently. The study primarily focused on comparing the timing of the initial postoperative anti-VEGF injection and the frequency of injections over a five-year period following surgery.

Results: The combined therapy group showed a substantially prolonged interval before the initial postoperative anti-VEGF injection (12.2 ± 5.7 weeks) compared to the cataract-only group (4.4 ± 1.6 weeks). Moreover, the combined therapy group exhibited a significantly reduced total number of anti-VEGF injections over one, three, and five years, with a notable difference observed in the first year.

Conclusions: The simultaneous administration of anti-VEGF therapy during cataract surgery appeared to attenuate the recurrence of DME in the early postoperative period and prolong the interval between subsequent anti-VEGF treatments. This synergy suggested a strategic advantage in the combined therapeutic approach, particularly in extending the duration between necessary treatments and reducing long-term management burdens.

Abstract No.: 201000

Long-term Efficacy of Conbercept in Proliferative Diabetic Retinopathy Treatment

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*Co-Author(s): Chuangxin **HUANG**, Zijing **LI**, Zikang **XIE**, Lijun **ZHOU***

Purpose: To assess the long-term efficacy of intravitreal injection of Conbercept (IVC) in proliferative diabetic retinopathy (PDR) treatment.

Methods: A total of 25 PDR eyes without diabetic macular edema (DME) of 25 patients were respectively enrolled from February 2018 to December 2023. Each enrolled patient received IVC treatment with 3+PRN (Pro re nata) regimen. Patients were followed up monthly for a year. The outcome measures were best-corrected visual acuity (BCVA) change, central retinal thickness (CRT) change from baseline to month 12, neovascuarization (NV) regression, DME development and visual field (VF) loss.

Results: Twenty-five eyes were followed for 1 year and were included in this analysis. From baseline to month 12, BCVA increased by 4.88 letters (95%CI, 2.03 to 7.33 letters) ($p = 0.0007$), and CRT decreased by 30.78μm (95%CI, 16.96 to 44.60μm) ($p < 0.0001$). During the 1-year follow-up, the rate of complete NV regression was 63.1%, and DME was developed in 3 eyes (15.8%). From baseline to month 12, the reduction in mean deviation (MD) of central VF was 0.13dB (95%CI, -1.27 to 1.54dB) ($p > 0.05$), and the total score point of peripheral VF reduction was 78.26dB (95%CI, -26.68 to 183.2dB) ($p > 0.05$).

Conclusions: The visual acuity improvement and CRT reduction were obvious in PDR patients using IVC in one-year follow-up, with obvious NV regression, slow DME development and little damage to VF.

Abstract No.: 200896

Longitudinal Follow-Up of Treatment Response of Proliferative Diabetic Retinopathy Using Ultrawide Field Swept-Source Optical Coherence Tomography Angiography

*First Author: Wenjun **SONG***
*Co-Author(s): Yusra **ASAD**, Hnin Hnin **OO**, Wei Hing **SEAH**, Sandy Wenting **ZHOU***

Purpose: Ultrawide field swept source optical coherence tomography angiography (UWF SS-OCTA) was used to evaluate treatment response in eyes with treatment-naive proliferative diabetic retinopathy (PDR).

Methods: This is a prospective longitudinal observational study. Patients with treatment naïve PDR were recruited and imaged using the SS-OCTA 26x21mm field of view (Dream OCT; Intalight) at baseline and at 1 month, 3 months after panretinal photocoagulation ± intravitreal anti-VEGF injections.Retinal neovascularization (NV) and retinal non-perfusion area (NPA) were analysed at baseline and subsequent follow-ups. The relationship between posterior vitreous face and NV was also assessed on corresponding structural B-scans.

Results: UWF SS-OCTA was performed on 20 eyes from 10 treatment naive PDR patients. The en face SS-OCTA 26x21mm vitreoretinal interface (VRI) slab showed NV at baseline. After treatment, SS-OCTA demonstrated regression of NV in 14 eyes (70%). Posterior vitreous detachment (PVD) enlargement with release of vitreous traction on NV and development of vitreous hemorrhage (VH) were also observed in some cases using structural B-scans. There were no statistically significant changes in NPA through 3 months after treatment.

Conclusions: NV and NPA in PDR can be identified at baseline and imaged serially after treatment using UWF SS-OCTA. Majority of cases show regression of NV after treatment. Non-perfusion area does not change significantly after treatment. The interaction between the posterior vitreous face and NV identified also helps predict the risk of VH. UWF SS-OCTA can be regarded as a quick, safe, repeatable, and stand-alone imaging modality for detecting PDR and monitoring treatment response.

Abstract No.: 200914

Management of Central Retinal Artery Occlusion Following Retinal and Cerebral Transient Ischemic Attack in a Young Adult

*First Author: Dessy **ANDRIYANA***
*Co-Author(s): Nadia **DEWI***

Purpose: Central Retinal Artery Occlusion (CRAO) is an acute ischemic stroke leading to severe vision loss and is indicative of potential cerebrovascular and cardiovascular complications. Effective management is crucial for preventing ischemia in other organs. This case report discusses the management of CRAO in a young adult patient following retinal and cerebral Transient Ischemic Attacks (TIAs).

Methods: A 35-year-old male with a history of hypertension and smoking presented with sudden vision loss in his left eye, with visual acuity reduced to hand movement. Six months prior, he experienced transient visual loss for one hour and left-hand numbness. Comprehensive ocular examinations, including funduscopy, Optical Coherence Tomography (OCT), and Optical Coherence Tomography Angiography (OCTA), alongside systemic and laboratory evaluations, were conducted. Neurological and cardiovascular assessments were also performed, given the elevated risk of subsequent strokes.

Results: Cherry red spot and posterior pole opacity was found through funduscopy. OCT shows inner retinal layer thickening and hyperreflectivity. Decreased vascular perfusion was found on OCTA. The patient had risk factors including hypertension, dyslipidemia, and smoking habits. Magnetic Resonance Imaging/Angiography (MRI/A) identified chronic cerebral infarctions and stenosis in the middle and posterior cerebral arteries. Initial treatment involved digital ocular massage and topical antiglaucoma medications. Subsequently, antihypertensive, antiplatelet, and anticoagulant therapies were administered.

Visual acuity improved to 20/200, and risk factors were well-managed.

Conclusions: TIAs, whether retinal or cerebral, can signal impending retinal artery occlusion. Comprehensive management is vital to prevent future blood flow disruptions to other organs.

Abstract No.: 200662
Maternally-Inherited Diabetes with Vitelliform Macula Lesions

*First Author: Min Jie **CHUA***
*Co-Author(s): Beau J **FENNER**, Shu Yen **LEE***

Purpose: To report a case of maternally inherited diabetes with vitelliform macula lesions.

Methods: A case report.

Results: We present a 34-year old female with type 1 diabetes since 12 years of age with previous cholecystectomy and a small stature, who presented with progressive blurring of vision of the left eye over 3 years associated with distortion of vision. Her visual acuities were Right 6/12 and Left 6/60. She was found to have bilateral vitelliform lesions within the macula, confirmed on OCT with pitchfork-like projections. Fundus autofluorescence showed multiple well-demarcated areas of absence of autofluorescence. Electrophysiology studies revealed bilateral macula dysfunction. Genetic studies showed a pathogenic variant in the mitochondria TRNL1 gene (NC_012920.1:m.3243A>G) which was not found in her mother.

Conclusions: We describe a new case of MIDD-associated vitelliform maculopathy caused by the mitochondrial mutation 3243A>G.

Abstract No.: 200505
Milky Way with Twinkling Stars: Lipemia Retinalis with Sub-RPE Drusenoid Deposits, a Unique Finding

*First Author: Parag **BAGAD***

Purpose: History: A 32 years old Female patient for routine eye examination. Best corrected vision 20/20, N6 in both eyes.

Methods: Fundus Examination: Salmon colored blood vessels with creamy white deposits beneath the level of Retinal pigment epithelium.,OCT Macula: Intra-retinal hyper-reflective dots due to breach in inner blood retinal barrier is a reported finding, however sub-RPE hyper-reflective dots have never been reported earlier, presumably due to breach in outer blood-retinal barrier.

Results: Blood Examination: Whitish color of blood sample.,Sr. Triglyceride levels: 3510mg%

Conclusions: Blood sugar level: 500 (Fasting), 550 (Postprandial)

Abstract No.: 200390
Monitoring Treatment Response to Intravitreal Anti-Vascular Endothelial Growth Factor (anti-VEGF) Injections for Macular Edema Secondary to Retinal Vasculopathies and Age-Related Macular Degeneration Using SmartSight Treatment Tracker a Novel Software Application: A Simulated Pilot Usability Study

*First Author: Jermaine Kris **CHENG***
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Purpose: To evaluate the usability of SmartSight Treatment Tracker software to monitor treatment outcomes in patients with macular edema secondary to retinal vasculopathies and age-related macular degeneration receiving intravitreal Anti-Vascular Endothelial Growth Factor injections.

Methods: This pilot observational descriptive study recruited ophthalmology residents, retina fellows and consultants through convenience sampling. Participants recorded outcomes for five case vignettes using SmartSight and completed the mHealth App Usability Questionnaire (MAUQ). Numerical variables were presented as mean with standard deviation. One-way ANOVA determined differences by age groups and level of training, with Tukey's HSD test for multiple comparisons. Statistical significance was set at $p<0.05$.

Results: The study included 31 participants: 10 residents, 10 retina fellows, and 11 retina consultants. The mean scores were: (a) ease

of use and satisfaction: 32.4/35 (SD ± 2.7), (b) interface and satisfaction: 45/49 (SD ± 3.6), and (c) usefulness: 31.9/35 (SD ± 3.4). The overall usability score was 109/119 (SD ± 8.4). Participants aged 36-45 years had the highest scores across all subscales and overall usability, though differences among age groups were not statistically significant (p>0.05). Retina fellows rated highest on all subscales and overall usability, with no significant differences among groups except for the ease of use and satisfaction subscale (p=0.0413). Multiple comparisons tests revealed a significant difference between residents and fellows in ease of use and satisfaction (p=0.0440).

Conclusions: This pilot study demonstrated acceptable usability of SmartSight for monitoring outcomes of intravitreal anti-VEGF injections. Further studies are needed to refine its features and applicability to daily clinical practice and record keeping.

Abstract No.: 200171

Morphometric Changes in Macular Telangiectasia Type 2 on Optical Coherence Tomography

First Author: Trupti ***MARATHE***

Purpose: To study the micro morphometric changes in macular telangiectasia type 2 over serial follow up on optical coherence tomography in terms of length and location of ellipsoid zone (EZ) and external limiting membrane (ELM) disruption.

Methods: Eyes with non-proliferative Mac Tel diagnosed based on clinical examination, optical coherence tomography (OCT), autofluorescence, fluorescein angiography, OCT angiography.,Morphometric features such as EZ and ELM disruption location and length in temporal parafoveal area, sub foveal area and nasal parafoveal area is recorded at baseline and every follow up.,Eyes with only temporal involvement were termed subgroup 1.,Eyes with temporal and sub foveal involvement were termed as subgroup 2.,Eyes with temporal, sub foveal and nasal involvement were termed as subgroup 3.

Results: A total 37 eyes of 23 patients were analysed.,Temporal EZ loss at baseline and follow up visits was significantly higher in subgroup 3 than other subgroups (p 0.009).,There was statistically significant increase in temporal ELM loss at follow up visit in subgroup 3 and subgroup 1.,On comparison of temporal parafoveal EZ disruption at baseline visit and follow up in subgroup 3 showed significant increase in EZ disruption (p 0.003).

Conclusions: Eyes with nasal parafoveal involvement are advanced Mac Tel eyes and have the highest EZ and ELM disruption.,The temporal EZ disruption length is also highest in eyes with temporal, central and nasal involvement.,Extent of temporal EZ involvement and its rate of progression on subsequent follow up can be studied to predict sub foveal and nasal EZ loss.

Abstract No.: 200358

Moyamoya Syndrome presenting as Central Retinal Artery Occlusion, Ophthalmic Artery Occlusion, and Ocular Ischemic Syndrome in an Adult Filipino Male

First Author: Jordan ***PINZON***
Co-Author(s): Paolo ***SILVA***

Purpose: To present a case of moyamoya syndrome presenting as central retinal artery occlusion (CRAO), ophthalmic artery occlusion (OAO), and ocular ischemic syndrome (OIS). Further, we bring awareness to this rare disease that can be a cause of ocular vascular pathologies.

Methods: A 56-year-old diabetic male developed loss of vision on his right eye after a two day history of right-sided, progressive periorbital pain. At the emergency room, examination revealed hyperemic conjunctiva with visual acuity of light perception. Fundoscopy revealed a pale posterior pole with a cherry red spot. Ophthalmologic and systemic diagnostics were performed.

Results: Fluorescein angiography showed partial and faint choroidal circulation with retinal circulation limited to the peripapillary

area, consistent with CRAO. The complete blood count and acute phase reactant levels were normal. Magnetic resonance (MR) imaging and MR angiography revealed obstruction of the ophthalmic artery among other vascular structures with none showing edematous changes. This then led to a diagnosis of OAO. A conventional angiogram was done which showed extensive obliteration and occlusion of the right extracranial internal carotid artery with occlusion of the ipsilateral ophthalmic artery among other vessels, and hypertrophic collaterals resembling a "puff of smoke" pattern consistent with moyamoya syndrome. He developed iris neovascularizations a week after vision loss, and was eventually diagnosed as OIS.

Conclusions: Systemic vascular diagnostics should be strongly considered in patients presenting with ocular vascular pathologies. Clues provided by ocular findings may serve as an early means to prevent not only ocular morbidity, but also systemic disability or death.

Abstract No.: 200754
Multimodal Imaging of Retinal Pigment Epithelium (RPE) Remodeling After RPE Tear in Polypoidal Choroidal Vasculopathy (PCV)

*First Author: Charles **ONG***

Purpose: To illustrate remodelling of RPE layer after RPE tear in an eye with angiographically proven PCV.

Methods: Single patient case report. Diagnosis of PCV made based on fundus fluorescein angiography (FFA) and indocyanine green angiography (ICGA). Blue-light fundus autofluorescence (FAF) and spectral domain optical coherence tomography (SD-OCT) were performed with Heidelberg Spectralis HRA. Serial imaging over the patient's clinical course from 2019 were reviewed.

Results: 74-year-old female presented with left eye submacular haemorrhage and vision of 6/15. ICGA revealed juxtafoveal polypoidal lesion. She was initiated on intravitreal aflibercept and subsequently developed fovea-involving RPE tear of 1 disc area in size one month after her first dose. Left eye vision after RPE tear remained at 6/15. FAF demonstrated area of hypoautofluorescence and FFA showed window defect corresponding to area of RPE dehiscence on SD-OCT. Interestingly, there was a discordant SD-OCT finding of a faint hyper-reflective layer where one might expect the RPE layer to be. Serial SD-OCT scans over a five year period revealed the increasing prominence of the hyperreflective layer between the ellipsoid zone (EZ) and Bruch's membrane. At her last review, patient retained 6/9 left eye vision.

Conclusions: It is known that tissue remodelling occurs after RPE tears. Over five years, we document increasing prominence of a hyperreflective layer where one would expect the RPE layer to be in this patient with PCV complicated by RPE tear after treatment with intravitreal anti-VEGF agents. This hyperreflective layer may represent repopulation of RPE cells or proliferation of repair tissue over an intact Bruch's membrane.

Abstract No.: 200765
Multimodal Imaging of an Atypical Case of Paracentral Acute Middle Maculopathy (PAMM)

*First Author: Weng Cheong **THO***
*Co-Author(s): Marium **AHMAD**, Tengku Ain Fathlun **TENGKU KAMALDEN***

Purpose: To report multimodal imaging of an atypical case presentation of PAMM in a healthy young lady.

Methods: Case report

Results: A 38-year-old healthy lady presented with sudden left painless blurred vision at the lower inner quadrant associated with occasional flashes. Over the period of 10 days, there was minimal improvement of symptoms, and her vision remained blurry. She denied preceding eye trauma or any medical conditions. On examination visual acuities were OU 6/6, intact optic nerve functions, and normal anterior segment findings. There was a subtle retinal pallor temporal to fovea. There was Roth's spot temporal to macula, flame-shaped hemorrhage

at superonasal and nasal to optic disc and slight tortuous vessels near the papillomacular bundle without retinal emboli. Blood investigations including for glucose, coagulation profile, inflammatory and autoimmune markers were normal. Left macular optical coherence tomography (OCT) macula revealed well-circumscribed hyperreflective lesions at the inner nuclear layer parafoveally. Left OCT angiography at the level of deep capillary plexus showed corresponding flow deficit at the lesion site. Although there were no identifiable risk factors, a differential diagnosis of Paracentral Acute Middle Maculopathy (PAMM) was made. PAMM signifies retinal ischemia at the level of inner plexiform and inner nuclear layer. It is usually associated with retinal vascular pathology or hypercoagulability and seen in elderly age groups.

Conclusions: This case illustrates signs seen using multi-modal retinal imaging of an atypical presentation of PAMM in a young lady without identifiable risk factors.

Abstract No.: 200333

NR2E3-Associated Retinopathy Presenting with Bilateral Choroidal Neovascularization

*First Author: Christopher **SUN***
*Co-Author(s): Yasmin **BYLSTRA**, Choi Mun **CHAN**, Beau **FENNER**, Ranjana **MATHUR**, Tien-en **TAN***

Purpose: We describe an atypical presentation of an 11-year-old female with enhanced S-cone syndrome (ESCS)

Methods: Case report. The patient underwent a thorough ophthalmic examination and investigations such as colour fundus photography, optical coherence tomography, fundus autofluorescence, fluorescein and indocyanine angiography, an electroretinogram and genetic testing. After determining the presence of secondary choroidal neovascularization, we treated her with intravitreal Ranibizumab injections. We present her workup and progress.

Results: An 11-year-old hyperopic female with no known family history of retinal disease or nyctalopia presented with bilateral reduced visual acuity (20/100 OD, 20/200 OS). Examination disclosed bilateral macular choroid neovascularization (CNV) with retinochoroidal anastomosis on the left eye, bilateral nummular deposits at the superior macular arcades. All three of her siblings, aged 7-14, were asymptomatic but were also hyperopic and had intraretinal schisis and focal loss or attenuation of the ellipsoid zone on optical coherence tomography (OCT). Electrophysiology showed a reduced scotopic response and a dramatically enhanced response to full field blue light stimuli meant to elicit a response primarily from S-cones. Genetic testing confirmed the presence of biallelic NR2E3 variants. Treatment with monthly intravitreal anti-VEGF resulted in improved visual acuity of 20/30 on the right eye, while the left eye had a persistent nodular scar and visual acuity remained at 20/200.

Conclusions: We describe a case of bilateral CNV in a young patient with enhanced S-cone syndrome. This case highlights the risk of CNV in ESCS and the importance of family screening and follow-up in affected relatives.

Abstract No.: 200560

Novel Missense CEP78 Mutation Leading to Cone-Rod Dystrophy in a Pair of Non-Consanguineous Siblings

*First Author: Dominic **TING***
*Co-Author(s): Wei Kiong **NGO***

Purpose: To report a case of two siblings with a novel missense CEP78 mutation, presenting with Cone-Rod Dystrophy.

Methods: This study is an observational, prospective, case series. Two Chinese male siblings (aged 51 and 49 years old), born to non-consanguineous parents, were recruited and underwent complete ophthalmologic examination, multimodal imaging and electroretinogram testing. Both patients underwent targeted gene sequencing with a 330 gene retinal dystrophy panel (Invitae, CA., USA). The parents of both patients underwent targeted gene sequencing of requested variants to determine inheritance.

Results: Patients 1 and 2 presented with symptoms of CRD at ages 7 and 42 years old respectively. Clinical examination, as well as imaging and electroretinogram findings were consistent with the diagnosis. Both were found to harbour heterozygous mutations in two CEP78 genes, c.1288_1291dup (p.Pro431Glnfs*6) and c.830T>C (p.Leu227Pro). These variants were on opposite chromosomes. Genetic testing of the parents of P1 and P2 revealed that their Father harboured the heterozygous variant c.1288_1291dup (p.Pro431Glnfs*6) while their Mother harboured the heterozygous variant c.830T>C (p.Leu227Pro). Both parents were asymptomatic and did not present phenotypically with retinal dystrophy.

Conclusions: Mutations in CEP78 lead to a primary ciliopathy that manifests as CRD with or without hearing loss. We report two patients with CEP78 related CRD heterozygous for a loss of function CEP78 mutation and the novel missense mutation c.830T>C (p.Leu227Pro). While the latter is currently classified as a Variant of Unknown Significance, there is evidence that it is pathogenic and should be classified as such in accordance with the American College of Medical Genetics guidelines.

Abstract No.: 200627

Optical Coherence Tomography-Based Therapeutic Targets in Central Serous Chorioretinopathy

*First Author: Hiroki **IMATSUJI***
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Purpose: To identify optical coherence tomography (OCT)-based biomarkers that can localize leakage sites without fluorescein angiography in central serous chorioretinopathy (CSC).

Methods: This observational study analyzed 119 consecutive patients (123 eyes) with CSC, comprising 66 eyes with focal-leakage type and 57 eyes with diffuse-leakage type. We assessed leakage sites using OCT, and the OCT findings proportions were compared between leakage types.

Results: We observed hyporeflective lucency signs in 27 eyes (40.9%) with focal-type CSC, while no such signs were detected in diffuse-type CSC cases (0.0%; P<0.001). In focal-type CSC, these signs were exclusively localized to leakage points, with no occurrence in other areas within serous retinal detachment. Microrip of retinal pigment epithelium and subretinal hyperreflective material were identified in 23 (34.8%) and 47 (71.2%) eyes with focal-type CSC, respectively, and also in eyes with diffuse-type CSC (5.3% and 19.3%, respectively; P<0.001 for both comparisons).

Conclusions: Our findings indicate that the hyporeflective lucency sign may serve as a potential therapeutic target identifier in CSC.

Abstract No.: 200113

Pain Control After Intravitreal Injections: Comparison of Topical Nepafenac 0.3%, Tetracaine 2% and Tetracaine 0.5%

*First Author: Andrea **SILITONGA***
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Purpose: Pain after intravitreal injections (IVI) can affect patient's experience and compliance. We prospectively evaluated topical nepafenac 0.3% or tetracaine 2% to reduce ocular discomfort after IVI and compare it to the commonly used topical anesthetic tetracaine 0.5%.

Methods: A cross-sectional study. Participants were randomized to receive either a single drop of tetracaine 0.5% (control group), nepafenac 0.3%, or topical tetracaine 2%. Pain was assessed using the Numeric Pain Rating Scale that ranged from 0 to 10 (horizontal pain scale).

Results: There are 49 patients in the control group (tetracaine 0.5%), 44 patients in the nepafenac 0.3% group and 55 patients in the tetracaine 2% group. Numeric Pain Rating Scale scores at 6 and 12 hours after IVI were lower in the tetracaine 2% group (1.582±0.357 and 0.545±0.262, respectively) compared to the control group (1.653±0.378 and 0.816±0.278,

respectively) and nepafenac group. Although the tetracaine group reported lower pain scores compared to the control and nepafenac group, the difference was not statistically significant (6 hours, p-value = 0.859; 12 hours, p-value = 0.377).

Conclusions: Tetracaine 0.5%, Nepafenac 0.3% and Tetracaine 2% were effective in reducing pain up to 12 hours after IVI. Tetracaine 2% was associated with lower pain scores compared to tetracaine 0.5% and nepafenac 0.3% but not statistically significant. Additional studies are needed to determine the most effective and cost-efficient method to reduce pain after IVI.

Abstract No.: 200874
Paradoxical Reaction to Faricimab Injection in PCV: A Case Series of 4 Patients

*First Author: Noa **GILEAD***
*Co-Author(s): Yu Jeat **CHONG***

Purpose: To report on four Polypoidal Choroidal Vasculopathy (PCV) patients who exhibited improved central subretinal fluid (SRF) but developed sub-retinal pigment epithelium (sub-RPE) elevation following faricimab injections.

Methods: Four patients diagnosed with PCV, comprising two males and two females aged between 65 and 73, were included in this case series. All patients presented with blurred vision in their right eye and had subretinal fluid involving the fovea at baseline. One patient was treatment-naïve, while three others switched to faricimab from ranibizumab and aflibercept due to persistent SRF. All patients received faricimab injections and were followed up for 9-14 months.

Results: Response to faricimab treatment was good in all four patients, with reduced SRF and improved visual acuity. Baseline visual acuity ranged from 0.3 to 0.6, which improved by 1-2 lines in all patients after treatment. Central macular thickness (CMT) at baseline averaged 453 microns and decreased to 373 microns. However, inferior macular sub-RPE elevation was observed in all patients post-treatment. This reaction occurred after one injection in two patients and within 4-5 weeks for most cases. Three patients continued with faricimab despite this reaction, resulting in a decrease in sub-RPE elevation size by the end of follow-up in three patients, with one resolving completely. All patients maintained their vision throughout the follow-up period.

Conclusions: Different fluid compartments may respond differently to treatment. This case series highlights possible differences in mechanisms for fluid accumulation depending on the compartment.

Abstract No.: 200374
Parafoveal Choroidal Nevus Complicated with Macular Hole: A Case Report

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Purpose: A case report of choroidal nevus complicated with macular hole, and discuss the possible mechanisms, treatment strategies, and outcomes.

Methods: A case report and review of the literature.

Results: A 59-year-old male without past medical history presented to the outpatient department complaining of blurred vision in the left eye. On ophthalmologic examination, his best-corrected visual acuity was 16/20 in right eye and 2/20 in left eye. The movements of the globes, pupillary reflex, and anterior segment examinations were normal. Fundus examination revealed a pigmented lesion at the macular of left eye. Optical Coherence Tomography (OCT) showed full-thickness macular hole and hyperreflective over pigmented lesion in left eye. There is no overlying orange pigment or subretinal fluid. Fundus and OCT exam was normal in right eye. By ultrasonography, there was no tumor in both eyes. Fluorescein angiography and indocyanine green angiography showed hypofluorescence at the early and late phase. Based on clinical examination, a diagnosis of choroidal nevus and macular hole of left eye was made.

Conclusions: This is the first reported case of coexistence choroidal nevus and macular hole. Many literatures report choroidal melanoma accompanied with macular hole, which may be contributed by anterior-posterior traction of posterior vitreous detachment (PVD) and secondary macular edema. However, there was no macular edema in our case. The mechanism of macular hole in choroidal nevus might be posterior vitreous traction, which caused by chronic lesion-related vitreous inflammation or normal age-related PVD. This presentation might be a risk of malignant change of choroidal nevus. Further studies are required.

Abstract No.: 200805
Pattern of Dyslipidemia in Retinal Vein Occlusion (RVO) Patients of Bangladesh

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Purpose: To investigate association between the development of RVO and dyslipidemia.

Methods: In this retrospective study we investigated 135 patients with RVO. 48 (35.55%) with central retinal vein occlusion, 78 (57.77%) with branch retinal vein occlusion and 9 (6.66%) with hemi retinal vein occlusion.

Results: Mean patient age was 54.98 ± SD 12.86 years. Minimum age was 31 years and maximum age was 85 years. Female was 57 (42.22%) and male was 78 (57.77%). There were 78 BRVO, 48 CRVO, 9 HRVO patients. There were 92 patients with hypertension, 37 with diabetes and 28 were both hypertension and diabetes. In case of RVO high density lipoprotein (HDL) was mean of 31.70 ± SD 9.54, 110 (81.48%) patients were < 40 mg/dl. Low density lipoprotein (LDL) was mean of 136.06 ± SD 45.62, 83 (61.48%) patients were > 130 mg/dl. Total cholesterol (TC) was mean of 192.57 ± SD 44.67, 48 (35.55%) patients were > 200 mg/dl. Triglyceride (TG) was mean of 227.04 ± SD 182.96, 91 (67.40%) patients were > 150 mg/dl.

Conclusions: Study reveals dyslipidemia has positive correlation with RVO. Further study in large scale can define pattern of dyslipidemia which can be considered as biomarker of RVO in future.

Abstract No.: 200897
Phenotype of Microcephaly and Chorioretinopathy in KIF11 Gene Mutation

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Purpose: Microcephaly with chorioretinopathy represent a rare clinical entity often associated with genetic mutations in KIF11 gene. The clinical spectrum of KIF11 mutation is variable with spectrum of microcephaly, ocular involvement and lymphedema. This report details two cases contributing to the understanding of their phenotypic spectrum.

Methods: Two patients were evaluated for microcephaly and chorioretinopathy. Comprehensive clinical assessments, multimodal ophthalmological imaging and electroretinography were conducted. Genetic testing was performed to identify potential mutations.,Case Presentations:,Case 1: A 56-year-old male exhibited microcephaly, mild intellectual disability, and significant visual deficits. Fundoscopic examination indicated retinal degeneration and chorioretinal scarring. Genetic testing confirmed a heterozygous mutation in the KIF11 gene.,Case 2: A 4-year-old male presented with severe microcephaly noted at birth and mild intellectual disability. Ophthalmologic examination revealed bilateral chorioretinal atrophy. Child had characteristic facial features and typical chorioretinal lesions associated with KIF11 mutation.

Results: The clinical presentations highlight the variability in severity and associated features, such as lymphedema associated with KIF11 gene mutation. Both the cases had typical facial and chorioretinal lesion aiding in making the diagnosis.

Conclusions: Microcephaly, varying from mild to severe, is a key feature of KIF11 mutations

and is frequently linked with developmental delays and distinct facial characteristics. Ocular manifestations primarily include chorioretinal atrophy. While congenital lymphedema has traditionally been considered a part of KIF11 mutations, it is not always present. Recognition of characteristic facial and ocular features in case 2 lead to this genetic link, which is crucial for genetic counselling, and potential future therapies.

Abstract No.: 200519

Postoperative Bevacizumab to Prevent Neovascular Glaucoma in Phacovitrectomy for Proliferative Diabetic Retinopathy

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Purpose: To evaluate the effectiveness of postoperative intravitreal bevacizumab (IVB) in preventing neovascular glaucoma (NVG) and to identify associated risk factors in patients with proliferative diabetic retinopathy (PDR) undergoing phacovitrectomy.

Methods: A total of 220 patients with PDR who underwent phacovitrectomy were included. They were divided into two groups: Group 1 received IVB within two months post-surgery, while Group 2 did not. Subsequently, a comparative analysis was conducted to evaluate the distinguishing characteristics between these two groups.

Results: Over a mean follow-up of 49.69 months, NVG developed in 29 eyes (13.18%), with an incidence of 2.72%, 5.45%, and 13.18% at 6, 12, and 24 months, respectively. The average time to NVG onset was 9.53 ± 4.50 months. Group 1 (IVB treated) had significantly lower NVG incidence (3.44%) compared to Group 2 (16.67%), highlighting IVB's protective effect (HR = 0.194, p = 0.025). Multivariate analysis revealed male sex (HR = 4.526, p = 0.005) and higher preoperative intraocular pressure (HR = 1.115, p = 0.012) as significant risk factors for NVG post-phacovitrectomy. Notably, IVB administration within two months post-surgery independently reduced NVG risk.

Conclusions: Male sex and higher preoperative intraocular pressure are associated with increased NVG incidence following phacovitrectomy. Postoperative IVB administration within two months appears effective in mitigating NVG development in patients with PDR undergoing phacovitrectomy. These findings underscore the potential benefit of IVB as a preventive measure in high-risk patients post-operatively.

Abstract No.: 200371

Proton Beam Irradiation with Anti-VEGF Therapy for Polypoidal Choroidal Vasculopathy: Results of a 24-Month, Phase II Randomized Study

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Purpose: To determine whether proton beam irradiation (PBI) and intravitreal anti-vascular endothelial growth factor (VEGF) therapy is effective and safe for polypoidal choroidal vasculopathy (PCV).

Methods: Newly diagnosed PCV patients were randomized 1:1 to treatment with three initial monthly intravitreal conbercept with or without single 14 GyE radiation (combination therapy and monotherapy, respectively). Subsequent anti-VEGF therapy was given pro re nata. The primary outcomes were the mean number of injections, best-corrected visual acuity (BCVA), and central retinal thickness (CRT) at 24 months. Polypoidal lesion regression rate and the change of branching vascular network (BVN) were compared. Adverse events were also evaluated.

Results: Sixty-two eyes of 62 patients were enrolled and 45 eyes (72.6%) completed the full follow-up. At 24 months, the combination therapy required fewer injections compared with the monotherapy (5.9 ± 4.1 vs. 8.8 ± 5.3; P = 0.04); the mean gains in BCVA were 7.5 ± 11.3 letters and 6.8 ± 12.5 letters in the combination therapy and monotherapy (P = 0.85), with the mean CRT decreased by 75.0 ± 157.1 μm and 145.2 ± 126.3μm, respectively

(P = 0.17). Compared to monotherapy, combination therapy had higher complete polypoidal lesion regression (80.0% vs. 48%, P = 0.03) and significantly decreased in BVN area (P < 0.01). Microvascular abnormalities, attributed to radiation, were observed in 55.0% of eyes in combination therapy.

Conclusions: PBI combined with anti-VEGF therapy could promote polyps regression and BNVs shrinkage, and decrease the additional anti-VEGF injections in eyes with PCV. Radiation retinopathy did not appear to be visually significant.

Abstract No.: 200716

Purtscher-Like Retinopathy with Serous Macular Detachment in Acute Alcoholic Pancreatitis

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*Co-Author(s): Yi-ling **CHEN**, Liang-zhen **SHEN***

Purpose: To report a case with acute alcoholic pancreatitis complicating Purtscher-like retinopathy and serous macular detachment.

Methods: A case report.

Results: A 29-year-old woman with alcohol consuming history presented with sudden onset of blurred vision OU for 10 days. She was recently discharged from our hospital following seven days of treatment for acute alcoholic pancreatitis. Best-corrected visual acuity (BCVA) were 6/60 OD and 6/12 OS. Fundus examination revealed bilateral multiple cotton wool spots (CWS) in the circumpapillary area and intraretinal hemorrhages characteristic of Purtscher-like retinopathy. Optical coherence tomography showed bilateral macular edema and serous macular detachment OS. Optical coherence tomography angiography (OCTA) demonstrated lack of detectable flow in the macula OU. Subtenon triamcinolone acetonide injection OD was performed. The CWS, retinal hemorrhage and macular edema OU improved and the serous macular detachment OS subsided 1 month later. The BCVA improved to 6/6 OU.

Conclusions: Purtscher-like retinopathy is a rare but serious complication of acute alcoholic pancreatitis. Diagnosis is made by ophthalmoscopy with visualization of the characteristic retinal appearance. The eye condition has a guarded prognosis and subtenon triamcinolone acetonide injection may have benefit in treatment.

Abstract No.: 200902

RP1L1 Maculopathy with a Novel Frameshift Mutation and Rare Presentation of Macular Atrophy

*First Author: Cheng-kuo **CHENG***
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Purpose: We report the case of a 40-year-old woman with RP1L1 maculopathy harboring a novel pathogenic RP1L1 frameshift mutation and a distinct macular atrophy.

Methods: This is a retrospective case report.

Results: A 40-year-old woman presented with gradually worsening blurred vision over the past five years. During her clinic visit, her right eye had a visual acuity of 0.5 and her left eye 0.3, with no abnormalities found in the anterior segment. Dilated fundus examination revealed prominent round macular atrophy, approximately 2/3 the size of the disc diameter, in both eyes in a symmetric pattern. Subsequent Optical Coherence Tomography (OCT) showed abnormal outer segment of retina and retinal pigment epithelium corresponding to the atrophic areas, with automated perimetry indicating central scotoma in both eyes. ?hole exome and mitochondrial DNA sequencing identified a novel combined inframe deletion/inframe insertion/frameshift mutation in her RP1L1 gene, inherited in an autosomal dominant pattern not reported by literature. Interestingly, electroretinogram showed decreased wave amplitudes of dark and light adaption. Over six months of follow-up, her visual acuity remained stable with no signs of disease progression.

Conclusions: Patients with RP1L1 mutation usually present with occult macular dystrophy with a normal fundus appearance. However,

we identified a novel pathogenic RP1L1 maculopathy, presenting with a previously uncharacterized pattern of macular atrophy.

Abstract No.: 200073

Randomized and Controlled Comparative Tear Inflammatory Biomarker Analysis for Predicting the Efficacy of Intravitreal Steroid and Anti-Vascular Endothelial Growth Factor (Anti-VEGF) Agent in Chronic Diabetic Macular Edema (DME)

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Purpose: To predict the efficacy of intravitreal pharmacotherapy (Ozurdex versus Bevacizumab) for chronic diabetic macular edema (DME) using tear inflammatory markers.

Methods: Design: Prospective Randomized controlled intervention trial.,,Inclusion criteria: 30 patients with chronic DME. These shall be randomized to therapy either Group A (intravitreal steroid Ozurdex) or Group B (intravitreal anti-VEGF Bevacizumab). 30 patients further with non-proliferative diabetic retinopathy (NPDR) without center involving DME will be included for tear analysis only to serve as baseline controls.,,Exclusion criteria: Proliferative diabetic retinopathy, previous history of retinal laser, intraocular surgery, dry eye disease, usage of topical non-steroidal anti-inflammatory agents, Immunomodulator topical agents in last 1-month and uncontrolled blood sugars with Hba1c more than 7.5.

Results: At baseline and during each follow up visits at 1-month and 3-months we performed tear sample collection by non-invasive sterile glass capillaries, Fundus photography, and OCT both eyes. Multiplex ELISA kits were used for the analysis of tear samples with Analytes: Endothelin-1, ICAM, CD54, Interferon-gamma, Interleukin-6,8,10,17,17A, Matrix metaloproteinase-9, Thrombospondin-2, Tumor necrosis factor-alpha, Platelet derived growth factor-AA, VEGF.,,Inflammatory tear markers were raised in the treatment arm when compared to the control arm. All the analytes were reduced in Group A eyes injected with intravitreal Ozurdex when compared to Group B eyes injected with anti-VEGF at 1-month follow-up.

Conclusions: Inflammatory tear markers were raised in the treatment arm when compared with controls. Analyte Interferon gamma and Platelet derived growth factor-AA showed good correlation with response to treatment. Analyte Interleukin-17a showed good correlation with the inner retinal fluid and Central macular thickness.

Abstract No.: 201107

Rare Case of Decompression Retinopathy in a Post-phacoemulsification Filipino with Phacolytic Glaucoma

*First Author: Dillon Edric **GO***
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Purpose: Decompression retinopathy is a rare postoperative complication wherein rapid decrease in intraocular pressure causes multiple post-equatorial intraretinal hemorrhages. This report describes one case wherein retinopathy appeared in a post-phacoemulsification Filipino patient with phacolytic glaucoma.

Methods: 2 weeks prior to consult, a 60-year-old male patient noted severe left eye pain and blurring of vision. Patient presented with visual acuity of light perception on the left eye. Slit lamp examination showed grade 2 corneal haze with diffuse microcysts, Morgagnian cataract, a 1.5mm layer of white lens proteins deposited in the inferior anterior chamber, +1 cells, +3 flare, deep anterior chamber, and intraocular pressure of 40mmHg. Patient was assessed as phacolytic glaucoma. Patient then underwent phacoemulsification to remove the lens material. Anterior vitrectomy was done intra-operatively due to posterior capsule rupture.

Results: On the first post-operative day, patient had visual acuity of hand movement with good light projection. Intraocular pressures maintained at 40mmHg. On dilated funduscopy, there were multiple blot hemorrhages scattered across the retina until the mid periphery. Patient was then advised to observe the intraretinal

hemorrhages. Over the next few weeks, the intraretinal hemorrhages slowly spontaneously resolved until the retina was clear of any hemorrhages at 5 weeks post-operation. Visual acuity maintained at hand movement with good light projection during the observation period.

