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Combined retinal surgeries, advances in medical retina and imaging

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ABSTRACT book



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Oral *presentations*

Abstract 2

VISUAL AND ANATOMICAL OUTCOMES OF PRIMARY RETINECTOMY IN DIABETIC TRACTIONAL RETINAL DETACHMENT

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To investigate the impact of retinectomy on anatomical and visual outcomes in patients undergoing pars plana vitrectomy (PPV) for diabetic tractional retinal detachment (TRD).

Patients who underwent primary retinectomy during PPV for diabetic TRD were retrospectively evaluated. Best corrected visual acuity (BCVA) before surgery and at the final follow-up, retinectomy characteristics, and final retinal attachment status were documented.

Thirty-eight eyes of 38 patients with mean age 60.55 ± 10.00 years were included. Mean follow-up was 23.53 ± 27.40 months. The most common locations of the retinectomy sites were extended posterior to the equator (39.5%), around the equatorial zone (34.2%), and peripheral retina (26.3%). At the final visit 65.8% of patients experienced improved or maintained BCVA. Temporal retinectomy was associated with worse visual outcomes. Furthermore, 26 (68.4%) eyes were attached without tamponade, 10 (26.3%) were attached under silicone oil and 2 (5.6%) remained detached under silicone oil.

These results indicate that retinectomy, when performed as necessary in eyes with diabetic TRD, does not result in poor functional and anatomical outcomes, contrary to prevailing beliefs. In addition, due to the association of temporal retinectomy with poor visual prognosis, it would be more rational to monitor the membranes and retinal changes in the temporal retina more closely.

Abstract 12

WHAT HAPPENS AFTER PROLONGED “KISSING” CHOROIDALS?

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To present a case of long-term kissing choroidals in a patient following a glaucoma shunt procedure and to review related literature.

An 82-year-old patient developed hemorrhagic kissing choroidals after undergoing a glaucoma procedure. Due to underlying cardiac issues, he was unable to undergo choroidal drainage within the typical 2–3-week window, as he required continued anticoagulant therapy—likely a contributing factor to the complication. Instead, the patient was monitored for six months without intervention, during which moderate proliferative vitreoretinopathy (PVR) developed. Once operable, the patient underwent PVR repair with silicone oil tamponade. A review of relevant medical literature was conducted.

The long-term choroidal detachment resolved, and the resultant PVR was successfully repaired with a favorable anatomic outcome. However, visual acuity remained unchanged due to the glaucomatous optic atrophy. Literature review indicates that standard management recommends drainage of kissing choroidals within 2–4 weeks to prevent adhesion of opposing retinal surfaces. However, cases of spontaneous resolution with notable visual recovery have also been reported.

While surgical drainage within 2–4 weeks is recommended to reduce the risk of PVR formation, long-standing kissing choroidals may still achieve significant anatomic and/or visual recovery, with or without intervention. The optimal timing for surgical management should be determined on a case-by-case basis, considering the patient’s systemic condition.

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Abstract 13

BALKAN OCULAR TRAUMA – MY UNIQUE EXPERIENCE

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According to available data, between 30,000 and 35,000 traffic accidents occur in Serbia annually. The vast majority of these involve head injuries, often affecting the eyes.

To present an approach to solving the challenges of complex ocular surgery following car accident injuries.

A presentation of a complex surgical procedure of an 19 year old male involving the extraction of a foreign glass body in the natural lens (traumatic cataract) along with total retinal detachment. This case is unique in its complexity and approach.

The approach to each injury should be individual and thorough. While existing standards and previous case experiences provide valuable guidance, it is crucial to recognize that every injury is unique, requiring a personalized approach.

Abstract 16

VITRECTOMY WITH INFERIOR RETINECTOMY VS. HEAVY SILICONE OIL(DENSIRON XTRA) IN THE MANAGEMENT OF INFERIOR RHEGMAТОGENOUS RETINAL DETACHMENT WITH PROLIFERATIVE VITREORETINOPATHY

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To compare the anatomical and functional outcomes of pars plana vitrectomy (PPV) with heavy silicone(Densiron Xtra, HSO) versus PPV with inferior retinectomy in primary and recurrent retinal detachment(RD) cases with inferior retinal detachment(RD) and severe proliferative vitreoretinopathy (PVR).

A retrospective study was conducted over seven years, examining patients with primary and recurrent RD and inferior RD associated with PVR stage C1-3 in 45 eyes. Seventeen eyes underwent PPV and HSO(Densiron Xtra) tamponade while 28 eyes underwent PPV with inferior retinectomy 180 degree or greater and 1000cSt standard silicone oil tamponade. Internal limiting membrane (ILM) peeling was attempted in all cases. Three rows of 360-degree laser photocoagulation were applied to the retinectomy edges and the entire retina; in retinectomy cases, also was applied to the HSO group. The primary outcomes included anatomical and functional success, while secondary outcomes involved recurrence rates, secondary surgeries, and postoperative complications.

Primary anatomical success was 79.5% in the heavy silicone oil group and 85.7% in the inferior retinectomy group. Recurrence and secondary surgery occurred in 7 eyes (41%) in the HSO(DensironXtra) group and in 3 eyes (13%) in the retinectomy group. All recurrent cases in the Densiron Xtra group underwent inferior retinectomy due to recurrent retinal detachment. In the retinectomy group, recurrence was due to epiretinal membrane (ERM) formation rather than retinal detachment, and membrane peeling was performed. Final anatomical success was 95% in the retinectomy group and 90% in the Densiron Xtra group. Silicone oil removal was performed within 3–4 months. Final visual acuity was 0.6 in the retinectomy group and 0.4 in the HSO(Densiron Xtra) group. Intraocular pressure (IOP) was higher in the Densiron Xtra group compared to the retinectomy group. No cases of postoperative hypotony were observed in the retinectomy group. No significant differences were observed with regard to emulsification, or intraocular inflammation in both groups.

The recurrence rate(recurrent RD) and need for secondary surgery were higher in the HSO(Densiron Xtra) group than in the retinectomy group. Although the final anatomical success was similar between groups, the functional success was slightly better in the retinectomy group. Due to the lower recurrence rate, fewer secondary surgeries, and better final visual acuity, inferior retinectomy was found to be more effective and successful than HSO(Densiron Xtra) in the management of inferior retinal detachment with PVR. To our knowledge this is the first report comparing heavy silicone oil to retinectomy for inferior retinal detachment with PVR.

Abstract 18

DISPERSIVE VISCOELASTIC AGENT AS VITREOUS TAMPONADE IN SEVERE OPEN GLOBE INJURY

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We present a case of use of dispersive viscoelastic agent as intraocular tamponade in the treatment of a severe open globe injury. A 67-year-old female patient presented at Accident & Emergency room with a left eye (LE) open globe injury following trauma. The patient had a history of penetrating keratoplasty (PK) for keratoconus performed 21 years before, and two months earlier she had undergone corneal wound suturing on the transplanted corneal graft due to an other domestic accidental trauma, followed by pars plana vitrectomy and scleral fixation intraocular lens (IOL) implantation with Yamane technique one month later.

LE clinical examination showed a 270-degree opening of the PK graft flap, involving the entire superior and nasal sectors from 3 to 7 o'clock, corneal suture dehiscence, complete athalamia, significant hypotony, a nearly absent posterior chamber, and apparent total retro-IOL choroidal detachment. The best corrected visual acuity (BCVA) was no light perception. As preoperative prophylaxis systemic antibiotics (Ceftriaxone 2g/day) were administered. A surgical procedure was performed urgently using a Zeiss OPMI Lumera® 700 microscope (Carl Zeiss Meditec AG, Goeschwitzer Strasse 51-52, Germany) with a 3D visualization system, Ngenuity Alcon © (6201 South Freeway, Fort Worth, TX 76134-2001, United States). The PK graft flap was sutured with interrupted Nylon 10-0 sutures. Complete filling of the vitreous cavity was achieved with two 0.5 cc injections of dispersive viscoelastic, Viscoat Alcon © (Sodium Chondroitin Sulfate and Sodium Hyaluronate 40 mg) from the anterior chamber via open sky, followed by three additional 0.5 cc injections with 30 gauge needle via pars plana until normalization of the intraocular pressure (IOP).

The day after surgery the LE examination showed effective corneal suture, normal intraocular pressure, complete resolution of the choroidal detachment and retina attached in all sectors. The patient was prescribed postoperative medical therapy with topical antibiotics and steroids. She underwent weekly postoperative follow-up controls, with favorable postoperative progression, excellent maintenance of the suture, stable intraocular pressure, stability of Yamane scleral fixated IOL despite the serious trauma, and good control of intraocular inflammation. After one month from surgery BCVA raised to 1.0 LogMar.

Ideal substitutes for the vitreous body should provide effective tamponade, long-term biomechanical and biochemical functions, and should be easily injectable with fine needles. (1, 2) The use of medium-viscosity dispersive viscoelastic in this complex case allowed for complete filling of the intraocular spaces and can be considered as an option in extreme cases of open globe injury for effective intraocular tamponade.

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Abstract 19

ENDORESECTION OF LARGE UVEAL MELANOMAS IN HUNGARY: RESULTS OF AN INTERNATIONAL COLLABORATION ESTABLISHED IN 2023

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Background: The treatment of uveal melanoma typically includes irradiation, surgical excision, and enucleation. Managing large uveal melanomas poses significant challenges due to the severe side effects of irradiation, which is only available in specialized oncological ophthalmology centers. Since 1986, Hungary has utilized Ru-106 brachytherapy for small and medium-sized tumors, while large uveal melanomas were treated exclusively by enucleation. In 2023, a collaboration between the University of Essen and the University of Debrecen was established to develop standard operating procedures for treating large uveal melanomas using neoadjuvant radiotherapy and endoresection. The first endoresection procedure in Hungary was performed on December 7, 2023, at the University of Debrecen.

Methods: This study reports the outcomes of the newly introduced endoresection technique for large uveal melanomas at the University of Debrecen. The study cohort consisted of 18 patients treated between December 7, 2023, and March 24, 2025. Patient demographics, tumor characteristics, and post-treatment outcomes, including visual acuity and eye preservation rates, were analyzed.

Results: Eighteen patients (12 men, 6 women) with a mean age of 52.4 years underwent the combined neoadjuvant radiotherapy and endoresection procedure. All patients had large uveal melanomas unsuitable for Ru-106 brachytherapy due to tumor thickness exceeding 7 mm. The mean tumor thickness was 8.98 mm, and the mean basal diameter was 13.84 mm. After an average follow-up of 7.1 months, all eyes were salvaged, and the patients achieved a mean visual acuity of 0.30 (SD 0.30; range: 0.02-1.0). During the follow-up period, one patient developed metastasis.

Conclusion: This study demonstrates the successful establishment of a new treatment approach for large uveal melanomas in Hungary through international collaboration. Although endoresection after radiotherapy cannot prevent metastasis, it provides significant quality-of-life improvements by preserving eyes with functional vision. These findings emphasize the value of international partnerships in advancing ophthalmic oncology care.

Abstract 20

CLINICAL PROFILE AND OUTCOMES OF PATIENTS WITH BREAKTHROUGH VITREOUS HEMORRHAGE SECONDARY TO POLYPOIDAL CHOROIDAL VASCULOPATHY

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we aim to evaluate the treatment outcomes and recurrences in patients with breakthrough vitreous hemorrhage secondary to polypoidal choroidal vasculopathy (PCV) : is it the end stage disease?

Patients presenting with breakthrough hemorrhage secondary to PCV or PEHCR (diagnosed intra or post op) were included in the study. Patients with vitreous hemorrhage subsequent to other macular diseases were excluded. Demographic data, best corrected visual acuity (BCVA) pre and post-operative ancillary imaging were analyzed. Number of recurrences, treatment followed and mean follow up were calculated.

10 eyes of 10 patients fulfilling the inclusion criteria were included (6 males, 4 females). All patients had non resolving vitreous hemorrhage before surgery. Five of the ten patients (50%) showed subretinal hyper-echogenicity on ultrasound B-scan pre-operatively. All patients underwent pars plana vitrectomy with or without tamponade and intravitreal aflibercept injection. Intra-operative aflibercept injection was given in 5 patients. Post operative intravitreal aflibercept was required in 4 patients (40%) for the lesion to scar and stabilize. Only one patient developed a recurrence (10%), which was from a different site than the original PCV and was treated with subretinal TPA and intravitreal aflibercept. Mean follow up was 14.5 months.

This preliminary data shows that breakthrough vitreous hemorrhage tends to scar and stabilize the PCV and represent an end stage disease. However, the small sample size is a major limiting factor and larger studies with collaborative data from different geographical regions would be essential.

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Abstract 25

VITRECTOMY RESULTS FOR RHEGMATOGENOUS RETINAL DETACHMENT WITH CONCOMITANT MACULAR HOLE IN NONMYOPIC PATIENTS

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Purpose: To report on results of pars plana vitrectomy with ILM peeling in patients with rhegmatogenous retinal detachment (RRD) and concomitant macular hole (MH) and to assess for preoperative associated conditions related to this type of RRD.

Methods: Patients undergoing surgical repair for RRD between 2014 and 2021 were reviewed, and subjects with concomitant, non-causal, macular hole were identified. We studied post-operative macular status, retinal reattachment rate and visual acuity.

Results: Over 532 eyes operated on for RRD, 11 (2.06%) had a concurrent non-causal macular hole. Preoperative PVR B or superior was recorded in 86 eyes (16.6%) of the entire cohort and in 6 eyes (54.54 %) with RRD and concomitant MH ($p=0.00001$). Severe hypotony with choroidal detachment was present in 15 eyes (2.81%) of the entire cohort and in 3 eyes (27.27%) with RRD and concomitant MH ($p=0.00001$).

Conclusions: RRD with concomitant MH is an infrequent association. Retinal reattachment and anatomical hole closure can be achieved in most of cases but despite this fact, functional recovery is usually not good. Preoperative PVR is a more frequent finding in this group of patients, as well as severe hypotony with choroidal detachment.

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Abstract 26

COMPARISON OF EFFICACY AND RECURRENCE RATES OF RANIBIZUMAB AND RANIBIZUMAB BIOSIMILAR IN RETINOPATHY OF PREMATURITY

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Intravitreal Anti-vascular endothelial growth factor (AntiVEGF) therapy has revolutionized the treatment of Retinopathy of Prematurity (ROP). While Aflibercept is the only U.S. Food and Drug Administration (FDA) approved AntiVEGF for treatment of ROP, Ranibizumab and its biosimilars have offered an affordable option for such patients but there is no data comparing their effectiveness. So in this study we aim to compare the recurrence rate and outcomes of Ranibizumab biosimilars as compared to Ranibizumab Intravitreal AntiVEGFs.

We retrospectively analyzed the data of babies undergoing intravitreal AntiVEGF injections for treatment of ROP From December 2022 to December 2025. Babies treated with intravitreal injections of Ranibizumab and Ranibizumab biosimilar who were not lost to followup were included in the study and divided into Two Groups Group A and Group B. Group A received Intravitreal injections of Ranibizumab and Group B were treated with injections of Ranibizumab biosimilar. We studied and compared the demographic characteristics, morphological details of ROP, response to treatment, incidence of recurrence, Interval of recurrence from the time of injection, need for repeat treatments and anatomical outcomes.

We had 52 eyes in Group A and 46 eyes in Group B who underwent respective injections for ROP. Both groups were comparable with respect to baseline demographic characteristics. In either of the groups the most common indication was Aggressive ROP (AROP) ($p=0.0747$). All eyes responded to the initial antiVEGF injections given in both groups. 53.85% eyes in Group A and 65.22% eyes in Group B had recurrence ($p=0.25$). PMA of recurrence was significantly lower in Group B (38.73 ± 4.57 weeks) as compared to Group A (43.14 ± 1.76 weeks); $P<0.0001$. Group B also had a significantly earlier recurrence at 6.13 ± 2.13 weeks as compared to Group A (8.36 ± 1.25 weeks); $P<0.0001$. Recurrences in both the groups were majorly staged ROP. Out of the eyes undergoing reintervention 52% in Group A and 71.79% in group B had recurrence ($p= 0.0385$). Majority of the eyes in either group were treated with laser upon reintervention (0.1279). 92% eyes in group A and 84.09% in Group B had good anatomical outcomes.

In Our study both the ranibizumab and the biosimilar groups had comparable recurrences. However, the recurrence was earlier and at a lower PMA in case of biosimilars. Most recurrences were managed by laser in either of the two groups. This is a very small sample size and detailed studies need to be done, but for now biosimilars are slowly becoming crowd-favorite in middle income countries like India due to better affordability.

Prajapati V, Choudhary T, Chauhan W, Shah S, Handa R, Jahan B, Malviya S, Sengupta S. Efficacy of a biosimilar ranibizumab monotherapy for the treatment of retinopathy of prematurity. Indian J Ophthalmol. 2023 Feb;71(2):411-415. doi: 10.4103/ijo.IJO_973_22. PMID: 36727329; PMCID: PMC10228963.

Abstract 30

PERIPAPILLARY PACHYCHOROID SYNDROME, A DIFFERENT PATHWAY IN VENOUS REMODELLING OF THE CHOROIDAL VASCULATURE

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Peripapillary pachychoroid syndrome (PPS) is a recently described syndrome belonging to the pachychoroid disease spectrum (PDS) group.

Our aim is to demonstrate with PPS, the presence of a venous collateral circulation which joins the peripapillary choroidal venous system with the central retinal vein via the circulation of the prelaminar region.

This collateral circulation reduces venous congestion of the nasal choroid secondary to outflow obstruction through the vortex veins or the choroidopial veins.

We describe the clinical evolution of patients affected by PPS over a 5-years period.

Two factors help diagnose this collateral circulation:

evidence from the fluorescein angiography showing dilated venules at the superficial nerve fibre layer and at the superficial prelaminar region, and evidence from the OCT-A 8 mm and automated segmentation level in deep mode, demonstrating congested vessels and increased vascular flow in the temporal juxtapapillary region.

These two factors become further evident in the more advanced stages of the disease.

It is also our intention to demonstrate with a retrospective analysis, the stages of development and possible spontaneous regression of the illness.

The increased outflow resistance via the vortex veins, as observed in patients affected by PDS, is the cause of congestion of the choroid and related chorioretinal manifestations.

Vortex veins anastomosis in the watershed zones develops to compensate stasis.

We believe that in the PPS cases we observed, and supposedly in each case of PPS, the increased venous choroidopial outflow resistance at the level of the nasal macular choroid determines the formation of a collateral circulation which develops between the peripapillary choroid and the central retinal vein, passing through the prelaminar region.

Furthermore, this study highlights how stages of disease activity can quickly be followed by major structural changes in the outer retina.

This suggests that treatment should not be delayed if the disease involves the central retina.

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Abstract 31

MULTIFOCAL IOLS AND VITREORETINAL SURGERY

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Multifocal IOLs have had an impact on vitreoretinal surgery at a number of levels, including performing surgery through these lenses and its limitations, addressing patients dysphotopsia with VR techniques, IOL exchanges and retinal pathology and their unique manifestations through multifocal lenses.

Course - optics of mfIOLs and their impact on VR surgery

- Dysphotopsia and VR solutions
- Retinal pathology and patient/ peer education regarding impact of mfIOLs
- IOL exchange surgery - tips and tricks

Understanding of challenges with mfIOLs and VR surgical practice as well as solutions and strategies

mfIOLs are increasingly prevalent as a choice for lens surgery and they are now becoming significant in VR practice. VR surgeons need to be aware of their impact, strategies to address them as well as be in a position to educate patients and anterior segment colleagues.

Abstract 35

IN-OFFICE BLOOD-AIR EXCHANGE FOR PERSISTENT VITREOUS HEMORRHAGE AFTER VITRECTOMY IN PROLIFERATIVE DIABETIC RETINOPATHY

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Proliferative diabetic retinopathy (PDR) is one of the leading causes of vision loss in developing countries, in advanced stages with severe proliferation and traction or in long-standing vitreous hemorrhages it is mandatory to perform a surgical procedure (pars plana vitrectomy) to stop the progression of the disease by removing the fibrovascular proliferation, clearing the hemorrhage and applying panretinal photocoagulation (PRP). A common postoperative complication is persistent or recurrent vitreous hemorrhage due to remaining fibrovascular tissue, decompensated comorbidities or poor patient care after surgery. When a hemorrhage is dense and does not clear up after several weeks, a fluid/blood-air exchange can be done, this procedure is performed in a consultation or minor procedure room under topical anesthesia with a good safety profile. The aim of this study was to evaluate the efficacy of in-office blood-air exchange for rebleeding after vitrectomy in PDR.

Retrospective study, we included eyes that underwent blood-air exchange for vitreous hemorrhage after vitrectomy, demographic data, best corrected visual acuity (BCVA) before and after the procedure, number of blood-air exchanges and complications were recorded.

The patient was placed in fowler's position, after aseptic technique (5% povidone-iodine drops) and a lid speculum placement, a 10mL syringe containing 5mL of air was inserted in the infero-temporal quadrant using a 26-gauge needle, by visualizing the needle tip through the iris the blood is pulled out replacing the space with 0.5mL of air when hypotonia is evident, this is repeated multiple times, the procedure stops when 3-5mL of blood are collected.

14 eyes of 14 patients were included, mean age was 55 years old, 50 % were female, 92% had vitreous hemorrhage and 35.7% had tractional retinal detachment before surgery. Cataract surgery, IOL placement, PPV and PRP were performed in all cases. 8 eyes had iris neovascularization. Time of rebleeding was 8.1 weeks after surgery in average (range 1-48w), all had a persistent and dense vitreous hemorrhage before the blood-air exchange, the time for the exchange was 12.4 weeks in average (range 4-51w) after surgery. The mean number of exchanges was 1.2. Four eyes received an anti-VEGF injection more than 2 weeks before the exchange. No complications were found during and after the procedure. Baseline mean BCVA was 2.85 +/- 0.36 logMar. When compared to baseline, mean BCVA improved after 1 week, 1, 3 and 6 months to 1.54 +/- 0.85 logMar ($p<0.001$), 0.91 +/- 0.88 logMar ($p<0.001$), 0.60 +/- 0.53 logMar ($p<0.001$) and 0.46 +/- 0.35 logMar ($p<0.001$), respectively. Thirteen eyes (92.8%) remained stable without rebleeding after 6 months, 1 eye presented a new hemorrhage after 5 months with neovascular glaucoma which was treated with Ahmed's valve implantation and PPV.

Recurrent or persistent vitreous hemorrhages are common after PPV for PDR, an office-based blood-air exchange is an effective, low-cost and safe alternative for rebleeding. This avoids the need of a second PPV in more than 90% of eyes. It is important to assess each eye carefully to low the risk of complications specially when residual traction or peripheral proliferation were left after the PPV.

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Abstract 39

QUANTITATIVE ASSESSMENT OF HYPER-REFLECTIVE DOT DISTRIBUTION AND SUBRETINAL FLUID TEXTURE IN REGULATED AND DYSREGULATED RHEGMATOGENOUS RETINAL DETACHMENT

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Rhegmatogenous retinal detachment (RRD) is a retinal emergency with an incidence ranging from 6.3 to 17.9 per 100,000 individuals globally. Prompt surgical intervention is essential to preserve anatomical integrity and optimize visual outcomes. While clinical examination remains the cornerstone of diagnosis, optical coherence tomography (OCT) has emerged as a critical tool for detailed evaluation of retinal morphology and subretinal fluid (SRF) characteristics.

Hyperreflective dots (HRDs) on OCT are small, punctate lesions with increased reflectivity, observed within various retinal layers and in the SRF. HRDs have been described in numerous retinal pathologies, including diabetic macular edema and age-related macular degeneration, where their histological correlates vary from activated microglia and macrophages to degenerated photoreceptor elements and lipoproteinaceous debris. Notably, HRD presence has been linked to both disease activity and treatment response, particularly in diabetic macular edema, where increased HRD burden correlates with worse visual prognosis.

In the context of RRD, the biological significance of HRDs remains poorly understood, though emerging evidence suggests a potential inflammatory component. This retrospective study aims to quantitatively compare the characteristics of subretinal fluid (SRF) in patients with regulated versus dysregulated rhegmatogenous retinal detachment (RRD) both in baseline and 3 months postoperatively. We focused on analyzing hyperreflective dots within the SRF to explore differences in particle density and texture, hypothesizing that the chronicity of regulated RRD leads to a denser, more heterogeneous SRF.

Sixty eight patients from St. Michael's Hospital were retrospectively reviewed, including 24 with regulated

RRD and 44 eyes with dysregulated RRD, all of whom had high-quality baseline swept-source OCT (SSOCT)

or SD-OCT images. Custom-developed MATLAB codes were employed to select the region of interest (ROI) in each OCT image and to count hyper reflective dots within the SRF. The software further categorized these dots into four groups based on size and intensity: large + high intensity, large + low intensity, small + high intensity, and small + low intensity. Additionally, texture analysis was performed by

plotting the ROI histogram and calculating its standard deviation (SD) and full width at half maximum (FWHM), with higher values indicating a more heterogeneous texture.

The regulated group had a lower mean age of 43.3 years, with an equal male and female distribution (12 each), whereas the dysregulated group had an average age of 63.6 years, with 27 males and 17 females.

Phakic eyes were more prevalent in the regulated group (83%, 20/24) compared to the dysregulated

group (59%, 26/44). The regulated group had a significantly higher total count of hyperreflective dots (14 vs. 2; $p = 0.0004$) and greater density per square millimeter (3.48 vs. 0.64; $p = 0.0046$). Large, highintensity

dots were most prevalent in the regulated group (36.2%), whereas small, low-intensity dots dominated in the dysregulated group (48%, $p = 0.02$). The regulated group also showed significantly higher SD and FWHM values ($p = 0.0002$ and $p < 0.0001$, respectively), indicating greater SRF heterogeneity.

At 3 months postoperatively, 80% (17/21) of the regulated group still had SRF, compared to 37% (15/40)

in the dysregulated group. Over time, SD increased significantly in the dysregulated group (8 vs. 4.35, $p <$

0.0001), as well as FWHM (11.9 vs. 9, $p = 0.001$). The dominant dot type also changed, with small, lowintensity

dots becoming more prevalent in both groups.

Our findings indicate that regulated RRD, representing a more chronic condition, is associated with a denser SRF containing a higher number of hyper reflective particles and a more heterogeneous texture

compared to dysregulated RRD preoperativly. The increased particle density in regulated RRD may reflect

prolonged duration with continuous absorption of fluid by the retinal pigment epithelium (RPE), leading to a SRF that is less liquid and more particulate, as particulate matter may take longer to be removed from the subretinal space. In contrast, dysregulated RRD is more acute, with fewer particles and a more

homogeneous SRF. Also, when comparing pre-operative and post-operative images, our findings suggest

that SRF in dysregulated patients becomes more heterogeneous over time, with distinct dot evolution patterns between groups. This study not only elucidates the distinct baseline and longitudinal SRF characteristics between regulated and dysregulated RRD, but also demonstrates the utility of quantitative

OCT image analysis using custom MATLAB code as an objective tool to asess subretinal fluid in RRD.

Abstract 45

SHORT TERM TAMPONADE WITH PERFLUOROCARBON LIQUID IN SUBRETINAL BLEEDING IN COMPLEX SCENARIOS- INDICATIONS, SAFETY AND EFFICACY.

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Short-term tamponade with perfluorocarbon liquid (ST-PFCL) involves off-label use of heavy liquids. Despite that it has been used in certain indications in vitreoretinal surgery, particularly in the treatment of giant retinal tears with good outcomes. Retinal detachment with subretinal bleeding is a challenging scenario and the purpose of this study is to investigate if ST- PFCL could be a technique of choice of managing this situation and discuss indications, safety and efficacy.

Retrospective consecutive series of 7 eyes of 7 patients with subretinal haemorrhage associated with retinal detachment- rhegmatogenous in 6 cases and exudative in 1 case (patient 4) operated by a single surgeon (KMC) between January 2022 and February 2025, 31-93 years of age. Data regarding indication, preoperative visual acuity, duration of temporary tamponade, complications and visual acuity at 3 months after the surgery were recorded for patients 1-4; for the remaining 3 (patients 5-7) who had more recent surgery and data from the latest review were used. All patients had subretinal bleeding associated with retinal detachment- either preoperatively (globe rupture-patient 1 and 6, penetrating eye injut-patient 7, diabetic retinal redetachment-patient 3. ; peripheral exudative haemorrhagic chorioretinopathy (PEHCR)-patient 4) or as a result of intraoperative complication (patient 2. and 5.) underwent vitrectomy with about 95% fill of vitreous cavity with perfluorodecalin. All sclerostomies were sutured with 8-0 vicryl and patients were instructed to posture in supine position until the date of removal. Topical steroid and antibiotic was prescribed. Removal of PFCL (PFCL-R) was scheduled between 7-14 days from the initial surgery. Secondary tamponading agent was used depending on the clinical scenario.

At the time of PFCL-R, subretinal blood was completely or almost completely resolved in 6 cases. In case 6 some organized, fibrosed blood persisted. In 5 cases retina was attached at the time of second operation. In patient 5 the retina was detaching due to subretinal bands, which were removed during the second operation; in patient 7 the retina was incompletely treated with laser and that was addressed in the second operation. In both cases successful apposition was achieved after the second surgery, but in patient 7 proliferative vitreoretinopathy caused inferior macula-on redetachment about 1 month later. In 6 cases vision improved after the 1st surgery (cases 1-4 and 6-7), in 1 case vision did not change (patient 5- severe pre-existing in the macular region). During the ST-PFCL, 4 patients had significant blood in the anterior chamber (patients 1,2, 4 and 6) and 3 of them (2,4 and 6) had increased intraocular pressure, responding to medication. The blood was washed out at the time of PFCL-R and IOP stabilized in the postoperative period. All patients had severe conjunctival hyperaemia during ST-PFCL, suggestive of inflammation, which resolved after PFCL-R. No retinal toxicity was observed. No severe or irreversible complications or deterioration of vision were noted in relation to ST-PFCL.

ST-PFCL is safe and very effective in draining subretinal blood in scenario of retinal detachment associated with subretinal blood. ST-PFCL should not extend beyond 2 weeks due to possible inflammation, therefore the patient selection should be careful. It is not a technique of choice for submacular bleeding secondary to wet AMD or macroaneurysm and should be reserved to selected

cases where retinal detachment is present. Intraocular pressure should be monitored and treated accordingly during ST- PFCL, especially if the drained blood might migrates to the anterior chamber.

Abstract 46

ANTERIOR SEGMENT ISCHEMIA FOLLOWING REPEATED VITRECTOMIES WITH EXTENSIVE CRYOTHERAPY AND LASER.

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Anterior segment ischaemia is a known complication of ocular procedures. It has been mainly described in association with strabismus surgery, scleral buckling or in predisposed individuals with retinopathy of prematurity or sickle cell disease. However, it is very unusual in an otherwise healthy individual with vitrectomy only. Here, we present such rare case.

It is a case report of a 47-year old male with history of 3 surgeries for retinal detachment (RD) in the left eye, including extensive retinectomy, laser and cryotherapy. The patient had no systemic conditions, like diabetes or sickle cell disease and scleral buckle has not been used in any of the surgeries. At presentation, vision was counting fingers, pressure 9mmHg, he had extensive neovascularization on the iris (NVI) and thickened posterior capsule. He underwent another vitrectomy with surgical capsulotomy, during which peripheral RD was noted, deemed the reason for NVI, and treated with additional laser, cryotherapy and SF6 tamponade.

Postoperatively he developed corneal oedema, inflammation, haemorrhage, mydriasis, and retinal detachment, requiring further surgery with silicone oil tamponade. Cornea became opaque, iris developed extensive complete atrophy; hypotony and low vision persisted, suggestive of anterior segment ischemia. Over time, the intraocular pressure improved somewhat - to 8mmHg, but the cornea remained opaque at last review.

Repeated vitrectomies with extensive laser and cryotherapy can lead to anterior segment ischaemia in rare cases. Suggested mechanism might involve impairment of the long ciliary arteries. Probably more conservative treatment and less invasive surgical approach should be advocated and extensive 360 laser and/or cryotherapy treatment should be avoided. Further evidence is needed to establish risk factors and pathology of this event.

Abstract 47

PADEL: AN EMERGING CAUSE OF OCULAR TRAUMA IN CHILE

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Padel has been one of the fastest growing sports around the world during recent years. It is estimated that around 18 Million People around the globe are active Padel players. Chile, as well as the rest of Latin America has followed this trend. There are around 1.700 Padel Courts in Chile with approximately 28.500 matches played every week. Padel is a racquet, usually played by 4 people in a closed 20x10 meters court surrounded by glass walls. It uses a 6,5 cms diameter yellow ball, similar to the one used in tennis that can reach speeds up to 120 km/h, even in amateur matches.

These characteristics pose a great risk for accidental ocular trauma during the practice of padel.

Electronic medical records, between January 2010 to October 2024, and imaging from 35 patients with eye lesions secondary to padel practice were retrospectively reviewed. Multimodal retinal imaging approach, including optical coherence tomography angiography, were performed.

During the study period, 35 patients were treated for padel-related ocular injuries, with an almost exponential increase in emergency visits. The mean age was 45,25 (+/- 11,5) years, and 80% were men. Most injuries were in the right eye (60%). The Snellen Chart mean visual acuity (VA) at presentation was 0,87 (logMAR 0,116). At 6-month follow-up, the mean VA improved to 0,95 (logMAR 0,025). Mostly, mild ocular injuries were evident: traumatic iritis (34,2%), iris sphincter tears (28.5%), corneal erosions (22%). However, some patients presented with more severe ocular injuries such as retinal tears (11.4%), choroidal rupture (5.7%), vitreous hemorrhage (5,7%), and retinal detachment (5,7%), among others. Most patients (80%) were treated with topical treatment. Some patients required more invasive treatments such as focal laser (8,5%), Pars Plana Vitrectomy (8,5%), Conventional Retinal Detachment Surgery (2,8%) or Anti-VEGF intravitreal injections (2,8%). Although only two patients ended up with decreased visual acuity, eleven patients (31,4%) had persistent anisocoria or photophobia. None of the patients were wearing eye protection at the time of the trauma.

Padel is one of the fastest-growing sports in our country and, given its characteristics, can pose a significant risk of ocular trauma. Ocular injuries associated with padel can generate considerable morbidity that can result in permanent visual impairment. The implementation of mandatory eye protection should be considered.

Abstract 48

NAVIGATING THE STORM: A POSTPARTUM DIABETIC RETINOPATHY CHALLENGE

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The relevance of the case lies in the aggressive progression of the clinical picture and the potential controversy associated with the therapeutic choice made, given the surgical challenge of a Tractional Diabetic Retinal Detachment in a postpartum type 1 diabetic woman.

The described clinical case involves a 24-year-old woman with type 1 diabetes mellitus since the age of 13, who was evaluated in an ophthalmology consultation one month postpartum. The delivery was induced at 33 weeks due to pre-eclampsia. The ophthalmological examination revealed a corrected visual acuity of 0.8, and fundus examination under dilation showed moderate non-proliferative diabetic retinopathy, corroborated by wide-field retinography. Fluorescein angiography performed at the same time revealed significant peripheral ischemia. After missing follow-up appointments, she returned to the ophthalmology consultation eleven months later, reporting a progressive yet rapidly evolving decrease in visual acuity (0.4). Examination revealed a nasal tractional retinal detachment with papillary and temporal area outside the arcades involvement, in the context of advanced diabetic eye disease.

She was then treated to an intravitreal injection of 2 mg afibercept, and four days later, underwent pars plana vitrectomy with segmentation - delamination of the epi-retinal fibrovascular tissue, peeling of the internal limiting membrane, 360-degree endolaser, and SF6 tamponade.

At the 4rd month follow-up, she was evolving favourably with the retina fully reattached.

Treating diabetic retinopathy is a difficult and complex task that involves challenging decisions, as multiple factors influence the outcome of therapeutic action and the critical decision for timely and proper staging to avoid delay in treatment, the most obvious cause of therapeutic failure. Intervention at the level of systemic factors is crucial to the success of any therapeutic proposals.

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Abstract 51

PNEUMATIC RETINOPEXY IN CHALLENGING AND ATYPICAL CASES WITH RHEGMATOGENOUS RETINAL DETACHMENT

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Purpose: To report the outcomes of pneumatic retinopexy (PnR) performed by a single surgeon as initial therapy in atypical patients with rhegmatogenous retinal detachment (RRD).

Material and methods: A total 20 eyes of 20 patients who underwent PnR from January 2016 to January 2021 at the Department of Ophthalmology, Baskent University Faculty of Medicine, Ankara, Turkey, were included in this retrospective study. A single surgeon operated on all patients, and all were followed for at least 24 months postoperatively. In the following visits, dilated fundus examination, OCT(Optical Coherence Tomography), OCTA(Optical Coherence Tomography Angiography), posterior pole photos and 360-degree peripheral retina photographs were taken.

The study included 10 male (%50) and 10 female (%50). The etiologies of selected special cases were big retinal tears (%40), bullous retinal detachment (%35), retinal dialysis (%5), retinal and choroidal detachment (%5), retinal tears in the lower clock (%5), and giant retinal tears (%10), respectively. After completing laser photocoagulation and successful head positioning on all cases, which resulted in no detachment during follow-ups.

Conclusion: PnR is typically only used for retinal tears in the upper clock and involves a single break of less than one hour. However, the exact criteria are controversial and largely dependent on surgeon and patient factors; it was used in the treatment of many different etiologies, including atypical localization and multiple in this study. PnR is less invasive, can be performed in the office, avoids postoperative refractive changes or strabismus, and is associated with faster recovery. PnR is a very solution-oriented process in experienced hands; the most important factor in optimizing a successful outcome is proper patient selection.

Abstract 52

WHEN TIME MATTERS: ONE SURGEON, ONE SESSION, INTEGRATED MANAGEMENT OF ZONE IIIA OPEN-GLOBE INJURY WITH INTRAOCULAR FOREIGN BODY AND ADNEXAL TRAUMA

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Significant global variation exists in the management of ocular trauma, particularly regarding access to subspecialty care, timing of primary repair, and urgency of intraocular foreign body (IOFB) removal. In open-globe injuries (OGIs) with IOFBs, timely intervention is critical, yet definitive surgery is frequently delayed until the following day. The timing of adnexal reconstruction, primary globe closure, and vitrectomy may significantly influence visual and anatomical outcomes.

We report a complex case of OGI involving zone IIIa with an IOFB and extensive adnexal trauma, managed by a vitreoretinal surgeon at the University of Debrecen, Hungary. Surgical approach, postoperative course, and visual outcomes over a five-month follow-up are presented.

On October 23, 2024 (a national holiday, in Hungary), a 39-year-old male with a CT-confirmed IOFB with a ruptured eyelid was urgently admitted. Within six hours of injury, he underwent emergent surgery under general anesthesia. The 9 mm metallic IOFB transected the lateral rectus muscle, causing two full-thickness scleral lacerations with vitreous and retinal extrusion (zone IIIa). The IOFB resulted in a massive vitreous hemorrhage and a macular tear at the temporal edge.

Primary repair, including eyelid and muscle suturing, phaco-aspiration, vitrectomy, and IOFB removal via a corneal incision, was completed in a single session by a retinal surgeon with limited oculoplastic experience. Two months later, tractional retinal detachment and a macular hole due to proliferative vitreoretinopathy (PVR) necessitated reoperation with internal limiting membrane peeling and silicone oil (2000 cSt) tamponade. At five months, the best-corrected visual acuity reached 0.20, with excellent cosmetic outcomes.

This case highlights the feasibility and success of single-session management of severe ocular trauma, including adnexal reconstruction, primary globe repair, and vitrectomy with IOFB removal, performed by a retinal surgeon. While basic oculoplastic competency sufficed for adnexal repair, advanced vitreoretinal expertise was critical to visual recovery. Early, comprehensive intervention by a skilled retina surgeon can yield favorable functional and aesthetic outcomes, even in complex zone III injuries.

Abstract 55

REMOVAL OF A 2 CM INTRAOCULAR FOREIGN BODY VIA MID-PERIPHERAL CORNEAL INCISION

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This report presents a complex case of a large intraocular metallic foreign body embedded in the iris and vitreous cavity, managed via a multidisciplinary surgical approach.

A case presentation

A 44-year-old male presented with a work-related ocular injury to the right eye. Examination revealed an ovaloid pupil with a metallic foreign body embedded in the iris stroma at 7–8 o'clock and a scleral penetration 7 mm from the limbus at 1 o'clock. Fundus view was obscured. Initial management involved suturing the scleral wound. A 23-gauge pars plana vitrectomy was performed under chandelier illumination. After detachment of the posterior hyaloid, endolaser was applied around the foreign body. Infusion port position was modified to improve access. A lamellar corneal incision was created and converted to full-thickness for removal of the thick foreign body using intraocular forceps. The iris was cut to prevent traction. The corneal incision was sutured, and a pars plana lensectomy was performed. Additional laser was applied to a retinal tear. Ando iridectomy and air-fluid exchange were followed by silicone oil tamponade. Five months later, the Yamane technique was later used for IOL fixation, followed by silicone oil removal and iris reconstruction using a modified Siepser technique.

This case highlights the importance of individualized surgical planning in managing large intraocular foreign bodies. A combination of advanced vitreoretinal techniques, staged procedures, and iris reconstruction can lead to satisfactory anatomical and visual outcomes, even in complex ocular trauma.

Abstract 56

STAGED VITRECTOMY IN DIABETIC TRACTIONAL RETINAL DETACHMENT: A TWO-STEP SURGICAL STRATEGY

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Uncontrolled proliferative diabetic retinopathy (PDR) can lead to fibrovascular proliferation and tractional retinal detachment (TRD). This study presents a two-stage surgical approach in eyes with diabetic TRD and advanced proliferative vitreoretinopathy (PVR), aiming to minimize the need for unnecessary retinectomy.

A retrospective observational study

This was a retrospective observational study including four patients with TRD secondary to PDR. In the first stage, standard pars plana vitrectomy was performed. Significant intraoperative bleeding during this stage posed a risk for iatrogenic retinal tears during clot removal. To reduce this risk, a second surgery was scheduled two weeks later. Endolaser photocoagulation was applied to reattached retinal areas, and silicone oil tamponade was administered. At the second surgery, hemorrhages had largely resolved, allowing improved visualization of the underlying PVR areas. This approach minimized the risk of retinal tears caused by intraoperative bleeding and enabled targeted intervention only where necessary. As a result, iatrogenic tears and unnecessary retinectomy were avoided in all cases.

In selected cases of advanced diabetic TRD, a two-stage surgical approach may reduce the risk of clot-induced retinal tears and limit the need for unnecessary retinectomy. This method offers a safer alternative for managing complex diabetic retinal detachments.

Abstract 64

A COMPARISON OF TWO TECHNIQUES FOR MEDIUM-SIZED MACULAR HOLE SURGERY: INTERNAL LIMITING MEMBRANE PEELING VERSUS INVERTED INTERNAL LIMITING MEMBRANE FLAP TECHNIQUE

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Purpose: To compare the anatomical, morphological, and functional outcomes of the conventional internal limiting membrane (ILM) peeling versus inverted ILM flap technique for medium-sized (251-400 μ m) macular holes (MHs)

Forty-seven eyes of 47 consecutive patients who underwent ILM peeling (Group-1, 22 eyes) or inverted ILM flap technique (Group-2, 25 eyes) for primary medium-sized full-thickness MHs were included in this retrospective interventional study. The hole closure rate, best-corrected visual acuity (BCVA), and restoration of ellipsoid zone (EZ), external limiting membrane (ELM), and interdigitation zone (IZ) were analyzed at baseline and 6 months after surgery.

Hole closure was achieved in 20/22 (90.1%) cases of Group 1 and 25/25 (100%) cases of Group 2 ($p=0.012$). The mean BCVA (logMAR) changed from 1.33 ± 0.42 to 0.87 ± 0.53 logMAR in Group 1 and from 1.19 ± 0.20 to 0.82 ± 0.41 logMAR in Group 2 at 6 months ($p<0.001$ in both cases). The postoperative restoration rates were 90.1% and 96.0% for ELM ($p=0.257$), 54.5% and 60.0% for EZ ($p=0.452$), and 9.1% and 12.0% for IZ ($p=0.695$) in the two groups.

The study results suggested that the primary closure for medium-sized MHs was significantly superior in the inverted flap group than in the ILM peeling group. However, postoperative restoration of the outer retinal layers and BCVA were comparable between the techniques.

Abstract 66

OUTCOMES OF EPIRETINAL HUMAN AMNIOTIC MEMBRANE TRANSPLANT FOR REFRACTORY MACULAR HOLES

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To analyze anatomical and functional outcomes of epiretinal human amniotic membrane (hAM) transplant in refractory macular hole (MH) surgery, present retinal layers structure after MH closure, identify visual acuity improvement levels.

Retrospective case series including ten patients with refractory MH. All patients underwent pars plana vitrectomy, epiretinal hAM transplant, tamponade and positioning. Complete ophthalmological examination, best-corrected visual acuity (BCVA), optical coherence tomography (OCT) findings were recorded.

Mean follow-up was 7 months (range 3–14). Mean LogMAR visual acuity (1.6 ± 0.37) improved significantly (1.0 ± 0.45) ($P < 0.001$). Patients with better baseline BCVA ended up with better final BCVA ($P = 0.012$). Mean MH minimum linear diameter was $715 \pm 212 \mu\text{m}$ and base diameter was $1114 \pm 258 \mu\text{m}$. MH closed in all patients. OCT findings showed inner and other retinal layers rearrangement.

Epiretinal human amniotic membrane transplant may be a valuable approach to achieve macular hole closure and visual acuity improvement in refractory MH.

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Abstract 67

SHORT-TERM-OUTCOME ANALYSIS OF IDIOPATHIC EPIRETINAL MEMBRANE SURGERY

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Epiretinal membranes (ERM) are among the most common findings in retinal examinations. Structural changes in the retinal layers of patients with ERM can be visualized and classified using optical coherence tomography. This study aims to evaluate the structural and functional changes associated with the surgical treatment of ERM.

A retrospective study was conducted on 60 patients who underwent 23-gauge pars plana vitrectomy (PPV) combined with cataract surgery for idiopathic ERM between 2021 and 2024. Clinical data and spectral-domain optical coherence tomography (SD-OCT) images were analyzed preoperatively and at one and three months postoperatively. The primary outcome measure was best-corrected visual acuity (BCVA) before and after surgery, with an assessment of the impact of anatomical factors, including disease stage and OCT biomarkers, on BCVA.

Sixty eyes (15 with stage 2, 27 with stage 3, and 18 with stage 4 ERM) from 60 patients were included. At the time of surgery, the mean patient age was 70.1 ± 6.8 years. The mean BCVA significantly improved from LogMAR 0.67 ± 0.3 to 0.38 ± 0.3 ($p < 0.001$). The improvement in BCVA was significant across all disease stages, with earlier stages showing better outcomes. Central foveal thickness (CFT) significantly decreased from 500.3 ± 103.9 to $377.8 \pm 80.6 \mu\text{m}$ ($p < 0.001$) across all ERM stages. Disease stage, preoperative CFT, and the presence of ellipsoid zone disruption were significant predictors of postoperative BCVA.

Early-stage ERM is associated with a better visual prognosis and fewer inner and outer retinal changes on OCT. Key prognostic factors for postoperative BCVA include disease stage, preoperative BCVA and CFT, and the presence of ellipsoid zone disruption.

Abstract 70

SURGICAL TREATMENT FOR AN ACTIVE VASOPROLIFERATIVE TUMOR WITH CONCOMITANT CHRONIC RHEGMATOGENOUS RETINAL DETACHMENT

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Vasoproliferative retinal tumors (VPRTs) are benign, usually unilateral, abnormal vascular lesions, mainly occurring in patients around 40 years of age. These tumors may be primary or secondary to underlying systemic or ocular conditions such as Coats disease, uveitis, neurofibromatosis type 1. Clinical manifestations include pink globular vascular retinal mass in the periphery, local or diffuse exudation, serous or tractional retinal detachment, and neovascular glaucoma in advanced stages, different treatment strategies are used, including laser photocoagulation, cryotherapy, IV injection, vitrectomy. Active tumors with rhegmatogenous retinal detachment are not common, which can be a challenge as proliferative vitreoretinopathy (PVR) may develop.

17 year old female with vision loss in the last 3 years being more evident in the last 6 months, she referred no medical history, best corrected visual acuity (BCVA) in right eye 20/20 and left eye counting fingers at 2 feet, normal intraocular pressure in both eyes, clear lens in both eyes.

Right eye with normal characteristics, left eye with diffuse vitreous opacities and a chronic rhegmatogenous retinal detachment mainly in the inferior and temporal quadrants involving the macula, diffuse lipidic exudates and retinal pigmentary changes were found along the detachment, in the periphery three pink and globular masses were found in the retina with vascular abnormalities and proliferation.

Surgery was performed, a sponge for scleral buckling was placed at the equator before pars plana vitrectomy, posterior vitreous detachment and PVR membranes removal were achieved with the use of triamcinolone acetonide. Subretinal fluid extraction was done after PFCL injection. Once the retina was flatter, we proceed to apply cryotherapy on the tumors. Then a fluid-air exchange was done and laser photocoagulation was applied under silicon oil endotamponade.

The retina remained attached after surgery, with persistent exudation around the tumors two weeks after the surgery, no more exudation or subretinal fluid was present after 1 month. Three months after the surgery, no evidence of tumor activity was found by fundus fluorescein angiography, the retina remained stable and the eye showed improvement in vision to 20/800 remaining stable after 1 year of follow-up.

VPRTs are a rare entity that can be found in young and productive patients, it is important to make a prompt diagnosis and treatment to stop the tumor activity as they can lead to complete vision loss in late stages.

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Abstract 72

COMBINED PARS PLANA VITRECTOMY, PANRETINAL ENDOLASER, INTRAVITREAL ANTI-VEGF AND CYCLOPHOTOCOAGULATION IN NEOVASCULAR GLAUCOMA WITH VITREOUS HAEMORRHAGE- A RETROSPECTIVE INTERVENTIONAL CASE SERIES

Verma S.*, Azad S.V., Dada T.

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Neovascular glaucoma (NVG) is one of the most potentially blinding types of refractory glaucoma that poses a therapeutic challenge. Often, NVG patients present with concurrent posterior segment pathologies like vitreous haemorrhage, large fibrovascular proliferation, tractional retinal detachment posterior segment ischemic disease causes vitreous hemorrhage (VH), making treatment even more challenging.

The purpose of the study is to determine the safety and efficacy of an integrative anti-ischemic and intraocular pressure (IOP) lowering surgical intervention in patients of neovascular glaucoma (NVG) with vitreous hemorrhage.

This study included 11 eyes of 11 patients with NVG and VH. The eyes underwent transscleral cyclo photocoagulation (DLCP), pars plana vitrectomy, near-confluent pan-retinal endolaser, and intravitreal bevacizumab in the same sitting. Best corrected visual acuity (BCVA, logMAR), IOP (mmHg), number of glaucoma medications, need for repeat surgical interventions and complications were noted over a follow up period of 6 months.

Eleven eyes of 11 patients (10 Male, 1 Female, Mean age 57.25 ± 5.9 years) were included. NVG underlying conditions included retinal vein occlusion (4 eyes) proliferative diabetic retinopathy (5 eyes) and vasculitis (2 eyes). At 6 months mean IOP decreased from 49.6 mmHg to 16.9 mmHg, glaucoma medication decreased from 6 to 3.27. Two eyes had hyphema at post operative day 1 both of which resolved on its own within a week. No eyes required repeat pars plana vitrectomy or laser augmentation. Two eyes underwent trabeculectomy due to uncontrolled IOP within 3 months of primary surgical intervention. Two eyes received repeat antiVEGF injection to tackle macular edema.

A single integrative surgery to control ischemia and IOP is useful and safe and is a potential consideration to be included in the treatment algorithm as an early intervention before proceeding to filtering surgery in NVG.

Abstract 73

CRUNCH SYNDROME FOLLOWING ANTI-VEGF INJECTION IN PROLIFERATIVE DIABETIC RETINOPATHY. A CASE REPORT

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Crunch Syndrome occurs when there is excessively rapid regression of fibrovascular retinal neovascularization following anti-VEGF treatment (drugs inhibiting vascular endothelial growth factor) or, in some cases, overly intense retinal photocoagulation. In terms of the pathophysiology of neovascular regression, anti-VEGF therapy inhibits activity and reduces oxygen demand in the retina, leading to contraction of abnormal blood vessels. When this process occurs too quickly, fibrous tissue forms, which, upon contracting, may lead to retinal detachment or, at times, hemorrhage due to vessel rupture. This typically occurs 1-6 weeks after injection, with an average onset of 13 days

The study presents a case report and details the surgical course in the left eye (OS) of a 42-year-old female patient suffered from proliferative diabetic retinopathy associated with newly diagnosed type II diabetes and uncontrolled blood glucose levels. The patient was initially qualified for retinal photocoagulation in both eyes. At the first visit, visual acuity was on logMAR scale 0,18 in the right eye (OD) and 0.1 in the left eye (OS).

After partial retinal photocoagulation, approximately one month later, the patient experienced a hemorrhage in the left eye and worsening vision. Due to the inability to proceed with further laser treatment, the patient was qualified for intravitreal injection of anti-VEGF (Aflibercept) in the left eye. Within a few days, the patient exhibited regression of neovascularization, absorption of the hemorrhage, fibrosis, and ultimately, total tractional retinal detachment. At the time of surgery, visual acuity in the left eye was 1,6 (counting fingers at 1,5 meter).

The patient underwent vitrectomy with peeling of the epiretinal membranes and cataract removal, followed by the injection of silicone oil. At the second procedure the silicon was removed, 12 months after the first surgery.

Retinal reattachment was achieved, and visual acuity improved to 0,7 on logMAR scale.

Due to the potential complications arising from anti-VEGF therapy, such as rapid vascular regression, we do not recommend anti-VEGF therapy in such cases. A better approach in this would be gradual photocoagulation or, in cases where hemorrhage poses a barrier, early vitrectomy combined with retinal photocoagulation during surgery, with anti-VEGF administration 1-3 days prior to the procedure. To emphasize - anti-Vegf therapy for proliferative diabetic retinopathy is not the first-line treatment. Anti-VEGF therapy is a standard treatment for diabetic macular edema (DME).

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Abstract 74

THE RESULTS OF DESCemet MEMBRANE EPIRETINAL GRAFT FOR REFRACTORY FULL-THICKNESS MACULAR HOLE

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To report the visual and anatomical results of Descemet membrane epiretinal graft for refractory full-thickness macular hole.

This observational case series consisted of 5 macular hole cases who had previously undergone standard pars plana vitrectomy and inner limiting membrane peeling due to full-thickness macular hole but failed. Donor corneas were obtained from corneas with low endothelial cell counts and not suitable for corneal transplantation in our hospital's cornea bank. The Descemet membrane graft was placed to cover the macular hole and 14% perfluoropropane gas tamponade was administered.

A total of 5 patients, 3 female and 2 male, with a follow-up period of at least 6 months were included. The mean age was $63,4 \pm 5,94$. The macular holes of all patients were closed. Best corrected visual acuity was increased from $1,76 \pm 0,21$ logMAR to $1,25 \pm 0,22$ logMAR ($p=0,021$).

Descemet membrane epiretinal graft can be considered as a satisfactory surgical option for refractory full-thickness macular holes.

Abstract 80

GOING AGGRESSIVE ON TACKLING AROP! HOW AGGRESSIVE WE SHOULD GO?

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Tackling AROP can be challenging and the course can change at any time. Authors would like to share their experience and challenges faced by them in handling 17 cases of AROP.

The study was conducted at a tertiary care centre. All the preterm babies undergoing screening for ROP were included in the study. Both in-born and out born babies were included. Over the past 3 yrs we have screened around 890 pre-term babies for ROP. 17 babies were found to have Aggressive ROP. All were treated with anti-VEGF(Ranibizumab) injection followed by laser. 15 babies had responded well to the treatment.

Method:

Over the past 3 yrs we have screened around 460 pre-term babies for ROP. 17 babies were found to have Aggressive ROP. All were treated with anti-VEGF(Ranibizumab) injection followed by laser. 15 babies had responded well to the treatment. One case was found to have developed a retinal break in one eye during follow up for which buckling was done which was removed later. But one case deteriorated after anti-VEGF injection and laser for which LSV was done. But the disease reappeared in the operated eyes. We could stabilize one eye with repeat anti-VEGF injection while the second eye deteriorated

17 babies were found to have Aggressive ROP. All were treated with anti-VEGF(Ranibizumab) injection followed by laser. 15 babies had responded well to the treatment. One case was found to have developed a retinal break in one eye during follow up for which buckling was done which was removed later. But one case deteriorated after anti-VEGF injection and laser for which LSV was done. But the disease reappeared in the operated eyes. We could stabilize one eye with repeat anti-VEGF injection while the second eye deteriorated

AROP can behave differently in different babies. We have noticed that among the twin babies, one child remaining absolutely normal while the other child developing aggressive ROP. We would like to know from the experts that what differently could have done to save the eye which got deteriorated even after taking all the measures.

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Abstract 81

EXTERNAL REMOVAL OF PERFORATING FOREIGN BODIES AIDED BY LOW INTRAOCULAR PRESSURE DURING VITREORETINAL SURGERY

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A male in mid-twenties presented with a complaint of sudden painful diminution of vision in right eye after being involved in an industrial blast injury 10 days back. Primary surgical repair of scleral perforation had been done at a peripheral hospital. On examination, his visual acuity was perception of light with inaccurate projection of rays in all quadrants and intraocular pressure (IOP) was 6 mmHg. Fundus examination revealed 360 degree giant retinal tear (GRT), retinal detachment with a closed funnel configuration, shallow choroidal detachment in all quadrants and crystalline lens drop in the vitreous cavity. Non-contrast computerized tomography (NCCT) revealed the presence of a foreign body measuring- 4 mm x 3.8 mm x 8 mm located just nasal to the optic nerve insertion, abutting the posterior-medial coat of the globe.

Patient was taken up for vitreoretinal (VR) surgery. Three standard 25 gauge pars plana ports were made at 3 mm from limbus. After completing core vitrectomy, a localized inferonasal peritomy with posterior tenotomy was done and medial and inferior rectus muscle were bridled. Infusion pressure was then reduced to 10 mm Hg. The conjunctiva and tenon's were retracted with the help of Desmarres retractor, globe was pressed with a forceps and the tenon's dissection was progressed posteriorly with the help of a scissors till the foreign body was visible. The fibrotic capsule around the foreign body was incised with a micro vitreoretinal (MVR) blade and the foreign body was held and then explanted with the help of serrated forceps. The infusion pressure was raised to 25 mm Hg and VR surgery was completed. This included lensectomy, removal of subretinal membranes and opening the retina with the help of perfluorocarbon liquid (PFCL). The incarcerated retina was released by a retinectomy around the fibrotic granuloma nasal to disc (corresponding to exit wound) and a thorough peripheral vitrectomy was done. A 360 degree endolaser and PFCL-silicon oil exchange was done.

Over 6 months follow up patient has maintained best corrected visual acuity of 20/200.

NCCT for precise localization of foreign bodies is essential to plan the appropriate approach of perforating foreign body removal. Keeping low IOP allows easy compression of the globe with minimal indentation and allows a more posterior external access to remove retrobulbar perforating foreign bodies.

Abstract 82

PHASE-WISE CHARACTERIZATION OF MULTIFOCAL CHOROIDITIS USING THE BLEND FUNCTION IN ULTRA-WIDEFIELD IMAGING

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UWFI is a cutting-edge dual-laser imaging system with a unique blend function dividing the fundus into two distinct channels for detailed visualization. The red-free imaging (green channel) captures structures from the neurosensory retina to the RPE, while the infrared imaging (red channel) provides visualization of deeper structures, ranging from the RPE to the choroid. An objective approach for evaluating disease activity in multifocal choroiditis using the blend function of UWFI has been previously described, highlighting its potential as a valuable adjunct to FAF.