Conclusions: Decompression retinopathy does not only happen with glaucoma filtration surgeries, but can occur with any surgery that rapidly decreases intraocular pressures. Decompression retinopathy carries a benign course and resolves with prompt observation.

Abstract No.: 200971
Real-World Outcomes of Faricimab in Treatment-Resistant Neovascular Age-Related Macular Degeneration in Malaysia

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Purpose: This study aims to present the early real-world experience of faricimab in managing neovascular age-related macular degeneration (nAMD) within the Malaysian population.

Methods: We conducted a retrospective chart review at a single center, analyzing 47 eyes of 47 patients with nAMD who received at least 1 faricimab injection with at least 2 month of follow-up.

Results: The study included 47 patients with a mean age of 64.48 ± 10.81 years. Patients received an average of 7.45 ± 5.29 injections before switching to faricimab. After the first faricimab injection, BCVA improved from 60.77 ± 15.90 to 63.34 ± 13.74 ETDRS letters (an improvement of 2.5 ETDRS letters, $p = 0.09$), and mean central subfield thickness (CST) decreased from 394.9 ± 171.1 µm to 294.6 ± 132.1 µm (a reduction of 100.3 µm, $p < 0.01$) by the end of the first follow-up period. Among patients who received three loading injections (n=14), BCVA improved from 55.97 ± 13.62 to 60.57 ± 12.57 ETDRS letters (an improvement of 4.59 letters), and CST decreased from 354.0 ± 100.6 µm to 263.5 ± 99.6 µm. IRF reduced in 32% of patients and remained stable in 23.4%, while SRF reduced in 44.7% and remained stable in 23.4% of patients after just one faricimab injection. No serious safety reactions were reported.

Conclusions: In a real-world setting, patients with nAMD who were switched from other anti-VEGFs to faricimab showed good improvement in vision and rapid anatomical improvement after 1 faricimab injection which also demonstrated a good safety profile.

Abstract No.: 201121
Recurrent Episodic Intraretinal Exudation from Adult-onset Coats Disease

*First Author: Celyn **CHNG***
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Purpose: To report a case of adult-onset Coats disease with recurrent episodic intraretinal exudation treated with laser photocoagulation monotherapy, anti-vascular endothelial growth factor (anti-VEGF) monotherapy and combination therapy in between long periods of quiescent disease over 22 years.

Methods: Case report.

Results: A 39-year-old woman presented with a painless inverted "V-shaped" scotoma in her right eye for three days. She was diagnosed with adult-onset Coats disease 14 years earlier and treated successfully with laser photocoagulation in another centre. Her aided visual acuity was 6/6-1and ophthalmic examination disclosed an incomplete macular star of hard exudates superior to the fovea secondary to leaking telangiectatic vessels and aneurysms in the superotemporal retinal artery in the right eye. Extensive chorioretinal scarring was noted in the superior peripheral retina from her previous laser treatment. Her left eye was normal. Treatment with seven monthly anti-VEGF injections resolved the exudates. After a four-year period of quiescence, her disease reactivated and despite 20 additional doses of anti-VEGF agents over 27 months, the intraretinal exudation could not be controlled. Three sessions of focal laser photocoagulation to the leaking aneurysms and adjacent

paravascular retina over 18 months while maintaining anti-VEGF therapy led to resolution of the hard exudates and subsequent disease quiescence. Ultimately, her visual acuity remained at 6/6.

Conclusions: Adult-onset Coats disease can cause recurrent episodic intraretinal exudation in between long periods of quiescent disease. Combination therapy using anti-VEGF injections and laser photocoagulation may control vascular leakage and preserve visual function in adult-onset Coats disease when monotherapy fails.

Abstract No.: 200903
Retinal Artery/Arteriole Occlusion Risks After Endovascular Treatment for Unruptured Intracranial Aneurysm

*First Author: Hae Rang **KIM***

Purpose: To evaluate the association between retinal artery/arteriole occlusion (RAO) and unruptured intracranial aneurysm (UIA).

Methods: In nationwide population-based cohort, 253240 patients with incident UIA were categorized into three groups based on subsequent treatment: observation (n=208993), microsurgical clipping (n=14168), and endovascular treatment (EVT) groups (n=30079). The incidence and incident time of RAO were analyzed. Hazard ratios (HRs) of RAO and associated risk factors were evaluated. Additionally, hospital cohort comprising 2569 consecutive patients with UIA treated at a tertiary hospital between 2018 and 2022 was analyzed with detailed clinical information, including the location and size of the UIAs.

Results: In nationwide cohort analysis, the incidence of RAO was significantly higher in the EVT group than in the observation and clipping groups, especially within 60 days after the diagnosis or treatment of UIA (early RAO: HR, 4.00; 95% CI, 2.44–6.56, and delayed RAO: HR, 1.74; 95% CI, 1.13–2.68). The presence of chronic kidney disease (P=0.009) and use of balloon microcatheter during the procedure (P=0.013) were associated with a higher risk of RAO. In hospital cohort analysis, 11 (0.8%) cases of RAO occurred after EVT, whereas none occurred after microsurgical clipping (P<0.001). Patients with RAO were younger and received balloon microcatheters more frequently than their counterparts. Ten cases of RAO (90.9%) occurred in paraclinoid aneurysms, where EVT was preferred over microsurgical clipping.

Conclusions: Performing EVT for UIA, particularly paraclinoid aneurysms, may increase the risk of subsequent RAO. Care should be taken when treating paraclinoid aneurysms with balloon-assisted coil embolization.

Abstract No.: 201032
Retinal Capillary Hemangioma Presenting as a Case of Neovascular Glaucoma, Vitreous Hemorrhage, and Serous Retinal Detachment: A Case Report

*First Author: Frances Abigail **TESORO***
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Purpose: Retinal capillary hemangioma (RCH) is a rare but significant vascular tumor of the retina characterized by abnormal proliferation of capillary blood vessels and is associated if not the first manifestation of von Hippel-Lindau (VHL) disease. The purpose of this report is to discuss a case of a large RCH presenting as a neovascular glaucoma, vitreous hemorrhage, and exudative retinal detachment.

Methods: Case Report

Results: A 44-year-old female with a 1-year history of on-and-off eye redness. Consulted due to sudden onset of severe eye pain, redness, and blurring of vision in her right eye. Ophthalmologic examination of the right eye revealed a vision of hand motions, pressure of 48 mmHg, microcystic corneal edema, and 360-degree angle, and iris neovascularization. B-scan revealed vitreous hemorrhage with retinal detachment. Referral to Glaucoma service was done and a combined procedure of Pars plana vitrectomy with Trabeculectomy with pre-operative injection of Anti-VEGF was done. Intra-operatively an 8-disc diameter red-orange mass with dilated and tortuous feeder vessel at the inferotemporal near periphery

and massive exudation were seen. Post-operatively, the patient's vision and pressure did not improve and subsequently, underwent cyclophotocoagulation. Cranial and abdominal CT-Scan were done to rule out other tumors that can be part of VHL Disease, which turned out negative.

Conclusions: RCH is in itself a rare disease, masking as neovascular glaucoma, vitreous hemorrhage, and exudative retinal detachment is even rarer. In such infrequent and complex cases, we face management dilemmas. Therefore, understanding the clinical features, diagnostic modalities, and treatment strategies is essential for its effective management.

Abstract No.: 200596

Retinal Nerve Fiber Layer Thickness Associated with Severity of Diabetic Peripheral Neuropathy in Diabetes Mellitus Type 2

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Purpose: To identify whether the Retinal Nerve Fiber Layer is useful in detecting severity of peripheral neurodegeneration in diabetic patients.

Methods: A cross-sectional study was conducted. 36 people were enrolled in this study which is divided into two groups. 18 people with type 2 diabetes mellitus (DM) with Diabetic Peripheral Neuropathy (DPN) and 18 people with type 2 DM non-DPN. All subjects were 40-60 years old, and the best corrected visual acuity was better than 0,2logMAR. An optical coherent tomography (OCT) examination was carried out to determine the thickness of the retinal nerve fiber layer (RNFL), and an electroneuromyography examination was applied to establish a diagnosis of DPN. Data were analyzed with independent T-test and Spearman correlation analysis.

Results: The average RNFL thickness in the DM with DPN was thinner than the RNFL thickness in the DM non-DPN group (100.22±38 vs 102.61±9.11, p=0.444). At temporal and nasal quadrant, RNFL was also thinner in DM DPN group than DM non-DPN group (71.78±12.21 vs 76.33±8.53, p=0.203; and 75.11±11.38 vs 77.39±14, p=0.596). Sural and tibial amplitude (14.44±2.87 and 6.85±4.98) were the most significant predictor values in determining the severity of DPN (p=0.000). Average, temporal, and nasal RNFL thinning has an inverse association with DPN severity (r=-0,285; -0,258; and -0,126).

Conclusions: RNFL was thinner at average, temporal, nasal quadrant in the DM group with DPN compared to DM non-DPN group. RNFL thickness has an inverse association with the severity of the DPN although they were not statistically significant.

Abstract No.: 200630

Retinal Neurovascular Impairment and Genetic Risk in Full-Course Diabetic Retinopathy: The Guangdong Diabetic Retinopathy Multiple-Omics Study (GD-RMOS)

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Purpose: To explore the succession of the neurovascular and microstructure impairment and evaluate the role of genetic factor to identify Chinese people at risk of different stages of diabetic retinopathy (DR).

Methods: In the Guangdong Diabetic Retinopathy Multiple Omics Study, 114 individuals were prospectively recruited from January 2023 to March 2024. The retina thickness, vessel density (VD), and perfusion area (PA) were quantified using ultra-widefield swept-source optical coherence tomography angiography. The electroretinography was performed using the electroretinography recording device. Photoreceptor cells were measured in subgroup individuals by Adaptive optics scanning laser ophthalmoscopy. The polygenic risk score (PRS) of type 2 diabetes was calculated.

Results: In the preclinical DR, the decreased amplitude of the cone pathway was observed (P

= 0.003). In the NPDR, photoreceptor cells were impaired (all P < 0.05) with the delayed implicit time of the bipolar cell pathway, increased macular and INL thickness, and decreased VD and PA of DCP were observed (all P < 0.05). In the PDR, delayed implicit time and decreased amplitude in the cone pathway including bipolar cell and ganglion cell pathways, and neurovascular impairments were observed (all P < 0.05). Correlation analysis demonstrated a significant correlation between functional parameters and various structural indicators. The PRS was significantly associated with DR, with increasing odds ratios (OR) for worsening DR grades.

Conclusions: Instruments with a wider view or more microscopic techniques will provide a more detailed neurovascular image and the genetic factors may serve as biomarkers predictive of future DR impairment, which enhance fresh insights into full-course DR.

Abstract No.: 200762

Retinal Structural and Visual Functional Changes After Single-Dose Intravitreal Treatment of Faricimab for Diabetic Macular Edema

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Purpose: Intravitreal faricimab injection (IVF) has been reported to reduce microaneurysms (MA) and central retinal thickness (CRT) in diabetic macular edema (DME). This study investigated changes in the retinal structure (MA, CRT), visual function (visual acuity and contrast sensitivity (CS)) after a single IVF dose.

Methods: Between May 2022 and May 2023, 9 patients (15 eyes; mean age 66.2 ± 14.5 years) with DME received a single IVF. Fluorescein angiography was performed at baseline and at 1 month post-IVF in order to compare the number of MA in the macular region during the early phase. Best-corrected visual acuity (BCVA; logMAR), CS in photopic, mesopic, and scotopic conditions (area under the log contrast sensitivity function using imo vifa (CREWT Medical Systems)), and CRT, as measured by optical coherence tomography, were assessed at baseline and at 1, 2, and 3 months post-IVF. Mean values were compared using paired t-tests.

Results: There was a significant decrease in the average number of MA from 139.9 to 77.3 (p = 0.006), while the CRT was reduced from 373.4 µm to 306 µm (p = 0.006). At 3 months post-IVF, there were significant improvements observed in the BCVA and CS under photopic and mesopic conditions (p = 0.004, 0.037, 0.041).

Conclusions: A single IVF dose led to improvements in the retinal structure and visual function in DME patients.

Abstract No.: 200416

Retrospective Study of Eyes with Central Serous Chorioretinopathy Treated with 3 ns Laser

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Purpose: CSCR is characterised by serous detachment of the RPE from the neurosensory retina. The underlying pathogenesis is not known; however it is likely linked to RPE dysfunction. Sub-threshold nanosecond laser (3ns) has been described as a treatment modality whereby it stimulates the RPE to absorb fluid more effectively. The aim of this study was to investigate the effectiveness and safety of 3ns for CSCR.

Methods: A consecutive retrospective analysis of eyes with CSCR that underwent at least one treatment using the AlphaRET® 2RT nanosecond laser was conducted. Eyes were treated by one ophthalmologist after topical anaesthesia. A grid pattern of spots was applied within the area of serous detachment. Outcome measures included fluid location, area and height; central macular thickness, choroidal thickness and BCVA.

Results: 23 eyes of 20 patients (mean age=51.65±9.8; 17 males, 6 females) were

analysed. Most eyes (70%) had fluid centrally. Central macular thickness improved from 322.09µm to 277.61µm and fluid height improved from 156.57µm to 58.65µm post first treatment ($p<0.05$). 11 eyes had significant improvement in fluid area ($p<0.05$) and no retinal fluid after 77±29.5 days. 12 eyes required re-treatment and complete resolution occurred in 91% by 12 months. The average number of laser spots applied at first treatment was 34.68 (SD=38.2). There was no significant improvement to BCVA (73.65 to 77.35 letters) and choroidal thickness ($p>0.05$). No adverse events were reported.

Conclusions: 3ns is a viable and safe treatment for patients presenting with CSCR.

Abstract No.: 200535

Risk Factors for the Development of Cystoid Macular Edema in Post-Surgical Rhegmatogenous Retinal Detachment: A Systematic Review and Meta-Analysis

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Purpose: Despite the successful repair of rhegmatogenous retinal detachment (RRD), poor visual outcomes may occur due to the development of postoperative cystoid macular edema (CME). This study investigates the risk factors of CME following the repair of RRD.

Methods: A literature search was conducted in Pubmed, Cochrane Library, EBSCO-MEDLINE, Scopus, and Proquest using the general terms of "retinal detachment", "postoperative", "risk factors", "macular edema". Data from articles which met the inclusion and exclusion criteria were extracted and meta-analysed using STATA 16.0 (StataCorp, 2022).

Results: Eleven articles with a total of 4544 eyes were included. 48 probable risk factors were reported, and 12 factors with a minimum of 3 studies were meta-analysed. The presence of preoperative epiretinal membrane (ERM) was associated with an increased risk of post-repair CME development (odds ratio [OR] 5.26; 95% confidence interval [CI] 3.42 - 8.08; $p < 0.01$). On the other hand, preoperative phakic lens status suggested a lower risk of postoperative CME development (OR 0.61; 95% CI 0.39 - 0.94; $p = 0.02$). Surgical procedures (pars plana vitrectomy [PPV], scleral buckling [SB], or a combination of both) and tamponade agents (silicone oil and gas) demonstrated no significant associations. Postoperatively, the presence of re-detachment was significantly linked to a higher risk of CME development (OR 2.96; 95% CI 1.98 - 4.41; $p < 0.01$).

Conclusions: Post-repair CME in primary RRDs are more likely to develop in patients with preoperative ERM and postoperative re-detachment, but less likely to occur in patients whose preoperative lens status were phakic.

Abstract No.: 200928

Six-Month Outcomes of Intravitreal Faricimab Injection for Diabetic Macular Edema in a Real-World Clinical Setting

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Purpose: To evaluate the 6-month outcomes of intravitreal injection of faricimab (IVF) for the treatment of diabetic macular edema (DME) in daily clinical practice.

Methods: A retrospective analysis was performed on 40 consecutive eyes with DME that were treated with IVF and followed for at least 6 months. Outcome measures included changes in logMAR best-corrected visual acuity (logMAR BCVA) and central retinal thickness (CRT) from baseline to 6 months, the number of IVF injections, and safety.

Results: The mean number of IVF injections was 2.1 ± 1.2, and 30 eyes (75%) continued IVF treatment at 6 months. In the analysis restricted to these 30 eyes, the mean logMAR BCVA was 0.262, 0.223, 0.237, and 0.203 at baseline, 1 month, 3 months, and 6 months, respectively, with a significant improvement from baseline to 6 months ($P = 0.032$). The mean CRT (µm) was 432.4, 344.9, 358.0, and 320.7 at baseline, 1 month, 3 months, and 6 months, respectively, showing a significant reduction from baseline

to 1 month (P < 0.001). Of the 30 eyes, 17 (57%) achieved a CRT of less than 325 µm at 6 months. No significant differences in BCVA or CRT were observed between the treatment-naïve and switch groups. No serious safety concerns were noted.

Conclusions: IVF for the treatment of DME can lead to improvements in visual acuity and reductions in macular thickness, with no serious safety concerns over a 6-month period in a real-world clinical setting.

Abstract No.: 200831

Sociodemographic and Clinical Determinants of Loss to Follow-Up in Patients with Proliferative Diabetic Retinopathy and Diabetic Macular Edema

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Purpose: To investigate the sociodemographic and clinical factors associated with being lost to follow-up (LTFU) among patients with proliferative diabetic retinopathy (PDR) and diabetic macular edema (DME) treated with anti-vascular endothelial growth factor (anti-VEGF) intravitreal injections (IVIs) or panretinal photocoagulation (PRP).

Methods: A multi-center, retrospective review of patients with PDR and DME treated in Toronto, Canada from January 2012, to December 2021 was performed. Patients who received at least one anti-VEGF IVI or PRP session during the follow up period were included. The primary outcome was the proportion of patients LTFU, defined as the absence of an ophthalmic visit within one-year following their last visit. Univariable and multivariable logistic regression analyses were conducted using Stata version 17.0 (StataCorp LLC, College Station, Texas).

Results: Overall, 2,961 patients with PDR and DME were included, with 507 (17%) being LTFU over a mean follow-up of 61±22 months. Older patients (≥85 years, OR=0.59, 95%CI=0.54-0.90, p<0.01), those with worse baseline visual acuity (>20/200 Snellen, OR=0.71, 95%CI=0.50-0.96, p=0.04), frequent clinic visits (≥6 visits, OR=0.78, 95%CI=0.62-0.98, p=0.03) and high IVI burden (OR=0.39, 95%CI=0.19-0.77, p<0.01) were less likely to be LTFU. Conversely, male patients (OR=1.25, 95%CI=1.03-1.51, p=0.04) and those living further from the clinic (>200 km, OR=2.74, 95%CI=1.99-3.77, p<0.01) were more likely to be LTFU. Patients treated with PRP were more likely to be LTFU than those treated with anti-VEGF IVIs (OR=2.18, 95%CI=1.22-3.51, p<0.01).

Conclusions: Multiple factors are associated with LTFU rates. Identifying high-risk patients and developing targeted strategies may reduce disease progression in patients with diabetic retinopathy.

Abstract No.: 200070

Stroke Risk Following Non-Arteritic Anterior Ischemic Optic Neuropathy: A Global Population-Based Study

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Purpose: Evaluate the short-term and long-term risk of stroke after NAION compared to a matched control group on a global scale.

Methods: In this retrospective cohort study, the international TriNetX database was leveraged to select patients diagnosed with NAION and a control cohort, recorded between January 1, 2004, and March 19, 2023. Propensity score matching was applied to equate baseline characteristics, comorbidities, and medication use. The primary outcome was the relative risk (RR) of stroke in the NAION cohort versus the matched controls, with additional analyses for hemorrhagic and ischemic stroke. We further performed a sensitivity analysis on a comorbidity-free patient subset.

Results: A total of 88,179 patients were included in each cohort. The NAION cohort demonstrated a significantly higher risk of all stroke at all time points: 1 month (RR = 5.25, P < .001), 3 months (RR = 3.75, P < .001), 1 year

(RR = 2.44, P < .001), 5 years (RR = 1.4, P < .001), and 10 years (RR = 1.4, P < .001). The risk of ischemic strokes and hemorrhagic strokes following NAION was also significantly higher at these intervals. Sensitivity analysis in patients without comorbidities similarly revealed a significantly elevated risk of all stroke, ischemic stroke, and hemorrhagic strokes across all these intervals.

Conclusions: There is a significantly elevated stroke rate after NAION over both short and long-term periods compared to matched controls, independent of comorbidities.

Abstract No.: 201069
Successful Resolution of Acute Subretinal Hemorrhage with Polypoidal Choroidal Vasculopathy Following Early Pneumatic Displacement : A Case Report

*First Author: Dian **KUSUMASTUTI***

Purpose: To report a case of acute subretinal hemorrhage with polypoidal choroidal vasculopathy (PCV) on a 40 years-old male architect.

Methods: We managed an emergency case involving a patient with sudden blurred vision in the left eye. Visual acuity was 20/100, with an Amsler grid showing blurred and wavy vision in the superonasal area. Contrast sensitivity was reduced to 6.10%. Posterior segment examination revealed subretinal hemorrhage covering the macula and inferotemporal retina. Optical coherence tomography (OCT) showed a dome-shaped elevation on the retinal pigment epithelium (RPE) and subretinal fluid. Diagnosed with acute subretinal hemorrhage with PCV, the patient underwent pneumatic displacement within 24 hours, followed by monthly intravitreal anti-VEGF (bevacizumab) injections.

Results: Following the pneumatic displacement procedure using C3F8 gas, fundus photography and OCT results revealed that the hemorrhage had successfully displaced from the fovea. This led to a significant improvement in the patient's visual function. The patient then received three monthly intravitreal injections of bevacizumab, which culminated in a complete visual recovery. At a six-month follow-up, the patient's best-corrected visual acuity (BCVA) had remarkably improved to 20/20, with contrast sensitivity reaching 1.55%. This series of treatments and follow-ups marked a successful restoration of the patient's vision.

Conclusions: Combining early pneumatic displacement with anti-VEGF injections in cases of acute subretinal hemorrhage significantly enhances therapeutic outcomes and visual quality. This approach is especially crucial for patients in their productive years, whose professions demand precise and detailed vision.

Abstract No.: 200966
Suprachoroidal Delivery of Small Molecules and Gene Therapies for Ocular Diseases

*First Author: Sobha **SIVAPRASAD***
*Co-Author(s): Victor **CHONG**, Cherry **WAN***

Purpose: FDA approved XIPERE®, the first suprachoroidally administered therapy, in 2021, validating suprachoroidal drug delivery as a promising route of administration for chorioretinal diseases. This abstract summarizes all the existing clinical and preclinical evidence to date of suprachoroidal injection of a variety of therapeutic agents with the SCS Microinjector®.

Methods: Current published evidence was reviewed for suprachoroidal injection with the SCS Microinjector® with the latest preclinical and clinical progress in suprachoroidal delivery of small molecule suspensions, gene therapy (viral and nonviral nanoparticles), and virus-like drug conjugates (VDCs).

Results: Currently, 6 clinical trials are near ongoing with the SCS Microinjector and numerous preclinical studies have been conducted utilizing the device. For small molecule suspensions, preclinical pharmacokinetic profiles have demonstrated the potential for sustain release in multiple molecules, including triamcinolone acetonide, axitinib, A01017 (a complement inhibitor), and BCX4161 (a plasma kallikrein inhibitor). For

biologics, gene therapy (ABBV-RGX-314) and VDCs (AU-011) have both shown promising clinical results.

Conclusions: With continued drug delivery research and optimization, coupled with customized drug formulations, suprachoroidal drug delivery may address large unmet therapeutic needs in ophthalmology, targeting affected tissues with novel therapies for efficacy benefits, compartmentalizing therapies away from unaffected tissues for safety benefits, and achieving durability to relieve the treatment burden noted with current agents.

Abstract No.: 200418
Switch from Aflibercept to Faricimab for Non-Extendable nAMD

*First Author: Cheng-kuo **CHENG***
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Purpose: Age-related macular degeneration (AMD) is the leading cause of visual impairment worldwide. Among them, neovascular AMD is commonly treated with intravitreal injection (IVI) of anti-VEGF agents. However, some patients exhibit resistance to standard treat and extent (T&E) protocol. We aim to assess the short-term outcomes of IVI faricimab in nAMD patients who were refractory to aflibercept.

Methods: This single center retrospective study enrolled thirty-one patients failing to extend treatment intervals over 10 weeks under IVI aflibercept. They were subsequently switched to IVI faricimab with T&E regimen. Differences in best-corrected visual acuity (BCVA), central retinal thickness (CRT), mean injection intervals, and the proportion of patients achieving extended treatment intervals over 10 weeks after IVI faricimab were analyzed using Wilcoxon signed-rank test.

Results: 11 of 31 patients (35%) extended treatment intervals over 10 weeks with a fluid-free macula on OCT at 6 months ($p<0.05$). The CRT decreased from 235.1 (157–440)μm at baseline to 213.8 (144–328)μm at the end of the 6-month study interval ($p<0.05$). However, our study showed no significant improvements in mean BCVA (58.27 versus 58.3 letters in ETDRS, $p=0.67$) and mean injection intervals (7.53 weeks versus 7.96 weeks, $p=0.17$) after switching to IVI faricimab.

Conclusions: Switching to faricimab in aflibercept-recalcitrant patients appears to achieve a higher rate of extended treatment intervals over 10 weeks with a significant improvement in CRT. Furthermore, trends of longer treatment intervals and improvement in BCVA are observed but without statistically significant difference. IVI faricimab use may be considered whenever resistance to IVI aflibercept is encountered in nAMD patient.

Abstract No.: 200328
Systemic Risk Factors for Vitreous Hemorrhage Secondary to Polypoidal Choroidal Vasculopathy

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Purpose: It remains unclear whether systemic factors are associated with an increased risk of vitreous hemorrhage (VH) secondary to polypoidal choroidal vasculopathy (PCV), and there is no method to predict the possibility of VH occurrence in patients with PCV. This study aimed to investigate and visualize systemic risk factors for VH in patients with PCV.

Methods: Data on the sex, age, history of systematic diseases, best-corrected visual acuity, intraocular pressure, and laboratory data of patients with PCV were collected from the medical record system. Univariate and multi-variate binary logistic regression analyses were applied to investigate independent risk factors for VH in patients with PCV. Receiver operating characteristic analysis and nomograms were used to visualize the independent risk factors.

Results: The patient population comprised 115 patients with VH secondary to PCV and 181 patients with PCV without VH. Binary logistic regression analyses showed that higher white blood cell count [WBC; odds ratios (OR) 1.247], higher aspartate aminotransferase/alanine aminotransferase ratio (AST/ALT; OR 2.339), and longer activated partial thromboplastin time (APTT; OR 1.196) were independent risk

factors of VH in patients with PCV. Integrated application of APTT, AST/ALT, and WBC as markers showed the best performance for distinguishing patients with VH, with an area under the curve of 0.723. The nomogram was created for doctors to calculate the possibility of VH in a patient with PCV.

Conclusions: Higher WBC, higher AST/ALT, and longer APTT are independent serum risk factors of VH secondary to PCV, which may shed light on VH prevention in patients with PCV.

Abstract No.: 200965

Targeting, Compartmentalization, and Durability of Suprachoroidally Injected Small Molecule Suspensions

*First Author: Sobha **SIVAPRASAD***
*Co-Author(s): Victor **CHONG***

Purpose: To assess targeting, compartmentalization, and durability potential of suprachoroidal injection of small molecules via microneedle in multiple preclinical models and drug candidates.

Methods: Multimodal imaging methods were employed ex vivo and in vivo to evaluate delivery efficiency, flow dynamics, and spread of injectate in the suprachoroidal space (SCS). Suprachoroidal injection of multiple small molecule drug candidates via a proprietary microneedle were performed in multiple preclinical species (rabbit, porcine, monkey, and dog) to evaluate safety and tolerability, pharmacokinetics (PK), pharmacodynamics (PD), and/or bioavailability in posterior segment ocular tissues including the macula region.

Results: Suprachoroidal injections were successfully employed in multiple animal models and well-tolerated across multiple species and disease models. In total, over 1000 injections have been performed with needle lengths between 300 and 1100 µm dependent on species-specific ocular anatomy characteristics. Injections into the SCS demonstrated circumferential and posterior spread of injectate immediately following the injection, confirmed in ex vivo porcine models. In multiple in vivo rabbit studies, an opening of the SCS in posterior segment was observed. Suprachoroidal delivery of small molecule suspensions exhibited compartmentalization of a dose depot into posterior tissues with high levels in the chorioretina, including therapeutic drug levels as far as posteriorly to the optic nerve. In contrast, drug levels in the aqueous humor were 3-5 log orders lower, and negligible systemic drug exposure was observed. Ocular PK studies in rabbits and monkeys showed durability of multiple drug candidates.

Conclusions: Suprachoroidally injected small molecule suspensions consistently exhibit targeting, compartmentalization, and durability in multiple preclinical models.

Abstract No.: 200537

The Analysis of Foveal Microvascular Anomalies in Retinopathy of Prematurity After Anti-Vascular Endothelial Growth Factor Therapy Using Optical Coherence Tomography Angiography

*First Author: Xuan **SHI***

Purpose: To investigate the quantitative vascular and structural differences in the foveal region of the eyes in retinopathy of prematurity children with or without anti-VEGF therapy and healthy children using optical coherence tomography angiography (OCTA).

Methods: This cross-sectional study analyzed 75 eyes from 44 subjects, categorized into four groups: ROP children treated with Conbercept or Ranibizumab, spontaneously regressed ROP, and healthy age-matched children. Using spectral-domain OCT and OCTA, we assessed parameters like central foveal thickness (CFT), foveal avascular zone (FAZ), superficial/deep capillary plexus (SCP/DCP), and choroidal vessel density (VD) at the fovea. Correlations between foveal microvasculature, preterm status and visual acuity were evaluated.

Results: Significant differences were found in FAZ area, CFT, and VD-SCP (parafoveal) among the groups. The FAZ area was smaller in ROP children (with/without treatment) than in healthy counterparts($p=0.009$). CFT was higher in the Ranibizumab and spontaneously regressed

groups compared to healthy ones (p=0.043, p=0.037), while Conbercept-treated children showed no significant difference (p=0.886). Foveal VD trends were higher in groups A, B, and C compared to group D. FAZ area correlated negatively with CFT, VD-SCP (foveal), and VD-DCP (foveal) (p<0.001, p<0.001, p=0.001), and positively with choroidal VD (p=0.012). CFT showed positive correlations with VD-SCP (foveal) and VD-DCP (foveal) (p=0.003, p=0.001).

Conclusions: ROP children exhibit a smaller FAZ area compared to healthy group, with no significant difference noted when comparing the use of different anti-VEGF agents. ROP children have a thicker CFT than healthy children, except for those treated with Conbercept. Furthermore, microvascular irregularities were correlated with central foveal thickness.

Abstract No.: 200167
The Effects of Different Anti-VEGF Drugs on Choroidal Neovascularization-Related Macular Atrophy in Pathological Myopia

*First Author: Yu **MAO***

Purpose: To observe the efficacy of intravitreal injection of different anti-VEGF drugs on choroidal neovascularization (CNV)-related macular atrophy in pathological myopia.

Methods: his retrospective study included patients with CNV-related macular atrophy associated with pathological myopia who treated in our hospital from January 2018 to July 2023. The patients were divided into two groups:group A (Ranibizumab, 18 eyes) and group B (Conbercept, 20 eyes). Both groups received 3+PRN regimen. The changes in area of CNV-related macular atrophy, BCVA, refractive error and axial length before and 1 year after treatment were compared.

Results: Before treatment, there were no significant differences in area of CNV-related macular atrophy, BCVA , refractive error and axial length between the two groups(P>0.05). After 1 year of treatment, both groups showed significant improvement in the BCVA (LogMAR) . However, there was no significant difference between the two groups (0.77±0.40 vs. 0.60±0.46). In group A, the area of CNV-related macular atrophy increased from 7.21±5.88 mm2 to 14.93±9.93 mm2 after 1 year's treatment, showing a statistically significant difference (p<0.001). While in group B, the atrophic lesion area was 5.63±4.16 mm2 to 7.73±5.82 mm2 , with no significant difference (P=0.198). The expansion of the atrophic lesion area was smaller in group B than that in group A (group A 7.72±6.24 mm2 vs. group B 2.10±1.90 mm2), and the difference was statistically significant (P<0.001).

Conclusions: Compared with small molecule monoclonal antibody based anti-VEGF drugs, fusion protein based anti-VEGF drugs may have a better impact on the occurrence and development of PM-CNV related macular atrophy.

Abstract No.: 201042
The Hidden Link: Choroidal Thickness and Systemic Lupus Erythematosus Insight

*First Author: Shew Fei **CHEE***
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Purpose: To investigate the impact of systemic lupus erythematosus (SLE) on choroidal thickness (CT) of different regions as compared to normal populations. To determine the factors such as age, gender, race, best-corrected visual acuity (BCVA), axial length (AXL), central macular thickness (CMT), spherical equivalent refractive error that associated with the choroidal thickness in SLE patients

Methods: This observational cross-sectional prospective study included 34 SLE patients without ocular manifestations and 34 healthy controls. The control group was age-matched to the SLE group to ensure comparability. CT was measured using the Zeiss optical coherence tomography (OCT) system. Statistical analysis was done using SPSS Inc Version 27.

Results: CT was significantly thinner globally in SLE group as compared to the control group. The mean CT (μm) subfoveal, nasal, temporal,

superior and inferior was 290.15 ± 35.08, 231.91 ± 29.91, 281.59 ± 31.18, 281.76 ± 36.92 and 256.00 ± 26.93 in the study group and 317.85 ± 58.56, 259.26 ± 54.21, 321.18 ± 58.35, 318.71 ± 57.87 and 296.26 ± 58.73 in the control group, respectively (p=0.021, p=0.012, p<0.001, p=0.003, and p < 0.001 respectively). Factors that showed significant associations with CT in SLE were AXL (p<0.001), CMT (p=0.011) and spherical equivalent refractive error (p<0.001).

Conclusions: CT is considerably reduced in patients with SLE who do not exhibit ocular symptoms. Measuring CT could be useful as a predictive tool for the development of ocular manifestations.

Abstract No.: 200239

The Increase of Intraocular Pressure (IOP) 30 Minutes After Intravitreal Injections of 50 µL and 70 µL Volumes

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Purpose: This study aimed to compare the intraocular pressure (IOP) increase 30 minutes after intravitreal injections of 50 µl and 70 µl volumes.

Methods: This retrospective observational study included eyes treated with 50 µl of either aflibercept 2 mg or faricimab 6mg, followed by a switch to 70 µl of aflibercept 8 mg between April and March 2024. IOP was measured before and 30 minutes after both 50 µl and 70 µl intravitreal injections. All injections were performed using a 30 G needle under local anesthesia.

Results: A total of 88 eyes from 85 patients were switched to aflibercept 8 mg during the study period. Due to the lack of data, 17 eyes from 15 patients were excluded, leaving 71 eyes from 70 patients for the analysis. IOP significantly increased from 13.2 ± 2.9 mmHg to 19.1± 5.4 mmHg (P < 0.001) with 50 µl injections and from 13.3 ± 2.9 mmHg to 19.8 ± 4.8 mmHg (P <0.001) with 70 µl injections. The IOP increases were 6.0 ± 4.9 mmHg with 50 µl and 6.5 ± 4.3 mmHg with 70 µl, showing no significant difference (P = 0.28). IOP exceeding 26 mmHg was observed in 6 eyes treated with 50 µl and 10 eyes with 70 µl, with no significant difference in IOP distribution between the volumes (P = 0.20).

Conclusions: There was no additional increase in IOP 30 minutes after injections when switching from 50 µl to 70 µl volumes.

Abstract No.: 200462

The Prediction of the Efficacy of Conbercept for the Treatment of Different Types of Diabetic Macular Edema

*First Author: Bojun **ZHAO***

Purpose: To evaluate the efficacy of anti-VEGF reagent Conbercept for the treatment of different types of diabetic macular edema (DME).

Methods: 0.5 mg intravitreal Conbercept injections (IVCI) were performed for 54 patients (74 eyes) with different types of DME (cystoid macular edema [CME, n=21], diffuse retinal thickening [DRT, n=27], serous retinal detachment [SRD, n=26]) by using 1+PRN regimen for ≥12 months. Best corrected visual acuity (BCVA, LogMAR), central macular thickness (CMT), and OCTA parameters of foveal avascular zoom (FZA), superficial/deep retinal capillary plexuses(SCP/ DCP) were assessed.

Results: BCVA was significantly improved and CMT was significantly decreased after treatment. Furthermore, the degrees of BCVA improvement were different among the groups (P < 0.05). After treatment, FAZ changes were significant among groups (P < 0.05) and SCP and DCP densities increased significantly, with notable intergroup differences (P < 0.01). The superior outcomes were achieved in DRT group in term of BCVA improvement, CMT and FAZ reduction, and DCP density increase compared to that in other two groups after 12month treatment.

Conclusions: The improvement of visual acuity, reduction of CMT, and increase of SCP and DCP densities were achieved in patients with DME by the treatment of IVCI, in which superior outcomes were achieved in DRT group.

Abstract No.: 200573
The Risk Factors and Clinical Features of Recurrent CMV Retinitis in Immunocompromised Patients

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Purpose: To investigate the clinical and serological features of patients with reactivated cytomegalovirus (CMV) retinitis compared to patients with non-reactivated CMV retinitis.

Methods: A retrospective study of patients diagnosed with CMV retinitis was performed. Medical records of the patients including age, gender, underlying causes of immune suppression, visual acuity, systemic and intraocular antiviral treatment, treatment period, complete blood count with differential, serum CMV DNA viral load measured PCR, slit lamp and funduscopic examination were evaluated.

Results: Twenty-five eyes (35 eyes) were included. Ten patients had reactivated CMV retinitis. In the baseline absolute neutrophil count was significantly decreased in the reactivated group (p=0.018). Prevalence of serum CMV viral load surge, neutropenic and lymphocytopenic events, persistence of CMV viremia after ceasing systemic treatment were significantly higher in the reactivated group (p=0.000, 0.043, 0.025, 0.028, respectively). All patients in the reactivated group had stopped systemic antiviral treatment and experienced serum CMV surge after the cessation before clinical reactivation of CMV retinitis. The mean duration of serum CMV load surge to recurrence was 11.7±7.6 days, and that of antiviral treatment cessation to recurrence was 19.1±7.2 days, respectively.

Conclusions: In immunocompromised patients, even after clinical regression of CMV retinitis, CMV can survive and proliferate without overt funduscopic changes. Therefore, if CMV viremia persists after systemic treatment, regular fundus examination accompanying systemic antiviral treatment should be considered until the serum viral load becomes undetectable.

Abstract No.: 200900
To Describe the Demographic, Clinical, and Optical Coherence Tomography (OCT) Features of Patients with Choroideremia (CHM) in the Indian Population

*First Author: Anjali **MAHESHWARI***
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Purpose: To observe the demographic, clinical, and OCT features of patients diagnosed with CHM.

Methods: This retrospective observational study included 140 eyes (70 patients). Further, based on VA, the entire cohort was divided into group A (VA <20/200) (n=93 eyes) and group B (VA >20/200) (n=47 eyes). The inner retinal layer (IRL), outer retinal layer (ORL), retinal pigment epithelium (RPE), and choroidal thickness (CT) were measured subfoveally, at 500, 1000, and 1500 um from the center of the fovea.