Utilizing the unique capabilities of the red and green channels, we aim to characterize imaging features specific to different phases of choroiditis and compare these findings with FAF imaging. We believe this approach will aid in better delineation of active areas, particularly in diagnostically challenging cases, offering a valuable tool for comprehensive disease evaluation and facilitate assessment of response to treatment.

A total of 15 patients presenting with different phases of choroiditis were evaluated using Ultra-Widefield Imaging (UWFI) and Ultra-Widefield Fundus Autofluorescence (UWF-FAF). Imaging was performed under mydriasis to ensure optimal image quality. The captured UWFI images were analyzed using red and green channels to identify specific imaging characteristics associated with the three distinct phases of choroiditis- active, resolving, and healed. For patients with a first active lesion or a recurrent active lesion, the course of the disease was carefully analyzed to detect subtle imaging changes that could aid in accurately diagnosing the disease stage. These findings also serve as a valuable adjunct to FAF imaging. This study systematically examines and summarizes the key imaging features observed during each phase, offering insights into the phase-wise progression and resolution of choroiditis.

A total of 15 patients (17 eyes) were included in the study, of which 12 were female (80%). Among these, 6 eyes (35%) presented with an active lesion for the first time, 4 eyes (23.5%) had active lesions on a background of previously healed lesions, and 7 eyes (41.5%) had fully healed lesions at the time of imaging. The red and green channel changes, along with FAF alterations, were analyzed in 5 eyes to evaluate disease progression over time. The detailed description of the characteristic changes observed on the red and green channels is provided below.

Active Phase

Active choroiditis lesions appeared as brighter areas with well-demarcation of the active border on the green channel imaging, making the active inflammatory borders distinctly visible. In contrast, while the fresh lesions were also detectable on the red channel, they exhibited faint brightness and lacked the sharply defined borders observed on the green channel. Interestingly, the active lesions were more clearly visualized and appreciated on the green channel compared to FAF imaging, which provided relatively less detailed delineation of the active inflammatory areas.(Figure 1)

Patients with choroiditis exhibiting very subtle activity or active lesions in areas of previously healed lesions showed discernible bright areas on the green channel, whereas these lesions were barely

detectable on the red channel. The green channel distinctly outlined the border of the active lesion, whereas FAF imaging showed diffuse hyperautofluorescence within the zone of the active lesion but did not clearly demarcate its borders.

Resolving Phase

During the resolution phase, the intensity of brightness on the green channel gradually decreases, with a notable reduction in the brightness marking the active borders. Additionally, the lesions may exhibit focal areas of darkness within, indicating regions that have already healed. On the red channel, the lesions become barely discernible or may not be visible at all, depending on the severity of the activity. In FAF imaging, both the intensity and the area of autofluorescence diminish. However, the lesion remains more distinctly delineated on the green channel.(Figure 2)

Healed Phase

Healed choroiditis lesions are characterized by focal areas of pigment clumping caused by RPE hyperplasia, interspersed with regions of RPE atrophy. On the green channel, these healed lesions appear as dull bright areas with an equally dull margin. The hyperpigmented RPE areas are well visualized on the red channel, appearing as dark patches. On FAF imaging, the healed areas present as uniformly diffuse dark zones.

Additionally, vascular changes such as inflammatory neovascularization at disc or elsewhere or vascular abnormalities like venous looping are prominently visible on the green channel, whereas these changes are not discernible on the red channel or FAF imaging.(Figure 3)

OCT findings in active choroiditis

OCT image of an active choroiditis lesion illustrates the involvement of the outer retina, including the RPE-photoreceptor complex. This involvement contributes to the detection of activity on the green channel.(Figure 6)

In our study, we observed some interesting findings when comparing FAF images with red and green channel images simultaneously. The green channel consistently provided better delineation of the active margins of the lesion, whereas FAF primarily displayed a diffuse autofluorescence signal in the area of activity. This distinction is particularly useful for documenting the reduction in disease activity over time. While FAF shows diffuse hyperautofluorescence that may decrease in intensity and size, this reduction is often subtle and subject to interobserver variability. In contrast, the green channel demonstrated a marked reduction in lesion brightness, along with fading margins, which can be objectively measured, thereby minimizing interobserver bias. This is clearly evident in Figure 2, where the green channel demonstrates a significant reduction in the brightness of the lesion margins after treatment (red arrow in c, g).

Additionally, findings on the red channel can aid in evaluating treatment response when analyzed alongside the green channel. For instance, as shown in Figure 4, only a very subtle reduction in the choroiditis lesion is noticeable on fundus photographs (4a, e). FAF images do not provide significant additional insight, as both follow-up scans continue to display diffuse autofluorescence with no substantial reduction in size. A careful comparison may reveal a slight decrease in autofluorescence intensity, but this can be easily overlooked. The green channel shows a reduction in lesion brightness, though not prominently. The most striking observation is in the red channel, where faintly discernible bright spots seen at presentation become undetectable at the seven-day follow-up. This highlights the

importance of not overlooking red channel findings, as they can often provide crucial insights when assessed alongside green channel images. Evaluating both channels together may enhance diagnostic accuracy and aid in making a more informed clinical decision.

To conclude, the integration of the blend function with FAF offers a more comprehensive imaging strategy, which could be particularly valuable in challenging cases where FAF alone may not provide sufficient clarity on disease activity. There are no other studies till date in the literature assessing the same using blend function. Further studies with larger cohorts could help establish standardized imaging criteria using the blend function, making it a more widely adopted tool in clinical practice.

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RETINAL DETACHMENT

Abstract 83

"THE RETINA THAT SHOULD NEVER HAVE HAD RETINAL TEARS "

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This case demonstrates how a routine Vitrectomy for nucleus drop case can go wrong and have complications intra operatively. Also discusses the steps to prevent those complications and the way to manage them.

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Abstract 84

TREATMENT FOR STOPPING THE PROGRESSION OF PATHOLOGICAL MYOPIA

Gomez S.*

Samuel Gomez ~ Bogota ~ Colombia

This study aims to evaluate the effect of UV-A light-activated riboflavin on scleral reinforcement, analyzing its capacity to increase biomechanical stiffness and reduce axial elongation through both in vitro models (human scleral fibroblasts) and in vivo models (induced myopia in animals), with the goal of eventually conducting human trials.

The specific objectives include:

1. Determining the modulation of type I collagen and MMPs in fibroblasts,
2. Quantifying changes in scleral biomechanical resistance, and
3. Assessing the reduction of axial elongation.

The underlying hypothesis proposes that this treatment induces collagen cross-linking, increasing scleral rigidity and offering a potential therapeutic option for pathological myopia.

This study will employ a scoping review to analyze the existing evidence regarding the use of riboflavin and genipin in combination with UV-A light for scleral treatment. A systematic search will be conducted in PubMed and Scopus using terms such as "riboflavin," "genipin," "UV-A," "scleral cross-linking," and "ocular biomechanics."

Studies evaluating both riboflavin/UV-A (a classical photosensitizer) and genipin (an alternative cross-linking agent that does not require light) will be included, comparing their mechanisms of action, safety profiles (cytotoxicity, thermal damage), and efficacy (increased rigidity, collagen modulation).

The data will be organized into three categories:

1. Protocols (concentrations, exposure times),
2. Biomechanical outcomes, and
3. Biological effects (expression of MMPs and collagen).

The analysis will identify comparative advantages between both compounds, establishing a foundation for subsequent experimental phases involving cell cultures and ex vivo tissue.

The study by Rong et al. (2017) demonstrated that scleral cross-linking with riboflavin (administered via iontophoresis) and UV-A light (10 mW/cm² for 9 minutes) in myopic rabbits significantly increased scleral resistance. Notable improvements were observed: a 53% increase in maximum stress, a 47% increase in Young's modulus, and a 34% increase in physiological modulus. These effects persisted for three months. The treatment effectively controlled axial elongation, nearly halting it at the three-month mark without causing retinal damage.

Analysis revealed enhanced collagen synthesis in treated fibroblasts, with a 2.5-fold increase in COL1A1 expression and greater total protein content compared to controls, indicating a positive modulation of scleral collagen metabolism. These findings suggest that this technique could be a

viable alternative for managing pathological myopia.

This project seeks to demonstrate that UV-A-activated riboflavin may serve as an effective therapy for strengthening the sclera in pathological myopia. The anticipated results, supported by previous scientific evidence, suggest that this treatment could significantly increase scleral stiffness via collagen cross-linking, thereby reducing the axial elongation characteristic of this condition.

If its safety and efficacy are confirmed through in vitro and ex vivo testing, this technique would represent an innovative, minimally invasive, and accessible alternative for managing pathological myopia, with the potential to prevent severe visual complications.

Further research will be required to validate these findings in human models to support eventual clinical application.

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Abstract 85

CENTRAL SEROUS CHORIORETINOPATHY TREATMENT SUB THRESHOLD LASER VS PHOTODYNAMIC THERAPY

Md S.G.*

Samuel Gomez ~ Bogota ~ Colombia

The objective of this study was to compare the efficacy and safety of subthreshold micropulse laser (SLT) versus half-dose photodynamic therapy (PDT) in the treatment of chronic central serous chorioretinopathy (cCSC). The study assessed subretinal fluid (SRF) resolution, improvement in best-corrected visual acuity (BCVA), and anatomical retinal changes. The aim was to determine which of the two treatments provides better functional and structural outcomes in the short and long term, while also considering the potential adverse effects associated with each technique.

This study employed a scoping review to compare the efficacy and safety of subthreshold micropulse laser (SLT) and half-dose photodynamic therapy (PDT) for chronic central serous chorioretinopathy (cCSC). A systematic search was conducted in PubMed, Embase, Cochrane, and Scopus using terms such as "Central serous chorioretinopathy," "subthreshold laser," and "photodynamic therapy," focusing on clinical studies published between 2000 and 2025. Inclusion criteria included patients with chronic cCSC who had received either SLT or PDT, evaluating SRF resolution, BCVA improvement, and anatomical changes, while excluding acute cases or combined therapies. Extracted data (such as SRF resolution percentage, BCVA changes, and adverse effects) were organized into comparative tables and analyzed qualitatively. Validation included peer review and consultation with retinal experts to ensure methodological robustness.

The PDT demonstrated a higher rate of complete SRF resolution (75% vs. 45% at six months) and a significant improvement in BCVA (gain of +8 letters vs. +4 letters in the laser group). Additionally, PDT resulted in a more pronounced reduction in choroidal thickness ($p < 0.05$). However, subthreshold laser proved to be less invasive, with a lower risk of choroidal atrophy and good efficacy in selected cases. There were no significant differences in severe adverse effects reported between the two groups.

The comparison between subthreshold laser treatment and photodynamic therapy (PDT) for chronic central serous chorioretinopathy (cCSC) has been the subject of various studies. According to the PLACE trial, half-dose PDT is superior to high-density subthreshold micropulse laser in terms of complete subretinal fluid (SRF) resolution and functional improvement.[1] In this study, PDT achieved a higher proportion of patients with complete SRF resolution, along with significant improvements in best-corrected visual acuity (BCVA) and retinal sensitivity compared to subthreshold laser.

Conversely, a study published in Graefe's Archive for Clinical and Experimental Ophthalmology suggests that although PDT may lead to faster SRF resolution, subthreshold laser is less invasive and could serve as an effective alternative to PDT.[2] This study found no significant differences in best-corrected visual acuity or other anatomical parameters between the two treatments at six months, except for a more substantial reduction in subfoveal choroidal thickness in the PDT group.

A systematic review with meta-analysis also indicates that PDT is superior to subthreshold laser in SRF resolution and visual acuity improvement, though subthreshold laser remains a viable alternative. Nevertheless, PDT continues to be the most effective treatment for cCSC, especially in cases requiring rapid SRF resolution.

Conclusions

The comparison between subthreshold laser and photodynamic therapy has not been equally fair on both sides. This happens because PDT has been extensively studied and optimized, while subthreshold laser is still undergoing progressive refinement.

Current evidence indicates that half-dose PDT is superior to subthreshold laser in terms of anatomical resolution and visual recovery in patients with chronic cCSC, particularly in cases with greater SRF accumulation.

However, subthreshold laser remains a developing, cost-effective alternative that allows for treatment personalization and is continuously improving. Enhancements include standardization of treatment patterns, such as refining grid spacing to maximize precision and applying the titration concept to enable safe macular application while allowing for repeated treatment until complete lesion resolution. Advancements in this technique have not been widely communicated or applied, as they are still under development and require further randomized controlled trials (RCTs) to ensure an equitable comparison between the two treatments. These studies are essential for providing patients with lower access to advanced technology the opportunity for improved outcomes.

In summary, the evidence suggests that half-dose PDT is generally more effective than subthreshold laser for SRF resolution and functional improvement in cCSC. However, subthreshold laser remains a less invasive and potentially effective option in selected cases.

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Abstract 90

CLINICAL FEATURES OF CHOROIDAL OSTEOMA

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Choroidal osteoma (CO) is a rare benign intraocular tumor whose exact prevalence is unknown. In most cases, CO is a unilateral condition. Patients with CO are generally asymptomatic, with preserved visual acuity. Symptoms arise in cases of secondary complications, including retinal pigment epithelium atrophy, tumor growth, subretinal fluid accumulation, and choroidal neovascular membrane (CNVM) formation. The diagnosis of CO is primarily clinical, supported by imaging tests. Currently, there is no standard treatment for CO, and existing therapies are aimed to manage complications. This study aims to describe the clinical characteristics, factors associated with CNVM presence, and treatment of patients with CO.

A retrospective review of electronic medical records and imaging studies was conducted between January 2010 and March 2025 in 13 patients diagnosed with choroidal osteoma. A multimodal retinal imaging approach was used, including diagnostic confirmation with ultrasound and optical coherence tomography.

A total of 13 patients were identified, with a mean age at CO diagnosis of 34 years (range: 15–69 years). There was a notable female predominance (female-to-male ratio: 5.5:1). Bilateral cases were found in 2 patients (15%), and the tumor was always monofocal. Macular involvement was observed in 11 eyes (73.3%). Diagnostic confirmation was performed with ultrasound or computed tomography in 12 patients. Subretinal fluid was present in 11 eyes, of which 7 (46.7%) had choroidal neovascularization. Significant retinal pigment epithelium atrophy was observed in 5 eyes (33.3%). No cases of tumor growth were noted during follow-up.

Patients who developed CNVM received treatment. The treatment administered included intravitreal bevacizumab in 6 eyes and intravitreal afiblercept in 1 eye. Among the eyes treated with bevacizumab, 5 (83.3%) showed subsequent inactivation. The eye treated with Afiblercept also had inactivation of CNVM. On average, six injections per eye were performed (range: 1–13). The median LogMAR visual acuity of patients with CO without CNVM was 0.26 (range: 0–1.30). Among patients who developed CNVM, the median initial LogMAR visual acuity was 0.97 (range: 0.26–2.00). After treatment, the median LogMAR visual acuity was 1.30 (range: 0.19–2.00).

CO is a rare disease that typically affects young women, and it is generally unilateral. Physicians should be aware of the clinical manifestations of CO to properly manage its complications, primarily CNVM. Intravitreal anti-angiogenic injections are effective for CNVM inactivation but do not appear to improve visual outcomes. Due to the low prevalence of this condition, further studies are needed to validate our findings and evaluate new techniques for treatment, monitoring, and follow-up of these patients.

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Abstract 95

ASSESSMENT OF RE-DETACHMENT BASED ON PROLIFERATIVE VITREORETINOPATHY FINDINGS ON SS-OCT

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Proliferative vitreoretinopathy (PVR) findings on swept-source optical coherence tomography (SS-OCT) might be a valuable predictor of re-detachment in rhegmatogenous retinal detachment (RRD). Therefore, the purpose of this study was to evaluate the association of anatomic outcomes with PVR on SS-OCT in primary RRDs.

Retrospective cohort study of consecutive primary RRDs presenting to St. Michael's Hospital from 2021-2023. PVR was classified according to the Retina Society (RS) 1991 criteria based on fundus imaging, and SS-OCT scans were evaluated for microstructural characteristics. Patients were divided into three groups: no OCT PVR, intra-retinal (IR) OCT PVR, and subretinal (SR) OCT PVR. To be included in the IR group, patients had to have thick high-amplitude outer retinal corrugations (ORCs) with photoreceptor-photoreceptor apposition and/or fused ORCs. To be included in the SR group, patients had to have subretinal material in the OCT. Re-detachments that did not have membrane peeling and/or retinectomy during the second surgery were classified as non-PVR related.

100 patients were included, of which 49% (49/100) had no signs of PVR or PVR A, 24% (24/100) had PVR B, and 27% (27/100) had PVR C, as per the Retina Society Classification. Overall, 64% (64/100) were male, with a mean age of 54.2 (± 15.9) years old, and 72% (72/100) were phakic. The mean baseline logMAR visual acuity was 1.28 (± 0.63), with a mean RRD extent of 6.1 (± 2.1) clock hours. Regarding the primary surgical procedure, 75% (75/100) of patients underwent pneumatic retinopexy with a 65% (49/75) success rate, 8% (8/10) had pars plana vitrectomy (PPV) with 75% (6/8) success rate, 9% (9/100) had scleral buckle (SB) with 89% (8/9) success rate, 5% (5/100) had combined PPV/SB with 80% (4/5) success rate, and finally 3% (3/100) had laser retinopexy barricade, of which all remained stable. The primary reattachment rate (PARR) was 70% (70/100). From patients who failed to reattach after the first procedure (30/100), 37% (11/30) re-detached, with 63% (7/11) of the re-detachments due to post-operative PVR formation. Among those with PAR (70/100), 3% (2/70) re-detached after 3 months due to post-operative PVR. Among patients who had outer retinal corrugations (ORCs) at baseline [63% (63/100)], those presenting with fused ORCs or photoreceptor-photoreceptor apposition [75% (27/33)] were significantly associated with re-detachment due to postoperative PVR ($p=0.0006$). The presence of baseline ORCs alone was not associated with PVR re-detachments ($p=0.0917$). Fused ORCs were associated with postoperative PVR re-detachment ($p=0.0006$) which remained significant ($p=0.0461$) when adjusting for primary reattachment rate, detachment extent and baseline RS PVR grade. When considering the OCT PVR categories, 54% (54/100) of patients had no OCT PVR changes, 17% (17/100) had SR OCT PVR, and 29% (29/100) had IR/PR OCT PVR. The presence of IR OCT PVR was associated with postoperative PVR re-detachment ($p=0.00972$). OCT PVR (IR or SR) was also associated with a lower overall PARR [58% (27/46)] when compared to patients with no OCT PVR changes [83% (45/54)], $p=0.00624$. When creating a model to predict re-detachments with baseline RRD characteristics, including age, extent of detachment, baseline OCT PVR and RS PVR grade, the model achieved an overall predictive accuracy for postoperative PVR re-detachments of 91% (AUC 0.91). A classification threshold of 0.86

yielded the best combination of sensitivity (0.91) and specificity (0.89).

SS-OCT provides useful imaging biomarkers for PVR. Thick high-amplitude ORCs with photoreceptor-photoreceptor apposition within and between individual corrugations (fused ORCs) are the most characteristic component of the intra-retinal PVR assessed with OCT. Fused ORCs were shown to be associated with postoperative PVR-related re-detachments after adjusting for various covariates. OCT-based PVR staging could enhance postoperative-PVR and re-detachment risk stratification and guide the search for potential therapeutic targets.

Abstract 97

"RETINAL DETACHMENT ASSOCIATED WITH MORNING GLORY ANOMALY: DECISION MAKING"

Flores Leon A.H.*

Alexandra Helen Flores Leon ~ Tacna ~ Peru

I present the case of a 16-year-old male, who came to the first consultation accompanied by his mother and reported that he had had a white spot in his left eye for 2 years. He reported that he had always had poor vision in that eye. On ophthalmologic examination he presented a white cataract and a visual acuity of light perception.

In order to rule out infectious etiologies, several tests were requested but were negative. In addition, an ocular ultrasound was performed which revealed the presence of a retinal detachment.

He was scheduled for phacoemulsification + vitrectomy surgery of the left eye under general anesthesia.

Vitrectomy via pars plana was performed in combination with external drainage. The surgery was performed with a conservative approach to avoid further damage.

Description of the surgical procedure:

The patient had a white cataract with anterior fibrosis and marked zonulodialysis. Phacoemulsification was performed, maintaining an integral posterior capsule, with persistent fibrosis at the periphery of the anterior capsule.

A retinal detachment associated with Morning Glory anomaly was evidenced, which was of inferior predominance, with subretinal bands and glial tissue over the optic disc, forming central radial retinal folds, in addition to a traction fold towards the inferior nasal periphery.

By aspirating and cutting more vitreous, the retina became more mobile and bullous, which increased the risk of an iatrogenic rupture, however, liquid perfluorocarbon was not placed due to the risk of migration. I aspirated near the excavation, hoping to drain subretinal fluid, since it has been reported that there may be retinal holes at that level, but no subretinal fluid was obtained.

With the aid of micropincers, the glial tissue located within the optic disc excavation was removed. Triamcinolone was used to facilitate removal of the hyaloid. As the surgery progressed, no retinal breakpoint was identified, so it was felt that the glial tissue over the optic disc was likely responsible for the traction and retinal detachment. At that point, the retina was even more baggy and mobile, with inferior nasal radial traction that was less than at baseline. Drainage retinotomy versus external drainage was considered, and the latter was finally chosen. An inferior temporal peritomy, a small sclerotomy and puncture with a 22G needle were performed to achieve this.

On re-entering the vitreous cavity, a much more applied retina was observed, although some inferior nasal traction persisted. The conjunctiva was sutured with 7-0 vicryl. Liquid-air exchange was performed, at the end of which small collections of subretinal fluid were still visualized, which were left, hoping that, in the absence of retinal holes, the RPE would be in charge of reabsorbing it. The trocars were removed and C3F8 gas was placed.

- The retina was successfully applied, with only mild inferior nasal traction persisting.
- Better ocular cosmesis was achieved for this adolescent patient.
- Visual acuity changed from light perception to hand movement. The patient's visual potential was

evaluated with lens testing, however, it did not improve further due to amblyopia in that eye, so it was decided not to perform a second surgery for intraocular lens implantation.

Highlighting the individualized approach, the decisions made comply with the principles of retinal detachment management, however, given the rare nature of this pathology, these approaches could be subject to discussion and revision, which opens the door to an enriching debate on best practices in these complex cases.

Abstract 100

VKH OR POSTERIOR SCLERITIS: A DIAGNOSTIC DILEMMA!

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A 47-year-old female presented with sudden onset, painful diminution of vision in both eyes for the last 2 weeks. The uncorrected visual acuity was FCCF with PR accurate in both eyes with intraocular pressure of 14 mmHg. Anterior chamber did not have cells or flare, however retrobulbar cells were present with a grading of 2+ in both eyes. Dilated fundus examination revealed disc edema and inferior exudative retinal detachment in both the eyes. The patient had no known systemic illness and was not on any systemic medication.

FFA was done and large areas of leakage was noted in both the eyes. Typical pinpoint leaks at the level of retinal pigment epithelium was absent. However, irregular patchy choroidal fluorescence was present. Bilateral disc leak was present. ICG revealed hypo as well as hyperfluorescent areas of leakage in both the eyes. Macular OCT was done and bilateral subretinal fluid was noted along with choroidal thickening. Ultrasonography revealed T-sign in the left eye, however right eye T-sign was absent.

A diagnosis of VKH was made. The patient was started on intravenous pulse methyl-prednisolone 1gm in 250ml normal saline once a day for three days. She was started on oral tablet wysolone 50mg OD and oral tablet azoran 50mg OD. Her blood sugars and blood pressure was within normal limits. Her complete blood count, liver function and kidney function tests were within normal limits. Her blood was negative for TPHA and VDRL. Her chest Xray was normal. Her blood was negative for ANA and RF factor.

One two weeks follow up, patients vision improved to 5/60 PR accurate in both the eyes. Pain on movement had reduced in both the eyes. Retrobulbar cells reduced to 1+ in both the eyes. Inferior exudative retinal detachment was resolving in both the eyes.

The patient did not fit into the diagnostic criteria of either posterior scleritis or VKH. A diagnosis of VKH was made as all her investigations came out to be negative for making a diagnosis of infective or immune mediated etiology for posterior scleritis.

Abstract 108

INTERMEDIATE AGE-RELATED MACULAR DEGENERATION PROGRESSION: A 6-YEAR PROSPECTIVE STUDY

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Age-related macular degeneration (AMD) is a progressive condition that affects the macula, which is responsible for central vision.

AMD can be classified into three stages: early, intermediate and late. Intermediate AMD is a risk factor for progression to advanced stages, but rates of progression may vary between individuals.

Predicting individual risk is advantageous for programming timely, more effective treatment and for patient stratification into future clinical trials. Clinical and OCT biomarkers investigation are crucial for a better understanding of the disease progression.

We have conducted a prospective and noninterventional study for following patients with iAMD during 6 years. Optical coherence tomography parameters related with drusen, hyper-reflective foci (HRF), presence of incomplete retinal pigment epithelial and outer retinal atrophy (iRORA) and ellipsoid zone (EZ) status were explored at the baseline. Patients were classified at the end of the follow-up period according to their progression.

A total of 135 patients were enrolled into the study. Progression rate was analysed after 2 and 6 years, 30.4% and 60,7% were the results, respectively. The final study progression for neovascular AMD was 17% and for cRORA 22%. OCT parameters more related to progression were: iRORA, EZ status, drusen area and HRF. Clinical aspects were also studied. Only one eye, whose contralateral eye was being injected with anti-VEGF drug, progressed to neovascular disease.

Prospective studies are welcome concerning AMD progression since the combination of clinical and OCT characteristics can help to understand the disease. The presence of iRORA and EZ disruption was associated with a higher risk of progression to complete RORA.

Abstract 110

CHROMO- ASSISTED SUB SILICONE OIL PVR PEEL

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Complex cases of TRD and RRD usually end up with silicone oil tamponade on primary repair with significant proportion of these cases developing sub-silicone oil PVR related recurrent RD, which is a major challenge during silicone oil removal surgery, especially when the PVR process is involving/threatening the macula with guarded prognosis.

Sub-silicone oil interface vitrectomy has been postulated as a technique for controlled surgical management of these cases (1) with procedures like forceps membrane peeling, scissors segmentation/delamination, cutter delamination, retinectomy, internal drainage of subretinal fluid, removal, or resection of subretinal traction elements, retinectomy, and endophotocoagulation all working well with silicone oil in place.

The main challenge to this technique is, however, difficult visualization/ manipulation of epi-retinal membranes under silicone oil with higher risk of iatrogenic retinal breaks, thus the need to stain these membranes to facilitate safe membrane dissection. As most commonly used silicone oil tamponades in use in VR surgery are practically immiscible with water-based fluids, and safety and efficacy of commonly used water-based stains for epi-retinal membranes is well established, it was thought to combine both agents to bridge the gap of surgical challenge of this technique.

Case series of 3 consequent cases of sub silicone oil recurrent complex PVR-related RD with macula off/ threatening extension, sub silicone oil injection of Membraneblue dual DORC (Netherlands) dye to stain the PVR membranes utilizing the inevitable layer of sub-silicone oil fluid interface while patient is lying flat using VFC injection mode of the vitrectomy machine, followed by aspiration of the dye and fluid using VFC extraction mode with same extrusion cannula with infusion of air or silicone oil to compensate for lost volume and pressure, this is then followed by either single or bi manual sub-silicone oil PVR peel under visualization with minimal mobility of underlying retina, controlled retinectomy if necessary and then routine removal of silicone oil and laser or cryo retinopexy follow and the case is finally tamponaded with either gas or silicone oil.

All 3 cases ended up with successful removal of tractional PVR elements with minimal extension of iatrogenic breaks and most importantly preventing macular trauma, with 2 cases ended up with silicone oil tamponade and one with C2F6 16% tamponade and all with flat retina post-operatively.

Though interface vitrectomy and membrane peeling under silicone oil is an established technique to encounter complex PVR related RD, using this new technique of controlled sub-silicone oil interface injection and washout of blue stain to assist safer membrane visualization and dissection may help improve surgical outcomes of these complex cases.

1. Pars plana vitrectomy reoperation without removing silicone oil

Steve Charles 1, John C Randolph, Eric J Sigler Retina 2012 Sep;32(8):1664-5

Abstract 112

BIMANUAL VITRECTOMY IN DIABETIC COMPLEX RETINAL DETACHMENT: ANATOMIC AND FUNCTIONAL OUTCOMES.

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Objective:

To evaluate the efficacy, post-surgical outcomes and complications of bimanual pars plana vitrectomy for management of advanced diabetic eye disease- Complex Retinal detachment.

This study was a prospective, longitudinal, experimental and comparative trial. Adult patients with advanced diabetic eye disease characterized by tractional retinal detachment who have indication for surgical treatment were included. Patients with previous ophthalmologic surgery or those with adicional indication for placement external indentation devices were excluded. After full ophthalmic examination all patients underwent bimanual pars plana vitrectomy by the same expert surgeon with or without phacoemulsification and posterior chamber intraocular lens implantation. Preoperative, intraoperative and postoperative data were collected and analyzed by means of GRAPHPAD PRISMA 9.0.0. Numerical data were expressed as mean and standard deviation. Qualitative data were expressed as frequency and percentage. Patients were followed-up for an average of 6 months after their surgery.

20 eyes of 20 patients have been studied so far. 90.90% of patients underwent combined phacovitrectomy procedure with silicone oil injection tamponade. The average time of surgery was 63 minutes. Limitorhexis was performed in one case due to concomitant macular hole. Mixed retinal detachment was identified in only one case. Iatrogenic breaks were occurred in 45.45% of cases. Endo-laser photocoagulation was done in 10 cases (90.90%). There was an improvement of best corrected visual acuity in 8 cases (72.72%) showing an average gain of 16 lines on a logarithmic scale. Visual acuity remained the same in 9.09% and decreased in 18.18% of patients.

Bimanual pars plana vitrectomy is effective and safe for the management of complex tractional retinal detachment due to diabetic retinopathy, exhibit improvements in visual acuity in most patients and providing clinical stability during follow-up.

Abstract 114

CML WITH DIABETES

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A 42-year-old diabetic male presented with gradual onset, painless, progressive diminution of vision in both eyes for 6 months. There was no history of trauma. The patient has type 2 diabetes mellitus which was diagnosed 5 years back, was on oral medication. Patient was diagnosed as CML 8 months back and started on Tab Dasatinib 100mg OD. The BCVA was 1/60 in the right eye and 4/60 in the left eye with an IOP of 14 in both the eyes. Anterior segment of both the eyes was normal. Fundus evaluation in both the eyes showed severe hemorrhages in all 4 quadrants of the retina, hemorrhages and hard exudates at the fovea.

FFA was done and multiple beading and large capillary non-perfusion areas were noted in both the eyes. Macular OCT was done, in the right eye hard exudates were noted with a normal central macular thickness. However in the left eye, macular edema was noted with a central macular thickness of 1054um.

A diagnosis of both eyes PDR with venous stasis with left eye cystoid macular edema was made. Pan retinal photocoagulation was done in the right eye. In the left eye, intravitreal anti-VEGF avastin injection and injection triamcinolone acetonide 2mg was given for cystoid macular edema. Pan retinal photocoagulation was done after 2 weeks in the left eye. One week follow up, macular edema reduced to half in the left eye. His vision in the right eye was the same, left eye vision improved slightly to 6/60.

Accelerated proliferative retinopathy was seen in cases of diabetes with CML at the very initial ophthalmic evaluation. There is a need to alter screening guidelines for retinopathy in cases of diabetes with chronic myeloid leukaemia. Early detection and aggressive management may help preserve visual acuity in such cases.

Abstract 117

LYOPHILISED AMNIOTIC MEMBRANE PATCHES ARE A SAFE AND EFFECTIVE TREATMENT FOR RHEGMATOGENOUS LESIONS IN COMBINED TRACTIONAL AND RHEGMATOGENOUS RETINAL DETACHMENT

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This study was performed to evaluate the safety and effectiveness of a lyophilised amniotic membrane (LAM) as a patch for the treatment of retinal breaks and to describe the structural changes at the implantation site.

Design: Prospective, interventional case series study. Patients with diabetic retinopathy and combined tractional and rhegmatogenous retinal detachment.

Patients were organized into 3 groups according to the number of rhegmatogenous lesions: those in group A had a single break, those in group B had two breaks, and those in group C had three or more breaks. The location of the break was also evaluated as either superior or inferior. Structural outcomes were assessed using SD-OCT during a 3-month follow-up period.

Of a total of 23 eyes of 23 patients, 22 (95.6%) achieved retinal repair without associated complications. Patients with 2 or fewer rhegmatogenous lesions located in the superior sector had a better anatomical result as they achieved 100% surgical success. The structural changes observed by SD-OCT over the follow-up period showed adequate adaptation of the lyophilized patch and complete closure of the rhegmatogenous lesion with no alterations in the adjacent tissue.

The LAM patch seems to be safe and effective, as it promotes therapeutic closure of rhegmatogenous lesions without damaging the retinal architecture adjacent to the implantation site.

García-Vásquez, Á., Rojas-Juárez, S., Rios-Nequis, G. et al. Lyophilised amniotic membrane patches are a safe and effective treatment for rhegmatogenous lesions in combined tractional and rhegmatogenous retinal detachment: a prospective interventional study. *Eye* 39, 307–313 (2025). <https://doi.org/10.1038/s41433-024-03411-8>

Abstract 118

MACULAR EDEMA OF UNKNOWN ORIGIN: A MULTIDIMENSIONAL STUDY

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Macular edema of unknown origin (MEUO) is a complex clinical phenomenon that has garnered increasing attention in the ophthalmological literature. This condition presents without an apparent cause and can be classified into microcystic or macrocystic forms. MEUO can arise from various etiologies, including inflammatory processes, neoplastic conditions, or be associated with retinal dystrophies. It is particularly relevant in the context of uveitis, where it is noted that macular edema can affect up to 40% of patients, becoming the leading cause of visual impairment in this demographic. Accurate identification of MEUO is crucial for effective management and treatment. Recent advancements in diagnostic methods, particularly Optical Coherence Tomography (OCT) and wide-field angiography, have provided new avenues for assessing and understanding this condition.

In this study, we conducted a comprehensive review of existing literature on MEUO, focusing on case studies, clinical trials, and reports from the past two decades. We utilized OCT to assess the presence of edema within the macula, emphasizing changes in the inner nuclear layer (INL) where microcysts typically occur. Fluorescein angiography (FAG) was employed to evaluate patterns of leakage, particularly in cases of silent cystic macular edema (SCME). Additionally, we interviewed patients who had been diagnosed with MEUO to gather qualitative data regarding their symptoms and visual acuity. Data were collected from various ophthalmology departments and clinics, with a focus on patients diagnosed with uveitis and other relevant conditions associated with ME. The inclusion criteria comprised patients aged 18 years and above, diagnosed through clinical examination and imaging studies. Exclusion criteria included those with a known secondary cause for macular edema, such as diabetic retinopathy or chronic intraocular inflammation.

The comprehensive analysis revealed key findings regarding the clinical characteristics and potential etiologies associated with MEUO. Over 200 cases were reviewed, with a significant proportion linked to inflammatory diseases, particularly uveitis. It was observed that patients with uveitis-related ME experienced a notable decline in visual acuity, often correlated with the degree of edema seen on OCT.

The OCT findings showed multiple microcysts located primarily in the INL, appearing as optically empty spaces. Pseudocysts were also noted, characterized by square shapes and concave borders, suggesting a breach in the blood-retinal barrier (BRB) due to inflammation. FAG revealed a typical petaloid leakage pattern in SCME cases, indicating vasogenic changes.

Furthermore, qualitative interviews highlighted the rapid progression of visual symptoms among affected individuals, including decreased night vision (nyctalopia) and overall blurred vision. Notably, the review of medication history illustrated a potential correlation between certain medications and MEUO, including systemic treatments for hyperlipidemia, chemotherapy agents, and specific retinal dystrophies, further complicating the etiology.

In the realm of autoimmune retinopathy, less than 1% of cases presented significant autoantibody reactivity, often leading to an asymmetric decline in vision. The absence of inflammatory cells during clinical examination reinforced the necessity for careful monitoring and tailored intervention strategies.

Macular edema of unknown origin presents significant challenges in clinical ophthalmology, necessitating thorough evaluations for accurate diagnosis. Understanding the underlying

pathophysiology is critical, along with identifying risk factors and medications that may contribute to MEUO. The advancements in diagnostic technology, particularly OCT and FAG, have proven invaluable in characterizing MEUO and guiding management strategies.

Future research should focus on elucidating the complex interactions between diverse etiological factors and therapeutic approaches, aiming to optimize patient outcomes. This study underscores the importance of a multidisciplinary approach in managing this debilitating visual condition, highlighting the necessity for continued clinical investigation into the myriad causes and presentations of MEUO.

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Abstract 119

MECHANICAL DISPLACEMENT OF ARTERIAL EMBOLUS DURING VITRECTOMY: A SIMPLER SURGICAL APPROACH TO BRAO MANAGEMENT AND LITERATURE REVIEW

Anastasi M.*^[1], Perozzo E.^[2], Bonacci E.^[2], Ayushi G.^[3], Prigione G.^[5], Clarke K.^[3], Lo Giudice G.^[4], Pedrotti E.^[2], Asaria R.^[3]

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The management of Branch retinal artery occlusion (BRAO) is still controversial and lacks standardised guidelines. We report a case of BRAO treated with pars plana vitrectomy (PPV) 22 h after onset and a possible simpler surgical approach for mechanical embolus displacement. We also provide a focused literature review of contemporary surgical techniques for a more evidence-based approach.

The case report and the novel technique for managing BRAO were presented according to "Journal of VitreoRetinal Diseases" guidelines. To offer the reader a concise overview of the vitrectomy techniques employed in the management of RAO, two investigators independently searched the PubMed database (E.P., A.G.). They utilized MeSH terms to identify relevant studies, including terms such ("Vitrectomy"[Mesh] OR vitrectomy OR "pars plana vitrectomy" OR PPV OR "surgical embolectomy" OR "arteriotomy" OR "neurotomy") AND ("Retinal Artery Occlusion"[Mesh] OR "retinal artery obstruction" OR "retinal artery thrombosis" OR "retinal artery embolism" OR "branch retinal artery occlusion" OR "central retinal artery occlusion" OR CRAO OR BRAO OR "retinal artery ischemia" OR "artery occlusive disease" OR "retinal arter* obstruct*" OR "retinal arter* occlu*") OR "retinal arter* thrombo*" OR "retinal arter* embol*"). In instances of discrepancy between the two investigators' selections, a third reviewer was consulted to make a final decision on the inclusion of the research (M.A.). The search was confined to papers published in English, focusing exclusively on articles where the title or abstract was directly related to vitrectomy as a surgical intervention for CRAO and BRAO up to March 2025. The results of this comprehensive search were analysed qualitatively to provide a foundation for the surgical strategies.

Arterial perfusion was restored intra-operatively. Using a diamond duster and by using its bendable nature, the embolus was dislodged, restoring flow without the need of a double-hand technique or complications. Best-corrected visual acuity (BCVA) improved from counting-fingers to 6/9 at 1 week and 6/6 at 1 month, remaining stable at 6 months. OCT showed resolution of inner-retinal oedema with preservation of the ellipsoid zone; FA/OCTA confirmed complete reperfusion without recurrence. Across the 17 papers, we systematically compared key surgical features: type of PPV-based manoeuvre, degree of intraocular invasiveness, instruments used, time from onset to intervention and degree of visual improvements. In the literature review, PPV with embolus manipulation or removal produced ≥ 3 -line visual gain in 59 % of eyes treated within 24 h and in 38 % treated after 24 h; major complications were transient vitreous haemorrhage (11 %) and neovascular glaucoma (3 %).

PPV with gentle, non-invasive thrombus manipulation provided by this technique can promptly reestablish retinal perfusion and meaningful visual recovery even beyond the traditional 4–6 h therapeutic window. We believe it also provides a possible simpler, cost-effective technique that can allow a novel vitreoretinal surgeon to manage this sight-threatening disease. Our experience and the reviewed evidence suggest that, in carefully selected patients, minimally invasive surgery with controlled IOP and purpose-built instruments is an effective and relatively safe option. Prospective multicenter randomised trials are needed to define the effectiveness of vitrectomy in managing retinal artery occlusion, optimal timing, technique, and patient selection criteria. Meanwhile, this paper can help a clinically tailored decision on these sight-treating conditions.

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Abstract 121

MECHANICAL DISPLACEMENT OF ARTERIAL EMBOLUS DURING VITRECTOMY: A SIMPLER SURGICAL APPROACH TO BRAO MANAGEMENT

Anastasi M.*^[1], Elena P.^[2], Bonacci E.^[2], Gupta A.^[3], Prigione G.^[4], Lo Giudice G.^[5], Pedrotti E.^[2], Asaria R.^[3]

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The management of retinal artery occlusion (RAO) is still controversial and lacks standardised guidelines. We report a case of branch retinal artery occlusion (BRAO) in a 49-year-old man, treated with pars plana vitrectomy 22 h after onset. Also, we introduced a possible simpler surgical approach for mechanical embolus displacement.

The case report and the novel technique for managing BRAO were presented according to "Journal of VitreoRetinal Diseases" guidelines.

The surgical procedure was performed under sub-Tenon's anaesthesia using a standard 25-gauge three-port pars plana vitrectomy system (Constellation Vision System; Alcon, Fort Worth, TX, USA). A core vitrectomy was initially carried out, with intravitreal triamcinolone acetonide administered to enhance visualisation of the cortical vitreous. A posterior vitreous detachment (PVD) was successfully induced and extended to the vitreous base. Following PVD induction, intraocular pressure (IOP) was maintained at 8 mmHg via an infusion-compensated system.

Intraoperative optical coherence tomography (iOCT) was utilised to accurately localise the embolus at the proximal segment of the superior temporal artery. Initial attempts to dislodge the embolus using a 25-gauge internal limiting membrane (ILM) peeling forceps (DORC, Zuidland, The Netherlands) were unsuccessful. Subsequently, a diamond-dusted membrane scraper (DORC) was employed. With repeated, gentle manipulation, the embolus was effectively mobilised and displaced toward the superior branch of the artery, where it fragmented and became no longer visible. Restoration of retinal arterial perfusion was observed intraoperatively, indicating successful revascularisation.

A fluid-air exchange was then performed, and all sclerotomy sites were closed suturelessly. Best-corrected visual acuity (BCVA) improved from counting-fingers to 6/9 at 1 week and 6/6 at 1 month, remaining stable at 6 months. OCT showed resolution of inner-retinal oedema with preservation of the ellipsoid zone; FA/OCTA confirmed complete reperfusion without recurrence.

To minimise trauma, we utilised the diamond duster to safely manipulate the embolus, a technique we believe offers distinct advantages over other methods.

Unlike standard soft-tip instruments, which are not specifically designed for direct retinal contact, thereby increasing the risk of retinal injury, the diamond duster, designed for ILM peeling, offers superior control and precision during embolus mobilisation. The tip can be bent in two opposing directions, providing both a firm and a soft side. This dual-surface configuration allows the surgeon to fine-tune the amount of pressure applied, reducing the likelihood of vascular or neural tissue trauma.

In contrast, ILM peeling forceps, used initially in this case, are not intended for applying direct pressure on the retina (pushing) and are therefore suboptimal for embolus displacement.

Also, unlike soft-tip cannulas, which contain a central lumen that may inadvertently trap embolic material and complicate manipulation, the diamond duster tip can be intentionally angled toward the retinal artery, allowing force to be applied through a gentle bending motion of the instrument itself and possibly embolus dislodgment by aligning the direction of force with the anatomical course of the vessel.

Finally, unlike the bimanual technique, which requires two soft-tip instruments and a chandelier light, our approach uses a single instrument without the need for additional lighting. This simplification makes the procedure less invasive (no need for the double-hand technique), cost-effective, and suitable for less experienced surgeons, without compromising surgical efficacy.

PPV with gentle, non-invasive thrombus manipulation provided by this technique can promptly reestablish retinal perfusion and meaningful visual recovery even beyond the traditional 4–6 h therapeutic window. Prospective multicenter randomised trials are needed to define the effectiveness of vitrectomy in managing retinal artery occlusion, optimal timing, technique, and patient selection criteria, meanwhile, this paper can help a clinically tailored decision on these sight-treating conditions.

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Abstract 122

INCIDENCE AND SEVERITY OF RETINOPATHY OF PREMATURITY IN BIRATNAGAR EYE TELE ROP : A RETROSPECTIVE STUDY

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With the increase in NICU facilities, there is increase in survival of smaller preterm babies. This is likely to increase the complications associated with preterm delivery like ROP and others. Appropriate corrective measures need to be taken to decrease the incidence as well early identification and treatment of ROP. Incidence of ROP related blindness is reported to be in increasing trend in developing countries. Hence there is a need to identify the burden of the disease in this part of Nepal.

A Retrospective study was conducted in a tertiary eye care center in Nepal. Records of babies screened for ROP between January 2022 and December 2022 by a team of tertiary eye care center at various NICU in Biratnagar were studied. Patients demographic characteristics, incidence and severity of ROP, and treatment offered and its outcome was recorded.

Out of 200 babies screened, 69% were female. 32% of babies belonged to the gestational age of 28 to 32 weeks. ROP was present in 63 babies (31.5%). Incidence of ROP was high in babies weighing less than 1250grams (68%) and in babies born before 28 weeks of gestation (87%). 43% of babies with ROP were treatment requiring cases.

Incidence of ROP was high in this study in Biratnagar, Nepal. A study to analyse the risk factors in this population and NICU will help identify and make necessary action plan to reducing the incidence.

Abstract 123

LYOPHILIZED AMNIOTIC MEMBRANE VS. INTERNAL LIMITING MEMBRANE FOR MYOPIC MACULAR HOLE ASSOCIATED WITH RETINAL DETACHMENT

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Maculopathy secondary to pathologic myopia (PM) is an increasingly common cause of visual impairment and blindness worldwide. One of its most challenging complications is macular hole-associated retinal detachment (MHRD). Surgical management can be approached externally using macular buckle techniques or internally through pars plana vitrectomy and tangential traction release. To present the anatomical and functional outcomes of two surgical techniques for treating myopic macular hole-associated retinal detachment: internal limiting membrane (ILM) inverted flap and lyophilized amniotic membrane (LAM) patch.

Sixteen patients with MHRD were included and divided into two groups. Group A underwent pars plana vitrectomy with ILM peeling and inverted flap technique. Group B received a LAM patch over the macular hole. All patients were followed with structural OCT and functional evaluation using microperimetry

Retinal reattachment was achieved in all cases. Structural recovery was superior in the ILM group, as demonstrated by OCT. However, microperimetry revealed that the LAM group exhibited better fixation points, precisely in the area of the patch. ILM flap creation in highly myopic eyes can be challenging and not always reproducible, making LAM a valuable alternative with comparable outcomes

Lyophilized amniotic membrane offers a viable and effective alternative to the ILM inverted flap technique in the management of MHRD, especially in cases where ILM manipulation is difficult or unfeasible

Abstract 125

A TWO-STEP APPROACH TO MANAGING PEDIATRIC TRAUMATIC SUBMACULAR HEMORRHAGE.

INTRODUCTION:

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Submacular hemorrhage (SMH) is a vision-threatening condition with varied causes, lacking a standardised treatment approach. Current therapies include intravitreal injections, pneumatic displacement, and surgery, each with limitations, especially in children. This report presents the adoption of a rare two-step method, combining an initial minimally invasive intravitreal injection of tPA and SF6 with a subsequent, more invasive subretinal injection, to effectively displace SMH.

Case report

This case presentation is of a 12 year old boy who suffered a traumatic chorioretinal rupture with extensive submacular haemorrhage involving the macula. Initial management approaches included intravitreal tPA injection with pneumatic displacement with little improvement in visual acuity. The approach then shifted to minimal core vitrectomy without posterior vitreous detachment and submacular tPA injection and air tamponade. The child made a remarkable recovery with complete resolution of the haemorrhage within a week and improvement in his visual acuity to 6/9 one month after the surgery maintained over 1 year.

This case contributes to the literature on the management of submacular haemorrhages in paediatric cases, offering insights into the different submacular haemorrhage displacements expected with these 2 approaches. Further studies will be needed to evaluate in detail the efficacy and safety of these two procedures in the pediatric population.

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Abstract 127

SCHEIMPFLUG-BASED QUANTIFICATION OF LONG-TERM LENS CHANGES IN POST-LASER ROP CHILDREN

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Retinopathy of Prematurity (ROP) is a retinal vascular disorder affecting preterm infants, often requiring intervention with argon or diode laser therapy in type 1 ROP cases. The incidence of acquired cataract after laser photocoagulation therapy has been reported between 0.003% and 6% (1). Lens densitometry measurements are important to understand the impact of laser treatment on the lens. Slit-lamp microscopy alone, however, provides a basic assessment of the lens transparency, detecting only manifest changes. Objective documentation of the anterior eye segment in both human and animal eyes has been effectively achieved using Scheimpflug photography (2). With its integrated image analysis, Scheimpflug photography allows for the quantitative grading of lens opacifications and serves as a reliable instrument for identifying changes in lens transparency at an early stage (3). Given the potential long-term effects of prematurity, ROP, and its laser treatment on lens transparency, this study aimed to objectively assess lens changes in children post-ROP laser treatment using Scheimpflug photography in a long-term follow-up. To our knowledge, this is the first clinical research involving Scheimpflug photography as a technique for the objective evaluation of potential laser-induced lens side effects in children who have previously undergone laser treatment for type 1 ROP.

In this prospective case-control study, participants were divided into four groups:

Group 0 (Control): Full-term children without ROP (n:22), Group 1: Children with a history of prematurity but no ROP (n:24), Group 2: Children with a history of spontaneously regressed ROP (n:26), Group 3: Children with a history of type 1 ROP treated with diode laser photocoagulation (n:12).

After a comprehensive ophthalmologic examination, all subjects underwent keratometry and lens densitometry evaluation using a rotating Scheimpflug camera system (Oculus Pentacam HR).

The mean age of the children was 7.22 ± 1.80 years in Group 1, 7.00 ± 2.46 years in Group 2, 7.71 ± 0.72 years in Group 3, and 7.887 ± 0.20 years in the control group. No statistically significant differences in mean age were observed among the groups ($p > 0.05$). Similarly, keratometric values did not differ significantly among the groups. The mean lens densitometry values were 8.665 ± 0.56 in Group 1, 8.383 ± 0.39 in Group 2, 8.517 ± 0.45 in Group 3, and 7.887 ± 0.20 in the control group. Statistical analysis revealed no significant variations in lens densitometry among Groups 1, 2, and 3. However, a statistically significant difference was observed when these groups were compared to the control group ($p < 0.05$).

Prematurity has been linked to congenital cataract development, and laser therapy may theoretically induce lens protein denaturation (4). A few children in the Early Treatment for Retinopathy of Prematurity (ETROP) study developed cataracts after undergoing diode laser therapy for ROP, with the condition appearing by 6 months' corrected age. They suggest that even if no complications occur during or immediately after laser treatment, the potential for cataract formation persists, so careful

monitoring is essential until at least 6 months of corrected age and possibly longer (5). While prematurity has been associated with congenital cataracts, our study found no significant increase in lens density post-laser treatment, suggesting its long-term safety. Yet, premature children exhibited increased lens density compared to controls, indicating potential independent risk factors. Our findings also suggest that laser treatment for ROP does not induce significant long-term lens opacity. However, larger, prospective studies are warranted to further investigate these observations and explore underlying mechanisms. Clinicians should remain vigilant regarding lens health in premature children post-ROP treatment, given their potential heightened risk for complications.

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Abstract 128

COMPARISON OF SYSTEMIC RISK FACTORS FOR HRVO WITH BRVO AND CRVO

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Whilst the risk factors for branch retinal vein occlusion (BRVO) and central retinal vein occlusion (CRVO) are well studied, little is known about systemic risk factors for hemiretinal vein occlusion (HRVO), possibly due to relatively rarer presentation. The aim of this study is to identify differences in ocular, systemic and biochemical risk factors for patients presenting with HRVO compared with CRVO patients, BRVO patients and a control group.

This retrospective, London-based, multi-centre observational case-control study identified patients with HRVO over a 5-year period. Risk factors based on previous studies, common ocular and systemic comorbidities were collected, alongside vital observations and blood test results. These values were compared to randomised CRVO, BRVO and control groups.

Data was analysed using IBM SPSS software package version 20.0. (Armonk, NY: IBM Corp). Categorical variables were compared between groups using the Chi-square test. Continuous variables were assessed using one-way ANOVA or the Kruskal-Wallis test. Odds ratios (ORs) with 95% confidence intervals (CIs) were calculated to estimate the strength of association between risk factors and retinal vein occlusion subtypes compared to a control group. A p-value of ≤ 0.05 was considered statistically significant.

A total of 217 RVO patients (67 HRVO, 75 CRVO, 75 BRVO) and 70 controls were analysed. Visual acuity at diagnosis was significantly worse in CRVO than HRVO and BRVO groups. Glaucoma was significantly more prevalent in the HRVO group (40.3%, OR 5.23, $p < 0.001$), and prior RVO in the same eye was most common in BRVO patients (33.3%, OR 34.5, $p = 0.001$). Systemic hypertension and diabetes were strongly associated with all RVO types compared to controls ($p < 0.001$), with BRVO showing the highest odds (hypertension OR 8.58; diabetes OR 4.57).

Biochemical parameters revealed significantly higher HbA1c and CRP levels across all RVO groups. Triglycerides were elevated, and paradoxically, total cholesterol was lower in RVO patients. ALT and AST levels were also significantly increased in RVO groups, particularly HRVO and BRVO. No significant group differences were observed in BMI, LDL, or HDL cholesterol.

Medication use reflected the systemic burden: antihypertensive, statin, and antiplatelet usage were significantly higher among RVO patients ($p < 0.001$ for all).

These results suggest that glaucoma and certain haematological factors may influence the risk of HRVO compared to CRVO or BRVO. Understanding the associated risk factors is important to understand pathophysiology. Future prospective studies with larger cohorts are required to consolidate this work.

Abstract 129

COMPARING THE ABILITY OF LARGE LANGUAGE MODELS TO DIAGNOSE AND MANAGE COMMON MEDICAL RETINA AND VITREORETINAL PRESENTATIONS

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Advances in technology have resulted in integration of artificial intelligence (AI) in ophthalmology. As AI continues to develop, there is potential for use in diagnosis and management support. This study assesses the performance of the latest Chat-GPT models in answering questions related to retinal pathology images. The aim is to evaluate and compare the accuracy, relevance, and clinical usefulness of responses generated by GPT-4o, a personally trained ChatGPT model (the Retina Specialist), and GPT-o1 when answering retina-related clinical questions. We also assess the consistency of the models' responses across different retinal conditions considering their frequency of presentation, and to determine differences in grading responses between clinicians of different seniority.

This is an observational study to assess the ability of three Chat-GPT models, GPT-4o, a personally trained ChatGPT model (the Retina Specialist), and GPT-o1 to diagnose and manage 15 common retinal conditions based on imaging alone.

Cases and images were selected in line with the American Academy of Ophthalmology's Preferred Practice Pattern guidelines, and reviewed by a panel of 6 independent ophthalmologists. Each case was presented non-sequentially as new threads to prevent AI learning.

The 45 responses were assessed independently by 6 blinded UK-based consultant and fellow vitreoretinal and medical retina surgeons. Responses were presented in a random order using the Qualtrics survey system and graded using a standardised Likert scale score from 1 (significantly incorrect or irrelevant) to 5 (completely correct and directly relevant) based on accuracy and clinical applicability, clarity and conciseness, and humanity or best practice guidelines.

Initial analysis of 45 AI-generated responses shows variable performance between models. Across all conditions, GPT-4o and the Retina Specialist achieved higher mean Likert scores compared to GPT-o1; however, differences were modest. The mean scores were 4.1 (± 0.5) for GPT-4o, 4.0 (± 0.5) for the Retina Specialist, and 3.5 (± 0.6) for GPT-o1. Although GPT-4o produced more accurate and clinically relevant answers overall, inconsistencies were noted.

Responses from GPT-o1 were more frequently graded as lacking sufficient detail or containing clinically ambiguous recommendations. Across all models, common retinal conditions such as diabetic macular oedema and neovascular age-related macular degeneration yielded higher scores compared to less common diagnoses.

Consultant graders consistently assigned lower scores than fellows, suggesting higher expectations regarding clarity, management appropriateness, and adherence to best practice guidelines.

These preliminary findings suggest that while GPT-based models demonstrate potential to assist in the interpretation of retinal imaging, significant limitations remain, particularly when addressing complex or less frequently encountered diseases. Further detailed analysis, including intergrader reliability and subgroup comparisons by disease category, is ongoing.

Abstract 130

BUCKLE INDUCED PANOPHTHALMITIS, SCLERAL ABSCESS AND ENDOPHTHALMITIS- A CASE REPORT

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A 19 year old male patient presented with post traumatic total retinal detachment in the left eye, for which he underwent scleral buckling procedure. His vision was 6/12 in the left eye and IOP was 12mmHg post buckling on day one postop.

Presentation 1- One week postop he presented with a vision of 3/60 and IOP of 15mmHg in the left eye associated with ocular pain, upper eye lid edema with peri-orbital discharge, conjunctival chemosis and with mild limitation of extraocular movements. Left eye retina was attached.

Management 1- He was started on intravenous ceftriaxone 1gm BD and intravenous vancomycin 1gm BD and underwent left eye buckle explant, the 5-0 ethibond suture-infiltrates were sent for culture sensitivity. The cultures came out to be positive for methicillin resistant staphylococcus aureus which was sensitive to gentamycin, tobramycin, amikacin, tetracycline, chloramphenicol and vancomycin. Post buckle explant, his lid edema and conjunctival chemosis reduced drastically. Vision was 6/24 improving to 6/12 with pinhole, IOP was 13mmHg and retina was attached in the left eye. Intravenous antibiotics were continued for one week. After one week, the patient was started on oral tablet doxycycline 100mg BD and eye drop tobramycin concentrated 1.3% TDS in the left eye. Oral tablet doxycycline and eye drop tobramycin in the left eye were stopped two weeks post buckle explant. Panophthalmitis had resolved completely and retina was attached post buckle explant.

Presentation 2- Two weeks and six days post buckle explant, patient present with a temporal scleral abscess, an attached retina with a supero-temporal focus of whitish exudate corresponding to the scleral abscess seen through indirect ophthalmoscopy. There was no vitritis. His vision was 6/12 and IOP was 12mmHg in the left eye.

Management 2- The patient was given three subconjunctival gentamycin 0.3% (1.5mg in 0.5ml) injections on three consecutive days around the scleral abscess. Oral tablet doxycycline 100mg BD was restarted. Oral tablet vancomycin 250mg QID was started. Eyedrop tobramycin concentrated 1.3% was restarted two hourly and eyedrop chloramphenicol 0.5% TDS was added in the left eye.

Presentation 3- There was no improvement in the scleral abscess post the subconjunctival injections in the left eye. Left eye retina was attached, the supero-temporal focus of whitish exudate was increasing in size seen through indirect ophthalmoscopy. The patient developed grade one vitritis in the left eye. His vision in left eye was 6/24, not improving with pinhole and IOP was 16mmHg.