Results: The mean patient age at presentation was 39 years (3-81 years). Of the 70 patients, 61 (87%) were male and 9 (13%) were female. OCT imaging of group A eyes (n=73) showed preserved ellipsoid zone (EZ) in 20 (27%) eyes and disrupted EZ in 53 (73%) eyes. On the other hand, Group B eyes (n=38) showed preserved and disrupted EZ in 3 (8%) and 35 (92%) eyes, respectively. A significant difference in IRL thickness both at subfoveal and at 500 µm from the fovea was observed. Rest all measurements between the two groups were not statistically significant. Autofluorescence imaging showed 26% of eyes (n=19) in group A had a center involving disease, compared with 38% of eyes (n=14) in group B (p>0.05).

Conclusions: A significant difference was observed in the IRL subfoveally and at 500 µm from the center of the fovea along with structural disruption of EZ zone in group B eyes, a poor prognostic marker. Further

longitudinal studies are needed to determine the correlation between IRL thickness and visual acuity progression.

Abstract No.: 200609

Visual Acuity and Anatomic Improvements at Week 24 Maintained Through Week 72 with Faricimab Treat-and-Extend Dosing for Macular Edema due to Retinal Vein Occlusion in the Phase 3 BALATON and COMINO Studies: Results and Patient Case Profiles

First Author: Timothy ***LAI***
Co-Author(s): Pablo ***ARRISI****, Christiana* ***DINAH****, Ying* ***LIU****, Liliana P.* ***PARIS****, Anne-cecile* ***RETIERE***

Purpose: Faricimab, a dual angiopoietin-2/vascular endothelial growth factor-A (Ang-2/VEGF-A) inhibitor and the first bispecific antibody for intraocular use, demonstrated efficacy and safety for treating macular edema due to retinal vein occlusion (RVO) in the phase 3 BALATON (NCT04740905)/COMINO (NCT04740931) randomized controlled clinical trials. Here the 72-week results and real-world patient case(s) are presented.

Methods: Patients in BALATON (N=553) and COMINO (N=729) trials received 6 monthly faricimab 6.0 mg or aflibercept 2.0 mg from day 1–week 20. The primary endpoint was change in best-corrected visual acuity (BCVA) from baseline at week 24. From weeks 24–72, patients received faricimab following a modified treat-and-extend regimen based on central subfield thickness (CST) and BCVA.

Results: The results showed that BCVA gains and CST reduction at week 24 were maintained through week 72. Mean (95% confidence interval) BCVA and CST changes from baseline with faricimab, averaged over weeks 64, 68, and 72, were +18.1 (16.9, 19.4) letters and −310.9 (−315.6, −306.3) µm, and +16.9 (15.2, 18.6) letters, and −465.9 (−472.5, −459.3) µm in BALATON and COMINO trials, respectively. At week 68, more than 57% of patients in BALATON and more than 45% of patients in COMINO trials achieved ≥Q12W faricimab dosing Faricimab was well tolerated with no new safety signals.

Conclusions: The 72-week results from BALATON and COMINO trials demonstrated that dual Ang-2/VEGF-A inhibition with faricimab offers long-term disease control in patients with RVO, and faricimab was well tolerated with no change in safety profile.

Abstract No.: 200976

Visual Outcomes of Polypoidal Choroidal Vasculopathy Subtypes

First Author: Colin ***TAN***

Purpose: Polypoidal choroidal vasculopathy (PCV) has high prevalence among Asians, with variable clinical course and visual prognosis, suggesting the existence of clinical subtypes. We describe a novel classification system for PCV and correlate it with long-term visual outcomes.

Methods: Study of 107 consecutive patients with PCV presenting over a 24-month period. Patients were imaged using confocal scanning laser ophthalmoscopy fluorescein angiography (FA) and indocyanine green angiography (ICGA). Color fundus photographs and angiograms were graded independently by two ophthalmologists. The diagnosis of PCV was made using standardised diagnostic criteria. The angiographic features were used to classify the PCV cases, and this was correlated with clinical presentation and visual acuity (VA) for 5 years.

Results: Of the 107 patients, significant FA leakage was observed in 57 patients (53.3%). Patients with FA leakage had significantly worse LogMAR VA at all time points compared those without leakage (LogMAR 1.04 vs. 0.32 at 5 years, $p<0.001$), and experienced higher rates of moderate visual loss (60% vs. 0%, $p<0.001$). Those without FA leakage experienced higher rates of good visual acuity (≥20/40) (74.4% vs. 19.6%, $p<0.001$) at all follow-up visits.

Conclusions: We have established a novel classification system for PCV using FA and ICGA features. The visual outcomes vary with subtype, demonstrating that PCV consists of distinct, previously unrecognized, clinical subtypes instead of a single disease entity as

originally believed. This classification system has potential application in clinical practice and multicenter randomized trials.

Abstract No.: 201009

Vitamin D and Parathormone levels in Type 2 Diabetes Mellitus patients with and without Diabetic Retinopathy

*First Author: Nayeemul **HUQ***

Purpose: To see Vitamin D and parathormone levels in Type 2 diabetes mellitus patients with and without diabetic retinopathy,,To find out Vitamin D and parathormone levels in Type 2 diabetes mellitus patients in different stages of diabetic retinopathy

Methods: Comparative case control study,Period : August 2018 to July 2019,The study was conducted with 107 patients. Among them 38 patients were included in the group with type 2 DM without retinopathy, 36 with diabetic retinopathy and 33 non diabetic patients were included in the control group.The clinical profile and blood levels of Vitamin D and parathormone were analysed.

Results: The study revealed that the Vitamin D level in the control group was 41.82 +/- 10.37 ng/ml, among Type 2 diabetes patients without retinopathy it was 35.47+/-6.73 ng/ml and in those with retinopathy it was 20.89+/- 6.42 ng/ml.,Parathormone level among the control group was 42.03+/-8.33 ng/L, among type 2 DM patients without retinopathy it was 36.32+/-7.78 ng/L and in those with retinopathy it was 38.42+/- 8.40ng/L.,The type 2 diabetes patients were further divided into two groups, those with PDR and those with NPDR. Vitamin D levels in patients with PDR were lesser than in those with NPDR.

Conclusions: Vitamin D levels were highest among the control group. It was significantly more in patients without retinopathy when compared to those with retinopathy. There was no significant difference in parathormone levels between the groups.

Abstract No.: 200268

Who Spilled Ketchup and Cotton Candy Puffs on My Retina?

*First Author: Anoop **LINGARAJU***

Purpose: To report a presentation of exudation with surrounding pre-retinal haemorrhage in a 55-year-old male patient.

Methods: A 55-year-old male patient presented to our center with diminution of vision in left eye since 3 months, insidious in onset and gradually progressive. He is a known case of type 2 diabetes mellitus and hypertensive since 3 years and is on medication for the same. He had underwent cataract surgery to left eye 1 year back and post-operative was satisfactory. On examination his vision was 6/36 with no improvement on pin-hole. Fundus examination of left eye showed waxy yellow lesions 2 disc diameter nasal to optic disc with relatively distinct margins coalescing to form a semi-circle pattern of around 2 disc diameter in largest dimension suggestive of soft exudates. These lesions were surrounded by reddish lesion without visible vessels on the surface of around 1 disc diameter suggestive of pre-retinal hemorrhage. Macula showed greenish glistening membrane over the surface suggestive of epiretinal membrane confirmed on optical coherence tomography. Fundus examination of right eye showed grade 2 hypertensive retinopathy and rest details were within normal limits. Then the diagnosis of Retinal artery macro aneurysm in Left eye. Sectoral laser and strict control of systemic illness was advised.

Results: Sectoral laser done for 2 rows surrounding the exudation and physician opinion taken for hypertension management. Patient is asked for review after 2 weeks.

Conclusions: Regular follow-up of hypertensive patients should involve looking for these lesions.

Abstract No.: 200766

Worse Became Worst: Unravelling the Intersection of Central Retinal Vein and Cilioretinal Artery Occlusion – Case Series

First Author: Daniel ***PHANG***
Co-Author(s): Shew Fei ***CHEE****, Zunaina* ***EMBONG***

Purpose: The combination of central retinal vein occlusion (CRVO) and cilioretinal artery occlusion (CLRAO) represents a unique and complex retinal vascular event. We herein described a case series of 3 patients with combined CRVO and CLRAO, who were in hypercoagulable state. The final visual acuities were guarded despite treatment.

Methods: Case Series

Results: All 3 cases were female with age of 11-39 years old. All 3 cases had acute loss of vision with positive relative afferent pupillary defects. The presenting visual acuity were counting finger and perception of light. Anterior segment examinations were unremarkable for all 3 patients. All 3 cases had a combined CRVO and CLRAO which was diagnosed clinically. All patients underwent systemic workup and ultrasound imaging of the carotid. The first case and second case were secondary to oral contraceptive pill. Despite withholding the offending agent, their visual acuity remained the same. The third case was due to systemic lupus erythematous (SLE) and anti-phospholipid syndrome (APS). Final visual acuity was no perception of light due to steroid induced glaucoma.

Conclusions: The concurrent occurrence of CRVO and CLRAO is relatively rare and poses significant diagnostic and therapeutic challenges. This dual vascular compromise can severely impact visual outcomes, thus necessitating prompt and effective management.

Abstract No.: 200930

X-Linked Juvenile Retinoschisis in Filipino Male Siblings

First Author: Catherine Therese ***AMANTE***
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Purpose: To describe the clinical presentation, diagnostic findings, and management implications of X-linked juvenile retinoschisis (XLRS) in two Filipino male siblings.

Methods: Two Filipino male siblings, aged 8 and 10 years old, presented with bilateral blurring of vision. Detailed ophthalmological examination including optical coherence tomography (OCT), fundus autofluorescence (FAF), and electroretinography (ERG) was performed. A comprehensive family history was obtained.

Results: Both siblings exhibited cystic spoke-wheel maculopathy and peripheral schisis, confirmed by OCT. ERG findings showed decreased b-wave relative to the normal a-wave, consistent with XLRS. Areas of increased fundus autofluorescence along with spoke-wheel pattern were also appreciated in FAF, characteristic of XLRS. Positive family history of visual complaints in maternal male relatives supported the diagnosis.

Conclusions: This case emphasizes the importance of considering XLRS in pediatric patients presenting with visual disturbances and characteristic fundus findings. Early diagnosis is crucial for timely management, such as carbonic anhydrase inhibitors, to prevent potential complications like retinal detachment and vitreous hemorrhage. Ideally, genetic testing should be performed but characteristic fundal features along with a positive family history may be indicative of XLRS, as evidenced by genotype phenotype associations.

Retina (Surgical)

Abstract No.: 200657
A Case of Retinal Pigment Epithelial Tear Triggered by Hypotony after Trabeculectomy Resulting in Retinal Detachment

*First Author: Yuka **SAITO***
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Purpose: Hypotony after trabeculectomy (TLE) can cause choroidal detachment and maculopathy. Here, we present a case of retinal detachment caused by extensive retinal pigment epithelial (RPE) tear following hypotony after TLE.

Methods: Case report.

Results: A 67-year-old man underwent TLE for open-angle glaucoma. Postoperatively, his intraocular pressure (IOP) initially remained stable at approximately 10 mmHg. However, after 50 days, decreases in IOP due to aqueous humor leakage required several conjunctival sutures. Subsequently, choroidal detachment occurred on day 87. On day 108, retinal detachment was noted in the inferior retina of the left eye, prompting vitrectomy for suspected rhegmatogenous retinal detachment. Although no retinal tear was found intraoperatively, an RPE tear spanning 120 degrees from the 1 o'clock to 5 o'clock positions was observed from the temporal midperiphery to the periphery. The detached RPE adhered to the underside of the detached retina. Fluid-gas exchange was performed, and subretinal fluid was aspirated from the intentional tears. The next day, his IOP was 16 mmHg and retinal detachment had improved. However, by day 5, hypotony recurred due to aqueous leakage, reducing IOP to 5 mmHg and causing re-detachment, necessitating closure of the TLE scleral flap. The following day, his IOP increased to 27 mmHg and the retinal detachment resolved. At 3 months, his IOP was 16-19 mmHg with medication, and there was no recurrence of retinal detachment.

Conclusions: Prolonged hypotony following TLE could cause RPE tear, leading to serous retinal detachment. Appropriate management of IOP might resolve the retinal detachment and prevent its recurrence.

Abstract No.: 200784
A Prospective Study of the Structural and Functional Changes in Epiretinal Membrane

*First Author: Danny **CHEUNG***
*Co-Author(s): Kenric **FAN**, Gavin Siew Wei **TAN**, Andrew **TSAI***

Purpose: To prospective examine the structural and functional changes of epiretinal membrane (ERM)

Methods: A prospective imaging study was conducted among patients with ERM who were consecutively recruited from a tertiary eye centre (Singapore National Eye Centre). All participants had comprehensive clinical and imaging examinations, including visual acuity, M-chart, optical coherence tomography (OCT), microperimetry at baseline, 3, 6 and 12 months. Functional parameters were compared against OCT measures to investigate the associations over the 12-month period.

Results: Our study included 100 eyes of 100 patients with ERM. Mean age was 68.5 years, 92.0% were Chinese, 53% were female. At baseline, the mean logMAR best-corrected visual acuity (BCVA) was 0.19. Over the 12-month period, there was an increasing trend in cystoid macular changes among non-diabetic participants (p=0.001). Disruption of retinal layers was positively associated with worsening M-chart vertical values [0.039; 95% confidence interval (CI): 0.015 – 0.063, p=0.002]. Central retinal thickness was positively associated with worsening M-chart horizontal values [95% 0.015, CI: 0.000 – 0.030, p=0.046]. Microperimetry average threshold was inversely associated with central macular volume [-0.303, 95% CI: -0.584 to -0.021, p=0.035] and presence of cystoid macular changes [-0.304, 95% CI: -0.594 to -0.014, p=0.040].

Conclusions: Although visual acuity remains stable over a 12-month period, cystoid

macular changes may increase over time in association with reducing macular sensitivity among patients with ERM. Both M-chart and microperimetry may be useful in the general assessment of ERM and its risk for progression.

Abstract No.: 200615

A Rare Case of Nasal Serous Retinal Detachment Associated with a Nasal Optic Disc Pit: What Now?

First Author: Rhuen Chiou ***CHOW***
Co-Author(s): Ee Ling ***ANG***

Purpose: To report an unusual case of nasal optic disc pit (ODP) associated with chronic nasal serous retinal detachment (RD).

Methods: A case report.

Results: A 53-year-old Malay lady with no systemic co-morbids presents with long-standing temporal field loss in her left eye which has been static over the past 6 months. Snellen visual acuity was 6/9 bilaterally. Ocular examination revealed bilateral ODP which was located inferotemporally in her right eye, and superonasally in her affected eye. Also present was an associated left nasal serous RD adjacent to the ODP, corresponding to the area of visual field defect. There were no retinal breaks visualized, and no posterior vitreous detachment was identified. Macula optical coherence tomography (OCT) scans confirmed the absence of ODP maculopathy. Anterior segment and intraocular pressures were unremarkable. Left pneumatic displacement with 0.3ml of 100% intravitreal octafluoropropane (C3F8) gas was performed, followed by strict face down positioning for a week. On day 7, subretinal fluid adjacent to the ODP was completely displaced peripherally, allowing application of barrier laser photocoagulation around the disc pit.

Conclusions: ODP is a rare congential abnormality with a reported incidence of 1 in 11,000. In 15% it is bilateral. Whilst most commonly located on the temporal aspect of the disc, nasal ODP remain a rare entity. Herein, we report our experience in managing a unique case of nasal serous RD associated with a nasal ODP.

Abstract No.: 200951

A Rare Case of Persistent Fetal Vasculature in an Adult Female and Its Surgical Management

First Author: Hiteshi ***JAIN***
Co-Author(s): Anamika ***AGRAWAL****, Bhakti* ***GADE****, Anuja* ***GAWARLE****, Avinash* ***INGOLE***

Purpose: To describe the rare case of an adult with bilateral posterior PFV and its subsequent successful surgical management.

Methods: An interventional case report.

Results: A 50-year-old female presented with worsening vision in her right eye for 8 months. She had a history of low vision for many years. On examination, the BCVA in her right eye was 6/60 and her left eye was FCCF. The cornea and lens in both her eyes were clear. Fundus showed a fibrous stalk arising from both her optic discs with traction of the underlying fovea. There was retinal thinning in the left eye. Oct of both eyes showed loss of inner retinal architecture, retinoschisis and a hyperreflective structure arising from the discs. USG Bscan with doppler showed hyperreflective membranous echoes from the posterior pole with blood flow. The patient underwent vitrectomy with ILM peeling in her right eye. Her vision improved to 6/24 along with improvement in the retinal architecture as seen on OCT.

Conclusions: While PFV is a well-known entity, eyes with posterior PFV do not usually survive till adulthood. For this reason, there is a shortage of literature describing adult PFV and their treatment. This case report highlights the importance of surgical intervention in adult eyes with PFV and that even a late intervention may improve the visual outcome and quality of life.

Abstract No.: 200992

Adaptive Optics Imaging in Retinal Detachment: A Retrospective Analysis

*First Author: Andrew **MIHALACHE***
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Purpose: En face visualization of individual photoreceptors via adaptive optics imaging (AOI) allows for a quantitative analysis of the cone mosaic beyond what may be discernable on optical coherence tomography. Hence, AOI may provide novel insights into the integrity of retinal reattachment (RD). This study aims to investigate associations between AOI photoreceptor parameters and clinical outcomes in RD patients postoperatively.

Methods: This retrospective, multicenter study in Toronto, Canada included patients with RD over 18 years old that underwent AOI with the RTX1 camera following RD repair. AOI data pertaining to the following photoreceptor parameters were collected: cone regularity, dispersion, density, and spacing. Associations between AOI photoreceptor data with visual acuity (VA) and metamorphopsia were examined using Spearman's Rho and logistic regression on Stata v17.0, respectively. Logistic regression models were adjusted for age, sex, procedure, macula status, and AOI coordinates.

Results: 48 RD patients (mean age=59 ± 13) were included, consisting of 36 males and 12 females. Better logMAR VA was associated with a higher cone regularity at 2° (rs=-0.37, p<0.01), lower cone dispersion at 2° (r¬s=0.31, p=0.03) and 4° (rs=0.38, p=0.02), higher cone density at 2° (rs=-0.38, p=0.01) and 4° (rs=-0.53, p<0.01), and lower cone spacing at 2° (rs=0.33, p=0.02) & 4° (rs=0.53, p<0.01). Increased cone dispersion at 2° was associated with vertical metamorphopsia (OR=1.09, p=0.03).

Conclusions: AOI photoreceptor data were significantly associated with VA and metamorphopsia in postoperative RD eyes. Prospective trials in diverse RD populations are warranted to assess the prognostic value of AOI in this setting.

Abstract No.: 200712

An Emerging Surgical Technique for Optic Disc Pit Maculopathy

*First Author: Evelyn **CHOU***
*Co-Author(s): Imran **KHAN***

Purpose: This case report discusses a patient with a right optic disc pit associated with macular schisis requiring surgical management with PPV/ILM flap/laser/gas C2F6 18% and highlights the risk of a post-operative macular hole and its management.

Methods: A 44 year old female was referred for reduced right visual acuity and distortion (R 0.26, L 0.92) that started 2-3 days postpartum. Her past ocular history includes left amblyopia and myopia. She was noted to have a left iris coloboma, bilateral localised coloboma and a right macular schisis. Her visual acuity worsened (R 0.36) over 6 months, and was listed for a right PPV/ILM flap/laser/gasC2F6 18%. A right eccentric macula hole was noted 1 week post operatively, and further minimal addition vitrectomy was carried out, a free ILM flap was harvested from the inferior macula and transposed over the hole. Viscoelastic was placed on top of the flap. Gentle, passive fluid air exchange at 20mmHg was carried out.

Results: Just one day post-operatively, the macula hole was noted to be closed with resolving subretinal fluid. At her 3 week follow up, visual acuity was improved at 0.36, with the macular hole remaining closed and minimal subretinal fluid remaining.

Conclusions: Optic disc pit with maculopathy is associated with a relatively poor visual prognosis if untreated. There is no consensus on the most effective surgical technique. While ILM peeling has been documented to cause macular hole formation, this case highlights that this complication can be managed effectively and result in better visual outcome for patients.

Abstract No.: 200289

Assessing Surgical Outcomes in Full Thickness Macular Hole Repair: Case-Control Study of Highly Myopic and Non-Highly Myopic Eyes

*First Author: Stanley **POH***
*Co-Author(s): Hung-da **CHOU**, Chi-chun **LAI**, Shu Yen **LEE**, Andrew **TSAI***

Purpose: To compare the anatomical and functional outcomes of macular hole (MH) surgery in highly myopic (HM) versus non-HM eyes.

Methods: This is a retrospective case-control study of patients who underwent MH repair between 2018-2022. HM was defined by axial length (AL) ≥26mm. MH size, staphyloma and retinoschisis were graded. Surgical technique was divided into internal limiting membrane (ILM) peel or flap. Post-operative best corrected visual acuity (BCVA) and anatomical outcomes including hole closure, restoration of outer retinal layers, foveal gliosis or detachment were assessed at post-operative one, three, six and twelve months.

Results: 34 HM eyes were matched 1:1 to 34 out of 201 non-HM eyes. Mean AL was 28.46 ± 2.01mm and 23.73±1.12mm ($p<0.001$), MH size was 366±183μm and 386±199μm in the respective groups ($p=0.667$). Initial hole closure rate was comparable between groups (85.3% vs 88.2%, $p=0.720$). One HM hole re-opened after initial closure 10 months post-operatively. BCVA and restoration of outer retinal layers were comparable between groups at all time points. Proportion of eyes with non-closure was higher in ILM peel group (20.5% vs 0%, $p<0.05$). Smaller MH was associated with better closure rate (OR 0.99, 95% CI 0.99-1.00). AL and staphyloma were not associated with hole closure (OR 0.91, 95% CI 0.72-1.15; OR 1.01, 95% CI 0.99-1.02 respectively). Larger MH was associated with poorer BCVA ($\beta=0.010$, 95% CI 0.007-0.014).

Conclusions: Outcomes of MH surgery were comparable between HM and non-HM eyes with modern surgical technique. Surgical success was associated with MH size but not AL or staphyloma.

Abstract No.: 200566

Beveled-Tip Vitrectomy Probe (VP) Versus Flat-Tip VP for Vitreous Cortex Remnant Removal in Vitrectomy for Rhegmatogenous Retinal Detachment

*First Author: Yewon **KIM***
*Co-Author(s): Sung Ha **HWANG**, Dae Yeong **LEE**, Dong Heun **NAM***

Purpose: To compare the efficacy and safety of 25-gauge beveled-tip and flat-tip probes for vitreous cortex remnant (VCR) removal during vitrectomy for rhegmatogenous retinal detachment (RRD).

Methods: Operative videos of 60 eyes with RRD, including VCR, which underwent surgery with a beveled-tip (30 eyes) or a flat-tip vitrectomy probe (30 eyes) were analyzed retrospectively. The main outcome was the extent of the peripheral VCR removal area peeled using only the vitrectomy probe, Secondary endpoints were total vitrectomy time and intraoperative and postoperative complications.

Results: The area of peripheral VCR removal was significantly wider in the beveled-tip group than in the flat-tip group (69.8% vs. 56.9%, $p=0.039$), whereas the total vitrectomy time and time for VCR removal with the vitrectomy probe were not different (51.7 vs 57.4 minutes, $p=0.051$; 2.5 vs 3.7 minutes, $p=0.157$). Furthermore, none of the eyes required additional surgery for postoperative proliferative vitreoretinopathy or redetachment.

Conclusions: VCR removal with a beveled-tip probe during RRD vitrectomy was more extensive than that with a flap-tip probe without adverse effects.

Abstract No.: 200843

Changes in Macular Thickness and Superficial Vascular Density in Rhegmatogenous Retinal Detachment after Pars Plana Vitrectomy with Silicone Oil and Comparison to Fellow Eye

*First Author: Ghina **FEDORA***
*Co-Author(s): Gitalisa **ADRIONO***

Purpose: Silicone oil (SO) is commonly used as vitreous substitute in pars plana vitrectomy

(PPV) for rhegmatogenous retinal detachment (RRD) management. Complications arising from SO use include cataracts, increased ocular pressure, emulsification, and keratopathy, and several studies have reported decreased macular thickness and vascular density. This study aims to determine changes in central macular thickness and superficial vascular density in RRD patients after PPV with SO

Methods: Forty-one subjects were included in this study, which comprises of two designs: a prospective observational study to compare the effect of week-1 with week-4 after PPV with SO, and a cross-sectional design to compare week-1 after PPV with SO with contralateral eye.

Results: Increase in central subfield thickness (CST), superficial vascular density (SVD), and superficial perfusion density (SPD) was found at week 4 after PPV with SO compared to week 1, although not statistically significant. Findings of CST, SVD, and SPD were lower at week 1 after PPV with SO compared to the contralateral eye ($p<0.001$). In additional analysis, we found that those aged over 50 had tendencies toward decreased SVD (p 0.033) and SPD (0.011) compared to the younger age group.

Conclusions: There was no reduction in central macular thickness or superficial vascular density at week 4 after PPV with SO in RRD patients. Central macular thickness and superficial vascular density were lower on week 1 after SO tamponade compared to the contralateral eye. Older patients might be more vulnerable to the decrease of SVD and SPD post-PPV with SO.

Abstract No.: 200406
Characteristics and Surgical Outcome of Coats Disease Treated by Vitrectomy

*First Author: Akira **KANAI***
*Co-Author(s): Makoto **INOUE**, Tadashi **YOKOI***

Purpose: To report surgical outcomes of patients with retinal detachment (RD) caused by Coats disease treated with vitrectomy.

Methods: We enrolled patients with Coats disease treated by vitrectomy at Kyorin University Hospital between April 2020 and May 2024. Patient demographics and treatment course were reviewed.

Results: Eight eyes of 8 patients (mean age: 18.6±15.0 years; Male: 7 patients) underwent initial vitrectomy at our hospital. Four patients had been treated prior to referral, while the others were primarily treated at our hospital. Exudative RD (ERD) was confirmed in 1 eye, ERD and tractional RD (TRD) in 5 eyes, ERD and rhegmatogenous RD (RRD) in 1 eye, and ERD, RRD, and TRD in 1 eye. Preoperative best-corrected visual acuity (BCVA) deteriorated in 6 eyes with macular ERD, while it was better in 2 eyes without macular involvement. Lens-sparing vitrectomy was performed in 7 eyes. Primary vitrectomy was successful in 5 eyes, and another vitrectomy was required in 3 eyes, with silicon oil tamponade necessary in 2 eyes and encircling buckling in 1 eye. External drainage was conducted in 3 eyes with bullous ERD (1 eye: ERD; 2 eyes: ERD+TRD) without an apparent causative retinal break. Postoperatively, BCVA improved in 6 eyes but remained unchanged in 2 eyes with a preoperative BCVA of 1.2. Neovascular glaucoma and cataract developed in 1 eye each postoperatively.

Conclusions: Vitrectomy shows promise in treating complicated RD associated with Coats disease, and simultaneous external drainage is reasonable to avoid intentional internal breaks in cases of bullous ERD without an apparent retinal break.

Abstract No.: 200172
Choroidal Hemorrhage Caused by Intraoperative Awareness During Vitrectomy: A Case Report

*First Author: Sindy **SEMBIRING***
*Co-Author(s): Nur **RAHMA***

Purpose: To demonstrate a case of choroidal hemorrhage during vitrectomy under general anesthesia caused by intraoperative awareness.

Methods: Case report : A 43-year-old man with drop IOL following eventful cataract surgery underwent vitrectomy, IOL explantation and iris claw IOL implantation under general anesthesia.

After core vitrectomy and IOL explantation the patient experienced intraoperative awareness. Iris claw IOL implantation was proceed. At the end of surgery massive choroidal hemorrhage was found.

Results: Day one postoperative the visual acuity was hand movement. Choroidal and vitreous hemorrhage were observed. Oral and topical steroid were administered. Three months post operative the visual acuity 20/50 and the choroidal hemorrhage was completely resolved.

Conclusions: Intraoperative awareness during vitrectomy could cause a devastating complication such as choroidal hemorrhage. Although it is one of the reversible complications of anesthesia awareness during vitrectomy, it can be resulted severe visual impairment.

Abstract No.: 200164

Comparative Analysis of Pneumatic Retinopexy with Subretinal Fluid Drainage Versus Scleral Buckling for the Management of Bullous Rhegmatogenous Retinal Detachment: A Four-Year Review

First Author: Saurabh ***DESHMUKH***
Co-Author(s): Surpriya ***HAWAIBAM****, Diva Kant* ***MISRA****, Ronel* ***SOIBAM***

Purpose: To assess the efficacy of the pneumatic retinopexy (PR) with subretinal fluid drainage (SRF) for the treatment of bullous rhegmatogenous retinal detachment (RRD) and compare it against scleral buckling (SB) over a long period of four years.

Methods: A total of 42 cases were enrolled in the study after following the strict inclusion criteria. One specific inclusion criterion was bullous RD where the retinal surface could not be reached with scleral indentation, suggesting an unsuitable candidate for cryoretinopexy and laser retinopexy. So, in these cases, PR with SRF drainage was done.

Results: This study, first of its kind in India, was done over a period of four years. Of the 42 cases, redetachment was seen in four cases, one was due to missed break and three were due to new break formation. Statistical analysis showed the efficacy of PR with SRF drainage to be equal to SB.

Conclusions: PR with SRF drainage provides a cost-effective method for treatment of bullous RRD.

Abstract No.: 200194

Comparative Study of Inverted Internal Limiting Membrane (ILM) Flap Technique Versus Conventional Internal Limiting Membrane (ILM) Peeling in Treating Large Idiopathic Macular Holes (MHs)

First Author: Izzati ***OTHMAN***
Co-Author(s): Ang ***EE LING****, Chong* ***KA LUNG***

Purpose: To compare surgical outcome of inverted internal limiting membrane (ILM) flap technique with conventional ILM peeling in treating large idiopathic macular holes (MHs).

Methods: This is a retrospective, consecutive, non-randomised comparative study of patients affected by idiopathic large macular hole (MH size >400um) treated with 23-gauge pars plana vitrectomy (PPV) with either conventional ILM peeling (n = 37, Group 1) or inverted ILM flap technique (n = 23, group 2), in our centre between August 2016 and April 2023. The main outcomes measured were the MH closure rate assessed by Spectral Domain Optical Coherence Tomography (SD OCT) and the best-corrected visual acuity (BCVA) at 3 months.

Results: We achieved macular hole closure in 22/37 cases of group 1 (64.7 %) and in 21/23 cases of group 2 (91.3%). The MH closure rate was significantly higher with the inverted ILM flap technique (p-value = 0.02). In both groups post-op BCVA (LogMAR) improved from 1.0 to 0.78 in group 1 and from 1.3 to 0.60 in group 2. Both groups had statistically significant visual improvement in post-op BCVA. The difference of amount of BCVA improvement in both groups was not statistically significant (p = 0.51).

Conclusions: Inverted ILM flap technique had better MH closure rates than the conventional ILM peeling technique for large idiopathic MHs.

Abstract No.: 200749

Comparison of 27-Gauge 20K vs. 10K Cuts Per Minute Vitrectomy Systems in Epiretinal Membrane Surgery

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Purpose: To compare the efficacy and safety of 27-gauge 20k cuts-per-minute (CPM) and 10k CPM vitrectomy systems in epiretinal membrane (ERM) surgery.

Methods: A Single-center, prospective, randomized, case-control study. Patients with idiopathic ERM were included. Patients were randomly divided into two groups and underwent ERM surgery with vitrectomy cutters with different CPMs: 20,000 (20K 27G HYPERVIT® Dual Blade Vitrectomy Probe, Alcon) and 10,000 (10K 27G Advanced ULTRAVIT® Bevel High-Speed Probe, Alcon). The primary outcome was core vitrectomy time and secondary outcomes were peripheral vitrectomy time, total operation time, change in visual acuity and macular thickness, and intra- and postoperative complications.

Results: In a total of 59 eyes, the average core vitrectomy time of the 20K groups was significantly shorter than that of the 10K group (114.3±34.5 vs. 174.2±53.9 seconds, 65.7%, $p<0.001$). The average time for peripheral vitrectomy of the 20K group was also significantly shorter than that of the 10K group (154.1±52.3 vs 206.2±81.5 seconds, 74.7%, $p=0.012$). The mean total surgical time of 20K group was 89% of that of 10K group (3.4-minute difference). There were no differences in the change of visual acuity, macular thickness, and the rates of complications between groups.

Conclusions: The 27-gauge 20k CPM system showed a faster vitreous removal than the 10k CPM system without serious complications in patients with ERM. The 27-gauge 20K system can be a more efficient option for ERM surgery than the 27-gauge 10K system. Further randomized studies are needed to reveal the efficacy and safety of 27-gauge 20K system in other vitreoretinal diseases.

Abstract No.: 200957

Comparison of Vitrectomy with PVD Induction versus Vitrectomy without PVD Induction in Cases with Endophthalmitis Post Cataract Surgery

*First Author: Hiteshi **JAIN***
*Co-Author(s): Ashok **KANAKAMEDALA**, Madhu **KUMAR***

Purpose: To report the visual outcomes of vitrectomy with and without PVD induction in endophthalmitis post cataract surgery.

Methods: This was a prospective study in 48 eyes of 48 patients with random selection in the 2 groups. In the first group, vitreous was debulked and PVD was not induced. In the 2nd group, PVD was induced at least up to the equator. The main outcome parameter was BCVA (in logmar). The post-op complications (such as NVG, retinal detachment and pthysis) and the microbiology were compared. The statistical results at 3 months were determined.

Results: Out of 48 eyes, 17 eyes (group 1) underwent vitrectomy without PVD induction and 31 (group 2) with PVD induction. The average time of presentation from cataract surgery was 19(+/- 8) days. In group 1, 2 patients developed RD at the 3-month follow-up, 2 developed severe pigment dispersion, 1 developed corneal infiltrates and one developed iris bombe. In the second group, 2 patients had iris bombe, 3 had NVG, 3 developed RD and 1 had pthysis. The mean pre-op BCVA of group 1 in logmar was 2.5143 ±0.0947 and that of group 2 was 2.2935 ±0.188. The mean post op BCVA of group 1 was 1.6847 ±0.549 and that of group 2 was 0.8932 ±0.325 which was statistically significant.

Conclusions: This study found a statistically better post operative visual outcome in the group with PVD induction. With the development of better vitrectomy systems, complete vitrectomy with PVD induction may give patients with endophthalmitis a better visual outcome.

Abstract No.: 200256

Cost Burden and Cost-Effectiveness of Rhegmatogenous Retinal Detachment Repair: A Systematic Review of Economic Evaluations

First Author: Aswen ***SRIRANGANATHAN***
Co-Author(s): Jobanpreet ***DHILLON****, Tina* ***FELFELI***

Purpose: To review the economic burden and cost-effectiveness analyses of interventions and management of rhegmatogenous retinal detachment (RRD).

Methods: A comprehensive literature search was conducted on Ovid Medline, Embase and Scopus from inception to June 2023 for articles reporting on costs and cost-effectiveness of RRD repair options. Our primary outcomes were the cost of RD adverse events and repair. Secondary outcomes were the cost-effectiveness outcomes and incremental cost-effectiveness ratios (ICER) of RRD repair procedures.

Results: A total of 39 publications met the inclusion criteria and were included in the study. Most studies were conducted in the United States (82%). In 21 studies reporting RRD as an adverse event of another condition or intervention, the mean cost of repair was $3,545±2,902, inflated to 2023 US dollars (USD). Across 17 studies assessing cost comparisons of RD interventions, the cost of the pneumatic retinopexy (PnR), pars plana vitrectomy (PPV) and scleral buckle (SB) surgery ranged from $1,062-$4,628, $5,290-$9,625, and $4,287-$7,902, respectively. Cost-effectiveness studies suggested that economic evidence alone is insufficient for making clinical treatment decisions.

Conclusions: RRD repair accounts for significant healthcare spending and resource utilization. However, indirect costs are largely understudied. Furthermore, while there is a growing interest in economic evaluations and cost-effectiveness of RD repair interventions, there remains a dearth of global cost-benefit analyses, particularly in non-westernized countries.

Abstract No.: 200607

Cost-Effective Pneumatic Retinopexy for Rhegmatogenous Retinal Detachment

First Author: Zhang ***MARS***

Purpose: Rhegmatogenous retinal detachment (RRD) is a severe vision-threatening condition. Pneumatic retinopexy (PR) and Foldable Capillary Balloon (FCB) are two treatment options, but their cost-effectiveness is not well-established.

Methods: A retrospective analysis of 27 RRD patients treated with PR between 2023-2024 was conducted. The study evaluated retinal reattachment rate, postoperative vision, complications, and cost. PR was compared with FCB in terms of surgery cost (converted from RMB to USD).

Results: PR achieved a 91.7% retinal reattachment rate with a low recurrence rate of 8.3%. Postoperative vision significantly improved. The cost for PR was approximately $600, contrasting with FCB's $2,900. PR showed fewer postoperative complications.

Conclusions: PR is a cost-effective and safe treatment for RRD, offering better economic value and similar clinical outcomes compared to FCB.

Abstract No.: 200050

Don't Miss Ocular Double-Perforation with Retained Intra-Orbital Foreign Body Even if Presenting Vision Is 6/7.5

First Author: Nurul Farhana ***MUHAMMAD ARIFFIN***

Purpose: To highlight the fact that a foreign body causing a double perforating injury of eyeball and passing through to lodge within the orbit, can present with minimal signs and symptoms and a good vision of 6/7.5.

Methods: A 59 year old gentleman suffered an injury to his right eye by a projectile while he was hammering a piece of steel. On presentation, right eye vision was 6/7.5, brisk pupil and incipient senile cataract. 2 mm conjunctival tear was seen at 3 O'clock,

4 mm away from limbus. Localised vitreous haemorrhage was seen in the inferonasal quadrant of fundus. X-ray and Computed Tomography (CT) revealed a 1.5 X 2.9 mm foreign body on the orbital side of the posterior wall of right eyeball in the inferonasal quadrant. Phacovitrectomy was performed. No intraocular foreign body was seen. Retinal perforation at inferonasal quadrant was lasered and sulfur hexafluoride gas used.

Results: Right eye post-operative un-corrected vision was 6/6 which has been maintained for the last 4 years with no side effects from the retained intra-orbital foreign body.

Conclusions: An apparently trivial external ocular injury might possibly be a perforating or double perforating injury of the eyeball with a retained foreign body within the eye or orbit. Ocular injuries caused by high velocity projectiles must always be thoroughly examined by dilated fundus examination using indirect ophthalmoscopy, X-ray orbit and CT in order not to miss the diagnosis. Metallic orbital foreign bodies may be left within the orbit without any side effects.

Abstract No.: 200179

Effective Treatment of Subhyaloid and Sub-Internal Limiting Membrane Hemorrhages Secondary to Valsalva Retinopathy in Young Adults: A Case Series on Nd:YAG Laser Membranotomy

*First Author: Yong Zheng **WAI***
*Co-Author(s): Nurhayati **ABDUL KADIR**, Wai Seng **CHIANG**, Elicia Tze Zhing **CHIENG**, Kar Yong **CHONG***

Purpose: To report the characteristics of subhyaloid & sub-internal limiting membrane (ILM) hemorrhages secondary to Valsalva retinopathy in young adults and their treatment outcomes following Nd:YAG laser membranotomy.

Methods: Retrospective case series.

Results: Three cases of subhyaloid & sub-ILM hemorrhages secondary to Valsalva retinopathy, involving patients aged 24 to 27 years, were included. The duration of symptoms ranged from 2 to 10 days before treatment. The average horizontal and vertical diameters of the subhyaloid hemorrhages were 3615 microns and 3289 microns, respectively. Pre-procedure visual acuity ranged from 6/9 to 1/60. All patients underwent Nd:YAG laser membranotomy with an average power of 79.7 mJ (range 11-185 mJ). Two weeks post-procedure, visual acuity improved to 6/9 for all patients. None of the patients developed a macular hole or retinal detachment.

Conclusions: Nd:YAG laser membranotomy is an effective procedure for treating subhyaloid & sub-ILM hemorrhages secondary to Valsalva retinopathy among young patient.

Abstract No.: 200181

Effects of Internal Limiting Membrane Peeling on Retinal Sensitivity and Macular Structure in Patients with High Myopia and Macular Disease

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Purpose: High myopia is associated with retinal and choroidal thinning, often leading to progressive atrophy and visual field defects. This study aimed to assess changes in macular structure and retinal sensitivity (RS) following vitrectomy with internal limiting membrane (ILM) peeling in patients with high myopia-associated macular disease.

Methods: A retrospective analysis included patients who underwent vitrectomy with ILM peeling for epiretinal membrane (ERM), macular hole (MH), or macular retinal schisis (MRS) associated with high myopia. RS was evaluated using an MP3 microperimeter, and macular structure was assessed using optical coherence tomography. Pre- and post-operative visual acuity, RS, and ganglion cell complex (GCC) thickness were compared, considering axial length correlations.

Results: Thirty-six eyes (ERM: 13, MH: 14, MRS: 9) were analyzed. The mean axial lengths (mm) were 27.7±1.1 for ERMs, 28.6±1.9 for MHs, and 29.9±1.2 for MRSs. MHs and ERMs

showed improved visual acuity at 12 months (p<0.001). RS in the temporal macula region was significantly reduced in ERMs(p<0.05) and MHs(p<0.01) postoperatively. Micro-scotomas (<10 dB) appeared in 78% of MRSs, 31% of ERMs, and 21% of MHs at 12 months. Pre- and post-operative RS showed a negative correlation with axial length, and central and nasal RS were highly correlated with post-operative visual acuity. There was also significant GCC thinning in all areas postoperatively.

Conclusions: ILM peeling in high myopia minimally affects overall RS but carries a risk of micro-scotoma formation and significant GCC thinning, similar to glaucoma patients. Longer axial length correlates with greater postoperative RS loss and visual function impairment.

Abstract No.: 200562

Epiretinal Membrane and ILM Peeling for Stage 2 and 3 ERMs with Intact Outer Retinal Layers: Visual Outcome and Role of Cone Length as Prognostic Factor

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Purpose: To evaluate visual outcome following ERM surgery in stage 2 and 3 ERMs with intact ORLs and to assess the prognostic role of preoperative CFT and cone length.

Methods: We retrospectively reviewed clinical data and OCT scans of all consecutive stage 2 and 3 idiopathic ERM eyes operated by single surgeon in last 4 years. Eyes with Stage 4 ERM or discontinuity in ORLs, those with axial length>25mm, macular diseases, trauma, follow-up duration< 6wks, those who were phakic after surgery were excluded. Change in BCVA was correlated with change in CFT and CL at final follow up. Change in ERM staging was correlated with change in CFT, CL and visual gains.

Results: 59 eyes with mean logMAR BCVA of 0.54(±0.47), mean CFT of 368.45µm(±78.59), mean CL of 238.85µm(±49.36) and mean follow up of 367(±358) days were included. Mean gain in log MAR BCVA was 0.31 (±0.20), mean reduction in CFT and CL was 61.6µm(±73.4) and 25.2 µm(±45.7), respectively. 36(61.0%) eyes had stage 2 ERM preoperatively and 23(38.9%) eyes had stage 3 ERM. Improvement in ERM stage was significantly (P=0.023) associated with reduction in CFT but not to visual gain or reduction in CL.

Conclusions: We found that surgery for Stage 2 and 3 ERMs with intact retinal layers leads to significant visual gain. Improvement in ERM stage was seen in 37.3% eyes but visual gains were not significantly associated with change in ERM staging following surgery. This indicates that cone elongation with intact ORLs may not preclude good visual recovery in these ERMs.

Abstract No.: 200818

Evaluating the Impact of Macular Hole Indices on Anatomical Success Rates in Idiopathic Macular Hole Surgery: A Cohort Study

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Purpose: To evaluate the impact of various macular hole indices on the anatomical success rates of idiopathic macular hole surgery.

Methods: A retrospective cohort study was conducted involving patients who underwent idiopathic macular hole surgery between January 2021 and May 2024. Preoperative macular hole indices, including base linear diameter (BLD), hole height (HH), minimum linear diameter (MLD), macular hole index (MHI), tractional hole index (THI), and diameter hole index (DHI), were measured using spectral-domain optical coherence tomography (SD-OCT). Surgical success was defined as type 1 and type 2 anatomical closure of the macular hole, confirmed by SD-OCT imaging one month postoperatively. Statistical analyses assessed the correlation between preoperative indices and anatomical outcomes.

Results: A total of 29 patients (30 eyes) were included. The overall anatomical closure rate was 86.7%. Significant associations were found between MLD and anatomical closure (p = 0.033). However, the type of macular hole (p = 0.577), BLD (p = 0.329), HH (p = 0.483), MHI (p = 0.1), DHI (p = 0.272), and THI (p = 0.067) did not correlate with the anatomical closure rates. Multivariate regression analysis revealed that smaller MLD (<771.5 μm) (p = 0.005) and higher THI (>0.645) (p = 0.044) were significantly associated with increased rates of successful anatomical closure.

Conclusions: The study indicates that a smaller MLD and a higher THI are notably predictive of successful outcomes. Future studies are warranted to validate these findings and refine predictive models for clinical application.

Abstract No.: 200901

Evaluation of Morphological Characteristics of Fovea-Involving Rhegmatogenous Retinal Detachment Before and After Surgery Using Ultrawide Field Swept-Source Optical Coherence Tomography

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Co-Author(s): Tai Yong ***LOH****, Pavan Sai Ranganath* ***PANIHARAM VENKATA****, Sandy Wenting* ***ZHOU***

Purpose: To describe the morphological characteristics in patients with fovea-involving rhegmatogenous retinal detachment (RRD) preoperatively and postoperatively using ultrawide field swept source optical coherence tomography (UWF SS-OCT) and evaluate the prognostic value of different characteristics in postoperative visual outcome.

Methods: This is a prospective longitudinal observational study. Consecutive patients with primarily fovea-involving RRD were included. All patients underwent UWF SS-OCT using 36 radial line scanning patterns at baseline and postoperative visits. Exclusion criteria included visual loss over 3 months, previous vitrectomy, or other retinal pathologies like macular hole. Features such as subretinal fluid height at the fovea, outer retinal corrugation, and ellipsoid zone (EZ) disruption were evaluated preoperatively and postoperatively.

Results: Five patients were included. One underwent primary scleral buckle, and four underwent vitrectomies. Increased preoperative subretinal fluid height over the fovea was associated with worse visual acuity at baseline but did not impact postoperative visual acuity directly. Reduction of subretinal fluid was well observed in a wider field of view postoperatively after scleral buckle. Persistent fluid did not negatively affect visual outcome. Subretinal fluid outside the fovea might resolve over months. Outer retinal corrugation preoperatively and EZ disruption postoperatively were poor prognostic factors for final visual outcome.

Conclusions: UWF SS-OCT provides comprehensive assessment of RRD characteristics preoperatively and postoperatively, allowing for a larger field of view and increased depth. Subretinal fluid resolves gradually without adverse effects following scleral buckle surgery. Preoperative outer retinal corrugation and EZ disruption were linked to poorer visual outcomes.

Abstract No.: 200827

Evaluation of Tilt and Decentration of Intraocular Lens after Combined Vitrectomy and Femtosecond Laser-Assisted Cataract Surgery

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Purpose: Instability of intraocular lenses (IOL) in the early postoperative period has been reported following combined cataract and vitreous surgery with gas. Capsulotomy plays a crucial role in determining the final position and stability of the IOL. Femtosecond laser-assisted cataract surgery (FLACS) provides an optimal capsulotomy. Here, we investigated whether FLACS could enhance the stability of the IOL after combined surgery.

Methods: We retrospectively examined 156 eyes that underwent combined surgery by experienced surgeons. All cases included either complete manual continuous curvilinear capsulorhexis (CCC) or capsulotomy with FLACS, and the insertion of a 7mm IOL. Using swept-source anterior segment optical coherence tomography, we measured IOL decentration length (mm), IOL tilt (degrees), central corneal thickness (CCT), and anterior chamber depth (ACD) preoperatively and at 1 and 7 days, and 1, 3, 6, and 12 months postoperatively.

Results: Of the 156 eyes, 57 underwent surgery with FLACS. Eyes with gas tamponade showed fewer surgery-induced changes in the ACD but more changes in IOL tilt and decentration in the early postoperative period. There were no significant differences in surgery-induced changes between eyes with and without FLACS.

Conclusions: Our results indicate that capsulotomy with FLACS did not improve IOL tilt and decentration when a 7mm IOL was placed in the bag with complete CCC.

Abstract No.: 201028
Exudative Retinal Detachment Following Pars Plana Vitrectomy for Proliferative Diabetic Retinopathy

*First Author: Byung Gil **MOON***
*Co-Author(s): Youna **KIM**, Jae Hoon **LEE**, Hyun Seung **YANG***

Purpose: To report a case of exudative macular detachment after simple vitrectomy for proliferative diabetic retinopathy.

Methods: Case report using multimodal images over time.

Results: Fifty one-year-old man with type 2 diabetes mellitus underwent uncomplicated 25-gauge pars plana vitrectomy for simple vitreous hemorrhage caused by proliferative diabetic retinopathy. After core vitrectomy, we perfomed posterior hyaloid membrane peeling with triamcinolone-acetonide staining, endolaser photocoagulation, and intravitreal bevacizumab injection in his right eye. On the second postoperative day, he complained severe visual loss. Fundus and optical coherence tomography examination revealed excessive macular subretinal fluid without evidence of retinal breaks. We diagnosed with exudative macular detachment, and treated with regional corticosteroids, cycloplegics, oral diuretics and additional bevacizumab injection. After the treatment, subretinal fluid was absorbed and visual acuity was recovered gradually for one month.

Conclusions: Exudative macular detachment is rare complication after simple vitrectomy for proliferative diabetic retinopathy patient. However, this condition must be differentiated from rhegmatogenous retinal detachment, central serous chorioretinopathy and pachychoroid spectrum diseases for appropriate management.

Abstract No.: 200923
FoLSa Vitrectomy: Minimizing Endoilluminator Phototoxicity in Epiretinal Membrane Surgery

*First Author: Junghoo **LEE***
*Co-Author(s): Hae Rang **KIM**, Ji Hun **SONG**, Taekyoung **WOO***

Purpose: To describe a novel foveal light-saving (FoLSa) vitrectomy technique for epiretinal membrane (ERM) removal and report its clinical outcomes.

Methods: In this retrospective comparative case series, 130 eyes from 130 patients underwent vitrectomy for ERM removal. The sample included 35 eyes treated with standard vitrectomy (group 1) and 95 eyes treated with FoLSa vitrectomy (group 2). The FoLSa vitrectomy technique involves adjusting the direction and proximity of the endoilluminator to the macula during the procedure. Best corrected visual acuity (BCVA) and central macular thickness (CMT) were analyzed using a random-effect mixed model(minimum follow-up, 6 months)

Results: A significant difference in LogMAR BCVA was observed between the two groups over the 6-month period (p=0.004). Group 2

showed an improvement in LogMAR BCVA by -0.1 (least-squares mean difference; p=0.030) at 3 and 6 months compared to group 1. There was no significant difference in CMT over the 6-month period (p=0.639).

Conclusions: The FoLSa vitrectomy technique is simple and effective, reducing the risk of endoilluminator phototoxicity while providing favorable surgical outcomes.

Abstract No.: 201033

Frosted Branch Angiitis in a Post-Traumatic Endophthalmitis with Ocular Injury and Retained Intraocular Metallic Foreign Body

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*Co-Author(s): Ivan **OLAIVAR**, Miajann **PRECIA**, Frances Abigail **TESORO***

Purpose: To present a case of a patient presenting with frosted branch angiitis in the setting of endophthalmitis following an intraocular foreign body injury.

Methods: Case Report

Results: A 57-year-old male presented with sudden vision loss, pain, and bleeding due to ocular trauma with a metallic foreign body. Past medical and ocular histories were unremarkable. Initial assessment revealed visual acuity of 5/200, with 2 mm vertical scleral laceration nasally and an anterior chamber inflammatory reaction. Posterior segment examination revealed mild vitritis, vitreous hemorrhage inferiorly, and retinal commotio. A cranial CT scan revealed an intraocular metallic foreign body. The patient was managed with topical antibiotics, steroids, and cycloplegics, alongside the initiation of intravenous antibiotic therapy.,,On the morning prior to surgery, the visual acuity deteriorated further to light perception, with no view of the posterior pole. Intraoperatively, severe vitritis, fibrous tissue encapsulation, inferior rhegmatogenous retinal detachment, and perivascular sheathing of retinal vessels in all quadrants were observed. Vitrectomy with endolaser treatment and silicone oil injection were performed, followed by postoperative oral steroid therapy. Subsequent follow-up demonstrated gradual resolution of the perivascular sheathing of retinal vessels. Three weeks post-surgery, the patient's visual acuity had improved to counting fingers.

Conclusions: This case highlights the diagnostic and therapeutic challenges posed by the rare occurrence of FBA in endophthalmitis with an intraocular foreign body. Early recognition and aggressive management of surgical and pharmacological intervention are crucial to prevent sight-threatening consequences.

Abstract No.: 201132

Fundus Autofluorescence and Optical Coherence Tomography Changes After Successful Retinal Detachment Repair Cases: An Observational Study in a Tertiary Centre

*First Author: Marium **AHMAD***
*Co-Author(s): Tengku Ain Fathlun **TENGKU KAMALDEN***

Purpose: This is an observational study looking into 28 eyes which have been successfully treated for retinal detachment. Postoperatively patients undergo optical coherence tomography and fundus autofluorescence.

Methods: This is an observational study of 28 eyes of 28 patients presenting to a tertiary centre in Kuala Lumpur from the year 2021 until 2024. All patients had undergone intervention for rhegmatogenous retinal detachment (RRD). Patients were between the ages of 21 to 81 years old. All patients underwent optical coherence tomography (OCT) of the macula and fundus autofluorescence (AF).

Results: A total of 28 eyes were analysed with a mean age of 54 years. 7 patients with macular-on RRD and 20 with macular-off RRD were included. All cases with macula-off RRD showed changes in OCT and only one patient in that group had no detectable AF changes. Two patients in the macular-on group showed no OCT or AF changes, 5 patients had improvement in vision post-operatively while another two patients retained their initial vision.

Conclusions: Various changes can be observed using AF and OCT despite vision improvement post-RRD repair surgery.

Abstract No.: 200533

Hope Not Lost – Eur(etin)ka Moment

*First Author: Divyalakshmi **SURYA***

Purpose: To report a case of successful visual rehabilitation of a prephthisical eye.

Methods: 48-year-old female presented with c/o diminution of vision in Left Eye (LE) since more than a year with no other significant systemic history. O/E LE showed sensory exotropia, BCVA PL+ PR inaccurate, anterior chamber flare with no cells, broken posterior synechiae, pigment clumps over anterior capsule of lens. Dense posterior subcapsular cataract noted with yellow fundal glow. Dense retrolenticular membrane was noted on retroillumination. B-scan confirmed presence of thick retrolental membrane with dense vitreous echoes. Retinochoroidal thickening was 1.5. IOP by GAT was 6mm Hg. Inflammatory workup was done which was inconclusive. MRI was done to rule out masquerades. LE phaco vitrectomy was planned under steroid cover.

Results: Intraoperative anterior chamber stability was fluctuant due to hypotonus globe. Vitrectomy was challenging due to the presence of dense retrolenticular membrane which was seen to be extending to mid vitreous. Careful vitrectomy was carried out to prevent inadverdent collateral damage. Finally, a faint retinal glow was visible–A EUREKA moment indeed–which facilitated further vitrectomy including truncation of cone. Flat posterior pole traction was noted with bleeders along inferotemporal arcade secondary to old Central retinal vein occlusion. Hemostasis was achieved and endolaser completed. Closure was done by fuild gas exchange. Post-operative phase was uneventful under steroid coverage. BCVA at 1-month follow-up was 6/12.

Conclusions: Successful visual rehabilitation is still possible in a prephthisical eye and one should not give up hope.

Abstract No.: 200886

How Common Is Pre-Existing Posterior Vitreous Detachment in Vitreoretinal Surgeries?

*First Author: Joy **SEE LEUNG***

Purpose: Posterior vitreous detachment (PVD) induction is an essential, yet risky procedure in any vitreoretinal surgery. Pre-operative assessment of completeness of PVD allows the surgeon to plan for the surgery and explain risks to patients appropriately.

Methods: This was a retrospective study of cases done by a single surgeon from July 2023 to July 2024. Only cases of primary vitrectomy were included. Pre-operative assessment of presence of PVD was made by the surgeon using clinical exam (indirect ophthalmoscopy and slit-lamp biomicroscopy). It was compared with intra-operative finding of PVD. Potential factors that associated with its presence were explored.

Results: A total of 106 cases were included. 75 cases were operated for floaters, 23 for epiretinal membrane, 3 for vitreous haemorrhage, 2 for retinal detachment, 1 for macular hole and 1 for asteroids. PVD was observed preoperatively in 88 (83.8%) of the cases, and intraoperatively, was found in 92 (87.6%) of them. The sensitivity of clinical diagnosis of presence of PVD was 91.3%. Only 4 (4.5%) cases that were labelled 'PVD-present' pre-operatively, eventually needed PVD induction during surgery ($p < 0.01$). There was no significant difference in need for PVD induction in phakic and pseudophakic patients ($p=0.12$), and across ages ($p=0.57$).

Conclusions: In summary, PVD was present in majority of the cases which reduced the need for risky PVD induction. Pre-operative clinical assessment to detect presence of PVD was a reliable method to detect the need for PVD-induction.

Abstract No.: 201059

Insidious Intraocular Foreign Body Following an Open Globe Injury – A Case Report

*First Author: Calista **GUNAWAN***
*Co-Author(s): Mario Marbungaran **HUTAPEA***

Purpose: Intraocular foreign body (IOFB) is an emergency where such condition requires a prompt diagnosis and treatment. Conforming the presence of a retained IOFB is necessary in establishing the proper management. However, it is difficult in some cases to identify IOFB through slit lamp examination, and therefore it is important to utilize radiologic imaging in those cases. We present a case of a conjunctival laceration with hidden IOFB embedded deep into the sclera.

Methods: A 26 year-old male presented to our ER with redness of his right eye since 3 days before. Prior to the incident, patient's right eye was hit by a shrapnel. Patient admitted that there were no shrapnels embedded. Visual acuity was 20/20, with normal IOP. Slit lamp examination showed conjunctival laceration size 2.8 mm at 9 o'clock. Anterior chamber showed no inflamation, pupil was round, with clear vitreous. No IOFB was visible. Other examination was within normal limits.

Results: Patient was diagnosed with conjunctival laceration and was planned to be discharged with topical medication. No imaging was planned. But due to the routine procedure for trauma in the ER, orbital x-ray was performed. Apparently an IOFB was found embedded at the temporal sclera of RE. Orbital ct-scan was performed followed by surgical procedure to extract the IOFB.

Conclusions: IOFB in open globe injury cases are common, though not always visible during slit lamp examination. Given the notable incidence of open globe injury, orbital imaging is highly suggested in identifiying IOFB to provide proper diagnosis and treatment.

Abstract No.: 200510

Intraocular Pressure (IOP) control - CONSTELLATION® Vision System's vs. DORC® Eva (25G)

*First Author: Martin **CHARLES***
*Co-Author(s): Carrie **GARUFIS**, Brian **MCDONELL**, Kevin **PHAN**, Vara **WUYYURU**, Ying **ZHU***

Purpose: This study quantifies intraocular pressure (IOP) performance during simulated vitrectomy using 25G vitrectomy probes under varying vacuum settings. It compares CONSTELLATION® Vision System's IOP CONTROL with HYPERVIT probes against DORC EVA's Automatic Infusion Compensation (AIC) with 25G TDC cutters.

Methods: Using a hollow acrylic eye model, six HYPERVIT 25G 20K cutters were tested on CONSTELLATION with IOP settings ON and OFF. Additionally, six high-speed 25G TDC vit-cutters (16K) on DORC EVA were evaluated with AIC ON (adjusted to maintain BSS IOP at 30mmHg) and OFF under vacuum mode (250mmHg, 450mmHg, 650mmHg). IOP values were recorded before and during aspiration, repeated thrice per probe.

Results: Without IOP compensation, HYPERVIT probes showed average vitreous IOP ranging from 27.09±0.46 mmHg to 19.25±2.39 mmHg, and TDC probes from 26.01±0.37 mmHg to 12.42±1.24 mmHg across vacuum levels. With IOP compensation (AIC and IOP Control), HYPERVIT probes maintained target IOP (27.5-32.5 mmHg) 93%, 74%, and 63% of the time at 250mmHg, 450mmHg, and 650mmHg, respectively. TDC probes achieved this only 16%, 17%, and 23% of the time under similar conditions.

Conclusions: CONSTELLATION's IOP control feature effectively compensates for IOP fluctuations during vitreous removal, ensuring stable IOP independent of system settings and fluid dynamics. In comparison, the manual infusion pressure adjustments required by DORC EVA's AIC feature during vacuum mode pose operational challenges and may not adapt well to dynamic surgical scenarios.

Abstract No.: 200767

Intrusive Eye Invaders: Key Traits and Prognostic Factors Impacting Vision Recovery of Intraocular Foreign Body

First Author: Shew Fei ***CHEE***
Co-Author(s): Zunaina ***EMBONG****, Kwang Sheng* ***NG****, Daniel* ***PHANG***

Purpose: To review the clinical characteristics and to determine the prognostic factors affecting visual outcomes of intraocular foreign body (IOFB)

Methods: A total of 82 patients with IOFB from January 2019 to January 2024 were identified and retrospectively reviewed. The pre-and postoperative visual acuity, mechanism of trauma, IOFB material, and size of the foreign body, entry site, time from trauma to surgical removal, IOFB location, associated ocular findings, and complications were recorded. Univariate and multivariate analyses were performed to evaluate the prognostic factors.

Results: The majority of patients (97.6%) were men, with a mean age of 35.5 years old. The most common cause of ocular injury was hammering metal (36.6%). The nature of IOFB's material was mainly metal (75.6%). Factors associated with poor visual outcome (defined as > 1.3 logMAR) were IOFB located at the posterior pole (p=0.040); the size of IOFB (p=0.007); complications of retinal detachment (p=0.014) and endophthalmitis (p=0.015). Good visual outcome (defined as < 0.5 logMAR) was associated with good initial visual acuity (p=0.003) and absence of vitreous haemorrhage (p=0.042).

Conclusions: The overall prognosis for IOFB injuries tends to be unfavourable due to a complex interplay of factors. Timely surgical intervention is crucial to mitigate further deterioration and prevent complications.

Abstract No.: 201012

Inverted Internal Limiting Membrane Flap Technique and ILM Peeling for Large Macular Hole Surgery

First Author: Nusrat ***NIZAM***

Purpose: The objective of this study is to evaluate the effectiveness of the inverted internal limiting membrane (ILM) flap technique compared to conventional ILM peeling in repairing macular tears exceeding 600 microns in size.

Methods: This was a longitudinal non-experimental investigation with 20 patients in two cohort 10 patients of each group. Condition I contained subjects who received the flipped (ILM) patch technique, whereas arm II comprised participants who received conventional ILM excision for the management of large macular holes (MH) with a size of 400 microns. Optical coherence tomography (OCT) was obtained preoperatively after the procedure and repeatedly three months after the surgery.

Results: Average age was 41.4 years in Group 1 and 45.5 years in Group 2. Group 2 had higher prevalence of diabetes (40%) than Group 1 (20%), hypertension (50%) of Group 2 patients, while only 30% in Group 1. Before surgery, average vision scores were similar in both groups (1.39 and 1.44). However, at the 3-month follow-up, Group 1 demonstrated significantly better vision improvement (0.50) than Group 2 (0.46). All patients had macular holes before surgery. While surgery achieved complete closure in all Group 1 patients, only 80% in Group 2 experienced complete closure. However, this difference was not statistically significant. Post-surgery, the formation of epiretinal membranes occurred in 10% of Group 1 patients and 20% of Group 2 patients.

Conclusions: This study demonstrated that inverting the internal limiting membrane (ILM) flap led to a notably better surgical success rate for macular holes (MH) compared to peeling the ILM.

Abstract No.: 200302

Iris Diaphragm Intra-Ocular Lens Implantation in Traumatic Aniridia: A Case Series

*First Author: Saurabh **DESHMUKH***
*Co-Author(s): Surpriya **HAWAIBAM**, Diva Kant **MISRA**, Ronel **SOIBAM***

Purpose: To analyse the management outcomes of Iris Diaphragm Intra-Ocular Lens Implantation in patients with Traumatic Aniridia.

Methods: Patients with traumatic aniridia who underwent Iris Diaphragm Intra-Ocular Lens Implantation at our institution between 2015 and 2021 were included. Uncorrected visual acuity (UCVA), manifest refraction, best-corrected visual acuity (BCVA) and intraocular pressure were evaluated before and 6 months surgery until the last visit. Intra- and postoperative complications were noted.

Results: Our series comprised 13 patients (10 males) with traumatic aniridia. Ocular parameters, refractive status, and vison were all significantly improved at the last follow-up compared to the preoperative values. All patients reported a significant decrease in photophobia and glare. Postoperatively, 2 eyes achieved BCVA of 6/6. At the last follow-up, BCVA increased to better than 6/36 in 10 eyes. Intraoperative complications included ciliary sulcus bleed in 2 eyes and haptic break in 1 case. Postoperative complications included persistent inflammation in 9 eyes, IOP rise in 5 eyes and anterior chamber hyphema in 4 eyes.

Conclusions: The scleral fixation of brown iris diaphragm IOL seems to be a good option for the management of traumatic aniridia and aphakia. Although, secondary glaucoma and reduced visibility of peripheral fundus are still a concern, our experience with the colored diaphragm lens has been rewarding in terms of visual and aesthetic rehabilitation.

Abstract No.: 200414

Learnings from HEGLU: Mid-Term Results of a Pilot Randomized Controlled Trial Evaluating Hemostasis with Glue During Surgery for Proliferative Diabetic Retinopathy (PDR)

*First Author: Brijesh **TAKKAR***
*Co-Author(s): Vivek **DAVE**, Manasi Raj **KETKAR**, Ritesh **NARULA**, Mudit **TYAGI***

Purpose: We present the safety and efficacy of fibrin glue in preventing early rebleeds following surgery for PDR.

Methods: Hemostasis with fibrin glue (HEGLU) is a single-masked open-label randomized control trial. Consecutive eyes operated for PDR sequalae were screened prospectively during surgery. Bleeders at the macula and the optic nerve head were identified at infusion pressure of 5 mmHg and were treated with fibrin glue application additionally as compared to controls. Media haze at weeks 1 and 4 was the main outcome measure. Macular membrane at 3 months was the main safety outcome measure.

Results: Findings of first 10 participants are presented. Cases and controls (5 each) had similar mean age (58.4 vs. 55.2 years), frequency of fibrous proliferation (4 each) and pre-operative retinal photocoagulation (all participants). Antiplatelet usage (3 vs. 4), mean systolic (158.4 vs 148 mm Hg) and diastolic (87.8 vs 84.4 mm Hg) operating room blood pressures were similar. Surgical complexity measured as mean surgery duration (54 vs. 60 minutes), usage of ancillary instruments (4 vs. 3) and mean number of bleeders (1.6 each) was also similar.,Mean grade of media haze was higher in controls than cases at week 1 (3 vs. 0.6, p=0.0249) and week 4 (2.2 vs. 0, p=0.0432). Repeat eye surgery was needed in 3/5 controls and no control. Macular membranes were absent in cases at 3 months.

Conclusions: Mid-term findings of HEGLU indicate fibrin glue to be a safe and efficacious adjunct in controlling bleeding from the posterior pole during and following surgery for PDR.

Abstract No.: 200678

Leucocoria Unveiled: Navigating Diagnostic Dilemmas in a Five-Year-Old Girl

*First Author: Rahimie **HANAFI***
*Co-Author(s): Liza Sharmini **AHMAD TAJUDIN**, Nur Amalina **SAIDI***

Purpose: To report a case of Coats disease with Neovascular Glaucoma in a 5 year old patient

Methods: Case Report

Results: We report a unique case of a 5-year-old girl, previously healthy, presented with right eye redness and leukocoria, Initial examination revealed myriad of findings such as reverse relative afferent pupillary defect, fixed dilated pupil, hyphema and elevated intraocular pressure. Contrast Enhanced CT scan showed suggestive features of Persistent fetal vasculature (PFV) with calcification and vitreous haemorrhage, excluding the retinoblastoma as one of the differentials. Surgical intervention was performed and revealed closed funnel exudative retinal detachment with vitreous haemorrhage with no evidence of PFV. The diagnosis subsequently revised to Coats disease with Neovascular Glaucoma.

Conclusions: This case underscores the diagnostic challenges and intricate management strategies in paediatric patients presenting with leukocoria, emphasizing the importance of meticulous evaluation and multidisciplinary collaboration in optimizing patient outcomes.

Abstract No.: 200329

Macular Hole Closure Patterns after Macular Hole Retinal Detachment Surgery in Highly Myopic Eyes

*First Author: Yen-ting **CHEN***
*Co-Author(s): Chi-chun **LAI**, Wei-chi **WU***

Purpose: This study aims to investigate the association between risk factors and poor retinal layer reconstitution using the classification of macular hole closure patterns (MHCPs) in highly myopic eyes following vitrectomy for macular hole retinal detachment (MHRD).

Methods: A retrospective chart review was conducted on highly myopic MHRD cases with axial length greater than 26.5 mm, treated with primary vitrectomy between 2013 and 2021. The classification of MHCPs was as follows: Type 0 are open macular holes (MHs); Type 1 are closed MHs with some reconstitution of the banded anatomy; Type 2 are closed MHs with filling tissue interrupting the normal foveal layered anatomy. Data on patient demographics, surgical techniques, ocular characteristics, postoperative outcomes, and MHCPs were collected.

Results: A total of 90 eyes were analyzed. Patients with Type 0 and 2 MHCPs exhibited worse visual acuity compared to Type 1 MHCPs (1.18 ± 0.48 vs. 0.63 ± 0.36, $P<0.001$). Binary logistic regression analysis showed that extramacular drainage of subretinal fluid (OR=0.149, P=0.024), a dome-shaped macula (OR=0.064, P=0.040), and a thicker initial central subfield thickness (OR=0.986, P=0.007) were protective factors against Type 0 and 2 MHCPs. Type 3 MHRD cases were also associated with Type 0 and 2 MHCPs. (P=0.04)

Conclusions: Poor retinal layer reconstitution following vitrectomy for MHRD, as characterized by Type 0 and 2 MHCPs, leads to compromised visual outcomes. To mitigate the risk of such poor outcomes, it is recommended to perform an extramacular drainage of subretinal fluid during surgery.

Abstract No.: 200872

Managing Scleral Laceration with Intraocular Foreign Body Removal Using the 3D Visualization System

*First Author: Rochele **PILONES***
*Co-Author(s): Siopongcol **PAUL GABRIEL***

Purpose: To demonstrate the utility of the 3D Visualization system in an already difficult case of intraocular foreign body removal (IOFB).

Methods: Surgical Case Report

Results: A young male came in due to left eye trauma from an industrial injury when the nail chipped off and hit his eye. He sustained

a scleral laceration and vitreous hemorrhage. Visual acuity at that time was hand motion. On B-scan, there was suspicious intraocular foreign body.,Surgery was performed under local anesthesia, using the 3D visualization system. This showcased the anterior to posterior capability of the system from wound closure, lensectomy to the removal of the IOFB. Intra-operatively, there were 3 separate retinal breaks. The metallic foreign body appears to have ricocheted inside the eye. The IOFB was observed to be suspended in the posterior vitreous. The IOFB was anteriorized and exteriorized via the limbal approach using an intraocular magnet. The retinal breaks were lasered and silicone oil was used as tamponade.,The scleral laceration was noted to be around 2mm x 3mm which corresponds to the size of the metallic foreign body. The IOFB was the chipped nail head. The visual acuity of the patient improved to 20/25 and the retina remains to be attached 3 months post-operatively.

Conclusions: Prompt closure of the scleral laceration and removal of the metallic intraocular foreign body is key in ocular trauma with IOFB. This decreases the chance for infection and metallosis. The use of 3D visualization system allows for better visibility, safer light exposure and less microscope adjustment.

Abstract No.: 200643
Nightmare Alley

*First Author: Apurva **MUKADAM***
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Purpose: To showcase a series of retinal complications encountered following macular hole surgery.

Methods: Retrospective review of cases involving complications such as accidental sub-retinal dye injection, dislodged soft tip incident, choroidal neovascular membrane (CNVM) formation following Temporal flap technique and accidental macular injury.

Results: Insights gained from each case which include the causes of these complications and effective preventive measures to mitigate risks in future surgeries.

Conclusions: The series of encounters here reflects the recollections of a vitreoretinal surgeon involving macular hole. With each incident, we gain insights into effective management and preventive measures for similar occurrences.

Abstract No.: 200922
OCT-Based Prognostic Factors Affecting Macular Hole Closure

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Purpose: This study aimed to assess the anatomical parameters as determined by optical coherence tomography (OCT) and the visual outcome of patients undergoing Macular hole (MH) surgery.

Methods: A retrospective analysis of 24 eyes with idiopathic macular hole was done using OCT before and after MH surgery (Pars plana vitrectomy with internal limiting membrane peeling with perfluoropropane (C3F8) gas injection). Patients pre and post operative best corrected visual acuity (BCVA) and OCT parameters such as Minimum hole diameter, Base diameter, Left and right arm length were assessed at first and last visit. Eyes were categorised based on Hole form factor(HFF) into three groups: HFF < 0.5, HFF between 0.5-0.9 and HFF> 0.9.

Results: A total of 24 eyes of 22 patients were assessed. Their mean age was 65.12 years. Mean pre and postoperative BCVA based on LogMAR was 0.99 & 0.46 respectively. The closure of MH based on HFF was assessed and found to be 100% (n=7) in >0.9 group, 92.80% (n=14) in 0.5-0.9 group and no hole closure (n=3) was seen in < 0.5 group. So Macular holes with an HFF > 0.5 had both higher success rate for anatomical closure and better visual outcomes following MH surgery.

Conclusions: Preoperative macular hole parameters on OCT can be predictive factors for anatomical closure postoperatively and can also be used as a prognostic factors for counselling the patients.

Abstract No.: 200675
Ocular Siderosis with Total Retinal Detachment Secondary to Missed Intraocular Foreign Body: A Case Report

First Author: Daniel Jose ***MENDOZA***
Co-Author(s): Jose Timothy ***CHUA****, Justine* ***MAY*** *R.* ***TORREGOSA****, Carlo* ***NASOL****, Alex* ***SEE SUA***

Purpose: To highlight the possible consequences of missed intraocular foreign body (IOFB) such as ocular siderosis and retinal detachment.

Methods: We report a case of 36-year-old male who came for consult due to gradual blurring of vision of the right eye. The patient recalled a history of eye trauma to the right eye 1 year prior to consultation. 4 months after the incident, the patient experienced mild redness and pain of the right eye which resolved after being given an unrecalled eyedrops by a private ophthalmologist. Subsequently, the patient noted gradual blurring of vision. Progression of symptoms prompted consult approximately 1 year post eye trauma.,Ophthalmologic examination of the right eye revealed visual acuity of light perception, an intraocular pressure of 12 mmhg, signs of siderosis and mild lens opacity. Dilated fundus exam showed vitritis with closed funnel retinal detachment and a suspicious intraocular foreign body lodged at the inferior vitreous. B-scan ultrasonography was done to confirm presence of IOFB.

Results: The patient underwent staged Phacoemulsification with PCIOL then Pars plana Vitrectomy, removal of intraocular foreign body, membrane peeling and silicon oil injection of the right eye. Vitreous sample was sent for cytopathology which revealed hemosiderosis.

Conclusions: The implications of missed IOFBs cannot be understated, as they can lead to irreversible damages. Thorough initial assessment and is of critical importance in cases of ocular trauma especially in the milder ones. Ophthalmologists must maintain a high index of suspicion to promptly identify and manage IOFBs, thereby safeguarding the precious gift of sight for affected individuals.

Abstract No.: 201113
Ocular Toxocariasis Managed with Scleral Buckling and Vitrectomy: A Case Report

First Author: John Vyle ***PASCARAN***
Co-Author(s): Ronaldo ***JARIN***

Purpose: To present a case of presumed bilateral ocular toxocariasis that underwent surgical intervention in one eye.

Methods: Case Report.

Results: This is a case of a 44-year-old Filipino male with a known history of acquired immunodeficiency syndrome secondary to HIV, who is maintained on antiretroviral therapy. The patient had a 1-year history of progressive blurring of vision in the right eye. In the interim, blurring of vision also developed in the left eye prompting consult. On physical examination, the visual acuity for the right eye was good light perception and 20/400 for the left eye. The anterior segment was normal except for a beginning nuclear opacity for both eyes. The posterior segment examination revealed a funnel-shaped total retinal detachment of the right eye with a large retinal tear noted inferiorly. The left eye had a dense tractional membrane extending from a peripheral granulomatous lesion to the optic nerve, with inferior dragging of the macula. Laboratory work-up revealed significant eosinophilia. A clinical diagnosis of presumed bilateral ocular toxocariasis was made. The patient subsequently underwent phacoemulsification, scleral buckling, pars plana vitrectomy, membrane peeling, endolaser, and gas tamponade on the left eye. Only a part of the membrane was successfully peeled, revealing extensive subretinal fibrosis involving the inferior macula and retinal periphery. Visual acuity improved to 20/200 3 months post-

operatively, with improved independence in daily activities.

Conclusions: Surgical intervention is a viable treatment option for ocular toxocariasis. Pre-operative visual acuity and the degree of macular involvement remains the most important prognostic factors for post-operative success.

Abstract No.: 200584
Outcomes and Insights from Management of Refractory Myopic Macular Holes

*First Author: Nishant **RADKE***
*Co-Author(s): Miaoli **LIN**, Zhizhao **PENG**, Snehal Nishant **RADKE***

Purpose: To study the outcomes of surgeries for refractory myopic macular holes (MH) and highlight the insights.

Methods: Retrospective case series of 15 eyes of 14 patients with high/pathological myopia with previously failed MH surgeries. All eyes underwent 25G Re-vitrectomy with MH repair using internal limiting membrane (ILM) graft under PFCL, Pedicle or ILM inversion, MH massage, and autologous retinal/lens capsular grafts followed by endo-tamponade with perfluoro-octane gas and prone position for 2 weeks. Snellen's best corrected visual acuity (BCVA) was converted to LogMAR. Normal distribution was checked using KS test. F-test was used to assess variance and subsequently paired T-test was used to determine outcomes. Fisher's exact test/ Chi 2 test was used to evaluate nominal data. Correlation coefficients were calculated to study relationships between MH diameter (MHD)-axial length(AXL), AXL-Final BCVA, and MH Diameter-Final BCVA.

Results: Mean AXL and MHD were 28.443mm and 663.267microns. 13 eyes achieved MH closure. Male:female = 8:6. T-test p values were insignificant for differences between Male-Female AXL, MHD, pre-op BCVA, and male-female post-op BCVA. The values were statistically significant individually for paired samples of Male pre-op:post-op BCVA, female pre-op:post-op BCVA and overall pre- and post-op BCVAs. Correlation coefficients were weakly positive for MHD:AXL (r=0.109), AXL: final BCVA (r=0.193) and strongly positive for MHD:final BCVA (r=0.715). Fisher's test evaluating pathological myopic features and type of anaesthesia on outcomes were insignificant.