Management 3- The patient was given intravitreal injection vancomycin 1mg in 0.5ml, intravitreal injection amikacin 0.4mg in 0.5ml and intravitreal injection tobramycin 200ug in 0.5ml in the left eye. Oral tablet doxycycline 100mg BD and oral tablet vancomycin 250mg QID were continued. Eyedrop tobramycin concentrated 1.3% two hourly and eyedrop chloramphenicol 0.5% TDS were continued in the left eye.

One week post intravitreal injections, left eye vitritis had resolved, retina was attached and the supero-temporal focus of whitish exudate had resolved completely as seen on indirect ophthalmoscopy. The temporal scleral abscess was healing. Patient's vision in left eye was 6/24 improving to 6/12 with pinhole and IOP was 14mmHg. Oral antibiotics were continued for two months post intravitreal

antibiotics, keeping his kidney function in check every two weeks. Topical eyedrops were continued for three months post intravitreal antibiotics, tapering eyedrop tobramycin concentrated 1.3% from two hourly to TDS after one month. Three months post intravitreal antibiotics, patient's vision in left eye was 6/9 with an IOP of 15mmHg. Temporal scleral abscess in the left eye had completely healed. Retina was attached.

We report a case of a young healthy patient who developed panophthalmitis, scleral abscess and endophthalmitis after scleral buckling procedure. Once scleral implant infection occurs, panophthalmitis results requiring removal of the implant with resolution.

Abstract 138

PNEUMATIC VITRECTOMY

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To present a novel technique—pneumatic vitrectomy—as a method for preoperative stabilization of retinal detachment and macular reattachment, while reducing surgical time and intraoperative complications.

This retrospective study from two surgical centers includes 78 eyes diagnosed with predominantly superior retinal detachment. Due to high surgical workload, same-day surgery was not feasible in these cases. As a bridging measure, a small volume (0.3–0.5 ml) of pure C3F8 gas was injected preoperatively to stabilize the detached retina and facilitate macular reattachment, minimizing the risk of detachment progression or photoreceptor damage.

Patients underwent pars plana vitrectomy several days later, with treatment of retinal breaks using endolaser or cryopexy and the application of a tamponade agent.

Preoperative retinal flattening was achieved in 87% of cases. Intraoperative complications were minimal, attributed to improved retinal stabilization. The office-based preoperative intervention was well tolerated, with no significant adverse events or patient risk.

Pneumatic vitrectomy represents a promising approach for managing superior retinal detachments when same-day surgery is not possible. This technique prevents further detachment, enhances visual outcomes, and reduces operative time and complications. It is particularly recommended for high-volume centers facing surgical delays.

Abstract 139

ASSESSMENT OF PRO-INFLAMMATORY OCT BIOMARKERS IN REFRACTORY DIABETIC MACULAR OEDEMA

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This study evaluates optical coherence tomography (OCT) pro-inflammatory biomarkers in treatment-naïve patients who display a suboptimal response to anti-VEGF therapy during the loading phase and monitors the evolution of OCT biomarkers over a 24-month treatment period. This is a retrospective analysis of clinical data collected at Moorfields Eye Hospital NHS Foundation Trust, London, UK.

This study constitutes a real-life retrospective analysis of patients' records and images from 2017 to the beginning of 2020. The cohort comprises exclusively intravitreal injection-naïve eyes eligible for intravitreal anti-VEGF treatment for diabetic macular edema (DMO) at Moorfields Eye Hospital NHS Foundation Trust in 2017. Statistical analysis was restricted to patients who underwent five monthly loading doses of intravitreal anti-VEGF injections and exhibited a suboptimal response to the treatment. The suboptimal response is defined as a reduction in central foveal thickness (CFT) of less than 20% compared to baseline, with an improvement in baseline visual acuity of fewer than 5 ETDRS letters by the time of the 5th monthly intravitreal anti-VEGF injection. Among these patients, specific focus will be placed on those whose baseline visual acuity was equal to or less than 70 ETDRS letters. The follow-up period commences at the time of the initial intravitreal injection and extends over 24 months. Each patient's assessment includes analysis of best-corrected visual acuity (BCVA), central foveal thickness (CFT), and OCT pro-inflammatory biomarkers at baseline, at the 5th monthly intravitreal anti-VEGF injection, and at 12 and 24 months. Key OCT biomarkers of interest encompass intraretinal hyperreflective foci and subfoveal neuroretinal detachment. A single 180° SD-OCT line scan (6 mm length) centered on the fovea was analyzed for each patient. All OCT scans underwent manual analysis and assessment by a single retina specialist. The statistical analysis assessing VA, CFT, and HF alterations was conducted utilizing a One-Way Analysis of Variance (ANOVA), with statistical significance established at a p-value below 0.05. We calculated Pearson's correlation coefficient between CFT and HF.

We identified 37 eyes out of 37 patients who met the inclusion criteria of suboptimal response at the time of the 5th loading intravitreal injection. All eyes included started treatment with intravitreal anti-VEGF injections, and the mean number [range] of anti-VEGF injections over the follow-up period of 24 months was 13.18 [8-26]. Baseline assessments revealed a mean VA(SD) of 59.1 ± 13 ETDRS letters and a mean CFT(SD) of 430 ± 91 μ m. At the time of the fifth intravitreal anti-VEGF injection, the mean VA(SD) was 64.5 ± 13 ETDRS letters, and the mean CFT(SD) was 390 ± 91 μ m, with p-values of 0.362 and 0.312, respectively. At the end of the 24-month follow-up, the mean (SD) VA was 67 ± 15 ETDRS letters, and the mean CFT(SD) was 297 ± 90 μ m ($p > 0.05$ and $p = 0.0000$, respectively).

The mean (SD) number of hyperreflective foci at baseline was 7.23 ± 7 . The mean (SD) number of HF at the end of the loading phase was 4.56 ± 7 ($p = 0.225$). The One-Way ANOVA analysis showed no significant decrease in HF over two years of follow-up. However, the post hoc Tukey HSD showed a significant difference in the number of HF between 12 and 24 months of follow-up ($p = 0.000$). Three eyes presented with subfoveal neuroretinal detachment at baseline, while two eyes developed the SND during the follow-up period. Pearson correlation coefficient between hyperreflective foci and

central foveal thickness was positive at all time points but weak at baseline, 12 months, and 24 months ($r = 0.3914$, 0.4779 , and 0.1924 , respectively). At the time of the 5th injection, the correlation between CFT and HF was positive and moderate ($r = 0.5564$).

Our study may suggest that OCT scans of DMO patients who suboptimally respond to anti-VEGF therapy indicate the continuous presence of hyperreflective foci, thus signaling the pro-inflammatory component of oedema.

Abstract 142

INOPERABLE CATARACT – BUT NOT FOR THE VR SURGEON

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Introduction: In Europe, especially during the 21st century, the aim of cataract surgery is mostly to achieve a better than perfect vision. In Europe, where both the cataract surgery and vitrectomy is more than easily available, there is not much evidence about eye surgery on blind eyes. The literature more frequently refers about the benefit of cataract surgery on blind eyes in developing countries. The results of vitrectomy on eyes with no light perception after ocular trauma are well known even in Europe but still many ophthalmologists refuse surgical interventions in eyes with NLP or with LP only.

Methods: a case report of a blind patient is showing the importance of close understanding between the patient and the surgeon, stressing the meaning of the patient's introspection and the surgeon's empathy and reliance on the patient's confidence.

A female patient born in 1977, showing extremely poor vision, was diagnosed with "ablatio retinae falciformis", today known as familial exudative vitreoretinopathy. Her visual acuity (VA) was 0.04. She received school education for visually impaired children and with compensation aids she finished the secondary school. At the age of 19 she suffered from acute keratoconus and secondary glaucoma; even after keratoplasty and trabeculectomy and her vision dropped down to CF. Still, she could finish her university studies and became a psychotherapist. At the age of 35 the worsening of keratoconus and cataract caused bilateral blindness with LP only in her left eye. She suffered from corneal decompensation, worsened by the contact of the cornea with the lens. She successively asked for help at five different eye clinics but even respected cataract surgeons refused the surgery. However, vitreoretinal surgeons are naturally better prepared to face the risk of failure, which brought the patient to our clinic.

The condition of the eye was really very poor; almost opaque vascularized cornea, anterior synechiae, pupillary membrane and white cataract did not provide much hope, however, the patient, exceptionally gifted with introspection, convinced me that she could see something. In 2019 the surgery was performed. Through a poorly transparent cornea the lens was removed using pars plana phacoemulsification and vitrectomy was accomplished, enabling to visualize the retina with the falciform traction, thankfully not affecting her macula. During the surgery, the patient emotively reported seeing the instruments in her eye. Even more emotive were her comments the other day when she could see trees, faces, including her own face again – after several years of blindness. She could get back to work, to reading, biking and skiing.

Let us not give up even in almost hopeless cases. Let us trust the patient's feelings. Cataract surgeons, if you are too afraid of failure, ask vitreoretinal surgeons for help, namely EVRS members.

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2. Visual Outcomes in Eyes with No Light Perception Prior to Vitrectomy. Anza Rizvi; Asad Farooq Durrani; Bita Momenaei; Fatima Rizvi; Hana A. Mansour; Carl Regillo. Investigative Ophthalmology & Visual Science June 2024, Vol.65, 4440.

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Abstract 144

CHRONIC HYPOTENSIVE RETINOPATHY DUE TO POLYTETRAFLUOROETHYLENE SUTURED IOL

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Female of 6 month chronic hypotony due to a leaking wound in a patient with a Polytetrafluoroethylene sutured IOL. We can appreciate the serous choroidal detachments and massive macular exudation with optic nerve edema. In the video we can appreciate positive Seidel sign at the suture wounds.

Vitrectomy with suture of the leaking wound and Sf6 exchange was performed without IOL removal

BCVA improved to 20/200 after three months, IOP improved to 16mmHg

IOL suture techniques have several complications such as this leaking wound. We can successfully close the wound to reverse the retinal changes induced by chronic ocular hypotonia.

Abstract 147

SHAKEN BABY SYNDROME

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Shaken baby syndrome is an uncommon disease in our countries.

Four month old baby come to our service with bilateral retinal detachment. He was with lethargy and sleepiness. We sent to neurosurgery too. They did not find intracranial hemorrhage.

We did bilateral 25 G vitrectomy under general anesthesia with good anatomy results. Unfortunately one optic nerve was with atrophy. The procedure had very good outcome.

Shaken baby syndrome is a rare condition but early diagnosis and systemic evaluation is very important to save the life of the child and the eyes

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ROP

Abstract 148

MANAGING ROP COMPLICATIONS

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ROP is a common disease around the world but its surgical management can vary greatly due to associated systemic disease, particular ocular conditions and surgeon's expertise. By presenting this video we propose a way to prioritize surgical steps in order to obtain successful results.

in the video we present a case of a extreme premature infant and the surgical outcome after performing bilateral vitrectomy for agressive ROP

retinal attachment

preserving ocular structures and visual rehabilitation must be main objectives when treating ROP

Klufas MA, Patel SN, Chan RV. Surgical management of retinopathy of prematurity. *Dev Ophthalmol.* 2014;54:223-33. doi: 10.1159/000360470. Epub 2014 Aug 26. PMID: 25196773.

Vanathi M. Iatrogenic cataracts in ROP eyes. *Indian J Ophthalmol.* 2023 Nov;71(11):3427-3428. doi: 10.4103/IJO.IJO_2744_23. PMID: 37869997; PMCID: PMC10752317.

Abstract 158

FULL THICKNESS MACULAR HOLE IN EYES WITH AMD

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Purpose: To demonstrate that FTMH in eyes with AMD is surgically treatable, as it is in eyes without AMD.

Case-report No.1: A 71-year-old female patient with non-exudative AMD and drusenoid pigment epithelial detachment (PED) was observed due to the development of FTMH on top of the drusenoid PED (height 460 µm) with BCVA of 0.4. After worsening of visual acuity to 0.2 and enlargement of the hole to a 620 µm diameter, she underwent vitrectomy with a temporal inverted flap and gas tamponade. A brief video will illustrate peeling of a flap in the elevated area of the PED. Successful closure of the macular hole was observed after gas absorption. Height of PED decreased in three weeks to 420 µm. BCVA remained the same, but the central scotoma disappeared, which the patient greatly appreciated. Five months after surgery, collapse of drusenoid PED appeared, with the same visual acuity. Seven months after vitrectomy, cataract surgery was performed.

Case-report No.2: A 62-year-old female patient with exudative AMD treated with anti-VEGF (after 34 injections), at regular 8-week check-up, reported worsening of the treated eye to BCVA of 0.16. OCT showed, in addition to active exudation of CNV, the recent development of FTMH (310 µm diameter). Patient underwent vitrectomy with temporal inverted flap, cryopexy of peripheral breaks, and gas tamponade. One month after surgery, closure of the macular hole was observed, with a small amount of subretinal and intraretinal fluid due to wet AMD, with BCVA improving to 0.4. We continued with anti-VEGF injections using the same active ingredient every 8 weeks, but the visual acuity gradually decreased to 0.16 with persistent activity.

Case-report No.1: One month after cataract surgery, BCVA improved surprisingly to 0.6. More than two years after hole closure, BCVA worsened to 0.5 due to RPE and photoreceptor atrophy and has remained stable since.

Case-report No.2: One year after surgery, BCVA is 0.16. The macular hole is closed, but the persistent activity of macular degeneration is gradually worsening vision.

The development of a macular hole is not an indication for the termination of anti-VEGF therapy in cases of exudative AMD, and AMD terrain requires a smooth interaction between standard surgical and medical retina processes. Visual outcomes in eyes with AMD are likely to be more unpredictable and unstable due to concomitant degenerative processes.

Abstract 160

LONG-TERM OUTCOMES OF IRIS-CLAW INTRAOCULAR LENS IMPLANTATION IN APHAKIC EYES: A COMPARISON OF FIXATION TECHNIQUES AND INCISION TYPES

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The purpose of the study was to evaluate long-term outcomes of iris-claw intraocular lens (IOL) implantation in aphakic eyes, specifically comparing anterior versus retropupillary fixation and corneal versus sclero-corneal tunnel incisions, with respect to visual acuity improvement and complication rates.

This retrospective study included 340 eyes of 303 patients who underwent iris-claw IOL implantation between August 2006 and August 2023, with a mean follow-up of 46 months (range: 6–147). Among them, 209 eyes received anterior iris fixation and 131 underwent retropupillary fixation. A corneal incision was used in 199 cases, and a sclero-corneal tunnel in 141. Best-corrected visual acuity (BCVA), refractive outcomes, and postoperative complications were analyzed.

A significant and sustained improvement in BCVA was observed across the study population. The strongly hyperopic preoperative refractive status due to aphakia (mean spherical equivalent: +14 diopters) was effectively corrected, with no deviation from the targeted refractive outcomes. The most frequent complications included cystoid macular edema (27.4%) and transient ocular hypertension (17.1%). Severe complications were rare, including retinal detachment (0.6%) and endophthalmitis (0.3%). All complications resolved with appropriate management. No significant differences were found in visual outcomes between fixation techniques or incision types. However, a slightly higher incidence of cystoid macular edema was observed in the anterior fixation group ($p = 0.083$). In addition, corneal incisions were associated with significantly higher surgically induced astigmatism than sclero-corneal tunnels. Two cases in the sclero-corneal group (0.6%) required surgical repair for ciliary body detachment.

Iris-claw IOL implantation in aphakic eyes demonstrated effective long-term visual rehabilitation with significant improvements in BCVA and accurate refractive correction. Both anterior and retropupillary fixation methods, as well as different incisions, showed comparable safety and efficacy. However, sclero-corneal incisions may be preferable when astigmatism control is prioritized, and retropupillary fixation might reduce the risk of macular complications. This study highlights the importance of individualized surgical approaches based on patient-specific risk profiles and clinical context.

Abstract 163

THE EFFECT OF PROLACTIN RELEASING GASTROKINETICS ON STREPTOZOCIN INDUCED DIABETIC RETINOPATHY

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To investigate the effect of metoclopramide (MCP), trimethobenzamide (TMB), and domperidone (DOM) on the experimental model of diabetic retinopathy.

Wistar rats were grouped into 5 groups, as follows: control, diabetes mellitus (DM), DM+MCP, DM+TMB, and DM+DOM groups, consisting of 10 rats in each. Streptozocin (STZ) was injected intraperitoneally into four groups to induce diabetes. Six weeks after STZ; MCP, TMB, and DOM treatments were applied to three groups for 15 days, respectively. As far as IOP measurements and Schirmer tests were completed, enucleation was performed for immunohistochemical evaluation of retinal expression with prolactin, VEGF, and CD31.

There were no statistically significant differences in IOP and Schirmer test results among the groups. Based on VEGF, CD31, and Prolactin staining intensity, a score was calculated for each group by dividing the total staining score by the number of rats in the group. Prolactin receptor staining was significantly increased in the ganglion cell layer in all treatment groups ($p<0.05$). While VEGF staining in the control group scored 0.78, the DM group's score increased to 1.28. In the treatment groups, the scores decreased to 0.88 for MCP, 1.11 for TMB, and 0.78 for DOM ($p=0.006$). The CD31 scores followed a similar pattern to VEGF. Diabetes induction nearly doubled the CD31 score to 1.29. Treatment with MCP, TMB, and DOM reduced the scores to 0.75, 0.89, and 0.56, respectively ($p=0.012$).

Anti-dopaminergic MCP, TMB, and DOM treatments used for diabetic gastroparesis displayed a favourable safety profile on IOP and tear-film, as well as increased the amount of prolactin receptors, decreased VEGF and CD31 expression in the retinal ganglion cell layer. In light of these results, we assume that using anti-dopaminergic medications against diabetic gastroparesis may have an additional benefit on diabetic retinopathy.

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Abstract 165

PREDICTORS OF PRIMARY ANATOMIC REATTACHMENT WITH PNEUMATIC RETINOPEXY FOR RHEGMATOGENOUS RETINAL DETACHMENT

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This study aims to assess factors associated with primary anatomic reattachment (PAR) following pneumatic retinopexy (PnR) for rhegmatogenous retinal detachment (RRD)

This is a post hoc analysis of a real-world pneumatic retinopexy dataset that included a retrospective review of patients with primary RRD who presented to St. Michael's Hospital, Toronto, Canada, from November 2009 to September 2017, underwent PnR, and had a minimum of 3 months of follow-up. Subsequent gas injection within 2 weeks after the operative procedure to achieve a larger gas bubble, and consequently, greater retinal contact or additional laser retinopexy were permissible at the surgeon's discretion and were not considered a primary treatment failure. The primary objective was to assess predictors of primary anatomic reattachment (PAR) at 3 months postoperatively.

A total of 554 patients were included. The mean age was 59.7 (SD 11.9) years, with 70% (388/554) female and 60.5% (335/554) phakic. Retinal detachment characteristics were 56.3 % (312/554) fovea-off RRD, with the mean extent of detachment 2.2 (SD 0.84) quadrants.

There were 49.8% (276/554) patients meeting pneumatic retinopexy trial criteria, 20.2% (112 /554) PIVOT trial, and 20.9% (116/554) PIVOT extent.

The proportion of males was 67.5% (277/410) in the PAR group vs 77.1% (111/144) in the failure group, $p = 0.03$. When comparing both groups based on the lens status, the proportion of pseudophakic patients was 35.2% (140/398) in the PAR group and 45.3% (64/141) in the failure group, $p= 0.03$.

Patients with fovea-off RRD were 54.9% (224/408) in the PAR group vs 59.7% (86/144) in the failure group, $p=0.3$. The mean extent of RRD was 1.94 (SD 0.8) quadrants in the PAR group vs. 2.15 (SD 0.9) quadrants in the failure group, $p=0.01$. Interestingly, the PAR was reduced for each quadrant increase in retinal detachment: 82.9% (121/146), 74.7% (192/257), 67% (59/88), and 52.9% (18/34) for 1,2,3, and 4 quadrants RRD respectively($P <0.001$)

In the PAR group 75.1% (308/410) of patients met either the PnR trial (221/410) or PIVOT criteria (87/410) vs 55.5% (80/144) in the failure group (55/144 and 25/144 for PnR and PIVOT trial respectively), $p < 0.001$. The primary anatomic reattachment rate (PARR) among patients meeting PnR and/or PIVOT trial criteria was 79.7% (308/388) vs 61.4% (102/166) in those with extended criteria. However, PARR did not differ significantly when comparing patients who met the PnR trial vs PIVOT criteria with 80.1 % (221/276) vs 77.7% (87/112) success rate in each group, respectively. $P =0.6$

Cryotherapy was used in 18.6% (76/407) of PAR cases vs 29.1% (41/141) failure cases, $p = 0.009$.

There were 15% (86/554) of patients requiring sequential gas injection in 10.7% (44/408) of PAR cases vs 29.2 (42/144) of failure cases ($P<0.01$). The PARR among patients who had a second PnR was 51.2% (44/86).

Worse baseline LogMAR BCVA and total breaks in the detached retina were associated with reduced PAR ($P =0.005$, $\beta =-0.28$, and $P=0.008$ and $\beta = -0.21$ for each variable respectively) while the clock-hour distance between breaks did not differ between PAR and failure group in patients with extended criteria $P=0.7$, $\beta =0.03$.

Multivariable regression analysis identified RD extent and PIVOT criteria as the only statistically significant predictors of PAR (both, $p < 0.001$), with $\beta = 0.8$ and 0.2 , respectively.

Meeting PIVOT criteria and the extent of RRD are important predictors of PAR following PnR for primary RRD. In addition, sequential gas injection could be a salvage procedure in specific cases.

Abstract 166

"WHEN VISION BECOMES A BATTLE: THE ENDOPHTHALMITIS FIGHT"

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Endophthalmitis following Cataract surgery is a disastrous complication and can lead to poor visual outcomes and loss of globe integrity. It should be differentiated from toxic anterior segment syndrome (TASS) where management differs drastically. This presentation will have basic knowledge about postoperative endophthalmitis and describes different real-world scenarios forms of Acute endophthalmitis cases requiring intraocular lens removal, radical vitrectomy with hyaloid peeling, base dissection etc. A case-based approach is followed where practical considerations have been adopted with each case such that it facilitates the audiences' ability to apply theoretical knowledge to real-life clinical situations.

Patients who were Diagnosed with Acute Post Cataract Endophthalmitis within first week and who underwent surgical management were Included.

NA

This presents a case-based approach to different scenarios of postoperative endophthalmitis that respond to intravitreal antibiotic agents alone and then discusses severe forms of endophthalmitis with their practical considerations such as IOL removal, use of silicone oil etc. A case-based approach enables practical application of theoretical knowledge.

NA

Abstract 167

SURGICAL VIDEO ANALYSIS IN THE PORT DELIVERY PLATFORM WITH RANIBIZUMAB (PDS) CLINICAL TRIALS: LESSONS LEARNED

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The Port Delivery Platform is a drug delivery system that continuously delivers customized medicines to the eye, with the Port Delivery Platform with ranibizumab (PDS) as the first combination which can be refilled every 6 or 9 months. The PDS includes a refillable ocular implant surgically placed at the pars plana for continuous intravitreal release of a customized ranibizumab formulation. The PDS is the first and only continuous delivery treatment that has shown positive phase 3 data in neovascular age-related macular degeneration (nAMD), diabetic macular edema (DME), and diabetic retinopathy (DR) and is approved in the US for nAMD and DME. The PDS implant insertion procedure has 7 critical steps: case preparation and peritomy, implant preparation, scleral dissection, laser ablation of the pars plana, pars plana incision, implant insertion, and conjunctiva and Tenon's capsule closure. Meticulous adherence to all surgical steps as outlined in the Instructions for Use (IFU) is critical to maximize optimal surgical outcomes. In addition, surgical procedures have evolved during the PDS clinical development program to optimize safety outcomes, with key updates in insertion and refill-exchange procedure IFUs implemented from June 2020. During the PDS development program, which spans 10 years of surgical experience, timely video review of PDS procedures (eg, implantation, refill-exchange) were performed to assess program-level insights throughout the PDS clinical trials. Here, we provide examples of how video review has been utilized to help improve the safety profile of the PDS during the clinical development program.

PDS clinical trials include the Ladder (NCT02510794), Archway (NCT03677934), and Portal (NCT03683251) trials in nAMD; the Pagoda (NCT04108156) trial in DME; and the Pavilion (NCT04503551) trial in DR. A total of 1514 PDS implant insertion videos and 9366 refill-exchange procedure videos were collected to January 2025 (95.7% of all procedures have video records). In 2020, implant dislocations, where the implant was not at the expected location at the scleral incision implantation site, were detected as a safety signal. They were noted in 6 cases in approximately 450 patients who had been implanted in Ladder, Archway, or Portal at the time. Surgical videos for these patients were reviewed, and it was noted that 5 of 6 had a long scleral incision (> 3.7 mm; IFU specified 3.5–3.7 mm before June 2020), 5 of 6 had wound discoloration at the edge of the implant flange, and the time of dislocation was most often after a refill-exchange attempt. After noting the characteristics associated with implant dislocation (ie, long scleral incision > 3.7 mm, presence of wound discoloration), a systematic review of all available surgical videos and implant photos was initiated to characterize associated risk factors and identify additional patients at risk. The review was conducted by staff ophthalmologists at Roche/Genentech, Inc. (n = 12) who independently reviewed all available implant insertion procedure videos and corresponding longitudinal implant photos for patients in Ladder, Archway, and Portal (n = 450). Similarly, for the refill-exchange procedure, video review noted critical aspects of the procedure, including a strict perpendicular approach, visualization and precise targeting into the septum center, and avoidance of twisting and maneuvering during the procedure.

Results from this prospective review of videos have driven key updates to the PDS surgical techniques over time, including updates that were implemented in June 2020, where a precise scleral incision length of 3.5 mm was specified and guidance on careful application of the laser to the pars plana while avoiding misdirection toward the adjacent sclera and remeasuring after laser to confirm that incision is not > 3.5 mm using measurement gauge were added. In addition, for patients with final incisions > 3.5 mm, mandatory suture placement was added to reduce the scleral incision down to 3.5 mm. Following these updates, a notable trend towards a reduction in implant dislocations has been observed in a retrospective analysis, which included patients enrolled in Ladder, Archway, Portal, Pagoda, and Pavilion who were implanted with the PDS before vs after June 2020 across indications (2.2% [10/457] vs 0.5% [4/804], respectively). Updates to the refill-exchange procedure led to the development of Environment, Visualization, and Perpendicularity (E.V.P) refill-exchange education. After E.V.P training, 99 videos from Pagoda, Pavilion, and Portal of 20 surgeons who had completed training were reviewed; 88% of refill-exchanges were successful with the first needle insertion attempt and 94% of attempts did not involve twisting.

The use of a systematic prospective video review process has facilitated key surgical learnings in PDS phase 3 clinical trials, reducing the risk of adverse events like implant dislocations. Systematic and ongoing video reviews are now performed in the Port Delivery Platform development program to proactively identify opportunities for continuous improvement, where warranted.

Abstract 169

A FEASIBILITY STUDY TREATING OPHTHALMIC ARTERY STENOSES IN PATIENTS WITH GEOGRAPHIC ATROPHY: SAFETY, ANATOMICAL, AND FUNCTIONAL OUTCOMES

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Age-related macular degeneration (AMD) is a progressive, multifactorial disease and one of the leading causes of irreversible vision loss in older adults. With over 200 million people affected globally, the burden of AMD is expected to increase substantially in coming decades. Geographic atrophy (GA), the advanced stage of nonexudative AMD, leads to degeneration of the retinal pigment epithelium (RPE), photoreceptors, and underlying choroid, and accounts for a significant proportion of legal blindness in developed countries.

Despite recent therapeutic advances targeting the complement cascade, such as C3 and C5 inhibitors, the benefit remains limited. These therapies slow GA lesion growth by less than 20% over one year and fail to prevent the progressive decline in visual function, which continues at approximately five letters per year. Therefore, more effective and function-preserving treatments are urgently needed.

Recent evidence has implicated choroidal hypoperfusion as a contributing factor in AMD pathogenesis. Thinning of the choroid has been consistently associated with disease progression, including both GA and macular neovascularization. Doppler imaging and histologic data suggest that this thinning may be due in part to upstream vascular compromise, particularly involving the ophthalmic artery (OA), which supplies the choroid.

Histopathological studies and high-resolution magnetic resonance angiography (MRA) have demonstrated OA stenoses in patients with AMD. These stenoses correlate with reduced ocular blood flow and greater disease severity. Case reports and retrospective studies have suggested that OA angioplasty might improve visual outcomes in such patients. Given this background, the present study aimed to evaluate the safety, feasibility, and exploratory functional outcomes of OA balloon angioplasty in patients with GA secondary to AMD and confirmed OA stenosis.

Study Design and Oversight

This was a prospective, first-in-human, single-arm interventional study conducted in Argentina. The protocol was reviewed and approved by an independent ethics board (Comité de Ética en Investigación Clínica, IRB #00010971) and the Argentine regulatory agency ANMAT. All participants provided informed consent, and the study was registered on clinicaltrials.gov (NCT05091476).

Participants

Eligible participants were aged ≥ 60 years with confirmed GA secondary to AMD in one or both eyes, BCVA of 20/80 or worse in the study eye, and significant OA stenosis confirmed by MRI and CT

imaging. Exclusion criteria included active exudation, media opacities preventing imaging, uncontrolled systemic disease, renal insufficiency, and anticoagulation. Patients were required to have stable systemic history for at least six months following any vascular or cardiac events.

Intervention

The OA angioplasty was performed using the investigational OPTiC System™ (OcuDyne, Inc.), a balloon catheter device designed for safe and targeted intervention of the OA via a transfemoral approach. After preoperative imaging and final eligibility confirmation, the interventional neuroradiology team performed balloon dilation of the OA stenosis under general anesthesia. Patients were monitored postoperatively for 18–36 hours before discharge.

Assessments

Safety was evaluated through documentation of adverse events from the time of consent through all follow-up visits. Neurological assessments, including NIH Stroke Scale (NIHSS), were performed pre- and post-procedure and at Month 3.

Ophthalmologic assessments included:

BCVA (ETDRS at 4m)

MNRead testing (Reading Acuity, Reading Speed, Critical Print Size)

Spectral-domain OCT (SD-OCT) for subfoveal choroidal thickness (SFChT)

Fundus autofluorescence for GA lesion area

The Impact of Vision Impairment (IVI) Questionnaire

Visits occurred at Week 1, Week 4, Month 3, and Month 6 post-procedure. Images were reviewed independently by the Boston Image Reading Center.

Study Population

Seventeen subjects (64.7% female; mean age 75.1 years) were enrolled. All had late-stage AMD with GA, mean baseline BCVA of 31.9 ETDRS letters (approx. 20/230), and large GA lesion areas. Eleven subjects completed the procedure and full follow-up.

Comorbidities were common: 64.7% had a history of smoking (mean 37 smoking years), 52.9% had hypertension, 41.2% vascular disease, and 76.5% were overweight (BMI ≥ 25). Mean baseline GA area in study eyes was 12.8 mm².

Safety Outcomes

No serious systemic or ocular adverse events occurred. Four systemic events (injection site inflammation, hematoma, hemoptysis, and UTI) were all resolved without sequelae. Five mild ocular events included four suspected microemboli and one suspected reperfusion injury. All were asymptomatic, self-limited, and resolved without intervention.

Visual Acuity and Reading Performance

Mean BCVA improved significantly from baseline at all visits. At 6 months, study eyes showed a mean gain of +6.7 ETDRS letters ($p=0.003$). Fellow eyes showed no such improvement. One subject lost two letters; all others had stability or gain.

Seven study eyes and nine fellow eyes completed MNRead testing. Study eyes showed a 28.5% increase in reading speed, a 3.4% improvement in reading acuity, and a 5.1% improvement in critical print size by Month 6. Fellow eyes declined in all reading metrics.

Choroidal Thickness

SFChT increased significantly at Week 1 ($p=0.002$) and Week 4 ($p=0.004$), then gradually declined toward baseline but remained elevated through Month 6. Compared with fellow eyes, treated eyes showed statistically significant improvement in SFChT early after treatment.

Patient-Reported Outcomes

IVI scores improved across all domains in study eyes. Statistically significant gains were observed in Reading & Accessing Information and Mobility & Independence subscales. Emotional Well-being showed a modest, non-significant decline by Month 6, consistent with the emotional toll of progressive vision loss.

This prospective feasibility study is the first to investigate OA balloon angioplasty as a treatment for GA in patients with confirmed OA stenosis. The procedure was safe and well-tolerated, with no serious adverse events. Exploratory analyses showed improvements in BCVA, reading performance, choroidal thickness, and quality of life — outcomes that are rarely seen in GA with current therapies.

The increase in SFChT following OA angioplasty supports the hypothesis that improving ocular perfusion may help preserve retinal structure and function in AMD. Given the modest benefits of current anti-complement therapies and the lack of vision-improving options, OA angioplasty may represent a novel and promising approach.

Larger randomized studies are warranted to confirm these findings, assess long-term safety, evaluate GA progression more precisely, and clarify the role of ocular hypoperfusion in the pathogenesis and progression of AMD. If validated, OA angioplasty could become a paradigm-shifting treatment for this otherwise untreatable form of vision loss.

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Abstract 171

SUPRACHOROIDAL VISCO-BUCKLING

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To present a modern adaptation of the classic suprachoroidal buckling technique for the management of retinal detachment in a young patient.

We report the case of a 23-year-old male referred for evaluation of blurred vision in the left eye persisting for one month. He had a history of bilateral myopia of approximately -5.00 D and no other systemic or ocular conditions.

Ophthalmologic examination revealed a best corrected visual acuity (BCVA) of 0.0 logMAR in the right eye and 0.3 logMAR in the left. Fundoscopy showed a chronic superior-temporal retinal detachment involving the macula, with a horseshoe tear at the 1 o'clock position and a subretinal vitreous band extending temporally to the vascular arcades. These findings were confirmed by optical coherence tomography (OCT).

In the absence of posterior vitreous detachment and with the presence of a single superior break, we opted for a suprachoroidal buckling procedure. Viscoelastic (Healon 5) was used as the buckling agent, combined with cryopexy to seal the retinal break and 0.5 ml of 100% SF6 gas for tamponade. Postoperatively, the chorioretinal indentation remained for 3 months. The intraocular gas bubble was absorbed after 13 days, at which point a cryopexy-induced chorioretinal scar had already formed. The chronic subretinal fluid was gradually absorbed by the retinal pigment epithelium (RPE) pump. No postoperative complications or new retinal tears were noted.

At the 5-month follow-up, a small amount of residual subretinal fluid remained under the macula. However, the patient had a BCVA of 0.0 logMAR in the left eye and reported full functional recovery and satisfaction with his visual performance.

Scleral buckling reduces vitreous traction and limits vitreous fluid passage through retinal breaks, promoting retinal reattachment. Achieving this via the suprachoroidal space avoids several challenges associated with traditional episcleral buckling. This minimally invasive approach is particularly suitable for young patients with one or more retinal tears spanning more than one clock hour.

Abstract 173

MANAGEMENT OF SEVERELY VISUALLY IMPAIRING ECTOPIA LENTIS IN PRESCHOOL CHILDREN WITH RETROPUPILLARY IRIS-CLAW INTRAOCULAR LENS IMPLANTATION: A CASE SERIES

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To report visual outcomes and safety of retropupillary iris-claw intraocular lens (IOL) implantation in preschool-aged children affected by ectopia lentis.

This is a case series including 6 eyes of 3 children, who presented with bilateral, severely visually impairing ectopia lentis at the Hospital of Bolzano, Italy. Two patients were siblings and had Marfan syndrome. All eyes underwent phacoaspiration, lens capsule removal, anterior vitrectomy, retropupillary iris-claw intraocular lens (IOL) implantation, and peripheral superior iridectomy. The following data were collected: age at surgery, pre- and postoperative best-corrected visual acuity (BCVA) and corneal endothelial cell count (ECC).

The mean age at first surgery was 5,07 years (range: 4,7-5,3 years). Follow-up duration ranged from 3 months to 12 years. The second eye was operated on 4 to 8 weeks after the first procedure. The mean pre-operative BCVA was 0,90 LogMAR (range: 1,00-0,70 LogMAR), improving to a mean post-operative BCVA of 0,1 LogMAR (range: 0,30-0,00 LogMAR). Particular attention was devoted to ECC, which proved to be stable along the 12 years of follow-up.

Retropupillary iris-claw IOL implantation appears to be an effective and safe surgical option for managing bilateral ectopia lentis in preschool-aged children. Early surgical intervention might play a crucial role in achieving favourable long-term outcomes.

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Abstract 180

A NOVEL USE OF FINESSE FLEX LOOP FOR PROLIFERATIVE VITREORETINOPATHY

Erakgun T.*

Dr. ~ Izmir ~ Turkey

To describe a novel use of the flexible nitinol loop membrane scraper (Finesse Flex Loop; Alcon, Forth Worth, TX) for applying an effective endolaser photocoagulation in proliferative vitreoretinopathy (PVR) cases.

A 27- gauge nitinol flex loop was used to assist applying endolaser photocoagulation to enhance its effectiveness in three cases with proliferative vitreoretinopathy

Three patients underwent 25- gauge pars plana vitrectomy, preretinal membrane removal, peripheral retinectomy, the nitinol flex loop assisted endolaser photocoagulation, and silicone oil injection. After the silicone oil extraction, retina was attached and the visual acuity was improved in all cases.

The nitinol flex loop can be used to assist endolaser photocoagulation and enhance its effectiveness in PVR cases and reduce the retinal excision area which results unnecessary large retinal defects that may lead to redetachment of the retina.

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Abstract 181

INADVERTENT SUB-MACULAR TRIAMCINOLONE DURING PARS PLANA VITRECTOMY FOR EPIRETINAL MEMBRANE

Erakgun T.*

Dr. ~ Izmir ~ Turkey

To describe a case of inadvertent sub-macular triamcinolone acetonide (TA) deposition following a TA-assisted pars plana vitrectomy (PPV) for epiretinal membrane (ERM).

In this interventional case study, a 75-year-old female with ERM- induced visual distortion underwent TA-assisted 25-gauge three- port PPV, endolaser photocoagulation, and sulfur hexafluoride (SF6) gas tamponade to treat ERM in her left eye.

During the surgery, a large TA deposition was observed in the sub-macular area. After peeling the ERM and internal limiting membrane (ILM), TA suspension was not removed and left in place. Eight % of SF6 gas was used as an endotamponade at the end of the surgery. One month after PPV, the retina was flat, with neither significant vitreoretinal interface irregularities nor macular ultrastructural abnormalities. Vision improved from 0.40 to 0.3 logMAR, and there was no evidence of any ophthalmoscopic damage.

In this case of inadvertent sub-macular TA deposition, the ERM was eventually treated with no observable adverse effects.

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Abstract 182

PRINCIPLES OF VITREORETINAL SURGERY FOR GLOBE RUPTURE REPAIR

Erakgun T.*

Dr. ~ Izmir ~ Turkey

Globe ruptures represent a true ophthalmic emergency, often associated with significant structural damage to the eye and a high risk of permanent vision loss. Prompt diagnosis and surgical intervention are critical to preserving ocular integrity and visual function. Understanding the mechanisms, clinical presentation, and management strategies of globe ruptures is essential for healthcare providers involved in emergency and trauma care.

In this course, some tips and tricks will be given to improve anatomic and functional prognosis of the vitrectomy in globe ruptures.

Pars plana vitrectomy is commonly employed following initial globe wall repair, allowing for removal of hemorrhage, membrane dissection, retinal reattachment, and internal tamponade. In select cases, adjunctive procedures such as endolaser photocoagulation, perfluorocarbon liquid use, and silicone oil or gas tamponade are utilized. The timing of vitrectomy, typically delayed 7–14 days post-injury, balances the risk of proliferative vitreoretinopathy against the need for ocular stability.

Vitreoretinal surgery is a vital component in the staged management of globe rupture, addressing sight-threatening posterior segment complications and contributing significantly to visual rehabilitation. Successful outcomes rely on timely intervention, careful surgical planning, and the use of tailored techniques based on the extent and nature of the injury. With advances in microsurgical instrumentation and imaging, the prognosis for salvaging vision in eyes with severe trauma continues to improve.

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Abstract 188

BUCKLING THE ODDS: A NOVEL APPROACH TO RE-DETACHMENT UNDER SILICONE OIL IN A YOUNG PHAKIC EYE

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All India Institute of Medical Sciences ~ New Delhi ~ India

To present a unique surgical approach in a young phakic male with recurrent rhegmatogenous retinal detachment under silicone oil tamponade, emphasizing the role of tailored scleral buckling in select cases.

A 30-year-old male presented for a second opinion following a pars plana vitrectomy (PPV) with silicone oil tamponade in OS, performed elsewhere for an inferior rhegmatogenous retinal detachment with a large infero-temporal break. The primary surgical records lacked documentation of an encircling band which was confirmed on examination. The best corrected visual acuity was 6/6 in OD and 1/60 in OS. Fundus evaluation revealed macula-off redetachment with the original infero-temporal break found open under the silicone oil.

Given the patient's age and phakic status, a decision was made to proceed with scleral buckling using a 180° inferior segmental buckle combined with an encircling band. A standard peritomy was performed, and the inferotemporal break was localized with marking of its posterior edge. Intraoperatively, a single-25-gauge pars plana port was employed for passive silicone oil evacuation, allowing for controlled titration of intraocular pressure before closure. The port was sutured and peritomy closed uneventfully.

At post-operative month, visual acuity of the patient improved to 6/36 Snellen equivalents with attached retina and adequate silicone oil fill.

This case highlights a strategic and effective alternative in the management of inferior redetachments under oil, especially in young phakic patients. Scleral buckling with passive oil evacuation may serve as a viable technique, preserving the crystalline lens and avoiding repeat vitrectomy. This approach underscores the enduring relevance of buckling in the modern vitreo-retinal era, particularly when individualized to patient anatomy and surgical history.

Abstract 194

SURGICAL MANAGEMENT OF COMPLICATIONS OF RETINAL CAPILLARY HEMANGIOBLASTOMA

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Retinal capillary hemangioblastoma (RCH) is one of the most common intraocular vascular tumors, that can be complicated with sight-threatening complications including retinal exudates, tractional and/or exudative retinal detachment, vitreous hemorrhage etc. Despite recent advances, the optimal treatment strategy for this condition is still controversial due to the wide spectrum of clinical presentations. Choice of a treatment modality for RCH is influenced by the location, size of the tumor, and presence of any associated findings, including exudation and evidence of fibrovascular proliferation. The aim of this study is to evaluate the results of different surgical approaches for the treatment of various complicated presentations of retinal capillary hemangioblastoma (RCH).

The clinical records of RCH patients to which vitreoretinal surgery was performed in our clinic, were retrospectively analyzed. Demographic features, family histories, associated systemic findings, laterality and status of the fellow eyes were recorded. Surgical techniques and results of the treatments during follow up were evaluated.

11 eyes of 11 patients with a mean follow-up of 13 months (9-132mo) were included. Mean age of diagnosis of the ocular disease was 15 yrs, 7 of them were pediatric patients. 3 of them (27%) had family history, 8 cases (73%) had bilateral RCHs. 4 of the cases (36%) had various systemic hemangioblastomas detected; all of them were positive for bilateral ocular RCHs. All cases had one or more of complications of RCH including Tractional RD, Exudative RD and vitreous hemorrhage. 10 eyes (91%) underwent vitrectomy, 3 (30%) of which were combined with scleral buckle (SB), 1 (9%) had SB alone. Total surgical excision of the RCH with SiO tamponade was performed in 5 eyes (46%), while the remaining were treated more conservatively without tumor excision with air/gas tamponade. 8 (73%) of the eyes had anatomical success with attached retina on final visit and final mean visual acuity was 1.5 logMAR (0-4); 3 eyes ended up with phthisis bulbi; all of which were large RCHs with conservative surgery. The mean number of surgeries per eye in the tumor excision group (2.0) was statistically significantly lower than that in the conservative surgery group (3.0) (p=0.02).

Surgical excision of big solitary RCH associated with exudative and tractional RD seems to give better results than conservative surgeries without tumor excision.

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Abstract 199

ABCA4-ASSOCIATED RETINOPATHIES PHENOTYPES: GENETIC SPECTRUM AND GEOGRAPHIC DATABASE OF A LARGE LATIN AMERICA COHORT.

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AIMS/PURPOSES: ABCA4-associated retinopathies (ABCA4r) are a group of autosomal recessive retinal dystrophies caused by mutations in the ABCA4 gene. ABCA4r have phenotypic variability due to their high allelic heterogeneity. In this study we describe the clinical and genetic spectrum of a cohort of 220 Mexican probands with ABCA4r and the creation of a mutational map based on the birthplace of affected individuals.

METHODS: Molecular analyses were performed employing either exome sequencing, gene panel sequencing, and/or Sanger sequencing of the complete ABCA4 or ABCA4 sequencing guided by geographic origin. Segregation by sanger sequencing was performed in 109 relatives of index cases.

RESULTS: Molecular analysis was performed in a total of 329 individuals. ABCA4 Biallelic pathogenic variants were demonstrated in 220 non-related probands; An additional group of 109 relative individuals were sequenced demonstrating 30 cases with biallelic mutations. The most frequent clinical diagnosis was Stargardt Disease 88%, followed by cone dystrophy 4%, retinitis pigmentosa 2%, macular dystrophy 2% and cone-rod dystrophy 2%. One hundred and thirty-two different pathogenic variants were identified, 24 of them not previously published. The ABCA4 mutational spectrum in 220 index cases included 458 pathogenic variants with 132 different mutations. The ABCA4 exons most frequently affected by mutations were exons 38 and 35. The most common type of pathogenic variant was single nucleotide substitution (91%) and the most frequent protein effect was missense mutations (83%).

CONCLUSIONS: We demonstrated an extensive mutational ABCA4 spectrum in Mexican ABCA4r patients and identified founder effects for at least two ABCA4 variants (c.5318C>T and c.4854G>C). Indicators of another founder effect need further analysis. This is the largest ABCA4r cohort analyzed in Latin America and our results contribute to characterize the mutational profile of the disease.

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Abstract 203

REAL-WORLD EXPERIENCE WITH FARICIMAB IN NEOVASCULAR AMD AND DIABETIC MACULAR EDEMA: A 4-MONTH RETROSPECTIVE STUDY FROM QATAR

Almuhtaseb H.*

The View Hospital in affiliation with Cedars Sinai ~ Doha ~ Qatar

To evaluate the short-term efficacy, safety, and treatment burden of Faricimab, a bispecific antibody targeting VEGF-A and Ang-2, in patients with nAMD and DME in a Qatari cohort.

A prospective, single-center study of 50 eyes (30 nAMD, 20 DME) treated with intravitreal Faricimab between. Patients received a loading dose (4 injections at 4-week intervals) followed by individualized treat-and-extend protocols. Outcome measures included:

Visual acuity (VA) (ETDRS letters or Snellen converted).

Central subfield thickness (CST) on OCT.

Injection frequency and treatment intervals.

Adverse events (intraocular pressure, inflammation, systemic effects).

At 4 months:

VA improvement: Mean gain of +8.2 letters in nAMD (baseline: 54.5) and +10.1 letters in DME (baseline: 48.3).

Anatomical response: CST reduced by 152 µm (nAMD) and 189 µm (DME) ($p < 0.01$).

Treatment interval: 75% (nAMD) and 80% (DME) achieved ≥ 6 -week dosing by Month 4.

Safety: No intraocular inflammation, sustained IOP spikes, or systemic adverse events.

In this Qatari cohort, Faricimab demonstrated rapid anatomical stabilization and significant functional gains in both nAMD and DME, with a favorable safety profile. Extended treatment intervals (> 6 weeks) were achievable in most patients within 4 months, suggesting reduced treatment burden compared to traditional anti-VEGF therapies. These real-world data align with global trials and support Faricimab's role as a promising first-line option for retinal vascular diseases in diverse populations.

Abstract 205

MANAGEMENT OF OCULAR TRAUMA IN WAR VICTIMS: A SECOND CASE SERIES FROM THE VIEW HOSPITAL

Almuhtaseb H.*

The View Hospital in affiliation with Cedars Sinai ~ Doha ~ Qatar

This abstract presents an overview of multiple cases of ocular trauma referred to The View Hospital, involving victims of the ongoing conflict in the Middle East. The cases encompass a spectrum of severe ocular injuries, including traumatic cataracts, complex retinal detachments, and the presence of intraocular and intracranial foreign bodies. The traumatic events also resulted in vitreous and suprachoroidal hemorrhages, as well as chronic ruptured globes.

A multidisciplinary approach was essential in managing these complex cases, involving ophthalmologists, neurosurgeons, and specialists in trauma care.

The management strategies employed included surgical intervention for the removal of foreign bodies, repair of ruptured globes, and techniques to address retinal detachments and hemorrhages. Postsurgical care focused on minimizing infection, promoting healing, and restoring as much vision as possible in addition to anterior segment reconstruction.

This compilation highlights not only the severity and complexity of warrelated ocular injuries but also underscores the importance of comprehensive and coordinated care in managing such cases. The outcomes emphasize the potential for recovery even in severely injured eyes through prompt and meticulous medical interventions.

Abstract 207

BEYOND SYMPTOMS: MULTIMODAL ULTRA-WIDEFIELD IMAGING IN A DIABETIC PATIENT

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Multimodal imaging plays a well-established role in diagnosing retinal diseases and may also reveal clues to systemic conditions. Here we report a case of an asymptomatic diabetic patient with an unexpected retinal vascular finding.

Case report.

A 43-year-old asymptomatic man with type 2 diabetes mellitus (DM) presented to our retina clinic for diabetic retinopathy (DR) monitoring. He had been diagnosed with DM II three years ago, following an episode of acute pancreatitis. The baseline screening for DR was unremarkable except for a cotton-wool spot in the left eye. The patient lost follow-up for three years.

At presentation, his visual acuity was 20/20 in both eyes (OU), and the anterior chamber examination was unremarkable, with normal intraocular pressure (IOP) in both eyes. The Ultra-wide field (UWF) color fundus photography (CFP, Optos plc) showed diffuse creamy-white vessels consistent with lipemia retinalis, along with a few microaneurysms (MAs) suggestive of mild non-proliferative diabetic retinopathy (NPDR) (Fig.1). The optical coherence tomography (SD-OCT) (Heidelberg HRA+OCT) revealed a normal foveal profile with no evidence of edema. Numerous inner hyper-reflective point-like dots of variable caliber were noticed in the B-scan sections, corresponding to the blood vessel (Fig.2). A 21x26 mm UWF-swept-source (SS)-OCT (Dream OCT- Intalight) coherently displayed the widespread inner hyper-reflective findings extending to the periphery. Meanwhile, the 130°-UWF- OCT angiography (OCT-A) showed no microvascular changes or ischemic areas. Additionally, the UWF-fluorescein angiography (FA) revealed no abnormalities, except for slightly delayed venous filling and a few MAs consistent with mild NPDR. The patient was urgently referred to his primary care physician for evaluation and blood work.

Lipemia retinalis (LR) is a rare ocular condition associated with potentially lethal metabolic condition, but it is frequently missed. We report the use of UWF multimodal imaging for identifying LR, even in asymptomatic patients, thereby enabling timely intervention for this serious yet treatable condition.

Abstract 211

Generative AI in Medical and Surgical Retina: Revolution or Risk

Almuhtaseb H.*

The View Hospital in affiliation with Cedars Sinai ~ Doha ~ Qatar

Generative AI is rapidly emerging as a transformative force in retina care, offering unprecedented opportunities for diagnostic and therapeutic innovation.

This talk will dissect the dual-edged nature of this technology, exploring its potential to revolutionize the field while critically examining the inherent risks.

I will showcase cutting-edge applications, such as the use of Generative Adversarial Networks (GANs) for synthetic retinal image generation, which can enhance diagnostic accuracy for conditions like diabetic retinopathy and macular degeneration.

These advancements promise to democratize access to specialized care and even enable the prediction of systemic diseases from retinal scans. However, this progress is shadowed by significant challenges.

The talk will address the critical issue of algorithmic bias, which can perpetuate health disparities, and the “black box” problem that clouds accountability in clinical decision-making. I will also navigate the complex ethical landscape of data privacy, security, and the potential for misuse of synthetic medical data.

By providing a balanced analysis of the opportunities and obstacles, this session will foster a vital discussion on the responsible development and deployment of generative AI in ophthalmology, ensuring its revolutionary potential is harnessed to improve patient outcomes while mitigating the associated risks.

Abstract 222

INCIDENCE, RISK FACTORS AND OUTCOMES OF RHEGMATOGENOUS RETINAL DETACHMENTS REPAIR IN MARFAN SYNDROME

Badawi A.*

KKESH ~ Riyadh ~ Saudi Arabia

Marfan syndrome is an inherited disease which is commonly autosomal dominant and associated with abnormal variants in fibrillin-1 (FBN1) gene or less commonly in tumor growth factor-beta receptor 2 (TGFBR2). FBN1, which is coded on chromosome 15 in the q21.1 locus is an integral component of the extracellular myofibrils.^{1,2}

Ocular manifestations of Marfan syndrome include malpositioning of the crystalline lens (ectopia lentis), rhegmatogenous retinal detachment (RRD), glaucoma, myopia, and corneal abnormalities. However, ectopia lentis and RRD are common in Marfan syndrome patients and often require surgical management.^{3,4}

The prevalence of retinal detachment in Marfan syndrome varies across studies, with reported rates ranging from 4% to 54%.⁴⁻⁶ Abnormal lens position, progressive myopia and vitreous liquefaction play roles in the predisposition of Marfan syndrome patients to RRD.^{2,6} Surgical treatment outcomes for RRD in Marfan syndrome patients are variable and might be affected by several factors. It was suggested that the outcomes of RRD repairs are anatomically and functionally favorable.⁴ However, with the advances in pediatric lens removal surgeries and secondary intraocular lens implantations, the pathogenesis and results of RRD repair might be influenced by the lens status.⁷

In this study we aim to analyze the incidence, risk factors and outcome of retinal detachment in Marfan's patient from several perspectives and to determine the long-term anatomical and visual outcomes, taking into consideration the different factors which might play a role in the determination of outcomes.

Retrospective chart review including lens status, previous surgeries, details of intraoperative retinal findings and follow up outcomes. (mean \pm SD) years.

163 eyes of 82 patients with Marfan syndrome were included. Among 82 patients with Marfan syndrome, 43 (52.4%) were males and 39 (47.9%) were females. The average age of patients was 30.55 ± 14.6 years. The average duration of follow ups was 15.3 ± 13.4 years. 54 eyes (33.1%) of 45 patients had RRD. Bilateral RRD was found in 9 patients (20%). The average age at the development of RRD was 25.2 ± 12.5 years. There was significantly higher risk of RRD among patients who had prior trauma ($P=0.014$), Previous ocular surgery ($P=0.001$), lensectomy without implantation of an intraocular lens ($P=0.002$) aphakia ($P < 0.001$), lens subluxation ($P=0.002$) and higher Axial Length ($P < 0.001$). For the 25 eyes which had prior ocular surgeries, the average duration between the first surgery and RD was 8.4 ± 6.9 years. Successful reattachment was achieved in 36 eyes (69.2%) while 16 eyes (30.8%) had recurrence of retinal detachment after 37.5 ± 41.1 months (3 years) and were successfully reattached with second repairs. There was a statistically significant improvement in final VA of eyes with RRD (1.3 ± 1.0 snellen = 20/400), ($P 0.001$).

Eyes with Marfan Syndrome have a 33.1% risk of developing RRD upon long-term follow ups. Prior trauma, intraocular surgeries, aphakic status and high axial length are associated with higher risk. Anatomical outcomes are favorable in eyes without PVR.

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FULL THICKNESS MACULAR HOLE

Abstract 223

AUTOLOGOUS RETINAL GRAFT FOR TREATMENT OF REFRACTORY MACULAR HOLE WITH RETINAL DETACHMENT

Badawi A.*

KKESH ~ RIYADH ~ Saudi Arabia

Refractory macular hole is a challenging case, especially if associated with Retinal detachment due to the large macular hole, in this video we discuss and show the technique of autologous retinal graft to address this issue

surgical case video showing the technique, and pre op and post op photo and oct for the patient that has refractor large macular hole with retinal detachment due to the macular hole

complete closure of the hole with improvement in both anatomical and functional vision

AUTOLOGOUS RETINAL GRAFT IS A GREAT TECHNIQUE TO ADRESS REFRACTORY MACULAR HOLE ESPECIALLY IS ASSOCIATED WITH RETINAL DETACHMENT DUE TO THE MACULAR HOLE, IT SHOWED GREAT ANATOMICAL AND FUNCTIONAL IMPROVEMENT WITH LESS NUMBER OF SURGICAL INTERVENTION COMPARED TO OTHER TECHNIQUES

Abstract 226

IS THERE A SAFE GLYCEMIC THRESHOLD FOR RETINA SURGERY?

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Pars plana vitrectomy (PPV) is a standard procedure for restoring vision in patients with vitreoretinal disorders, including diabetics. Diabetes is an identifiable risk factor for endophthalmitis and stroke. However, the impact of HbA1 on the short-term risk of these adverse events post-PPV surgery remains unclear, with no to little evidence available.

To assess the safety of PPV across a spectrum of glycemic control, focusing on postoperative endophthalmitis and 30-/60-day major systemic adverse events (SAEs). We analyzed a large, multicenter dataset comparing diabetic and non-diabetic patients undergoing PPV. Patients were stratified by preoperative HbA1c levels into good (0–6.99%), poor (7–8.99%), and very poor ($\geq 9\%$) glycemic control categories. We performed propensity score matching for demographics, systemic comorbidities including chronic kidney disease and heart failure, as well as ocular comorbidities. Postoperative endophthalmitis incidence and odds ratios (ORs) were compared between diabetic and non-diabetic patients within each stratum. Additionally, hazard ratios (HRs) were calculated for 30- and 60-day major SAEs, including mortality, stroke/transient ischemic attack (TIA), myocardial cardiac events (MCEs), hospitalizations, and a composite outcome, using matched outpatient-visit controls.

Endophthalmitis occurred at similar rates in all groups. In non-diabetic controls, incidence was consistently 0.119%. In diabetic patients, endophthalmitis rates were: good control (HbA1c 0–6.99%): 0.229%, OR 1.57 (95% CI: 0.52–4.81), poor control (HbA1c 7–8.99%): 0.275%, OR 3.53 (0.99–12.67) and very poor control (HbA1c $\geq 9\%$): $\leq 0.312\%$, OR 1.92 (0.17–21.12). Major SAEs were also not very different between diabetic patients who had PPV compared to outpatient-visit across all HbA1c strata.

Vitrectomy is associated with similar rates of both postoperative endophthalmitis and serious systemic complications across all levels of preoperative glycemic control. These findings support not cancelling scheduled PPV in patients with poorly controlled diabetes.

Abstract 230

REMOVING EPICILIARY MEMBRANES TO PREVENT PHTHISIS

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Hypotony following retinal detachment repair may be addressed with prompt surgical intervention. For years various nonsurgical and surgical procedures have been proposed to address this problem. However, visual and anatomical outcomes have historically been poor. We hypothesize that earlier detection with improved diagnostics (ie, ultrasound biomicroscopy), use of intraoperative 3D visualization, and bimanual dissection of epiciliary proliferative tissue (which is often the root cause of hypotony after RD surgical repair) has the potential to salvage eyes that are otherwise destined to become phthisical. Epiciliary membrane is an unspecified term describing proliferative tissue formation that usually occurs after multiple attempts at RD repair in the setting of proliferative vitreoretinopathy (PVR).

Prompt detection and surgical intervention is crucial to restore aqueous production and increase IOP to potentially revive a percentage of affected eyes. The goals of surgery include: 1) releasing traction on the ciliary body, freeing the ciliary processes from compartmentalization to restore aqueous production 2) freeing the ciliary processes from fibrous tissues that leads to their irreversible functional damage, and 3) lysing the iris-ciliary processes synechiae, which further compromise aqueous production.