Conclusions: Although challenging, refractory highly myopic MH achieve satisfactory anatomical and functional outcomes. The presence of pathological myopic maculopathy and type of anesthesia did not affect the outcomes.

Abstract No.: 200143
Outcomes of Combined Phacovitrectomy Without Corneal or Scleral Suturing

*First Author: Chi Lik **AU***

Purpose: Totally sutureless phacovitrectomy surgery can eliminate the risk of on-table needlestick injury for surgeons and nurses, post-operative patient eyes' foreign body sensation and corneal stitch-related ocular complications (such as infiltrate, astigmatism etc.); and to reduce the operative suturing time and plastic wastes. We aim to evaluate the safety profile of sutureless phacovitreceomy surgery.

Methods: Vitreoretinal operative records of one single surgeon for the past 9 months were reviewed. Sutureless operations were extracted to review post-operative complications related to the lack of suture use, including surgical wound leakage, hypotony, intraocular lens (IOL) tilting and endophthalmitis rate. Patients with at least 3 months of follow-up were included. Non-combined surgeries were excluded. There was no limitation on the indications of surgery, or age of patients. Suture vs sutureless groups' complications were compared by Fisher's exact test.

Results: 62 surgeries were identified, sutureless group consisted of 32 patients (17 males, 15 females) with mean age of 65.7-year-old. Indications include 15 retinal detachment (46.9%), 6 full thickness macular hole (18.8%), 7 vitreous haemorrhage (21.9%), 3 epiretinal membrane (9.4%), and 1 lens subluxation (3.1%). 30 (93.8%) of cases were using 25-gauge

vitrectomy sclerostomies. There was no surgical wound leakage (0.0%), no hypotony (0.0%), 1 IOL tilting (3.1%), and no endophthalmitis (0.0%) detected in the sutureless group. Complications in the sutureless group were not statistically significantly higher than the suture group.

Conclusions: Totally sutureless combined phacovitrectomy surgery for various vitreoretinal diseases is a safe option without an observed increased risk of post-operative surgical wound leakage, hypotony, IOL tilting and endophthalmitis.

Abstract No.: 201131
Outcomes of the Novel Reservoir Technique in Silicone Oil Infusion Patients

*First Author: Jose Timothy **CHUA***

Purpose: In patients who underwent retina surgery with silicone oil infusion, what are the intraocular pressure outcomes when comparing Reservoir Technique Silicone Oil infusion to the standard digital Palpation Technique?

Methods: The charts of 200 patients requiring silicone oil tamponade in their retinal surgery from 2021 to June 2024 were reviewed. All patients,underwent a similar technique performed by a single surgeon be it Digital Palpation or Reservoir technique. The Reservoir Technique utilizes a 3-ports with the vitrectomy system machine. Complete air–fluid exchange is performed then air infusion is then set to 35 mmHg, then the viscous fluid injector is used in a superior port to infuse the eye with silicone oil. The pressurized air infusion is set to 15 mmHg on vitrectomy machine until equilibrium is achieved or as meniscus shows no movement in infusion line while ports are sutured.

Results: When compared to the standard digital palpation technique, wherein the surgeon's finger is used to estimate post-operation IOP, the reservoir technique uses the vitrectomy machine to consolidate IOP of the surgical eye. This trended in lower IOP at Postoperative Week 1 and overall in the first postoperative month.

Conclusions: This study shows that Reservoir Technique is a good machine-based system that can give can benefit ophthalmologists, retina surgeons and retinal detachment patients to further provide options during surgery. The Reservoir technique or Palpation technique in silicone oil infusion technique can be an option with according pros and cons for those requiring retina surgery with silicone oil tamponade.

Abstract No.: 200752
Pars Plana Lensectomy and Vitrectomy with Scleral Fixated Intraocular Lens Implantation Using Pre-Placed Gore-Tex Sutures in a Patient with Marfans Syndrome

*First Author: Gabriel Ignacio **ALEJO***
*Co-Author(s): Ronaldo **JARIN***

Purpose: The rationale of this case study was to evaluate the visual and anatomical outcomes of pars plana lensectomy and a scleral-fixated intraocular lens (IOL) implantation in a young patient with subluxated crystalline lenses secondary to Marfan syndrome.

Methods: The four sides of a Zeiss CT Asphina 509 intraocular lens (IOL) were tied with 10 mm long Gore-Tex sutures. Pars plana lensectomy with vitrectomy and posterior vitreous detachment induction was then performed. The four Gore-Tex sutures from the 4 sides were threaded and externalized through the 2mm incisions using retina forceps until the IOL was centered. The Gore-Tex sutures were then tied together at the sclera, two at each side and the stability of the IOL was tested by tapping at these sides. The 360 degree peritomy was then closed using vicryl 7-0 sutures to cover and protect the Gore-Tex sutures.

Results: Post operative results revealed a day 1 visual acuity of 20/40 with good stability of the scleral-fixated intraocular lens (IOL). Only minimal discomfort and pain were described by the patient. BCVA at 6 months post-op was at 20/25, while still retaining good IOL stability.

Conclusions: Pars plana lensectomy with vitrectomy and scleral-fixated intraocular lens (IOL) implantation using pre-placed Gore-Tex

sutures tied in the corners of a plate haptic IOL seem to be a useful, impressive, and safe procedure with good outcomes in a young Marfans patient with moderate-to-severe crystalline lens subluxation and blurring of vision.

Abstract No.: 200623
Perfluorocarbon Liquid Migration in Attached Retina

*First Author: Haemoglobin **PARIDA***

Purpose: To present a case of submacular Perfluorocarbon liquid migration in attached retina post Vitreoretinal surgery.

Methods: A 67 years old woman presented with combined tractional and rhegmatogenous retinal detachment due to retinal vasculitis with a BCVA of counting fingers at 1 meter. Other eye was normal. She underwent 23 g pars plana vitrectomy with membrane peeling. PFCL (Perfluorocarbon liquid) was used intraoperatively to flatten retina assisting surgery followed by silicone oil tamponade. Postoperative retina was attached with BCVA CF 5 meter. An aggregate of multiple subretinal PFCL bubbles was noticed in superior part of macula about 900 microns above fovea. Over 1 month the PFCL bubbles migrated to about 100 micron above fovea, BCVA was 4/60. At postoperative third Month PFCL bubbles were subfoveal with BCVA 1/60.

Results: It was taken up for surgery, subretinal saline was injected and PFCL aspirated with 40 G needle. Post op vision was CF 2 meter.

Conclusions: Subretinal migration of PFCL is a complication during Vitreoretinal surgeries and needs surgical removal if PFCL is subfoveal.,Larger and multiple parafoveal Subretinal PFCL even in an attached retina are at higher risk of subfoveal migration over time. These may be taken up for surgical removal earlier to prevent visual deterioration.

Abstract No.: 200109
Pneumatic Displacement Combined with Intravitreal Anti-VEGF in the Management of Acute Submacular Hemorrhage Secondary to Neovascular AMD

*First Author: Rhuen Chiou **CHOW***

Purpose: To assess efficacy of intravitreal perfluoropropane (C3F8) gas combined with intravitreal Anti-Vascular Endothelial Growth Factor (VEGF) for displacing submacular hemorrhage (SMH) secondary to neovascular age-related macular degeneration (nAMD).

Methods: A case series of 4 treatment-naive patients presenting with fovea-involving SMH is discussed. All patients received pneumatic displacement (PD) with intravitreal C3F8 and anti-VEGF without tissue plasminogen activator (tPA). Patients were instructed to position prone for 2 days post procedure, and were evaluated at day 1 and 30 thereafter. Outcomes assessed were visual acuity (VA), height of SMH, and complications of the procedure.

Results: Our cohort included small to large SMH ranging from 4-12 disc areas with an onset of 7 days or less in duration. Mean baseline VA was logMAR 2.1 (Counting fingers), which improved to logMAR 1.27 (3/60) at day 1 and logMAR 0.77 (6/36) at day 30. Partial to complete displacement was achieved in all cases, and the mean height of SMH reduced significantly from 715 microns to 262 microns the next day. None of our patients experienced complications.

Conclusions: While anti-VEGF monotherapy is best suited for small and thin SMH, PD with intravitreal gas combined with anti-VEGF remains a good option for moderate to large SMH. The role of intravitreal tPA is questionable. A step-wise approach seems logical, and vitrectomy should remain the procedure of choice in cases of failed PD. The main concerns of vitrectomy stem from its invasive nature, higher complication rates, and the longevity of intravitreal anti-VEGF in vitrectomised eyes.

Abstract No.: 201127

Possible Combined Dye Toxicity and Phototoxicity in Two Cases Following Epiretinal Membrane Removal Surgery

*First Author: Nikita **GUPTA***
*Co-Author(s): Hardik **KIRI**, Dinesh **TALWAR***

Purpose: To report two rare case reports of outer retinal and retinal pigment epithelium (RPE) damage at the macula following brilliant blue G (BBG)-assisted epiretinal membrane (ERM) removal surgery.

Methods: Retrospective review of consecutive two cases of macular toxicity.

Results: Two patients presented with similar history of metamorphopsia and had best-corrected visual acuity of 20/200 in the affected eye. OCT scans showed an epiretinal membrane at the macula with increased central macular thickness. The fellow eye examination was within normal limits. BBG-assisted ERM removal and internal limiting membrane peeling surgery was performed for both the patients. Over the subsequent visits, a well-defined area of outer retinal and RPE alteration was identified on OCT and fundus autofluorescence without any improvement in visual acuity. At 3month follow-up visit, the visual acuity improved in both the cases with decrease in the area of RPE alteration on both OCT and FAF.

Conclusions: This case series highlights the unusual occurrence of macular toxicity following brilliant blue G-assisted ERM removal surgery. Macular toxicity due to repeated usage of BBG dye and high intensity focal endo-illumination may lead to poor visual outcome following ERM removal or similar macular surgeries. Adequate precautions need to be taken to prevent vision loss such as reducing the surgical time, avoiding using BBG under air and avoiding restaining wherever possible and keeping endoilluminator at a distance from the fovea.

Abstract No.: 200036

Post-Vitrectomy Posturing Aid

*First Author: Louis **HAN***
*Co-Author(s): Genevieve **OLIVER***

Purpose: To describe a cost-effective way to help patient posture sideway especially at night-time.

Methods: To describe a simple "backpack" to help patient posture side-way overnight/during sleep, after a vitrectomy with use of intra-ocular gas for optimal tamponade.

Results: A soft backpack is filled with towels and worn by the patient on their back, before going to bed. This prevents the patient from rolling over during sleep, hence increasing compliance to treatment when side-way posturing is required following a vitrectomy with use of intraocular gas tamponade.

Conclusions: This utilises readily available equipments at home and represents a cost-effective aid for side-way posturing in the postoperative phase of vitrectomy with intra-ocular gas.

Abstract No.: 200880

Pre-Existing Posterior Capsular Defect Prior to Cataract Surgery in an Adult – A Case Report

*First Author: Ronnie **MANAYSAY***
*Co-Author(s): Maria Katrina **MALGAPU***

Purpose: To report a case of pre-existing posterior capsular defect in an adult patient who underwent phacoemulsification surgery.

Methods: This is a case-report.

Results: The case is that of a 49-year-old male, who complained of blurring of vision on his right eye. His visual acuity was counting fingers at 4-feet on the right eye and 20/25 on the left eye. He was assessed to have a dense, mature cataract on his right eye and was advised cataract surgery. Repeat examination immediately prior to surgery showed a partial clearing of the dense cataract. Intra-operatively after doing the continuous curvilinear capsulorrhexis, it was noted that the nuclear

lens material has dropped posteriorly through a pre-existing posterior capsular defect. The remaining cortical materials were removed and an attempt to insert a foldable sulcus-fixated intra-ocular lens was done, however dropped through the posterior defect as well. The surgery was converted to pars plana vitrectomy, retrieval of dropped intra-ocular lens with subsequent insertion to the ciliary sulcus, and phaco-fragmentation of the dropped lens nucleus. Visual acuity was 20/32 five months post-opeartively.

Conclusions: Though posterior capsular rupture is a common intra-operative complication of phacoemulsification surgery, identification of such defect pre-operatively is likewise valuable for better surgical planning and that retinal consult would be readily available intra-operatively should the actual lens drops into the vitreous cavity for better management and optimal surgical outcome.

Abstract No.: 200235

Predisposing Factors, Direction of Dislocation, and Changes in Intraocular Pressure After Intrascleral Intraocular Lens Fixation Surgery

*First Author: Yuya **SAITO***
*Co-Author(s): Takayuki **BABA**, Yoichi **MASHIMO**, Norihiro **SHIMIZU**, Tomoaki **TATSUMI**, Hirotaka **YOKOUCHI***

Purpose: To identify predisposing factors and the direction of dislocation of the crystalline lens or intraocular lens (IOL) in the cases required IOL intrascleral fixation surgery and to determine the change in intraocular pressure (IOP) after surgery.

Methods: We retrospectively investigated the predisposing factors, direction of lens and IOL dislocation, and IOP before and after surgery (preoperatively, 1 day, 1 week, and 1 month postoperatively) in 240 eyes from 232 patients who underwent IOL intrascleral fixation at Chiba University Hospital between February 2015 and September 2020.

Results: IOL intrascleral fixation was performed in 49 (20%) patients with long eye axis (> 26mm), 44 (18%) with pseudoexfoliation (PE), 43 (18%) with problems such as ciliary zonule rupture or posterior capsule rupture in the previous cataract surgery, 39 (16%) with a history of trauma, 36 (15%) with a history of vitrectomy, 21 (8.8%) with atopic dermatitis, 6 (2.5%) with genetic diseases such as Marfan syndrome, 4 (1.7%) with retinitis pigmentosa, and 75 (31%) with unknown causes.,Downward IOL dislocation was the most common (44 cases), while IOL falling into the vitreous cavity was seen in 33 cases, and anterior lens dislocation in 14 cases. In general, IOP was significantly lower at one month postoperatively than preoperatively ($P<0.001$). Specifically, in the eyes with trauma, long eye axis, and unknown cause, IOP was significantly lower ($P=0.003$, 0.003, 0.002 respectively).

Conclusions: IOP was significantly lower at one month postoperatively than preoperatively after IOL intrascleral fixation.

Abstract No.: 200605

Preoperative Air Injection for Choroidal Detachment Retinal Detachment: A Novel Approach

*First Author: Zhang **MARS***

Purpose: Choroidal detachment retinal detachment (CD-RD) presents a surgical challenge, particularly with severe inferior temporal choroidal detachment affecting perfusion line establishment. A novel preoperative technique using sterilized air injection has been introduced to restore intraocular pressure (IOP) and improve outcomes.

Methods: A retrospective analysis of 12 CD-RD patients (2023-2024) who received preoperative sterilized air injections was conducted. Assessments included best-corrected visual acuity (BCVA), IOP, OCT, and UBM. Vitrectomy followed three days post-injection.

Results: Mean IOP increased significantly from 5.2 to 14.8 mmHg post-injection. Complete or partial choroidal reattachment was observed in all patients on UBM. The intraoperative complication rate was 8.3%, markedly lower

than historical controls. Surgical difficulty was reduced, and at 6 months, 91.7% achieved anatomical reattachment. BCVA improved significantly from a mean logMAR of 1.8 to 0.6.

Conclusions: Preoperative sterilized air injection is a safe, effective method for IOP restoration in CD-RD, enhancing surgical success, reducing difficulty, and minimizing complications, offering a promising new strategy.

Abstract No.: 200098

Progressive Hemorrhagic Retinopathy: A Danger Sign in a Diabetic Patient

First Author: Mohd Anash ***PATHAN***
Co-Author(s): Raj Shri ***HIRAWAT****, Gulam Ali* ***KAMDAR***

Purpose: To investigate rapidly evolving bilateral hemorrhagic retinopathy in a well-controlled diabetic and occurrence of co-existing diseases.,Case highlight's the targeted treatment response including surgical intervention.

Methods: Middle aged man in his 50's was evaluated for gradual diminished vision in both eye. He is known diabetic for 15 years and well controlled. Examination revealed age related nuclear cataract. Fundus showed predominantly dark colored retinal hemorrhages over posterior pole and new vessels over the disc in right eye and similar hemorrhages in the left eye. In the setting up of long standing diabetes, diagnosis of diabetic retinopathy with maculopathy was made and advised anti-VEGF therapy.

Results: Over 6 weeks' time retinal lesions progressed and led to vitreous hemorrhages in both eyes with worsening macular edema. Detailed systemic workup was done which revealed underlying chronic lymphoid leukemia in active phase. He underwent successful chemotherapy and left eye vitrectomy. Vision improved in right eye to 6/36 with resolving vitreous hemorrhage and left eye improved to 6/12 post vitrectomy for non-resolving hemorrhage.

Conclusions: Rapid progressive retinal microangiopathy should be investigated for undiagnosed systemic disease including diabetes. Thorough baseline blood parameters are to be checked in such cases with unusual presentation and progression of disease.

Abstract No.: 200871

Prophylactic Intraoperative Antibiotics in Pars Plana Vitrectomy: A Multicentre Retrospective Study on Postoperative Endophthalmitis Rates

First Author: Sarah ***KENWORTHY***
Co-Author(s): Riyaz Bhikoo ***BHIKOO****, Fred* ***CHEN****, Matthew* ***KENWORTHY***

Purpose: Postoperative endophthalmitis is rare following pars plana vitrectomy (PPV). The optimal route of prophylactic intraoperative antibiotics in PPV remains controversial.

Methods: All cases of PPV performed over a 34 year period (1988-2022) were examined. PPV for penetrating trauma, pre-existing endophthalmitis, paediatric patients, or as combined procedure with glaucoma surgery were excluded. Postoperative endophthalmitis was defined as anterior and posterior chamber inflammation within six weeks of surgery. Route of intraoperative prophylactic antibiotics was recorded.

Results: Six cases of post-PPV endophthalmitis were identified in 11,660 PPV procedures: five culture-positive and one culture-negative. Four cases received no intraoperative antibiotics, and two received intraoperative subconjunctival cefazolin. Endophthalmitis rate was 0.22% in the no-antibiotics group and 0.03% in the subconjunctival group. Patients who received subconjunctival antibiotics were 87% less likely to develop post-vitrectomy endophthalmitis than those with no intraoperative antibiotics (OR = 0.13, p=0.018). No endophthalmitis occurred in cases that received intravitreal and/or intracameral antibiotics.

Conclusions: Post-operative endophthalmitis rates were significantly higher in those receiving no intraoperative antibiotics compared to subconjunctival antibiotics. Further research is required to determine the optimal route of antibiotic administration during PPV.

Abstract No.: 200317

Retinal Fenestration for Morning Glory Disc Anomaly-Associated Retinal Detachment

*First Author: Wenting **ZHANG***
*Co-Author(s): Huanyu **LIU**, Jie **PENG**, Xuerui **ZHANG**, Peiquan **ZHAO***

Purpose: To evaluate the clinical outcomes after retinal fenestration-making a full-thickness peripapillary retinal hole to treat morning glory disc anomaly (MGDA) associated serous retinal detachment (RD).

Methods: Pars plana vitrectomy with the creation of a full-thickness retinal fenestration was performed in all eyes. Subretinal fluid was sucked out through the retinal hole. Barrier laser ablation was performed around the optic disc. Anatomic outcomes and adverse reactions were recorded on one-month and three-month follow-ups.

Results: Five eyes were included. The mean age at surgery was 7.5 years old. Three eyes showed inferior RD, one showed total RD, and one showed maculopathy similar to optic disc pit maculopathy. Retinal fenestration was performed temporally in 3 eyes and nasally in 2 eyes. On one-month and three-month follow-ups, retinal remained attached in 4 of 5 eyes. Two eyes received silicone oil tamponade and removal of silicone oil later. Three eyes received C3F8 tamponade. Among the 3 eyes, a 6-year-old boy didn't achieve anatomical success 2 weeks after surgery. The retina was attached after a second surgery with silicone oil tamponade. There was no improvement in the visual acuity of all patients. One eye got a temporary intraocular pressure elevation but recovered after medication one month later. Three eyes got posterior capsule cataracts after surgery.

Conclusions: The retinal fenestration to make a full-thickness retinal hole showed effectiveness in getting anatomic improvement for patients with MGDA-associated RD. Long-term anatomic success needs to be explored by longer follow-up.

Abstract No.: 200228

Retinal Laser for Diabetic Retinopathy Allows Saving Pregnancy in Women with Diabetes

*First Author: Natalia **POMYTKINA***
*Co-Author(s): Evgenii **SOROKIN***

Purpose: Evaluation of the role of retinal laser in pregnant women with diabetic retinopathy (DR) in excluding ophthalmological indications for premature termination of pregnancy.

Methods: 49 pregnant women with type 1 diabetes and progression of DR were observed: 34 with proliferative DR and 15 with severe nonproliferative DR. Macular edema was in 5 patients. The pregnancy outcomes were analyzed. All patients underwent panretinal laser coagulation (PRLC).

Results: PRLC during pregnancy made stabilization DR course before delivery in 78% of patients. In 11 patients, DR progression continued postpartum, they underwent additional PRLC or anti-VEGF therapy. In 82% of pregnant women delivery occurred by cesarean section at 36–37 weeks of pregnancy due to preeclampsia, progression of diabetic nephropathy or fetal hypoxia. 9 pregnant women (18%) gave birth naturally at 38–39 weeks of gestation. Despite the progressive course of DR, there was no case when it became necessary to terminate pregnancy for ophthalmological reasons. Our patients also had no ophthalmological indications for the management of labor with the exception of the pushing period. In our opinion, with active management of a pregnant woman with DR and timely PRLC, the main indications for cesarean section should be somatic and obstetric-gynecological.

Conclusions: 1. Conducting panretinal laser during gestation makes it possible to stabilize the course of progressive DR in most pregnant women with diabetes. 2. Active management of pregnant women with diabetes and panretinal laser make it possible to exclude the progression of PDR from indications for premature artificial termination of pregnancy.

Abstract No.: 200789

Retinal Sensitivity Changes After Internal Limiting Membrane Peeling for Vitreomacular Interface Diseases Using Different Forceps

*First Author: Yi-ting **HSIEH***
*Co-Author(s): Chung-may **YANG***

Purpose: To compare the retinal sensitivity changes after internal limiting membrane (ILM) peeling using sharkskin ILM forceps or conventional end-grasping forceps for eyes with epiretinal membrane or macular hole.

Methods: Patients diagnosed with epiretinal membrane or macular hole were prospectively enrolled and randomized into two groups. One group received ILM peeling using Sharkskin forceps, while the other group used conventional ones. Microperimetry was employed to examine retinal sensitivity at the macula. A decrease in retinal sensitivity of 5 or more was recognized as sensitivity loss. The extent of retinal sensitivity loss in different areas was compared between the two groups at 1 month and 3 months post-operation.

Results: Thirty-two eyes from 32 patients were enrolled, with 16 eyes in each group. After the operation, the logMAR of best-corrected visual acuity improved from 0.70±0.35 at baseline to 0.54±0.29 at 1 month (P=0.001) and 0.46±0.31 at 3 months (P<0.001), and all eyes with a macular hole had their holes closed. No significant differences were noted between the two groups. In eyes with epiretinal membrane, there were no differences in retinal sensitivity loss postoperatively between the groups. In eyes with macular hole, however, retinal sensitivity loss at the inner perifovea was more severe in the conventional group than in the Sharkskin group at 1 month (P=0.017) and 3 months (P=0.033).

Conclusions: Sharkskin ILM forceps were effective for ILM peeling in eyes with epiretinal membrane or macular hole, and resulted in less surgically-induced retinal sensitivity loss at the perifovea in eyes with macular hole.

Abstract No.: 200403

Risk Factors for Secondary Vitrectomy in Diabetic Patients with Vitreous Hemorrhage Undergoing Primary Pars Plana Vitrectomy

*First Author: Chia-an **HSU***
*Co-Author(s): Min-huei **HSU**, Yi-ming **HUANG**, Ju-chuan **YEN***

Purpose: Vitreous hemorrhage resulting from diabetic retinopathy is one of the most common complication that might require surgical intervention in diabetic patients. Among these patients, some develop complications or conditions that require secondary pars plana vitretomy, e.g., recurrent vitreous hemorrhage, proliferative vitreoretinopathy, etc. These repeated vitrectomies are often challenging and costly. Therefore, the identification of risk factors associated with repeated vitrectomy is crucial to guide the further prevention.

Methods: This is a retrospective study utilizing the federated research database in the United States. Patients with diabetes and undergoing primary pars plana vitrectomy older than 18-year-old was recruited into this study. The primary end point was the event of second documented vitrectomy in the database. Age, gender, HbA1c and the usage of insulin was extracted from the database. The patients was separated into two groups, those who received only one vitrectomy and those who received more than one. T-test was calculated to compare demographics and other characteristics of patients between two groups. P-value less than 0.05 was considered significant.

Results: 19,088 patients was included in the analysis. Among these patients, 5995 patients received repeated vitrectomy. Male gender, younger age and the usage of insulin were identified as risk factors of patients receiving secondary pars plana vitrectomy, while higher concentration of HbA1c did not significantly increase the risk of repeated vitrectomy.

Conclusions: Our study identified male gender, younger age and usage of insulin as risk factors of repeated vitrectomy in diabetic patients with vitreous hemorrhage.

Abstract No.: 200915
Rt-PA-Assisted Vitrectomy for Open Globe Injury with Suprachoroidal Hemorrhage
*First Author: Haoyu **CHEN***

Purpose: This study aimed to report the visual and anatomic outcomes of recombinant tissue plasminogen activator (rt-PA)-assisted early surgical drainage of traumatic suprachoroidal hemorrhage (TSCH).

Methods: A total of 94 eyes (94 patients) with TSCH following open globe injury received suprachoroidal rt-PA injection, followed by vitrectomy surgery at the next day. The patients' demographic information, characteristics of injury, anatomical and visual outcomes were recorded and analyzed.

Results: Seventy-six (80.9%) eyes with TSCH were completely drained during surgery after a mean of 5 days of interval of injury and vitrectomy (IOIV). The proportion of eyes with VA greater than count fingers increased from 4.26% to48.94%. The rate of retinal attachment was 84.04% (79/94) at 3 months and 77.66% (73/94) at the last follow-up after surgery.

Conclusions: Surgical drainage of TSCH assisted by rt-PA combined with vitrectomy can efficiently drain SCH and restore ocular structure and visual function at an early stage.

Abstract No.: 200558
Secondary Macular Hole in Diabetic Retinopathy: Cases with Contrasting Clinical Course
*First Author: King Hans **KURNIA***

Purpose: Diabetic retinopathy (DR) can rarely predispose the macula to secondary hole formation. This presentation aims to report two cases of macular hole secondary to DR, which have contrasting clinical courses and management.

Methods: Two cases of macular hole secondary to DR are reported:,Case 1. A 56 year male presented with proliferative DR and diabetic macular edema (DME). Panretinal photocoagulation had been performed and intravitreal bevacizumab (IVB) injection was given. Following the injection, a full-thickness macular hole developed. Vitrectomy was refused by the patient. IVB injection was continued for two more times. After the third injection, spontaneous macular hole closure was observed.,Case 2. A 52 year female presented with severe non-proliferative DR. One month after an uneventful phacoemulsification, DME developed and IVB injection was given. A full-thickness macular hole developed, along with vitreoretinal traction formation. Vitrectomy with internal limiting membrane flap was performed. One week after surgery, macular hole closure was observed.

Results: Spontaneous macular hole closure in the first case was attributed to the absence of vitreoretinal traction component and improvement of DME. In contrast, the presence of vitreoretinal traction in the second case deteriorated macular hole formation, which necessitated surgical intervention to facilitate macular hole closure.

Conclusions: The absence of vitreoretinal traction may allow spontaneous closure of macular hole secondary to DR. Concurrent treatment of intraretinal exudation with anti-VEGF injection may have a synergistic effect in promoting macular hole closure. Conversely, when vitreoretinal traction is present, relieving the tractional component is essential to close the macular hole.

Abstract No.: 201104
Streptococcus Mitis Endophthalmitis Following Rooster Attack
*First Author: Suhaila **IBRAHIM***
*Co-Author(s): Azma Azlina **AHMAD ALWI**, Ahmad Anwaar **MUHAMMAD SAIFULLAH**, Ngoo **QI ZHE**, Ismail **SHATRIAH***

Purpose: To report a case of rare cause of Streptococcus mitis endophthalmitis.

Methods: A case report

Results: A 63-year-old farmer who, after undergoing left eye (LE) intracapsular cataract extraction and anterior vitrectomy, presented with sudden vision loss in the operated eye

after 11 days post-surgery. The vision loss occurred after an eye abscess from a chicken spurted pus into the operated eye. Visual acuity (VA) of LE dropped from 3/60 to light perception (PL) and relative afferent pupillary defect (RAPD) was positive. The eye was injected, chemotic, with a hazy cornea, positive Seidel test, shallow anterior chamber(AC) with cells 4+ and fibrin. B-Scan findings showed dense vitritis with loculation suggests severe intraocular inflammation. Then ,anterior vitrectomy with intravitreal Vancomycin and Cetazidime, AC tap and washout, and LE cornea wound resuturing were all performed right away. He had an intravitreal, silicone oil tamponade, vitreous sampling, and LE pars plana vitrectomy two days later. He completed a two-week regimen of intravenous Cefriaxone and hourly topical Moxifloxacin. AC tap-cultured Streptococcus mitis that is sensitive to Clindamycin and Ceftriaxone. Despite early diagnosis and strong medical and surgical intervention, the visual acuity of LE was no perception to light (NPL) two months after the procedure.

Conclusions: Exogenous endophthalmitis caused by Streptococcus mitis is uncommon and can occur in immunocompetent patients. Even with prompt and intensive medical and surgical intervention, the prognosis is usually not good. To prevent such issues, patient education regarding postoperative care is essential.

Abstract No.: 200757
Suprchoroidal Hemorrhage Masquerading as Acute Angle Closure and Vitreous Hemorrhage

*First Author: Tze Heng **LOH***
*Co-Author(s): Rubamalar **GUNATHEESAN***

Purpose: Suprachoroidal hemorrhage (SCH) is a rare but potentially vision threatening pathology that is usually associated with intraocular surgery or trauma. Cases of spontaneous SCH have been sparsely reported in the literature.

Methods: CASE REPORT,,We report a case of a 61 year-old gentleman with spontaneous SCH masquerading as acute angle closure and vitreous hemorrhage.

Results: His intraocular pressures were uncontrolled despite intensive medical therapy. Dynamic ultrasound B-scan revealed vitreous hemorrhage but did not detect any suprachoroidal hemorrhage. An extensive suprachoroidal hemorrhage was identified intraoperatively during pars plana vitrectomy that was initially intended to remove the vitreous hemorrhage.

Conclusions: This case shows that a spontaneous SCH could masquerade as an acute angle closure with vitreous hemorrhage. A high index of suspicion and the use of multi-modal imaging, including CT scan or MRI orbits could have helped to clinch the diagnosis and facilitate more timely intervention.

Abstract No.: 200854
The Characteristics of Pseudophakic Rhegmatogenous Retinal Detachment

*First Author: Jeeyoung **KWAK***

Purpose: To evaluate the characteristics of pseudophakic rhegmatogenous retinal detachment.

Methods: This is a retrospective study which includes 50 eyes of 50 pseudophakic patients who underwent rhegmatogenous retinal detachment (RRD) surgery from 2018 to 2022. Data included baseline characteristics, retinal drawings, and outcomes. Retinal drawings were retrospectively analyzed for the site, size, number of the retinal holes or breaks, and for detached area. The time between cataract surgery to retinal detachment occurrence, and posterior capsule (PC) state was also analyzed as parameters.

Results: Mean age was 57.3 ± 13.7 years, and 36 (72%) were male patients. All patients had unilateral RRD, 31(62%) were the right eye. Only 5 (10%) patients underwent scleral buckle surgery, and other 45 (90%) patients had pars plana vitrectomy. Retinal breaks were

not found in 13 patients(26%) in preoperative examination. 23 (39.6%) patients showed tiny break smaller than 0.2DD. Retinal break was most commonly found in ST area(n=24, 41%), followed by SN, IT, and IN area(n=15, 10, 6/ 25.9%, 17.2%, 10.3%). Add laser was needed postoperatively in 27(54%), and the recurrence rate was 10%.

Conclusions: In pseudophakic RRD, the retinal breaks were mainly found ST,SN,IT area which is associated with cornea incision site in cataract surgery. This implies the possibility the traction may be induced after the cataract surgery, leading to the retinal break. Another characteristic is that the hole is often a tiny break, so it is often undetectable before surgery. This may be the reason why the recurrence rate of pseudophakic RRD is higher than general RRD.

Abstract No.: 200594

The Long-Term Effects of Short-Term Use of Postoperative Bromfenac on Macular Thickness Change After Vitrectomy for Idiopathic Epiretinal Membrane

*First Author: Nohae **PARK***
*Co-Author(s): Iksoo **BYON**, Hanjo **KWON**, Bohyun **PARK**, Sung-who **PARK***

Purpose: To evaluate the long-term effects of short-term use of postoperative topical bromfenac on macular thickness changes after vitrectomy for idiopathic epiretinal membrane (ERM).

Methods: The study retrospectively reviewed medical records of patient who underwent vitrectomy or phacovitrectomy for idiopathic ERM at PNUH and PNUYH from Jan 2019 and Dec 2022. Cases with pseudohole or lamellar hole and high myopia over 5-diopters were excluded. The patients were divided into two groups based on whether topical Bromfenac was used or not within 4 weeks after vitrectomy (Used group and None-Used group). Changes of macular thickness were analyzed over 6 months.

Results: Two hundred eighty-two (282) eyes of 279 patients were enrolled. Ninety one (32.2%) of these eyes, were included in the used group; the other 190 (67.8%) eyes were included in the None-Used group, respectively. The macular thickness of the Used group decreased by 93.9 ± 56.2 um, which were higher than 76.5 ± 52.6 um of the None-Used group at 6 months after surgery, (p=0.012) respectively. The difference in the change was significant only up to first one month after surgery, but not significant between 1-3 months or 3-6 months.

Conclusions: Topical bromfenac may have an impact to reduce macular thickness in postoperative care for idiopathic ERM surgery.

Abstract No.: 200074

The Management of Fireworks Injury in Pediatric: A Case Report

*First Author: Andrea Radotma **SILITONGA***
*Co-Author(s): Nur **RAHMA**, Sindy **SEMBIRING**, Balgis Desy **SULISTYOWATI***

Purpose: The purpose of this case report is to demonstrate the postoperative anatomic and functional outcomes of ocular trauma in a child due to fireworks-related injuries.

Methods: Case Report : A 10 years old girl presented to the emergency department with a firework explosion causing significant injury to her right eye with loss of vision and pain. The presenting visual acuity was light perception in the right eye. The clinical presentation of the right eye was chemosis conjunctiva, ciliary injection, subconjunctival hemorrhage, edema cornea, hyphema more than 3 mm, coagulum, iridodialysis and multiple small corneal foreign bodies.

Results: The patient underwent extraction of intraocular foreign body and irrigation/ aspiration of the hyphema. One month the visual acuity was 1/300 in the right eye. The anterior segment showed corneal leucoma minimal, synechiae posterior, subluxated lens to temporal side and vitreous hemorrhage. The patient underwent lensectomy and pars plana vitrectomy. On follow-up period in two months post vitrectomy, the BCVA was 3/60 with IOP 15 mmHg. Anterior segment examination showed corneal leucoma minimal and aphakia.

Conclusions: Fireworks-related ocular injuries could have serious repercussions for patients with ocular morbidity and visual acuity, particularly in severe trauma affecting younger patients. Severe injuries caused by fireworks still couldn't make a visual function of the patient back to normal, in some cases can be resulted losing their vision permanently. Fireworks offer an inconceivable risk to the eyes of innocent users. The current study indicated that additional policies regarding fireworksuse are required to reduce the incidence of visual morbidity in children.

Abstract No.: 200178

The Role of Endolaser Panretinal Photocoagulation in Vitrectomy for Proliferative Diabetic Retinopathy

*First Author: Cuc **PHAN***
*Co-Author(s): The **DOAN ANH MINH**, Khuyen **PHAM NHA**, Tho **PHAN***

Purpose: To review the current literature on the benefit of endolaser panretinal photocoagulation (PRP) in vitrectomy for proliferative diabetic retinopathy (PDR).

Methods: A review of the literature was performed on PDR patients who experienced vitrectomy with endolaser PRP.

Results: Data from previous literature has reported that PRP remains the gold standard for PDR. PRP decreases the oxygen demand of retina by ablating ischemic periphery retina, thereby reducing the production of vasoproliferative factors, resulting in regression of pre-existing neovascularization and preventing produce neovascularization. Some PDR patients who had been treated with multiple PRP sessions in the outpatient setting, still might progress to vitrectomy. PRP has its own disadvantages including worse tolerability, sufficiently PRP and multiple sessions. After removing hemorrhage vitreous, peripheral vitreous, and dissecting the proliferative membranes, endolaser is applied to treat pre-existing, iatrogenic retinal breaks and do panretinal scatter therapy from mid-peripheral up to ora serrata with a scleral indentation. Endolaser over a wider range could be a beneficial adjunct procedure for preventing postoperative recurrent vitreous hemorrhage or neovascular complications affecting either the anterior or posterior segment of the eye. Although the advent of anti-VEGF has revolutionized in treating PDR, in the context of the diabetic population that is prone to loss to follow-up, endolaser PRP still plays a prominent part in managing PDR.

Conclusions: Performing the endolaser in vitrectomy under retrobulbar anesthesia is the best opportunity to PRP completely up to the ora serrata, to enhance the effectiveness of preoperative PRP and to prevent postoperative recurrent vitreous hemorrhage or neovascular complications.

Abstract No.: 201092

The influence of macular microstructure changes in the postoperative best corrected visual acuity after vitrectomy

*First Author: Junjie **PIAO***

Purpose: To observe the macular microstructure changes after rhegmatogenous retinal detachment (RRD) combine with silicone oil tamponade, and investigate the macular morphologic changes after surgery.

Methods: We retrospectively enrolled 50 eyes of 50 patients with RRD who underwent the vitrectomy combine with silicone oil tamponade, and postoperative 3 month performed removal silicone oil. According to fundus camera, the patients were divided into two groups: group 1 is macula-off RRD; group 2 is macular-on RRD. With application of EDI-SD-OCT, we could measure macular foveal thickness (CFT), average of ganglion cell layer thickness (GCL), and choroidal thickness (CT) at pre- and postoperative vitrectomy, and removed silicone oil tamponade.

Results: The mean and standard deviation of age was 62.67±12.17, and 35 eyes (70%) were male patients, preoperative BCVA (LogMAR) was 1.54±1.10. Divided the patients into two groups, the preoperative BCVA (LogMAR) in macular-off RRD eyes and macular-on RRD eyes

was 1.75±1.02, 1.13±1.12 (P=0.031). There was statistically significant improvement of visual acuity after surgery. Moreover, the changes of macular microstructure, GCL thickness and CT were statistically significant difference between pre- and postoperative. Post-hoc analysis test found that the postoperative BCVA (LogMAR) was statistically significant difference (P<0.001).

Conclusions: For RRD patients underwent vitrectomy combine with silicone oil tamponade, the postoperative BCVA (LogMAR) was improved than preoperative BCVA (LogMAR) and the better visual recovery were found in macular-on eyes than macular-off eyes. However, the thicker thickness of GCL and CT, the better visual recovery after surgery, and GCL was the single important factor as determine the visual recovery after vitrectomy.