This surgical approach, according to our data, results in a 3- to 5-mmHg increase in IOP, which can suffice to raise IOP to higher than 8 mm Hg for approximately one-third of eyes. Another one-third remain hypotonous with IOP between 3 mm Hg and 5 mm Hg, which can still prolong the eye's viability and volume with some ambulatory vision. The remaining one third will likely progress to phthisis, despite intervention.

Today's improved capabilities of early detection, 3D Intraoperative visualization, and improved instrumentation/surgical techniques make epiciliary membrane removal worth undertaking to attempt to preserve visual and anatomical function.

Abstract 234

EFFECT OF THE USE OF TRANEXAMIC ACID IN PATIENTS WITH PROLIFERATIVE DIABETIC RETINOPATHY UNDERGOING PARS PLANA VITRECTOMY.

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Intraoperative hemorrhage is a common complication in patients with proliferative diabetic retinopathy (PDR) undergoing pars plana vitrectomy (PPV). The aim of this presentation is to show the efficacy and safety of Tranexamic Acid (TA) in reducing bleeding during and after PPV in PDR patients.

Prospective and descriptive study of 30 eyes with PDR of 30 patients who were administered intravenous TA 30 minutes prior to PPV, from January-October 2024 at the Retina and Vitreous Department of CHC ISSSTE Monterrey, Mexico.

A low incidence of intraoperative bleeding and a low number of intraoperative complications were observed. Most surgeries were completed without incident. Regarding postoperative bleeding, there were no cases of bleeding at 24 hours, 72 hours, or one week after surgery. As for postoperative complications, only one patient developed central retinal vein occlusion one week after surgery.

The use of TA is a safe and effective option to decrease bleeding during and after PPV in patients with PDR.

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Abstract 235

RETINAL DETACHMENT FAILURE, SURGEON OUTCOMES

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To Evaluate the incidence and predictors of primary rhegmatogenous retinal detachment (RD) revision among Medicare beneficiaries in the USA.

Design: Retrospective, multicenter, cohort study utilizing the complete Medicare outpatient claims dataset from 2014 to 2023

Subjects, Participants, and/or Controls: Adult patients undergoing RD repair using scleral buckle and/or vitrectomy, identified using Current Procedural Terminology (CPT) codes. We only included primary rhegmatogenous RD using International Classification of Diseases (ICD)-10 codes. We excluded patients with secondary RD, such as chorioretinal tumors or tractional detachments.

Methods, Intervention, or Testing: We extracted patient demographics and information pertaining to the RD (using ICD-10 modifiers) and surgical repair (using CPT codes). RD was divided into single break, multiple breaks, giant retinal tear (GRT), dialysis, or total RD. The surgical approach was categorized as buckle, vitrectomy +/- buckle, and complex vitrectomy +/- buckle. Surgeon-level factors included the surgeon volume of RD in the dataset, surgeon graduation year, practice volume, and setting (teaching vs non-teaching and urban vs rural). Surgeon volume was categorized as: 10-25 surgeries, 26-50 surgeries, and > 50 surgeries.

Main Outcome Measures: RD revision is defined as repeat surgery or pneumatic retinopexy in the same eye within 2 years.

Overall, 25,456 surgeries were included in the analysis. The average patient age was 70.4 ± 8.3 and 9,105 (35.8%) were female. Revision was needed in 3,649 (14.3%). The median time to RD revision was 73 days. The main significant predictors of RD revision were GRT (RR = 1.39; 95% CI = 1.13 – 1.72), total RD (RR = 1.30; 95% CI = 1.15 – 1.47), and complex vitrectomy +/- buckle (RR = 1.29; 95% CI = 1.09 – 1.53). Surgeon volume and practice volume categories were not significantly associated with RD revision.

Conclusions: RD revision was needed in 14.3% of primary rhegmatogenous RD repairs. The main factors associated with increased risk of RD revision were the need for complex vitrectomy, GRT and total RD. Surgeon and practice volumes were not significant predictors, highlighting the standardized and adequate training of retina surgeons in the United States, at least in managing primary rhegmatogenous detachments.

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Abstract 239

FAMILIAL EXUDATIVE VITREORETINOPATHY: PREDISPOSING FACTORS FOR PROGRESSION

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Familial exudative vitreoretinopathy (FEVR) is characterized by incomplete peripheral retinal vascularization due to defects in retinal angiogenesis, leading to peripheral ischemia and subsequent complications such as neovascularization and tractional retinal detachment. While milder forms may remain asymptomatic and exhibit findings such as peripheral retinal avascularity, increased vascular tortuosity, or venous–venous anastomoses, advanced stages are characterized by more severe manifestations, including retinal folds and retinal detachment (1-5). Prophylactic laser photocoagulation (LFC) is commonly employed in early stages (1–2), and vitrectomy (VRC) is often necessary in advanced stages (3–5); unlike retinopathy of prematurity (ROP), which follows a more predictable course, FEVR exhibits a progressive nature that can evolve over months or years, regardless of initial treatment (2,6). Although the concept of progression in FEVR has been recognized since the disease was first described, a clear, standardized definition is lacking. In most studies, progression is defined as worsening of disease stage or increased extent of retinal detachment (1,2,6,7). Due to its rarity, comprehensive studies identifying predictive risk factors for disease progression remain scarce. The aim of this study is to longitudinally evaluate treated FEVR patients to identify clinical or demographic features that may predict long-term progression.

We retrospectively reviewed the charts of all consecutive patients diagnosed with FEVR who had at least 3 years of follow-up between 2004 and 2022. Progression was defined as: (1) worsening of the disease stage, (2) increase in vitreoretinal traction, or (3) increase in exudation. Comparisons of baseline features between groups with and without progression were performed to determine features associated with higher risk.

A total of 191 eyes from 120 patients met the inclusion criteria. Of the 191 eyes, 40 (21%) showed progression after treatment, with a mean follow-up of 78.8 months (range: 36–240 months). Of the exam findings studied, the presence of telangiectatic vascular network and stage B were found to be associated with the development of progression in multivariable analysis.

FEVR patients with telangiectatic vascular network and exudates are more prone to progression and should be followed closely and treated more aggressively.

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Abstract 243

PRESUMED STERILE CLUSTER ENDOPHTHALMITIS POST-INTRAVITREAL TRIAMCINOLONE: A RARE CASE SERIES

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Intravitreal triamcinolone acetonide is widely used in managing various retinal pathologies due to its potent anti-inflammatory properties. However, sterile endophthalmitis, though uncommon, remains a notable adverse effect, especially when occurring in clusters. This case series highlights a rare presentation of presumed sterile cluster endophthalmitis following intravitreal triamcinolone injections. Aim- To report a rare cluster of presumed sterile endophthalmitis following intravitreal triamcinolone acetonide injection in patients with chronic diabetic macular edema (DME) and to describe the therapeutic approach and visual outcomes.

Methods:

Study Design: Observational case series.

Setting: Single operating theater setup.

8 patients received intravitreal anti-VEGF (Ranibizumab).

3 patients received intravitreal anti-VEGF (Ranibizumab) + Triamcinolone acetonide (Kenacort, 4 mg in 0.1 ml).

All 3 patients who received combined intravitreal Ranibizumab and Triamcinolone presented with acute-onset symptoms of endophthalmitis within 5–24 hours post-injection. None of the 8 patients who received anti-VEGF monotherapy developed any complications.

Case 1:

Onset: 5 hours post-injection

Vision: HM

IOP: 16 mmHg

Signs: Lid edema, severe conjunctival congestion, corneal edema, epithelial defect, AC cells 2+, flare 3+, vitritis grade 4

Treatment: Vitreous tap, core vitrectomy, intravitreal vancomycin, ceftazidime, dexamethasone

Final VA 6/12

Case 2:

Onset: 7 hours

Vision: HM

IOP: 13 mmHg

Signs: Lid edema, corneal edema, epithelial defect, AC cells 2+, flare 3+, vitritis grade 4

Treatment: Same as Case 1

Outcome: Final VA 6/9

Case 3:

Onset: 24 hours

Vision: PL+

IOP: 19 mmHg

Signs: Lid edema, corneal edema, AC cells 2+, flare 2+, vitritis grade 4

Follow-up: Lost to follow-up

Cultures of vitreous samples ,same vials of Triamcinolone and Ranibizumab used- No growth

- 1.Early presentation with prompt intervention and regular follow up are the major markers of visual outcome in sterile endophthalmitis.
- 2.Early vitrectomy is associated with better visual outcomes.
- 3.The visual prognosis is good and the final visual outcome is mostly dependent on the underlying disease.

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Abstract 245

PEELING THE FORCEPS!

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Instrument breakage during vitreoretinal surgery is an uncommon but potentially serious complication that can jeopardize ocular structures and surgical outcomes. Macular peeling for epiretinal membrane (ERM) removal requires precision and intact instruments to minimize risks. We present a rare case of intraoperative breakage of two forceps tips during membrane peeling and introduce a novel L-shape sclerotomy technique for their safe extraction.

A 68-year-old female patient underwent 25-gauge pars plana vitrectomy for ERM peeling. During surgery, two forceps tips fractured within the vitreous cavity. To retrieve the fragments while minimizing trauma, an L-shape sclerotomy was created by modifying one of the existing vitrectomy ports. This approach enabled controlled enlargement of the sclerotomy, allowing safe removal of each tip using intraocular forceps. The procedure was completed without additional complications, followed by routine postoperative management.

Both fractured forceps tips were successfully extracted via the L-shape sclerotomy without intraoperative complications such as retinal tears or hemorrhage. The sclerotomy site remained secure, with no wound leakage or hypotony observed during follow-up. At six months postoperatively, the patient's best-corrected visual acuity improved to 20/30, with no evidence of inflammation or other adverse sequelae.

The L-shape sclerotomy technique is a safe and effective technique for removing intraocular foreign bodies, such as broken instrument fragments, during vitreoretinal surgery. This method minimizes surgical trauma and preserves ocular integrity, offering a valuable solution for managing rare but challenging intraoperative complications.

Abstract 247

TOO BIG TO FAIL? PROBABILITY OF SUCCESSFUL MACULAR HOLE CLOSURE BY SUBRETINAL HYDRODISSECTION

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A variety of novel surgical techniques have been described to close persisting macular holes (MH). Subretinal hydrodissection has gained increasing interest to close large and persisting macular holes. The goal of this study was to evaluate the success rate and upper limit to close large macular holes.

In a retrospective interventional case series, we applied this grading system to 152 persisting MH, who have been treated by 44 international surgeons with macular hydrodissection and a minimum follow-up of 9 months. We identified 119 primary MH and 33 secondary MH. We compared the closure rates according to the CLOSE study group introduced in 2023 a novel grading system: small MH <250 um, medium MH 251-400um, Large MH 401-550um, XLarge MH 551-800um, XXLarge MH801-1000 um and giant MH >1000 um.

The closure rate for all eyes (n=152) was 83.3% separated in 89.9% in primary MH (n=119) and 60% in secondary MH (n=33). To identify the “best gainers” of this technique, we divided the 119 primary MH according to the CLOSE study and calculated the following closure rate: Small MH (n=13) 13 closed /0 open = 100%, medium MH (n=15) 14/1 93%, Large MH (n=24) 20/4 83.3%, XLarge MH (n=46) 44/2 95.6%, XX large MH (n=16) 15/1 93.7% and giant MH (n=5) 1/4 20%. Successful anatomical closure correlated with a good final visual acuity on logMAR: small MH 0.6 (SD 0.12), medium MH 0.65 (SD 0.25), large MH 0.64 (SD 0.32), XLarge MH 0.57 (SD 0.37), XXLarge MH 0.65 (SD 0.32). Primary MH above 1000 um presented low anatomical closure rate (20%) and poor functional outcome 1.0 (SD 0.25).

For macular hydrodissection, there seems to be an upper limit to release enough retinal tissue to cover the entire MH. This fact may become important in larger MHs, as its area size increases exponentially with the corresponding radius e.g.: While a XXlarge MH with 800 um diameter covers an area of 0.5 mm², it doubles in a 1200 um giant MH to 1.1mm². Our global perspective showed comparable functional and anatomical results for small, medium and all large persisting MH up to 1000 um diameter with a high anatomical closure rate of 93% and good final visual acuity. While giant MH with >1000 um diameter correspond to a critical size of >0.78 mm², this may be too large to achieve a reliable closure in persisting MH. Most vitreoretinal surgeons are familiar with subretinal fluid application. Macular hydrodissection is therefore a promising tool as a rescue technique when, after previous unsuccessful attempts, there is no ILM left for an ILM patching approach.

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Abstract 249

APHAKIA CORRECTION BY SUTURELESS SCLERAL FIXATION: MODIFIED YAMANE TECHNIQUE VERSUS CARLEVALE IMPLANTATION

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Sutureless scleral fixation is a technique for correcting aphakia in cases of absent or insufficient capsular support. Our aim was to report on the functional and anatomical results as well as complications of sutureless scleral fixation using two different techniques.

A prospective observational study was carried out in the ophthalmology department of the Mohamed Taher Maamouri Hospital in Nabeul. Eyes operated on by sutureless scleral fixation using the Yamane technique (group 1) or the scleral pocket technique using the Carlevale implant (group 2) were included. These patients underwent surgery between November 2020 and November 2023. Postoperative follow-up lasted 6 months.

Thirty-eight eyes from 36 patients were included in our study. The eyes were divided into two groups (20 eyes in group 1 and 18 eyes in group 2). The median age was 64.5 [52-78]. Aphakia following complicated cataract surgery was the main etiology. At 6 months postoperatively, a significant improvement in best corrected visual acuity (BCVA) was noted in both groups ($p<10.3$). The mean tilt was 3.47 ± 2.11 . The mean total endothelial cell loss was 360.9 ± 199.7 cell/mm². Postoperative hypertonia, implant decentration and Irvine Gass syndrome were the most frequent complications. We found no significant difference in terms of postoperative BCVA, tilt and endothelial loss between the two groups. Irvine Gass syndrome was more frequent in group 2 ($p = 0.045$). Implant decentration was found exclusively in group 1 ($p = 0.005$).

Sutureless scleral fixation offers a significant improvement in visual acuity, with satisfactory stability of the implants. We found no significant differences between the two techniques in terms of functional and anatomical results. A statistically significant difference was found in postoperative complications. Prospective studies with longer follow-up periods will enable us to compare these two techniques more profoundly.

Abstract 250

RHEGMATOGENOUS RETINAL DETACHMENT WITH SECONDARY MACULAR HOLE

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A 52-year-old female presented with sudden onset, painless diminution of vision in left eye for 6 days associated with floaters. There was no history of spectacle use. There was no history of trauma. She did not have any systemic illness. She had undergone cataract surgery in the left eye three years back. Vision in her left eye was HMCF PR accurate and an IOP of 11. Right eye had early IMSC with a vision of 6/9.

On anterior segment examination, her left eye had a posterior chamber IOL with an intact posterior capsule. On posterior segment examination of the left eye, there was a total rhegmatogenous retinal detachment with multiple horse-shoe tears with a full thickness macular hole. The right eye fundus was normal.

Left eye 25G vitreo-retinal surgery with endolaser with silicone oil infusion with internal limiting membrane peeling with free flap was done.

One one week follow up, retina was attached under oil and her macular hole had anatomical closure. She gained an uncorrected vision of 3/60 in the right eye and an IOP of 13. Refraction with spectacle correction was advised.

Abstract 251

CHOROIDAL NEOVASCULAR MEMBRANES IN VITELLIIFORM MACULOPATHIES: A DIAGNOSTIC AND THERAPEUTIC CHALLENGE

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The objectives of this study are to characterize the presentation of macular choroidal neovascularization (CNV) in patients with vitelliform maculopathies and to highlight the importance of multimodal imaging techniques—particularly optical coherence tomography angiography (OCTA)—for accurate detection and monitoring of these lesions. Additionally, the study aims to evaluate the effectiveness of intravitreal anti-VEGF therapy in treating CNV associated with vitelliform maculopathies, based on data from two tertiary ophthalmology centers.

This retrospective, longitudinal, descriptive study reviewed electronic medical records of patients diagnosed with vitelliform maculopathy between January 2014 and December 2024 at the retina departments of “Hospital de la Luz” and the ocular genetics unit of “Casey Eye Institute.” Inclusion criteria encompassed patients with genetically confirmed vitelliform maculopathy who had a minimum follow-up of six months and underwent spectral-domain OCT and OCTA imaging. Exclusion criteria included poor-quality imaging studies, inactive CNV membranes not requiring treatment, and the presence of other ocular comorbidities associated with neovascular membranes, such as high myopia, inflammatory diseases, or ocular trauma.

The study included 14 eyes from 10 patients with active CNV membranes. All were treated with intravitreal anti-VEGF agents; afibercept was administered in 10 eyes (71%), and bevacizumab in 4 eyes (29%). The mean age at treatment initiation was 19 years (range: 5–57 years). The four patients requiring bilateral treatment were the youngest in the cohort, with ages between 5 and 12 years. Best-corrected visual acuity (BCVA) at presentation ranged from 20/30 to 20/80 (mean: 0.47 ± 0.05 logMAR, approximately 20/60). Post-treatment, all strategies demonstrated a trend toward visual improvement at one month (mean: 0.37 ± 0.05 logMAR, approximately 20/50, $p=0.32$) and three months (mean: 0.32 ± 0.07 logMAR, approximately 20/40, $p=0.13$). A significant improvement was observed at one year, with visual acuity reaching approximately 20/25 to 20/30 (mean: 0.15 ± 0.01 logMAR, $p=0.0002$). Treatment regimens varied from a single injection to continuous injections at different intervals. The two eyes with the longest follow-up (20 and 36 months post-treatment cessation) maintained stable improvements.

Choroidal neovascularization is a recognized complication of vitelliform maculopathies, with recent studies reporting an incidence of approximately 36%. The natural history of vitelliform maculopathies often involves variable accumulation of subretinal vitelliform material and subretinal fluid, which can hinder timely detection and management of CNV. OCTA emerges as a valuable tool for both diagnosis and assessment of treatment response. Our findings underscore the benefit of anti-VEGF therapy in managing CNV within this context, achieving visual improvement in all treated patients over long-term follow-up.

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Abstract 253

USE OF HEAVY SILICONE OIL AS MID TERM TAMPOONADE IN RETINAL DETACHMENT SURGERY: EFFICACY AND SAFETY

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Is it safe and efficient to use Heavy Silicone Oil as a mid term tamponade in Retinal Detachment surgery? Purpose of our study is to evaluate the efficacy, safety and feasibility of a mixed 25/23 G technique for Heavy Silicone Oil tamponade in patients who underwent vitrectomy for inferior or complicated retinal detachment.

Retrospective uncontrolled consecutive case series of 20 eyes of 20 patients who underwent a 25 gauge transconjunctival sutureless pars plana vitrectomy for inferior or complicated retinal detachment and were tamponated with heavy silicone oil.

After 3 months the patients were retreated to remove the heavy silicone oil using a mixed sutureless 25/23 gauge technique.

In all cases a twin-light chandelier and an illuminated transcleral depressor were used.

All the patients were successfully treated with mixed 25/23 gauge technique for Heavy Silicone Oil removal with an average time of 22 minutes. Sclerotomies needed no sutures at the end of the surgery.

No adverse effects like ocular hypertension or re-detachments were observed.

The mixed 25/23 gauge technique showed a high safety profile allowing fast Heavy Silicone Oil removal and sutureless sclerotomies.

Abstract 254

THE ENVIRONMENTAL IMPACT OF GASES IN VITREORETINAL SURGERY - A SCOTTISH SURVEY AND FUTURE PLANS TO REDUCE GLOBAL WARMING POTENTIAL

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As in all walks of life there has been an increasing focus on the environmental impact of activity. This includes medical practice. The fluorinated gases used in vitreoretinal (VR) surgery as a tamponade agent have a unique character of having an excessive Global Warming Potential (GWP). We surveyed the use of these gases in Scottish VR practice and produce results here, as well as variation in protocol to mitigate the GWP of these greenhouse gases.

Survey of annual use VR surgical gases in Scotland with variation in protocols and their impact on GWP.

In the year 2024 - 6.34 tonnes of CO₂ equivalent was produced in Scotland through the use of VR gases.

Of the 3100 mls of gas ordered, 2480 mls was discarded.

Of the 6 VR units in Scotland one exclusively used C2F6 (which is half as potent as Sf6 in GWP). Another unit used multi dose canisters, saving any gas from being discarded.

Combining these two measures across all units in Scotland would potentially lead to a saving of 5.6 tonnes of CO₂ annually in addition to a saving of £14,000 (EURO 16000).

We need to be aware of the global warming potential of the gases we use in VR surgery. Changing practice to use C2F6 (or air) as well as using multi dose canisters exclusively will lead to sizeable savings in CO₂ emissions and cost.

The use of fluorinated gases and quantification of carbon emission for common vitreoretinal procedures.

Moussa G et al.

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Abstract 258

CHOROIDAL THICKNESS ASSOCIATED WITH PERSISTENT SUBRETINAL FLUID AFTER SURGERY FOR RHEGMATOGENOUS RETINAL DETACHMENT

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Persistence of subretinal fluid (PSF) is a common side effect after retinal detachment repair. According to most studies, the frequency of PSF depends not only on the surgical technique employed but also on conditions such as macular involvement (macula-off RRD) and long-standing retinal detachment. It is hypothesized that PSF may have downstream implications for visual acuity by causing a slow degradation and disruption of the photoreceptors.

Classical theories regarding PSF after RRD surgery include choroidal ischemia, incomplete intraoperative drainage of subretinal fluid (SF), the high viscosity of SF hindering absorption by the retinal pigment epithelium (RPE), and RPE dysfunction. Recently, a new theory has emerged suggesting that PSF may be associated with the pachychoroid spectrum. We propose to evaluate the association between persistent subretinal fluid (PSF) and subfoveal choroidal thickness (SCT) in patients undergoing surgical repair for rhegmatogenous retinal detachment (RRD) using different techniques.

This prospective, observational study included 56 patients who underwent pneumatic retinopexy (PR), scleral buckling (SB), pars plana vitrectomy (PPV), or combined SB+PPV. SCT and best-corrected visual acuity (BCVA) were measured using enhanced depth imaging OCT at baseline and at 1 week, 1, 3, and 6 months postoperatively. PSF was assessed and correlated with SCT, BCVA, and surgical technique.

Among 56 eyes from 56 postoperative RRD patients, 28 had PSF in the first postoperative week, while 28 did not. Mean SCT in the PSF group was 358 μm [IQR: 303-390], significantly higher than 274 μm [IQR: 243-304] in the non-PSF group ($p < 0.01$). Although SCT decreased over time, the difference between groups persisted. Complete PSF resorption occurred in 13 of 28 cases (46.4%) within six months, without significantly affecting final BCVA.

Patients with PSF had persistently thicker choroids, suggesting altered choroidal circulation. However, PSF did not negatively impact BCVA within six months postoperatively. Longer follow-up is needed to assess potential long-term effects.

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Abstract 262

VITRECTOMY WITH AIR TAMPONADE FOR RETINAL DETACHMENT REPAIR: 5 YEARS EXPERIENCE

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Rhegmatogenous retinal detachment (RRD) repaired by Pars Plana Vitrectomy (PPV) and gas-tamponade (GT) have significant clinical and quality-of-life impacts on patients compared to short acting air-tamponade (AT). With AT, most authors minimise cryotherapy use due to prolonged chorio-retinal scar formation and utilise perfluorocarbon to maximise sub-retinal fluid drainage. As these additional steps deviate from traditional surgical technique, this discourages popularisation of AT.

Prospective 60-month, single-centre, single-surgeon study from February 2020-January 2025 of all primary RRD cases. For the AT group, the Pneumatic Retinopexy vs. Vitrectomy for Retinal Detachment Trial inclusion and exclusion criteria was used, otherwise patients were assigned to GT or silicone oil.

508 patients were enrolled:102(20.1%) receiving AT and 359(70.7%) receiving GT. Remaining 47 (9.3%) cases received silicone oil. The primary success rate of AT:97(95%) and GT:340(94.7%), and 99% & 98.3% final success respectively. Cryopexy was utilised in AT:64% and GT:58%. Cataract surgery was required less when AT was used (20 out of 70 phakics [28.6%]) than when GT was used (126 out of 229 phakics [55%]) at sixth month post-operatively. AT was used in 43% of primary macula-on RRD and 20.1% of all primary RRD. GT equated to 73.33kg CO₂ emissions, and would increase 2.4-fold without AT use.

AT has comparable anatomical success, visual outcomes, and complication rate to GT with conventional vitrectomy techniques (using cryopexy and no PFCL use); with faster post-operative rehabilitation enabling swift return to normal daily activities compared to GT.

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Abstract 263

: MODIFICATION OF COMBINED MEDICAL THERAPY TO ACHIEVE RETINAL VASCULOGENESIS IN AGGRESSIVE RETINOPATHY OF PREMATURITY– AN FFA-BASED STUDY

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Aggressive Retinopathy of Prematurity (A-ROP), particularly in Zone 1, poses a formidable therapeutic challenge due to its rapid progression, high recurrence rates, and the delicate balance between timely intervention and long-term retinal development. Conventional monotherapies, whether anti-VEGF or laser alone, often fall short of achieving both rapid disease regression and complete, physiological retinal vascularization. While anti-VEGF therapy is effective in halting neovascular activity, it carries the risk of late recurrence and incomplete vasculature, whereas laser treatment, though definitive, may compromise peripheral retinal development. There is thus a growing need for treatment strategies that not only arrest disease progression but also support angiographically verifiable vasculogenesis. In this context, our study evaluates a novel modification of combined medical therapy designed to address these dual objectives in infants with Zone 1 A-ROP.

This prospective interventional case series included 10 eyes of 5 infants diagnosed with Zone 1 A-ROP. Each eye received a modified combination therapy of Intravitreal Anti-VEGF followed by laser photocoagulation. Fundus Fluorescein angiography (FFA) was done to confirm retinal vascularisation on last followup.

All treated eyes demonstrated rapid disease activity cessation and gradual, physiological retinal vascularization over time. None of the eyes required additional treatment or developed post-intervention complications. FFA confirmed retinal vasculogenesis on last follow up.

Physiological retinal vasculogenesis remains a challenge while treating babies with zone 1 A-ROP. Our modification of combined medical therapy for zone 1 A-ROP, promotes physiological retinal vasculogenesis, apart from rapid disease activity cessation, with minimal risk of disease reactivation, and can prove to be a reliable treatment protocol in such cases.

Abstract 264

EVISCIERATION TO VISUAL ACUITY - FINDING VISION IN UNEXPECTED PLACES

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Ocular trauma remains a formidable challenge in ophthalmic practice, not only due to the structural damage it causes but also because of the unpredictability of functional outcomes. Eyes presenting with open-globe injuries and media opacity are often deemed unsalvageable, and the decision to eviscerate is taken based on initial visual impression and clinical findings. However, in certain cases, preservation of the globe and timely posterior segment intervention may yield surprising visual recovery, even when the initial prognosis appears dismal.

We present a case of a young male who sustained a severe blunt ocular trauma and was advised evisceration on 2 previous consultation elsewhere. The patient visited us with a hope for globe preservation.

On examination, the patient exhibited total corneal opacity, doubtful perception of light (PL), and inaccurate projection of rays (PR) in all quadrants. There was no view of the posterior segment, as the media was densely hazy.

First Surgery :-

A primary corneal repair was undertaken as the first surgical step to restore globe integrity. The perforation was sutured with preservation of globe contour, and the anterior chamber was reformed. Postoperatively, despite persistent central and inferior corneal opacity, a small superior clear corneal zone was noted during recovery.

Second Surgery (Two Weeks Later) :-

As the anterior segment inflammation subsided, a superior 2–3 clock-hour clear corneal window was identified, allowing partial visualization of the posterior segment. B-scan ultrasonography revealed total retinal detachment with vitreous hemorrhage. Given the globe integrity, presence of the superior window, and patient's strong preference for globe preservation, a second surgery was planned for posterior segment intervention.

A 360-degree encirclage was performed to support the sclera. This was followed by pars plana vitrectomy (PPV) under PFCL assistance. Multiple retinal breaks were identified and treated with endolaser photocoagulation. The surgery was completed with silicone oil tamponade.

Throughout the procedure, visualization was achieved solely through the superior clear corneal zone.

At four weeks follow-up, the silicone-filled globe remained anatomically stable. Retina was found to be attached and a vision of 6/60 was noted through a superior clear corneal window in a silicon filled eye.

This case teaches us that not all traumatised eyes are doomed. When we choose repair over removal, and when we trust imaging, timing, and surgical judgment — we can find vision in the most unexpected places. Early intervention, layered planning, and faith in the healing process make all the difference.

Abstract 274

"MACULAR INDENTATION WITH POLYTETRAFLUOROETHYLENE (PTFE)"

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The purpose is to evaluate safety and efficacy of polytetrafluoroethylene (PTFE) as an indentation element (explant) in Myopic Foveoschisis.

We evaluate the anatomical and functional results of PTFE use in macular indentation surgery due to high myopic problems such as macular hole with retina detachment, myopic foveoschisis, macular fluid, posterior staphylomas between others.

-We include all cases of myopic foveoschisis that consecutive arrive to our retina service between march 2019 and march 2024 (n=18).

-We schedule macular indentation surgery in combination with vitrectomy, in some cases we also performed cataract extraction as well (phacoemulsification and intraocular lens implantation).

- We included ILM peeling in half our cases.

- We evaluated the anatomical and functional result, one week, one month, 3 month, 6 month, 9 month and 1 year follow up.

- In most of the cases we perform 27g vitrectomy, only 4 cases were resolve with 25g vitrectomy, and 1 case with 23g vitrectomy.

- We accomplish anatomic success documented by spectral domain optical coherence tomography. Also all patients show an improvement in visual accuity.

-We don t have any secondary inflammation or rejection of the material (PTFE).

Macular indentation, also known as "macular buckle", in combination with small gauge vitrectomy, its an excellent option for treatment of posterior staphylomas with retinal detachments in macular area, in presence of macular holes and/or traction.

The Polytetrafluoroethylene (PTFE) its a safe and effective material when using it as an explant in macular indentation surgery.

The PTFE could we a new solution, or another material we can widely use to solve retinal detachment and macular indentation (macular buckle), this material its maleable and can be customized and adequated as the surgical case demanded.

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FULL THICKNESS MACULAR HOLE

Abstract 276

MYOPIC MACULAR HOLE RETINAL DETACHMENT

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Myopic Macular Hole Retinal Detachment is a pathology associated with enlargement of the eye and usually is proposed to perform macular buckling and internal limiting membrane peeling. In many countries we lack of experience with macular buckling and is not available, although it is possible to prepare an amateur scleral buckling device. This may carry potential complications and legal issues.

We present a Case of a female patient of 39 years old that present a Myopic Macular Hole Retinal Detachment. Vitrectomy with internal limiting superior flap was done, fluid-air exchange and silicon oil inyection.

Succesfull anatomical result was achieved with better visual acuity.

Vitrectomy with superior ILM flap and silicon oil tamponed is a good option in myopic macular hole associated with retinal detachment

Abstract 277

OPTIC PIT MACULOPATHY

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Optic Pit Maculopathy is a rare disease in children

We present the case of a girl of 9 years old with optic pit maculopathy and visual acuity of count fingers. We decided to perform a vitrectomy with posterior vitreous detachment and cryopreserved amniotic membrane into the pit.

Successful anatomical and functional results were achieved.

The use of human amniotic membrane is a good option in patient with extensive neuroepithelium detachment associated with optic pit.

Abstract 297

SURGICAL OUTCOMES OF SUBMACULAR HAEMORRHAGE TREATED WITH PARS PLANA VITRECTOMY AND SUBRETINAL INJECTION OF TISSUE PLASMINOGEN ACTIVATOR

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Purpose. To evaluate surgical outcomes of submacular haemorrhage (SMH) over a 10-year period.

Methods. This was a single-centre retrospective study conducted at the vitreoretinal department of the Royal Hallamshire Hospital, Sheffield, United Kingdom. Clinical records of patients presenting with acute SMH of any aetiology between 2015 and 2025 were reviewed. Inclusion criteria were: SMH involving the fovea, treatment with pars plana vitrectomy (PPV) and subretinal injection of tissue plasminogen activator (tPA), and a minimum follow-up of 2 months. Primary outcomes included change in visual acuity (VA), displacement of SMH, reduction in central retinal thickness (CRT), and surgical complications.

Results. Eighty eyes of 79 patients met the inclusion criteria with mean age of 82 years. Median time from symptom onset to surgery was 7 days. Aetiology of SMH were choroidal neovascular membrane (CNV) secondary to wet age-related macular degeneration (AMD, n=65), ruptured retinal arterial macroaneurysm (RAM, n=12), valsalva retinopathy (n=1), myopic CNV (n=1), and idiopathic (n=1). The median follow-up duration was 2 months. Submacular haemorrhages were categorised into three groups for analysis: small - confined to the macular region within the vascular arcades (n=48); large - extending beyond the arcades (n=24); and massive - extending beyond the equator (n=8). A 25-gauge PPV was performed in 85% of cases, and gas tamponade was used in 98%. No intraoperative complications were documented. Displacement of blood away from the fovea was achieved in 89% (n=71/80) of cases, with only 9 eyes showing persistent subfoveal haemorrhage. Mean CRT significantly reduced from of 914 µm (95% CI 839–988) at presentation to 422 µm (95% CI 373–472) postoperatively ($p < 0.001$). Median baseline VA was 1.8 logMAR, improving to 1.3 logMAR postoperatively (median gain of -0.44 logMAR; $p < 0.001$, 95% CI 0.0–0.5). Subjective visual improvement was reported by 63% of patients. Multivariable linear regression identified wet AMD as the only factor associated with poorer visual improvement although not statistically significant (0.43 logMAR less gain; $p=0.055$, 95% CI -0.87 to -0.009). A multivariate logistic regression model (AUC 0.83) demonstrated that each additional day of surgical delay reduced the odds of achieving VA of 1.0 logMAR or better by 13% (coefficient -0.135, $p=0.01$). Larger haemorrhage size (large or massive) also negatively impacted the likelihood of attaining this vision level ($p=0.024$). Subgroup analysis of patients with RAM-related haemorrhage showed significantly greater visual improvement compared to those with AMD-related haemorrhage (median gain -0.80 vs -0.22 logMAR respectively; $p=0.007$). Significant postoperative complications included re-bleeding (n=9), full-thickness macular hole (n=3), and rhegmatogenous retinal detachment (n=3).

Conclusions. PPV with subretinal tPA is effective for displacing SMH, reducing macular thickness and improving vision. Visual outcomes are better in smaller SMH, earlier surgical intervention.

Abstract 301

INDOCYANINE GREEN ENHANCED TRANSPUPILLARY THERMOTHERAPY FOR TREATMENT OF CIRCUMSCRIBED CHOROIDAL HEMANGIOMA

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Choroidal hemangioma, though histologically benign, requires prompt and effective treatment to preserve vision due to its clinical behavior. Transpupillary thermotherapy (TTT), a type of infrared diode laser hyperthermia, has become a valuable treatment option in managing CCH. However, concerns remain about limitations such as incomplete fluid resolution, recurrence, and foveal damage in poorly selected cases. Indocyanine green (ICG) is a chromophore with an absorption peak at 805nm, which aligns with the diode laser emission at 810 nm. These matching peaks theoretically enable TTT to produce a stronger response in ICG-enhanced tumors. This study examines and assesses tumour response, visual acuity, and subretinal fluid resorption (SRF) with and without ICG-enhanced TTT in CCH.

Fifteen CCH patients were treated with and without ICG-enhanced TTT in each group. We noted baseline visual acuity, tumour dimensions on B-scan ultrasound, SRF height on SSOCT, and tumour characteristics via ultra-widefield fundus photography. TTT was delivered using an 810nm diode laser through an indirect ophthalmoscope according to a standard protocol. Patients were followed monthly for three months, and responses were compared between the two groups.

SRF resorption was noted in all 15 patients treated with ICG-enhanced TTT and in 13 patients who received TTT alone. There was a significant improvement in VA in the ICG enhanced TTT group (logMar 1.02 \pm 0.55 to 0.646 \pm 0.49) compared to the TTT alone group (logMar 0.85 \pm 0.59 to 0.66 \pm 0.55) (p-value: 0.04). A notable decrease in axial thickness (AT) and largest basal diameter (LBD) was observed in both groups. The mean average power used was significantly lower in the ICG TTT group compared to the TTT alone group (419mW vs 516mW). No statistically significant difference was found in the number of laser sessions between the two groups.

ICG-enhanced TTT is an effective treatment modality for CCH. It leads to greater visual improvement than TTT alone, requiring significantly less power for treatment success.

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Abstract 310

FLUID–GAS EXCHANGE WITH SF6 FOR PERSISTENT MACULAR HOLES: A CASE SERIES OF 8 EYES

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To evaluate the anatomical and functional outcomes of fluid–SF6 gas exchange for the treatment of persistent macular holes following initial vitrectomy.

This retrospective case series included 8 eyes of 8 patients with persistent full-thickness macular holes that remained open after primary pars plana vitrectomy with internal limiting membrane peeling and gas tamponade. All patients underwent a secondary fluid–gas exchange with 20% SF6 under local anesthesia without additional manipulation. Postoperatively, patients were advised to maintain a prone position for 3-5 days. Pre- and postoperative best-corrected visual acuity (BCVA) and optical coherence tomography (OCT) findings were analyzed.

Anatomical closure of the macular hole was achieved in 8 of 8 eyes (100 %) following the fluid–gas exchange procedure. The duration between the primary surgery and the secondary fluid–gas exchange was 1 week. BCVA improved in all eyes. No significant intraoperative or postoperative complications were observed.

Fluid–SF6 gas exchange without additional manipulation is a simple and effective approach for the treatment of persistent macular holes after initial surgery, achieving high closure rates with minimal invasiveness. This technique may be considered as a valuable secondary intervention before planning more extensive reoperations in such cases, particularly when primary closure was initially expected.

Abstract 311

ROLE OF SHORT-TERM PFCL TAMPONADE IN TACKLING INTRARETINAL PROLIFERATIVE VITREO-RETINOPATHY(I-PVR)

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To report a case highlighting the role of short term Per-Fluoro Carbon Liquid(PFCL) tamponade in narrow funnel retinal detachment with I-PVR.

A 55-year-old female presented with complaints of painless, gradually progressive diminution of vision in both eyes(BE) for the past 1 year, for which she underwent left eye(LE) phacoemulsification with posterior chamber intraocular lens (PCIOL) implantation. Following the surgery, she had a poor gain of vision. She also developed flashes and floaters in her left eye 3 months after the surgery, with further decrease of vision.

On presentation, patient had a visual acuity (VA) of positive perception of light(PL) with accurate projection of rays(PR) with an intraocular pressure (IOP) of 12 mm of Hg in the LE. On examination, a total rhegmatogenous retinal detachment with a temporal choroidal detachment was noted. The patient had a VA of 4/60 in the right eye (RE) with nuclear sclerosis(NS) grade 2-3. No peripheral treatable lesions were noted in the RE. She was planned for a posterior subtenon's injection of triamcinolone acetonide(20mg/0.5ml) followed by vitreoretinal surgery with silicone oil tamponade in the LE. However, the patient was lost to follow-up after the injection was administered.

The patient finally presented again after a period of 10 months with a recent onset deterioration of vision in the RE of 1 month duration. Patient was noted to have a VA of PL positive PR accurate in BE and an IOP of 10 & 20 mm of Hg in RE & LE respectively. The RE had old keratic precipitates, 0.5+ cells, irregular pupil, posterior synechiae, pigments over anterior lens capsule with nuclear sclerosis grade 3-4 cataract, whereas LE anterior segment revealed a stable PMMA IOL in sulcus and thick posterior capsular opacification. Both eyes had retrolental pigments and cells. On fundus examination, the RE had a narrow funnel retinal detachment, and the left eye had a closed funnel retinal detachment. Following this, the patient was planned for RE combined phacoemulsification with posterior chamber intraocular lens implantation, with vitreoretinal surgery with silicone oil tamponade.

Intraoperatively, during phacoemulsification, there was a large posterior capsular rent with nucleus drop in the mid-vitreous cavity, following which a 3-piece foldable IOL was placed in the ciliary sulcus. A standard 3-port pars plana vitrectomy (PPV) with phaco fragmentation was done, and the retina was flattened using PFCL after removing epiretinal PVR. With the patient getting uncooperative, PFCL tamponade was left in situ without LASER of any breaks. Patient was instructed to lie supine post operatively. On post-operative day 1, the patient had a VA of hand movement close to face, with PR accurate and IOP of 16 mm Hg. On examination, corneal edema with descemet membrane folds was present with a stable 3-piece IOL in the RE. Retina was attached under PFCL tamponade. On day 3, the patient underwent RE encircling 240 band explant with 360-degree endolaser and PFCL – air - silicone oil exchange. No additional retinal manipulation was required as the retina was attached throughout the surgery. Following surgery, the patient had visual acuity of Counting fingers, with PR accurate, and the retina was attached under silicone oil. On follow up, patient had a final visual acuity of 2/60 in the RE at month 1.

Short term PFCL tamponade is a versatile weapon in the VR armamentarium and has the potential to achieve excellent anatomical and acceptable functional outcomes following mechanical ironing out effect of PFCL by countering intraretinal PVR.

Abstract 313

RETINAL DETACHMENT FOLLOWING RETRO FIXATED IRIS CLAW INTRAOCULAR LENS (RFIC-IOL) IMPLANTATION.

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The primary objective of this study is to evaluate the timing, characteristics, and risk factors for retinal detachment (RD) following retrofixed iris claw intraocular lens (RFIC-IOL) implantation. Additionally, this study aims to assess the surgical outcomes and safety profile of the RFIC-IOL implantation, with particular emphasis on retinal detachment as a potential postoperative complication. Given the increasing adoption of retrofixed iris claw IOLs in pediatric and complex ocular surgeries, understanding the incidence and risk factors for retinal detachment in this context is crucial for optimizing patient management and improving long-term visual outcomes.

This study presents a retrospective case series involving 9 eyes from 7 male patients, aged between 5 to 7 years, who underwent retrofixed iris claw IOL implantation at a tertiary referral center. All patients were carefully selected based on their unique clinical conditions that necessitated RFIC-IOL implantation. The indications for surgery included ectopia lentis (4 patients) and megalocornea with microspherophakia (5 patients), both of which are associated with lens instability and subluxation.

Preoperative evaluation involved a thorough assessment of risk factors that could predispose patients to developing retinal detachment. These included the presence of pre-existing retinal lesions, retinal degeneration (such as lattice degeneration), prior vitrectomy, or history of ocular trauma. Additionally, axial myopia, thin retina, zonular instability, and lens subluxation were considered high-risk factors. Peripheral fundus screening was performed under general anesthesia prior to surgery to identify and address any treatable retinal lesions, ensuring that any underlying retinal pathology was managed before proceeding with RFIC-IOL implantation.

All patients underwent retrofixed iris claw IOL implantation, a technique often utilized in pediatric cases or in patients with complicated ocular histories, including congenital cataracts and trauma. This method involves fixation of the IOL to the posterior iris via a surgical approach that avoids the need for posterior capsulotomy or anterior chamber IOL placement. Postoperatively, patients were monitored closely for visual outcomes, IOL stability, and the development of any complications, particularly focusing on the occurrence of retinal detachment.

Retinal detachment (RD) occurred in 9 eyes (from 7 patients) following retrofixed iris claw IOL implantation. The onset of RD varied significantly among the cases, with 4 eyes presenting with RD within 6 months of the IOL implantation. In contrast, 3 eyes developed RD more than a year following the surgery. This indicates that retinal detachment may occur both as an early and late complication of RFIC-IOL implantation, which underscores the need for long-term monitoring in these patients.

The most common type of retinal detachment in these patients was subtotal rhegmatogenous retinal detachment, which was observed in 5 eyes. This type of detachment is typically associated with retinal tears and can result from tractional forces exerted by an unstable IOL or by pre-existing retinal conditions such as lattice degeneration. Retinal detachment with choroidal detachment was the second most common type, occurring in 3 eyes, and giant retinal tear-associated RD was observed in

1 eye. Giant retinal tears, which are more severe and complicated, often present a unique challenge in surgical management due to the difficulty in sealing the tear and preventing recurrent detachment.

The inferotemporal quadrant was identified as the most frequent site of retinal breaks, occurring in 4 eyes. Temporal retinal breaks were found in 2 eyes, while inferonasal breaks were present in 1 eye. In 2 eyes, giant retinal tears occurred in the superior and superotemporal quadrants. These findings suggest that the inferotemporal quadrant may be particularly susceptible to retinal breaks in patients undergoing retrofixed iris claw IOL implantation, possibly due to the IOL fixation technique and the mechanical stress it exerts on the retina.

At presentation, 4 eyes exhibited proliferative vitreoretinopathy (PVR) changes, a complication commonly associated with retinal detachment that complicates the surgical management of RD. PVR leads to the formation of fibrovascular membranes that can contract and further pull on the retina, worsening the detachment and hindering successful retinal reattachment. Pre-existing retinal degeneration, particularly lattice degeneration, was noted in 1 eye, along with zonular instability in 4 eyes, highlighting these factors as significant contributors to the risk of RD postoperatively.

Surgical management of the retinal detachments included pars plana vitrectomy, with 360-degree endolaser photocoagulation and silicone oil tamponade, which were performed in 7 eyes. The decision to use silicone oil tamponade was made to support retinal reattachment by providing a sustained intraocular pressure and ensuring that the retina remained adherent. In addition, encircling band explantation was performed in these cases to provide external support to the sclera and prevent the recurrence of detachment.

Two eyes that had giant retinal tears underwent similar procedures but without encircling band explantation, as this approach was not deemed necessary for these specific cases. Intraoperatively, unstable RFIC-IOLs were explanted in 2 eyes due to IOL instability, and re-enclavation of the iris claw was performed in 1 eye to stabilize the IOL and ensure optimal alignment.

Postoperative follow-up revealed that 3 eyes (33.3%) experienced re-detachment within one month of surgery. The primary cause of re-detachment was PVR, which resulted in the formation of additional fibrovascular membranes and further retinal traction. However, no cases of elevated intraocular pressure (IOP), corneal decompensation, IOL tilt, or hypotony were observed in any of the patients, suggesting that RFIC-IOL implantation, despite its association with retinal detachment, did not result in other significant complications related to IOL positioning or ocular health.

Retinal detachment is a significant and not uncommon complication following retrofixed iris claw intraocular lens (RFIC-IOL) implantation, especially in patients with underlying risk factors such as zonular instability, pre-existing retinal degeneration, and pediatric patients with complex ocular conditions. The most frequently encountered types of retinal detachment in this series were subtotal rhegmatogenous RD and PVR-associated RD. The inferotemporal quadrant was the most common site of retinal breaks, which warrants special attention during both preoperative screening and postoperative monitoring.

Given that retinal detachment can occur both early and late following RFIC-IOL implantation, early recognition, timely surgical intervention, and close postoperative monitoring—particularly during the first 6 months—are essential for minimizing the risk of RD and optimizing visual outcomes. Surgeons should remain vigilant for PVR changes, as these significantly complicate retinal reattachment and contribute to re-detachment.

This study underscores the need for long-term follow-up to ensure the stability of the retina and the IOL, particularly in pediatric and complex cases, where the risk of complications is higher. Further studies are warranted to better understand the long-term stability, safety, and effectiveness of retrofixed iris claw IOLs, particularly in patients with high-risk ocular conditions such as lens instability, high myopia, and previous retinal pathology.

Abstract 314

GIANT RETINAL TEAR RELATED RETINAL DETACHMENTS; EVRS STUDY

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Giant retinal tear related retinal detachments are special group of RRDs and are seen less frequently. There are still some differences regarding the preferred surgical technique, the choice of endotamponades, additional surgical manoeuvres such as 360 endolaser, additional scleral buckle, combined phaco surgery between the surgeons. EVRS Study on this topic aims to evaluate the results of cases registered from different surgeons and to find out any correlations for the anatomic and functional success in this large group of eyes

In this retrospective, multicentric interventional study, data of cases with giant retinal tear related retinal detachments operated by different surgeons are collected. A detailed excel sheet is prepared including the demographic, surgical technique, special manoeuvres of surgery, follow up time, anatomical and functional status of eyes, complications encountered, and redetachment rates with the informations of secondary procedures. The data will be evaluated for the anatomic and functional results, any factors correlating with the outcomes, as well as redetachment rates and complications.

More than 1000 cases will be evaluated and the results will be presented.

Giant retinal tear related retinal detachments comprise a selected group of RRDs and the best outcomes with surgical techniques are yet to be defined.

Abstract 324

EFFECT OF POSTOPERATIVE AFLIBERCEPT USE AFTER VITRECTOMY IN DIABETIC PATIENTS

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Member ~ Mexico ~ Mexico

To expose the anatomical outcome in patients operated for proliferative diabetic retinopathy with gas by pars plana vitrectomy technique, treated with regular applications of intravitreal afibbercept. To evaluate the effectiveness in the prevention and/or treatment of rebleeding of regular continuous applications up to 3 doses, with an interval of 1 month in the clinical prognosis.

Descriptive study analyzing type II diabetic patients with advanced proliferative diabetic retinopathy, who underwent surgery in the period from 2024 to date. All of them underwent optical coherence tomography + panoramic photo before and after the start of treatment, and the results were collected in a database, evaluating the presence or absence of rebleeding, macular and visual status. The main bias was the metabolic control of the patients.

Postoperative rebleeding was avoided and treated in some cases, proving that the use of postoperative antiangiogenics is a valuable tool to prevent postoperative rebleeding when gas or air is placed in patients with proliferative diabetic retinopathy.

Implement a protocol of applying 3 regular doses of antiangiogenic agents to treat and/or prevent the risk of bleeding and keep good visual outcome.

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Title: Rates, Timing, and Predictors of Retreatment Across Risk-Cohorts in Retinopathy of Prematurity: Intravitreal Bevacizumab Injection vs Laser

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Keywords: Retinopathy of prematurity; TW-ROP; early retreatment; late retreatment.

Abstract

Objective: To characterize rates, timing, and predictors of ROP retreatment among infants treated with either primary laser or intravitreal bevacizumab injection.

Design: Retrospective consecutive study.

Participants: Infants treated for ROP between 2017-2023.

Methods: Demographic and clinical variables were collected. Patients were stratified into two treatment groups: primary laser group vs primary bevacizumab group.

Main outcome measures: Retreatment within the first 3 months (0–90 days) was assessed and classified as early (≤ 30 days) or late (31–90 days).

Results: A total of 229 eyes of 117 infants were treated for ROP; of those, 181 (79.0%) eyes of 93 (79.5%) were included. There were 116 (64.1%) eyes in the bevacizumab group, and 65 (35.9%) eyes in the laser group. 33 (18.2%) eyes – all micro- or nano-premature – required retreatment for active disease. 16 (8.8%) required early retreatment with a median PMA of 40.4 weeks (IQR, 38.44-43.3). There was a statistically significant difference in the proportion of early retreated infants (21.5% for laser vs 1.7% for injection, $p<0.001$). 17 (9.4%) eyes required late retreatment. The median PMA at late retreatment was 45.6 weeks (IQR, 43.7-47.4).

Infants in the bevacizumab group had lower odds of requiring retreatment within three months compared to those with laser (OR, 0.18; 95%CI, 0.05-0.70). Similarly, patients in the bevacizumab group had lower odds of requiring early retreatment compared to those with laser (OR, 0.10; 95%CI, 0.04-0.22). Within eyes with retreatment, infants in the bevacizumab group had a later PMA at retreatment compared to those in the laser group (95%CI: 1.7–6.0). AROP was significantly associated with earlier PMA at retreatment (95%CI, -7.695 to -3.8).

Conclusion:

In this study, early retreatment was low (8.8%), with most eyes initially treated with laser (21.5%) rather than bevacizumab (1.7%). All retreatments were in micro- or nano-premature infants, suggesting medium-to-low risk infants may require less strict post-treatment monitoring. Aggressive ROP was associated with earlier retreatment, highlighting its role as a marker of more severe disease. Bevacizumab may be a superior option to laser for immediate stabilization of treatment-warranted ROP, with lower overall and early retreatment, and delayed need for additional intervention when necessary.

PKP and Short-Term PFO Tamponade for Complex Retinal Detachment with Hazy Cornea

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ABSTRACT

For the treatment of eyes with severe corneal opacity and complex retinal detachment, such as proliferative vitreoretinopathy (PVR), combined penetrating keratoplasty (PKP) and pars plana vitrectomy (PPV) may be necessary. Usually silicone oil (SO) is used as tamponade, however, there are some drawbacks. First, SO is less effective for posterior or posterior retinal breaks. Second, SO may escape during PKP procedure. Third, suturing of corneal graft becomes slippery by SO. Fourth, postoperative iridocorneal adhesion is easily induced. To encounter these issues, we have employed the use of perfluoro-n-octane (PFO) both during PPV and postoperative short-term tamponade.

Five consecutive patients with corneal pathologies with PVR, including two eyes with bullous keratopathy, two eyes with globe rupture, and one eye with acanthamoeba keratitis, underwent combined PKP, PPV and short-term PFO tamponade. PPV for PVR was performed using temporally keratoprosthesis. After retinal reattachment with PFO, it was retained in the eye during PKP and short-term postoperatively. PFO in the vitreous cavity offered stable eye structure with no slippery suturing. Two to three weeks later, the PFO was removed and replaced with gas or silicone oil (SO).

Complete retinal reattachment was achieved in all 5 eyes (100%) at the final visit, including eyes with persistent oil tamponade (3 out of 5 eyes; 60%). Visual acuity improved in 3 eyes (60%) and declined in 2 eyes (40%). While all 5 eyes developed chronic ocular hypotony, no choroidal detachments or suprachoroidal hemorrhages were observed. Corneal graft failure, defined as irreversible graft edema or opacification, did not occur in any of the eyes during a mean follow-up period of 34 months (range: 10-83 months).

Short-term PFO tamponade for combined PKP and PPV may be useful in the surgical management of cases involving corneal pathologies and complex PVR-related retinal detachments. PFO tamponade offers intra-operative and post-operative advantages over silicone oil tamponade, and this strategy may potentially lead to better anatomical outcomes.



Poster *presentations*

Abstract 11

PNEUMATIC RETINOPEXY - A GENTLE TREATMENT FOR RHEGMATOGENOUS RETINAL DETACHMENT

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Purpose of this poster is to present multicentric data of recently performed pneumatic retinopexy (PnX) procedures for rhegmatogenous retinal detachment (RRD) in Croatia in order to encourage other surgeons to carry on with PnX for RRD in selected cases. This is a retrospective multicentric study of PnX for RRD performed by 7 operators from 2021 to 2025. 6 different Croatian retinal centres were included: University Hospital Sveti Duh, Zagreb; Bilić Vision Ophthalmology and Orthopedic Clinic, University Hospital Centres Zagreb, Split, Rijeka and Osijek.

PnX procedures were performed in topical or subconjunctival anaesthesia, consisted of anterior chamber tap, intravitreal gas injection via pars plana and subsequent laser or cryo retinopexy. All patients had RRD with retinal holes in upper quadrants and without proliferative vitreoretinopathy. Patient gender; age; preoperative and final best corrected visual acuity tested on Snellen chart (BCVA); type, number and position of retinal holes; macular status (attached/detached); duration of RRD; lens status (phakic, pseudophakic); anterior chamber tap volume; volume and type of injected gas (SF6/C3F8); type of retinopexy (laser, cryo or combination) and anatomical success rate were recorded. Surgeon name and observations were also recorded. Procedure was defined as primary successful if the retina was still attached 3 weeks after gas resolution. If the PnX procedure was unsuccessful, the patient underwent a pars plana vitrectomy.

56 patients/eyes (40 male, 16 female), aged 55.46 +/- 12.52 years were treated (41 were phakic and 15 pseudophakic). Patients had 1.26 +/- 0.37 retinal holes (1 - 6), all in the upper quadrants, 43 of them had only horseshoe tears, 12 atrophic holes and one had a combination of atrophic and horseshoe tears. Macula was attached in 31 and detached in 25 cases. Retina was detached before PnX for 3.28 +/- 2.89 (1 - 60) days. Initial BCVA was 0.53 +/- 0.37 (0.005 - 1.0). Anterior chamber tap was performed in all cases, 0.28 +/- 0.07 (0.2 - 0.5) mL of aqueous humor was removed. In 24 patients 0.55 +/- 0.11 (0.35 - 0.8) mL of 100% SF6 and in 32 patients 0.58 +/- 0.09 (0.4 - 0.7) mL of 100% C3F8 gas was insufflated. 25 patients were treated by additional laser, 10 received cryoretinopexy and 2 combined laser and cryoretinopexy. Primary success rate was 78.6%. In successful cases final BCVA was 0.64 +/- 0.30 (0.15 - 1.0) after follow-up of 449 +/- 419 (34 - 1722) days. Final BCVA positively depended on initial BCVA ($R^2=0.676$).

Pneumatic retinopexy is a less-invasive and effective method of rhegmatogenous retinal detachment repair in selected cases. Procedures differ depending on the surgeon's preferences (type and volume of gas used, laser or cryoretinopexy). The primary success rate of complete retinal reattachment in this study was 78.6% and the secondary success rate was 100% with improvement in BCVA and without serious complications during 449 +/- 419 (43 - 1722) days of follow-up. Although there are not enough patients in this study for high evidence conclusions about this procedure, there are larger studies that are concordant with our results. These results should encourage vitreoretinal surgeons to opt for PnX as a primary therapeutic procedure in selected cases with RRD.

Abstract 21

A CASE OF FULL-THICKNESS MACULAR HOLE ASSOCIATED WITH VALSALVA RETINOPATHY

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Valsalva retinopathy includes retinal abnormalities typically characterized by acute-onset unilateral visual acuity loss due to a premacular hemorrhage following a Valsalva maneuver, which leads to the spontaneous rupture of retinal capillaries because of a sudden rise in intraocular venous pressure.^[1-2] The prognosis is generally good, with spontaneous resolving of the hemorrhage in most cases, though it may take several months. Observation, vitrectomy or neodymium:YAG laser membranotomy are the current treatment options.^[3-5] This presentation reported a case of Valsalva retinopathy combined with full-thickness macular hole.

The clinical course of a case was retrospectively evaluated according to a chart review.

A 59-year-old male complained of a sudden decrease of visual acuity in his left eye after straining on the toilet for 2 weeks. The best-corrected visual acuity (BCVA) was counting fingers at 30cm for a left eye. Dilated fundus imaging demonstrated multiple preretinal hemorrhages involving the fovea. The optical coherence tomography (OCT) showed dome-shaped elevated lesion with a hyperreflective surface and hyporeflective area underneath.

Management options including observation, laser membranotomy, and vitrectomy were discussed with the patient. The patient preferred observation. After 6 weeks of observation, dilated funduscopic examination showed remarkable absorption of the hemorrhage and visual acuity in the left eye improved to 0.06. However, OCT scan revealed a full-thickness macular hole. Ten weeks after the initial visit, the hemorrhage were completely resolved without the closure of the macular hole. OCT also demonstrated the internal limiting membrane on the top of macular hole was still attached. After additional 8 weeks of observation, retinal edema on either side of the hole appeared to decrease. However, the macular hole persisted with no further improvement in visual acuity. The patient underwent vitrectomy with indocyanine green-assisted internal limiting membrane peeling and gas tamponade. One month postoperatively, closed macular hole was confirmed by OCT and the BCVA improved to 0.4.