Abstract No.: 200610

To report a case of subretinal entry of indocyanine green (ICG) dye during macular pucker surgery with 25G deuterium oxide needle vitreous cavity injection, and analyze the associated risks and complications.

*First Author: Shuai **SHENG***

Purpose: Macular pucker is a common fundus disease, and vitrectomy is an effective treatment. During surgery, dyes such as ICG are often used to better visualize the internal limiting membrane. However, the entry of dye into the subretinal space can lead to a series of complications.

Methods: A case of a 76-year-old female patient who came to the hospital for vitrectomy due to macular pucker in the right eye is reported. During the operation, excessive injection pressure of the 25G deuterium oxide needle caused the ICG to break through the retina above the macula temporally and enter the subretinal space. One week after surgery, the patient's best-corrected visual acuity (BCVA) was 0.5, and the ICG had not been completely absorbed, with OCT showing retinal pigment epithelial edema.

Results: After intraoperative discovery of ICG entry into the subretinal space, iatrogenic hole closed spontaneously, and residual subretinal ICG could not be removed by vitrectomy cutter. One week post-operatively, the patient's BCVA was 0.5, and the ICG remained not fully absorbed, with OCT showing retinal pigment epithelial edema.

Conclusions: The 25G deuterium oxide needle has a finer lumen than the 23G, posing potential risk of iatrogenic hole formation due to excessive injection pressure. Subretinal ICG is difficult to absorb in the short term, which may cause toxic reactions to the retina leading to retinal pigment epithelial edema. Therefore, careful use of dye and reduction of injection pressure should be considered during surgery.

Abstract No.: 200785

Traumatic Endophthalmitis Following Injury by Freshwater Fish: A Rare Case Report

*First Author: Ram Sudarshan **RAVINDRAN***

Purpose: Traumatic endophthalmitis secondary to attack by fish represents a very rare form of ocular injury with a handful of such reports existing in literature. We present a rare case of open globe injury following attack by a fish, which left a cartilaginous tissue impacted as an IOFB and caused endophthalmitis.

Methods: 26-year-old male presented to us with alleged history of being attacked by an unknown breed of fish in a pond while swimming,2 days back, when it bit him in his left eye (OS) with sudden onset pain, redness, watering and progressive diminution of vision. Ocular examination of OS revealed mild lid edema, diffuse congestion and a small translucent suspicious area of embedded foreign body in sclera temporally, 2 mm from the limbus at 3'o clock position.Anterior segment examination of OS revealed mild corneal haze, hypopyon of 1.5mm height in anterior chamber along with 4+ cells and 4+ flare.

Results: The patient was undertaken for wound exploration and core-vitrectomy in OS under local anaesthesia. 23-gauge pars plana core vitrectomy with removal of cartilaginous structure with a St.Martin's forceps followed

by intravitreal injections of vancomycin 1mg in 0.1ml, ceftazidime 2.25mg in 0.1ml and voriconazole 100µg in 01ml.

Conclusions: To the best of our knowledge, no case of traumatic endophthalmitis secondary to injury by freshwater fish has been reported in literature till date and our case represents the first such unusual presentation.

Abstract No.: 201035

Using Biometry to Predict Vitrectomy Entry Site as Determined by Anterior Segment Optical Coherence Tomography Using Real-World Data

*First Author: Yuhang Jacob **CHIN***
*Co-Author(s): Tatsuya **INOUE**, Kazuaki **KADONOSONO**, Hirono **KAZUSHI**, Shin **TANAKA***

Purpose: To investigate the correlation of biometry parameters and ciliary body length as measured using anterior segment optical coherence tomography (AS-OCT), with the aim to safely estimate the length of the pars plana based on biometry measurements alone, to optimize the sclerotomy entry site in vitrectomy without the use of AS-OCT.

Methods: Seventy-three patients who underwent vitrectomy surgery were studied retrospectively. The pars plana length was determined using preoperative AS-OCT measurement in nasal and temporal quadrants. Biometry measurements using an optical biometer were analyzed. Statistical analysis using linear mixed effect models were performed to determine the correlation between biometry values and pars plana length.

Results: After controlling for fixed effects, model selection by Corrected Akaike Information Criteria showed that only axial length (AL) and temporal or nasal aspect had a statistically significant effect on axial length. Age, gender, corneal curvature, white-to-white and anterior chamber depth were not significantly associated. The fixed effects intercept for pars plana length was 4.01 + 0.08 * (AL) + 0.066 * (temporal aspect), i.e. pars plana length increased by 0.08 for every 1mm in axial length and 0.066mm for temporal location.

Conclusions: The length of the pars plana as measured by AS OCT is significantly correlated with axial length and temporal or nasal location. Preoperative AS-OCT enables accurate measurement of the pars plana, but this device is not always available. The optimal site for sclerotomy can be predicted using biometry measurements, allowing safe vitrectomy port entry position to be estimated without the use of AS-OCT.

Translational Medicine

Abstract No.: 200170

A Few Research and Application Hotspots of Ophthalmology Combined with Trending Technologies

*First Author: Ling **JING LI***

Purpose: Transdisciplinary collaboration is an efficient way to understand and solve complex real-world problems. Artificial Intelligence (AI), Gene Therapy and Nanotechnology are three of the most productive and transformative areas currently at the forefront. By reviewing the development of ophthalmology combined with these three major disciplines to present the feasibility and advantages of this transdisciplinary approach, the paper focuses on new development directions for researchers and doctors in the field of ophthalmology.

Methods: This paper outlines the working principles of AI, gene therapy and nanotechnology and the technical characteristics of their application in the field of ophthalmology, presents the development process of these three interdisciplinary fields, summarizes their research and application results, and analyzes and studies them from the aspects of cost, efficiency, accuracy, and reliability.

Results: Through the description of the principles as well as the analysis and comparison of research and application results, this paper

shows that combining AI, gene therapy and nanotechnology with ophthalmology is feasible and has great advantages and development potential.

Conclusions: The combination of AI, gene therapy and nanotechnology with ophthalmology can effectively promote the development of ophthalmic technology and can serve as development and application directions for ophthalmic researchers and medical workers.

Abstract No.: 200312

Enhancing Stem Cell Therapy Research with a Micro-Pulse Laser-Induced Retinal Damage Model in Non-Human Primates

*First Author: Daniel Soo Lin **WONG***
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Purpose: Stem cell therapy offers promise in treating retinal degenerative diseases. However, challenges such as immune rejection and optimal cell integration highlight the need for reliable animal models that mimic human eye diseases, such as non-human primates (NHP). NHPs have a macula similar to humans, making them invaluable for advancing our understanding of retinal degenerative diseases and refining therapeutic strategies. However, current methods of inducing retinal damage in NHP models have various drawbacks. This study utilized micro-pulse (MP) laser technology to establish a retinal degeneration model in NHPs by systematically varying parameters to better understand the complexities of retinal damage.

Methods: Our research on adult Cynomolgus monkeys, conducted following IACUC guidelines, has the potential to significantly impact the fields of retinal degenerative disease and stem cell therapy. We induced controlled retina damage using a 532nm MP laser and performed RPE cell sheet transplantation, paving the way for potential breakthroughs in these areas.

Results: Following evaluation using multimodal Ophthalmic imaging, visual functional tests, and histology analysis, we successfully identified optimal MP laser parameters. These parameters allowed for sustained retinal damage for up to 6 months while maintaining global retinal function and created a bleb in the retina during surgery for delivering cells after laser treatment. Importantly, we observed functional recovery post-RPE cell sheet transplantation, a significant step forward in advancing retinal disease research and stem cell therapies.

Conclusions: Our NHP model is suitable for evaluating new stem cell sources and transplantation techniques.

Abstract No.: 201094

Estimating postoperative visual acuity after primary rhegmatogenous retinal detachment surgery using machine learning

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Purpose: To construct a model estimating visual acuity (VA) after rhegmatogenous retinal detachment (RRD) surgery.

Methods: Four different algorithms (Random Forest, XGBoost, Linear Regression, LightGBM) were applied to develop the model to estimate VA at six months after primary RRD surgery using preoperative information. The clinical data of the Japan Retinal Detachment Registry was used in this study. The overall data was divided into two sets: 70% as a training set for model development and 30% as a test set for evaluation. The performance of each model was assessed using mean absolute error (MAE) and correlation coefficient derived from continuously estimated VA in the logarithm of the minimum angle of resolution (logMAR).

Results: A total of 2658 patients were included. The mean age was 55 ± 16 (standard deviation) years, with a male ratio of 34.7%. Macular detachment was observed in 1242 cases (46.7%). The VA was significantly improved after surgery (baseline: 0.54 ± 0.77 logMAR,

6M: 0.15 ± 0.40 logMAR; P < 0.001). The models were developed and tested using 44 variables of preoperative information. Among the four different algorithms, Random Forest showed the highest performance with MAE (0.175 logMAR; 95% confidence interval, 0.160-0.190) and correlation coefficient (r = 0.702, P < 0.001).

Conclusions: Machine learning showed the potential to estimate postoperative VA of patients with primary RRD using preoperative information.

Abstract No.: 200530

Gαi1/3-Mediated NLGN3 Signal Transduction Regulates Retinal Neurovascular Homeostasis

*First Author: Suyu **WANG***
*Co-Author(s): Keran **LI***

Purpose: NLGN3, a neuron-secreted cell adhesion molecule, recently revealed to be expressed and implicated in the vascular system's function. Our previous study found that Gαi1/3 is a key protein for RTKs to activate downstream signaling pathways. Retinal, as an extension of the nervous system, contains a significant number of neurovascular units, which influence the progression of diabetic retinopathy (DR). In this study, we seek to understand how the NLGN3-Gαi1/3 signaling system regulates retinal neurovascular homeostasis.

Methods: Various genetic strategies were utilized to examine the NLGN3-Gαi1/3 signaling pathway's role in retinal neurovascular homeostasis in vitro, in vivo, and clinically.

Results: 1.Compared with cataract patients, NLGN3 expression increased in aqueous humor of NPDR patients, and decreased in PDR patients.,2.In vitro, NLGN3 prevents retinal nerve cell damage and enhances endothelial cell proliferation, migration, sprouting, and tube formation. RGCs-derived NLGN3 can be ingested by Müller cells and HRVECs and exert biological functions. Gαi1/3 silence inhibits NLGN3-induced Akt/Erk signal transduction and endothelial cell functions.,3.In vivo, NLGN3 has a neuroprotective effect on the retina of DR Model mice and encourages the growth of retinal blood vessels. Silencing NLGN3 prevents the early imbalance of retinal neurovascular homeostasis, including retinal vascular leakage and increasing acellular capillaries. Gαi1/3 knockdown suppress NLGN3-induced PI3K-Akt-mTOR signaling.

Conclusions: NLGN3 has dual effects on retinal neurons and blood vessels. Gαi1/3 mediates the NLGN3 downstream signaling pathway. Understanding the function of the NLGN3-Gαi1/3 signaling pathway in retinal neurovascular homeostasis offers a new therapeutic target and theoretical underpinning for early detection and treatment of DR.

Abstract No.: 200424

Instrumenting Carotid Sonography Biomarkers and Polygenic Risk Score as a Novel Screening Approach for Retinal Detachment

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Purpose: To foster a risk stratification framework attributing RD risk before onset, we instrumented the hemodynamic biomarkers of the carotid ultrasonography (CUS) and the RD polygenic risk score (PRSRD) from single nucleotide polymorphism (SNP) profiling in Taiwan Biobank.

Methods: A backpropagation logistic regression model was built and visualized by nomogram to identify RD-associated CUS biomarkers. A PRSRD model was built, and gene expression of genome-wide association study (GWAS) SNP was charted from retina scRNA datasets. Last, a two-component RD prediction model (CUS and PRSRD) was assembled by logistic cumulative analysis.

Results: Hypertension (HTN) status was significantly associated with RD risk (OR=1.32). The CUS model (AUCHTN+=0.632, AUCHTN-=0.630) showed RD risk increased with the minimum flow of the right internal carotid artery and the timed average max velocity of the right common carotid artery

(ICA-Qmin OR=1.04 and CCA-TAMAX OR=1.03 with p-value<0.05). The GWAS identified three outstanding SNPs (IGFBPL1 rs117248428 OR=1.63, CELF2 rs56168975 OR=1.72, and PAX6 rs11825821 OR=1.61 with p-value<5.00x10-6) with coded genes highly-expressed in retinal pigment epithelium (RPE) and choroid. The gene-set enrichment analysis (GSEA) revealed "cell-cell adhesion" and "cell junction assembly" pathways. Notably, the two-component model achieved state-of-the-art prediction (AUCHTN+=0.95, AUCHTN-=0.93).

Conclusions: Through instrumenting CUS images and genetic PRSRD, we proposed a screening method for RD at-risk patients.

Abstract No.: 200314

Long-Term Physical, Chemical, and Microbiological Stability Study of 0.5 Unit (25 IU/ml) Topical Insulin in Normal Saline or Sodium Hyaluronate 0.18% for Diabetic Eye Disease and Epithelial Defects Induced During Vitreoretinal Surgery

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Purpose: 25IU/ml topical insulin (TI) in normal saline (TI-NS) effectively normalises healing of debrided cornea during vitreoretinal surgery. TI-NS or TI in sodium hyaluronate 0.18% (TI-AT) at room temperature (5°C ± 3°C) (RT) and refrigeration (30°C ± 2°C) (FT) is stable in short term. However, long-term stability up to 6 months is unknown and we aimed to determine this.

Methods: Physicochemical stability of eyedrops in sterile LDPE bottles stored at RT and FT were studied at 3 and 6 months after preparation including visual inspection, turbidity, UV spectral absorption, pH and osmolality. Force degradation study was conducted by exposing the sample to 70°C for 24 hours. Insulin was quantified by stability-indicating high-performance liquid chromatographic method with diode-array detection (HPLC/DAD) using RP-C18 column, o-nitrophenol as an internal standard and UV detection set at 214 nm. The level of stability was set according to BP where concentration ranged between 90 and 110% of initial concentration (including the limits of a 95% confidence interval of the measures) to be considered acceptable. Sterility was investigated by agar plating.

Results: All tested parameters remained stable for up to 6 months in both conditions according to set levels. However, insulin concentration in TI-NS at FT was significantly more than TI-AT (p=0.00), whereas TI-AT at RT was more (p=0.00) (at 3 and 6 months). There was no microbial growth.

Conclusions: Insulin eyedrops are stable and can be prescribed to patients after storage in RT and FT. Further studies into the clinical effectiveness of TI-AT are needed.

Abstract No.: 200305

The Clinical Safety Landscape of Ocular AAV Gene Therapies: A Systematic Review and Meta-Analysis

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Purpose: Ocular AAV-based gene therapy is currently a highly promising therapeutic area. Given the interest in the approach and its safety profile, we have conducted a systematic review to evaluate current trends in ocular AAV-based gene therapy clinical trials and identify factors associated with the occurrence of adverse events in the design of trials.

Methods: Randomised clinical trials aiming to treat eye diseases with AAV-based therapeutics were selected through ClinicalTrials.gov from inception to March 1, 2024.Clinical trial data on patient characteristics, treatments, and adverse events were extracted. Data with safety disclosures were entered into logistic regression models for safety analysis of critical design factors. Sensitivity analyses were conducted to test the robustness of the findings.

Results: In total, 116 trials were included, while most of the strategies focused on gene augmentation (91.4%), with a small portion focusing on gene editing (2.6%) and

optogenetics (6.0%). The therapeutic area trend represents a transition from inherited to acquired diseases along with a gradual expansion in indications. The application of AAV vectors is gradually diversifying from single to multiple genes, while the proportion of retina-specific promoters used is increasing. Intravitreal injection was associated with the occurrence of iritis (P = .026) and vitritis (P = .022). The only factor associated with drug-related SAE was artificial AAV variants (P = .047). Descriptive analysis confirmed the main findings.

Conclusions: The route of administration, particularly intravitreal injection, was associated with the occurrence of iritis and vitritis. Clinical investigators should consider precautions such as administration of prophylactic steroids when performing intravitreal injections.

Abstract No.: 200431
The Histocompatibility and Biological Response of New Robust Silk Fibroin Hydrogel Applied to Posterior Scleral Reinforcement in Rabbit Eyes

*First Author: Yule **XU***
*Co-Author(s): Yanlong **BI***

Purpose: Currently, there is no ideal material available for posterior scleral reinforcement (PSR) to prevent the progression of high myopia. In this study, we investigated robust silk fibroin (SF) hydrogels as potential grafts for PSR in animal experiments to evaluate their safety and biological reactions.

Methods: We directly dissolved SF in calcium chloride and formic acid to generate a robust SF hydrogel biomaterial. PSR surgery was performed on the right eye of twenty-eight adult New Zealand white rabbits, with the left eye serving as a self-control. Ten rabbits were observed for 3 months, while 18 rabbits were observed for 6 months. The rabbits were evaluated using intraocular pressure (IOP), anterior segment and fundus photography, A- and B-ultrasound, optical coherence tomography (OCT), histology, and biomechanical tests.

Results: SF hydrogels with β-sheet structures have been successfully generated and have good mechanical characteristics. Rabbits showed no problems or pathological changes in their retinas or optic nerves. The SF grafts were enclosed in fibrous capsules and positioned correctly at the posterior sclera. Following surgery, the treated eyes' scleral thickness and collagen fiber content rose. At 6 months following surgery, the reinforced sclera had a 30.7% higher ultimate stress and a 33.0% higher elastic modulus than the control eyes.

Conclusions: Robust SF hydrogels exhibited good biocompatibility and promoted the formation of fibrous capsules at the posterior sclera in vivo. The biomechanical properties of the reinforced sclera were strengthened. These findings suggest that robust SF hydrogel is a potential material for PSR.

Abstract No.: 201125
Two-port subretinal injection without vitrectomy for the treatment of Bietti crystalline dystrophy

*First Author: Xiuju **CHEN***
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Purpose: To report simplified, non-vitrectomized surgical technique of subretinal injection in patients with Bietti crystalline dystrophy receiving viral vector gene therapy.

Methods: An exploratory clinical study. Two scleral ports were created using a 25G vitrectomy trocar to place the light pipe and injection cannula. Anterior chamber paracentesis was performed to lower intraocular pressure. Under the silicone oil infusion mode of the vitrectomy machine, a 38G injection cannula penetrated the retina to reach the subretinal space. The injection speed was controlled by the foot pedal of the vitrectomy machine, and the drug was slowly injected into the subretinal space to create a subretinal bleb. if intra-ocular pressure assessed by finger palpation was high at the end of injection, drainage of the aqueous humor can be made by compressing the cornea incision until the intraocular pressure is normal. Patients were

followed for 12 months and be examined using the same equipment and methods as before.

Results: Six patients enrolled aged 34-60 years and had no posterior vitreous detachment. The range of operation time was 9-14 minutes. No vitreous prolapse, retinal hemorrhage, or retinal tear was observed during surgery. Drug was absorbed and retina re-attached within 24 hours after the subretinal injection. None of the six patients showed corneal keratic precipitates, anterior chamber cells, vitreous cells, inflammation, high intraocular pressure, or retinal tear over 12 months.

Conclusions: Subretinal injection without vitrectomy using two ports is a safe, timesaving and feasible alternative for adult gene therapy.

VIDEOS

Intraocular Inflammation, Uveitis & Scleritis

Abstract No.: 200592
Potpourri of Vitreoretinal Surgeries in Ocular Inflammation

*First Author: Manu **SHARMA***
*Co-Author(s): Atul **ARORA**, Vishali **GUPTA***

Purpose: To discuss the tips and tricks of diagnostic and therapeutic vitrectomy in ocular inflammatory diseases.

Methods: Surgical intervention may be required in certain cases of uveitis in order to establish a diagnosis, or as a therapeutic measure in the presence of vitreoretinal complications. Retinal detachment in uveitis patients can be a mix of tractional, exudative, and rhegmatogenous with proliferative vitreoretinopathy. The presence of these complications requires complex vitreoretinal techniques.

Results: In this video, we have described various tips and tricks for vitreous sampling and management of vitreoretinal complications associated with uveitis using few descriptive cases which resulted in improvement in diagnostic and therapeutic outcome.

Conclusions: Vitreoretinal surgery is an indispensable tool in the diagnosis and management of uveitis unresponsive to medical therapy and for the management of secondary uveitic complications.

Abstract No.: 200066
Reactive intraocular plastic foreign body - An unusual occurrence with histopathologic confirmation

*First Author: Vivek **DAVE***

Purpose: To describe a case of an unusual plastic intraocular foreign body (IOFB) which developed encapsulation as confirmed on post-operative histopathology

Methods: A 10-year old presented with a corneal tear and traumatic cataract with perception of light. He underwent corneal tear repair immediately. The following day a B scan ultrasound showed attached retina with anechoic vitreous cavity.He was posted for a lens aspiration and post-operative contact lens trial. Following the surgery though, he was lost to follow up and reviewed after 3 months. Vision at that visit was hand motions. the cornea was clear, the fundus showed a retinal detachment with subretinal bands. The vitreous cavity inferiorly showed a yellowish white membranous lesion at 6 o clock. A b scan through the lesion revealed dense echoes with after shadowing and a high spike on the associated A scan. This suggested a potential retained IOFB. When the history was revisited, it revealed injury with a plastic piece slingshot.

Results: During surgery, after vitrectomy, a bimanual dissection of the membranous capsule revealed a plastic foreign body. The IOFB was removed from an anterior scleral tunnel. Subsequently, the capsule that was covering the IOFB was meticulously dissected from the underlying retina, retrieved and send to histopathology. Histopathology review of the capsule showed granulomatous inflammation and fibrous tissue elements with no evidence of retinal tissue, thus confirming the tissue to be an inflammatory capsule

Conclusions: Meticulous history taking is imperative in trauma to appropriately suspect an IOFB. Plastic is not necessarily inert. Reactive plastic IOFBs can be encapsulated

Abstract No.: 200724
Successful Management of Type V Ophthalmia Nodosa (ON) with Pars Plana Vitrectomy (PPV)

*First Author: Nitin **KUMAR***
*Co-Author(s): Vishali **GUPTA***

Purpose: To describe successful management of Type V ON with PPV in a patient presenting with recurrent Intermediate Uveitis (IU) like-picture and recalcitrant macular edema.

Methods: A 40-year-old male presented to us with recurrent redness and decreased vision in the left eye for three years. He had received multiple courses of oral corticosteroids but inflammation recurred on tapering the drugs. He had been diagnosed elsewhere as a case of recurrent IU and was referred to us for immunosuppression. Detailed history revealed, a fall of caterpillar hair in his left eye three years back. A comprehensive ocular examination revealed retinal vasculitis, severe macular edema and multiple retained caterpillar hair in the vitreous and extreme nasal retinal periphery. Considering recurrent bouts of inflammation and poor response to corticosteroids, he was advised PPV with removal of the caterpillar hair from the vitreous cavity. Intra-operatively, scleral depression revealed additional hair in the pars plana region, which were stuck to the vitreous base and were meticulously removed.

Results: Postoperatively, the inflammation resolved and visual acuity improved from 6/18 to 6/9 Snellen's equivalent. Following PPV, uveitis and macular edema resolved and there were no recurrence of inflammation on follow-up.

Conclusions: PPV is beneficial in cases with Type V ON, which do not respond to oral corticosteroids. Meticulous removal of all hair is necessary to avoid recurrences and achieve remission. A prompt PPV led to the resolution of inflammation and diminished the requirement of oral corticosteroids.

Abstract No.: 200129
Vogt-Koyanagi-Harada Syndrome: Surgical Battles with Complicated Cataract and Refractory Glaucoma

*First Author: Md Iftekher **IQBAL***

Purpose: To demonstrate surgical management in a case of Vogt-Koyanagi-Harada syndrome, who developed refractory glaucoma with complicated cataract.

Methods: This is the case of 35-year-old lady who was on regular follow-up as a diagnosed case of Vogt-Koyanagi-Harada syndrome. Initially, she developed secondary glaucoma due to pupillary block, angle closure, and steroid use, which was managed medically. Later, glaucoma became refractory and developed a complicated cataract with deteriorating functional vision.,For these reasons, she underwent glaucoma drainage device implant (GDD), non-valved Auro Aqueous Drainage Device (AADI), along with cataract extraction and three-piece intraocular lens within the capsular bag.

Results: The combination of a glaucoma drainage device and cataract surgery reduced the intraocular pressure in the long-term as well as improved visual function of this patient.

Conclusions: Patients with Vogt-Koyanagi-Harada syndrome may develop both refractory glaucoma and a visually significant cataract. If this happens, combining a glaucoma drainage device with cataract surgery after the settlement of active ocular inflammation can be very helpful in the long term.

Other (General Ophthalmology)

Abstract No.: 200099
A Glimpse into the Retina of Sun Bear: A Unique Ophthalmic Insight

*First Author: Yong Zheng **WAI***
*Co-Author(s): Wai Seng **CHIANG**, Nabila **SARKAWI**, Siew Te **WONG**, Boon Nie **YEOH***

Purpose: To describe the ophthalmic and retinal findings in a Malayan sun bear (Helarctos Malayanus).

Methods: A 17-year-old Malayan sun bear housed in a conservation center was referred to the ophthalmology department due to a suspected cataract in the right eye. An examination was performed under general anesthesia, and ophthalmic and retinal findings were documented.

Results: The upper, lower, and third eyelids appeared normal. Cyclo-refractive assessment revealed a dull reflex in the right eye (RE) and a plano condition in the left eye (LE). Intraocular pressure was measured at 14 mmHg in the RE and 11 mmHg in the LE. Corneal diameter

was 11.5 mm (RE) and 12 mm (LE). Posterior subcapsular and cortical cataracts were observed in the RE. The LE had a clear lens, and the fundus exhibited a bright golden reflex due to the presence of the tapetum lucidum. The optic disc appeared pink with a cup-to-disc ratio of 0.9. Retinal vessels fanned out radially from the optic disc.

Conclusions: The retina of the Malayan sun bear exhibits a bright golden reflex, which is markedly different from that of humans, attributable to the presence of the tapetum lucidum. Additionally, the cup-to-disc ratio in Malayan sun bears is relatively larger than that in humans. This video provides valuable insights into the unique retinal characteristics of the Malayan sun bear.

Abstract No.: 200503
Ensuring Patient Safety: A Guide to Effective Surgical Time Out in Ophthalmology

First Author: Afra A
*Co-Author(s): Dhwanee **AGARWAL**, Bhavik **PANCHAL***

Purpose: The surgical time out is a critical safety procedure that confirms key details before an ophthalmic surgical procedure begins. During the author's ophthalmology fellowship, they encountered a critical patient safety challenge. Inconsistent surgical time out adherence, highlighted the need for improved protocols and team communication and training to ensure patient safety.,This video aims to emphasize the significance of surgical timeouts in ophthalmic procedures to prevent errors and guarantee patient safety.

Methods: The video was recorded during simulated ophthalmic procedures at our academic eye institute. The video showcases real-world scenarios where breakdowns can occur in surgical safety protocols at various stages of the procedure. It features the full surgical team, including the ophthalmologist, assisting nurse, circulating nurse, and anaesthetist performing the time out protocol together. The video shows the effective communication strategies during the surgical time out to ensure clarity and prevent misunderstandings.

Results: The video serves as a valuable educational tool for ophthalmology departments aiming to refine their surgical timeout practices and uphold the highest patient safety standards.

Conclusions: Surgical timeouts are an essential patient safety measure in ophthalmology. This educational resource is designed for ophthalmology professionals globally. By equipping staff with the knowledge and skills for standardized surgical time out procedures, including proper verification for multiple patients, the video helps to cultivate a culture of safety in ophthalmic surgery, ultimately benefiting patients worldwide.

Abstract No.: 201138
Innovative Pedagogy in Vitreo-Retinal Fellowship: Leveraging Animated Videos for Advanced Learning

*First Author: Debolina **DEB***
*Co-Author(s): Prithvi **CHANDRAKANTH***

Purpose: The complexity of retinal pathologies and vitreo-retinal surgery poses challenges for novices. Our animated videos simplify these concepts, offering clear depictions of retinal conditions and procedures to enhance understanding and bridge the gap between theory and clinical practice.

Methods: DIY animated videos created with Keynote or Microsoft PowerPoint illustrate techniques for routine OPD procedures, including scleral indentation during indirect ophthalmoscopy, identifying peripheral retinal lesions, drawing Amsler's charts for RRD diagnosis, and screening for retinopathy of prematurity. Additionally, surgical videos provide step-by-step guidance on pars plana vitrectomy for diabetic retinopathy and RRD.

Results: The animated videos have enhanced fellows' understanding of the eye's three-dimensional structure, facilitating the differentiation of pathology from a normal retina. They have clarified OPD procedures,

addressing queries on peripheral retinal lesions, improving Amsler chart representation of RRD, and elucidating ROP progression and regression. The surgical videos not only outline procedural steps but also provide essential tips for real-world scenarios, such as performing core vitrectomy in phakic eyes, inducing posterior vitreous detachment, base shaving in RRD, identifying schlieren in RRD, and ensuring optimal endolaser burn spot size, intensity, and distance.

Conclusions: This intuitive and readily accessible approach greatly simplifies the understanding of the intricate vitreo-retinal field for fellows. Future advancements might see the incorporation of virtual reality into VR training centers, further refining and enriching training programs.

Abstract No.: 200315
Rock hard calcified cataract - Fishing coral from the Vitreous

*First Author: Mae-lynn **BASTION***
*Co-Author(s): Wan Haslina **WAN ABDUL HALIM**, Lhacha **WANGDI***

Purpose: Longstanding cases of blindness where cornea opacity prevents eye examination may be considered for surgical intervention if there is the slightest chance of vision. These cases may include dropped cataractous lenses, which have undergone chemical changes, including calficication. This video aims to demonstrate a blind patient given a chance to see through combined sub-specialty surgery involving a calcified "coral-like" cataract in the vitreous.

Methods: A single case review

Results: A 59-year-old lady blind bilaterally for at least 15 years, was a poor historian. On examination, her vision was light perception OD and no LP OS due to absolute glaucoma. Optic nerve function could not be tested. The right eye on examination had decompensated cornea with band keratopathy and peripheral anterior synechiae. B scan showed hyperechoeic structures in vitreous with no retinal detachment. She consented to surgery to attempt to restore her vision. Intraoperatively after view was restored with synechiolysis, removal of anterior membrane, and a temporary keratoprosthesis, a rock hard calcified cataract with consistency similar to coral was removed with vitrectomy and delivered via the open sky. Retina had pigmentary changes but was otherwise normal. Her vision at 9 months of follow-up was 1/60 complicated by secondary glaucoma. She reported improved navigational vision and quality of life.

Conclusions: Phacofragmentation is not an option for calcifed cataract and it must be removed via anterior incisions including open sky technique. "Never give up" should be the rule when fellow eye is already blind and even when the posterior segment is not visible.

Abstract No.: 200728
Shot at a second chance - rapid fire video on secondary IOL without capsular support

*First Author: Christopher **GO***

Purpose: An overview and tips of common secondary IOL techniques without capsular support from a beginner's perspective

Methods: Video presentation of 5 common secondary IOL types (angle supported ACIOL, iris-clawed retropupilary Artisan IOL, sutured scleral-fixated IOL, sutureless scleral-fixated IOL (Yamane and Carlevale) completed during retina fellowships from 2022-2024

Results: Edited video of each summarising the main steps, advantages + disadvantages and tips for each surgical technique during retinal fellowship.,ACIOL - Large Corneal wound (~6mm) (or scleral tunnel), Quick and easy to learn , Can be performed with poor corneal clarity, Complete PPV not required, Great for patients not suitable to return to OT / unable to tolerate long operating time, PI needed to reduce risk of pupil block, Risks of corneal oedema, UGH, glaucoma,Artisan - Similar profile to ACIOL, ?less corneal oedema as further away from endothelium, Can be placed in AC or PC, Needs healthy iris, Large Corneal Wound (~5.5mm) (or scleral tunnel), Specific equipment needed (IOL forceps +

enclaving equipment), Small / irregular pupil post op,Scleral Sutured - Able to adjust tension hence better centring, Less inflammation (less iris irritation + full vitrectomy) but more intraocular manipulation, Suture related complications (exposure, breakage),Sutureless scleral-fixated - Smaller gauge sclerostomies, Scleral dissection not required, No suture related complication, Risk of IOL tilt, Steeper learning curve, haptic damage

Conclusions: Each technique has its own profile of advantages and disadvantages. Some are quicker and have a flatter learning curve (i.e. ACIOL, Artisan) whilst others have less anterior segment complications (e.g. posterior chamber IOLs)

Pediatric Retina

Abstract No.: 200997
Suave regression of Exudative Retinal Detachment (ERD) in a case of Coat's Disease by External approach

First Author: Debolina ***DEB***
Co-Author(s): Prabu ***BASKARAN****, Anand* ***RAJENDRAN***

Purpose: To demonstrate the ease and non-tampering approach of settling exudative retinal detachment (ERD) in Coat's disease by draining subretinal fluid (SRF) through an external approach using extrusion cannula.

Methods: A 3 year old Indian boy was brought by his parents with complaints of white reflex in right eye (RE) for 3 months. RE had Perception of light. Dilated RE fundus examination- ERD noted, confirmed on ultrasonography. MRI Brain- normal. The child underwent RE Parsplana Vitrectomy with SRF drainage and Cryotherapy with AC maintainer under General anaesthesia (GA). On table, ERD with SRF and exudates with peripheral telangiectasia noted, clinching diagnosis towards Coat's Disease. Transconjunctival sclerotomy was made in inferior quadrant, 10 mm from limbus. SRF was initially drained passively for SRF cytology. Extrusion cannula was introduced through the same port and endoilluminator through another port to help visualise extrusion cannula under the retina. SRF was actively aspirated. The video illustrates smooth settling of retina once SRF is drained. As the retina was settling down, extrusion cannula was slowly withdrawn to avoid inadvertent retinal incarceration into the cannula. Once the retina was fairly flat, cryotherapy was applied over the peripheral telangiectatic vessels anteriorly and endolaser over posterior pole lesions. Other eye was normal.

Results: POD1, retina was flat and settled- clinically and ultrasonographically. SRF sent for cytology- ruled out retinoblastoma. 3 months follow up- retina is flat.

Conclusions: The video demonstrates the non-conventional technique of settling exudative RD by external drainage of SRF, without disturbing the vitreous cavity in a case of advanced Coat's disease.

Retina (Medical)

Abstract No.: 200413
Integrated-OCT guided cystotomy with ILM peel for chronic macular edema with intracystic hyper-reflective material

First Author: Brijesh ***TAKKAR***
Co-Author(s): Ritesh ***NARULA****, Abhishek* ***UPADHYAYA***

Purpose: Intracystic hyper-reflective material (ICHRM) is a poor prognostic optical coherence tomography (OCT) marker for chronic macular edema. The surgical management of ICHRM in 3 such eyes with corresponding visual and OCT changes is presented.

Methods: Two eyes had diabetic retinopathy, and one had retinal vein occlusion. Case 1 and 2 had received multiple intravitreal injections (anti VEGF and steroid). Case 3 was a retro-positive diabetic patient denying intravitreal injections. Visual acuity had continued to decline or not improve with worsening ICHRM and macular edema in all eyes. Multimodal imaging detected large peri-cystic microaneurysm. 25 G pars plana vitrectomy with ILM peeling was performed coupled with

lysis of the cyst with a 38 G cannula under the guidance of microscope-integrated OCT (iOCT) for these eyes.

Results: Visual acuity of case 1 improved from 20/60 to 20/40 without further injections till at least 6 months. Case 2 improved from 20/30p to 20/25 and did not require further injections till at least 3 months. Case 3 improved from 20/80 to 20/40 without further injections till at least 3 months. ICHRM disappeared on OCT in all the cases along with gross reduction of macular edema. Case 3 had a tiny pocket of subretinal fluid (< 20microns) with a reducing trend till last follow-up.

Conclusions: Eyes with chronic macular edema and ICHRM refractory to standard therapy can be considered for ILM peeling coupled with iOCT guided-cystotomy. The iOCT helps in locating the intended puncture site, and monitoring the cyst-rupture and collapse during this procedure.

Retina (Surgical)

Abstract No.: 201093
"Ousting the Invaders" - Intraocular Foreign Body Removal

*First Author: Kartikey **KOTHARI***

Purpose: To showcase different cases of intraocular foreign body (IOFB) removal right from fresh IOFB to old retained IOFB.

Methods: All the cases with confirmed retained intraocular foreign bodies were included. Presence of IOFB was confirmed with b-scan or x-ray or CT scan whenever required. Cases from all age group were included. IOFBs were removed from posterior segment of the eye following pars plana vitrectomy with the help of intraocular magnets or forceps through the scleral or cornel incision. Tear repair was done and cataract extraction in cases where lens was damaged due to trauma was performed. Silicon oil was injected whenever tamponade was required.

Results: In all the cases foreign bodies were removed successfully. All the patients were regularly followed up and regained satisfactory vision after the final surgery.

Conclusions: Intraocular foreign bodies (IOFBs) are critical ophthalmic emergencies that require urgent diagnosis and treatment to prevent blindness or globe loss. Timely intervention and planned management can help patient regain good vision.

Abstract No.: 200798
"The Unfurling Technique" - Surgically Induced Retinal Detachment Enhancing Anatomical and Functional Outcome in Grade 3 Epiretinal Membrane

*First Author: Naresh **BABU KANNAN***
*Co-Author(s): Avik **DEY SARKAR**, Vallinayagam **KRISHNAN**, Athul **PUTHALATH**, Kim **RAMASAMY***

Purpose: Epiretinal Membrane (ERM) significantly alters inner foveal microanatomy compromising functional outcome. Subretinal injection of balanced salt solution can result in ironing out of the retinal layers, improving functional outcome.

Methods: The novel technique of surgically inducing a retinal detachment in a case of Stage 3 (Govetto's) Epiretinal Membrane with BCVA 5/60 is demonstrated. After routine ERM and ILM peeling, BSS is injected into the subretinal space using a 41G needle connected to an injector. The injection site is just within the arcade and multiple injections may be needed to adequately detach the posterior pole from arcade to arcade, followed by SF6 tamponade. The functional assessment was done by BCVA and Microperimetry. OCT parameters including ectopic inner foveal layer thickness, outer nuclear layer thickness, central foveal thickness and EZ disruption were recorded. BCVA 6/9 was achieved at 2 months.

Results: The surgically induced retinal detachment and SF6 tamponade ensures that the retina is stretched and ironed out, and hence re-organises the foveal micro-anatomy

Conclusions: The technique helps in faster unfurling of the retinal layers, which translates

into rapid visual rehabilitation in Grade 3 and 4 ERM.

Abstract No.: 200779
"When the clot gets tougher, the cutter gets moving"

First Author: Ram Sudarsan R
*Co-Author(s): Syed Mohideen **ABDUL KHADER**, Aswin **PR***

Purpose: To describe the management of a 45-year-old male with a thick dehemoglobinized bleed and a large adherent pre-macular clot associated with proliferative diabetic retinopathy.

Methods: To describe the management of a 45-year-old male with a thick dehemoglobinized bleed and a large adherent pre-macular clot in proliferative diabetic retinopathy (PDR).

Results: The patient was taken up for pars plana vitrectomy where a difficult but successful PVD induction was completed. It was surprising to find a very large pre-macular clot which behaved as a single unit with dehemoglobinised edges. The edges of the clots were lifted, probably due to infusion and surgical maneuvers but was still adherent to the macula. Multiple attempts of dislodging it with saline and flute needle were attempted but ultimately was removed with the cutter as a single unit with no damage to the underlying macula. It was followed by base dissection, endolaser and Silicone oil tamponade.