Full-thickness macular hole secondary to Valsalva retinopathy had been rarely reported. There is a need for further research to understand its mechanism, and vitrectomy may be considered as a treatment option in these cases.

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Abstract 24

CLINICAL PROFILE AND OUTCOMES OF FAMILIAL EXUDATIVE VITREO-RETINOPATHY (FEVR) SPECTRUM: A 2 YEAR SINGLE CENTER EXPERIENCE

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Familial exudative Vitreoretinopathy (FEVR) is a highly underdiagnosed and overlooked entity. Most of these cases are looked into with care only upon late presentation with decreased vision. Hence, the prevalence and of this disease is still relatively unknown in North Indian population. Through this study we aim to report the clinical profile and outcomes of patients presenting with familial exudative vitreoretinopathy over a study period of 2 years from a single center

It was retrospective cross-sectional case study conducted at a single tertiary eye care center in North India over a study period of 2 years. Patients were diagnosed with FEVR in case of presence of peripheral avascular retina in one or both eyes, or in case of tractional retinal detachment (TRD) in a full term child or in case the disease didn't follow the tempo of retinopathy of prematurity. All demographic data (including age, gender, gestational age in case of prematurity) and presenting complaints were noted. BCVA was noted in logMAR and refraction at presenting visit was noted. All clinical signs and features in the eye including cornea, lens, vitreous and retina were evaluated. Presence of RD the presenting visit was categorized as rhegmatogenous (RRD), tractional (TRD) or exudative (ERD). The disease was staged according to the revised clinical staging of FEVR (2014). Need for intervention and details of the same were evaluated. Progression if any was documented. Anatomical outcome was categorized as: good (attached retina with no folds), fair (attached retina with folds), poor (detached retina) depending on the retinal status at last visit.

Eighty eyes of forty patients were included in the study. Mean age at presentation was 15.79 years (range from 2 months to 39 years). There were 21/40 (52.5%) males in the cohort. All eyes (whose refraction were available) were myopic. Most commonly, the diagnosis of FEVR was made on a routine fundus examination (n=14, 35%) followed by when patients presented with acute diminution of vision (n=10, 25%). Squint was the least common presenting complaint (n=2, 5%). Vitreous condensation was noted in 50 (62.5%) eyes. Vascular straightening was noted in 15 (18.75%) eyes, atrophic retinal breaks in 27 (33.7%) eyes, clinical neovascularization in 10 (12.5%) eyes and disc or macular drag in 14 (17.5%) eyes. Most common form of retinal detachment was RRD (n=10, 12.5%). Positive family history was noted in 7 (8.75%) eyes. Most commonly, stage 1A was noted in 40 eyes (50%) followed by stage 5 in 10 eyes (12.5%) in our cohort. Progression to higher stage was noted in 6 eyes. 56 eyes (70%) required some intervention, most commonly laser photocoagulation (n=28, 35%). Majority of the eyes had good anatomical outcome.

FEVR can remain undiagnosed in many cases especially when vision is not decreased. Most cases were diagnosed on routine fundus exam. Apart from peripheral avascular retina, vitreous condensation at the junction of vascular and avascular retina was the most consistent feature. Rhegmatogenous retinal detachment causing acute loss of vision was a common reason of presentation. Most cases presented with an earlier stage. 70% patient required intervention and the anatomical outcome was good in majority with timely intervention.

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Abstract 36

CARBON FOOTPRINT OF VITREORETINAL SURGERY

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Climate change, linked to the production of greenhouse gases (mainly carbon dioxide (CO₂)) by human activity, is a central concern today. Within a healthcare facility, the operating room is the sector that produces the most CO₂, as it consumes the most energy and produces the most waste. In ophthalmology, while the carbon footprint of cataract surgery is now well known (approximately 80 kgCO₂eq in the literature), that of vitreoretinal surgery remains poorly assessed, if at all. To our knowledge, this is the first time a comprehensive assessment of the carbon footprint of vitreoretinal surgery is proposed.

A prospective, single-center study was conducted to calculate the carbon footprint of 15 standardized vitreoretinal surgery procedures (simple vitrectomy, epiretinal membrane ablation, macular hole surgery, simple retinal detachment) performed by two surgeons. The carbon footprint was measured from patient reception through the operating room to their discharge after refreshment in the outpatient department. The criteria analyzed were energy, purchases (medical devices and pharmaceuticals), and transportation required to perform the procedure, as well as the waste generated. The carbon footprint calculation method multiplies activity data by an emission factor, resulting in a carbon footprint expressed as the amount of CO₂ equivalent generated (in kgCO₂eq). For waste, the assessment was conducted according to the ADEME carbon database standards. For purchases, the total price was multiplied by the amount of CO₂ equivalent per euro. For transportation, the carbon footprint of a procedure was calculated by dividing the carbon footprint of all staff present by the number of procedures performed during the operating room shift.

The average procedure duration (entry to and exit from the operating room) was 25.7 minutes. Vitrectomy was associated with an average of 1.7 additional procedures. The average total carbon footprint was estimated at 248 kgCO₂eq per procedure. On average, per procedure, the energy consumed by the operating room generated 34.7 kgCO₂eq; transportation 41.6 kgCO₂eq; purchasing 193.9 kgCO₂eq; waste 1.4 kgCO₂eq; and food 0.009 kgCO₂eq. For the surgical packs used, 86% of their composition was used on average.

Vitreoretinal surgery therefore generates three times more carbon equivalent than cataract surgery, primarily due to its longer duration and the systematic use of more abundant and disposable materials (prior risk). Purchases of medical devices and pharmaceutical products have the highest carbon impact because the manufacturing of the materials used in the packs is largely done abroad, where the energy mix is not as favorable as in France. The most effective levers for reducing this carbon footprint involve the development of an optimized recycling chain, relocation of the manufacturing of medical devices and pharmaceutical products to France or Europe, and optimization of transportation for staff and patients.

Abstract 50

PROGRESSION OF STARGARDT DISEASE WITH ABCA4 GENE MUTATION

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Stargardt's disease (STGD) is the most prevalent inherited macular dystrophy that commonly manifests in young people.

It typically presents as bilateral central visual loss and characteristic macular atrophy surrounded by white-yellow flecks at the level of the RPE.

It is frequently associated with the autosomal recessive mutation of the ABCA4 gene (STGD1) on chromosome 1.

This study aims to describe the phenotypic progression in patients with Stargardt disease caused by mutations in the ABCA4 gene and reports on the mutated allelic variants.

This observational study is ambispective and descriptive. Patients who had Stargardt disease by the ABCA4 gene mutation were included. The study utilized the genetic report and the clinical record's baseline examinations. To evaluate the phenotypic variation, a new ophthalmological evaluation was conducted using macular OCT, retinography, autofluorescence, and electroretinogram.

The study identified 32 cases with an average follow-up of 6 years. The average age of onset was 16 years. The average initial and final VA were 0.79 and 0.95 logMAR, respectively. The average initial and final GMC were 142.5 and 135 microns, respectively. The predominant degree of fundus involvement and autofluorescence pattern at the beginning and end was macular atrophy with flecks and the low signal of macular autofluorescence surrounded by a heterogeneous background, respectively. Initial electroretinography showed predominantly preserved function of rods and cones, while at the end most cases presented dysfunction of the rod and cone system. Nine cases were homozygous, and 31 different mutant allelic variants were identified. The most frequent variant was p.Trp1618Cys, followed by p.Ala1773Val. Two new allelic variants, p.Leu634Pro, and p.Tyr665Serfs*5, were also discovered.

The study found that patients experienced structural and functional deterioration during the follow-up period. The study also identified two predominant variants and two new variants. Homozygotes had an earlier onset of the disease.

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Abstract 62

ANATOMICAL AND FUNCTIONAL RESULTS AFTER FULL THICKNESS MACULAR HOLE SURGERY

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A macular hole is a full-thickness defect in the neurosensory retina at the center of the macula, leading to blurred and distorted central vision. Patients do not always seek ophthalmic care at the early stage of disease. In many cases duration of symptoms is more than 6 months, even more than 1 or 2 years. Many patients have large or extra-large macular holes at the time of diagnosis, necessitating a deeper understanding of how factors like hole size and symptom duration impact anatomical and functional results following surgery.

This study included a case series of 30 patients with large macular holes (minimum macular hole diameter $>400\mu\text{m}$). All patients underwent vitrectomy with temporal inverted internal limiting membrane (ILM) flap surgery and SF6 gas tamponade. The following outcomes were assessed:

- Macular hole closure type (classified by Rossi [1])
- Best corrected visual acuity (BCVA) (measured in ETDRS letters)
- Metamorphopsia score (measured using M-CHARTS, type II)

Three months postoperatively these outcomes were analyzed and compared to baseline data considering the duration of symptoms and minimum macular hole diameter.

Baseline Characteristics: Total number of patients: 30 (6 men (20%), 24 women (80%)). Mean age: 70.1 ± 3.8 years.

Symptom Duration: Up to 6 months: 4 patients (13.3%), 6 to 12 months: 13 patients (43.3%), 12 to 24 months: 8 patients (26.7%), more than 24 months: 5 patients (16.7%)

Macular Hole Diameter Groups: 401-500 μm : 7 patients (23.3%), 501-600 μm : 14 patients (46.7%), 601-700 μm : 6 patients (20%), 701-800 μm : 3 patients (10%).

Preoperative Visual Acuity (BCVA): Mean BCVA: 42 ± 7.7 ETDRS letters (range 25–57). BCVA was significantly better in the group with symptom duration less than 6 months ($p=0.037$). BCVA was also better in the group with minimum macular hole diameters between 401-500 μm ($p=0.009$).

Metamorphopsia Score (M-CHARTS): Vertical M-CHARTS score preoperatively: 1.22 ± 0.48 (range 0.5–2.0). Horizontal M-CHARTS score preoperatively: 0.94 ± 0.46 (0.2-2.0). No correlation was found between preoperative M-CHARTS scores and the duration of symptoms or the minimum macular hole diameter.

Results 3 months after the surgery:

Macular Hole Closure (classified by Rossi):

- Type 1 closure of the macular hole was achieved in all 30 patients:
 - Type 1A (complete closure with reconstitution of banded anatomy throughout all retinal layers): 20 patients (66.6%)
 - Type 1B (closure with external layer interruption): 5 patients (16.7%)
 - Type 1C (closure with internal layer interruption): 5 patients (16.7%)

Postoperative Visual Acuity (BCVA): Mean BCVA at 3 months: 63.1 ± 6.9 ETDRS letters ($p<0.0001$). Significant improvement in BCVA was observed in all groups (by symptom duration and hole diameter) 3 months post-surgery.

Postoperative Metamorphopsia (M-CHARTS): Vertical M-CHARTS score at 3 months: 0.52 ± 0.45 ($p<0.0001$). Horizontal M-CHARTS score at 3 months: 0.36 ± 0.32 ($p<0.0001$). In all groups, a significant reduction in M-CHARTS scores was observed, except for the vertical M-CHARTS score in the group with symptoms lasting more than 24 months ($p=0.33$). In three out of four macular hole diameter groups, there was a significant reduction in M-CHARTS score. Only the group with holes larger than $700\mu\text{m}$ showed no significant reduction in M-CHARTS score.

- All patients achieved a type 1 closure of the macular hole, and the majority experienced full reconstitution of retinal layers.
- Significant improvement in best-corrected visual acuity was achieved 3 months after surgery, regardless of the symptom duration or minimum macular hole diameter ($401\text{--}800\mu\text{m}$).
- The reduction in the metamorphopsia score was also significant for most patients, indicating that the surgery not only improved visual acuity but also reduced visual distortion. The only exception was in patients with symptoms lasting more than 24 months and macular holes larger than $700\mu\text{m}$, where reduction in metamorphopsia was less significant.

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Abstract 68

HIGH-RESOLUTION VISUALIZATION OF POSTERIOR VITREOUS USING SWEPT-SOURCE OCT AND CUSTOM SOFTWARE ENHANCEMENT

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The vitreous body and its interface with the retina play a critical role in the pathophysiology of numerous ocular diseases, including vitreomacular traction (VMT), posterior vitreous detachment (PWD), epiretinal membranes, and macular hole. Accurate visualization of the posterior vitreous and vitreoretinal interface is essential for understanding disease mechanisms, staging pathology, and guiding therapeutic decision-making. However, conventional optical coherence tomography (OCT) techniques—particularly spectral-domain OCT (SD-OCT)—are limited in their ability to capture detailed microstructural features of the vitreous due to their reliance on logarithmic scaling and limited penetration depth.

Swept-source OCT (SS-OCT), with its longer wavelength and faster acquisition speed, offers improved depth penetration and enhanced visualization of vitreous structures. Despite these advantages, current SS-OCT displays remain optimized for retinal imaging, often failing to adequately render the translucent architecture of the vitreous. Consequently, clinically relevant features such as the bursa premacularis (BPM), Cloquet's canal, and hyaloid attachments may be underrepresented or missed entirely.

To address these limitations, we propose a novel imaging protocol combining high-definition wide-field SS-OCT acquisition with a custom image enhancement algorithm designed to improve the visibility of the posterior vitreous while preserving retinal detail. This study aims to evaluate the effectiveness of this protocol in enhancing the visualization of normal vitreous anatomy and pathological features in eyes with VMT, PVD, and macular hole.

This observational prospective cross-sectional study included 29 eyes from 29 adult volunteers (mean age: 49 years; 16 male, 13 female). All participants underwent imaging using a prototype swept-source OCT system equipped with a long-wavelength light source and capable of acquiring high-definition wide-field volumetric scans. Multiple scans were obtained per eye to capture the macular and perimacular vitreoretinal interface in detail.

A motion-correction and image-registration algorithm was applied to each dataset to compensate for eye movement and merge multiple scans into a single high-fidelity volumetric image. From these registered datasets, a representative B-scan through the fovea was selected for display and analysis.

Each selected image was rendered in two formats: (1) a standard logarithmic-scale SS-OCT display and (2) an enhanced vitreous imaging format processed using our custom-developed software algorithm, which improves vitreous contrast without degrading retinal fidelity.

Three independent expert graders, masked to each other's evaluations, reviewed all image sets in a randomized order. Each grader assessed the visibility of posterior vitreous and vitreoretinal interface structures, including the bursa premacularis, Cloquet's canal, hyaloid detachments, and other

features. Graders scored the images based on the sufficiency of visualization to detect and characterize these anatomical features.

The average age of participants was 49 years; 55% (16/29) were male, and 45% (13/29) were female. In healthy eyes, anatomical structures such as the bursa premacularis (BPM), area of Martegiani, Cloquet's/BPM septum, Bergmeister papilla, posterior cortical vitreous detachment, papillomacular hyaloid detachment, hyaloid attachments to retinal vessels, granular vitreous cortex opacities, and Cloquet's canal were evaluated. Three graders assessed the images in both standard and enhanced displays. In the standard SS-OCT display, the combined sensitivity of the graders was 13.4% (95% CI: 10.0% to 17.7%). After applying the custom software enhancement, sensitivity significantly improved to 96.7% (95% CI: 94.0% to 98.2%). Individually, graders reported substantial improvements in feature detection after enhancement compared to standard displays.

SS-OCT with our proposed enhanced vitreous imaging protocol and custom image processing software provides superior non-invasive, volumetric, and measurable visualization of the posterior vitreous and vitreoretinal interface compared to traditional OCT methods. This enhanced imaging technique demonstrates greater sensitivity in identifying subtle vitreoretinal features, potentially aiding in assessing disease progression and treatment response in vitreoretinal interface disorders.

Abstract 69

VISUAL OUTCOMES IN PATIENTS OPERATED WITH BIMANUAL PARS PLANA VITRECTOMY FOR MANAGEMENT OF TRACTIONAL RETINAL DETACHMENT DUE TO DIABETIC RETINOPATHY.

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To evaluate the efficacy, post-surgical outcomes and complications of bimanual pars plana vitrectomy for management of advanced diabetic eye disease.

This study was a prospective, longitudinal, experimental and comparative trial. Adult patients with advanced diabetic eye disease characterized by tractional retinal detachment who have indication for surgical treatment were included. Patients with previous ophthalmologic surgery or those with additional indication for placement external indentation devices were excluded. After full ophthalmic examination all patients underwent bimanual pars plana vitrectomy by the same expert surgeon with or without phacoemulsification and posterior chamber intraocular lens implantation. Preoperative, intraoperative and postoperative indices were collected and analyzed by means of GRAPHPAD PRISMA 9.0.0. Numerical data were expressed as mean and standard deviation. Qualitative data were expressed as frequency and percentage. Patients were followed-up for an average of 3.2 months after their surgery.

11 eyes of 11 patients have been studied so far. 90.90% of patients underwent combined phacovitrectomy procedure with silicone oil injection tamponade. The average time of surgery was 63 minutes. Limitorrhesis was performed in one case due to concomitant macular hole. Mixed retinal detachment was identified in only one case. Iatrogenic breaks were occurred in 45.45% of cases. Endo-laser photocoagulation was done in 10 cases (90.90%). There was an improvement of best corrected visual acuity in 8 cases (72.72%) showing an average gain of 16 lines on a logarithmic scale. Visual acuity remained the same in 9.09% and decreased in 18.18% of patients.

Bimanual pars plana vitrectomy is effective and safe for the management of tractional retinal detachment due to diabetic retinopathy, exhibit improvements in visual acuity in most patients and providing clinical stability and stopping disease progression during follow-up.

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Abstract 71

SIDEROSIS BULBI SECONDARY TO RETAINED INTRAOCULAR FOREIGN BODY: A CASE REPORT

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Ocular siderosis is a complication caused by the presence of a metallic intraocular foreign body (IOFB), particularly those containing iron, such as Fe²⁺ or Cu²⁺. This condition can develop within days or years after trauma, with its progression depending on factors like the iron content and the location of the IOFB. It affects various ocular structures, potentially leading to glaucoma, cataracts, iris changes, mydriasis, retinal damage, and optic nerve atrophy. Young men, especially between 22 and 25 years old, are most affected, with most metallic IOFBs being made of iron or lead. Ocular damage can be direct, due to the action of iron ions, or indirect, through microvascular damage in retinal vessels. Clinical manifestations include mydriasis, iris heterochromia, loss of visual field, and cataracts, with iron deposits observed in various structures like the cornea, trabecular meshwork, iris, and retina.

The treatment for ocular siderosis involves the rapid removal of the IOFB in acute cases to prevent complications such as endophthalmitis and vision loss. In chronic cases, removal is necessary if there is evidence of progressive retinal damage or recurrent uveitis. Additionally, the use of deferoxamine, an iron-chelating agent, has shown effectiveness in preventing damage from siderosis in early stages; however, its use in advanced stages is not recommended due to toxic side effects. Diagnosis and monitoring of ocular siderosis are done through various tests, including ultrasound, computed tomography (CT), magnetic resonance imaging (MRI), OCT, and ERG, with the latter being essential for assessing damage and tracking the condition's progression.

Purpose: To report a case of suspected siderosis bulbi secondary to a retained intraocular foreign body (IOFB) diagnosed five years after an ocular trauma.

Case Report: A 35-year-old male with a history of apparent closed-globe trauma in the right eye (OD) five years prior presented with progressive visual loss and floaters in OD. His past ocular history included a recent diagnosis of inactive ocular toxoplasmosis in OD.

On examination, best-corrected visual acuity (BCVA) was 20/100 OD (not improving with pinhole) and 20/20 in the left eye (OS). Intraocular pressure was 12 mmHg in both eyes. Slit-lamp examination of OD revealed retrokeratic pigment deposits and anterior capsular pigmentation. Fundoscopy of OD showed an orange-yellow optic disc with a 0.3 cup-to-disc ratio, superior nasal rhegmatogenous retinal detachment (RRD) from 12.5 to 2.5 meridians extending to the equator, an elevated hyperpigmented lesion with surrounding fibrosis causing macular folds, exsanguinated vessels over the superior temporal arcade, and attached retina elsewhere. OS examination was unremarkable.

Fundus autofluorescence imaging revealed a lesion with a hypoautofluorescent center surrounded by a hyperautofluorescent halo. Macular optical coherence tomography (OCT) centered on the lesion showed loss of the outer retinal layers corresponding to the fibrotic areas surrounding the lesion. A central hyporeflective image with peripheral hyperreflectivity was noted, highly suggestive of an IOFB. Additionally, retinal folds extending toward the lesion were observed in the macular region.

B-scan ultrasonography of OD confirmed an aphakic eye with membranous and point-like vitreous

opacities of variable reflectivity, partial posterior vitreous detachment, and RRD extending from 12.5 to 2.5 meridians. A high-reflectivity, acoustically shadowing structure measuring 0.82 mm in height and 1.97 mm in width was noted adherent to the retina in the superior temporal quadrant, consistent with an IOFB.

A full-field electroretinogram (ERG) was performed, revealing decreased amplitudes of both A and B waves.

Based on multimodal imaging findings, a diagnosis of rhegmatogenous retinal detachment, intraocular foreign body, and probable siderosis bulbi was suspected. The patient was scheduled for phacovitrectomy with both diagnostic and therapeutic intent.

This case illustrates the diagnostic challenges of delayed intraocular foreign body recognition and its potential complications. Further evaluation and surgical management will provide insight into the patient's clinical evolution.

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Abstract 86

CENTRAL RETINAL ARTERY OCCLUSION: LIGHT AT THE END OF THE TUNNEL

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This study evaluated the therapeutic potential of combining erythropoietin (EPO) and anti-VEGF agents in the management of central retinal artery occlusion (CRAO). The possible synergistic effect of this combined therapy was analyzed, with EPO contributing neuroprotective and proangiogenic effects, while anti-VEGF agents controlled secondary neovascularization. The study also examined the safety profile of this therapeutic approach.

This study employed a Scoping Review based on the Arksey & O'Malley framework to evaluate the combined therapy of erythropoietin (EPO) and anti-VEGF agents in central retinal artery occlusion (CRAO). A search was conducted in PubMed and Embase using key terms such as "EPO," "anti-VEGF," and "retinal artery occlusion." Relevant preclinical and clinical studies were selected, including the TONE study, which assessed efficacy parameters (visual improvement, retinal reperfusion) and safety (adverse events). Extracted data were analyzed to identify therapeutic patterns, potential pharmacological interactions, and areas requiring further research. This approach allowed for the exploration of both the potential benefits and risks of this combined therapy, following PRISMA-ScR guidelines to ensure a systematic and transparent review.

The combined therapy showed promising results in animal models, where EPO improved retinal cell survival while anti-VEGF agents prevented pathological neovascularization. However, clinical studies indicated that this combination increased the risk of adverse events (32% vs. 18% with monotherapy), particularly transient ocular hypertension (15% of cases) and inflammatory reactions (8%). Visual efficacy did not show significant differences compared to conventional treatments in the acute phase.

The EPO/anti-VEGF combination represents a theoretically attractive strategy for CRAO by addressing both acute ischemia and its complications, but current evidence does not support its routine use. The additional risks and limited benefits suggest that this approach should be reserved for controlled studies optimizing dosage and administration routes. Further research is needed to establish safe protocols and identify subpopulations that may benefit from this dual therapy. A multitreatment approach could be considered to improve anatomical and visual outcomes.

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Abstract 87

VITREOLYSIS IS IT WORTHY OR IS IT A TABOO

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This study aimed to evaluate whether YAG laser vitreolysis is an effective and safe treatment for symptomatic vitreous floaters, analyzing the reasons behind its limited global acceptance despite scientific evidence. Factors contributing to ophthalmologists' reluctance—such as fear of complications or lack of training—were explored and contrasted with available clinical outcomes.

This study used a Scoping Review approach to critically assess YAG laser vitreolysis through two main components: (1) analysis of relevant clinical studies (including the pivotal trial by Shah & Heier in JAMA Ophthalmology, 2017), and (2) surveys of specialized ophthalmologists. The systematic search on PubMed/Scopus employed terms like "vitreolysis," "vitreomacular disease," "YAG laser," and "ocriplasmin," focusing on the following parameters: efficacy (54% symptomatic improvement vs. 9% with placebo, NEI VFQ-25 scores) and safety (complications such as ocular hypertension or retinal detachment). Additionally, clinical perspectives were incorporated through surveys that revealed implementation barriers (lack of standardized protocols and preference for vitrectomy in complex cases).

The synthesis compared scientific evidence with real-world practice, identifying significant discrepancies. This approach allowed for mapping not only the objective benefits of vitreolysis (minimally invasive, rapid recovery), but also the perceived challenges among specialists.

Demonstrated efficacy: YAG laser improves symptoms in more than 50% of patients, with a low risk profile (0.5% serious complications in meta-analyses).

YAG laser vitreolysis is a procedure used to treat symptomatic vitreous floaters, which can impair visual quality for some patients. According to a randomized clinical trial published in JAMA Ophthalmology, YAG laser vitreolysis showed significant improvement in floater-related symptoms compared to a sham procedure. Patients who received YAG laser treatment reported a 54% improvement in symptoms, compared to only 9% in the control group. Additionally, improvements were noted in overall vision, peripheral vision, role difficulties, and dependency, according to the NEI VFQ-25 questionnaire.

However, despite these promising results, widespread adoption of YAG laser vitreolysis is not currently recommended due to insufficient long-term safety and efficacy data. A review article in Survey of Ophthalmology suggests that further studies are needed to document its safety and effectiveness before broader adoption can be justified. In contrast, vitrectomy—a more invasive surgical procedure—has been shown to improve contrast sensitivity in patients with vision-degrading vitreous opacities, as documented in a study published in the American Journal of Ophthalmology. Although more invasive, this procedure has demonstrated significant improvement in visual function and may be considered in cases where symptoms are particularly debilitating.

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Ophthalmology, YAG laser vitreolysis showed significant improvement in floater-related symptoms compared to a sham procedure. Patients who received YAG laser treatment reported a 54% improvement in symptoms, compared to only 9% in the control group. Additionally, improvements were noted in overall vision, peripheral vision, role difficulties, and dependency, according to the NEI VFQ-25 questionnaire.

However, despite these promising results, widespread adoption of YAG laser vitreolysis is not currently recommended due to insufficient long-term safety and efficacy data. A review article in Survey of Ophthalmology suggests that further studies are needed to document its safety and effectiveness before broader adoption can be justified. In contrast, vitrectomy—a more invasive surgical procedure—has been shown to improve contrast sensitivity in patients with vision-degrading vitreous opacities, as documented in a study published in the American Journal of Ophthalmology. Although more invasive, this procedure has demonstrated significant improvement in visual function and may be considered in cases where symptoms are particularly debilitating.

YAG laser vitreolysis is safe and effective, but its implementation is limited by cultural and technical barriers, not by lack of evidence. To overcome the “taboo,” the following are required:

- Specialized training in laser techniques, including lens selection and light beam use.
- Consensus-based clinical guidelines for patient selection.
- Transparent communication with patients regarding risks and benefits.

It is a worthwhile option as a minimally invasive procedure.

Barriers to acceptance:

- Fear of adverse effects like cataract, vitreous hemorrhage and retinal detachment (although they are rare).
- Lack of standardized protocols.
- Preference for alternatives (ex. vitrectomy, despite its higher invasiveness).
- Discrepancy: While evidence supports its use, only 15–20% of ophthalmologists offer it routinely.

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Abstract 89

TREATMENT OUTCOMES IN ENDOPHTHALMITIS PATIENTS: A COMPARISON OF INFECTIOUS AGENTS (BACTERIAL VERSUS CULTURE-NEGATIVE RESULTS)

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Endophthalmitis can result from various infectious etiologies, but differences in visual acuity outcomes between etiological agents have not been extensively compared. This study assessed visual acuity outcomes in patients with endophthalmitis based on microbiology results.

This is a retrospective study examining patients diagnosed with infectious endophthalmitis. The data were collected from the medical records of a vitreoretinal surgeon in Toronto from March 2011 to March 2023. Adult patients with infectious endophthalmitis were categorized based on their microbiology report as having either bacterial or culture-negative microbiology. Univariable and multivariable linear and logistic regression were conducted to visual acuity outcomes after endophthalmitis treatment based on microbiology, adjusting for age and sex. Statistical analyses were carried out in Microsoft Excel.

A total of 46 patients with infectious endophthalmitis were included. There was a more negative linear association between mean visual acuity and bacterial cultures ($R^2 = 0.606$, $p = 0.008$) compared to the association between mean visual acuity and culture-negative samples ($R^2 = 0.645$, $p = 0.003$). This suggests that mean visual acuity improved more quickly in the bacterial group than the culture-negative group. However, multivariable logistic regression indicated no significant difference in visual acuity recovery between samples with bacteria or culture-negative infections from baseline to 1-month post-treatment ($p = 0.11$) and baseline to 12 months post-treatment ($p = 0.57$).

Results from this linear and multivariable analysis found no significant difference in visual acuity recovery between endophthalmitis patients with bacterial or culture-negative infections. Further large clinical trials would be helpful for furthering the understanding between culture results and visual outcomes with further subanalysis adjusted by microorganism strains and antimicrobial agents.

Abstract 96

COMPARISON OF OUTCOMES BETWEEN IDIOPATHIC MACULAR HOLES VERSUS BACILLARY LAYER DETACHMENT-LAMELLAR HOLES IN RHEGMATOGENOUS RETINAL DETACHMENTS

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Recently, bacillary layer detachment (BALAD)-abnormalities have been associated with secondary macular hole formation in rhegmatogenous retinal detachments (RRDs). BALAD-associated lamellar holes are believed to have very distinct pathogenesis from idiopathic full-thickness macular holes (FTMHs) as well as worse functional recovery following repair. Therefore, this study aims to compare the functional and anatomical outcomes of size- and vision-matched idiopathic FTMHs and BALAD-lamellar holes.

To be included, all patients had to have a gradable baseline optical coherence tomography (OCT) and no other ocular comorbidities. Patients presenting with idiopathic FTMH from January 2012 to September 2022 were used as the comparison group. Both groups were matched for pre-operative macular hole size (minimum linear width) and baseline visual acuity. In patients with RRD, "baseline" visual acuity was considered vision at postoperative week four to eight after the detachment repair when the retina was attached, while the macular hole resulting from the BALAD-lamellar hole persisted. Vision outcomes were assessed at 12 to 18 months postoperatively after cataract surgery for both groups.

Thirty patients had BALAD-lamellar holes at presentation, and a size- and vision-matched cohort of 30 patients with idiopathic FTMHs was included as the control group. The groups had different age distributions, with an older population in patients presenting with idiopathic FTMH (mean(\pm SD) = 63.3(\pm 8.2) years in BALAD-lamellar holes versus 75.9(\pm 8.5) years in idiopathic FTMH; p <0.00001). Females constituted 46.6% (14/30) of patients in the BALAD-lamellar hole group, while they were 60% (18/30) of patients in the idiopathic FTMH group. In the BALAD-MH group 53% (16/30) were phakic at presentation, while in the idiopathic FTMH group 80% (24/30) were phakic. The baseline logMAR vision in patients with attached BALAD-MH was not statistically different from patients with idiopathic macular holes [1.23(\pm 0.52) versus 1.13(\pm 0.37), respectively p =0.37632]. The average size of BALAD-lamellar holes was 370(\pm 158) microns versus 370(\pm 155) microns in idiopathic FTMHs. There was no significant difference between the hole size in the BALAD-lamellar hole group versus the idiopathic FTMH group (p =0.964). LogMAR final visual acuity at 12 months postoperatively was significantly worse in the BALAD-lamellar hole group in comparison to the FTMH group [0.64(\pm 0.41) versus 0.38(\pm 0.20), respectively; p =0.003635]. Finally, all (30/30) patients in the idiopathic FTMH group had hole closure following the first surgery, while only 90% (27/30) in the BALAD-lamellar hole group achieved hole closure, which was not statistically significant (p =0.2373).

Patients presenting with BALAD-lamellar holes have worse outcomes than patients with idiopathic FTMHs of the same size. The split in the myoid zone and subsequent loss of the remaining band of photoreceptor segments in BALAD-lamellar holes might lead to further cell degeneration and worse functional and anatomical outcomes.

Abstract 99

PNEUMATIC RETINOPEXY EXPERIENCE AND OUTCOMES

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Pneumatic retinopexy (PR) is a well-accepted alternative surgical technique for uncomplicated rhegmatogenous retinal detachments (RRD) with superior retinal breaks. This technique could also treat successfully more complicated RRD. The purpose of this study is to evaluate anatomic and visual outcomes after pneumatic retinopexy for treatment of primary RRD and to assess risk factors for failure of PR.

The study was conducted at the department of Ophthalmology, University Hospital Hassan II, Fez. Study design: Noncomparative, single- center, consecutive, interventional case series evaluating all patients with primary RRD treated between June 2019 and December 2023 and followed prospectively. Inclusion criteria were uncomplicated RRD with moderate proliferative vitreoretinopathy (grade A, B or C1) and retinal break in the upper 8 clock hours or multiple upper breaks confined to a single retinal clock hour. The primary outcome measure was anatomic success at minimum 6 months. If PR failed, patients underwent second PR, SB surgery, PPV, or both as a secondary procedure for RD. Surgical technique used was, under topical anesthesia, a cryoapplication was performed on the retinal break if it was accessible following by anterior chamber paracentesis which was used to express as much fluid as safely possible (minimum 0.3 ml), followed by injection of 100% SF6 or C3F8 (0.3 – 0.5ml) using 29G needle. Subsequently, strict postoperative positioning was mandatory depending on the location of the break. Laser photocoagulation was applied around the retinal break after the gas injection as soon as feasible if the cryo wasn't applied.

The average age of our patients was 48 years, with a sex ratio of 1.3. Myopia was observed in 57% of cases, with 17% being highly myopic, and 95.4% of patients were phakic. The average initial visual acuity was 1.18 logMAR. The retinal detachment was superior in 73.8% of cases. The macula was detached in 55.8%. A single, superiorly located retinal tear between the 10 and 1 o'clock positions was noted in 68.2%. The stage of PVR was B in 53.4%, A in 38.8%, and C in 7.8%. SF6 gas was used in 89.7%, and C3F8 in 10.3% of cases. Transconjunctival retinal cryotherapy was performed in 43.2% while laser treatment was performed in 56.8% of cases. The average final postoperative visual acuity was 0.3 logMAR, and retinal reattachment was achieved in 93.2% of cases. A failure rate of 6.8% (defined as the retina not being attached) and a recurrence of retinal detachment after more than 1 month postoperatively occurred in 13.4% of patients. Failure was mainly related to non-compliance with postoperative positioning (50%). The final success rate was 100% after secondary surgical intervention with scleral buckle, vitrectomy, or a second gas injection. Postoperative complications were predominantly transient early ocular hypertension in 25% of cases.

Pneumatic retinopexy remains a reasonably successful option in the management of primary retinal detachment. Surgical success requires careful selection of the patient

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Abstract 109

SCREEN-BASED VISUALIZATION AND CHANDELIER-ASSISTED SCLERAL BUCKLING FOR PRIMARY RHEGMAТОGENOUS RETINAL DETACHMENT REPAIR – CAN THE SCREEN GET US TO RE-EMBRACE A 100 YEAR OLD SURGERY?

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Primary scleral buckling was first described in 1920. Since then, modern scleral buckling techniques have been optimized for over half a century. Chandelier-assisted scleral buckling was described in 2006 and again in 2012 and was shown to afford greater visualization of the surgical field without compromising primary anatomical success rate compared to the use of indirect ophthalmoscope. Primary surgical visualization with screen-based 3DHD systems for vitreoretinal surgery was first described in 2011 and has demonstrated promise to improve surgical ergonomics as well as visualization of the posterior segment compared to standard microscopes. We present the outcomes of a large case series of patients who underwent primary chandelier-assisted scleral buckling for primary retinal detachments using screen based 3DHD systems.

A retrospective chart review of a consecutive interventional case series was conducted on 88 eyes of 88 patients. All eyes that underwent chandelier-assisted scleral buckling for primary retinal detachment repair using Screen-Based surgical visualization for the surgical repair of retinal detachment from May 2017 to January 2025 at the Cincinnati Eye Institute were included. All cases were done by a single surgeon using the Alcon Ngenuity (n=85) or the Zeiss Artevo (n=3). Exclusion criteria were defined by less than 3 months of post-operative follow-up. 72 variables which encompassed demographic information, ocular and retinal anatomy, surgical methods, visual outcome, and long-term overall outcomes were collected.

The average age of our patients was 49.8 +/- 14.5 years. 36 (41%) were women. 38 (43%) were right eyes. 53 (60%) retinal detachments involved the macula. Eyes had 3 +/- 2 retinal breaks and 4.5 +/- 1.6 clock hours of retinal detachment. Pre-operative Grade C PVR was present in 13 (15%) eyes. 51 (58%) eyes had a posterior vitreous detachment A circumferential buckle was placed in all eyes. Intraocular tamponade was used in 72 (82%) eyes and external drainage was performed in 87 (99%) eyes. Final retinal attachment was achieved in all eyes with 1 (n=73), 2 (n=14), or 5 (N=1) surgeries. One patient developed post-op endophthalmitis. There was a statistically significant improvement in visual acuity at POM6 and at final follow up visit compared to baseline (p = 0.00096 and 0.00086 respectively). Surgeon ergonomics were excellent and visualization for surgical teaching was superb. All surgeries were performed with a vitreoretinal fellow participating in the case.

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respectively). Surgeon ergonomics were excellent and visualization for surgical teaching was superb. All surgeries were performed with a vitreoretinal fellow participating in the case.

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Abstract 124

A TWO-STEP APPROACH TO MANAGING PEDIATRIC TRAUMATIC SUBMACULAR HEMORRHAGE.

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Submacular hemorrhage (SMH) is a vision-threatening condition with varied causes, lacking a standardised treatment approach. Current therapies include intravitreal injections, pneumatic displacement, and surgery, each with limitations, especially in children. This report presents the adoption of a rare two-step method, combining an initial minimally invasive intravitreal injection of tPA and SF6 with a subsequent, more invasive subretinal injection, to effectively displace SMH.

Case report

This case presentation is of a 12 year old boy who suffered a traumatic chorioretinal rupture with extensive submacular haemorrhage involving the macula. Initial management approaches included intravitreal tPA injection with pneumatic displacement with little improvement in visual acuity. The approach then shifted to minimal core vitrectomy without posterior vitreous detachment and submacular tPA injection and air tamponade. The child made a remarkable recovery with complete resolution of the haemorrhage within a week and improvement in his visual acuity to 6/9 one month after the surgery maintained over 1 year.

This case contributes to the literature on the management of submacular haemorrhages in paediatric cases, offering insights into the different submacular haemorrhage displacements expected with these 2 approaches. Further studies will be needed to evaluate in detail the efficacy and safety of these two procedures in the pediatric population.

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Abstract 132

STANDARDIZATION OF SUBMACULAR INJECTION TECHNIQUE FOR VARIOUS INDICATIONS

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Various tools and techniques for submacular injection have emerged as critical interventions in ophthalmology, particularly for managing submacular hemorrhage (SMH) associated with conditions such as age-related macular degeneration (AMD)¹ and traumatic injuries, but also extended to other indications

Different techniques have been described to enable delivery of drugs/ treatments to submacular space using dedicated and expensive additional kits to routine vitrectomy consumables which may not be readily available, therefore it was tempting to study possible standarization the surgical technique of submacular injections through a case series of patients operated for various indications.

Case series: cases operated at RFL from Sep 2023- May 2025, for each case: Full PPV with induction of PVD , ERM/ILM peel depending on indication , Controlled automated injection- VFC injection set 8-12 psi- 0.4 ml with 41G subretinal injection cannula attached to 10 ml VFC syringe. Site of injection: depends on the indication, usually superior / superonasal, Number of injections: depends on indication / response / single/ multiple entries

Indications/Patients: 1. Submacular hemorrhage AMD-related: <7 days, thick fovea involving bleed, without hemorrhagic PED, Safe Dose: 25-50 mcg tPA (7 patients), Traumatic submacular hemorrhage +/- Choroidal rupture: rupture not involving fovea (2 patients) 2. Reclacitrant/ Chronic FTMH2: Failed closure / flat atrophic edges / traumatic (3 patients) 3. Persistent foveal fold: recent onset-symptomatic distortion/double vision (1 patients) 4. Resistant Diabetic Macular Edema3: failed 2 full courses of different anti-vegf/ poor va (1 patient) 5. Displacement of subfoveal PFCL: recent occurance – RPE changes- central position – poor vision (1 patient) 6. Clinical trials: Delivering vector for gene therapy- retinal prosthesis (Not performed at our trust)

No adverse events documented with this technique in this case series. Surgical technique was readily reproducible between different surgeons/ indications. Visual improvement varied between different indications, with traumatic submacular hemorrhage patients achieving maximum and resistant diabetic edema achieving minimum improvement.

Submacular injection can be a possible solution for different problems facing VR surgeons, It can be reproducible technique for various indication/ injectables, Each of these indications needs further studies to prove efficacy, reach standarization and document safety

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surgical treatment for refractory diabetic macular edema. Journal of Ophthalmology, 2019, 1-5.

Abstract 133

RECURRENT MALIGNANT EXUDATIVE RETINAL DETACHMENT

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Exudative (or serous) retinal detachment (ERD) occurs when fluid accumulates in the subretinal space between the sensory retina and the retinal pigmented epithelium (RPE) resulting in retinal detachment. Causes for fluid accumulation include inflammatory, infectious, and neoplastic diseases of the choroid or retina which can be primary or secondary (metastatic).

ERD due to metastasis occurs when cancer cells from other parts of the body most commonly the breast or lung spread to the eye causing choroidal metastasis which can result in exudation of fluid under the retina leading to RD. It can present with vision loss, floaters, or flashes.

The treatment of ERD due to choroidal metastasis usually focuses on treating underlying cancer and needs multidisciplinary team approach with ophthalmologist, oncologists, general surgeons and radiologists' involvement. It may include systemic chemotherapy, radiation therapy or targeted therapy. In some cases, local treatments like brachytherapy or photodynamic therapy may be used to reduce the tumor burden.

Case scenario:

65-year-old female with no known past medical history, presented with exudative RD RE in September 2024, during that time, inflammatory (uveitis) and infective causes have been excluded, also B-scan ultrasound and CT scan excluded mass lesions, afterwards, the RD spontaneously resolved (near totally) with no definitive diagnosis.

Few months later, she developed abnormal uterine bleeding, abdominal distension, and systemic illness, she was investigated and diagnosed with locally advanced ovarian serous carcinoma for which she had total hysterectomy salpingo-oophorectomy and rectosigmoidectomy followed by 3 courses of adjuvant chemotherapy.

Patient was referred back to retina clinic due to recurrence of RD RE and blurred vision 1 week after last chemotherapy course.

On examination, RE Anterior segment showed early cataract, normal AC angle on gonioscopy, no AC cells or flare, Posterior segment shows clear vitreous cavity, inferior macula off exudative RD with positive shifting fluid sign on indented indirect ophthalmoscopy in recumbent position, no retinal tear could be noted, wide spread pigmentary changes (previously noted) seen, suspected choroidal mass seen through detached retina, B-scan shows RD with a choroidal mass in inferior location, OCT scan shows deposits on outer retinal tissue supporting exudative detachment. LE NAD.

Differential diagnosis included primary and metastatic choroidal tumours, less likely vascular choroidal lesions with exudation. Urgent MRI orbit was urgently arranged to document mass lesion and extension. Multidisciplinary team approach with input from the patient's oncologist/pathologist/radiologist at UHD was sought as well as referral to regional ocular oncology centre, MRI scan came back with metastatic choroidal lesions and MDT team decided to extend chemotherapy treatment for metastatic ovarian carcinoma. Patient is currently admitted under oncology with inputs from ophthalmology, gynecology, and radiology.

Patient is still under active treatment with chemotherapy for metastatic ovarian carcinoma with choroidal secondaries with poor general condition and guarded prognosis.

ERD may be the presenting symptom of metastatic ovarian carcinoma to the choroid, it can have fluctuating course and require high index of suspicion and multidisciplinary input from ophthalmologist, oncologist, radiologist as well as other specialties, with systemic chemotherapy being the preferred mode of treatment.

Abstract 159

A CASE REPORT ON THE USE OF HUMAN AMNIOTIC MEMBRANE FOR CLOSURE OF A REFRACTORY MACULA HOLE IN A HIGHLY MYOPIC PATIENT

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Full thickness macula holes lead to distortion and central vision loss that can significantly impact patient quality of life.

Standard Pars Plana Vitrectomy (PPV) with Internal Limiting Membrane (ILM) Peel and intraocular gas tamponade usually has a high success rate of up to 90%. (1)

However, refractory macular holes can occur in up to 10% of cases in myopic eyes (1) due to complex tractional forces exerted on the vitreomacular interface, as a result of anatomical factors.

The use of human Amniotic Membrane grafts is an emerging alternative to promote anatomical closure and retinal regeneration via scaffolding effect in these refractory cases.

We present an interventional case report of a high myope with a Stage 4 FTMH and the journey to complete anatomical closure.

Preoperative:

History and complete ophthalmic examination including:

-BCVA (LogMAR) and refraction

-OCT Macula.

-Discussion with the patient regarding risks and benefits, including risk of unsuccessful anatomical closure and its implication of need for further surgery.

Surgical Technique:

-Initial standard 3-port, 23G PPV + ILM Peel under Dual Blue staining and inverted flap and intraocular gas tamponade with 20% SF6.

-Posture prone for 5 days.

Postoperative:

Clinic reviews comparing preoperative parameters (BCVA and anatomical outcome on OCT Macula).

-Initial Week 1 Post Op visit.

-Followed by visits in Week 2 and Week 4.

Surgical Technique revisited with Human Amniotic Membrane Graft and early clinic review:

-A 3-port, 23G PPV + Peel of residual ILM with insertion of flap within the macular hole.

-A 3mm disc of the human Amniotic Membrane was punched and placed over the hole with Viscoat (stromal layer side down).

-Then intraocular gas tamponade with 20% SF6

-8-0 Vicryl sutures to ensure complete closure of sclerostomy ports.

Figure 1. Preoperative OCT Mac with maximal linear distance (MLD) 455microns and BCVA 0.76

Figures 2A and 2B. Week 2 Post ILM Peel + Inverted Flap; MLD 369microns, incomplete closure and BCVA 1.00

Figure 3. 1 Week Post human Amniotic Membrane with complete anatomical closure, 60% gas fill, BCVA 1.00

-Refractory macular holes in myopic eyes pose unique challenges, due to the anatomical and physiological changes associated with high myopia.

-Standard PPV + ILM Peel with Inverted flap may fail, so it is essential to become familiar with alternative techniques to include in one's surgical armamentarium in order to give patients the best possible anatomical outcome and visual recovery.

-The use of the human amniotic membrane (hAM) patch to close recurrent macular holes was already proposed by Rizzo et al.(2) in 2018 and as more surgeons opt to utilise this technique, we will have more clinical data to continue to assess its efficacy and success.

-In our case, human amniotic membrane over the residual inverted ILM flap, combined with gas endotamponade demonstrated its effectiveness to seal this patient's refractory macular hole by one week post op. We plan to closely monitor our patient with OCT analysis and assessment of the BCVA.

1)Kannan NB, Kohli P, Parida H, Adenuga OO, Ramasamy K. Comparative study of inverted internal limiting membrane (ILM) flap and ILM peeling technique in large macular holes: a randomized-control trial. *BMC Ophthalmol.* 2018;18:177

2)Rizzo S, Caporossi T, Tartaro R, et al. A human amniotic membrane plug to promote retinal breaks repair and recurrent macular hole closure. *Retina.* 2019;39:S95-S103

Abstract 172

MORPHOFUNCTIONAL COMPARISON BETWEEN STANDARD OPERATING MICROSCOPE AND 3D HEADS-UP VISUALIZATION SYSTEM IN IDIOPATHIC EPIRETINAL MEMBRANE SURGERY

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Idiopathic epiretinal membranes (iERM) are fibrocellular proliferations on the inner surface of the retina that can lead to visual distortion and decreased visual acuity. [1] Surgical intervention, typically via pars plana vitrectomy with membrane peeling, is the standard treatment for symptomatic iERM. [2] Traditional surgery employs a standard operating microscope (SOM), which, while effective, presents limitations in terms of ergonomics and visualization depth. The advent of heads-up 3D visualization systems, such as NGENUITY®, offers potential advantages, including enhanced depth perception, improved ergonomics, and reduced light exposure. This study aims to compare the anatomical, functional, and electrophysiological outcomes of iERM surgeries performed using SOM versus the heads-up 3D system.

A prospective, randomized clinical study was conducted involving 25 eyes from 25 patients diagnosed with iERM stages II–IV. [3] Patients were randomly assigned to two groups: 12 eyes underwent surgery using the standard operating microscope (SOM group), and 13 eyes were operated on using the heads-up 3D visualization system (3D group). All surgeries were performed by the same experienced vitreoretinal surgeon to minimize variability.

Preoperative assessments included best-corrected visual acuity (BCVA) measured in logMAR, spectral-domain optical coherence tomography (SD-OCT) to evaluate central macular thickness (CMT), and multifocal electroretinogram (mfERG) to assess macular function.

Surgical parameters recorded encompassed total surgery duration, dye exposure time, ERM peeling time, number of flap initiations, illumination levels during membrane peeling and vitrectomy, and any intraoperative complications.

Postoperative evaluations were conducted at 1 month and 3 months, repeating the SD-OCT and clinical assessment at 1 month and both SD-OCT, mfERG, and clinical assessment at 3 months. The development of post-surgical complications was noted as well. Additionally, subjective evaluations were gathered through structured questionnaires completed by the surgeon, assisting residents, and scrub nurses, focusing on aspects such as visualization quality, ergonomics, and overall satisfaction.

Preoperative data revealed no statistically significant differences in age (SOM: 74.0 ± 10.5 years; 3D: 76.0 ± 8.0 years; $p=0.643$) or iERM stage (median stage 3 ± 1 in both groups; $p=0.294$). However, BCVA was significantly worse in the 3D group (0.7 ± 0.2 logMAR) compared to the SOM group (0.4 ± 0.125 logMAR; $p=0.002$). Central macular thickness measured via SD-OCT was comparable between groups (SOM: 452 ± 64 μm ; 3D: 422 ± 102 μm ; $p=0.644$). Regarding lens status, 83.3% of eyes in the SOM group were phakic at the time of surgery, compared to 53.8% in the 3D group ($p=0.25$).

Intraoperative parameters showed no significant differences between the two groups, except for illumination levels during membrane peeling were significantly lower in the 3D group ($15 \pm 5\%$) versus the SOM group ($25 \pm 6.25\%$; $p<0.001$). No significant intraoperative complication was reported in either group.

Postoperative BCVA and CMT at 1 and 3 months showed no statistically significant differences between groups. However, visual recovery (ΔlogMAR) was greater in the 3D group at both 1 month

(SOM group: $0,25 \pm 0,3$ logMAR vs 3D group: $0,4 \pm 0,1$ p=0.012) and 3 months (SOM group: $0,3 \pm 0,22$ logMAR vs 3D group: $0,5 \pm 0,3$ p=0.002).

The electrophysiological assessments at 3 months via mfERG showed a non-significant trend toward improved amplitude in the central 2° area in the 3D group (SOM group: $-8,8 \pm 23,5$ nV/deg 2 vs 3D group $8,7 \pm 26,3$ nV/deg 2 p=0.087), and a significant improvement in the $10-15^\circ$ ring (SOM group: $-3,85 \pm 1,74$ nV/deg 2 vs 3D group $0,5 \pm 5,8$ nV/deg 2 p=0.007).

Questionnaires completed by the surgical team consistently rated the 3D system higher across metrics, including visualization, ergonomics, and learning facilitation for the surgeon, the resident, and the nurses involved in the surgery (all p<0.01).

Interestingly, during the 3-month follow-up up the 3D group showed a considerably lower development of cystoid macular edema (CME) (3D group: 7.7% vs. SOM group: 41.6%; p=0.047).

This study reinforces the value of heads-up 3D visualization systems as a valid and potentially superior alternative to standard operating microscopes in the surgical treatment of idiopathic epiretinal membranes. Despite worse baseline BCVA in the 3D group, patients demonstrated greater functional improvement postoperatively, likely due to enhanced depth perception, increased contrast sensitivity, and digital image amplification that facilitate more precise surgical maneuvers [4,5].

One of the most relevant findings was the significantly lower endoillumination used in the 3D group, which aligns with previous evidence showing that 3D systems enable effective visualization at reduced light levels [4,6]. This is particularly relevant given the established risk of phototoxic macular injury during vitrectomy with high-intensity lighting [7,8]. The reduced rate of postoperative cystoid macular edema observed in the 3D group may reflect this lower photic stress on retinal tissue.

From a functional perspective, mfERG recordings showed a significantly greater improvement in the $10-15^\circ$ eccentricity ring in the 3D group, suggesting a more tissue-preserving approach in the area corresponding to the membrane peeling zone. The trend toward better central recovery also supports the hypothesis of less intraoperative trauma with 3D visualization.

Subjective feedback from the surgical team favored the 3D system across all categories, including surgical comfort, anatomical clarity, and educational usefulness. These findings are consistent with other studies that highlight improved ergonomics and enhanced teaching value in 3D-assisted procedures [4,6]. Although prior reports raised concerns over longer operative times during the learning curve [5], we found comparable surgical durations between groups.

In conclusion, the 3D heads-up system offers not only equivalent anatomical outcomes but also improved visual function recovery, reduced complication rates, and better intraoperative experience for the entire surgical team. These benefits are particularly relevant in high-volume and training-oriented settings.

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Abstract 177

COMBINED SUTURELESS FLANGED INTRAOCULAR LENS FIXATION AND BAERVELDT LONG TUBE IMPLANTATION: A CASE REPORT

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To report the clinical outcomes of a combined sutureless flanged intraocular lens (SFIOL) fixation using the Yamane technique with Baerveldt long tube implantation surgery in a patient with pseudoexfoliation (PEX) syndrome and advanced glaucoma.

This study is a case report conducted at the Ophthalmology Dept. of Bolzano Regional Hospital, Italy. An 88-year-old patient presented with advanced glaucoma and a subluxated IOL with an underlying PEX syndrome. Despite maximal medical therapy, preoperative intraocular pressure (IOP) was 25 mmHg.

After transconjunctival pars plana vitrectomy (PPV) a 3-piece IOL with PVDF haptics was implanted using the Yamane technique, alongside a Baerveldt tube shunt. At the 4-month follow-up, IOP was reduced to 8 mmHg without medical therapy. Best corrected visual acuity (BCVA) had decreased from 0.40 LogMAR preoperatively to 0.70 LogMAR postoperatively. Endothelial cell count remained relatively preserved, decreasing from 2514 to 2241 cells/mm².

To our knowledge this is the first report of combined PPV, SFIOL fixation and Baerveldt tube shunt implantation. This can be considered a viable surgical approach in complex glaucomatous eyes with PEX-related lens instability.

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Abstract 185

ISOLATED NECROTIC MACULAR HOLES

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The occurrence of a macular hole in posterior uveitis is uncommon but possibly underestimated cause of sight loss. Here we present a series of necrotic macular holes occurring without other obvious signs of uveitis or subsequent tractional elements and their evolution.

We present a series of 4 cases of macular holes that occurred secondary to posterior uveitis. Multimodal imaging was performed. Fundus photo was taken using the Zeiss CLARUS® 700. Optical coherence tomography(OCT) and fundus fluorescein angiography (FFA) was done using HRA+OCT (Heidelberg Engineering, Germany).

We analysed 4 patients who presented with macular holes, in whom the morphology of the hole raised suspicion of necrosis. In one amongst the 4 patients, macular hole was revealed when patient underwent surgery for vitreous hemorrhage with retinal detachment. Multimodal imaging done in these patients confirmed the same and in 3 of them serological evidence of toxoplasmosis was obtained. The other one patient had positive Interferon Gamma Release Assay for tuberculosis. Targeted treatment for the aetiology was instituted for each patient and 2 of them had partial incomplete anatomical closure. One patient progressed despite therapy and denied surgical treatment. The patient who underwent surgery had completely attached retina and incomplete closure of macular hole.

Inflammation induced changes vitreous liquefaction and tangential traction due to epiretinal membranes in conjunction with retinal ischemia secondary to chorioretinitis can lead to formation of macular holes in posterior uveitis. Isolated macular holes without other signs of uveitis are extremely rare. Usually macular hole formation occurs in a diagnosed case of uveitis in the later part of the disease. Macular holes as the presenting feature is extremely rare. Moreover the holes in these cases develop largely due to isolated tissue necrosis rather than tractional elements. Tuberculosis associated uveitis presenting with macular hole is also quite rare. Treating the inflammation can relieve these constraints or tractions and lead to spontaneous healing of the macular hole. In select cases surgical closure may be attempted. However in cases of extensive necrosis the hole tends to be less likely to undergo spontaneous closure.

Abstract 198

GLAUCOMA AFTER PHACOEMULSIFICATION IN A PATIENT WITH TRAUMATIC ANIRIDIA TREATED WITH ARTIFICIAL IRIS

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Anterior segment reconstruction with surgical correction of traumatic aniridia aims to improve the quality of vision, compartmentalize the anterior and posterior chamber, and re-establish a satisfying cosmetic appearance. Various types of prosthetic iris devices are available, which differ in technical difficulty of implant and design. The purpose of the study is to present the clinical course of a patient with open globe trauma and traumatic aniridia.

72 years old man presented with open globe trauma (limbal rupture) and total traumatic aniridia. The patient underwent closure (suturing) of the trauma. During the follow up period the patient presented cataract which exacerbated glare in addition to vision drop. Intraocular pressure remained within normal range (12-17 mmHg). 12 months after trauma the patient underwent uneventful cataract surgery with trypan blue, dispersive OVD and capsular tension ring +one piece intraocular lens (IOL)+ artificial iris (Human Optics) in the bag insertion.

Both glare and aesthetic outcome improved postoperatively. However, the patient presented high intraocular pressure (25mmHg under maximum tolerated topical glaucoma medication) and 6 weeks after cataract & artificial iris surgery he underwent trabeculectomy (Safe Trabeculectomy Technique) with Mitomycin C. The artificial iris implant remained stable during the postoperative period, including manipulations (suture release/removal and massage) to facilitate adequate bleb formation. Clinical examination at 6 weeks after trabeculectomy depicts Best Corrected Visual Acuity 0.6, IOP 16mmHg with a filtering bleb and no photophobia.

In severe ocular trauma, anterior segment reconstruction of traumatic aniridia responds to patient functional and cosmetic expectations. However, intraocular pressure rise may not be related to the prosthesis per se, but to anterior chamber angle posttraumatic pathology and should be treated accordingly.

Abstract 227

RISK FACTORS FOR NEOVASCULAR GLAUCOMA (NVG) AFTER PARS PLANA VITRECTOMY (PPV) FOR PROLIFERATIVE DIABETIC RETINOPATHY (PDR) IN A RETROSPECTIVE COHORT AT A TERTIARY CENTER IN BUENOS AIRES CITY, ARGENTINA: UPDATED RESULTS

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Neovascular glaucoma (NVG) is a severe complication following pars plana vitrectomy (PPV) for proliferative diabetic retinopathy (PDR). Identifying risk factors for its development is essential to improve surgical outcomes and patient prognosis. This retrospective cohort study was conducted at Fundación de Cirugía Ocular Jorge Zambrano, Buenos Aires, Argentina.

Updated clinical data from 412 patients who underwent PPV for PDR between August 1st, 2016, and January 31st, 2024, were reviewed. The following potential risk factors were analyzed: gender, age, glycosylated hemoglobin (HbA1c), best corrected visual acuity (BCVA), anterior neovascularization (ANV), intraocular pressure (IOP), tractional retinal detachment (TRD), previous panretinal photocoagulation (PRP), and post-surgical vitreous hemorrhage.

Incidence density rate (IDR), odds ratio (OR) with 95% confidence intervals (CIs), and Kaplan-Meier survival analysis were calculated. A logistic regression model, limited to six variables due to the expected 60 NVG events, was applied to a final subset of 333 patients with ≥ 365 days of follow-up. Model calibration was assessed using the Hosmer-Lemeshow test, and performance was evaluated with the area under the ROC curve. Statistical analysis was conducted using R.

A total of 412 eyes from 412 patients were included. Of them, 239 (58%) were male. Mean age was 53.83 years (range 15.64–83.33), mean HbA1c was 8.26% (range 4.1–14), and baseline BCVA was 1.95 logMAR (range 0.1–2.7). ANV was observed in 48 eyes (11.7%), mean IOP was 13.69 mmHg (range 2–28), TRD in 189 eyes (45.9%), and previous PRP in 190 eyes (46.1%). Post-surgical vitreous hemorrhage occurred in 109 eyes (26.5%), and 65 eyes (15.8%) developed NVG after PPV, with a median onset of 150 days (range 1–2212). The IDR was 94 NVG events per 1000 person-years.

Multivariate analysis included 333 eyes with ≥ 365 days of follow-up. Significant variables were ANV, previous PRP, age > 55 years, gender, and post-surgical vitreous hemorrhage. An interaction between ANV and phacovitrectomy was also included. ANV (OR=4.17, 95% CI=1.51–11.25, $p=0.00478$) and post-surgical vitreous hemorrhage (OR=2.39, 95% CI=1.33–4.3, $p=0.00352$) were significantly associated with NVG. Age > 55 years was protective (OR=0.53, 95% CI=0.29–0.95, $p=0.0347$). Phacovitrectomy in patients without prior ANV was also associated with increased risk (OR=1.94, 95% CI=1.01–3.76, $p=0.04744$). The model showed good calibration (Hosmer-Lemeshow $p=0.7$) and moderate discrimination (AUC=0.6991).

These updated findings highlight ANV, post-surgical vitreous hemorrhage, and phacovitrectomy (in patients without previous ANV) as key predictors of NVG after PPV for PDR. Age > 55 years appeared protective, while gender had no significant effect. This analysis reinforces the need for personalized risk stratification to reduce NVG incidence in patients undergoing PPV for PDR.

Abstract 232

REPOSITIONED VERSUS EXCHANGED FLANGED INTRAOCULAR LENS FIXATION FOR INTRAOCULAR LENS DISLOCATION

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This study aimed to compare the outcomes of flanged intraocular lens (IOL) fixation with new IOL exchange after dislocated IOL removal and repositioned dislocated IOL in patients with IOL dislocation.

Eighty-nine eyes that underwent flanged IOL fixation were retrospectively included, with 51 eyes in the exchanged IOL group and 38 eyes in the repositioned IOL group.

In both groups, best-corrected visual acuity (BCVA) improved at 1, 3, 6, and 12 months postoperatively and did not differ between the two groups at any of these time points. However, at 1 week postoperatively, BCVA in the repositioned IOL group improved compared with baseline, whereas that in the exchanged IOL group did not. Moreover, there were lesser changes in the corneal endothelial cell density (ECD) and corneal astigmatism in the repositioned IOL group than in the exchanged IOL group. The IOL positions, including IOL tilt and IOL decentration, were not different between the groups.

Flanged IOL fixation

with new IOL exchange and with repositioned dislocated IOL for patients with IOL dislocation had similar visual outcomes and IOL position. However, the latter had a smaller corneal ECD decrease and astigmatic change. This technique was effective in treating IOL dislocation while minimizing corneal injury.

Abstract 236

CLINICAL OUTCOMES OF SING IMT™ IMPLANTATION FOR ADVANCED AGE-RELATED MACULAR DEGENERATION: THE FIRST CROATIAN EXPERIENCE AT EYE CLINIC SVJETLOST

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The aim was to evaluate the clinical effectiveness and safety of the SING IMT™ (Smaller-Incision New Generation Implantable Miniature Telescope) in patients with advanced age-related macular degeneration (AMD) and geographic atrophy (GA) at Eye Clinic Svjetlost. This population faces irreversible central vision loss, with limited benefit from existing therapies or external visual aids. SING IMT™ is designed to restore central vision and functional independence in these patients.

Eight patients with advanced AMD and GA were enrolled, meeting strict criteria: best-corrected visual acuity (BCVA) 20/80–20/800 (mean pre-op 0.12, 15.3±4.7 ETDRS letters), anterior chamber depth ≥ 2.5 mm (mean 3.09±0.23 mm), and endothelial cell count $\geq 1,600$ cells/mm² (mean 2,246±312 cells/mm²). All demonstrated at least a 5-letter gain using an external telescope simulator and passed mobility testing. The SING IMT™ was implanted in one eye, with the fellow eye preserved for peripheral vision. Patients were followed for 12 months postoperatively. Main endpoints were changes in BCVA, functional vision (reading, facial recognition), and surgical safety (endothelial cell loss, complications).

At 12 months, mean BCVA improved from 0.12 to 0.25 (+17 ETDRS letters, $p=0.007$). 85% of patients regained the ability to read newspapers, and 57% recognized faces at 2 meters. Endothelial cell loss was <10% in all cases, with no significant complications. 92% of patients preferred the implant over external aids, citing hands-free use and cosmetic invisibility. Compared to telescope glasses, SING IMT™ provided a wider field (54° vs. ≤ 20 °), greater magnification (2.7x), and better compliance.

These results confirm SING IMT™'s clinical efficacy and safety for advanced AMD at Eye Clinic Svjetlost, supporting its broader adoption in Croatia.

Stifter, E., Vujosevic, S., Janknecht, P., et al. (2024). Smaller-Incision New-Generation Implantable Miniature Telescope (SING IMT™) in pseudophakic eyes: Results of the first experiences. European Journal of Ophthalmology, 34(1), 34-41.

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Samsara Vision. (2023). SING IMT Device Secures Positive 6-Month Data for Late-Stage AMD. HCPLive

Abstract 240

CRUNCH SYNDROME FOLLOWING ANTI-VEGF INJECTION IN PROLIFERATIVE DIABETIC RETINOPATHY .CASE REPORT

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Crunch Syndrome occurs when there is excessively rapid regression of fibrovascular retinal neovascularization following anti-VEGF treatment (drugs inhibiting vascular endothelial growth factor) or, in some cases, overly intense retinal photocoagulation. In terms of the pathophysiology of neovascular regression, anti-VEGF therapy inhibits activity and reduces oxygen demand in the retina, leading to contraction of abnormal blood vessels. When this process occurs too quickly, fibrous tissue forms, which, upon contracting, may lead to retinal detachment or, at times, hemorrhage due to vessel rupture. This typically occurs 1-6 weeks after injection, with an average onset of 13 days.

The study presents a case report and details the surgical course in the left eye (OS) of a 42-year-old female patient suffered from proliferative diabetic retinopathy associated with newly diagnosed type II diabetes and uncontrolled blood glucose levels. The patient was initially qualified for retinal photocoagulation in both eyes. At the first visit, visual acuity was on logMAR scale 0,18 in the right eye (OD) and 0.1 in the left eye (OS). After partial retinal photocoagulation, approximately one month later, the patient experienced a hemorrhage in the left eye and worsening vision. Due to the inability to proceed with further laser treatment, the patient was qualified for intravitreal injection of anti-VEGF (Aflibercept) in the left eye. Within a few days, the patient exhibited regression of neovascularization, absorption of the hemorrhage, fibrosis, and ultimately, total tractional retinal detachment. At the time of surgery, visual acuity in the left eye was 1,6 (counting fingers at 1,5 meter).

The patient underwent vitrectomy with peeling of the epiretinal membranes and cataract removal, followed by the injection of silicone oil. At the second procedure the silicon was removed 12 months after the first surgery. Retinal reattachment was achieved, and visual acuity improved to 0,7 on logMAR scale.

Due to the potential complications arising from anti-VEGF therapy, such as rapid vascular regression, we do not recommend anti-VEGF therapy in such cases. A better approach in this would be gradual photocoagulation or, in cases where hemorrhage poses a barrier, early vitrectomy combined with retinal photocoagulation during surgery, with anti-VEGF administration 1-3 days prior to the procedure.

Anti-VEGF crunch syndrome in proliferative diabetic retinopathy: Yiran Tan, Akira Fukutomi, MDc · Michelle T. Sun, MBBS PhDa,b · Shane Durkin, MMed FRANZCOa,b · Jagjit Gilhotra, MMed FRANZCOa,b · Weng Onn Chan, MPhil FRANZCOa,b doi: 10.1016/j.survophthal.2021.03.001. Epub 2021 Mar 8

Favorable Anti-VEGF Crunch Syndrome: Nonsurgical Relief of Vitreoretinal Traction in Eyes With Proliferative Diabetic Retinopathy and Tractional Retinal Detachment.

Lee IT, Corona ST, Wong TP, Flynn HW Jr, Wykoff CC. Ophthalmic Surg Lasers Imaging Retina. 2022 Aug;53(8):455-459. doi: 10.3928/23258160-20220628-01. Epub 2022 Aug 1.

Prophylactic intravitreal injection of aflibercept for preventing postvitrectomy hemorrhage in proliferative diabetic retinopathy: A randomized controlled trial.

Qu J, Chen X, Liu Q, Wang F, Li M, Zhou Q, Yao J, Li X. Front Public Health. 2023 Jan 11;10:1067670.

doi: 10.3389/fpubh.2022.1067670. eCollection 2022.

Abstract 256

EVALUATION OF THE EFFECTIVENESS OF EXTENDED FARICIMAB THERAPY IN TREATMENT-NAÏVE PATIENTS WITH NEOVASCULAR MEMBRANES SECONDARY TO AGE-RELATED MACULAR DEGENERATION

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Age-related macular degeneration (AMD) is one of the leading causes of irreversible blindness in older adults worldwide. It is classified into two forms: dry (geographic atrophy) and neovascular (exudative), the latter being responsible for the majority of severe vision loss associated with the disease. Although neovascular AMD (nAMD) accounts for only 10–20% of all AMD cases, its rapid and aggressive progression presents a significant therapeutic challenge.

In advanced AMD, structural changes occur in the outer retina, retinal pigment epithelium (RPE), Bruch's membrane, and the choriocapillaris.³ Characteristic pathological findings include drusen deposits and choroidal neovascularization. Established risk factors include advanced age, smoking, high body mass index, hypertension, dyslipidemia, and genetic predisposition.

Clinical diagnosis relies on ophthalmological examination and imaging techniques such as optical coherence tomography (OCT) and OCT angiography (OCT-A), which help characterize the type and exudative activity of the neovascular membrane.

Since the introduction of anti-VEGF agents in 2004, the management of neovascular AMD has undergone a major transformation, enabling stabilization and even improvement of visual acuity. However, most of these agents exclusively target vascular endothelial growth factor (VEGF). While their efficacy is well established, treatment response varies among patients. Resistance, disease recurrence, and up to 30% of patients being classified as non-responders have been reported, possibly due to genetic variability, although the exact mechanisms remain unclear.

In response to these limitations, the development of novel therapies has focused on improving both visual and anatomical outcomes, while also reducing treatment burden. Faricimab is a recently FDA-approved bispecific antibody designed to simultaneously inhibit VEGF-A and angiopoietin-2 (Ang-2), the latter being implicated in blood-retinal barrier dysfunction, vascular leakage, and endothelial inflammation.

The TENAYA and LUCERNE trials demonstrated that Faricimab is non-inferior to aflibercept in terms of visual acuity gains, with sustained efficacy allowing treatment intervals of up to 16 weeks in a significant proportion of patients. Moreover, studies such as ALTAIR have shown that anatomical response after loading doses is a key predictor of functional outcomes and the number of injections required during the first year of treatment. Patients with no subretinal fluid after the initial phase exhibited better final visual acuity and required fewer injections.

In this context, the present study aims to evaluate the functional and anatomical efficacy of intravitreal Faricimab in treatment-naïve patients with neovascular AMD in a real-world clinical setting, and to assess its potential for establishing an extended treatment regimen after three loading doses.

Purpose:

To evaluate the functional and anatomical outcomes of intravitreal faricimab using a three-dose loading regimen in treatment-naïve patients with neovascular age-related macular degeneration (nAMD) in a real-world clinical setting, and to assess the feasibility of extended dosing intervals

thereafter.

Methods:

This retrospective study included 18 eyes from 14 patients diagnosed with treatment-naïve nAMD. All patients received three monthly intravitreal injections of faricimab (6.0 mg). Clinical evaluation included best-corrected visual acuity (BCVA, ETDRS letters) and spectral-domain optical coherence tomography (OCT) to assess anatomical biomarkers, including central macular thickness (CMT), subretinal fluid (SRF), intraretinal fluid (IRF), subfoveal choroidal thickness (SFCT), and pigment epithelial detachment (RPED). Patients were evaluated over a 32-week period. Extended dosing intervals (q12 or q16 weeks) were implemented based on anatomical stability after the loading phase.

At baseline, 72.2% of eyes had SRF and 55.6% had IRF. After three doses, SRF was present in only 16.7% of eyes, and IRF in 11.1%. CMT was significantly reduced ($p<0.001$), while SFCT did not show statistically significant change ($p=0.486$). RPED height also decreased significantly ($p=0.021$). Although BCVA showed a trend toward improvement, changes did not reach statistical significance ($p=0.058$). By the end of follow-up, 50% of eyes were extended to a 16-week dosing interval and 38.9% to a 12-week interval, with no observed signs of disease recurrence.

Faricimab demonstrated strong anatomical efficacy after a three-dose induction phase, with most patients achieving resolution of exudative activity and successfully transitioning to extended dosing intervals. These findings align with pivotal trials and support the clinical utility of faricimab in real-world settings, even with a reduced loading regimen. Early anatomical response may serve as a predictor of long-term treatment efficiency. Faricimab represents a promising therapeutic option for reducing injection burden while maintaining effective disease control in nAMD.

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Abstract 259

USE OF AUTOLOGOUS TENON PATCH GRAFT IN REFRACTORY MACULAR HOLES: A CASE SERIES

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Refractory or secondary macular holes (MH) remain a challenging condition, particularly in eyes with prior vitreoretinal surgery, tractional detachments, or degenerative retinal diseases. Conventional methods such as ILM peeling or inverted ILM flap techniques may not be feasible in cases where the ILM has already been removed or the retinal architecture is severely compromised.

In recent years, alternative tissue grafts have been introduced, including amniotic membrane, lens capsule, and neurosensory retina. Among them, the autologous Tenon's capsule graft has emerged as a promising option due to its availability, biocompatibility, and ability to act as a scaffold for retinal healing. It is harvested from the patient during surgery, eliminating the need for donor tissue or synthetic materials.

Several small series have demonstrated encouraging anatomical outcomes with Tenon grafts in treating refractory macular holes. However, reports remain limited, and clinical protocols are not yet standardized.

This poster presents a case series of four patients with complex retinal pathology and secondary or refractory MHs, treated using an autologous Tenon's capsule patch graft, combined with gas or silicone tamponade. We aim to evaluate its role as a practical and effective alternative in complicated surgical scenarios.

We present a retrospective interventional case series of four patients with refractory or secondary macular holes associated with complex retinal conditions. Two patients had proliferative diabetic retinopathy and underwent vitrectomy for tractional retinal detachment. Macular holes were identified intraoperatively during silicone oil removal. A third patient had high myopia with recurrent retinal detachment and macular hole formation. The fourth patient developed a macular hole following prior epiretinal membrane surgery complicated by retinal detachment.

In all cases, the internal limiting membrane (ILM) had already been removed or was not suitable for use. During reoperation, a small piece of autologous Tenon's capsule was harvested from the sub-Tenon space through the conjunctival incision, trimmed, and placed over the macular hole under perfluorocarbon liquid. Tamponade was performed using either C3F8 gas (14%) or silicone oil (5000 cs), depending on the individual case.

Patients were instructed to maintain face-down positioning for 5–7 days postoperatively. Anatomical outcomes were assessed using spectral-domain optical coherence tomography (SD-OCT) at regular postoperative intervals.

All four patients demonstrated successful anatomical closure of the macular holes, as confirmed by spectral-domain OCT within 4 to 8 weeks postoperatively. The autologous Tenon patch graft was clearly visible in the early postoperative period and showed gradual integration into the macular area.

SD-OCT revealed migration of glial-like tissue over the graft, suggesting biological activity and potential involvement in retinal repair.

Mild preretinal fibrosis and vascular distortion in the macular region were observed in all cases but remained stable without significant visual distortion. No significant intraoperative or postoperative complications, such as infection, graft dislocation, or elevated intraocular pressure, were reported.

Visual acuity improved modestly in three patients and remained stable in one case. The type of tamponade (gas or silicone oil) did not appear to significantly influence anatomical outcomes in this small series.

Follow-up ranged from 2 to 6 months, during which the macular holes remained closed in all patients, with no signs of reopening or graft-related inflammation.

Autologous Tenon's capsule patch graft is a safe, accessible, and effective technique for managing refractory or secondary macular holes in eyes with complex vitreoretinal pathology. In our case series, this approach resulted in complete anatomical closure in all patients, with evidence of glial tissue migration over the graft and stable retinal architecture. The technique offers a valuable alternative when conventional methods such as ILM flap are not feasible due to previous surgeries or severe retinal changes. Further studies with larger cohorts and longer follow-up are needed to evaluate visual outcomes and long-term graft behavior.

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Abstract 260

A CHALLENGING CASE OF SIMULTANEOUS PRESENTATION: VKH IN COEXISTENCE WITH TUBERCULOUS PANUVEITIS IN A 21-YEAR-OLD MALE

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Ocular tuberculosis and Vogt-Koyanagi-Harada (VKH) syndrome are distinct entities, although they may present with similar clinical features in rare cases.

Ocular tuberculosis is an infectious disease caused by *Mycobacterium tuberculosis*, more frequently observed in individuals with low socioeconomic status or immunosuppression. In contrast, VKH is an autoimmune inflammatory disease that targets melanocytes, particularly those located in the retina.

Chief Complaint and Medical History:

A 21-year-old male residing in the state of Sinaloa presented with painless progressive vision loss over a period of six months. During the clinical interview, the patient reported episodes of headache and nonspecific symptoms coinciding with the onset of visual decline several months ago.

Notably, his mother died of pulmonary tuberculosis one year earlier. No other relevant medical history was reported.

Physical Examination:

Visual acuity (both eyes): Counting fingers at 50 cm

Intraocular pressure (IOP): 11 mmHg in the right eye (OD), 12 mmHg in the left eye (OS)

OD:

Anterior chamber: 2+ cells

Posterior segment: Vitreous haze, inferotemporal serous retinal detachment with vitreous condensation over the area of detachment, demarcation line respecting the nasal sector, and macular folds observed.

OS:

Anterior chamber: 3+ cells

Posterior segment: Vitreous haze with inferior serous retinal detachment and macular folds present.

Macular OCT raster (OD and OS): Preserved vitreoretinal interface without abnormalities; disruption of inner and outer retinal architecture with increased subretinal fluid.

B-scan ultrasonography (OU): Anechoic vitreous with inferotemporal retinal detachment in both eyes.

Chest X-ray: Presence of a cavitary lesion suggestive of tuberculosis in the left pulmonary parenchyma (marked with an asterisk).

PPD test: Positive result with an induration of 17.4 mm.

The wide spectrum of clinical manifestations in ocular inflammatory diseases among patients without known comorbidities poses a significant diagnostic challenge. In such cases, a thorough clinical evaluation becomes essential to raise suspicion of underlying conditions, supported by a well-structured and targeted patient history.

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Abstract 266

MULTIMODAL DIAGNOSIS OF AN ASTROCYTIC HAMARTOMA

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It is a benign glial cell tumor located in the neurosensory. Its diagnosis is clinical, supported by imaging studies. It can be found in up to 80% of tuberous sclerosis cases, often presenting bilaterally and detected during or even prior to disease development. It can also occur in isolation (up to 29% of cases). It may also be an incidental finding, as observed in our patient.

Tuberous sclerosis, formerly known as Pringle-Bourneville phakomatosis, is caused by mutations in the tumor suppressor genes TSC1 and TSC2, which respectively encode the proteins hamartin and tuberin. Its incidence is approximately 1 in 6,000 to 10,000 live births. Autism, infantile spasms, epilepsy, and psychomotor developmental delay are frequently associated features. Common systemic manifestations include cutaneous, renal, pulmonary, and cardiac involvement.

We present a clinical case of a 10-year-old girl who presented for consultation due to visual difficulties at school. A mild neurodevelopmental delay was reported. The mother denied any history of seizures, renal problems, cardiac issues, or other relevant medical conditions. She reported history of a father with epileptic seizures without an established diagnosis.

Myopic astigmatism was diagnosed, and glasses were prescribed. Ophthalmological examination revealed a unilateral, multilobulated, yellowish, and shiny lesion in the inferonasal peripheral retina of the right eye. Multimodal imaging studies were performed.

Fundus Autofluorescence: Marked hyperautofluorescence of the lesion with a mild hyperautofluorescent halo. Calcified lobes were distinguishable.

Fluorescein Angiography: Early hyperfluorescence with a bed of superficial capillaries showing contrast retention that becomes diffuse as the study progresses.

OCT: Hyperreflective lesion with "moth-eaten" empty spaces, consistent with a type II astrocytic hamartoma. A transition from normal retina to thickening confined to the inner retina is observed, with mild edema surrounding the dome-shaped lesion.

Retinography: Asteroid hyalosis, a yellowish, multilobulated lesion with a mulberry-like appearance, covered by blood vessels, and elevated in the inferonasal quadrant.

It is crucial to be aware of the differential diagnoses for astrocytic hamartoma, which include amelanotic choroidal melanoma, melanoma metastasis, retinoblastoma, and others. Multimodal imaging is key to distinguishing it from these other entities. Evaluation by various specialists is essential to rule out tuberous sclerosis (a minor diagnostic criterion), neurofibromatosis, Usher syndrome, retinitis pigmentosa, and other phakomatoses.

Tuberous sclerosis can severely impact quality of life and overall health. Timely diagnosis can aid in the detection of other asymptomatic issues such as subependymal nodules, cerebral astrocytomas, autism spectrum disorders, cardiac rhabdomyomas, polycystic kidney disease, renal carcinoma, and lymphangioleiomyomatosis, among many others.

In this patient's case, no findings compatible with tuberous sclerosis or other associated conditions

were observed, leading to a diagnosis of solitary astrocytic hamartoma. Nevertheless, the patient will remain under surveillance every 6 months.

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Abstract 269

CLINICAL UTILITY AND DIAGNOSTIC RELEVANCE OF OUTPATIENT GENETIC TESTING FOR INHERITED RETINAL DISEASE IN A HIGH VOLUME RETINA PRACTICE

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Inherited retinal disorders (IRDs) are a heterogeneous group of progressive, vision-threatening diseases with a collective prevalence of approximately 1 in 3,000 to 4,000 individuals.^[1-2] Historically, access to genetic testing has been concentrated to academic centers, where specialized infrastructure and expertise allow for the interpretation of complex results.^[3-4] However, recent developments have begun to address these limitations. Sponsored testing programs now provide no-cost, non-invasive genetic testing—often via cheek swab samples—through commercial laboratories such as Invitae and Blueprint Genetics. Despite increased availability, the integration of genetic testing into non-academic ophthalmology settings remains limited, and little is known about its real-world utility in such environments. This study aims to evaluate the clinical utility of outpatient genetic testing for inherited retinal disorders in a community-based retina practice.

An IRB-approved retrospective chart review was performed between January 1, 2020 and May 31, 2025. Patients were eligible for inclusion if they had a clinical suspicion or diagnosis of an IRD and underwent genetic testing through commercial programs offered by laboratories such as Invitae and Blueprint Genetics.^[5] Demographic information was collected, including age, gender, comorbid conditions, ocular exam findings, and presumed diagnosis by the treating physician. Genetic results were defined as pathogenic (well-known mutational association), likely pathogenic (supportive literature with convincing clinical pathology), possibly pathogenic (novel mutation/relevant variant of uncertain significance), or negative/unrelated carrier.

136 patients met inclusion criteria. Average age was 52, and 63.97% were female. Average visual acuity at presentation was 20/38, and 80.9% of cases involved bilateral eyes. The majority of cases were referred for genetic testing for retinitis pigmentosa (25.6%), macular dystrophy (16.2%), cone-rod dystrophy (6.0%), and Stargardt's disease (6.0%). Associated clinical manifestations were reviewed descriptively and recorded. Genetic testing revealed a confirmed pathogenic mutation (e.g., BEST1, PRPH2, ABCA4, etc.) in 39.8% of patients. 10.2% were likely pathogenic, 9.1% possible pathogenic, and 40.9% negative/unrelated carrier. Of these, 66.1% were autosomal recessive, 18.6% autosomal dominant, 10.2% X-linked, and 5.1% mitochondrial. Common diseases found included retinitis pigmentosa (50.0%), pattern dystrophy (6.8%), Bests (6.8%), Stargardt's (5.1%), and Choroideremia (5.1%). 44.9% of genetic findings matched the suspected diagnosis by the treating physician, 51.5% of clinical suspicion went unsupported, and 3.7% identified an alternate diagnosis. In seven cases, a systemic syndrome was identified, including Krabbe disease, oculocutaneous albinism, and maternally inherited diabetes and deafness. Three cases demonstrated a previously undocumented or potentially novel mutation with a convincing clinical picture.

50.0% of patients tested were positive for pathogenic or likely pathogenic mutations, demonstrating a high yield for practice-changing information. Aside from diagnostic confirmation, these results are critical for estimating long-term visual prognosis and family planning (33.9% were strongly inherited disorders). Several cases offered a diagnosis incongruent with the physician's clinical assessment (e.g., choroideremia in suspect retinitis pigmentosa), which further supports the importance of IRD

testing. Cases in which a systemic syndrome was identified from ocular findings alone emphasize the life-altering importance of early diagnosis which can be associated with hearing loss (Ushers), skeletal abnormalities (Sticklers), and neurologic dysfunction (Krabbe). Wider community outreach may also help identify novel variants, as seen here, in which convincing clinical findings were associated with unpublished variants of uncertain significance. With the advent of outpatient genetic testing, high volume retina practices are well-positioned to broaden access for IRD diagnoses outside of the academic setting.

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Abstract 272

PERIFOVEAL CHOROIDITIS MIMICKING BRAO

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A 45-year-old female presented with sudden onset, painless diminution of vision in right eye for 2 weeks associated with floaters. There was no history of spectacle use. There was no history of trauma. She did not have any systemic illness. Vision in her right eye was 6/24 PR accurate and an IOP of 15. She was diagnosed as branched retinal artery occlusion outside and all her systemic investigations were negative. Left eye was normal with a vision of 6/6.

On anterior segment examination, she had a clear lens in both the eyes, her anterior chamber was quiet, did not have any cells/flare. Retrobulbar cells were absent in both the eyes. On posterior segment examination of the right eye, there was a perifoveal white patch. Retinal vessels were seen over the white patch. There was no vitritis in the right eye. The left eye fundus was normal. OCT macula of the right eye showed a hyper-reflective RPE and choroid with a CMT of 158um.

A diagnosis of perifoveal choroiditis was made and oral prednisolone 40mg OD was started after her chest XRAY came out to be normal. Oral prednisolone was tapered by 10mg every 2 weeks till 20mg, then by 2.5mg every 2 weeks till 2.5mg. Her TPHA/VDRL was negative. After 8 weeks of starting oral steroids, her perifoveal choroiditis had healed and she retained a vision of 6/24 in the right eye.

She was kept on low dose oral prednisolone for 4 weeks until the patch had completely healed. She was advised to follow up after 2 months.

Abstract 281

ADDRESSING THE DUAL CHALLENGE: TKP-ASSISTED POSTERIOR SEGMENT SURGERY WITH CONCURRENT PK

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Management of eyes with coexisting corneal opacities and posterior segment pathologies poses significant surgical challenges. Opaque or scarred corneas hinder visualization of the posterior segment, making standard vitreoretinal surgery technically difficult or even impossible. Temporary keratoprosthesis (TKP) allows for intraoperative visualization of the retina in such cases, enabling safe execution of complex posterior segment procedures. Combining TKP with penetrating keratoplasty (PK) in the same sitting offers an opportunity to address both anterior and posterior segment pathologies simultaneously. However, literature on anatomical and visual outcomes following this combined approach remains limited, especially in resource-constrained settings. With this in mind, we plan to evaluate the anatomical and visual outcomes of TKP-assisted vitreoretinal surgery combined with PK in patients with coexisting corneal and retinal pathology.

A retrospective review was conducted at a tertiary eye care center involving patients who underwent combined TKP-assisted pars plana vitrectomy and PK from Jan 2025 to June 2025. Clinical records were analyzed for demographics, preoperative diagnoses, surgical indications, visual acuity, intraoperative findings, and postoperative outcomes. Key surgical metrics included adequacy of intraoperative visualization, feasibility of posterior segment interventions, and final anatomical and visual results.

Six eyes of six patients were included.

Indications were:

- 1) Failed corneal graft with retinal detachment (n=2)
- 2) Corneal decompensation and scarring with dropped nucleus (n=1)
- 3) Corneal decompensation with IOL drop (n=2)
- 4) Perforated corneal ulcer with endophthalmitis (n=1)

All patients had preoperative vision limited to hand movements close to face. Intraoperatively, the TKP provided stable intraocular pressure and globe configuration, enabling clear visualization of the peripheral retina and allowing adequate vitrectomy with endolaser photocoagulation. ILM peeling was possible in 2 eyes with adequate macular clarity. Scleral-fixated IOLs were implanted in two cases during the same sitting. Postoperatively, 5 of 6 patients achieved best-corrected visual acuity better than 6/60. Anatomical success (retinal reattachment and clear graft) was achieved in all cases.

Temporary keratoprosthesis is a valuable tool in the management of complex ocular conditions involving both corneal opacity and posterior segment disease. When combined with penetrating keratoplasty, TKP-assisted vitreoretinal surgery enables adequate intraoperative visualization and facilitates successful anatomical and visual rehabilitation. This combined approach can be considered a viable and effective option in select cases with dual-segment pathology.

Abstract 288

FROM DIAGNOSIS TO STABILITY: A THERAPEUTIC ODYSSEY IN COATS DISEASE.

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Coats disease is characterized as an idiopathic retinal telangiectasia associated with intraretinal and/or subretinal exudation in the absence of significant retinal or vitreous traction. Telangiectasias are dilated retinal vessels with irregular caliber, ranging from small to medium in size.¹

The primary therapeutic goal is the ablation of telangiectatic vessels to achieve control and resolution of intra- and subretinal exudation.² Laser photocoagulation remains a first-line approach, as it effectively obliterates abnormal vasculature and aneurysmal dilations, thereby reducing exudative activity.² Vascular endothelial growth factor (VEGF) has been shown to be elevated in the vitreous and subretinal fluid of eyes affected by Coats disease. Zhao et al.³ demonstrated that VEGF levels correlate with disease severity, being significantly higher in advanced stages compared to healthy controls. Consequently, anti-VEGF agents have been explored as an adjunctive therapy to improve disease control and enhance outcomes when combined with laser treatment.^{4,5}

Conversely, cryotherapy is primarily indicated in patients with peripheral telangiectasia associated with extensive exudation and serous retinal detachment. It is particularly useful in advanced stages, as it can induce vascular closure even in detached retina.²

The aim of the present report is to illustrate the clinical utility of a combined therapeutic approach in the management of Coats disease.

We report the case of a 13-year-old male with no significant medical history who presented with a sudden-onset central scotoma in the right eye, with a two-week evolution. Best-corrected visual acuity (BCVA) measured 20/150 in the right eye and 20/20 in the left eye.

Anterior segment examination of both eyes was unremarkable. Fundus evaluation of the left eye showed no abnormalities, while the right eye demonstrated a yellow-orange optic disc with approximately 30% cupping, extensive intra- and subretinal lipid exudation predominantly involving the macular region and extending along the inferior temporal arcade, as well as bulbous telangiectatic vessels at the distal portion of the same arcade.

Multimodal imaging was performed to further characterize the findings. Optical coherence tomography (OCT) of the macula revealed hyperreflective material within the inner retinal layers and subfoveal subretinal fluid extending temporally. Fluorescein angiography (FA) demonstrated hyperfluorescence corresponding to anomalous telangiectatic vessels, mainly in the inferior temporal arcade and areas of active exudation. B-scan ultrasonography identified a linear, highly reflective, non-mobile echogenic band extending between the 6- and 8-o'clock meridians, consistent with a shallow serous retinal detachment. The greatest detachment height, 0.77 mm, was localized in the inferior temporal quadrant (7-o'clock meridian) near the equator.

Based on the clinical and imaging findings, a diagnosis of Coats disease, stage 3A, was established in the right eye. A combined treatment strategy was initiated. The first intravitreal injection of afibercept

was administered at diagnosis, followed by a scheduled session of cryotherapy and a second anti-VEGF injection three weeks later.

At the 2-month follow-up, OCT revealed a marked reduction in subretinal fluid and decreased hyperreflective material in the outer retinal layers, indicating a partial therapeutic response. Consequently, a third intravitreal afibbercept injection was administered.

However, at 4 months, OCT showed renewed accumulation of hyperreflective subretinal deposits, while FA revealed persistent telangiectatic vessels with increased exudation in the inferior hemiretina. This progression prompted a fourth intravitreal afibbercept injection combined with a second cryotherapy session targeting the affected retinal areas.

Despite these interventions, persistent exudation and a shallow inferior serous retinal detachment were observed at month 8. Therefore, a fifth intravitreal afibbercept injection and a third cryotherapy session were performed.

Subsequent control FA demonstrated hyperfluorescence corresponding to capillary closure areas, with a residual abnormal vessel in the inferior temporal quadrant. As the subretinal fluid had resolved, selective laser photocoagulation was applied to residual telangiectatic vessels, followed by a sixth intravitreal afibbercept injection.

At the 16-month follow-up, BCVA in the right eye had stabilized at 20/500. Fundus examination revealed residual lipid exudation in the posterior pole and inferior hemiretina without evidence of active leakage. Scars from previous cryotherapy sessions were evident in the inferior retina. FA confirmed the absence of leakage or filling defects, indicating a quiescent disease state.

This case highlights the therapeutic benefit of a multimodal, stepwise approach for the management of Coats disease with extensive exudation and localized serous retinal detachment. While initial anatomical improvement was achieved with intravitreal anti-VEGF monotherapy, disease reactivation required the sequential integration of cryotherapy and selective laser photocoagulation, enabling progressive control of telangiectatic vessels and resolution of subretinal fluid.

Although long-term visual recovery remained limited due to chronic macular damage, the combined use of anti-VEGF agents, ablative therapies, and imaging-guided follow-up successfully achieved anatomical stabilization and prevented further disease progression.

This case underscores the importance of personalized, multimodal therapy in Coats disease, especially in advanced stages where monotherapy is insufficient to achieve sustained control.

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Abstract 291

INTRAOCULAR INFLAMMATION FOLLOWING INTRAVITREAL FARICIMAB: A SYSTEMATIC REVIEW AND META-ANALYSIS

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To evaluate the prevalence, characteristics, and clinical outcomes of intraocular inflammation (IOI) associated with intravitreal faricimab (IVF) in patients with neovascular age-related macular degeneration (nAMD) and diabetic macular edema (DME).

Following PRISMA guidelines, a comprehensive search of PubMed, Web of Science, Scopus, Embase, and CENTRAL databases was performed from inception to February 2025. Using the random-effects model, weighted proportions, standardized mean differences (SMD), and weighted log odds ratios were pooled and calculated. A two-tailed p-value of <0.05 was considered statistically significant. The χ^2 (z) test and the Higgins I² test were used to assess studies heterogeneity. Funnel plots and Egger's test were used to identify publication bias.

We conducted a systematic review and meta-analysis of 24 studies (4,761 patients; 5,652 eyes). The pooled IOI prevalence was 21.3% (95% CI: 7.9 – 46.1; raw proportion: 7.3% [n = 411/5,652 eyes]). Uveitis (51.1%) and vitritis (20.4%) were the most common IOI signs. IOI odds were nonsignificantly lower in DME compared to nAMD patients (OR: 0.69 [95% CI: 0.49 – 0.84], p = 0.06). IVF significantly improved best-corrected visual acuity (SMD: 0.29 logMAR [95% CI: 0.02 – 0.56], p = 0.03) and reduced central macular thickness (SMD: 34.52 μ m [95% CI: 2.22 – 66.81], p = 0.04).

While IVF demonstrates therapeutic efficacy, our findings highlight a clinically relevant risk of IOI. We, therefore, recommend vigilant monitoring for all patients receiving IVF, especially those with nAMD. Further long-term safety studies are warranted to optimize monitoring strategies.

Abstract 296

INCIDENCE AND VISUAL OUTCOMES OF ENDOPHTHALMITIS AT A HIGH-VOLUME RETINA PRACTICE: REAL WORLD DATA ON FARICIMAB AND HIGH-DOSE AFLIBERCEPT

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Visual outcomes in endophthalmitis are highly variable and influenced by factors such as the causative agent, time to presentation, and procedure. The purpose of this study was to review all cases of endophthalmitis at a high-volume retina practice, focusing on risk factors and outcome differences across infection sources. As an additional objective, we sought to determine the real-world rate of endophthalmitis using contemporary agents like Faricimab (IVF) and high-dose Aflibercept (HD-IVA).

An IRB-approved retrospective chart review of patients (Jan 2020–Dec 2024) with a presumed diagnosis of endophthalmitis was conducted. Patients were identified via ICD-10 codes and intravitreal antibiotic logs. The primary outcome was final visual acuity. Patients were excluded if they were determined to have an alternate diagnosis, such as intraocular inflammation. Multivariate analyses and logistic regression assessed potential predictors of poor visual outcome, such as age, presenting visual acuity (VA), referred (external) vs. internal infection, time to presentation, and type of bacterium ($p < 0.05$).

A total of 199 patients met inclusion criteria (96 internal, 103 referred). Of these, 16.6% (33/199) were diagnosed with non-infectious intraocular inflammation (e.g., post-operative inflammation), and 2.5% (5/199) with a parasitic/viral agent (e.g., CMV retinitis). 81.6% of referred endophthalmitis cases were post surgical, followed by intravitreal injection (IVI) (11.7%). 73 eyes occurred from internal IVI (total = 151,933 injections), resulting in an infection rate of 0.048%. The rate of infection with IVF and HD-IVA was 0.056% (11/19743) and 0.0% (0/2980) respectively. There was no significant difference in visual outcomes between IVF and other anti-VEGF agents ($p=0.249$).

VA recovery from presentation was significantly worse in community-referred IVI ($n=12$) compared to internal cases ($n=73$), with a recovery of 0.413 LogMAR and 0.977 LogMAR, respectively ($p=0.019$). While there was an average increase in time to treatment from symptom onset for the community-referred cases (2.55 days versus 1.70 days), the difference was not statistically significant ($p=0.129$). Amongst internal IVI, 24 returned to their pre-infection visual acuity. Multivariate analyses for internal IVI showed no significant difference in visual recovery based on time from symptom onset to treatment, presenting visual acuity, intravitreal steroid use, anti-VEGF given, or post-infection vitrectomy. Age was the only significant factor associated with decreased visual recovery ($p = .029$). Only 42.2% (68/161) of endophthalmitis cases were culture-positive, with the most common pathogen being *Staphylococcus epidermidis* (31/68), with no significant difference in visual recovery based on bacterial classification ($p=0.205$).

Endophthalmitis remains a visually devastating condition with varied risk factors. The incidence of internal IVI-related infection was consistent with published rates (~0.06%) (1). Visual recovery was significantly worse in community-referred IVI which suggests delays in diagnosis or access when compared to a retina-only clinic, though this was not significant. Accurate diagnosis remains challenging, with approximately one in six cases diagnosed as sterile intraocular inflammation instead. Few studies have published rates of endophthalmitis using IVF and IVA-HD. The TRUCKEE study for

IVF reported an endophthalmitis rate of 0.2% (2/2,241) and phase 3 clinical trial data reported an incidence of 0.15% (3/1,996) (3,4). Real-world IVA-HD data remains sparse, with 0.0% reported across IVA-HD phase 3 studies (0/950) (5,6). Interestingly, our IVF rates were much lower than published values when looking at a substantially larger sample size. Rates of endophthalmitis between the two agents, IVF vs. IVA-HD, remained non-significant.

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Abstract 298

SOCIAL DETERMINATES OF HEALTH ASSOCIATED WITH PROGRESSION FROM NONPROLIFERATIVE TO PROLIFERATIVE DIABETIC RETINOPATHY: A SURVIVAL ANALYSIS

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Diabetic retinopathy (DR) is the most common microvascular complication of diabetes mellitus, affecting more than 103 million individuals globally as of 2020 (Kropp et al. 2023). Among these cases, vision-threatening diabetic retinopathy (VTDR)—which encompasses proliferative diabetic retinopathy (PDR)—impacts 28.54 million adults worldwide and remains the leading cause of preventable blindness among working-age adults (Kropp et al. 2023; Teo et al 2021). PDR, characterized by retinal neovascularization, represents the most advanced stage of diabetic eye disease. Progressing from nonproliferative (NPDR) to PDR represents a transition that greatly increases the risk of complications including tractional retinal detachment, neovascular glaucoma, and developing irreversible blindness (Chen et al. 2021).

Many clinical factors have been studied that suggest correlations with the progression to PDR. Several cohort studies have established progression rates may be based on initial retinopathy staging. Patients with moderate NPDR saw a three-fold increase in progression risk of 17.6% progressing to PDR within 5 years compared to 5.8% of patients with mild NPDR (Moshfeghi et al 2020). Another study followed 230 patients and demonstrated that severe NPDR carried a 19.3% probability of progression to PDR within a year and 76.4% within seven years (Chen et al. 2021). Glycemic control, measured by HbA1c levels, remains as the most significant modifiable risk factor (Chen et al. 2021; Zhao and Liu 2024). Every one-percentage-point increase in HbA1c is associated with a 58% increased risk of developing DR and a 14% increased hazard of progression to PDR (Alvarez-Ramo 2020; Harris Nwanyanwu et al. 2013).

However, progression of DR to PDR may involve a complex interplay of these clinical risk factors along with social determinants of health as equally critical modifiers of disease trajectory. In our study, we evaluated how social determinants of health are associated with the progression from NPDR to PDR. To our knowledge, this is the first study in the English literature to assess how various social factors relate to the risk of progressing to PDR.

We obtained a cohort of patients diagnosed with diabetic retinopathy from the NIH All of US Research Program, a nationwide database committed to diversity and equity aimed at enrolling at least 1 million people (Ginsburg et al. 2023). Approval from the Institutional Review Board (IRB)/Ethic Committee was obtained. At the time of our analysis, there were 631,420 patients enrolled.

Our cohort consisted of patients who answered nine dichotomous (yes/no) questions in the Healthcare Access and Utilization Survey. These questions are as follows: during the past 12 months was there any time where you had to pay out of pocket for medication; couldn't afford to pay the medication co-pay; skipped medication doses to save money; took less medication to save money; delayed filling medication to save money; asked your doctor for a lower cost medication to save money; bought medication from another country to save money; couldn't afford follow-up care; didn't have transportation.

We performed Cox proportional hazards regression models to obtain hazard ratios (HR) and 95% confidence intervals (CI) for the association between progression to proliferative diabetic retinopathy and socioeconomic factors, barriers to care, and medication affordability. The statistical tests were 2-sided. P values were considered statistically significant at the $\alpha = .05$ level. Through the NIH All of Us Researcher Workbench, analyses were conducted using the R software version 4.1.0 (The R Foundation) and are available in the referenced notebook.

Our cohort consisted of 2,348 patients with nonproliferative diabetic retinopathy (NPDR), with 87.2% that did not convert to proliferative diabetic retinopathy (PDR) and 12.8 % that converted to PDR. Of those who did not convert to PDR, 53.9% were NH White, 17.0% were NH African American, 19.0% were Hispanic (any race), and 10.1% were other. Of those who did convert to PDR, 49.3% were NH White, 21.0% were NH African American, 21.3% were Hispanic (any race), and 8.3% were other. Conversion to PDR (69 years) was higher compared to 66 years for non-conversion to PDR. There was no significant difference between the number of females and males as study participants in both conversion and non-conversion to PDR categories. Health insurance:[] Individuals with a higher income were also associated with lower risk of conversion to the proliferative stage, specifically those in both the \$50,000 to \$100,000 (HR: 0.64; 95% CI: 0.52-0.80) and over \$100,000 (HR: 0.77; 95% CI: 0.60-0.97) categories (Table 2).

In our survival analysis adjusting for age, gender, insurance status, education, and income, we found that factors related to access to care and affordability were significantly associated with risk of progression from nonproliferative to proliferative diabetic retinopathy. Over the study period, 300 (12.8%) individuals converted to the proliferative stage, with a mean time to event of 2,615 days. Factors associated with the highest risk of conversion to proliferative stage included not being able to afford medication (HR: 1.40; 95% CI: 1.18-1.68), follow-up care (HR: 1.30; 95% CI: 1.01-1.68), delaying filling medication to save money (HR: 1.27; 95% CI: 1.04-1.56), and not having transportation (HR: 1.32; 95% CI: 1.10-1.60) (Table 3 and 4 OR Figure 1 and 2).

Based on our review of the English literature, this is the first study examining various social factors and their risk of progression to PDR. In this nationwide study of a large cohort of patients with NPDR, we found that affordability and access to care has been shown to increase the risk of PDR progression, specifically affordability of medication and follow-up appointments as well as lack of transportation.

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Abstract 299

REAL-WORLD INCIDENCE AND CHARACTERISTICS OF STERILE INTRAOCULAR INFLAMMATION FOLLOWING INTRAVITREAL INJECTION WITH FARICIMAB AND HIGH-DOSE AFLIBERCEPT

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The objective of this study is to report the real-world incidence and characteristics of sterile intraocular inflammation (IOI) following intravitreal injection (IVI) of faricimab (IVF) and high-dose aflibercept (HD-IVA) in patients treated for wet age-related macular degeneration (wAMD), diabetic macular edema (DME), and retinal vein occlusion (RVO) at a high-volume retina practice.

This IRB-approved retrospective chart review analyzed patients who had IVF- or HD-IVA-associated IOI between January 2022 and June 2025. Demographic, clinical, and treatment data were collected. Visual acuity (VA), central subfield thickness (CST), and intraocular pressure (IOP) were recorded at the time of injection, upon initial presentation with IOI symptoms, and after resolution. Fisher's exact tests, Mann-Whitney U tests, and Wilcoxon signed-rank tests were used to assess statistical significance ($p<0.05$).

31 cases (age 76.3 ± 12.0 years, 73.1% female) of IVF-related IOI were identified out of 24,601 IVI (incidence 0.13% per injection [95% CI: 0.09-0.18%], 1.09% per patient). 8 cases (age 82.3 ± 6.7 years, 62.5% female) of HD-IVA-related IOI were identified among 4,370 IVI (incidence 0.18% per injection [95% CI: 0.09-0.36%], 0.88% per patient). There was no difference in the IOI rate between these two agents ($p=0.37$). wAMD was the most common treatment indication, accounting for 17 (63.0%) IVF and 8 (100.0%) HD-IVA cases. The median number of injections prior to developing IOI was significantly higher for IVF (5.0, IQR: 4.0-7.0) compared to HD-IVA (1.0, IQR: 1.0-2.5, $p=0.016$). For IVF, median time to symptom onset was 3.0 days (0.0-13.5), time to presentation in clinic was 19.5 days (7.5-33.3), and time to resolution was 56.0 days (35.5-95.0). For HD-IVA, symptoms typically appeared at 7.0 days (1.5-17.5), patients returned to clinic at 14.0 days (10.0-39.5), and resolution occurred after 59.0 days (48.0-101.5).

74.1% of IVF eyes presented with anterior chamber (AC) cell/flare and 63.0% with vitritis. In contrast, 87.5% of HD-IVA eyes presented with vitritis and 62.5% with AC cell/flare. 63.0% of IVF and 75.0% of HD-IVA cases resolved with topical steroids alone. 25.9% IVF and 12.5% of HD-IVA cases required intravitreal steroid therapy. 3 (11.1%) IVF cases and 1 (12.5%) HD-IVA case required vitrectomy.

Nearly half of IVF eyes (13, 48.1%) and a substantial proportion of HD-IVA eyes (3, 37.5%) had worsened retinal disease status following IOI. Only lower pre-inflammation IOP was associated with VA loss in IVF cases ($p=0.002$); no significant associations were observed among HD-IVA cases. While IOI following HD-IVA demonstrated a worse presenting VA (logMAR 0.980 vs. 0.733 for IVF), this difference was not significant ($p=0.89$). Furthermore, there was no significant difference in VA, CST, and IOP before inflammation versus after resolution in patients treated with either agent. 10 (37.0%) IVF eyes were re-exposed to IVF, 3 of which developed a repeat reaction. Only 1 (12.5%) HD-IVA eye was re-trialed on the drug, without recurrence.

The IOI rates presented in this retrospective review are consistent with clinical trial data for both agents: 1-3.3% per patient for IVF and 0-1% per patient for HD-IVA [1-4]. While trials suggest a higher incidence for IVF, the difference in IOI rates in this cohort was small and not statistically significant. Additionally, no cases were associated with occlusive retinal vasculitis despite a recent label update for IVF. Post-HD-IVA IOI may present as a more acute and robust inflammatory reaction, as evidenced by the earlier presentation to the clinic, fewer injections prior to inflammation, and higher frequency of dense vitritis. In contrast, the greater IVF injection count prior to inflammation suggests that early IVF tolerance does not protect against subsequent IOI. Fortunately, in most cases, topical therapy alone over a two-month time frame resulted in a return to baseline. This study is limited by its retrospective design and the infrequent occurrence of IOI after IVI.

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Abstract 302

CAN OPTIC COHERENCE TOMOGRAPHY ANGIOGRAPHY PREDICT CORONARY ARTERY DISEASE?

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To explore the potential of Optical Coherence Tomography-Angiography (OCTA) parameters for the non-invasive diagnosis of Coronary Artery Disease among patients who have undergone coronary computerized tomography angiography (CCTA).

This retrospective study comprised 49 patients, divided into two groups based on the fundus photo examination, depending on whether their vessels exhibited atherosclerotic findings or not. Macular and optic nerve head OCT-A parameters, involving foveal avascular zone, perifoveal and parafoveal superficial and deep vascular and perfusion density values, were evaluated in all 4 (superior, inferior, nasal, and temporal) quadrants. Coronary CTA findings (AGATHAN score) were retrieved from the database of the Interventional Radiology Section. Accompanying systemic diseases were noted, including hypertension, diabetes mellitus, and hypercholesterolemia.

All patients with coronary artery stenosis were in the atherosclerosis (AS) group ($p<0.001$). Total cholesterol levels were higher in the AS group than in the control group ($p=0.005$). Most of the macular vascular and perfusion density values in the AS group differed statistically from those in the control group and correlated with the rate of coronary stenosis ($p<0.005$). Optic nerve head vessel density in the inferior quadrant was higher in the AS group and correlated with the rate of stenosis in the coronary arteries ($p=0.0045$; $r=0.397$, $p=0.036$).

In light of our study, hypercholesterolemia affects both the retinal microvasculature and coronary arteries simultaneously. As OCTA parameters are correlated with coronary artery stenosis, OCT-A may be used for the early diagnosis of coronary artery disease before invasive procedures such as CTA.

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Abstract 304

ROLE OF 18-FLUORODEOXY-GLUCOSE POSITRON EMISSION TOMOGRAPHY/ COMPUTED TOMOGRAPHY IN UVEAL MELANOMA MANAGEMENT: A PROSPECTIVE INTERVENTIONAL STUDY

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Uveal melanoma (UM) is the most common primary intraocular malignancy in adults and exhibits highly variable clinical behaviour depending on tumour biology and patient-specific factors. Despite advances in local tumour control, metastasis—particularly hepatic—remains the principal cause of mortality, with survival rates strongly linked to molecular and histopathological characteristics. 18F-fluorodeoxyglucose positron emission tomography/computed tomography (18F-FDG PET/CT) has emerged as a valuable imaging modality to assess the metabolic activity of various malignancies. In UM, the tumour's glycolytic activity—quantified by standardised uptake values (SUVs)—can potentially reflect tumour aggressiveness and may correlate with established prognostic factors such as tumour size, location, mitotic count, epithelioid cell type, extra-scleral extension, and chromosome 3 monosomy. This study aims to correlate the metabolic activity of primary uveal melanoma on 18-fluorodeoxyglucose Positron Emission Tomography/Computed Tomography (18-FDG PET/CT) scan with the known clinical and pathological prognostic factors.

This prospective interventional study recruited 30 cases of primary uveal melanoma. Whole-body 18 FDG PET/CT scans were performed before enucleation or plaque brachytherapy and at 12 months after treatment to assess the SUVmax of the tumour and its correlation with known clinical, histopathological high-risk features, and the metabolic response to treatment at the 12-month follow-up.

Out of 30 patients, 22 underwent enucleation and eight underwent eye-conservative management. Tumours in all 30 eyes showed a mean 18 FDG SUVm uptake of 4.93(range 1.1-13.81). The mean patient age was 48.9 years (SD 14.5 years). SUVmax values were found to have a significant correlation with the tumour's largest basal diameter, apical thickness, retinal detachment, proximity to the optic disc and presence of necrosis. SUVmax did not statistically correlate with age, gender, laterality, ciliary body involvement, pigmentation, location, proximity to fovea, histopathology and local invasion. In the conservatively managed group, the metabolic activity showed a corresponding decrease with the tumor response to conservative radiation treatment.

Baseline FDG PET/CT has been found useful to prognosticate the high-risk uveal melanoma patient for early and more aggressive treatment and follow-up.

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Abstract 312

PROPHYLACTIC BUCKLING IN RETINAL CAPILLARY HEMANGIOBLASTOMA (RCH): EARLY INTERVENTION TO PREVENT PROGRESSION IN ONE-EYED PATIENTS WITH RCH

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Retinal capillary hemangioblastoma (RCH) is a rare, benign vascular tumor of the retina, most commonly associated with von Hippel-Lindau disease (VHL), a hereditary multisystem disorder. RCH typically presents with multiple retinal lesions that may lead to vision loss due to complications such as retinal detachment, macular edema, and hemorrhages. In some cases, these complications can progress to tractional retinal detachment (TRD) or rhegmatogenous retinal detachment (RRD), both of which have significant implications for long-term visual prognosis.

Given the potential for significant morbidity, early detection and timely intervention in patients with RCH are crucial. One particularly vulnerable population are patients who have already lost vision in one eye, placing the remaining eye at risk for further visual deterioration due to retinal complications. In this context, prophylactic scleral buckling with cryotherapy has emerged as a promising intervention aimed at preventing progression to retinal detachment, particularly in patients with one functional eye.

This case highlights the role of early intervention in one-eyed patients with retinal capillary hemangioblastomas associated with VHL disease, focusing on the potential benefits of scleral buckling and cryotherapy to avert retinal detachment.

A 29-year-old female presented with progressive diminution of vision in her right eye (RE) over the past three years. The patient had previously undergone laser photocoagulation of the right eye at an outside facility. Her best-corrected visual acuity (BCVA) was no light perception (NLP) in the right eye and 6/9 in the left eye (LE). The patient's medical history was otherwise unremarkable, with no systemic comorbidities other than a history of mild renal cysts noted previously.

On examination, the right eye was found to be in a state of severe degeneration, with total hyphema and features of phthisis bulbi (a disorganized, atrophic globe). Ultrasound imaging confirmed the diagnosis of phthisis bulbi, with evidence of a structurally compromised eye. The anterior segment of the left eye (LE) appeared unremarkable.

Fundus examination of the left eye revealed the presence of multiple small, orange-reddish nodular lesions, consistent with hemangioblastomas. The lesions were seen to have dilated feeder and draining vessels, characteristic of RCH. Based on these findings, a diagnosis of retinal capillary hemangioblastoma (RCH) was made. Given the bilateral nature of the lesions and the patient's age, further systemic workup was advised to investigate the possibility of von Hippel-Lindau disease (VHL).

The systemic workup, including abdominal ultrasound, CT imaging, and MRI, revealed a simple renal cyst and multiple pancreatic cysts, confirming the diagnosis of von Hippel-Lindau disease. In light of these findings, the patient was advised to undergo laser photocoagulation to treat the retinal lesions in her left eye.

At the one-month follow-up, the patient was noted to have developed traction associated with one of the retinal hemangioblastomas in the left eye. The retinal lesion showed signs of progressive vascular tortuosity, and there was tractional pulling on the retina, raising concerns for potential tractional retinal detachment (TRD) or the development of rhegmatogenous retinal detachment (RRD). Given the high risk of retinal detachment in this patient with VHL, and the fact that she had already lost vision in her right eye, the decision was made to intervene early with prophylactic scleral buckling and cryotherapy.

The patient underwent scleral buckling surgery combined with cryotherapy applied to the area of traction near the hemangioblastoma. Scleral buckling was performed to relieve the tractional forces on the retina and prevent further progression to detachment, while cryotherapy was applied to induce a controlled chorioretinal scar around the area of the hemangioblastoma, aiming to seal off any potential break and stabilize the retina.

In the immediate postoperative period, the patient experienced macular exudation and a decrease in BCVA, likely due to the inflammatory response following cryotherapy. However, at the one-week follow-up, the subretinal fluid had resolved, and the BCVA improved to 6/9, which remained stable at the three-month follow-up.

This outcome was considered favorable, as the patient had a significant recovery of vision despite the initial post-operative complications. There were no signs of retinal detachment, and the hemangioblastoma appeared to be under control with no further progression. The patient continued to be closely monitored, with regular follow-up visits to assess the integrity of the retina and to ensure that no new complications arose.

This case illustrates the significance of early intervention in one-eyed patients with retinal capillary hemangioblastomas (RCH), particularly those with von Hippel-Lindau disease (VHL), to prevent progression to retinal detachment. Prophylactic scleral buckling combined with cryotherapy proved to be an effective strategy in this patient, stabilizing the retina and maintaining visual function. Early detection, regular monitoring, and prompt surgical intervention are crucial in managing RCH, especially in patients with only one functional eye, where preserving vision is of utmost importance.

Abstract 315

CRUNCH SYNDROME IN DIABETIC TRACTION RETINAL DETACHMENT

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Crunch Syndrome is reported as an infrequent finding in eyes with proliferative diabetic retinopathy following antiVEGF injection. The reasons are yet to be defined.

Two type I- DM cases with proliferative DRP and DTRDs who develop Crunch Syndrome following preoperative antiVEGF injection will be presented.

Two cases had type I DM with poor metabolic control. Both were young patients; one is a female 37yrs old, and the other was a male 44 yrs old. Both had DTRD in which vitrectomy was planned. Both eyes had preoperative argon laser FC, the first one on the same day , the second patient 1 month before surgery. AntiVEGF (Eylea) was injected 5 days and 3 weeks before the PPV, with full and half dose respectively. Although vitrectomy was scheduled following anesthesia approval, to be 3 days following the intravitreal injection, the surgeries could be performed at the 5th and 21st day due to patients' systemic conditions and availabilities.

Fast progression of the DTRDs with very strong adhesions of the membranes to the retina was observed. Meticulous and careful dissection and delamination could be performed with total attachment of DTRDs yielding improved functional outcomes.

Crunch Syndrome in eyes with proliferative diabetic retinopathy following antiVEGF injection is an issue to keep in mind. Additional argon laser FC can be an additive factor. Especially type I young diabetics with poor metabolic control may have a tendency of rapid progression. The eyes with fibrous components may be at risk. AntiVEGF dose may be decreased to half. Larger series are warrented to evaluate the high risk eyes.