Conclusions: PVD induction is a crucial step in diabetic vitrectomy. Posterior vitreous detachment induction is tricky in the presence of dehemoglobinsed bleed where the ability to make out the Taut posterior hyaloid gets compromised due to poor surgical view. Here we are describing a case of dehemoglobinised bleed with a thick adherent macular clot.

Abstract No.: 200388
A Cross-Disciplinary Approach to Glass Intraocular Foreign Body (IOFB) Removal using Nitinol Stone Basket Retrieval Device

*First Author: Sheng Xuan **WAI***
*Co-Author(s): Mae-lynn **BASTION**, Jemaima **CHE HAMZAH**, Teck Chee **CHENG**, Qian Zhi **HAW**, Jing **LEE***

Purpose: To propose the use of nitinol stone basket retrieval device, i.e. a device used in kidney stone removal, as a cross-disciplinary approach to glass intraocular foreign body (IOFB) removal.

Methods: Case Report.

Results: A 69-year-old gentleman with underlying bilateral eyes pseudophakia, presented with one-day history of acute painful right eye (RE) vision loss secondary to glass container explosion.,,On examination, RE vision was 6/60 with negative reverse relative afferent pupillary defect. He sustained a self-sealed full thickness corneal penetrating wound with glass shard in the anterior chamber which tilted the inferotemporal edge of intraocular lens, with traumatic hyphaema and traumatic mydriasis.,,During RE examination under anaesthesia with corneal toilet and suturing, failed attempt using Kelmann forceps caused the glass IOFB to slip under the inferior zonulolysis into the posterior segment. Computed tomography scan showed a 9mm x 4mm glass shard resting horizontally on the inferior retina.,,During RE pars plana vitrectomy with IOFB removal, conventional microsurgical forceps failed to grasp the large slippery glass IOFB. Using a 11mm-sized nitinol stone basket, the surgeon was able to securely grasp the glass IOFB and deliver it through an enlarged 6mm sclerostomy incision, while the assistant maintained constant pressure on the grip handle. The final measurements of glass IOFB were 14mm x 4mm.

Conclusions: The nitinol stone basket retrieval device is an excellent option in the surgical removal of glass IOFB, due to the flexibility of stone baskets to accommodate IOFB of varying

sizes, and provides a firm grasp for retinal surgeons intraoperatively to prevent slippage.

Abstract No.: 200690

A Rapid Fire of Small Surgical Innovations for Big Differences in Surgical Retina.

*First Author: Jayant **KUMAR***
*Co-Author(s): Anjalika **SHEKHAR**, Nitesh **SINGH**, Veer **SINGH**, Shishir **VERGHESE***

Purpose: To showcase some simple innovations which bring out novel ways to simplify a variety of vitreo-retina surgical case scenarios.

Methods: The video is a collection of small surgical innovations in seven different surgical scenarios which can make big differences in routine surgical retina cases.,1. Scleral Buckling Simplifications,(i) Arc length marker – A small fragment of tire element can be used as an excellent guide for placement of sutures. (ii) Silk anchorage for en-bloc placement of tire with band helps avoid frequent band and buckle element displacements.,2. Decentered IOL and RD surgery - A Novel means of Pars Plana adjustment of IOL for re-centration after fluid air exchange,3. Sub-retinal band (SRB) removal : Strum, release and remove Technique – makes SRB removal more convenient,4. Ultra-low vacuum for ILM Trimming in macular hole surgery - A useful means to manipulate flap without the fear of flap loss,5. Rudder technique for externalization of second haptic in SFIOL,6. Cutter assisted bag sparing cataract extraction for cases with subluxated cataract with retinal pathology like RRD requiring retina surgery.,7. Blunt dissection with cutter – a tool to get proper plane during diabetic vitrectomy.

Results: The methods described have been found useful by many Vitreo-retina surgeons in simplifying their surgeries.

Conclusions: The video ends with an inspiring story on how a series of thoughtful and small innovations could help in succesful execution of vitreo-retina surgery in a case of severe cervical kyphosis, highlighting the importance of thoughtfulness and small innovations.

Abstract No.: 200797

Air perfused Dissection of posterior hyaloid and tractional membrane complex in diabetic vitrectomy - "A breath of Fresh Air"

*First Author: Naresh **BABU KANNAN***
*Co-Author(s): Kim **RAMASAMY**, Toshit **VARSHNEY***

Purpose: Dissection of posterior hyaloid and tractional membrane complex (PHTMC) in diabetic Tractional Retinal Detachment (TRD) is challenging, with recurrent bleeding precluding further dissection.

Methods: A 47-year-old male presented with Macula involving TRD and BCVA of LogMAR 2 (Finger counting close to face) in right eye (RE). Standard 23G core vitrectomy was followed by an "outside-in" approach to make an opening in the mid-peripheral detached vitreous. After partial drainage of subhyaloid hemorrhage (SHH), "premature" fluid-air exchange was done, and the remaining SHH was cleared. This was followed by 360 degree separation of PHTMC from peripheral vitreous using cutter, thereby eliminating antero-posterior traction. The membrane was then separated using a pick and removed using cutter. Vitreous base shaving followed by endolaser and silicone oil tamponade was done. At 6 months follow-up, silicon oil removal was done and achieved BCVA of LogMAR 0.3 (Snellen 6/12) with an anatomically attached retina.

Results: Air perfused dissection of PHTMC in diabetes offers adequate tamponade and enables intra-operative haemostasis.

Conclusions: Dissection of tractional membranes in diabetic TRD is facilitated by "air perfused" vitrectomy which thereby improves anatomical and functional outcomes.

Abstract No.: 200620

Anterior Lens Capsule as a Rescue Technique for Closure of Failed Macular Hole

*First Author: Awaneesh **UPADHYAY***

Purpose: The aim of this video is to determine whether the anterior lens capsule can be used

as a rescue graft for the closure of large failed macular holes.

Methods: An elderly woman presented with a failed large macular hole in her left eye (>1400 microns) and a vision of counting fingers at 1 meter. Inverted ILM flap surgery was planned. A 25G vitrectomy was performed, and the ILM was stained with brilliant blue dye. Macular massage was conducted to reduce the size of the hole, and the pedicle ILM graft was peeled and positioned over the hole using perfluorocarbon liquid (PFCL). During fluid-air exchange, the ILM was inadvertently dragged into the flute. An anterior lens capsule graft was dissected and placed over the macular hole. Fluid-air exchange was completed, followed by C3F8 gas injection. The patient was advised to maintain a prone position for two weeks postoperatively. Four weeks later, closure of the macular hole was observed, with visual acuity improved to counting fingers at 3 meters.

Results: Anterior lens capsule used as rescue graft to close large failed macular hole.

Conclusions: Anterior lens capsule used as rescue graft to close large failed macular hole with predictable and favourable outcomes.

Abstract No.: 200921

Application of 25-gauge 20,000 cuts per minute vitreous cutter in a case of tractional retinal detachment secondary to proliferative diabetic retinopathy.

*First Author: Soo Chang **CHO***
*Co-Author(s): Ji Young **MOON***

Purpose: To introduce our experience of using a 25-gauge 20,000 (20K) cuts per minute (cpm) vitreous cutter in a patient with proliferative diabetic retinopathy (PDR) accompanied by tractional retinal detachment (TRD).

Methods: A 42-year-old man with diabetes visited our department due to worsening visual acuity in his both eyes over past 2 months. At the initial visit, the corrected visual acuity in both eyes were 0.02. Vitreous hemorrhage and macular on TRD due to proliferative fibrovascular membrane in both eyes were observed in fundus examination. Diffuse disruption of the photoreceptor layer in both eyes were observed by optical coherence tomography. Accordingly, pars planar vitrectomy (PPV) was planned for both eyes. Cataract surgery, PPV and silicone oil injection was performed on the right eye using a 25-gauge 10,000 cpm vitreous cutter. Six weeks later, cataract surgery, PPV was performed on the left eye using a 25-gauge 20K cpm vitreous cutter.

Results: Two months after the surgery on the left eye, the uncorrected visual acuity was finger count 50cm in the right eye and 0.1 in the left eye. Focal mild SRF sub-retinal fluid remained on the nasal side of the optic disc in the right eye. In the left eye, the retina was well attached.

Conclusions: In this case, 25-gauge 20K cpm vitreous cutter was used in TRD secondary to PDR. It was able to locate and operate the cutter probe closer to the retina safely with reduced the pulsatile traction force and thereby minimizing the occurrence of iatrogenic tear.

Abstract No.: 200348

Application of Internal Limiting Membrane Flap Technique in Vitrectomy for Rhegmatogenous Retinal Detachment coexisting with Macular Hole

*First Author: Shuya **WANG***
*Co-Author(s): Xingrong **WANG***

Purpose: This study aims to retrospectively compare the effectiveness of the internal limiting membrane (ILM) flap technique versus simple ILM peeling in treating rhegmatogenous retinal detachment (RRD) coexisting with macular hole (HM) during vitrectomy in the first quarter of 2024, to explore the clinical advantages of the ILM flap technique.

Methods: Retrospective analysis of clinical data from the first quarter of 2024 was conducted, including a treatment group with the ILM flap technique (8 eyes from 8 patients) and a control group with simple ILM peeling (9 eyes from 9 patients). Both groups underwent vitrectomy with retinal reattachment and silicone oil filling.

The treatment group received an ILM flap covering the macular hole, while the control group had only ILM peeling.

Results: Both groups showed significant improvement in BCVA postoperatively. The difference in final BCVA between the groups was not statistically significant.Both groups achieved a 100% retinal reattachment rate. The treatment group had a significantly higher macular hole closure rate (100%) and shorter closure time compared to the control group(56%).

Conclusions: Traditional vitrectomy with ILM peeling achieves high retinal reattachment rates but has lower macular hole closure rates in the primary surgery. The ILM flap technique provides several advantages, such as offering a scaffold for retinal cells and reducing traction, leading to higher closure rates and better vision improvement. Thus, the ILM flap technique is advantageous and should be promoted in clinical practice.

Abstract No.: 201055
Autologous Neurosensory Retinal Autograft for Persistent/Recurrent Myopic Macular Holes

*First Author: Ramya **APPANRAJ***

Purpose: The purpose of this video is to describe the management of recurrent or persistent macular holes that fail to close after primary ILM peeling surgery. While there are various options available for persistent holes, treatment choices are quite limited for persistent myopic macular holes. In this video, we present two cases of recurrent myopic macular holes that were successfully managed with neurosensory retinal autografts.

Methods: A 55-year-old female with high myopia, retinal detachment, and posterior staphyloma underwent pars plana vitrectomy with silicone oil injection. Postoperatively, she was found to have retinal detachment and a full-thickness macular hole. A repeat pars plana vitrectomy with relaxing retinectomy and neurosensory autograft was performed, successfully closing the macular hole.,,Another case involved a 36-year-old male with rhegmatogenous retinal detachment who had undergone vitrectomy elsewhere. He presented to us with reduced vision post-vitrectomy. Examination revealed a large full-thickness macular hole greater than 1500 microns. A repeat pars plana vitrectomy with neurosensory autograft was planned and subsequently performed.

Results: In both cases, the macular hole was successfully closed with a neurosensory autograft.

Conclusions: To conclude, Neuro sensory retinal autograft is an extremely useful and successful technique for closure of recalcitrant and myopic macular holes. It acts as a plug for the hole as well as a scaffolding for glial cell proliferation. It adds the surgical armamentarium for treating challenging cases. The knowledge of this technique among general ophthalmologists will facilitate appropriate referrals.

Abstract No.: 200075
Break the Mould: Unconventional Techniques in Conventional Vitreoretinal Surgeries

*First Author: Shishir **VERGHESE***
*Co-Author(s): Prithvi **CHANDRAKANTH***

Purpose: To showcase a video bouquet of surgical retina cases managed with innovative surgical techniques and instrumentation.

Methods: A video bouquet of multiple surgical retina cases where innovative surgical techniques are used to get around routine surgical retina cases.

Results: We utilise innovative surgical techniques,,1. A novel 3d-printed glow in the dark ring for placement over the trocar canula helps in visualizing the ports for swift instrument exchange in a dark room.,,2. A 27guage intravenous canula for performing an external subretinal fluid drainage and where the silicone can be left insitu in the subretinal space.,,3. Tissue Plasminogen Activator injection under fluid air exchange for removing clots over a detached retina in cases of excessive bleeding in vitrectomy for proliferative diabetic

retinopathy.,,4. Subretinal BBG dye injection for occult retinal break detection in cases of recurrent retinal detachment.,,5. A custom made intraocular foreign body removal forceps for removing non-magnetic foreign bodies.,,6. Flanged intraocular lens using prolene sutures in cases where corneal diameters are more than 11.5mm where a routine scleral fixated IOL cannot be done.

Conclusions: To conclude, we describe various innovative and unconventional vitreoretinal surgical techniques helping to get around common problems in vitreoretinal surgery, thereby breaking the mould.

Abstract No.: 201063
Combined Cataract Extraction with Vitrectomy for Retained intraocular foreign body (RIOFB)

First Author: Vineet ***BATWANI***
Co-Author(s): Vidit ***BANSAL****, Avilasha* ***MOHAPATRA****, Madhu Ch* ***SAI VINEETH***

Purpose: To demonstrate surgical management of retained intraocular foreign body with retinal detachment following penetrating injury through combined cataract extraction with vitrectomy.

Methods: These videos demonstrate 2 cases which came to our clinics with retained intraocular foreign body.,,Case 1 was a 10 year old male who presented with vague history of penetrating trauma with sharp object OD about 10 days back. On examination a self sealed corneal perforation with anterior capsular defect with cataractous lens was noted. Radiograph and CT scan were suggestive of retained Intraocular foreign body. The patient was planned for combined cataract extraction with pars plana vitrectomy with Foreign body removal. Intraoperatively lens aspiration was done followed by pars plana vitrectomy followed by removal of iofb using intraocular magnets followed by laser photocoagulation and implantation of 3 piece IOL in sulcus with optic capture.,,Case 2 was a 45 year old male who presented with OD diminution of vision for2 weeks. On examination the patient was found to have cataractous lens with inferior Rhegmatogenous Retinal Detachment with retained IOFB. Patient was planned for OD cataract extraction with pars plana vitrectomy with IOFB removal with SOI.

Results: Both the patients had attached retina and good gain of vision following surgery at 1 week post op.

Conclusions: Combined cataract extraction with ppv along with iofb removal along with pciol implant is safe and effective method of managing retained intraocular foreign body with or without retinal detachment.,Optic capture of 3 piece IOL prevents displacement during FAX.

Abstract No.: 200947
Corneal Epithelium Graft rescues the notorious failed Macular Hole Retinal Detachment

First Author: Shashank ***GUPTA***

Purpose: To show the unconventional use of the corneal epithelium to salvage the failed case of macular hole re-retinal detachment. Difficulties associated in placing the graft over the macular hole will be discussed as well the innovative technique in conquering the situation.

Methods: Autologous Corneal epithelium graft was fashioned to salvage the macular hole retinal detachment where dry amniotic membrane graft failed to open in-situ.,,Graft was fashioned and introduced after removing the valved cannula.,,The struggle to place the graft and getting rid from forceps and light pipe alternatively will be displayed. It was finally dropped over the retina by putting saline drops over the graft and then it was aspirated in the flute needle before vomiting it out from the flute needle directly over the macular hole. It was finally caressed over the hole by fenesse loop and then the silicon oil was poured directly over the graft to avoid its slippage.

Results: Macular Hole was closed 3 days after the surgery and remain closed at 8th day post op with gliosis of the macular hole. At 8th day

some signs of retinal layer differentiation are seen in couple of OCT scans. FAF looks grossly normal.

Conclusions: Unconventional use of autologous corneal graft can be done in dire situations where closure of macular hole is vital for the success of the surgery. Whether it can be extended in closing other retinal holes needs to be seen in further studies.

Abstract No.: 200205
Cradles of Light: Amniotic Grace in Retinal Twilight – Exploring Amniotic Grafts for Retinal Hole Repair

First Author: Sandeep ***KUMAR***
Co-Author(s): Daraius ***SHROFF****, Gagan* ***BHATIA***

Purpose: To show the therapeutic role of amniotic membrane graft in treating large retinal holes. The video demonstrates the use of an amnion graft in a large retinal break in a recurrent detachment case with proliferative vitreoretinopathy.

Methods: The video shows the usage of Triple S technique for handling of amniotic membrane graft for usage of closure of large retinal hole in PVR +PDR casewith recurrent detachment. The technique involves Sizing, Staining and Sliding of graft for a better intraoperative handling .The approximate sized graft is fashioned using dermal trephine and brilliant blue dye is used to stain the graft. The graft once introduced in the eye was positioned by bimanually sliding it atraumatically into the hole using a nitinol loop and a tano brush.

Results: The video focuses on clinical implications of human amniotic graft in the closure of large retinal holes and advocates for its integration into the armamentarium of retinal surgeons, with the goal of improving patient outcomes and preserving visual function.

Conclusions: The video also highlights the efficacy ,safety and atraumatic Triple S surgery technique of human amniotic graft in retinal surgery in intaocular handling of AMG. Additionally, practical considerations in graft preparation, surgical techniques, and postoperative management protocols are delineated, offering insights for optimizing surgical outcomes and minimizing adverse events.

Abstract No.: 200817
Diabetic Membrane Shaving: Simple and Safe

First Author: Tariq ***ALI***
Co-Author(s): Muhammad ***MONIRUZZAMAN***

Purpose: To show the different approaches of membrane shaving in diabetic tractional retinal detachment cases by high speed modern surgical devices.

Methods: All the cases selected had tractional retinal detachment. High speed multipurpose cutter was used with 23 G vitrectomy machine. After core vitrectomy a potential space between the membrane and retina was made. Shaving done using low vacuum high speed vitrectomy in shaving mode. Back cutting performed at maximum cutting speed as the probe is withdrawn with the port facing anteriorly. Inside out dissection done detaching the fibro-vascular tissue from the optic nerve from centre to periphery. A combination of blunt dissection, back cutting and sequential alternate suction and cutting was used to segment all fibro-vascular tissue.

Results: All the cases went well.

Conclusions: Diabetic vitrectomy is a complicated surgical procedure where modern instruments has made this simple and safe.

Abstract No.: 200988
Don't judge a book by its cover: A preoperative diagnostic misadventure!

First Author: Atul ***ARORA***
Co-Author(s): Vishali ***GUPTA****, Uday* ***TEKCHANDANI****, Mandeep* ***TOMAR***

Purpose: To discuss surgical management of a patient with intra-ocular foreign body, with an intra-operative diagnostic surprise.

Methods: A 28-year-old male presented with decreased vision in his left eye following a hammer and chisel injury.He underwent corneal laceration repair two days back. At

presentation, visual acuity in the left eye was 6/24, and anterior segment examination showed a sutured corneal laceration, an iris hole at 5O clock, and a clear lens.Posterior segment examination showed media clarity grade1,with inferior vitreous hemorrhage and a silver-white intraocular foreign body impacted in the temporal macula. Roentgenogram confirmed the presence of an intra-ocular foreign body(IOFB). The patient was taken up for pars plana vitrectomy with removal of IOFB.

Results: Intraoperatively, the IOFB could not be found inside the vitreous cavity. Instead, a scleral perforation was noted at the site of the impacted foreign body resulting in regress of infusion fluid posteriorly.Retinal and choroidal folds resulting from hypotony could also be noted. Fluid air exchange was done but air bubbles could be seen popping out of the posterior perforation.Finally, the scleral perforation was plugged with a heterologous scleral flap and silicon oil tamponade was given. At 2 weeks follow-up the patient had visual acuity of 6/18 with oil-filled globe and intact scleral plug.Post-operative computed tomography scan showed foreign body just posterior to the scleral wall inside orbit.

Conclusions: The video highlights an intra-operative challenge that young surgeons should be mindful of.Meticulous pre-operative assessment, appropriate timing of surgery, and intraoperative skillfulness of the surgeon are necessary in managing such challenging scenarios.

Abstract No.: 200844

External Drainage of Kissing Suprachoroidal Hemorrhage in an Elderly Filipino Female

*First Author: Rochele **PILONES***
*Co-Author(s): Siopongcol **PAUL GABRIEL***

Purpose: To present a case of suprachoroidal hemorrhage and demonstrate the surgical technique of external drainage in two sites in a patient who recently underwent 2-point scleral fixation.

Methods: Surgical Case Report

Results: This is a case of an elderly female who underwent 2-point scleral fixation of the right eye. One day after the surgery, vision significantly improved from 20/200 (pre-op aphakia status) to 20/40 (SFIOL, 1 day post-op). However, the patient returned one week after surgery with complaints of sudden blurring of vision of the right eye (VA HMGLPj).,Upon physical examination, high apposition of choroids was seen on slitlamp examination. This was further confirmed on ocular ultrasound where classic kissing choroidals was seen with suprachoroidal hemorrhage.,The blood clot was given time to liquify and surgical intervention was planned. 360 conjunctival peritomy was done followed by tagging of the 4 recti muscles. External drainage was performed on two quadrants, namely inferotemporal and superonasal, 8mm from the limbus using 2mm incisions. Hemorrhage was drained in both sites with subsequent flattening of the posterior segment. Endolaser was done with silicone oil tamponade.,There was immediate resolution of the suprachoroidal hemorrhage intra-operatively with minimal residual hemorrhage inferiorly. The posterior pole was preserved. Visual acuity significantly improved one day after the surgery (VA: 20/80). It further improved after one week from surgery (VA:20/60).

Conclusions: Suprachoroidal hemorrhage is rare, but can lead to a visually devastating outcome if not managed well. It is important to recognize the signs of suprachoroidal hemorrhage and intervene at the appropriate time.

Abstract No.: 200474

Flatten of Massive Hemorrhagic Retinal Pigment Epithelial Detachment Secondary to Polypoidal Choroidal Vasculopathy after surgery

*First Author: Xiaoyun **FANG***

Purpose: To report 3 polypoidal choroidal vasculopathy (PCV) patients whose massive hemorrhagic pigment epithelial detachments (PEDs) were flattened within a short period after surgery.

Methods: Three PCV patients who presented with submacular hemorrhage and massive hemorrhagic PEDs with sizes of more than 50 disc areas underwent pars plana vitrectomy combined with subretinal injection of tissue plasminogen activator (tPA), intravitreous injection of anti-vascular endothelial growth factor medicine, and perfluoropropane tamponade. One patient received additional sub-retinal pigment epithelium (RPE) injection of tPA

Results: The massive hemorrhagic PEDs were flattened within a short period after surgeries, and all patients experienced improved visual acuity. Different amount of vitreous hemorrhage and RPE tear were found in all the patients.

Conclusions: These findings suggest that subretinal injection with or without sub-RPE injection of tPA together with perfluoropropane tamponade promotes the rapid clearance of hemorrhage under RPE.

Abstract No.: 201016
Free Flap Overlay in a Rhegmatogenous Retinal Detachment associated with an Optic Nerve Coloboma

*First Author: Jayson **SO***
*Co-Author(s): Siopongcol **PAUL GABRIEL***

Purpose: To present a video presentation on the use a free anterior capsule flap to close a retinal hole on an optic nerve coloboma causing rhegmatogenous retinal detachment

Methods: Case Report, Video Presentation

Results: This is a case of a 20 year-old female complaining of a 1 month history of sudden blurring of vision due to rhegmatogenous retinal detachment. On physical examination visual acuity was hand movement with fair light projection and intraocular pressure of 16. On fundus examination, there was an optic nerve coloboma inferiorly. A sheet of retinal tissue with a retinal hole covered the optic nerve coloboma. A macula-off rhegmatogenous retinal detachment was seen from 3 to 8 o clock. Patient underwent, lens sparing pars plana vitrectomy, ILM peeling, free flap closure of the retinal hole, fluid air exchange and gas tamponade.

Conclusions: Rhegmatogenous retinal detachment associated with optic nerve coloboma are difficult to manage. Barrier laser around an optic nerve coloboma is difficult because the macula is involved.

Abstract No.: 200942
Glimpsing the Unusual: A Rare Intrigue of Suprachoroidal Silicone Oil

*First Author: Ramya **APPANRAJ***

Purpose: While we have encountered many complications of pars plana vitrectomy, this video discusses two cases of suprachoroidal silicone oil, a rare but serious complication of silicone oil injection. We also explore the hypotheses, methods of prevention, and management strategies for suprachoroidal silicone oil injection.

Methods: In both cases, during the immediate postoperative follow-up, only one-sixth of the silicone oil was observed in the vitreous cavity, accompanied by retinal detachment. During silicone oil removal (SOR), it was found that the oil was coming from the suprachoroidal space. The hypothesis suggests that this could be due to inadvertent injection of silicone oil into the suprachoroidal space or through a cleft in the retinochoroidal coloboma.

Results: Management of suprachoroidal oil can be performed through external and internal approaches. The external approach involves making a radial scleral incision over the area of maximum choroidal elevation, raising infusion pressure, and applying scleral pressure to facilitate the release of silicone oil. The internal approach entails creating a 3 mm circumferential incision in the pars plana, anterior to the ora serrata, while avoiding the retina. Perfluorocarbon liquid can be injected posteriorly to push the suprachoroidal oil anteriorly through the incision.

Conclusions: Choroidal detachment secondary to suprachoroidal injection of silicone oil is a potential complication during pars plana

vitrectomy. Through these cases, we conclude that while rare, suprachoroidal silicone oil should be considered, and efforts should be made to remove as much silicone oil as possible.

Abstract No.: 200860
Globe damage during peribulbar block for anterior segment surgery

*First Author: Nawazish **SHAIKH***
*Co-Author(s): Shorya **AZAD**, Akshaya **BALAJI***

Purpose: To present the manifestations and management of three cases undergoing anterior segment surgery with globe damage secondary to peribulbar block

Methods: Three cases of globe damage secondary to peribulbar block presented over a 1 year period at a tertiary eye care centre in Northern India. All patients had history of anterior segment surgery done under peribulbar block.

Results: Patient 1 presented one-month after cataract surgery with history of poor gain of visual acuity. On examination, dense vitreous haemorrhage was seen and retinal detachment was noted on ultrasonography B scan. Patient 1 underwent 25-gauge pars plana vitrectomy (PPV) during which entry and exit wound of needle tip was noted. Patient 2 presented on post-operative day 1 of cataract surgery done under peribulbar block with poor gain of visual acuity with fresh vitreous haemorrhage on dilated fundus examination. Pre-operative fundus examination was unremarkable which raised the suspicion of globe damage following which the patient underwent 25-gauge PPV during which entry and exit wound of needle with subretinal haemorrhage at the wound sites was noted. Patient 3 presented on post-operative day 1 of phakic intraocular lens surgery done under peribulbar block with complaints of floaters. Dilated fundus examination revealed presence of subretinal bleed in the supero-nasal quadrant with some adjoining retinal edema suggestive of entry wound only. Initially laser delimitation was attempted, however due to development of retinal detachment, 25-gauge PPV with gas tamponade was done.

Conclusions: Peribulbar block is considered to be safer than retrobulbar block, however improper technique may lead to inadvertent globe damage.

Abstract No.: 200068
I was going to make it simple, but complications felt good

*First Author: Akshi **SHARMA***
Co-Author(s): Maj.Naveen K

Purpose: To show the management of diabetic combined retinal detachment and importance of each step.

Methods: 41-year-old male presented with right eye (RE) with blurred vision for one month. He was a known diabetic with uncontrolled blood sugars. RE visual acuity was 20/800. Posterior segment showed vitreous haemorrhage, fibro vascular proliferation nasal to disc, sub retinal fluid at posterior pole along with sub retinal haemorrhage and one break near FVP suggestive of combined retinal detachment. He was planned for RE Pars plana vitrectomy+ Membrane peeling+endolaser+silicone oil injection under local anaesthesia. However, he presented 3 months later with aggravation of the condition and then taken up for surgery. Intra operatively, membrane dissection and peeling was done with forceps as they were densely adherent and not manageable with cutter alone. Also, it was difficult in a background of ischemic retina. The other difficulty was to identify correct plane of dissection. Further, ILM peeling was necessary to open the chronically folded macula. Sub retinal blood clots were removed by converting break into retinotomy. It was done to prevent sub retinal fibrosis in future.

Results: Patient had attached retina at day 1 and visual acuity 20/100 after 6 months and silicone oil removal.

Conclusions: It is crucial to understand the complexities and timing of intervention in combined retinal detachment. Removal of

densely adherent membranes and ILM in atrophic retina and to identify correct plane of dissection is important. Removal of sub retinal blood clots with correct technique is important.

Abstract No.: 200509
Intraocular Pressure (IOP) control in Vitreoretinal surgical systems - CONSTELLATION® Vision System vs. DORC® EVA

*First Author: Martin **CHARLES***
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Purpose: 1) Quantify IOP performance in a closed eye model with porcine vitreous during a simulated vitrectomy under different vacuum settings.,2) Compare the performance of the CONSTELLATION® Vision System's IOP CONTROL feature with HYPERVIT vitrectomy probes and DORC EVA Phaco-Vitrectomy system's Automatic Infusion Compensation (AIC) feature with High-Speed TDC Cutters in controlling the intraocular pressure during the vitreous removal process.

Methods: Using a hollow acrylic eye model, tests were conducted with HYPERVIT vitrectomy probes on the CONSTELLATION® system with IOP settings ON and OFF, and with high-speed TDC vit-cutters on the DORC® EVA system in vacuum mode with AIC ON and OFF. Vacuum settings included 250 mmHg, 450 mmHg, and 650 mmHg, with IOP measurements collected before and during aspiration phases.

Results: Significantly higher percentages of time within the target IOP range (27.5-32.5 mmHg) were achieved using HYPERVIT probes with CONSTELLATION® IOP Control compared to TDC probes with DORC® EVA's AIC across all vacuum settings tested (250 mmHg, 450 mmHg, and 650 mmHg).

Conclusions: CONSTELLATION® Vision System's IOP Control feature demonstrated superior capability in maintaining stable intraocular pressure during vitreous removal, unaffected by system setting variations and fluid property changes like BSS and Vitreous, compared to DORC® EVA's AIC feature, which requires manual adjustment and may not adapt well to changing surgical conditions.

Abstract No.: 200135
Intraoperative Migratory Retinal Venous Thrombus in Proliferative Diabetic Retinopathy

*First Author: Yao **WANG***

Purpose: To study the characteristics, possible cause, and clinical implication of intraoperative migratory retinal venous thrombus in proliferative diabetic retinopathy (PDR).

Methods: Two middle-aged Chinese patients with diabetes mellitus presented with blurred vision and were diagnosed with PDR and tractional retinal detachment (TRD). During 23G pars plana vitrectomy in both patients, movement of tiny white thrombi and interruption of blood flow were observed in a branch of the central retinal vein when the vein was pulled at the time of fibrovascular membrane delamination, and disappeared with elimination of retinal traction after finishing the process of delamination. Laboratory studies revealed abnormal erythrocyte sedimentation rate, fibrinogen, D-dimer, international normalized ratio, and IgA anti-β2-glycoprotein I in one patient, and elevated fibrinogen and IgA anticardiolipin in the other. Follow-up examinations postoperatively showed good prognosis. Fluorescein fundus angiography showed neither embolus sign nor prolonged venous filling time in both patients.

Results: Local blood stasis of the retinal vein persistently dragged by the fibrovascular membrane may result in thrombogenesis, and traction of retina during delamination process may lead to the movement of thrombi. On the other hand, endothelial injury and disordered local blood stasis during delamination may also activate the biological coagulation process and instant thrombus formation. As well, antiphospholipid antibodies may also be a risk factor of ocular thrombogenesis.

Conclusions: This study provides the first videos recording migratory thrombus in terminal

vessels, which indicates that fibrovascular membrane in PDR can lead to thrombogenesis due to dragging and hemostasis of the involved vein. Early relief of vascular traction improves prognosis.

Abstract No.: 200165
Inverted internal limiting membrane flap technique in the treatment of large idiopathic macular hole

*First Author: Saurabh **DESHMUKH***
*Co-Author(s): Surpriya **HAWAIBAM**, Diva Kant **MISRA**, Ronel **SOIBAM***

Purpose: To highlight the efficacy of inverted internal limiting (ILM) flap technique in the treatment of large idiopathic macular hole (MH). There is an increased risk of surgical failure in cases of large macular holes. They may remain open after 1 surgery. Some of these cases may remain flat-open after surgery. Flat-open macular holes are associated with limited visual acuity.

Methods: A 69-year-old female presented with diminution of visual acuity for 6 months. Fundus examination and optical coherence tomography revealed a large (628 microns) MH. She underwent 23-gauge pars plana vitrectomy with inverted ILM flap technique.

Results: At 3 months follow-up, her visual acuity improved to 20/40 with a U-shaped closure of the MH.

Conclusions: Vitrectomy with the inverted ILM flap technique seems to be a safe and effective surgery for large macular holes, improving both functional and anatomic outcomes.

Abstract No.: 200763
Limited quadrant Choroidectomy for traumatic choroidal dialysis

*First Author: Soema **TEBHLA***
*Co-Author(s): Nagesha **CK**, Chaitra **JAYADAV***

Purpose: To demonstrate surgical management of giant choroidal dialysis following globe rupture.

Methods: A middle-aged male presented to the emergency department following an accidental fall, sustaining a left eye globe rupture and ocular adnexal injuries. He underwent urgent primary globe repair. Pre-operative imaging revealed total retinal detachment with choroidal detachment. Intraoperative findings included a giant choroidal dialysis and incarcerated retina into the scleral wound. Surgical management consisted of a limited choroidectomy and 360-degree retinectomy to reattach the retina.

Results: A choroidal dialysis spanning 6 clock hours in the temporal quadrant was excised, extending posteriorly to the vortex veins. The retina was successfully reattached by the end of the surgery. Postoperatively, the patient's vision improved to counting fingers at 1 meter. The retina remained attached under oil, but persistent hypotony was observed during the 6-month follow-up period.

Conclusions: A limited choroidectomy is performed when a choroidal dialysis is complicated by contracture and shortening, which hinders retinal settling. The long-term prognosis is typically uncertain and depends on the extent of the dialysis and the residual function of the ciliary body.

Abstract No.: 201074
Management of retinal detachment in Morning Glory Syndrome

*First Author: Qing **LI***
*Co-Author(s): Wai-ching **LAM***

Purpose: To demonstrate abnormal retina deficiency connection of vitreous cavity to subretinal space in Morning Glory disc anomaly;,To demonstrate the fibrin glue can close the retina deficiency at the disc of Morning Glory anomaly;

Methods: This is a 7-year-old girl with Morning Glory syndrome and retinal detachment with neovascularization on retina. We performed pars plana vitrectomy and membrane peel and laser surround the disc and 12% C3F8 tamponade. In post-operative day 1, the gas migrated into subretinal space through the disc defect, and the retina was just behind lens. This video showed the second surgery for the retina detachment. We performed subretinal gas drain

through trochar. Pars plana vitrectomy and gas fluid exchange were performed subsequently. During the surgery we found the gas bubble migrate into subretinal space through the disc defect again. We used tissue glue to seal the disc defect, then no gas migrated into subretinal space.

Results: There is no retinal detachment in the 3-year follow-up.

Conclusions: This case demonstrates that a retinal hole in tissues lying within the optic disc anomaly provides a communication for fluid and gas between the subretinal space and vitreous cavity resulting in a rhegmatogenous retinal detachment in the morning glory syndrome. Blockage of retina hole over disc by fibrin glue may be an option of rhegmatogenous retinal detachment in the morning glory syndrome.

Abstract No.: 200604
Misdiagnosis of Traumatic Vitreous Hemorrhage Due to Foreign Body Overlooked for 20 Years

*First Author: Zhang **MARS***

Purpose: A 35-year-old female with a 20-year history of misdiagnosis as "right eye retinal vasculitis" presented with recurrent vitreous hemorrhage. The initial injury was a toy impact to the right eye in childhood.

Methods: The patient underwent vitrectomy revealing a white triangular foreign body embedded in the nasal superior region, causing the hemorrhage. The foreign body, likely plastic and adhered for over 20 years, was not forcibly removed to avoid scleral defect. Instead, laser was used to seal the retina around it.

Results: Post-surgery, the patient's vision remarkably improved from "light perception" to "20/20" within one month.

Conclusions: The misdiagnosis was attributed to insufficient patient history inquiry. An early UBM could have detected the foreign body, altering the treatment approach. The dense clotted blood posed a surgical challenge, resolved by confirming perfusion entry with air bubbles. ERM removal and strategic laser coagulation are key to preventing hemorrhage recurrence.

Abstract No.: 200465
Modified transconjunctival trocar-microcannula approach for drainage of serous choroidals during vitrectomy for rhegmatogenous retinal detachment

*First Author: Devesh **KUMAWAT***
*Co-Author(s): Shorya Vardhan **AZAD**, Pradeep **VENKATESH**, Saurabh **VERMA***

Purpose: Serous choroidal detachment (CD) poses a risk of sub-retinal or suprachoroidal placement of instruments or infusion cannula during vitrectomy for rhegmatogenous retinal detachment. Conventional approaches to address this issue are use of 6mm microcannula, sclerotomy-assisted drainage or partly inserted 23G microcannula 6 to 8mm behind the limbus. We describe a modified transconjunctival trocar-microcannula approach for drainage of serous CD.

Methods: The surgical steps are highlighted in 2 cases of retinal detachment with CD who underwent micro-incisional 25-gauge vitrectomy with drainage of serous CD. Location of serous CD mounds is confirmed either just prior to surgery using indirect ophthalmoscope or intraoperatively using endo-illumination and wide-angle viewing system through one safely placed microcannula (placed in quadrant with least CD height). Under positive pressure from anterior chamber maintainer or infusion in the vitreous cavity, a valved trocar-microcannula is inserted at 4mm from the limbus at almost 10 degree to the scleral surface, preferably in the quadrant with maximum CD. The trocar handle is retracted as soon as the microcannula is inserted 50% of its length into the sclera. Vent is then placed into the microcannula and microcannula position is adjusted.

Results: Placement of vent into the microcannula releases the serous fluid from suprachoroidal space immediately. Vented gas forced infusion and partial retraction of the microcannula ensures near complete drainage

of CD. Vitrectomy procedure is then continued safely.

Conclusions: Modified transconjunctival trocar-microcannula approach is less invasive and safer approach for drainage of serous choroidals during vitrectomy for rhegmatogenous retinal detachment.

Abstract No.: 200621

Multilayered ILM FLAP as rescue for macular hole retinal detachment in a high myope

First Author: Awaneesh ***UPADHYAY***

Purpose: The purpose of this video is to demonstrate can Multilayered ILM FLAP be used as rescue for macular hole retinal detachment in a high myope.

Methods: 45 year old female was diagnosed with macular hole retinal detachment with high myopia, BCVA counting fingers @1m. 25G vitrectomy performed,triamcinolone injection injected to check for PVD followed by core &peripheral vitrectomy& peripheral retinal examination completed for other breaks.Posterior pole retinal detachment with macular hole approached with staining ILM with BBG dye followed by perfluorocarbon liquid(PFCL)assisted technique stabilizing the mobile retina and removal of sub-retinal fluid through an inferior retinotomy and reattach the retina, diluted BBG dye injected again around the PFCL bubble to stain the ILM.Initial ILM edge achieved using by pinch-and-peel technique,followed by multi-layered peeling technique is used to plug the hole, peripheral ILM is peeled upto the arcade to assist closure of macular hole and retinal detachment. PFCL bubble aspirated followed by endolaser to retinotomy and silicon oil injection done to fill the globe.

Results: Macular hole closure& attached retina achieved with minimal maneuver and favourable visual outcomes , vision improved to 6/36 after surgery

Conclusions: Multilayered ILM FLAP has predictable and favourable outcomes when used as rescue for macular hole retinal detachment in a high myope.