Abstract 317

UNUSUAL COEXISTENCE OF ROTH SPOTS AND RETINOPATHY OF PREMATURITY IN A PRETERM NEONATE WITH SEVERE COMBINED IMMUNODEFICIENCY: A COMPLEX RETINAL MICROVASCULAR AND IMMUNOLOGICAL INTERACTION

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Roth spots are well-defined retinal hemorrhages with white or pale centers, historically described in the setting of bacterial endocarditis but now understood to be nonspecific indicators of retinal microvascular injury secondary to diverse systemic pathologies. Their pathogenesis involves focal endothelial damage, immune complex deposition, and localized ischemia, manifesting ophthalmoscopically as hemorrhagic lesions with a characteristic pale center composed of fibrin, leukocytes or infectious agents.¹

In neonatology, Roth spots are an uncommon finding. Their detection in preterm infants with retinopathy of prematurity (ROP), represents a complex clinical challenge. ROP remains a leading cause of childhood blindness globally². When Roth spots coexist with ROP, the clinical and pathophysiological implications become multifaceted, especially in neonates with concomitant severe combined immunodeficiency (SCID), which predisposes to recurrent systemic infections and profound immune dysfunction.

This case report presents the intricate retinal manifestations in a 32 week preterm neonate diagnosed with SCID, highlighting the intersection of infectious microangiopathy, immune compromise, and ROP related vascular immaturity. This rare clinical scenario underscores the critical role of retinal examination as a window into systemic vascular and immunological status in fragile neonates.

Case description

The patient, a male neonate born at 32 weeks gestation via cesarean section, weighed 1,005 grams at birth was admitted to the neonatal intensive care unit due to respiratory distress syndrome and multiple systemic complications. Prenatal history was significant for intrauterine growth restriction and ambiguous genitalia. Initial management included surfactant therapy and mechanical ventilation.

Despite aggressive neonatal care, the infant developed severe, recurrent multidrug resistant sepsis involving *Staphylococcus* and *Klebsiella* species, thrombocytopenia, anemia refractory to transfusions, and profound lymphopenia consistent with SCID, confirmed by immunophenotyping demonstrating markedly reduced CD3+, CD4+, and CD19+ lymphocyte populations, and hypogammaglobulinemia. The patient received immunoglobulin replacement and was planned for hematopoietic stem cell transplantation.

Serial retinal assessments initially demonstrated marked retinal immaturity with incomplete vascular development and no evidence of Roth spots. Two weeks later, type I ROP with arteriovenous shunting was identified, prompting intravitreal anti-VEGF therapy. An intravitreal Wetlia injection was administered to the neonate at a corrected age of 36.1 weeks, corresponding to 29 days of life, at which time Roth spots were absent. One week after the injection, generalized Roth spots appeared in both eyes, which also showed persistent zone II vasculature with arteriovenous shunts and pre-plus disease. On subsequent examinations, the Roth spots gradually resolved, disappearing completely

three weeks post-injection, at which point both eyes continued to demonstrate zone II vessels consistent with type II ROP. At the most recent follow-up, vascular extension into zone II–III was noted bilaterally, with persistent type II ROP and no appearance of new Roth spots.

Echocardiographic studies ruled out bacterial endocarditis or cardiac vegetations as embolic sources. The retinal hemorrhages were attributed to systemic microvascular injury secondary to septic emboli, immune complex deposition, thrombocytopenia, and the fragile retinal vasculature inherent to prematurity and ROP.

The coexistence of Roth spots and ROP in this neonate provides unique insight into retinal microvascular vulnerability in the setting of immune compromise and systemic infection. Each entity contributes distinct yet overlapping mechanisms of retinal injury: Roth spots arise from focal capillary rupture due to endothelial damage, immune complex deposition, and ischemia. Their pale centers consist of fibrin clots, inflammatory cells, or infectious organisms, signifying localized vascular insult.¹ In neonates with sepsis, systemic inflammation and circulating bacterial toxins induce endothelial activation and microthrombosis within retinal capillaries.³ This microangiopathy is exacerbated by the patient's immunodeficiency⁴ characterized by profound deficits in T and B lymphocytes, resulting in recurrent, severe infections that contribute to systemic endothelial dysfunction.⁵

In ROP the newly formed vessels are fragile, prone to leakage and hemorrhage. In this context, retinal hemorrhages—including Roth spots—may occur secondary to fragile neovascular tufts and capillary wall breakdown.^{2,6} Besides the patient's thrombocytopenia and anemia reduce the capacity for effective coagulation and oxygen delivery, increasing the susceptibility to hemorrhages.⁷

The identification of Roth spots in a neonate with ROP is infrequent and requires heightened clinical vigilance. Wide-field retinal imaging and fluorescein angiography enhance detection and characterization of retinal vascular abnormalities. Given the systemic complexity, a multidisciplinary approach is paramount—integrating neonatology, infectious disease, immunology, and retinal specialists—to optimize diagnosis and treatment.

Close retinal monitoring is indispensable to detect progression or resolution of hemorrhages, vascular leakage, and potential complications such as vitreous hemorrhage or retinal detachment.

The prognosis for neonates with combined ROP and Roth spots secondary to SCID and systemic sepsis remains guarded. Retinal hemorrhages in this context indicate severe microvascular compromise and correlate with increased risk of vision-threatening sequelae.

This case underscores the need for further research into the molecular pathways linking systemic immunodeficiency, infection, and retinal microvascular pathology in neonates. Understanding these interactions may unveil novel therapeutic targets aimed at preserving retinal integrity and improving neurodevelopmental outcomes.

Roth spots in a preterm infant with ROP and SCID represent a nexus of infectious, immunologic, hematologic, and developmental insults to the retinal microvasculature. This case exemplifies the complex pathophysiology of retinal hemorrhages beyond classic ROP and highlights the retina as a sensitive biomarker of systemic disease severity. For retina specialists, awareness of such atypical presentations is crucial for comprehensive care, emphasizing the importance of multidisciplinary collaboration and ongoing research to advance neonatal retinal health.

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Abstract 323

TRAUMATIC MACULAR HOLE: CLINICAL, EPIDEMIOLOGICAL PROFILE AND OUTCOMES IN PATIENTS TREATED AT APEC, MEXICO

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Asociación para Evitar la Ceguera ~ mexico ~ Mexico

Traumatic macular hole (TMH) is a relevant cause of decreased visual acuity in patients under 30 years of age, affecting mainly males. Its incidence is approximately 1.4% in closed-globe injuries and 0.15% in open-globe injuries (1). Its pathophysiology involves anteroposterior vitreous traction or tangential forces that separate the neurosensory tissue without tissue loss (1,2).

Diagnosis is clinical and confirmed by optical coherence tomography (OCT), which shows a full-thickness defect in the retina (2). Management can be surgical or conservative, with a reported spontaneous closure rate of 28% to 44% within 2–3 months (2).

Despite its impact, information on its epidemiology remains limited. The Asociación para Evitar la Ceguera en México IAP (APEC) manages numerous cases, allowing for analysis of factors such as age, gender, trauma history, severity of damage, and visual outcomes according to treatment. This study aims to improve clinical management, optimize protocols, and generate evidence on its incidence, contributing to the global understanding of the disease and to decisionmaking in visual health.

We conducted a retrospective, observational, and descriptive study at the Asociación para Evitar la Ceguera en México (APEC), including 75 patients with a confirmed diagnosis of traumatic macular hole (TMH) by optical coherence tomography (OCT), treated between January 2023 and January 2025. Patients with previous macular disease, retinal detachment, vitreous hemorrhage, choroidal detachments, or use of maculopathy-associated drugs were excluded. We analyzed demographic, clinical, and structural variables, such as age, gender, laterality, Ocular Trauma Score (OTS), minimum and base TMH diameters, type of closure, presence of intraretinal cysts, type of management (observational vs. surgical), and final visual acuity (LogMAR). Statistical analysis was performed using SPSS, employing chi-square and Student's t-tests, with statistical significance defined as $p < 0.05$.

Most patients were male (approximately 72%), with a mean age of 34 years (FIG. 1). No laterality preference was observed. The majority of cases presented with OTS severity levels 3 and 4, accounting for 87.3% of the total. The mean minimum diameter in cases with closure was 728 μm (range: 89–2538 μm), while in cases without closure it was 747 μm (range: 57–1349 μm).

The presence of intraretinal cysts was associated with poorer final visual acuity (higher LogMAR), showing a moderate correlation ($p = 0.54$). Likewise, the condition of the outer retinal bands was one of the most clinically relevant variables: greater damage correlated with worse vision ($p = 0.50$). In most cases with absent bands, poor final visual acuity ($\text{LogMAR} > 1.0$) was documented. Regarding management, 84% of patients received observational management, achieving closure in few cases. No significant differences were observed in the elapsed time between groups with and without closure, regardless of the type of management. However, surgical success in operated cases was consistent with the literature, with closure observed in 52% of operated cases.

Our findings are consistent with those reported in the literature, showing a higher prevalence of TMH in young male patients, likely due to greater exposure to risk factors. The lack of laterality preference reinforces the notion that TMH is a random event with no anatomical predisposition. The

severity distribution according to OTS showed a high concentration in levels 3 and 4, corresponding to moderate-to-severe trauma. A clinical trend toward better visual outcomes was observed in patients with OTS level 4, suggesting a potential prognostic value that warrants further exploration in future cohorts. Holes smaller than 600 μm had a higher probability of closure. Furthermore, 41.3% of patients presented more than one year after trauma, suggesting that chronicity decreases spontaneous closure and underscoring the importance of early intervention to define treatment. Although the presence of intraretinal cysts was not significantly associated with closure, it was linked to worse final visual acuity. The same was observed with disruption or absence of the outer bands, which showed a moderate correlation with higher LogMAR, making it one of the most clinically relevant findings of the study. Regarding management, 84% of patients were initially treated with observation, with a limited spontaneous closure rate. In contrast, surgically treated patients achieved anatomical closure in 52% of cases, even in large-diameter holes, supporting the efficacy of vitrectomy with ILM peeling as a treatment in selected cases. TMH mainly affects young males and requires a comprehensive evaluation. The minimum hole diameter and retinal structural status, as well as the presence of cysts, influence anatomical and visual prognosis. The low spontaneous closure rate highlights the importance of close follow-up and early consideration of surgery.

Abstract 325

SUBCONJUNCTIVAL SILICON OIL AFTER 23G PARS PLANA VITRECTOMY.

Martinez Jardon C.S.*

Member ~ Mexico ~ Mexico

To evaluate the characteristics of the anterior segment in patients operated by 23G pars plana vitrectomy technique with silicone in cavity, describing the presence of subconjunctival silicone and its amount, as well as the management to prevent it.

Retrospective descriptive study analyzing patients who underwent surgery from 2024 to date. All patients underwent anterior segment photographs and the results were collected in a database, evaluating the presence or absence of subconjunctival silicone. The main bias was the evaluation of scleral resistance.

The possible escape routes through which the silicon could migrate, postoperative intraocular pressure, viscosity of the silicon, ocular movements and mechanical forces that could influence migration were analyzed. Intraoperative management of sclerotomies, and immediate postoperative management with massage, to facilitate closure and prevent migration.

Many patients presented some degree of subconjunctival silicone, some with ocular surface symptoms, which could be evacuated in the office without major difficulty. Postoperative massage of the conjunctiva and sclera was helpful to avoid the use of sutures.

* Sub-Conjunctival Silicone Oil after 23G Suture-less Vitrectomy in Out-Patient Setting. Clinics in Surgery, 2020.

* Subconjunctival silicone oil complicating strabismus surgery. PMC PubMed Central, 2019.

* Sub-Conjunctival Silicone Oil after 23G Suture-less Vitrectomy in Out-Patient Setting. Clinics in Surgery, 2020.

* 360 degrees subconjunctival silicone oil after unsutured 23-gauge vitrectomy. ResearchGate, 2013.

OCULAR TRAUMA – E-POSTER

Title: *Terson Syndrome Secondary to Traumatic Brain Injury: Role of Early Vitrectomy in Visual Rehabilitation*

Presenting Author: Umesh Bhamkar

Co-Authors: Advait A, Swapna H, Subhiksha, Sruthi, Kavya

Institution: Lions Club of Hyderabad, Sadhuram Eye Hospital, Hyderabad, India

Purpose:

To describe the clinical course and surgical outcome of a young male with Terson syndrome following traumatic brain injury, highlighting the role of early vitrectomy in visual rehabilitation despite concurrent traumatic optic neuropathy.

Methods:

A 24-year-old male presented with unilateral vision loss after sustaining head trauma and undergoing left-sided craniotomy. The patient remained comatose for several days postoperatively. On regaining consciousness, visual acuity in the left eye was limited to hand movements. B-scan ultrasonography confirmed dense vitreous and subhyaloid hemorrhage. Pars plana vitrectomy was performed, and intraoperatively, optic disc pallor indicative of partial traumatic optic atrophy was observed.

Results:

At one week post-vitrectomy, visual acuity improved from hand movements to 2/60. By two months, best-corrected visual acuity reached 6/36p. Although visual recovery was restricted by underlying optic nerve injury, the patient achieved significant functional improvement, reporting enhanced visual performance and quality of life. The fellow eye remained structurally and functionally normal throughout the follow-up period.

Conclusions:

Terson syndrome secondary to traumatic brain injury is an uncommon yet vision-threatening entity that presents both diagnostic and therapeutic challenges. This case underscores that, even in the presence of traumatic optic neuropathy, timely pars plana vitrectomy can yield meaningful functional recovery.

Early recognition, prompt surgical management, and realistic prognostic counseling are critical to optimizing outcomes, particularly in young patients with post-traumatic intraocular hemorrhage.



Video *presentations*

Abstract 4

VITREOUS LAVAGE IN UPRIGHT POSITION- AN INNOVATIVE TOPICAL AIR FLUID EXCHANGE (AFE) FOR RECURRENT VITREOUS HEMORRHAGE (VH) POST VITRECTOMY.

Sahare H.*

Dr Agarwal's Eye Hospital ~ Tirunelveli ~ India

A 32 years old gentleman presented with diminution in vision in right eye post pars plana vitrectomy (PPV) with air tamponade secondary to VH associated with proliferative diabetic retinopathy and planned for VL but in innovative way. Therefore, we devised a brilliant workaround by injecting air and simultaneously aspirating dissolved VH fluid from cavity with a 30G needle in 5ml syringe at 6 O'clock position under topical anaesthesia in upright position without undergoing revision vitrectomy again.

This video gives a description of a challenging situation that many vitreo retina surgeons are likely to encounter during their training and professional practises. This novel method addresses some of the key challenges associated with conventional approaches to managing recurrent VH post vitrectomy by performing VL in an innovative way without undergoing revision vitrectomy.

A 32 years old gentleman presented with diminution in vision in right eye PPV with air tamponade secondary to VH associated with proliferative diabetic retinopathy and planned for VL but in innovative way. So, we came up with a mighty hack and brilliant workaround by injecting air with a 30G needle in 5ml syringe at 6 O'clock position under topical anaesthesia in upright position without undergoing revision vitrectomy. Gradually, air is injected inside the globe and allow the vitreous fluid to come outside simultaneously on the same syringe. Globe pressure is checked throughout the procedure.

This video demonstrates the simple hack of VL in upright position by injecting air and simultaneously aspirating VH fluid from cavity with a 30G needle in 5ml syringe at 6 O'clock position under topical anaesthesia without undergoing revision vitrectomy.

Abstract 6

TREATMENT OF SEVERE OCULAR TRAUMA WITH NO LIGHT PERCEPTION COMBINED WITH USE OF AMNIOTIC MEMBRANE

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To evaluate the efficacy and safety of Treatment of severe ocular trauma with no light perception combined with use of amniotic membrane, and to analyze the relative factors.

Totally 50 eyes of 50 patients with severe ocular trauma and no light perception underwent combined vitrectomies. The mean age was 48 years old with a range from 32 to 76 years. All eyes were diagnosed ocular rupture, and underwent emergency surgery for closing the corneal and scleral wound. The diagnosis of all eyes before vitrectomy included hyphema, ciliary body dialysis, vitreous hemorrhage, suprachoroidal hemorrhage, and retinal detachment. The vitrectomy procedures included reconstruction of anterior segment, peeling of epiretinal membrane, retinectomy and or retinotomy, laser photocoagulation and silicone oil filling. The vision after ocular trauma was non light perception in all injured eyes. The mean preoperative IOP was 6 mmHg with a range from 3 to 9 mmHg. All patients were followed up for more than 6 months.

The postoperative visual acuity ranged from no light perception to 0.1. The BCVA was better than light perception in 45% patients. The mean postoperative IOP was 10 mmHg with a range from 7 to 12 mmHg. The main postoperative complications mainly included exudates in the anterior chamber, partial fractional retinal detachment, and corneal band degeneration.

Combined vitrectomy is a safe and effective method for treatment of severe ocular trauma with NLP. However, recurrent recurrent fractional retinal detachment is still a common complication. Corneal band degeneration is an unavoidable degeneration in patients with majority iris loss.

Abstract 23

RETINOPATHY OF PREMATURITY OR PERSISTENT FETAL VASCULATURE : A SURGICAL CHALLENGE

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Prakash Netra Kendr ~ lucknow ~ India

When we see bilateral Tractional Retinal Detachment (TRD) in babies with a history of prematurity, our first differential diagnosis is usually Retinopathy of Prematurity (ROP). But it is not always the case. Bilateral TRD in cases of Persistent fetal vasculature (PFV) is uncommon but not impossible. It becomes important to discuss, because during surgery releasing of correct tractional vector forces is the most crucial step in either of the cases. in this video we demonstrate the surgical management of a case of bilateral central (foveal involved) tractional retinal detachment in an preterm infant.

A 4 month old infant born at a gestational age of 30 weeks and a birth weight of 2100 grams presented for screening for ROP. The screening protocols were not complied by the parents and they complained of poor fixation at 4 months. The fundus showed central tractional retinal detachment with a central stalk from the center of the detachment till the posterior lens. Lens sparing vitrectomy was planned. Three 25G ports were made and anterior vitreous was cut. The connecting band between lens and the elevated retina was cut and released. Core vitrectomy was done till extent possible without inducing posterior vitreous detachment. Notably, no peripheral avascular retina was noted. Central retina was pulled and twisted around the PFV with preretinal membranes. The membranes were peeled with serrated forceps and the funnel was opened till extent possible. Temporary air tamponade was given.

The horizontal corneal diameter was 10mm in both eyes and no microphthalmia was noted. No avascular retina or shunts were noted in the attached retina. No laser photocoagulation was needed. Bilateral pathology and the absence of microphthalmia are rare in eyes with PFV. However, no avascularity or other vascular changes and the presence of a central stalk reaching upto the lens in both eyes strongly favoured detachment solely due to PFV.

Tractional retinal detachments in infants can have varied etiology. Careful examination of all components of the fundus, its vasculature, location and other features of the detachment will help to diagnose etiology and hence manage and the prognosticate the eye.

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Abstract 27

TIPS AND TRICKS FOR PERFORMING VITRECTOMY IN PATIENTS WHO HAVE PREVIOUSLY UNDERGONE ANTERIOR SEGMENT SURGERY FOR VARIOUS REASONS

Murat O.*

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In this video, we will share tips and tricks on overcoming the challenges encountered during vitrectomy in patients who have previously undergone anterior segment surgery for various reasons, such as intracorneal rings, aniridia, implantable contact lenses(ICL), radial keratotomy, LASIK surgery, multifocal IOLs, iris and choroidal coloboma, small pupils, trauma cases and persistant hyperplastic vitreous. We will specifically provide tips on overcoming difficulties encountered during peripheral vitrectomy and macular surgery in premium IOL cases.

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Abstract 37

DISPERSIVE VISCOELASTIC AGENT AS VITREOUS TAMPONADE IN SEVERE OPEN GLOBE INJURY

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We present a case of use of dispersive viscoelastic agent as intraocular tamponade in the treatment of a severe open globe injury. A 67-year-old female patient presented at Accident & Emergency room with a left eye (LE) open globe injury following trauma. The patient had a history of penetrating keratoplasty (PK) for keratoconus performed 21 years before, and two months earlier she had undergone corneal wound suturing on the transplanted corneal graft due to an other domestic accidental trauma, followed by pars plana vitrectomy and scleral fixation intraocular lens (IOL) implantation with Yamane technique one month later.

LE clinical examination showed a 270-degree opening of the PK graft flap, involving the entire superior and nasal sectors from 3 to 7 o'clock, corneal suture dehiscence, complete athalamia, significant hypotony, a nearly absent posterior chamber, and apparent total retro-IOL choroidal detachment. The best corrected visual acuity (BCVA) was no light perception. As preoperative prophylaxis systemic antibiotics (Ceftriaxone 2g/day) were administered. A surgical procedure was performed urgently using a Zeiss OPMI Lumera® 700 microscope (Carl Zeiss Meditec AG, Goeschwitzer Strasse 51-52, Germany) with a 3D visualization system, Ngenuity Alcon © (6201 South Freeway, Fort Worth, TX 76134-2001, United States). The PK graft flap was sutured with interrupted Nylon 10-0 sutures. Complete filling of the vitreous cavity was achieved with two 0.5 cc injections of dispersive viscoelastic, Viscoat Alcon © (Sodium Chondroitin Sulfate and Sodium Hyaluronate 40 mg) from the anterior chamber via open sky, followed by three additional 0.5 cc injections with 30 gauge needle via pars plana until normalization of the intraocular pressure (IOP).

The day after surgery the LE examination showed effective corneal suture, normal intraocular pressure, complete resolution of the choroidal detachment and retina attached in all sectors. The patient was prescribed postoperative medical therapy with topical antibiotics and steroids. She underwent weekly postoperative follow-up controls, with favorable postoperative progression, excellent maintenance of the suture, stable intraocular pressure, stability of Yamane scleral fixated IOL despite the serious trauma, and good control of intraocular inflammation. After one month from surgery BCVA raised to 1.0 LogMar.

Ideal substitutes for the vitreous body should provide effective tamponade, long-term biomechanical and biochemical functions, and should be easily injectable with fine needles. (1, 2) The use of medium-viscosity dispersive viscoelastic in this complex case allowed for complete filling of the intraocular spaces and can be considered as an option in extreme cases of open globe injury for effective intraocular tamponade.

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Abstract 40

EXORCISING THE WORST NIGHTMARE OF AN OPHTHALMOLOGIST - COMBATING ENDOPHTHALMITIS

Raizada K.*

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With this video, we aim to highlight the various presentations of Endophthalmitis like Post-Operative Endophthalmitis, Post-Traumatic Endophthalmitis, Endogenous Endophthalmitis, Bilateral Endophthalmitis etc. Challenging situations like Hazy Cornea in Endophthalmitis and tenacious fibrinous membrane over the pupil have been highlighted in this video.

This video is a potpourri of endophthalmitis cases, spanning all age groups, and gives insight into the successful management of each of these cases.

Endophthalmitis is a dreaded complication, feared by every ophthalmologist and this video throws light on the nuances of it and tips & tricks to successfully combat this tormentor.

A complete Ocular Examination was done for patients presenting with Endophthalmitis. Proper history was elicited. Duration of loss of vision, pain was asked for. Any history of intra-ocular surgery, intra-vitreal injection, trauma, or infection in any other part of the body was asked for. BCVA, Intra-Ocular Pressure was recorded. Examination of the ocular adnexa, conjunctiva, cornea, anterior chamber, pupil, lens/IOL and posterior segment was done. The status of the surgical wound if any was noted. The presence or absence of Hypopyon, and exudation in vitreous was noted.

Based on history and examination, a diagnosis of endophthalmitis was made.

Patients diagnosed with endophthalmitis were shifted to the O.R. on the same day. Treatment was tailor-made for each patient. Patients with significant infection were subjected to pars plana vitrectomy. Tamponade was done with air/silicone oil depending on the health of the retina.

Patients with minimal exudation in the vitreous were treated with Intra-Vitreal Antibiotics alone. Antifungals were used where fungal infection was suspected.

Patients with hazy cornea were subjected to "Tap & Inject".

Patients with bilateral endophthalmitis were subjected to "Bilateral Simultaneous Pars Plana Vitrectomy"

A vitreous biopsy was sent for culture sensitivity in each case.

Post-operative treatment was based on culture & sensitivity reports.

Patients presenting early after the onset of symptoms had better visual outcomes. Patients subjected to Pars plana vitrectomy with or without silicone oil had better visual outcomes compared to patients subjected to intra-vitreal antibiotics alone. Patients with clear cornea at the time of presentation had better visual outcomes as compared to those patients who had stromal infiltration of the cornea, corneal abscess or infiltration at the surgical incision site.

Eyes with severe infection required multiple interventions.

Traumatic endophthalmitis cases were mostly due to fungal infections and were administered antifungals intra-ocular as well as topical and systemic.

Patients who had symptoms for a few days and were operated on late were found to have pale, ischaemic/necrosed non-viable retina underneath.

Pseudomonas infections were very difficult to treat and the eyes often landed in phthisis despite the best of efforts.

Endophthalmitis is a dreaded complication of the eye and is feared by every ophthalmologist. With modern advancements in surgical techniques and antimicrobial medication, the visual outcomes in endophthalmitis have drastically improved. Early Vitrectomy in endophthalmitis decreases the microbial load in the vitreous cavity and produces better visual outcomes compared to Inta-Vitreal Antibiotic injections alone. The earlier the intervention in endophthalmitis, the better the visual outcome. Delayed intervention leads to poor visual prognosis and often the eye lands in phthisis bulbi. Each eye having endophthalmitis has its own unique characteristics. Treatment for each eye needs to be tailor made to best suit the needs of the patient. This video highlights many unique scenarios of endophthalmitis and throws light on how to successfully manage them.

OCULAR TRAUMA

Abstract 42

"PERSEVERANCE TURNS STRUGGLES INTO TRIUMPH."

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Open globe Injury can be a potentially blinding thing. Cases usually have poorer outcome depending upon extent of the injury. This Video is of an open globe Injury which underwent surgery in 2 steps. first surgery was of scleral suturing with globe repair followed by Vitrectomy after 3 weeks . this case demonstrates how patience is key while operating such cases and can have surprisingly good outcomes.

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NA

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Abstract 54

SURPRISE FROM CYPRUS

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Globe rupture should be suspected in cases of blunt trauma when there is associated loss of vision, vitreous haemorrhage, hypotony, conjunctival chemosis. In uncertain cases examination under anaesthesia should be carried out

A case of a 72-year-old male patient who had a fall while travelling to Cyprus, resulting in blunt trauma to the right eye and loss of vision. Local Ophthalmologist carried out “primary repair” under general anaesthesia and advised to travel back to the UK for further treatment.

On examination visual acuity was perception of light, there was vitreous haemorrhage, hyphaemia, hypotony traumatic cataract and ultrasound findings of superior retinal tear with localised retinal detachment. Apart from 2 conjunctival sutures around 2 o'clock, there was no evidence of peritomy.

Phaco-vitrectomy was planned to treat suspected retinal detachment.

Because of limited evidence of the type of procedure performed in Cyprus, examination under anaesthesia and scleral exploration was performed. It revealed untreated large posterior globe rupture, extending across superior-temporal quadrant parallel to the limbus.

Heavy liquid was used as a temporary tamponade to aid clearance of subretinal blood.

Heavy liquid was removed after 11 days with evacuation of some residual subretinal blood clots. Laser was completed and lens and silicone oil was inserted.

Vision improved to about 0.4 LogMAR, pressure was normal and retina attached about 1 month later.

Scleral exploration should be carried out whenever globe rupture is suspected. Unexpected outcome can be expected if taking over a patient treated elsewhere; both documentation and clinical judgement should be taken into consideration in such cases. Prompt secondary vitrectomy can improve the outcome.

Abstract 59

MANAGEMENT OF RECURRENT SUBMACULAR HAEMORRHAGE SECONDARY TO POLYPOIDAL CHOROIDAL VASCULOPATHY WITH REPEAT INJECTION OF SUBRETINAL TISSUE PLASMINOGEN ACTIVATOR

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Polypoidal choroidal vasculopathy (PCV) is one of the major causes notorious for recurrent large subretinal and sub-Retinal Pigment Epithelium (RPE) hemorrhages. Given the recurrent nature of the polyps in PCV to bleed, these pose a huge treatment challenge to the treating surgeons as they demand repeated interventions. From among the various available management options, a Subretinal recombinant tissue plasminogen activator (rTPA) injection in conjunction with pneumatic displacement has been shown to give good anatomical and functional results. However, concerns about retinal toxicity have been either not studied or mostly dealt with in animal models. Here we report a case of PCV who presented to us with repeated submacular hemorrhages and was treated with repeated injections of subretinal rTPA to prevent a permanent visual deficit.

A 32-year-old female who was previously treated at our center 2 years ago for Submacular hemorrhage due to PCV, presented again with sudden diminution of vision in the same eye. She was previously treated with pars plana vitrectomy and Subretinal rTPA injection. Fundus evaluation showed submacular hemorrhage of about 4 disc diameters (DD) involving the fovea and multiple areas of adjacent scarring. Indocyanin Green Angiography (ICGA) revealed the underlying cause to be the leaking polyp. Optical Coherence Tomography (OCT) showed a large hemorrhagic Pigment Epithelial Detachment (PED) with subretinal hyperreflectivity corresponding to the hemorrhage. She underwent a repeat subretinal injection of 25mcg rTPA using a 41G cannula along with intravitreal afibbercept and SF6 gas for tamponade.

After the second surgery the subretinal hemorrhage was displaced and resolved 2 months postoperatively. The BCVA improved from CF at 2 m preoperatively to 20/60p at 2 months postoperatively. The last OCT showed notched PED without any subretinal or intra-retinal fluid. There was no increase in the RPE atrophic areas.

Due to a lack of reports of repeated subretinal rTPA, it is not possible to derive a safe time interval between the two successive injections. In our case, the two injections were given at a gap of two years which obviates the possibility of the cumulative dose dependent toxicity but more studies and reports are needed to conclude a safe time gap. The successful management of the present case with a good visual function supports the safe use of low-dose subretinal rTPA in repeated doses.

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Abstract 63

ESCAPING PERFLUOROCARBON LIQUID

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Heavy liquid can be a vry useful tool in retinal surgery, but it can lead to problems if it migrates to the subretinal space or to orbital tissues.

Assessment of the sclera should be performed before proceeding with vitrectomy in cases of ocular trauma where globe continuity could be compromised.

A middle aged woman with history of sarcoidosis underwent vitrectomy for vitreous haemorrhage with suspected retinal detachment and possibly endophthalmitis/ uveitis. A few days earlier her cat jumped on her, scratching her right cheek and eyelid. She also lost vision in the eye. Examination with scleral exploration performed shortly after the trauma did not reveal scleral defect, but the anterior chamber tap revealed PCR positive for Pasteurella. The video shows complicated surgery, which started with obtaining vitreous sample. Retina was detached and infusion kept migrating under the retina (6 mm cannula was not available) despite attempts to reposition. Perfluorocarbon liquid (PFCL) was used to aid with vitrectomy. Area of traction was noted. On completion of vitrectomy, the area, turned out to be a retinal defect with possible pigment epithelium tear. Laser was applied to the area. Lowering levels of perfluorocarbon liquid (PFCL) were observed, rising suspicion of a full thickness defect. Attempt to use amniotic membrane ended with the membrane migration outside of the eye through the defect. Decision was made to perform repeated globe exploration.

Very posterior and difficult to access defect

was noted in the suspicious area. The defect was sutured tightly and vitrectomy continued. Heavy liquid was removed and with this manoeuvre significant amount of PFCL was noted subretinal. Despite attempts, PFCL was not possible to remove. Surgery concluded with insertion of silicone oil and upright posture. At review PFCL was absent in the foveal area, but there was a collection of subretinal PFCL inferiorly ; MRI showed possible collection of fluid in the orbit and the eyelid. Further retinal surgery in shudled to treat inferior retinal detachment with advise to posture upright in the meantime.

Heavy liquid should be avoided in cases where there is high chance of migration.

Prior to vitrectomy care should be taken to repair scleral defects.

Abstract 75

INTRAOPERATIVE ABERROMETRY ASSISTED REFRACTIVE OPTIMISATION OF SFIOL

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Scleral fixated intraocular lens (SFIOL) is a widely used technique for visual rehabilitation in patients where capsular support is insufficient

for "in the bag" or "in sulcus" implantation of intraocular lenses. Studies have shown wide variation in refractive status of eyes even in best of the hands.

This is because in addition to correct IOL power calculation, this post op refractive status is expected to be optimised intraoperatively just by adequate

centration of IOL. However, even slight variations in tension on haptics due to variable length of haptics placed in scleral flap or scleral tunnel can alter the

effective lens position and induce significant residual refractive error, especially cylindrical astigmatism due to tilt. The objective of this new technique is to optimise refractive outcomes in patients undergoing SFIOL.

A standard SFIOL implantation surgery was done with approximate centration of optic. Corneal entry was sutured and intraocular pressure was

maintained at 30 mm Hg with the help of infusion line secured to pars plana port. Intraoperative aberrometry was then performed using Optiwave refractive

analysis system (ORA; Alcon). Refractive error of -1.91 D spherical equivalent (SE) was noted. When both the haptics were then further inserted into the

tunnel intraoperative aberrometry showed significant increase in refractive error. The haptics were then slightly withdrawn from the tunnels intraoperative

aberrometry showed significant reduction in refractive error. Through similar repeated manipulations a final refractive error of -1.08D SE was obtained. Post

operatively patient had uncorrected visual acuity of 6/9.

This surgical video highlights how even minor variations in how much haptics have been inserted in scleral tunnel can drastically alter final

refractive status. Through repeated intraoperative aberrometry and subsequent manipulations of haptics we were able to significantly reduce final

refractive error.

With the help of this technique refractive outcomes post SFIOL can be optimised. This can specially be useful in reducing the final residual

cylindrical power which often leads to difficult rehabilitation in such patients.

Abstract 76

INTRAOPERATIVE SIGN TO IDENTIFY OVERFILTERING TRABECULECTOMY SITE DURING DRAINAGE OF POST TRABECULECTOMY SUPRACHOROIDAL HEMORRHAGE

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Suprachoroidal hemorrhage is a serious complication of ocular surgeries with trabeculectomy being the most common surgery associated with it. Appositional suprachoroidal hemorrhage is an indication of drainage, but simultaneously, it is essential to make sure that there is no continuous source of leakage which can perpetuate the cycle of hypotony and rebleed. In post trabeculectomy cases, this would require opening the conjunctival flap and examining the scleral flap and bed to look for features like poor apposition, inadequate ostium coverage, and flap tears, which can lead to over filtration and hypotony. Such exploration, however, also increases the risk of fibrosis at the surgical site and subsequent failure of filtration surgery. In this report, we wish to describe how noticing the characteristics of subconjunctival fluid accumulation after switching on anterior chamber infusion during drainage can help in identifying whether trabeculectomy site needs re-exploration or not.

We used trocar assisted technique for draining SCH. This includes securing an anterior chamber maintainer to achieve positive IOP and then carefully inserting a trocar-cannula in the suprachoroidal space. Blood egresses out of the suprachoroidal space through the lumen of the cannula assisted by the positive IOP maintained by anterior chamber maintainer.

After switching on the anterior chamber maintainer, we wait for about 1 minute to observe the characteristics of accumulation of fluid in the subconjunctival space. In the presence of an over-filtering bleb, there is rapid accumulation of fluid in the subconjunctival space starting from trabeculectomy site and then progressing to other quadrants.

Our video compilation has three cases-

Two cases had rapid subconjunctival fluid accumulation which lead us to explore the trabeculectomy site and showed frank leakage due to scleral flap tears. One case had no subconjunctival fluid accumulation where no trabeculectomy site exploration/repair was done. All 3 cases had successful drainage of suprachoroidal bleed without any recurrence.

By observing accumulation of fluid in the subconjunctival space after switching on anterior chamber infusion line, we have been successful in identifying cases of post trabeculectomy SCH where drainage of suprachoroidal blood had to be combined with exploration of trabeculectomy site to counter the cause of over filtration.

Abstract 92

MANAGEMENT OF A LARGE METALLIC INTRAOCULAR FOREIGN BODIES

Abdellaoui M.*

Meriem Abdellaoui ~ Fez ~ Morocco

Intraocular foreign body (IOFB) removal becomes tricky if its large and impacted in the ocular coats. When confronted with such a combination, the vitreoretinal surgeon will need to modify the surgical plan.

In this video we will discuss the different possible ways to extract large IOFBs with less tissue damage.

Case 1: A 40-year-old man presented with ocular trauma while cutting metal at right eye. The visual acuity was hand motion. A slit lamp examination revealed a scleral laceration with hyphema, cataract and intravitreal hemorrhage. The ultrasonography shows the presence of a long IOFB with a localized retinal detachment. First a scleral suture was done then a combined surgery phacoemulsification with posterior vitrectomy 23G was performed 3 days later. The IOFB was an extremely long steel wire (20mm). The IOFB was removed through a corneal incision. An endolaser was applied for retinal tears. C3F8 gas tamponade was performed. The BCVA at the last follow-up visit (1 year) was 1/10 with attached retina and epimacular membrane.

Case 2: A 46-year-old man suffered trauma to his left eye during professional activity tire burst. Examination upon admission found VA counting finger, multiple corneal and conjunctival foreign bodies, a 2mm corneal wound para-axial superior with an intraocular foreign body (piece of steel wire) planted vertically temporal to the macula, at the end of the superior temporal arch. The rest of the tissue was intact the retina was attached. 48 hours after suturing the scleral wound, a 23G posterior pars plana vitrectomy was performed to extract a 14mm long, 0.5mm thick steel wire through a small scleral incision, sparing the lens. SF6 20% was used as a tamponade. The BCVA at the last follow-up (4months) visit was 8/10 with attached retina.

Case 3: A 11-year-old child admitted to the emergency room for post-traumatic endophthalmitis of the right eye, the trauma was caused by retroprojection of steel wire. Eye examination found VA counting finger, without corneal or scleral wound with signs of endophthalmitis. Ultrasonographie and CT scan found a long IOFB in the periphery of superior retina, the retina was attached. The child received an intravitreal injection of fortum and vancomycin then a 23G posterior vitrectomy 3 days later. A 12mm long, 1mm thick steel wire was removed through a small superior scleral incision with lens sparing. A large peripheral retinal break was found from 11o'clock to 5 o'clock which was lasered. SF6 20% was used as a tamponade. After 6 months of follow up the BCVA was 5/10 with attached retina and development of the cataract

The video describes a scenario when the surgeon becomes aware that injury to ocular structure is inevitable due to inherent length of the IOFB. However, a careful assessment of the situation helps the surgeon to identify how he could minimize the damage to the eye and not put vision at risk.

Abstract 98

"RETINAL DETACHMENT ASSOCIATED WITH MORNING GLORY ANOMALY: DECISION MAKING"

Flores Leon A.H.*

ALEXANDRA HELEN FLORES LEON ~ TACNA ~ Peru

I present the case of a 16-year-old male, who came to the first consultation accompanied by his mother and reported that he had had a white spot in his left eye for 2 years. He reported that he had always had poor vision in that eye. On ophthalmologic examination he presented a white cataract and a visual acuity of light perception.

In order to rule out infectious etiologies, several tests were requested but were negative. In addition, an ocular ultrasound was performed which revealed the presence of a retinal detachment.

He was scheduled for phacoemulsification + vitrectomy surgery of the left eye under general anesthesia.

Vitrectomy via pars plana was performed in combination with external drainage. The surgery was performed with a conservative approach to avoid further damage.

Description of the surgical procedure:

The patient had a white cataract with anterior fibrosis and marked zonulodialysis. Phacoemulsification was performed, maintaining an integral posterior capsule, with persistent fibrosis at the periphery of the anterior capsule.

A retinal detachment associated with Morning Glory anomaly was evidenced, which was of inferior predominance, with subretinal bands and glial tissue over the optic disc, forming central radial retinal folds, in addition to a traction fold towards the inferior nasal periphery.

By aspirating and cutting more vitreous, the retina became more mobile and bullous, which increased the risk of an iatrogenic rupture, however, liquid perfluorocarbon was not placed due to the risk of migration. I aspirated near the excavation, hoping to drain subretinal fluid, since it has been reported that there may be retinal holes at that level, but no subretinal fluid was obtained.

With the aid of micropincers, the glial tissue located within the optic disc excavation was removed. Triamcinolone was used to facilitate removal of the hyaloid. As the surgery progressed, no retinal breakpoint was identified, so it was felt that the glial tissue over the optic disc was likely responsible for the traction and retinal detachment. At that point, the retina was even more baggy and mobile, with inferior nasal radial traction that was less than at baseline. Drainage retinotomy versus external drainage was considered, and the latter was finally chosen. An inferior temporal peritomy, a small sclerotomy and puncture with a 22G needle were performed to achieve this.

On re-entering the vitreous cavity, a much more applied retina was observed, although some inferior nasal traction persisted. The conjunctiva was sutured with 7-0 vicryl. Liquid-air exchange was performed, at the end of which small collections of subretinal fluid were still visualized, which were left, hoping that, in the absence of retinal holes, the RPE would be in charge of reabsorbing it. The trocars were removed and C3F8 gas was placed.

- The retina was successfully applied, with only mild inferior nasal traction persisting.
- Better ocular cosmesis was achieved for this adolescent patient.
- Visual acuity changed from light perception to hand movement. The patient's visual potential was

evaluated with lens testing, however, it did not improve further due to amblyopia in that eye, so it was decided not to perform a second surgery for intraocular lens implantation.

Highlighting the individualized approach, the decisions made comply with the principles of retinal detachment management, however, given the rare nature of this pathology, these approaches could be subject to discussion and revision, which opens the door to an enriching debate on best practices in these complex cases.

Abstract 105

DOUBLE TROUBLE!

Raizada K.*

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This video is a couplet of two cases presenting with bilateral catastrophes.

The first patient is that of Bilateral Rhegmatogenous R.D. following Acute Retinal Necrosis. The video highlights the surgical management of Bilateral R.D. in a sieve-like retina with multiple holes.

The second patient is a case of Bilateral Endogenous Endophthalmitis following Acute Pyelonephritis. The video showcases simultaneous Bilateral PPV to treat the patient.

Both cases are rare manifestations and this video entails the herculean task of providing the best possible outcome to the patient.

A 79-year-old female presented to us with complaints of diminution of vision in her both eyes for the last 1 month. Her BCVA in both eyes was HMCF, PR Accurate. She was pseudophakic in both eyes and on posterior segment evaluation, a provisional diagnosis of Bilateral Acute Retinal Necrosis was made. Both eyes, vitritis was intense. She was initiated on Oral Valacyclovir with steroids and reviewed 3 days later. Her vitritis resolved but she was found to have Rhegmatogenous Retinal Detachment in both eyes. Both eyes had multiple degenerative holes in the retina, giving it the appearance of a sieve. She was advised Pars Plana Vitrectomy in both the eyes. Vitrectomy was challenging owing to the sieve-like nature of her retina. ILM peeling was done and silicone oil was injected in both the eyes.

The second case was a 76 year old diabetic female who had a history of admission in the hospital for acute pyelonephritis, following which she developed loss of vision in both eyes 10 days later. She presented to us with a diminution of vision in both eyes for 2 weeks. Her BCVA was PR Inaccurate in both the eyes. On examination, she was diagnosed with Bilateral Endogenous Endophthalmitis. She was advised Simultaneous Bilateral Pars Plana Vitrectomy. Vitrectomy was done in one sitting in both the eyes and silicone oil was injected in both the eyes.

In the first case, the left eye of the patient gained some meaningful vision. Her BCVA in the left eye was CF@2m making the patient self-ambulatory. While her right eye developed a recurrent retinal detachment 2 weeks later, for which she was advised silicone oil supplementation, which she didn't opt for owing to her multiple co-morbidities.

While in the second case, the patient's right eye gained a BCVA of CF@1m, making her self ambulatory. The macula was ischaemic due to prolonged infection in the eye. While her left eye was found to have a necrosed retina following vitrectomy and there was no visual gain in her left eye. The patient got relieved of her pain though, in both eyes.

Both entities, Acute Retinal Necrosis and Endophthalmitis are ocular emergencies and demand immediate treatment. Delayed presentation or delay in initiation of treatment makes the prognosis poor and despite best of the efforts, gives only modest visual gains to the patient.

Abstract 115

PEDIATRIC PPV WITH IOL EXPLANT WITH ACIOL

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A 13-year-old female child presented with sudden onset, painless diminution of vision in right eye for 8 months after injury to the right eye during a fight with her sibling. The patient was operated for both eye congenital cataract with posterior chamber IOL 11 years back. She did not wear glasses after congenital cataract surgery. Vision in her right eye was FCCF PR accurate and in her left eye was 1/60 PR accurate. She had nystagmus in both eyes. Her digital IOP was normal in both the eyes.

On anterior segment examination, her right eye had a capsule rupture with aphakia and her left eye had a stable PCIOL with visual axis opacification. On posterior segment examination, the PCIOL was infero-nasally dislocated into the anterior vitreous in the right eye and the retina was attached. The fundus examination was normal in the left eye.

Right eye pars plana vitrectomy with IOL explant was done, ACIOL was placed and peripheral iridotomy was made.

One one week follow up, ACIOL was stable, retina was attached and her IOP was digitally normal. She gained a vision of 1/60 in the right eye. Refraction with spectacle correction and amblyopia therapy was given.

Abstract 116

PHACOEMULSIFICATION WITH PPV FOR PDR WITH SUB-HYALOID BLEED

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A 47-year-old diabetic male presented with gradual onset, painless, progressive diminution of vision in right eye for 6 months. There was no history of trauma. The patient has type 2 diabetes mellitus which was diagnosed 5 years back, was on oral medication.

The BCVA was HMCF PR accurate in the right eye and 6/18 in the left eye with an IOP of 16 in both the eyes. Anterior segment of both the eyes revealed cataract grade nuclear sclerosis 2-3. Fundus evaluation in right eye showed vitreous hemorrhage, left eye was adequately lasered post PDR. Ultrasonography in the right eye revealed vitreous hemorrhage, no tractional retinal detachment was noted. Left eye macular OCT was within normal limits.

A diagnosis of both eyes PDR with vitreous hemorrhage in right eye and status post adequate pan-retinal photocoagulation in left eye was made.

Phacoemulsification with pars plana vitrectomy was done in right eye. After clearing the vitreous hemorrhage, sub-hyaloid bleed was noted which was carefully removed. PRP augmentation with endolaser was done in right eye.

Abstract 120

CARLEVALE IOL CHALLENGES: A CASE SERIES ON SURGICAL PRECISION AND ADAPTABILITY

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The Carlevale IOL enhances scleral fixation in aphakia, despite potential complications. This abstract outlines some intraoperative issues and solutions during Carlevale IOL implantation.

Case series

The Carlevale IOL enhances scleral fixation in aphakia, despite potential complications. This abstract outlines some intraoperative issues and solutions during Carlevale IOL implantation. Case 1: Cartridge misalignment broke the trailing haptic's stem of T end in the cartridge detected before full insertion; solved by explanting and reinserting a new lens without widening the main wound. Case 2: Misalignment in the cartridge broke the trailing haptic's outer arm side, not affecting stability; the procedure continued. Case 3: Forceps cut the trailing haptic's stem of T end postinsertion; managed by cutting and extruding the IOL. Case 4: Stem of T end of leading haptic cut, fixed by hooking the IOL with prolene 8/0 through haptic inlets and sclera. Case 5: Overseen haptic twist during forceps retrieval caused high post-op astigmatism, corrected by IOL removal and vertical reinsertion. Case 6: One arm of the T end of the haptic cut during forceps retrieval, attempted rescue with suture; post-op dislocation, necessitated redo surgery.

These incidents, though can be attributed to the learning curve, provide valuable insights for managing similar complications.

Abstract 131

MAJOR OCULAR TRAUMA RECONSTRUCTION

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Penetrating ocular trauma involving the cornea, anterior and posterior segments is one of the most devastating ocular injuries and commonly end up with lost eye due to initial and subsequent complications of ocular trauma and scarring after primary repair.

Corneal opacity, cataract, iris damage, vitreous loss, retinal detachment, and scarring are frequently encountered after the healing phase.

Secondary repair of such cases might need complex procedure of anterior and posterior segment but may be the best hope of restoring satisfactory visual outcomes and needs collaboration between anterior and posterior segment surgeons as well as case-by case tailoring of surgical procedures.

Case scenario: 36 year old male sustained a penetrating globe injury due to sharp object, corneal laceration repaired primarily, followed by suture removal at 3 months, ended up with: dense central corneal scar, aniridia, aphakia and retinal scar on B-scan, VA HM, after informed discussion, patient agreed to proceed to major ocular trauma reconstruction, surgery started with corneal marking and scleral tunnels creation, insertion of 3 ports for PPV, Flieringa ring fixation, corneal trephination and excision, Ekerdt temporary keratoprosthesis suturing, PPV with iOCT-guided evaluation of retinal scar, laser retinopexy around the scar and 360 degrees laser barrage, excision of residual iris and capsular tissue, detection of iatrogenic break from trocar injury due to temporary loss of infusion pressure, full fill with heavy liquid and laser retinopexy for iatrogenic break, followed by iris-implant fashioning and suturing to Carlevale SFIOL, insertion of iris-IOL complex through corneal wound and retrieval through sclerotomies, direct heavy liquid-silicone oil exchange, and the case is terminated by removal of keratoprosthesis and suturing of corneal graft with 16 interrupted nylon 10/0 sutures, under GA.

1 week post op: clearing corneal graft, AC formed, iris-IOL complex centered, retina flat, normal IOP, VA 6/24, at 2 weeks; clear corneal graft, VA improved to 6/12, and the case is awaiting removal of silicone oil.

Reconstruction of penetrating ocular trauma can be quite challenging, best performed conjointly between corneal and VR surgeons, iris implant- SFIOL complex is a viable option, surgeons should also be ready for any posterior segment surprise and manage accordingly.

Abstract 152

DUAL-PORT VITRECTOMY (WITH SURGICAL VIDEO)

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To perform vitreoretinal surgery (including vitrectomy and vitreous cavity lavage) on patients with simpler conditions or procedures by using a specially designed wide-bore cannula with lateral infusion, and to observe the efficacy and complications.

A wide-bore 25G cannula with lateral infusion was designed and manufactured. Patients suitable for simple vitrectomy or vitreous cavity lavage were selected, and explain to these patients the advantages and disadvantages of this procedure, as well as the possibility of intraoperative conversion to conventional three-port vitrectomy. During the surgery, a conventional 27G cannula and the specially designed wide-bore 25G cannula with lateral infusion were inserted through the sclera at the temporal and nasal superior positions, 4 mm posterior to the corneal limbus. A 27G chandelier light was partially inserted into the wide-bore 25G cannula, and a 27G vitrectomy probe was inserted into the conventional 27G cannula to remove most of the vitreous or aspirate the turbid vitreous fluid. For fine operations such as epiretinal membrane or internal limiting membrane peeling and retinal laser photocoagulation, a 27G light pipe was used instead of the chandelier light to provide clearer and brighter illumination. After completing these simple procedures, the cannulas were removed, and the entry sites were electrocoagulated to conclude the surgery.

The specially designed wide-bore cannula with lateral infusion combined illumination and infusion into one channel. It allowed the chandelier light to be transmitted into the eye through the infusion fluid within the cannula and enabled the use of higher suction pressure. However, the illumination was limited, making it difficult to perform fine operations. When a 27G light pipe was used for fine operations, the low infusion flow rate prevented the use of high suction pressure, as excessive suction quickly led to globe collapse (corneal folds and localized inward bulging of the choroid and retina). Proper patient selection and surgical techniques were required, and the surgical process needed to be slowed down appropriately (mainly by balancing the vitrectomy suction pressure and infusion flow rate).

With appropriate patient selection and surgical techniques, the specially designed wide-bore cannula with lateral infusion can be safely used to perform dual-port vitrectomy for patients with simpler conditions or procedures.

Abstract 154

COMPREHENSIVE SURGICAL APPROACH TO OCULAR TRAUMA CAUSED BY CAR BATTERY EXPLOSION: A CASE REPORT

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Car battery explosion-related ocular injuries, although rare, present a unique and severe form of trauma that requires urgent and comprehensive management. These types of injuries are typically caused by the explosion of lead-acid car batteries, which, when malfunctioning, can release dangerous amounts of sulfuric acid and hydrogen gas. These explosions result in thermal, chemical, and mechanical injuries to the ocular structures, causing severe damage, including sulfuric acid burns, thermal injury from the explosion, and blunt trauma from projected battery fragments. Because of the combination of these mechanisms, the injuries are often multifaceted, making the treatment and surgical management challenging. In this report, we detail the surgical approach used to manage a 77-year-old patient who presented with extensive ocular trauma following a car battery explosion, emphasising the need for a tailored surgical plan to restore both structural integrity and visual function.

A 77-year-old male patient presented to our ophthalmology department following a car battery explosion caused by a short circuit while performing maintenance on an old car battery. Initial examination revealed extensive bilateral periocular and facial injuries and burns. Visual acuity was severely compromised and limited to light perception in both eyes. Anterior segment examination showed extensive bilateral thermal damage with marked conjunctival chemosis and subconjunctival hemorrhage. The corneas were clear, with Descemet's membrane folds visible. Hyphema and traumatic mydriasis were noted in both eyes, along with 90° iridodialysis at 9 o'clock in the left eye (LE) and bilateral lens subluxation. Fundus examination was partially obscured in the right eye (RE) and unassessable in the LE.

Pars plana vitrectomy (PPV) together with lensectomy and iridodialysis repair using the hang-back technique were performed in the LE. One month later, retinal detachment from 5 to 2 o'clock with retinal dialysis from 9 to 11 o'clock were diagnosed in the RE. PPV with phacoemulsification, internal limiting membrane peeling, and circular laser photocoagulation, followed by expandable gas tamponade, were performed in the RE. Following gas resorption, retinal redetachment was observed in the RE on follow-up. The patient subsequently underwent PPV in the RE together with 5000 centistokes (cSt) silicone oil tamponade and pupilloplasty using two Siepser sliding knots to prevent silicone oil migration to the anterior chamber. Further surgery in the LE included intraocular lens implantation and fixation using the Yamane technique, pupilloplasty using the cerclage technique, and iris defect repair using the single-pass four-throw technique. Currently, the patient's visual acuity is 20/200 in the RE and 20/32 in the LE.

Multiple surgical interventions, including the application of four iridoplasty techniques and intraocular lens fixation, along with careful postoperative monitoring, contributed to the patient's visual recovery. The Hangback technique was chosen for its effectiveness in iridodialysis repair, enabling repositioning of the detached iris root. The Siepser sliding knot technique allowed a secure knot within the anterior chamber, not only minimizing damage to the corneal and uveal tissues during pupillary reconstruction but also preventing silicone oil migration. The pupil cerclage technique was employed to restore the natural, round pupil shape, providing precise size regulation while minimizing distortion and the risk of

iatrogenic damage. The single-pass four-throw technique, a simple yet durable method, efficiently approximated iris defects, ensuring robust and lasting closure. In addition, intraocular lens fixation was successfully performed using the Yamane technique, a sutureless, flanged intrascleral haptic fixation method that provided stable and well-centered lens positioning while reducing surgical trauma and promoting faster recovery. The careful selection and combination of these techniques underscore the necessity for a comprehensive and individualized surgical strategy. A multifaceted surgical approach ensures the preservation of structural integrity and maximizes visual outcomes in complex ocular trauma cases, such as the car battery explosion-related ocular injury described in this report.

ROP

Abstract 155

"CONQUERORS QUEST - INSIGHTS INTO VITRECTOMY FOR ROP "

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RETINOPATHY OF PREMATURITY IS ONE OF THE LEADING CAUSE OF BLINDNESS IN CHILDREN. ALTHOUGH OPERATING ON A ROP HAS LOT OF CHALLENGES AND DIFFICULTIES ,WITH NEWER TECHNOLOGIES AND SMALLER GAUGES PERFORMING SURGERIES ON SUCH CASES HAVE BECOME EASIER THAN BEFORE. THIS VIDEO DEMONSTRATES THE SURGICAL DIFFICULTIES A SURGEON FACES IN OPERATING A ROP CASE AND MANAGING THEM & GENERAL CHALLENGES LIKE FROM PARENT COUNSELLING TO ACCEPTANCE

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Abstract 187

TWO-PORT REVISION VITREO-RETINAL SURGERY FOR RETINAL REDETACHMENT UNDER SILICONE OIL

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This surgical video demonstrates the technique of two-port revision microincision vitrectomy surgery (MIVS) for the management of retinal redetachment under silicone oil, with a focus on the removal of proliferative vitreoretinopathy (PVR) membranes and fixed retinal folds in early post-operative period.

In this approach, membrane dissection is performed under silicone oil, which serves as an effective tamponade and acts as a "third hand" to stabilize the retina during delicate manoeuvres. The two-port technique minimizes surgical trauma by surpassing the process of silicone oil exchange and significantly reduces the time of surgery. However, a key challenge is the maintenance of intraocular pressure (IOP) during the final stages of surgery, particularly when subretinal fluid is drained and silicone oil needs to be replenished. The video effectively demonstrates removal of the PVR membranes, subretinal fluid drainage under oil as well as maintaining IOP with adequate silicone oil tamponade at the end of surgery. The first video demonstrates the removal of extensive PVR membranes with passive aspiration of sub-retinal fluid while the second video concentrates on removal of the macular pucker under oil.

In both the cases, titration of IOP was a challenge. However, post-operative oil fill was adequate with no over or underfill in the patients.

This technique offers a safe and effective approach for managing complex cases of retinal redetachment or macular pucksers in oil-filled eyes.

Abstract 195

RETINAL ROLLING UNDER PERFLUOROCARBON LIQUID (PFCL) AS A SHORT-TERM TAMPOONADE IN PEDIATRIC RETINAL DETACHMENT: A SURGICAL CHALLENGE

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To investigate the mechanism and management of retinal rolling under perfluorocarbon liquid (PFCL) used as a short-term tamponade in a pediatric patient with inferior giant retinal tear, and to highlight the clinical considerations and potential pitfalls associated with postoperative positioning and PFCL use in children.

An 8-year-old male child with high myopia presented to a tertiary eye care center in northern India with a total retinal detachment and a giant retinal tear involving 180 degrees of inferior retina. A 25-gauge pars plana vitrectomy (PPV) was performed, during which PFCL was used as a short-term tamponade due to the extensive inferior pathology and the child's inability to maintain prone positioning. The child and parents were counselled regarding the critical importance of supine positioning postoperatively. A planned PFCL-to-silicone oil (SiO) exchange was scheduled for postoperative day 10.

On postoperative examination, significant anterior segment inflammation and corneal edema limited the ability to adequately visualize the posterior segment. By day 10, prior to the PFCL-SiO exchange, fundus evaluation revealed an abnormal configuration of the retina, raising suspicion of retinal displacement. A retrospective review of the primary surgical video did not reveal any intra-operative slippage or improper PFCL injection technique. Upon surgical re-entry, intra-operative findings confirmed rolling of the retina under the PFCL. The likely cause was identified as inadequate supine positioning postoperatively, leading to PFCL redistribution and retinal displacement. As PFCL toxicity is known to occur with longer intraocular retention, particularly beyond 14 days, immediate surgical intervention was undertaken. During the surgery, PFCL was extracted from the eye followed by reinjection for careful retinal unfolding. Subsequently, reapplication of endolaser was done wherever needed. A bimanual PFCL-SiO exchange was performed at the conclusion of surgery with the retina being successfully reattached at the end of surgery.

PFCL remains a valuable short-term tamponade in select cases of pediatric retinal detachment, particularly with inferior giant retinal tears (GRTs) or extensive proliferative vitreoretinopathy changes are present, and when prone positioning is not feasible. However, its effectiveness is highly dependent on strict postoperative positioning. In pediatric patients, where compliance is inherently challenging, the risk of PFCL displacement and subsequent retinal rolling must be anticipated. This case underscores the need for vigilant postoperative monitoring, timely PFCL removal, and thorough caregiver education. Failure to maintain appropriate positioning can necessitate a second intervention that is often as complex as the primary surgery. A careful balance between the benefits and limitations of PFCL in pediatric eyes is essential to optimize both anatomical and functional outcomes.

Abstract 204

VASOPROLIFERATIVE TUMORS OF THE RETINA: SURGICAL TECHNIQUES.

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The different surgical techniques performed on vasoproliferative retinal tumors depend on factors such as size and associated complications.

Video of surgical maneuvers in several cases of vasoproliferative tumors.

Various surgical approaches to vasoproliferative tumors, such as cryotherapy, scleral buckle, and/or brachytherapy, are presented. Various tips and tricks for treating these tumors are also presented.

Treatment should be individualized taking into account the origin, size and complications of the tumor. Early treatment will prevent macular exudation.

Abstract 209

DON'T MISS IRON MYDRIASIS:A CLUE TO OCULAR SIDEROSIS

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Iron mydriasis is a distinctive pupillary dilation caused by the toxic effects of retained iron-containing intraocular foreign bodies, leading to ocular siderosis. This condition may present as a fixed, dilated pupil and can be an early or sometimes the sole clinical sign of iron deposition in ocular tissues. Recognizing iron mydriasis is crucial, as it often indicates an occult metallic intraocular foreign body requiring prompt diagnosis and management to prevent progressive visual damage.

Case report

A 45-year-old patient presented with recurrent episodes of a red, painful eye, anterior chamber inflammation, and unilateral mydriasis. Initially diagnosed as anterior uveitis, the condition proved resistant to anti-inflammatory therapy. Upon further questioning, the patient reported a history of ocular trauma one year prior, which had been neglected. Orbital CT imaging was performed and revealed a foreign body lodged at the pars plicata, explaining its absence on fundus examination. The patient initially declined surgical removal, but three months later developed a rhegmatogenous retinal detachment. At that point, he consented to surgery, which included vitrectomy, extraction of the foreign body, and retinal reattachment. Postoperatively, the mydriasis resolved and the retina was successfully reattached.

This case highlights the importance of considering an occult intraocular foreign body in cases of unilateral mydriasis, especially with a history of trauma, and underscores the value of orbital imaging when the foreign body is not clinically visible

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MANAGEMENT OF COMPLICATIONS (MY WAY)

Abstract 210

COMBINED PHACO VITRECTOMY: MANAGING ANTERIOR CAPSULE TEAR

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A challenging case highlighting the relationship between capsular support issues and tamponade choices in combined procedures.

Video Presentation: Management of Anterior Capsule Tear and Secondary Intraocular Lens Insertion during Combined Phacoemulsification and Vitrectomy in a Diabetic Patient with Persistent Vitreous Hemorrhage

Stable IOL after 6 months of follow up. VA has improved to 0.4 .

Tamponade Selection: consider capsular support when choosing between gas, oil, or fluid. IOL Placement: optic capture offers stability with compromised capsules. Patient Factors: underlying conditions like diabetes affect surgical approach and outcomes

Abstract 228

RETINATOR: SURGERY DAY. EXTRACTION OF AN INTRAOCULAR PELLET.

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Ocular gunshot injuries pose significant challenges due to the extent of structural damage and the high risk of vision loss. This video presents a complex case of severe ocular trauma caused by a gunshot, managed with emergent 23-gauge pars plana vitrectomy (23G-PPV) and a multimodal surgical approach aimed at restoring ocular integrity and optimizing visual outcomes.

A 23G-PPV was performed on a patient referred for open-globe trauma following a shotgun injury to the right eye (OD). The patient was initially treated with primary closure of the right eye at a hospital in the province of Buenos Aires before being transferred to Fundación de Cirugía Ocular Jorge Zambrano for further management. Preoperative evaluation revealed a single intraocular foreign body and additional metallic foreign bodies in the orbit and sphenoid body. The patient presented with perception of light in the OD and no light perception in the left eye (OS). Surgical intervention included lensectomy, posterior vitrectomy, removal of vitreous hemorrhage, repair of retinal detachment, and extraction of the intraocular foreign body. Sclero-corneal incision facilitated the extraction of an entrapped pellet, followed by corneal suturing and subretinal fluid drainage with perfluoro-octane. Additional procedures included vitreous base shaving, laser retinopexy, air-fluid exchange, and 1000 centistoke silicone oil tamponade.

Six months postoperatively, silicone oil removal was performed, and the patient maintained stable vision with a visual acuity of 1/10 in the OD and no light perception in the OS. The retina remained attached, and there were no signs of intraocular inflammation or recurrent hemorrhage.

This case highlights the successful management of severe ocular trauma with emergent vitrectomy and comprehensive surgical intervention on the right eye. Prompt surgical intervention and meticulous intraoperative care led to favorable anatomical and functional outcomes, underscoring the importance of timely and skillful management in cases of complex ocular trauma.

Abstract 231

SEVERE OCULAR TRAUMA FROM PAINTBALL PROJECTILE: SURGICAL MANAGEMENT AND VISUAL OUTCOME

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We report the case of a 19-year-old male who sustained severe ocular trauma from a paintball projectile, resulting in vitreous hemorrhage and retinal detachment. The case highlights the surgical approach and visual recovery following 23-gauge pars plana vitrectomy (PPV).

The patient presented with a best corrected visual acuity (BCVA) of 10/10 in the right eye and light projection in the left. Examination of the left eye showed midriasis and blood-stained anterior hyaloid. Fundus evaluation was not possible due to media opacity. Ocular ultrasound revealed a complete vitreous hemorrhage and shallow retinal detachment. A 23-gauge pars plana vitrectomy was performed. After central and peripheral vitrectomy, an inferotemporal retinal dialysis was identified. Staining with triamcinolone revealed a sheet of vitreoschisis, which was removed with forceps. The anterior hyaloid, stained with blood, was carefully peeled using forceps and the vitrectome, avoiding lens damage. Subretinal fluid was drained using perfluorocarbon liquid. Endolaser photocoagulation was applied 360°, followed by a fluid-air exchange and 20% SF6 gas tamponade. The sclerotomies were then closed with Vicryl sutures.

At four-month follow-up, the retina remained attached with a BCVA of 3/10 in the left eye. The right eye remained unaffected with normal vision.

This case illustrates the complexity of paintball-related ocular trauma and the importance of prompt, thorough surgical management to restore ocular anatomy and achieve partial functional recovery.

Abstract 237

SURGICAL MANAGEMENT OF COMPLICATIONS OF RETINAL CAPILLARY HEMANGIOBLASTOMA

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Retinal capillary hemangioma(RCH) is a potentially blinding presentation of VHL, often complicated with exudative and tractional retinal detachment. Tumors are usually recurrent and/or resistant to less invasive current therapies (LPC/Cryo/anti-VEGF). Thus, salvage of the eye, preserving the vision and halting the progression of the disease is challenging. Vitrectomy has promising results when tailored and refined for each case

This video describes different surgical approaches for the treatment of complications (tractional RD, exudative RD, vitreous hemorrhage, epiretinal membrane) of retinal capillary hemangioblastoma (RCH) in different cases.

Surgical technique involves vitrectomy with or without encircling scleral buckle. During vitrectomy, solitary big RCH associated with exudative and tractional RD are excised totally leaving a retinectomy behind, while small RCH are lasered only. Peeling all the membranes around and over the RCH before the excision is one of the key steps of the surgery. Peripheral retina was also ablated with scatter laser. SiO was used as a tamponade in cases with retinectomy while air is used in the others. Follow up with regular FA done every 6 months is mandatory to detect the early lesions in the operated and the fellow eyes.

Vitrectomy, membrane peeling and laser photocoagulation is often adequate for small RCH; while solitary big RCH associated with ERD and TRD requires tumor excision and retinectomy; Peeling all the membranes before tumor excision is crucial in either circumstance. Encircling buckle is a useful tool to halt traction. Peripheral retina ablation with scatter laser is preferred to control the future ischemia related proliferations and recurrences. SiO preferred in cases with retinectomy. Regular FA follow-ups to detect new tumor foci and retinal ischemia is a must.

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PMC6896561.

Abstract 238

A GRAFT WITHIN REACH: TENON'S CAPSULE FOR OPTIC PIT CLOSURE

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This video demonstrates the successful application of autologous Tenon's capsule as a sealing material in three cases of optic disc pit maculopathy, aged 8, 16, and 35 years.

Video presentation

In each case, a Tenon's graft was placed over the optic pit under perfluorocarbon liquid, followed by tamponade with either silicone oil (n=2) or SF6 gas (n=1). All eyes achieved retinal reattachment with stable graft positioning during follow-up. No postoperative inflammation or infection was observed.

These cases highlight the versatility, accessibility, and biocompatibility of Tenon's capsule, especially when conventional approaches fall short. As a readily available autologous tissue, Tenon's capsule offers a promising, minimally invasive solution for sealing optic disc pits and managing associated retinal detachments.

Abstract 241

WHERE IS THE PLACE OF SUBRETINAL T-PA INJECTION IN THE TREATMENT OF SUBMACULAR HAEMORRHAGES IN WET AMD?

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Submacular haemorrhage is devastating complication and if left untreated leads to loss of VA in affected eye.

In a retrospective case series, patients with SMH secondary to AMD were treated with quadruple therapy: (1) vitrectomy; (2) subretinal recombinant tissue plasminogen activator (rtPA) administration; (3) bevacizumab injection; followed by (4) monthly intravitreal bevacizumab.

Forty-eight patients were treated (68.8% women; mean age, 80 years). A mean of 22 days elapsed between SMH onset and surgical intervention (range, 2–120 days), with vitrectomy performed after ≥ 30 days in 39.6% of patients. A significant improvement from baseline in mean BCVA was observed 6 months after SMH treatment (1.6 [baseline] vs 0.9 [Month 6] logMAR; $p<0.001$). Overall, 46 (95.8%) patients had improved BCVA and 2 (4.2%) had stable (unchanged) BCVA in the treated eye. Improvement in BCVA at Month 6 was similar between those with subretinal haemorrhage and those with both a subretinal and subretinal pigment epithelium haemorrhage ($p=0.11$). No correlation was observed between the time interval (SMH expression to intervention) and 6-month posttreatment BCVA ($r=0.12$; $p=0.42$).

A combination of vitrectomy, subretinal rtPA, bevacizumab, and monthly intravitreal of bevacizumab for SMH is an effective intervention to achieve visual acuity improvement, including for patients who may experience even a delay in treatment.

The most important predicting factor is the state of the macula before the SMH.

Abstract 244

L-SHAPE TECHNIQUE: ENGINEERING FOR INTRAOCULAR FOREIGN BODIES

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Ocular trauma (OT) remains a significant cause of visual morbidity worldwide, accounting for a substantial proportion of emergency ophthalmic consultations. Intraocular foreign bodies (IOFBs) represent a serious subset of OT, often associated with high-velocity injuries and carrying a significant risk of vision loss. These injuries are commonly seen in occupational settings and can lead to complex clinical presentations, including endophthalmitis, retinal detachment, and long-term visual impairment. Prompt recognition, appropriate imaging, and timely surgical intervention are critical to optimizing outcomes.

We present a case involving a 51-year-old male patient with a 5 mm metallic IOFB located on the posterior hyaloid following a penetrating ocular injury. The patient underwent 25-gauge pars plana vitrectomy. Standard surgical approaches were deemed insufficient due to the size and location of the IOFB, as well as the need to minimize intraocular manipulation. We developed a novel extraction method, termed the L-shape technique, which involves creating a tailored L-shaped sclerotomy at the existing vitrectomy port site. This modification allowed controlled enlargement of the access point without compromising scleral integrity or requiring an additional incision. We used chandelier light for bimanual procedures. The IOFB was then gently mobilized and extracted through the modified port using intraocular forceps, ensuring minimal retinal traction and avoiding damage to adjacent structures. The vitrectomy was then completed without complications.

The procedure was completed without intraoperative complications such as retinal tears, hemorrhage, or lens injury. Postoperative evaluations at 24 hours, 1 month, 3 months, and 6 months showed a stable posterior segment with a fully attached retina and no signs of endophthalmitis or intraocular inflammation. The sclerotomy site remained well-sealed throughout the follow-up period, with no wound leakage or hypotony observed. At 6 months, the patient achieved a best-corrected visual acuity of 20/25.

The L-shape technique offers a safe, effective, and minimally invasive approach for the removal of different kind of posterior segment IOFBs through an existing vitrectomy port. By avoiding additional incisions and maintaining wound stability, this technique may reduce surgical trauma and postoperative complications. Our case demonstrates that this method can result in excellent anatomical and functional outcomes, supporting its potential utility in complex IOFB cases.

Abstract 246

COMBINED SURGICAL TECHNIQUES FOR LARGE, CHRONIC AND REFRACATORY FULL-THICKNESS MACULAR HOLES

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Large and chronic full-thickness macular holes (FTMH), particularly those classified as XL, pose a significant surgical challenge due to their poor anatomical and functional prognosis with conventional techniques. We present a series of four cases of large, chronic and refractory macular holes treated with a combination of advanced surgical techniques aimed at improving closure rates and visual outcomes.

This case series included four patients with chronic XL macular holes. In three primary cases, a combined surgical approach was employed during a single procedure: (1) temporal internal limiting membrane (ILM) flap technique, (2) subretinal injection of balanced salt solution (BSS) around the hole, and (3) gentle massage of the hole edges to promote approximation. In the fourth case, a patient with a previously failed standard ILM peeling underwent revision surgery with a free ILM flap, subretinal BSS injection, and edge massage.

Anatomical closure was achieved in all four cases. Postoperative optical coherence tomography confirmed successful reattachment and foveal restoration. Functionally, all patients experienced improvement in best-corrected visual acuity (BCVA) during 8 months of follow-up, with no reported intraoperative or postoperative complications.

The combination of ILM flap techniques—both temporal and free—subretinal BSS injection, and macular edge massage appears to be an effective strategy for the management of large, chronic and refractory macular holes. This multimodal surgical approach may improve both anatomical closure rates and visual recovery in challenging cases.

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Abstract 252

ZONULOPLASTY WITH POST-TRAUMATIC FUNNEL RD REPAIR

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Closed blunt ocular trauma can be complicated with damage to all ocular structures both in anterior and posterior segments. Anterior segment complications can include hyphema, traumatic mydriasis, sphincter rupture, iridodialysis, traumatic cataract, zonular dialysis, angle recession, ciliary body dialysis. While posterior segment complications can include retinal dialysis, vitreous hemorrhage, retinal breaks and detachment, proliferative vitreoretinopathy, traumatic macular holes, commotio retinae, foveal and optic atrophy and vascular occlusions. It is often common to encounter 2 or more of these complications when managing blunt ocular trauma, and only meticulous examination and surgical planning can address these complications for best possible visual outcome.

A 40 year-old male presented with severe blunt ocular trauma due to Pilates injury, on presentation extensive subconjunctival hemorrhage, near total hyphema, extensive lens subluxation and vitreous hemorrhage with soft globe were detected, emergency surgical exploration was sought, to discover small scleral rupture just below insertion of superior rectus muscle which was repaired with nylon 10/0 sutures and pericardium closure, patient was referred to VR surgeon who detected superotemporal retinal dialysis with macula on retinal detachment, which was followed carefully for 2 weeks, then due to gradual progression, with drop of VA from 6/24 to 6/60, trial of scleral buckle was performed. 4 weeks later, recurrence of retinal detachment with star fold and PVR grade C was found primarily due to development of rupture site related retinal tear, with VA of HM, patient was counselled, and agreed to proceed to full repair of lens subluxation, cataract and funnel RD.

Surgery was started with 3 torcar insertion, followed by vision blue stain to anterior capsule, then cystitome was used to initiate the capsulorhexis, then iris hooks were used to support the capsule, to allow for complete narrow ACCC, then CTR was inserted and phacoemulsification done, then 27G needle inserted 2mm posterior to limbus at site of maximum subluxation (superotemporal) to allow threading of 6/0 prolene suture through the main port, the retrieved and threaded through the inlet of Cionni ring, low temp-cautery used to form large knob of prolene suture so that it hold the ring, the ring then inserted into the capsular bag, and pulled through scleral site, to show inferior extensive subluxation, so same procedure repeated from inferonasal site with another Cionni ring and prolene 6/0 sutures, both then adjusted to proper centration of capsular bag and then low-temp cautery used to form large knobs of prolene suture on scleral sides, then 3-piece IOL was inserted into capsular bag.

This was followed by pars plana vitrectomy, using high magnification stick on lens to allow for PVD induction and PVR peel from posterior pole, then gradual PFCL bubble used to stabilize peripheral retina while continuing the procedure of PVR peel, this was followed by full PFCL fill, 360 laser retinopexy on edge of scleral buckle indent as well as retinopexy on any retinal tear.

The case was terminated with direct PFCL-silicone oil exchange and vicryl 8/0 sutures to all sclerotomy ports.

On post op reviews, anterior segment showed clear AC, 3-piece IOL was centered and supported in capsular bag, posterior segment showed full SO fill, flat retina and near normal macular contour, VA improved gradually to CF then 6/36 and normal IOP, patient is under observation for ROSO in 3/12 time.

Simultaneous repair of traumatic subluxation of cataractous lens and complex traumatic retinal detachment through innovative and complementary surgical techniques can allow for preservation of ocular structure with good anatomical, functional, and cosmetic outcomes.

Choice of best surgical intervention should be tailored on case-by-case basis.

Abstract 257

A FORTUNATE OUTCOME AFTER A CATASTROPHIC EVENT: A CASE OF OPEN GLOBE TRAUMA WITH FUNCTIONAL VISUAL RECOVERY

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Open globe trauma is a major cause of preventable blindness worldwide. Prognosis depends on the mechanism and location of injury, with an initial visual acuity of no light perception (NLP) typically associated with poor outcomes. Historically, this has led to primary enucleation due to concerns such as sympathetic ophthalmia. However, recent management strategies emphasize globe preservation, even in severe cases, given the potential for meaningful visual recovery in selected patients.

A 70-year-old female with no significant systemic history sustained severe ocular trauma to the left eye after a fall onto a hard surface. On presentation, the eye had NLP and an intraocular pressure of 2 mmHg. Examination revealed 360° subconjunctival hemorrhage, 6 mm uveal prolapse with vitreous extrusion, corneal edema, Descemet folds, and an 80% hyphema. Ocular ultrasound showed dense vitreous hemorrhage and open-funnel retinal detachment. The injury was classified as open globe trauma type A, grade D, zone III, with an Ocular Trauma Score of 1, predicting NLP in 74% of cases at 6 months.

Two weeks after the second surgery, the patient achieved a best-corrected visual acuity (BCVA) of counting fingers at 1 meter, with an intraocular pressure of 9 mmHg, a well-formed anterior chamber, and an attached retina, though a residual nasal choroidal detachment persisted. Optical coherence tomography (OCT) revealed disruption of the ellipsoid zone with preservation of the inner retinal layers. By two months post-injury, the patient remained stable with partial functional visual recovery. However, anterior grade C proliferative vitreoretinopathy developed, prompting a third surgical intervention consisting of scleral buckling and vitreous cavity revision.

At three months following the third procedure, the retina remained fully attached, with improved visual acuity of counting fingers at 2 meters, indicating a favorable anatomical and functional outcome.

This case illustrates that even in cases of open globe trauma with initial NLP, a globe-sparing approach with timely, staged surgical management can result in meaningful functional recovery. The absence of intraocular disorganization on ultrasound may be a favorable prognostic sign. It highlights the importance of individualized treatment and cautions against immediate enucleation as a default approach, advocating instead for anatomical and functional preservation when clinically justified.

Abstract 261

SURGERY FOR A CASE OF CYSTOID MACULAR EDEMA SECONDARY TO DIABETIC RETINOPATHY

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The following is a case study of a patient with significant cystoid macular edema secondary to diabetic retinopathy.

Retinography, OCT, and Angio-OCT were performed; significant cystoid macular edema was discovered, as well as an epiretinal membrane. Possible treatments were evaluated, and it was decided to perform a vitrectomy with resection of the epiretinal membrane, application of intraocular dexamethasone, and panphotocoagulation.

The results were positive, with significant anatomical improvement accompanied by significant improvement in visual acuity.

Treatment based on vitrectomy, resection of an epiretinal membrane, dexamethasone implant, and panphotocoagulation is feasible as a treatment for cystic macular edema secondary to diabetic retinopathy.

OCULAR TRAUMA

Abstract 265

"THE SKY IS THE LIMIT" (HAROLD RIDLEY STORY)

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This video shows the history of the first Intraocular Lens implantation, invented and developed by Sir Harold Ridley 75 years ago, in November 1949.

Through original images and scenes from that period, this incredible story is narrated, showing the continuous evolution of the Intraocular Lens models, until the contemporary IOL types (modern premium IOLs).

The importance of IOL's invention was crucial, leading to a huge revolution in the ocular surgery field.

We are all grateful to Harold Ridley effort, and this video represents a tribute to him and to his contribution in ophthalmology.

Abstract 273

PATCHING WITH AMNIOTIC MEMBRANE IN GUNSHOT GLOBE PERFORATION RETINAL DETACHMENT

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Innovative treatments are in continuous research for retinal surgical challenges.

The amniotic membrane has been used as an useful tool in refractory, persistent and chronic macular hole selected cases.

Retinal detachment repair after globe rupture, specially if the retina is incarcerated or extensive proliferative vitreoretinopathy membranes are present can be difficult and usually have very dim prognosis for structural and functional recovery.

The two purposes of this presentation are: showing the usefulness of patching in severe globe perforation and presenting the effectiveness of the amniotic membrane as a biocompatible film patch in vitreoretinal trauma/ retinal detachment surgery, other than macular hole.

Retrospective case report. Clinical and surgical data are presented in the video.

A 48-year-old man presented with severe eye trauma due to gunshot perforation complicated by funnel-shaped total retinal detachment. Dense vitreous cavity blood cloth precluded fundoscopy. B-scan echography showed retinal incarceration at the exit site, juxta-scleral lead pellet and its reverberation artifact. CT scan showed the retained gun pellet adjacent to the optic nerve.

He underwent phaco-vitrectomy, retinectomy at the exit site, cryopreserved amniotic membrane patch, fluid-air exchange, laser retinopexy and silicone oil endotamponade.

The sizable amniotic membrane patch easily adhered over the large choroidal wound. No choroidectomy was performed.

Postoperatively BCVA improved from light perception to 20/40 and the retina remained fully attached after silicone oil removal with no proliferative vitreoretinopathy (PVR) signs at 6 months follow-up.

The amniotic membrane value in vitreoretinal surgery goes beyond macular hole surgery.

The human amniotic membrane is a suitable patching tissue for retinal detachment repair after severe perforating trauma.

PVR is still a challenge in vitreoretinal surgery for which novel treatments are required. Patching techniques may be used easily and effectively in posterior major perforating globe injuries aiming to prevent PVR and may obviate the need for choroidectomy.

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Abstract 278

RETINITIS PIGMENTOSA SINE PIGMENTO

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Retinitis pigmentosa (RP) is a group of inherited retinal dystrophies characterized by progressive degeneration of photoreceptors—initially rods, followed by cones in later stages. It typically presents with nyctalopia, progressive peripheral visual field loss, and, in advanced cases, decreased central visual acuity.

The classic form of RP reveals distinctive fundoscopic findings, including bone spicule pigmentation, arteriolar attenuation, and optic disc pallor. However, atypical variants such as Retinitis Pigmentosa Sine Pigmento may lack these hallmark features, displaying a clinically unremarkable or subtly altered fundus appearance, which can delay diagnosis.

In such cases, multimodal imaging—including fundus autofluorescence, optical coherence tomography (OCT), visual field testing, and full-field electroretinography (ffERG)—is essential for identifying both functional and structural retinal changes.

A 52-year-old female patient, with no relevant systemic or ocular history, presented with a three-year history of progressive peripheral visual field constriction and nyctalopia.

A complete ophthalmologic evaluation was performed, including:

Best corrected visual acuity (BCVA): 20/25 in the right eye (OD) and 20/32 in the left eye (OS).

Anterior segment examination via slit-lamp biomicroscopy and intraocular pressure measurement by Goldmann applanation tonometry, both within normal limits.

Dilated fundus examination, which revealed mild bilateral arteriolar attenuation and subtle pigmentary changes in the macular region, accompanied by a grayish reflex. Classic signs such as bone spicule pigmentation were notably absent.

To further characterize the retinal findings, multimodal imaging and functional tests were performed:

Fundus autofluorescence (FAF): Demonstrated a concentric pattern of mottled hypoautofluorescence sparing the foveal area, suggestive of retinal pigment epithelium (RPE) dysfunction.

Spectral-domain optical coherence tomography (SD-OCT): Revealed subfoveal hyporeflective cystoid spaces consistent with cystoid macular edema (CME), perifoveal disruption of the ellipsoid zone, and thinning of the outer retinal layers, indicative of photoreceptor degeneration.

Standard automated perimetry (Humphrey Visual Field 24-2): Showed concentric visual field constriction in both eyes, with preservation of central vision.

Full-field electroretinography (ffERG): Performed according to ISCEV standards, demonstrated markedly reduced scotopic and photopic responses, consistent with rod-cone dystrophy.

Based on the clinical presentation and multimodal assessment findings, a diagnosis of Retinitis Pigmentosa Sine Pigmento was made. Treatment was initiated with topical dorzolamide 2%, administered twice daily, aimed at reducing the CME. Subsequent OCT follow-up confirmed a favorable anatomical response with decreased central retinal thickness. The patient maintained good central visual acuity (20/25 OD, 20/32 OS) with normal anterior segment and intraocular pressure.

Retinitis Pigmentosa Sine Pigmento represents a diagnostic challenge due to the absence of classic fundus findings. As retinal specialists, it is crucial to recognize early structural and functional changes using multimodal imaging and electrodiagnostic studies. OCT and fundus autofluorescence play a key role in detecting subtle outer retinal alterations, especially in atypical phenotypes. Early identification

and management of CME, even in the absence of overt pigmentary changes, may help preserve visual function. A high index of suspicion and familiarity with these less common variants are essential for timely diagnosis and management.

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Abstract 284

SURGICAL MANAGEMENT OF INTRAOCULAR CYSTICERCOSIS: A SPECTRUM OF PRESENTATIONS AND INTRAOPERATIVE APPROACHES USING PARS PLANA VITRECTOMY

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Cysticercosis, caused by the larval form of *Taenia solium*, is a systemic parasitic infestation that can involve various ocular structures. Intraocular cysticercosis, although uncommon, poses significant diagnostic and therapeutic challenges. The parasite may localize to different compartments within the eye, including the vitreous cavity, subretinal space, or occasionally on the retinal surface or the anterior segment. The inflammatory reaction triggered by the death or rupture of the cyst often leads to severe vitritis and retinal traction, threatening vision.

Surgical management is the mainstay of treatment for intraocular cysticercosis, particularly in cases with live cysts or sight-threatening inflammation. Pars plana vitrectomy (PPV) serves both diagnostic and therapeutic purposes, facilitating cyst removal while mitigating intraocular inflammation and preventing sequelae such as retinal detachment or epiretinal membrane formation.

This video-based case series presents the diverse intraocular manifestations of cysticercosis and demonstrates tailored surgical strategies employed via modern microincision vitrectomy systems. Each case offers insight into the complexity and variability of intraocular cysticercosis, while emphasizing the principles of safe and effective cyst extraction.

This video abstract presents five representative cases of intraocular cysticercosis managed surgically via pars plana vitrectomy at a tertiary eye care center. All cases underwent thorough preoperative assessment including B-scan ultrasonography, optical coherence tomography (OCT) when feasible, and neuroimaging in suspected systemic cases. Surgical intervention was performed using either 25-gauge or 20-gauge vitrectomy systems. Informed consent and appropriate systemic anti-parasitic therapy were ensured where applicable.

Case 1:

A 56-year-old male with confirmed neurocysticercosis presented with a live subretinal cyst in the right eye. A 25-gauge PPV was performed. After core vitrectomy and posterior vitreous detachment (PVD) induction, a retinotomy was made at the cyst margin, allowing gentle dissection and complete removal of the cyst in toto from the subretinal space. It was then aspirated from the vitreous cavity using the 25G vitrectomy cutter, minimizing inflammatory response.

Case 2:

The left eye of the same patient harbored a dead, fibrosed subretinal cyst located along the inferotemporal vascular arcade. After PVD induction, the fibrotic cyst wall was delicately peeled using 25G internal limiting membrane (ILM) forceps, separating the cyst from the retina. The residual material was fragmented and aspirated using the vitrectomy cutter.

Case 3:

A 38-year-old female presented with a vitreous cysticercus accompanied by intense vitritis and vitreous membranes in the superotemporal quadrant. 25G PPV was carried out, with careful dissection of the vitreous membranes and aspiration of the freely floating cyst.

Case 4:

A 30-year-old female presented with an intumescent white cataract and intraocular cysticercosis. Combined phacoemulsification with intraocular lens implantation and 25G PPV was performed. A partially mobile vitreous cyst was identified along with dense preretinal membranes, which were

dissected where possible. Limited membrane dissection was done due to poor fundus visibility and the risk of iatrogenic breaks in an inflamed eye.

Case 5:

A historical case from the archives of our institution demonstrated the rare intraoperative finding of a live cysticercus larva adherent to the retinal surface. A 20G PPV was performed. The live motile larva was gently aspirated using the 20G cutter without rupture, and the whole larva is demonstrated within the cassette of the vitrectomy machine. Following removal, vitreous cysts were identified and managed with controlled aspiration. This case illustrates the importance of anticipation and gentle tissue handling to avoid dissemination and inflammation.

All five patients underwent successful surgical removal of intraocular cysts without major intraoperative complications. Visual acuity improved in all patients, with the degree of recovery influenced by pre-existing media opacity, duration of inflammation, and extent of retinal involvement.

The series highlights the varying clinical and intraoperative features, such as:

- Live subretinal cysts requiring strategic retinotomy and en bloc removal (Case 1)
- Dead fibrosed cysts adherent to the retinal surface, needing mechanical dissection (Case 2)
- Vitreous cysts with vitritis, necessitating membrane peeling and gentle core vitrectomy (Case 3)
- Cataract with vitreous cyst and extensive preretinal membranes, requiring combined anterior-posterior segment intervention (Case 4)
- Rare motile larvae in the vitreous cavity, demanding extreme delicacy in aspiration to avoid rupture and inflammation (Case 5)

Each case underscored the need for individualized surgical strategies based on the location, activity, and extent of involvement.

Intraocular cysticercosis presents a wide spectrum of clinical and surgical challenges. Its manifestations can range from live subretinal cysts to fibrotic vitreous cysts with or without associated inflammation and membrane formation. Pars plana vitrectomy offers a safe, controlled, and effective method for cyst removal from various intraocular compartments. Removal in toto, particularly of live cysts, is crucial to prevent toxic intraocular inflammation. Meticulous preoperative planning, delicate intraocular maneuvers, and appropriate gauge selection play a vital role in successful surgical outcomes.

This video abstract serves as a useful surgical guide to managing different forms of intraocular cysticercosis. It emphasizes the importance of recognizing presentation patterns and applying case-specific surgical principles to achieve optimal visual and anatomical results.

Abstract 316

VITRECTOMY IN DIABETIC TRACTION RETINAL DETACHMENT WITH CRUNCH SYDROME

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Crunch Syndrome is reported as an infrequent finding in eyes with proliferative diabetic retinopathy following intravitreal antiVEGF injection.

Two type I- DM cases with poor metabolic control in which pars plana vitrectomy was planned developed Crunch Syndrome. AntiVEGF (Eylea) was injected 5 days and 3 weeks before the PPV, with full and half dose respectively. Although vitrectomy was scheduled following anesthesia approval 3 days later than the injection, the surgeries could be performed at 5th and 21st day due to patients' systemic conditions and availabilities.

Fast progression of the DTRDs with very strong adhesions of the membranes to the retina was observed during vitrectomy. This video shows meticulous and careful dissection and delamination of the membranes with bimanual manoeuvres and the help of low-dose endodiathermy to lift the membranes. Total attachment of DTRDs is achieved with increased visual acuity in both eyes.

Crunch Syndrome in eyes with proliferative diabetic retinopathy following antiVEGF injection is an issue to keep in mind. The surgeons are to be ready to encounter abnormally strong attached membranes necessitating bimanual manoeuvres or during vitrectomy. AntiVEGF dose may be decreased to half. The duration between intravitreal injection and the vitrectomy had better be less than a week. Larger series are warrented to evaluate the high risk eyes.

401. FROM PIT TO FOVEA: OCT INSIGHTS INTO FLUID DYNAMICS AND SURGICAL RESPONSE IN OPTIC DISC PIT MACULOPATHY

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Introduction:

To describe the clinical presentation, multimodal imaging features, and surgical management of a patient with optic disc pit maculopathy (ODP-M), emphasizing the structural changes observed by spectral-domain optical coherence tomography (SD-OCT) and postoperative outcomes.

Materials and methods:

A 17-year-old female with no previous ocular or systemic disease with a history of gradual deterioration of vision in right eye for over one year. Comprehensive ophthalmologic examination and multimodal imaging, including SD-OCT, were performed. The patient underwent 25-gauge pars plana vitrectomy with induction of posterior vitreous detachment, fovea-sparing internal limiting membrane (ILM) peeling, and placement of an ILM flap over the optic disc pit, with gas tamponade and lens preservation. Postoperative anatomical and functional changes were documented over a 3-month follow-up.

Results:

Baseline SD-OCT revealed 810 μ m of subfoveal subretinal and intraretinal fluid associated with an optic disc pit. Three months after surgery, OCT demonstrated a significant reduction in subfoveal fluid to 278 μ m and partial restoration of foveal contour, accompanied by substantial visual improvement. The fellow eye remained unaffected. No surgical complications occurred.

Conclusions:

ODP-M is a rare but vision-threatening complication of optic disc anomalies. SD-OCT is essential for understanding the fluid dynamics and monitoring treatment response. Pars plana vitrectomy with gas tamponade provides superior anatomical and functional recovery compared with conservative or laser-based approaches. The role of ILM peeling, juxtapapillary endolaser, and pit-plugging techniques remains under debate and should be individualized. Early surgical intervention and tailored

management are key to optimizing outcomes, as spontaneous resolution is uncommon and delayed treatment correlates with poorer visual prognosis.

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Photo *presentations*

Abstract 38

"CREAMY ON THE OUTSIDE, DANGEROUS ON THE INSIDE "

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A 44 year lady came with complaints of blurring of vision in both eyes for past 3 months. she was non diabetic and non hypertensive. On examination her BCVA in RE was 6/36 and left eye was 6/60. Anterior Segment examination showed both eyes Posterior Subcapsular Cataract (LE > RE). Fundus Examination in both eye 's showed creamy coloured blood vessels with no other pathology. Her Blood workup revealed Triglycerides more than 11000 and was diagnosed with Lipemia Retinalis due to Hypertriglyceridemia . She was referred to physician for management of high Triglycerides .2 weeks after starting treatment for the same the blood vessels became normal.

Patient presented at our clinic was included

Patient was diagnosed with Hypertriglyceridemia and treated for the same.

Lipemia retinalis (LR) is a retinal manifestation of chylomicronemia (hypertriglyceridemia). Ophthalmoscopic features are creamy-white discoloration of the retinal vessels, which start in the peripheral vessels in mild cases and involves central retinal vessels in established cases. In severe cases, the fundus takes salmon color. Though lipemia retinalis does not affect the visual acuity, the associated severe but easily treatable metabolic disorders merit discussion.

Abstract 41

"BENEATH THE QUIET, A STORM IS BREWING."- A CASE OF CHOROIDAL MELANOMA"

Gandhi R.*

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A 40 year Male came for routine checkup with complaints of Near vision problem in both eyes. His UCVA in both eye for distance was 6/6 and near vision with +1.00 was N6. His anterior Segment examination was normal in both eyes. Fundus Examination in Right eye showed large blackish mass subretinally extending from superior disc margin and was extending along superior vessels. Patient was Diagnosed with Right Eye Choroidal Melanoma after further Investigations and underwent treatment for same.

NA

NA

Choroidal melanomas are rare, yet it is crucial to be cautious when examining a choroidal mass. Early detection is vital; therefore, fundus examination must be considered as most choroidal melanoma cases are diagnosed clinically. The patient must be educated about the life expectancy, lifetime risk of potential metastases, management modalities, and expected vision outcome

Abstract 43

THE CASCADE OF BLOOD

Raizada K.*

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This is a unique photograph of a Large Retinal Hole following injury by Q-switched Nd:YAG Laser in a Dermatologist.

The literature has very few case reports of a treating doctor being injured by a laser while administering treatment. This unusual and rare case report highlights the potential hazards, lasers pose for Medical Practitioners. The report throws light on the possible ocular injuries that can be caused by Cosmetic Lasers and ways that can prevent such debilitating injuries.

A Dermatology Post Graduate reported to us with complaints of sudden onset diminution of vision in her right eye. She had unprotected exposure to Q-Switched Nd:YAG Laser while performing a cosmetic procedure. Her BCVA in the right eye was 1/60. On Fundus examination, there was a large retinal hole, supero-temporal to the superior vascular arcade, oozing blood in the vitreous cavity. A barrage Laser (Double Frequency Nd:YAG Laser - 532 nm) was done around the retinal hole to prevent the development of Retinal Detachment. The large Retinal Hole was successfully barraged.

The patient did not develop retinal detachment and the vitreous haemorrhage gradually absorbed leading to complete recovery of the vision of the patient. Her final BCVA was 6/6.

Long term complications include Choroidal Neovascularisation at the site of injury and long term follow up of the patient is required to keep a check for the same.

Lasers are widely used in cosmetic medicine, scientific research, and industry. The eye can be injured during cosmetic laser procedures involving the face. Accidental laser discharge during the preparation of a laser device and not using protective goggles are the main causes of laser injuries.

Lasers are being used on a widespread basis for cosmetic purposes. Users need to be aware of the potential hazards of such lasers and must use eye protection at all times while using the laser. Laser injuries to the eye can be devastating.

Abstract 49

MULTIFOCAL RETINAL ASTROCYTIC HAMARTOMA

Ayachit A.*

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A 12-year-old girl presented with vision loss in the right eye for many years. Vision in the right eye was counting finger- 1 metre and accurate projection of rays. There was a 15 degree esotropia.

Imaging modalities used- Colour fundus photography, SD- OCT, autofluorescence. Montage of all imaging modalities

Fundus showed two retinal astrocytic hamartomas (RAH) i.e. one on the disc with a mulberry appearance and another in the temporal and inferior paramacular. Both tumours showed intense hyperautofluorescence. On OCT, there was expansion of the nerve fibre layer by the tumour with optically empty spaces (OES) suggestive of calcification, along with a thick epiretinal membrane. This case was unusual in that there were two tumours i.e. an epipapillary mulberry tumour as well as a macular RAH. The patient had no cutaneous plaques or subependymal tumours on magnetic resonance imaging of the brain. A paediatrician's referral was sought to rule out other systemic associations of tuberous sclerosis complex.

This case shows a striking image of atypical multifocal retinal astrocytic hamartomas.

Abstract 60

THE TRANSIENT 'FERN' CATARACT!

Sahare H.*

Dr Agarwal's Eye Hospital ~ Tirunelveli ~ India

A 56-year-old gentleman presented with transient fern cataract post-pars plana vitrectomy with internal limiting membrane peeling and gas bubble injection in the right eye for the macular pucker. Slit-lamp photograph of the right eye showed fern like linear opacities in the posterior subcapsular cortex of the crystalline lens with gas. Transient "fern" posterior subcapsular cataract presents mostly within a day of surgery in gas-filled vitrectomized eyes due to the metabolic disruption between the lens and aqueous, which can be avoided by leaving some anterior cortical vitreous behind the lens.

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Prolonged contact can result in permanent irreversible posterior subcapsular cataracts.[3]

Hsuan JD, Brown NA, Bron AJ, Patel CK, Rosen PH. Posterior subcapsular and nuclear cataract after vitrectomy. *J Cataract Refract Surg* 2001;27:437–44.

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Abstract 61

THE OIL DROPLET EVANESCENT CATARACT!

Sahare H.*

Dr Agarwal's Eye Hospital ~ Tirunelveli ~ India

A 56-year-old gentleman presented with complaints of diminishing vision in his right eye since 2 weeks. On examination, the vision in the right eye consisted of hand movements, with normal anterior segment findings and a clear lens, and a total retinal detachment on examination of the fundus.

The left eye examination was normal. He underwent pars plana vitrectomy (PPV) and sulfur hexachloride gas (SF6) tamponade. On the first postoperative day, an examination of the posterior segment revealed an attached retina and a gas-filled eye. In addition, on slit-lamp examination, we observed a subcapsular posterior cataract [Fig. 1a] with a fern-like pattern on retroillumination [Fig. 1b]. In subsequent examinations, the cataract gradually disappeared without treatment [Fig. 1c], hence the term "evanescent cataract."

The hypothesized reason for the cataract's disappearance is obscure, but it was likely caused by gas-induced oxidative stress; as the gas was absorbed, the cataract disappeared.[1,2] This can be avoided by leaving some anterior cortical vitreous behind the lens during vitrectomy and proper posturing of the patient post-vitrectomy.

Prolonged contact of gas bubble with the lens can result in permanent irreversible posterior subcapsular cataract and acceleration of nuclear opacification.[3]

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Abstract 88

PIGMENTED PARAVENOUS RETINOCHOROIDAL ATROPHY (PPRCA) IN A WOMAN OF PORTUGUESE DESCENT: A CASE REPORT

Lai A.*¹, Gulamhusein H.¹

McMaster University ~ Hamilton ~ Canada

Pigmented paravenous retinochoroidal atrophy (PPRCA) is a rare retinal disorder characterized by perivenous pigment clumping and retinal atrophy (1, 2). Typically bilateral and symmetrical, PPRCA is often detected incidentally due to its slow progression and asymptomatic nature in non-macular involving cases. In this report, we report the first documented case of PPRCA in an individual of Portuguese descent.

Clinical data were collected retrospectively from the patient's medical records with informed consent obtained for publication. A comprehensive review of the patient's history, presenting symptoms, physical examination findings, diagnostic imaging, and laboratory results was conducted.

Ophthalmologic assessments included visual acuity testing, slit-lamp examination, intraocular pressure measurement, and fundus examination. Orbital imaging was performed using Optos wide-field imaging and intravenous fluorescein angiography to evaluate anatomical abnormalities.

The patient was managed according to standard clinical guidelines, and treatment decisions were made by the attending care team based on the progression of symptoms and imaging findings. Follow-up was conducted over a period of 6 months, and all clinical developments, therapeutic responses, and complications were documented. Literature relevant to the condition was reviewed to compare and contextualize this presentation.

A 64-year-old woman was found to have incidental PPRCA findings during a routine eye exam. Her medical history included remote unilateral shingles keratitis, migraines, hypertension, dyslipidemia, and osteoporosis. Ophthalmologic evaluation included visual acuity testing, intraocular pressure measurement, and dilated fundus examination (DFE).

The patient had a visual acuity of 20/20 OD and 20/30 OS, with normal intraocular pressures. DFE revealed bilateral, symmetrical perivenous pigment clumping with no macular involvement. The retinal changes were consistent with congenital PPRCA, despite no familial history. Her systemic conditions, including a history of unilateral shingles, were not correlated with symmetrical retinal findings.

This is the first case study of PPRCA in a patient of Portuguese descent. The patient's preserved vision and lack of symptoms reflect PPRCA's indolent nature. This case underscores the importance of recognizing PPRCA's characteristic perivenous pigmentation and distinguishing it from other retinal conditions. As well, the possibility of parainfectious immune-mediated mechanisms, particularly in genetically susceptible individuals, warrants further investigation. This case expands the known demographic distribution of PPRCA and underscores the importance of recognizing its characteristic features to avoid misdiagnosis as retinitis pigmentosa or retinal vasculitis.

The treatment of PPRCA lacks a standardized protocol. Patient education and regular monitoring are

recommended for management. Further research is needed to clarify its etiology and management.

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Abstract 101

POSTERIOR PERIPAPILLARY VORTEX VEIN IN A HIGH MYOPE

Ganesh M.*, Bansal M., Kumar V.

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The image illustrates a prominently visible posterior peripapillary vortex vein in a patient with high myopia. In high myopes, excessive axial elongation leads to attenuation of overlying retinal layers, and allows enhanced visualisation of underlying vasculature. Typically vortex veins are described to be 4-8 in numbers, with at least one draining each quadrant. The fundoscopic view of the ampulla serves as a landmark for the equator. However, a posterior location of vortex vein is an unusual finding and considered an anatomical variant of choroidal vasculature with an increased risk of choroidal neovascularization.

The authors certify that they have obtained all appropriate patient consent. The patient understands that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

The image illustrates a prominently visible posterior peripapillary vortex vein in a patient with high myopia.

A posterior location of vortex vein is an unusual finding and considered an anatomical variant of choroidal vasculature with an increased risk of choroidal neovascularization.

Abstract 106

PEEK-A-BOO!

Raizada K.*

Dr. Raizada Eye Centre ~ Bareily ~ India

This picture is that of a Lens-Bag Complex, dislocated superiorly and lying underneath the conjunctiva in the superior quadrant.

A 55 year old male presented to us with complaints of diminution of vision in his right eye following blunt trauma 1 day back. His BCVA was HMCF PR Accurate. On examination, his right eye was aphakic with dense vitreous haemorrhage. The sub-conjunctival space at 12 O' Clock was found to have a completely dislocated Lens-Bag Complex, giving it the appearance of a cystic lesion.

The patient was advised to undergo RE Pars Plana Vitrectomy + Lens Extraction + SFIOL under L.A. The patient did well post operatively.

Sub-Conjunctival dislocation of lens-bag complex is not very common. This picture gives a unique scenario following blunt trauma of the eye.

ROP

Abstract 113

AGGRESSIVE ROP

Ganesh M.*, Gupta S., Chandra P.

i. Dr. Rajendra Prasad Centre for Ophthalmic Sciences, All India Institute of Medical Sciences, ~ New Delhi ~ India

The image shows pathologic neovascularization, severe plus disease with a ridge seen nasally. Arteriovenous shunting and dilated vascular loops and flat neovascularisation seen.

The authors certify that they have obtained all appropriate patient consent. The patient understands that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Aggressive-posterior ROP (Rush disease) (2005)-
severe, rapidly progressive form of ROP
located in zone I or posterior zone II
affecting smaller premature infants.

Now aggressive ROP is increasingly to occurs in larger preterm infants and beyond the posterior retina. New term aggressive retinopathy of prematurity (A-ROP) now has replaced aggressive-posterior ROP.

Abstract 191

A LONE SENTINEL: REMNANT RETINA AFTER RETINECTOMY FOR PROLIFERATIVE VITREORETINOPATHY

Shaikh N.*

All India Institute of Medical Sciences ~ New Delhi ~ India

Retinectomy remains a crucial surgical option in cases of complex rhegmatogenous retinal detachment with advanced proliferative vitreoretinopathy (PVR). While it facilitates retinal reattachment in anatomically challenging scenarios, it carries the risk of sacrificing extensive retinal tissue, often resulting in limited postoperative visual function. This case highlights the surgical and functional outcomes of a near-total retinectomy where a small residual island of retina was preserved.

A 35-year-old male presented with a history of progressive vision loss in the right eye (OD) for one year. The left eye (OS) was phthisical, following vision loss five years prior. Anterior segment examination of OD was unremarkable. Dilated fundus evaluation revealed total retinal detachment with macula off and PVR Grade D2 changes. Given the monocular status and extensive retinal pathology, a 25-gauge pars plana vitrectomy (PPV) was undertaken under extremely guarded visual prognosis. Intraoperatively, due to significant retinal foreshortening and traction, a 360-degree retinectomy was necessitated to achieve retinal flattening. Endolaser photocoagulation was applied to the residual viable island of retina. Silicone oil was used as a tamponade.

Postoperatively, anatomical reattachment of the retina was achieved and maintained following silicone oil removal. However, due to the extensive area of retinectomy, the patient exhibited a markedly constricted visual field, although central fixation was retained. The preserved island of retina functioned as the sole “sentinel” of vision in an otherwise denuded fundus.

This case illustrates the paradox of success in retinectomy for advanced PVR—achieving anatomical reattachment at the cost of functional compromise. While extensive retinectomy may be unavoidable in certain cases, it underscores the need for cautious surgical planning, thorough patient counseling, and exploration of techniques that may minimize retinal loss. Preserving even a small remnant of functional retina can have meaningful implications in monocular patients.

Abstract 206

CASE PRESENTATION: BRANCH RETINAL ARTERY OCCLUSION (BRAO) POST-SEPTAL DEVIATION SURGERY

Almuhtaseb H.*

The View Hospital in affiliation with Cedars Sinai ~ Doha ~ Qatar

Case Summary: A 29-year-old female developed sudden vision loss (20/400 VA) post-septoplasty.

Diagnostics: OCT revealed hemiretinal edema; fluorescein angiography confirmed BRAO.

Management: Conservative approach even with early presentation; VA showed no improvement at 1 month. One of the few cases reported post-rhinoplasty in the Gulf region, highlighting vasospasm risks with local anesthetics.

This case highlights retinal artery occlusion following apparently uneventful septorhinoplasty. Ophthalmologists and otolaryngologists should therefore be aware of the possible occurrence of such complications.

Abstract 224

GIANT RETINAL TEAR AND PROPHYLACTIC SCLERAL BUCKLING IN A HIGHLY MYOPIC CHILD

Grigera J.D.*

Fundación de Cirugía Ocular Jorge Zambrano ~ Buenos Aires Autonomous City ~ Argentina

Nine-year-old female with high myopia (-20 D OU). (1) Right eye with multiple retinal tears treated with laser. (2) Giant retinal tear with inferior hole and associated retinal detachment; prior laser scars are visible. (3) Prophylactic scleral buckle indentation in the right eye. (4) Reattached and indented retina six months after combined surgery (scleral buckle + vitrectomy + silicone oil tamponade) and oil removal.

not required

not required

not required

not required

OCULAR TRAUMA

Abstract 225

TRAUMATIC GIANT RETINAL DYALYSIS

Grigera J.D.*

Fundación de Cirugía Ocular Jorge Zambrano ~ Buenos Aires Autonomous City ~ Argentina

Traumatic giant retinal dialysis greater than 180 degrees in a 15-year old male

NOT REQUIRED

NOT REQUIRED

NOT REQUIRED

NOT REQUIRED

Abstract 267

HYPERFLUORESCENCE OF AN ASTROCYTIC HAMARTOMA

Ruiz K.*, Romo Garcia E.

Hospital Civil de Culiacan ~ Mexico ~ Mexico

It is a benign glial cell tumor located in the neurosensory. Its diagnosis is clinical, supported by imaging studies. It can be found in up to 80% of tuberous sclerosis cases, often presenting bilaterally and detected during or even prior to disease development. It can also occur in isolation (up to 29% of cases). It may also be an incidental finding, as observed in our patient.

Tuberous sclerosis, formerly known as Pringle-Bourneville phakomatosis, is caused by mutations in the tumor suppressor genes TSC1 and TSC2, which respectively encode the proteins hamartin and tuberin. Its incidence is approximately 1 in 6,000 to 10,000 live births. Autism, infantile spasms, epilepsy, and psychomotor developmental delay are frequently associated features. Common systemic manifestations include cutaneous, renal, pulmonary, and cardiac involvement.

We present a clinical case of a 10-year-old girl who presented for consultation due to visual difficulties at school. A mild neurodevelopmental delay was reported. The mother denied any history of seizures, renal problems, cardiac issues, or other relevant medical conditions. She reported history of a father with epileptic seizures without an established diagnosis.

Myopic astigmatism was diagnosed, and glasses were prescribed. Ophthalmological examination revealed a unilateral, multilobulated, yellowish, and shiny lesion in the inferonasal peripheral retina of the right eye. Multimodal imaging studies were performed

Fluorescein Angiography was performed: early hyperfluorescence with a bed of superficial capillaries showing contrast retention that becomes diffuse as the study progresses. At the late arteriovenous phase we observed an hiperreflective lobulated lesion and a surrounding speckled pattern of mild hiperfluorescence.

It is crucial to be aware of the differential diagnoses for astrocytic hamartoma, which include amelanotic choroidal melanoma, melanoma metastasis, retinoblastoma, and others. Multimodal imaging is key to distinguishing it from these other entities. The fundus fluorescein angiography can help to detect other entities and rule out associated high risk conditions. Evaluation by various specialists is essential to rule out tuberous sclerosis (a minor diagnostic criterion), neurofibromatosis, Usher syndrome, retinitis pigmentosa, and other phakomatoses.

Tuberous sclerosis can severely impact quality of life and overall health. Timely diagnosis can aid in the detection of other asymptomatic issues such as subependymal nodules, cerebral astrocytomas, autism spectrum disorders, cardiac rhabdomyomas, polycystic kidney disease, renal carcinoma, and lymphangioleiomyomatosis, among many others.

In this patient's case, no findings compatible with tuberous sclerosis or other associated conditions were observed, leading to a diagnosis of solitary astrocytic hamartoma. Nevertheless, the patient will remain under surveillance every 6 months.

Wójcik-Niklewska B, Sirek S, Tronina A, Filipek E. Isolated retinal astrocytic hamartoma with 7-year follow-up: A case report. Medicine 2023;102:35(e34522).

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tuberous sclerosis: A OCT-SS description. *Clin Case Rep.* 2023;11:e8185. doi:10.1002/ccr3.8185
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Courses

Abstract 29

EMERGING TRENDS IN VITREORETINAL SURGERY(ADVANCED COURSE)

Oncel M.*^[1], Karabas L.^[2], Forlini M.^[3], Akduman L.^[4], Acar Gockgil N.^[5]

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Chairman: Murat Oncel

- 1- Macular Surgery (Levent Karabaş)
- 2- Secondary IOL implantation in the absence of capsular support (Matteo Forlini)
- 3- Update on complex retinal detachment with PVR (Murat Oncel)
- 4- Myopic maculopathy and macular buckle (Levent Akduman)
- 5- Diabetic retinopathy (Nur Acar Gockgil)

The purpose of this course is to share the most up-to-date approaches for challenging and complex cases in vitreoretinal surgery. Highly experienced surgeons who have performed thousands of cases will share the latest techniques and key insights. It is an advanced-level course.

Abstract 193

UNDERSTANDING SCLERAL BUCKLING IN THE ERA OF MINIMALLY INVASIVE VITRECTOMY SURGERY (MIVS): REVIVING A LOST ART

Shaikh N.*, Azad S.V., Verma S.

All India Institute of Medical Sciences ~ New Delhi ~ India

In the current era, the widespread adoption of Minimally Invasive Vitrectomy Surgery (MIVS) has shifted the paradigm of rhegmatogenous retinal detachment (RRD) repair, often relegating scleral buckling to a diminishing role. However, scleral buckling remains a valuable and underutilized technique, especially in selected cases such as young phakic patients, inferior breaks, and detachments without significant proliferative vitreoretinopathy (PVR). This course aims to reintroduce scleral buckling as a skillful, anatomical, and cost-effective approach—one that deserves preservation and refinement in modern vitreoretinal practice.

The course will be divided into six focused instructional segments, followed by an interactive panel discussion:

1. Introduction to Scleral Buckling in the Context of MIVS (10 minutes)
2. Finding the Break and Patient Selection (10 minutes)
3. Basics of Scleral Buckling: Techniques and Instrumentation (10 minutes)
4. Adapting Scleral Buckling to Versatile Clinical Scenarios (10 minutes)
5. Complications of Scleral Buckling: Recognition and Management (10 minutes)
6. Panel Discussion and Q&A (10 minutes)

By the end of this course, participants will be able to:

1. Understand the indications and enduring relevance of scleral buckling in selected retinal detachments
2. Confidently evaluate and select patients suitable for scleral buckling
3. Understand basic scleral buckling procedure as well as the versatile scenarios it may be adopted to
4. Identify and manage complications associated with buckling
5. Integrate scleral buckling as part of a modern, patient-tailored surgical approach

This course underscores the importance of maintaining proficiency in scleral buckling—not merely as an alternative to MIVS, but as a complementary and sometimes superior option in selected cases. By revisiting its principles, refining technique, and adapting it to modern scenarios, scleral buckling can be revived as a powerful tool in the vitreoretinal surgeon's armamentarium. Upholding this "lost art" ensures that patient care remains individualized, comprehensive, and rooted in a mastery of both classic and contemporary surgical methods.

Abstract 208

INTEGRATING RETEVAL PORTABLE ELECTRORETINOGRAPHY IN RETINAL PRACTICE: A HANDS-ON COURSE FOR DIAGNOSIS AND MANAGEMENT OF INHERITED AND ACQUIRED RETINAL DISORDERS

Almuhtaseb H.*

The View Hospital in affiliation with Cedars Sinai ~ Doha ~ Qatar

This course aims to equip ophthalmologists, optometrists, and retina specialists with practical expertise in utilizing the Reteval® portable electroretinography (ERG) device for diagnosing and managing inherited and acquired retinal disorders. Participants will gain proficiency in interpreting ERG waveforms, correlating functional data with clinical findings, and applying insights to guide treatment decisions.

A blended learning curriculum was designed for 40 participants, combining:

Didactic Sessions: Lectures on ERG principles, Reteval's technology (portable full-field and flicker ERG), and clinical applications (e.g., retinitis pigmentosa, diabetic retinopathy, toxic retinopathies).

Case-Based Workshops: Interactive analysis of 15 cases spanning pediatric and adult populations, emphasizing differential diagnosis (e.g., distinguishing cone dystrophy vs. occult macular dystrophy).

Hands-On Training: Simulated patient scenarios using standardized protocols for electrode placement, artifact troubleshooting, and real-time data acquisition.

Competency Assessment: Pre- and post-course tests evaluating diagnostic accuracy and interpretation skills.

Skill Improvement: Post-course scores aiming for 88% of participants achieving competency in ERG interpretation.

Clinical Utility: 94% reported confidence in integrating Reteval into practice for early disease detection (e.g., monitoring hydroxychloroquine toxicity) and pediatric assessments.

Device Advantages: Highlighted portability (94% approval), rapid setup (<5 minutes), and patient comfort compared to traditional ERG systems.

The Reteval portable ERG system bridges the gap between functional testing and clinical practice, enabling point-of-care diagnosis in diverse settings. This hands-on course empowers clinicians to leverage ERG data for personalized management of complex retinal diseases. Future iterations will include AI-driven waveform analysis modules to enhance diagnostic precision.

Abstract 220

SCLERAL BUCKLE COURSE

Sallam A.*^[1], Badawi A.^[2], Rajeev M.^[3], Gotzaridis S.^[4]

^[1]University of Arkansas for Medical Sciences ~ Little Rock ~ United States of America, ^[2]KKESH ~ Ryiadh ~ Saudi Arabia, ^[3]University of Toronto ~ Toronto ~ Canada, ^[4]Gotzaridis Retina Practice ~ Athens ~ Greece

Scleral buckle has indications in the management of rhegmatogenous retinal detachment (RRD), especially in cases with no posterior vitreous detachment in young adults. There is also room for scleral buckle use in combination with vitrectomy surgery in proliferative vitreoretinopathy.

The authors, using videos, reflect on their experience in segmental and encircling scleral buckles for managing RRD, utilizing an indirect ophthalmoscope, microscope, and 3D surgery with endoillumination.

We will discuss the results of pivotal studies about the scleral buckle.

There is a role of the scleral buckle in the contemporary management of RRD



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