Abstract No.: 200180

Multilayered internal limiting membrane free flap for internal plugging of retino-choroidal defect after removal of embedded intraretinal foreign body: a novel surgical technique

First Author: Vishal ***JADHAV***
Co-Author(s): Anup ***KELGAONKAR***

Purpose: To describe the management of retino-choroidal defect after removal of embedded intraretinal foreign body (IOFB) with a novel surgical approach

Methods: A 37-year-old male presented with a right eye painful diminution of vision one day after trauma with an iron projectile. The best corrected visual acuity was hand movements. He was diagnosed to have a zone-one open-globe penetrating injury, with a full-thickness scleral tear of two clock hours in the supero-nasal quadrant with uveal tissue prolapse, for which he underwent a primary scleral tear repair. He additionally had vitreous hemorrhage (VH) with a metallic IOFB spanning full-thickness retina and partial choroid, for which vitreoretinal surgery was planned

Results: Standard three-port 23G pars plana vitrectomy was performed to clear VH. Metallic IOFB of size 3x3 mm was impacted superior to fovea encased in a fibrous sheath. Posterior vitreous detachment was induced and IOFB was freed from surrounding adhesions. Supero-temporal sclerostomy was enlarged and the IOFB was removed using ferromagnet. A large retino-choroidal defect was noted. An additional retinal tear with a focal detachment was detected near ora serrata during vitreous base dissection. After fluid air exchange, internal limiting membrane (ILM) at the macula and surrounding IOFB impact crater was stained using brilliant blue dye and ILM was peeled. The impact site was sealed using multilayered free ILM flaps. The impact site and retinal tear were barraged using endolaser, with surgical closure done after silicone oil tamponade

Conclusions: Multilayered ILM free-flaps can be used readily and effectively to plug an IOFB impact crater

Abstract No.: 200246
My Journey to Scleral Fixation IOL (SFIOL) After Removal of Dropped Nucleus and IOL

*First Author: Abul **SHEIKH***

Purpose: To find out easy and safe procedures of SFIOL.

Methods: Internal docking in Yamine technique is difficult and critical. To overcome the critical situation of Yamane technique I tried to do SFIOL by lifting haptic from optic of 3 piece (prolene haptic) IOL. Haptic was made by means of 5/0 prolene after passing 5/0 prolene through sclera and wound. I did 6 cases successfully but in the 7th case during IOL placement one end of prolene (which was used as haptic) was separated. Then I decided not to do this procedure as SFIOL. Then I did SFIOL in modified Yamene technique. In this technique Scleral 7mm wound was made and bending 27 G needle was taken through the wound for docking of 3 piece IOL haptic in the pore of 27 G needle. Then haptic was externalized in both side.

Results: I did Modified SFIOL in 20 eyes. IOL position was central in all eyes. No significant higher astigmatism in any case. All cases have achieved corrected vision 6/6 without any complication.

Conclusions: In my Journey to SFIOL Surgery, I found Modified Yamane easy and safe.

Abstract No.: 200631
Not for the Faint-Hearted

*First Author: Aditya **KELKAR***
*Co-Author(s): Mounika **BOLISETTY**, Subhasree **DUTTA**, Harsh **JAIN**, Apurva **MUKADAM***

Purpose: To portray a series of retinal complications encountered following macular hole surgery.

Methods: Retrospective review of cases involving complications such as accidental sub-retinal dye injection, entanglement of forceps with the capsule tension ring, retinal break during uncontrolled air to fluid exchange, dislodged soft tip incidents, and iatrogenic lens touch.

Results: Each case presented unique challenges necessitating immediate and precise intervention. Insights gained include the causes of these complications and effective preventive measures to mitigate risks in future surgeries.

Conclusions: As a vitreoretinal surgeon, we encounter a variety of both common and uncommon complications or unique situations during surgical procedures. The series of encounters here reflects the recollections of a vitreoretinal surgeon involving macular hole. With each incident, we gain insights into effective management and preventive measures for similar occurrences.

Abstract No.: 201135
PFCL-Assisted Membrane Dissection in Diabetic Vitrectomy

*First Author: Bhuvan **CHANANA***

Purpose: To describe the use of perfluorocarbon liquids (PFCL) in membrane dissection during diabetic vitrectomy.

Methods: Video clips demonstrating role of PFCL in difficult situations during diabetic vitrectomy will be shown. The videos will highlight when to use PFCL to have a successful surgical outcome.

Results: PFCL was shown to be extremely helpful in certain situations. Removal of firmly adherent membranes from retina was successfully performed under PFCL. PFCL acts as third hand, tamponading and pushing the retina behind. PFCL if injected in the proper plane can even help to perform membrane dissection and en-block removal of taut adherent membranes. Lastly PFCL also pressure tamponades the bleeders and provide a clear media for further surgery and pan retinal photocoagulation.

Conclusions: PFCL works as magic in certain tricky situations like pressure tamponade of uncontrolled bleeders, and en-block removal of membranes. If used judiciously, PFCL can be an extremely helpful tool in diabetic vitrectomy.

VIDEOS

Abstract No.: 200751

Pars Plana Lensectomy Combined with Scleral-Fixated Intraocular Lens Implantation using Pre-Placed Gore-Tex Sutures in a Patient with Lens Subluxation

*First Author: Gabriel Ignacio **ALEJO***
*Co-Author(s): Ronaldo **JARIN***

Purpose: The rationale of this case study was to evaluate the visual and anatomical outcomes of pars plana lensectomy and a scleral-fixated intraocular lens (IOL) implantation in a young patient with subluxated crystalline lenses secondary to Marfan syndrome.

Methods: The four sides of a Zeiss CT Asphina 509 intraocular lens (IOL) were tied with 10 mm long Gore-Tex sutures. A 360 degree peritomy was made and a gauge 25 port was then inserted at the inferotemporal pars plana where the infusion cannula was placed, while two Gauge 23 ports were placed at the superotemporal and superonasal 2-mm mark from the limbus. A pars plana lensectomy with vitrectomy and posterior vitreous detachment induction was then performed. Gore-Tex sutures from the 4 sides were threaded and externalized through the 2mm incisions using retina forceps. They were then tied together at the sclera, two at each side until the IOL was deemed stable. Conjunctival closure was then done.

Results: Post operative results revealed a day 1 visual acuity of 20/40 with good stability of the scleral-fixated intraocular lens (IOL). Only minimal discomfort and pain were described by the patient. BCVA at 6 months post-op was at 20/25, while still retaining good IOL stability.

Conclusions: Pars plana lensectomy with vitrectomy and scleral-fixated intraocular lens (IOL) implantation using pre-placed Gore-Tex sutures tied in the corners of a plate haptic IOL seem to be a useful, impressive, and safe procedure with good outcomes in a young Marfans patient with moderate-to-severe crystalline lens subluxation and blurring of vision.

Abstract No.: 200726

Peeling Membranes and Hard-Boiled Eggs: Tips and Tricks!

*First Author: Daraius **SHROFF***
*Co-Author(s): Charu **GUPTA**, Minal **SHARMA**, Cyrus **SHROFF**, Gagan **BHATIA***

Purpose: To answer the question: What do peeling hard boiled eggs and complex VR surgery have in common.

Methods: It's all about dissection in the correct plane along with proper planning. This is illustrated in the video using animations and surgical clips.

Results: In this fun video we show parallels between membrane dissection for complex proliferative vitreoretinopathy and de-shelling the perfect hard-boiled egg!

Conclusions: There are a lot of similarities between peeling a hard boiled egg and complex diabetic membrane dissection as depicted in our video!

Abstract No.: 201011

Radial Buckling in a Traction Retinal Detachment in a patient with Ocular Toxocariasis

*First Author: Jayson **SO***
*Co-Author(s): Jocelyn **SY***

Purpose: To present a video presentation on the use of radial sponge buckle in a case of traction retinal detachment due to ocular toxocariasis

Methods: Case Report

Results: This is a case of a 24 year-old male complaining of a 2 year history of traction retinal detachment due to ocular toxocariasis of the right eye. Pertinent on physical examination was a visual acuity of HM with FLPj, intraocular pressure of 17mmhg and an anterior subcapsular cataract. On fundus examination, there was a total traction retinal detachment due to a falciform fold connected to the nerve and the inferior peripheral granuloma. Macula was dragged infero-temporally. The rest of the ophthalmologic exam was unremarkable.

Patient underwent scleral buckle with a band 277 and band 240, phacoemulsification with posterior capsule intraocular lens, pars plana vitrectomy, methotrexate infusion and membrane peeling and segmentation. There was still antero-posterior traction. Hence, a radial segmental sponge buckle was inserted at 7-8 o clock Silicone oil was used for tamponade and retina was attached on the macula. Final visual acuity was hand movement with good light projection.

Conclusions: Radial segmental sponge buckles provide relief for anteroposterior traction. This technique can spare the retina from retinectomies in difficult cases such as pediatric cases and cases that need an inferior retinectomy.

Abstract No.: 200629
Resurrection

*First Author: Aditya **KELKAR***
*Co-Author(s): Mounika **BOLISETTY**, Subhasree **DUTTA**, Harsh **JAIN**, Sukanya **MONDAL***

Purpose: The video aims to showcase a remarkable tale of triumph, showcasing a series of complex and meticulously executed surgeries.

Methods: A series of meticulously executed surgeries were undertaken with unwavering determination. These procedures addressed a torn cornea, traumatic cataract, an intraocular foreign body, retinal vasculitis, and subsequent complications of progressive proliferative vitreoretinopathy, retinal detachment, and a significant macular hole.

Results: Through these interventions, the patient achieved improvement in visual outcome. The surgeries successfully managed a torn cornea, traumatic cataract, an intraocular foreign body, retinal vasculitis and their subsequent complications of progressive proliferative vitreoretinopathy, retinal detachment, and a significant macular hole.

Conclusions: This video highlights that for such complex surgeries the critical decision-making and meticulously executed surgeries are necessary for a successful outcome in challenging ophthalmic cases.

Abstract No.: 200285
Retinal Revival: Triumphs in Managing Complex Detachments

*First Author: Ashish **MARKAN***

Purpose: The video highlights different surgical scenarios a vitreoretinal surgeon can encounter during the management of complex retinal detachment cases.

Methods: The first case highlights the management of retinal detachment under oil. The second case reveals the successful management of a retinal detachment characterized by substantial rigidity and the presence of multiple subretinal bands. After the removal of subretinal bands, a surprising challenge emerges during the fluid-air exchange as subretinal air complicates the procedure, necessitating a skillful execution of a 360-degree relaxing retinectomy. The third case highlights the management of extensive subretinal bleeding occurring during the removal of subretinal bands. In response to this intraoperative challenge, the surgeon adeptly performs a posterior retinotomy to remove the bleed.

Results: The video highlights successful management of the above intra-operative challenges encountered by the surgeon. In all three cases, the retina was well attached during the post-operative period. The best corrected visual acuity improved to 4/60 in first case, 2/60 in second case and 3/60 in third case.

Conclusions: Vitreoretinal surgeries can sometimes be challenging in the view of sudden intra-operative complications. Timely and successful management of intra-operative complications can result in successful anatomical and functional outcomes.

Abstract No.: 200291

Retinal graft dislocation managed by repeat autologous retinal transplant for refractory macular hole

*First Author: Saarang **HANSRAJ***
*Co-Author(s): Raja **NARAYANAN***

Purpose: To present a video demonstrating a repeat autolgous retinal transplant surgery after the first retinal transplant dislocated upon using fibrin glue.

Methods: A 74 year old gentleman presented to us with decreased vision in his right eye for 1 year. He gave a history of vitrectomy for macular hole ten months ago elsewhere. He had a visual acuity of hand motions and a large refractory macular hole. We performed surgery with an autologous retinal transplant and fibrin glue under air. During surgery endolaser was performed around the donor site in the infero-temporal posterior pole outside the macula. 25G curved scissors and forceps was used to separate the graft and ILM peeling forceps was used to position it over the hole bimanually under PFCL bubble. 0.2 mL of fibrin glue was injected over the graft. Ten days later the graft had dislocated and a repeat transplant was done. A donor site inferior to the disc was chosen, new graft excised and placed at the macular hole. However, this time silicone oil was injected instead of fibrin glue.

Results: 1 week after surgery the graft was noted to be well positioned and adherent at the macular hole.

Conclusions: Recently indications of autologous retinal transplantation have expanded while intricacies of the surgery are less well known. Our case suggests that tamponade of more than 2 weeks is necessary for retino-retinal adhesion, and short acting gas or short acting bioadhesives such as fibrin glue and air may not provide sufficient duration of tamponade to prevent graft dislocation.

Abstract No.: 200868

Rolling of retina under perfluorocarbon liquid (PFCL) as a short-term tamponade

*First Author: Ayushi **SACHAN***
*Co-Author(s): Rohan **CHAWLA**, Kalaimani **SENGUTTUVAN**, Nawazish **SHAIKH***

Purpose: To understand the cause of retinal rolling under PFCL used as a short-term tamponade in pediatric retinal detachment and its subsequent management

Methods: An 8-year-old myopic child presented with total retinal detachment with 180 degree inferior retinal detachment to a tertiary eye care centre in northern India and underwent 25-gauge pars plana vitrectomy with PFCL used as a short-term tamponade. The parents and child were explained about the need of supine positioning followed by PFCL-Silicone oil exchange (SiO) planned after day 10 of primary surgery.

Results: Due to significant inflammation and corneal edema, fundus findings were hazily seen prior to the PFCL-SiO exchange. Prior to PFCL-SiO exchange, retinal rolling was noted. Surgical video of primary surgery was reviewed for possible causes of retinal rolling under PFCL. As toxicity of PFCL may occur beyond 14 days, we proceeded with PFCL-SiO exchange. Intra-operative, rolling of retina under PFCL was confirmed and subsequent management for retinal unfolding and bimannual PFCL-SiO was done.

Conclusions: PFCL as a short term tamponade is especially useful in patients with inferior GRT and who are unable to maintain prone poisitioning. However, in our case, due to lack of adequate supine positioning and early ambulation of the child, displacement of retina and PFCL occured causing retinal rolling requiring not just PFCL-SiO exchange but a complete re-intervention similar to the primary surgery.

Abstract No.: 201101

Scleral fixate the totally dislocate 3 piece intraocular lens with 10-0 prolene suture of buried knot.

*First Author: Qing **LI***

Purpose: To introduce a minimally invasive method to scleral fixate the totally dislocated intraocular lens without explant.,To introduce a minimally invasive method to buried the 10-0 prolene suture end into scleral to prevent suture exposure.

Methods: An 88-year-old lady had posteriorly dislocated intraocular lens in her only seeing eye after trauma.,Three port vitrectomy was performed. Three Limbus paracentesis with 1mm width was made. Small periotomy was made at 3 and 9 o'clock next to lumbus. The dislocated intraocular lens was grasped by forceps and held behind iris. 10-0 prolene suture was thread through both heptics and fixate to sulcus at 3 and 9 o'clock. Both sutures were tied. A scleral tunnel was made by 30 guage needle, the end of the 10-0 prolene suture was burried inside the scleral tunnel. Conjunctiva wound was closed by 8-0 vicryl suture.

Results: The intraocular lens is well centered in the follow-up period of 10 months. The best corrected visual acuity was 10/20; refraction -2.50/ -1.00 x 100.

Conclusions: The video demonstrates a minimal invasive and safe method for scleral fixation of totally dislocated intraocular lens without explanation. This method has little adverse effect on cornea endothelium and postoperative astigmatism.

Abstract No.: 200399

Step By Step SFIOL - From Planning to Perfection

*First Author: Aswin **PR***
*Co-Author(s): Syed Mohideen **ABDUL KHADAR**, Ram Sudarsan R*

Purpose: This teaching video presentation aims to provide a concise and comprehensive overview of Gabor's Secondary Foldable Intraocular Lens (SFIOL) technique. The purpose is to highlight the essential steps and critical aspects of the glue-less, flapless, and sutureless intrascleral fixation method.

Methods: This video methodically demonstrates Gabor's Secondary Foldable Intraocular Lens (SFIOL) technique. It provides a step-by-step guide using high-definition surgical footage and expert commentary. Key steps, technical nuances, and practical tips are highlighted to enhance surgical precision and efficiency.

Results: Tailored for both novice and experienced surgeons, this resource seeks to enhance surgical precision and improve patient safety and outcomes in secondary IOL implantation.

Conclusions: In conclusion, this video is a valuable resource for mastering Gabor's Secondary Foldable Intraocular Lens (SFIOL) technique. By providing a clear, step-by-step guide with essential tips, this educational tool significantly improves patient outcomes and advances surgical skills in secondary IOL implantation.

Abstract No.: 200223

Stretching the Unstretchables: The Role of Enzymatic Vitreolysis through In Vivo Plasmin Generation under Silicone Oil

*First Author: Prema **SUBRAMANIAM***
*Co-Author(s): Parag **SHAH**, Saravanan V, Narendran **VENKATAPATHY***

Purpose: To evaluate the effect of enzymatic vitreolysis facilitated by in vivo plasmin generation using autologous whole blood (AWB) and tissue plasminogen activator (tPA) in cases of refractory retinal detachment.

Methods: A 6-year-old child who underwent surgery for ectopia lentis later developed retinal detachment (RD), which was noted during a follow-up visit. The child underwent belt buckling with vitrectomy and silicone oil tamponade. During the first postoperative visit, a rolled retinal tear was observed along with persistent inferior RD. A re-intervention was performed, but the retina failed to stretch,

resulting in ongoing detachment. Subsequently, enzymatic vitreolysis was planned using in vivo plasmin generation, involving the injection of 25 mcg of tPA and 0.1 ml of autologous whole blood simultaneously under silicone oil. Surgical intervention was conducted four days later.

Results: Intraoperatively, the effect of plasmin generation can be visualized by the presence of unclotted blood in the anterior chamber, vitreous cavity, and subretinal space. The vitreous was peeled in a piecemeal manner until reaching the trimmed retinal tear edge, which had not been achievable in previous surgical attempts. Following the procedure, the child had an attached retina under silicone oil during follow-up visits. The child subsequently underwent silicone oil removal (SOR), and six months post-SOR follow-up, the child is doing well with an attached retina and a BCVA of 6/18.

Conclusions: In vivo plasmin generation using tPA and AWB eliminates the need for costly lab techniques, proving beneficial for enzymatic vitreolysis. This novel approach for refractory retinal detachment has demonstrated successful outcomes.

Abstract No.: 201137
Successful Management of a Macular Hole Associated with Diabetic Tractional Retinal Detachment

*First Author: King Hans **KURNIA***

Purpose: To illustrate the management of a macular hole secondary to diabetic tractional retinal detachment.

Methods: A 52-year-old female with severe non-proliferative diabetic retinopathy underwent phacoemulsification to address cataract progression. The patient had previously received panretinal photocoagulation. The cataract surgery was uneventful, and visual acuity initially improved to 0.5. However, one month after the surgery, the patient's diabetic retinopathy progressed, leading to vitreous hemorrhage and diabetic macular edema. The patient received intravitreal bevacizumab injections as the initial treatment. At follow-up, visual acuity had declined to 0.05, and a tractional membrane along with a macular hole had developed.

Results: Three-port pars plana vitrectomy was performed. After thorough removal of the vitreous, the tractional membrane was peeled using end-gripping forceps. The internal limiting membrane (ILM) was stained with brilliant blue dye, and an ILM flap was created under perfluorocarbon liquid. The ILM flap was positioned to cover the macular hole. Following fluid-air exchange, additional laser photocoagulation was carried out, and silicone oil was injected. One-month post-surgery, the retina was attached and the macular hole had closed. Visual acuity improved to 0.2.

Conclusions: Although rare, macular holes can develop secondary to tractional retinal detachment. Surgical management of these cases should focus on alleviating retinal traction and closing the macular hole. For smaller macular holes, ILM peeling may be sufficient, while an ILM flap technique is recommended for larger macular holes.

Abstract No.: 200689
Surgical Application Video: Biological Amniotic Membrane Patching and Optic Disc Coverage in a Patient with Morning Glory Syndrome

*First Author: Jie **ZHANG***

Purpose: The aim is to demonstrate the surgical treatment process of using biological amniotic membrane patching and optic disc coverage in a patient with Morning Glory Syndrome presenting retinal detachment.

Methods: A 20-year-old female patient diagnosed with Morning Glory Syndrome, concurrent persistent fetal vasculature (PFV), and associated cataract in the right eye. The vitreous cavity showed fibrous bands connecting the retina, optic disc, and posterior lens capsule. Fundus examination revealed a deep excavation and tractional maculopathy within the excavation area due to retinal detachment.

Results: In the surgical procedure, viscoelastic separation was performed between the posterior capsule of the lens and PFV using blunt dissection. Under trypan blue staining, vitreoretinal separation was achieved, and indocyanine green staining helped identify the retinal hole within the optic disc excavation. The retinal hole was sealed using a biological amniotic membrane patch. The biological amniotic membrane was also applied to cover the optic disc. Finally, silicone oil was injected into the eye.

Conclusions: The surgical application of biological amniotic membrane patching and optic disc coverage is effective in the management of patients with Morning Glory Syndrome.

Abstract No.: 200913
Surgical Management of Retinal Detachment Following Acute Retinal Necrosis

*First Author: Vicente Lorenzo **CABAHUG***
*Co-Author(s): Joshua **LIM**, Gavin Siew Wei **TAN***

Purpose: To present a case of acute retinal necrosis (ARN) complicated by retinal detachment.

Methods: Surgical video

Results: A 64-year-old Chinese male with a history of varicella-zoster virus (VZV) acute retinal necrosis (ARN) in the right eye presented with granulomatous ARN and severe vitritis. Despite antiviral therapy, the patient experienced sudden vision deterioration, with visual acuity reduced to light perception. Preoperative findings included extensive retinal necrosis and vitritis causing a hazy view. A B-scan ultrasound suspected a retinal detachment, confirmed during surgery. Surgical intervention included phacoemulsification, 25G trans pars plana vitrectomy (TPPV) with heavy liquid, endolaser (EL), silicone oil (SO) tamponade, and posterior capsulotomy, leaving the patient aphakic. Intraoperative findings further confirmed extensive vitritis with sticky fibrinous membranes over the retina, multiple tiny necrotic breaks 360 degrees, and extensive retinal necrosis. The membranes were peeled during the surgery. Laser was applied to the posterior edges of the necrotic retina to preserve the healthy macula. Postoperatively, visual acuity did not improve. Successful retinal reattachment was achieved with a substantial silicone oil fill, and the initial follow-up showed a flat retina with fresh laser marks and no signs of detachment. The patient adhered to a face-down posture postoperatively.

Conclusions: Timely surgical intervention is crucial in managing retinal detachment secondary to ARN. The combination of vitrectomy and silicone oil tamponade effectively reattached the retina and stabilized the patient's condition. Early detection and appropriate surgical management are essential to prevent vision loss and preserve the healthy macula in patients with ARN.

Abstract No.: 200950
Surgical Management of Retinal Detachment with Choroidal Detachment

*First Author: Karthikeya **CHATRA***
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Purpose: To describe the challenges associated with the surgical management of retinal detachment with choroidal detachment.

Methods: Challenges in the management of retinal detachment with choroidal detachment exist that require pre-operative as well as intra-operative considerations. In the following video, we describe pre-operative considerations to be done in these patients as well as highlight the intra-operative trials a surgeon might encounter.

Results: Pre-operative considerations include adequate managment of intraocular pressure and inflammation through the use of local and systemic corticosteroids. Intra-operative challenges include adequate management of hypotony such that port creation is possible, suprachoroidal or subretinal positioning of ports, management of proliferative vitreoretinopathy (PVR) and ensuring adequate silicone oil fill at the end of surgery. Surgical manoeuvres that could be employed include

injection of balanced salt solution into the vitreous cavity to manage the hypotony, drainage of the choroidal mounds especially at port sites, ensure adequate oil fill and adjuvants such as intravitreal methotrexate may reduce the chances of anatomical failure in these patients.

Conclusions: Surgical outcome of RD with CD is usually poor due to inflammation and PVR development. Copius use of pre-operative corticosteroids, drainage of the serous choroidal mounds and use of adjuvants such as PFCL and intravitreal methotrexate may help improve surgical outcomes

Abstract No.: 200774
Surgical Management of Sub-Internal Limiting Membrane Hemorrhage Secondary to Valsalva Retinopathy After Failed Pneumatic Displacement in an Adult Filipino Male

*First Author: Maria Giselle **DY***
*Co-Author(s): Karina **DE SAGUN-BELLA**, Eleonore **IGUBAN**, Erika Jean **SALVAME***

Purpose: This aims to present approach to a case of an adult Filipino male with sub-ILM hemorrhage secondary to Valsalva retinopathy.

Methods: This is a case report.

Results: A 26 year-old Filipino male consulted at our institution for sudden blurring of vision of the right eye after straining. Review of systems, past medical, family, personal and social histories were unremarkable. Best corrected visual acuity (BCVA) was 5/60 on the right, and 6/7.5 on the left. Gross, pupillary, extraocular muscle movement, color, anterior segment and intraocular pressure examinations were normal bilaterally. Dilated fundus examination of the left eye was normal, while the right eye showed a boat-shaped hemorrhage obscuring the macula with a well-circumscribed circular demarcation extending to the superior arcade which on macular OCT showed sub-internal limiting membrane (sub-ILM) hemorrhage. Pneumatic displacement with prone positioning using C3F8 gas was initially done to attempt to displace the hemorrhage from the macula since Nd YAG laser membranotomy was not feasible at the time of consult. There was minimal visual improvement and nonresolution of the hemorrhage which led to surgical management. Patient underwent lens-sparing pars plana vitrectomy (PPV) with dye-assisted ILM peeling on the right eye to be able to access and remove the hemorrhage successfully. Intraoperatively and postoperatively, there was no occurrence of rebleeding, and the patient's BCVA eventually improved to 6/6.

Conclusions: Sub-ILM or subhyaloid bleeding due to Valsalva retinopathy can be successfully removed using vitrectomy with ILM peeling when more conservative management has failed, such as what was done to our patient.

Abstract No.: 200935
Surgical Outcome of Macular Foreign Body

*First Author: Subodh **SINGH***

Purpose: To show the challenges and limitations of macular foreign body removal.

Methods: A 21-year-old male sustained an injury from an iron chisel. On examination, an intraocular foreign body was found embedded in the macula. The patient was scheduled for surgery. Three 25-gauge pars plana ports were created, followed by core vitrectomy, peripheral vitrectomy, and induced posterior vitreous detachment (PVD). Foreign body deroofing was performed while sparing the fovea. The foreign body was removed through the pars plana with the assistance of a magnet. Partial laser treatment was conducted after the foreign body removal, and air-fluid exchange was performed before closing the ports.

Results: Successful fb removal sparing fovea with fair vision was preserved.

Conclusions: Intraocular foreign body (IOFB) removal is typically necessary in all cases, but it becomes particularly challenging when the foreign body is located at the macula. However, with advanced vitreo-retinal surgical techniques, equipment, and skill, macular foreign bodies can be removed with favorable outcomes.

Abstract No.: 200244

Tackling Macular Hole Associated Epiretinal Proliferation (MHEP)

First Author: Suganya N
*Co-Author(s): Narendran **VENKATAPATHY**, Saravanan V*

Purpose: To describe the surgical challenges in full thickness macular hole associated with epiretinal proliferation (MHEP).

Methods: A 57-year-old male presented with bilateral stable laser-treated proliferative diabetic retinopathy. He had a right eye epiretinal membrane with a lamellar macular hole and a left eye full-thickness macular hole associated with epiretinal proliferation. The patient was successfully treated by embedding the epiretinal proliferation into the retinal cleavage, combined with internal limiting membrane inversion. This approach achieved successful closure of the macular hole and resulted in improvement in vision.

Results: This technique proved to be effective in achieving anatomical closure of full-thickness macular holes (FTMH) and functional improvement in vision. In general, macular hole-associated epiretinal proliferations (MHEPs) are functionally and morphologically stable. Surgery is indicated if there is documented evidence of anatomical or physiological progression, such as a decrease in central macular thickness, worsening of FTMH, a drop in vision, or the presence of metamorphopsia.

Conclusions: One should actively assess for epiretinal proliferation in full-thickness macular holes (FTMH) associated with epiretinal membranes (ERM), as this assessment will influence the surgical approach and prognostication. The presence of macular hole-associated epiretinal proliferation (MHEP) may indicate irreversible retinal damage.

Abstract No.: 200259

Tale of the Toxic Glass: Mammoth Curved Glass IOFB-Related Penetrating Ocular Trauma!

*First Author: Veer **SINGH***
*Co-Author(s): Singh **ARJAN**, Jayant **KUMAR**, Singh **PREETAM**, Shishir **VERGHESE***

Purpose: The purpose of this video presentation is to manage and treat a case of a gigantic curved glass intraocular foreign body related to severe penetrating ocular trauma.

Methods: A 37-year-old dairy farmer sustained a right eye injury with a projectile glass piece when a glass vial of Ivermectin and Clorsulon Injection (used to treat endoparasites and ectoparasites in cattle) lying in trash exploded during trash burning. Examination revealed BCVA-20/80(6/24), a large nasal scleral tear, and a gigantic curved glass intraocular foreign body. Surgery was planned to repair the scleral & muscle tear and remove the IOFB in the same sitting.

Results: Surgery disclosed a partially severed medial rectus which was repaired along with the scleral tear. The glass foreign body was removed from a superior pars plana scleral incision saving the clear lens. The retrieved IOFB measured a whopping 15*10mm. Entry-site & iatrogenic breaks were managed with laser and silicone oil. Unfortunately, the patient developed drug-induced-retinal-toxicity like retinal whitening in the immediate post-op period which on investigation turned out to be a probable ivermectin-related retinal toxicity. Intravenous Methyl Prednisolone was used to tackle the retinal toxicity.

Conclusions: This was followed by PVR in late post-op period which was treated at the time of Silicone oil removal achieving a final BCVA-20/120 (6/36).

Abstract No.: 200671

Techniques in Pars Plana Vitrectomy for Total Retinal Detachment with Ocular Siderosis secondary to a missed Intraocular Foreign body

*First Author: Daniel Jose **MENDOZA***
*Co-Author(s): Jose Timothy **CHUA**, Justine **MAY** R. **TORREGOSA**, Carlo **NASOL**, Alex **SEE SUA***

Purpose: To highlight the techniques and intraoperative findings during pars plana vitrectomy in managing total retinal detachment with ocular siderosis due to a missed intraocular foreign body (IOFB)

Methods: We report a case of a 36 year old male presenting with total retinal detachment and signs of ocular siderosis from a missed IOFB in the vitreous. The patient underwent a staged procedure: Phacoemulsification with posterior chamber intraocular lens implantation followed by Pars plana vitrectomy with removal of IOFB a week after. Some of the agents and techniques used were triamcinolone and brilliant blue dye injection for staining the vitreous and membranes; perfluorocarbon liquid use for macular flattening, minimal endolaser, fluid air exchange and interface vitrectomy; and silicon oil injection.

Results: Despite the chronicity of the disease, successful retinal attachment was done at the end of the surgery without the use of external buckle nor retinectomy. Post-operatively, relatively favorable results were observed with improved visual acuity and normal intraocular pressure (IOP) and attached central and peripheral retina.

Conclusions: This abstract highlights the efficacy of specific techniques in pars plana vitrectomy for addressing total retinal detachment with an intravitreal IOFB. Through meticulous surgical planning and optimization of available resources, successful anatomical reattachment of the retina was achieved in our case study. Further studies and ongoing refinement of surgical approaches are warranted to optimize outcomes in complex cases of retinal detachment.

Abstract No.: 200355

The Experience for Performing Pars Plana Vitrectomy and Peeled Internal Limiting Membrane Reposition in Monkeys

*First Author: Tian **TIAN***
*Co-Author(s): Shipping **GUO**, Dian **JIAO**, Mingyang **WANG**, Peiquan **ZHAO***

Purpose: To perform pars plana vitrectomy (PPV) and peeled internal limiting membrane (ILM) reposition in monkey.

Methods: A standard pars plana vitrectomy (PPV) was performed in 12 eyes of 6 monkeys using the Constellation vitrectomy system (Alcon Laboratories Inc, Fort Worth, TX). After thorough removal of the detached vitreous gel and the posterior hyaloid membrane, the ILM was stained with indocyanine green. After dying, a horizontal ILM strip was peeled from the inferior quadrant of the macular area. Then, the ILM was peeled from the inferior to superior area continuously. The "ILM roll" was unfolded with assistance of perfluoro-n-octane (PFO). The position of the repositioned ILM flap was adjusted under a PFO,bubble using a flute needle or forceps. The ocular viscoelastic device (OVD) was injected at the margin of the ILM flap followed by fluid-air exchange.

Results: PPV and peeled ILM reposition was successfully performed in all monkey. Compared to human, the posterior vitreous is more adhesive. The creation of PVD is more challenging. Meanwhile, the ILM is much more thinner than adult human. For eyes received peeled ILM reposition, dislocation of ILM flap was observed in 25% eyes.

Conclusions: Peeled ILM reposition technique can be performed in monkey eyes. Monkey is ideal animal model to explore the influence of ILM peeling to retina.

Abstract No.: 200694

The Glowport – Illuminated vitrectomy trocar cannulas

*First Author: Shishir **VERGHESE***
*Co-Author(s): Prithvi **CHANDRAKANTH***

Purpose: The use of small gauge trocar cannulas during transconjunctival suture less

pars plana vitrectomy (PPV) facilitates smooth transition of instruments into the posterior segment and reduces trauma. However, room lighting is routinely dimmed during PPV thereby making cannula visualization difficult and hence compromising efficient instrument exchange. We report the use of a frugal, fluorescent "glow in the dark" ring placed over vitrectomy cannulas so as to visualize the cannula entry thereby providing a smooth and efficient instrument exchange.

Methods: We three dimensional (3D) printed phosphorescent rings of optimum inner diameter so as to comfortably fit around the trocar cannula (The Glowport). Two such rings are fitted into the two trocar cannulas prior to surgery initiation. The cannulas are then passed via sclerostomy as performed in routine PPV. The light from the fiberoptic endo-illuminator is focused over the rings for about 5 seconds so as to activate the photoluminescence.

Results: Under mesopic conditions, the fluorescence provides visualization of the cannula entry and helps in facilitation of smooth entry and exchange of instruments into the globe for performing vitreoretinal surgical procedures which helps in reducing ocular touch errors as well as surgical time.

Conclusions: To conclude by utilizing commercially available CAD software, we 3D printed, frugal, inexpensive and customizable self-illuminating or phosphorescent "glow-in-the-dark-rings" (The Glowport) which would reduce error rates in low light instrument exchange, lessen the surgical time with its benefits extending to both experienced and novice VR surgeons.

Abstract No.: 200137
The Rescue Needle!

*First Author: Harshal **SAHARE***
Co-Author(s): Ravi Shankar H N

Purpose: A short video presentation about a challenging situation that many vitreo retina surgeons are likely to encounter during their training and professional practices.

Methods: A 56-year-old gentleman presented with sudden diminution of vision in the right eye since one week prior and was diagnosed with OD RRD with macula off with inferior breaks and was planned for PPV+ silicone oil insertion. After completing Vitrectomy, silicone was inserted and ports were removed. But after removing ports.. surgeon felt that there was inadequate filling of silicone oil and eye as hypotonus.

Results: We came up with a technique by filling the eye with 26G needle connected to silicone oil syringe. Although the rate of filling was slow, craving for tamponade was sure.

Conclusions: In this way by following this hack we adequately filled the eyeball with silicone oil without making any extra ports again. This can reduce the complications related to underfilling oil.

Abstract No.: 201043
The Second Battle of redetachment

*First Author: Vineet **BATWANI***
*Co-Author(s): Vidit **BANSAL**, Ayushi **SACHAN**, Rajpal **VOHRA***

Purpose: To demonstrate the surgical management of Redetachment in a case of previously operated Vitreoretinal Surgery which presented 10 years after primary surgery with a temporal GRT.

Methods: 30 year old gentleman presented with complaints of diminution of vision in OD for past 15 days. He had history of OD pars plana vitrectomy for Retinal detachment 10 years back with previous documents available. On examination, OD was found to have redetachment with advanced PVR changes with Temporal Giant Retinal Tear. Patient was subsequently planned for OD pars plana vitrectomy. Intraoperative residual vitreous removal was done and all epiretinal membranes were thoroughly removed. Then an attempt was made to flatten the retina but we were unable to do so due taut retina, so it was decided to create a large nasal relaxing retinectomy followed by fluid-air-exchange. Silicone oil was injected at the completion of surgery and advised prone positioning with standard post-operative care .

Results: At post-operative day 7, retina was well attached. However, improvement in visual acuity was minimal.

Conclusions: Late redetachments may present even 10 years after primary surgery and are associated with multiple challenges including extensive proliferative vitreoretinopathy.

Abstract No.: 200934
The "Jab and Straight Surgery" for Anterior to Posterior Trauma Management

*First Author: Melita **DJAJA***
*Co-Author(s): Elvioza **ELVIOZA***

Purpose: To show successful single surgery in managing iridodyalisis and traumatic macular hole.

Methods: A 34-year-old male came after car accident. He presented 3-clock-hour iridodyalisis and full thickness macular hole. The double strike "Jab" iridodyalisis repair and "Straight" transconjungtival sutureless vitrectomy with ILM Flap were done for this patient.

Results: A round pupil and a macular hole closure were observed in one week after surgery.

Conclusions: The meticulous "Jap and Straight" surgery for repairing anterior and posterior segment condition is a good way to repair iridodyalisis and traumatic macular hole.

Abstract No.: 200466
Tuck, flap or massage - a winning trio for colossal macular hole

*First Author: Barun **GARG***

Purpose: This video showcases distinct surgical approaches for closing large full thickness macular holes, with basal diameters greater than 1000 microns.

Methods: In all three cases, the surgical procedure involved vitrectomy, induction of posterior vitreous detachment (PVD), and ILM staining. The first technique involves the traditional method of using an ILM flap to cover the hole. The second technique describes the use of an ILM flap tucked inside the hole, while the third technique is a simpler approach involving ILM peeling and gentle retinal massage in a centripetal direction around the hole using a silicon tip. In all instances, patients were advised to maintain a prone position and received 14% C3F8 gas tamponade.

Results: In all the cases, an anatomical closure of macular hole was noted with significant visual rehabilitation.

Conclusions: These three techniques consistently demonstrated successful anatomical closure of large full thickness macular holes, resulting in improved visual acuity six weeks postoperatively. This video serves as a valuable resource for surgeons managing challenging cases of colossal macular holes.

Abstract No.: 200397
Unveiling the Sub-ILM Hemorrhages

*First Author: Anjana **MIRAJKAR***
*Co-Author(s): Ankit **JAIN**, Navneet **MEHROTRA**, Manish **NAGPAL**, Vaidehi **SATHAYE**, Anand **TEMKAR***

Purpose: This video showcases a variety of cases which present as a preretinal haemorrhage over macula. These are non-resolving haemorrhages which are taken up for surgical intervention.

Methods: Five different case scenarios of non-resolving preretinal hemorrhages are shown. Clinically it is difficult at times to differentiate a subhyaloid haemorrhage from a sub ilm haemorrhage. During surgery, when we assess them under high magnification, it was possible to know if the haemorrhage is under the ILM and requires unveiling of the same to expose the underlying blood.

Results: In total, there were five cases of non-resolving preretinal hemorrhages in which three were sub-ILM, one was partly subhyaloid and partly sub-ILM, and one was subhyaloid.

Conclusions: The video presents high magnification views of these cases to differentiate the planes of the preretinal hemorrhages.


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