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Abstract Book

SELECTED ORAL PRESENTATIONS A

LONG-TERM OUTCOMES OF THE PAUL GLAUCOMA IMPLANT IN REFRACTORY GLAUCOMA

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Purpose: To evaluate the long-term efficacy and safety of the PAUL Glaucoma Implant (PGI) in refractory glaucoma.

Methods: Multicenter retrospective cohort of consecutive PGI surgeries (June 2022–June 2025) at King Abdulaziz University Hospital and The Eye Consultant Center (Jeddah/Riyadh). All ages and glaucoma types were included with ≥3 months follow-up. Complete success was IOP ≤21 mmHg without medications; qualified success was IOP ≤21 mmHg with medications. Failure was IOP >21 mmHg on >2 medications, further glaucoma surgery, loss of light perception, or implant removal.

Results: 112 eyes (101 patients) were included; mean age 47.2±25.6 years and mean follow-up 14.4±10.5 months (3–42). Mean preoperative IOP was 28.3±9.6 mmHg on 3.4±0.9 medications. Overall success was 92% (104/112): complete in 75 eyes (67.0%) and qualified in 29 eyes (25.9%); failure occurred in 8 eyes (7.1%). Kaplan–Meier analysis estimated mean survival 37.9 months (SE 1.4; 95% CI 35.218–40.584). Complications occurred in 14 eyes (12.5%): hyphema (n=6), aqueous misdirection (n=3), choroidal detachment after suture removal (n=2), exposed plate (n=1), retracted tube (n=1), and diplopia (n=1).

Conclusions: PGI demonstrated high success with an acceptable safety profile up to 42 months in refractory glaucoma, including adult and congenital cases.

FIVE-YEAR SAFETY AND EFFICACY RESULTS OF A SUPRACILIARY DRAINAGE DEVICE IN OPEN ANGLE GLAUCOMA PATIENTS (STAR-GLOBAL)

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Purpose: The five-year safety and efficacy of a minimally invasive glaucoma surgery (MIGS) device, MINIject® (iSTAR Medical, Belgium), is described.

Methods: The device was implanted ab interno into the supraciliary space in a standalone procedure in phakic and pseudophakic eyes in four prospective trials (STAR-I,II,III,IV). The trials were completed in 83 subjects in 11 sites in Europe, Asia and Central America with two-year follow-up. Upon study completion, subjects were invited to enrol into the STAR-GLOBAL study to continue follow-up annually until five years post implantation. Fifty-five subjects from the STAR-I,II,III trials were enrolled into the STAR-GLOBAL trial and 47 completed the trial at five years.

Results: In this STAR-GLOBAL population, mean baseline diurnal IOP was 23.8 ± 3.5 mmHg with a mean of 2.3 ± 1.1 IOP-lowering meds (n = 55). At 2-years post-implantation, mean diurnal IOP was 14.1 ± 4.0 mmHg (-9.7 mmHg, -40.0%; $p < 0.0001$) on 1.4 ± 1.3 meds (n = 54). At 5-year post-implantation follow-up (n = 47), mean diurnal IOP was 14.8 ± 5.6 mmHg (-9.1 mmHg, -38.4%; $p < 0.0001$) on 1.5 ± 1.4 meds ($p < 0.0001$). Further, 83.0% of subjects achieved a ≥ 20% IOP reduction, 78.7% achieved IOP ≤ 18 mmHg, and 85.1% used the same or fewer medications compared with baseline at 5 years. Since STAR-GLOBAL enrolment, adverse events related to MINIject included one IOP increase, one cataract progression and one non-clinically significant iris neovascularization.

Conclusion: Standalone MINIject implantation resulted in a clinically significant and sustained reduction in IOP and medication use up to five years post-implantation. This supraciliary MIGS device offers an effective, bleb-free treatment option for glaucoma patients requiring low and sustained target IOPs.

THE IMPACT OF PHACO-GATT ON CORNEAL ENDOTHELIAL INTEGRITY

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Purpose: This study aimed to evaluate and compare the impact of phacoemulsification (Phaco) and combined phacoemulsification with gonioscopy-assisted transluminal trabeculotomy (Phaco-GATT) on corneal endothelial morphology.

Methods: A prospective study was conducted between July 2024 and May 2025 with strict inclusion criteria, including patients with similar cataract grades. A total of 100 eyes from 73 patients were included (50 Phaco-GATT, 50 Phaco). All surgeries were performed by the same surgeon using Stellaris® phacoemulsification equipment and the Topcon SP specular microscope for endothelial assessment. The lens opacity was graded similarly in both groups. Measurements were taken preoperatively and at 1 and 6 months postoperatively to assess CCT, ECD, corneal volume, CV, and hexagonal cell percentage.

Results: Preoperative CCT was 547 ± 38 µm for Phaco-GATT and 551 ± 29 µm for Phaco ($p = 0.9811$). At 6 months, there was no significant difference in CCT between groups (Phaco-GATT: 552 ± 32 µm, Phaco: 559 ± 31 µm; $p = 0.0741$). Preoperative ECD was similar between groups (Phaco-GATT: 2408 ± 362 cells/mm^2; Phaco: 2421 ± 304 cells/mm^2; $p = 0.8501$), with comparable reductions at 6 months (Phaco-GATT: -15.7%; Phaco: -16.5%; $p = 0.3071$). No significant differences were observed in the coefficient of variation ($p = 0.6211$) or hexagonal cell percentage ($p = 0.6581$) at 6 months.

Conclusions: Both Phaco and Phaco-GATT led to comparable endothelial morphological changes, with no significant differences in corneal thickness, volume, or endothelial cell integrity. These findings suggest that adding GATT to phacoemulsification does not significantly impact corneal endothelial health, supporting its safety in combined cataract and glaucoma surgery.

EFFICACY AND SAFETY OF THE PRESERFLO MICROSHUNT IN REFRACTORY CHILDHOOD GLAUCOMA PREVIOUSLY TREATED WITH TRABECULECTOMY

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Purpose: To evaluate the efficacy and safety of the Preserflo MicroShunt (PMS) with mitomycin C (MMC) in the management of refractory childhood glaucoma previously treated with trabeculectomy.

Methods: Retrospective observational study including 26 eyes from 23 patients with refractory childhood glaucoma previously treated with trabeculectomy. All cases underwent PMS implantation with MMC (0.04%, 2.5 minutes). Demographic data, baseline characteristics and surgical outcomes were analyzed. Primary endpoints included intraocular pressure (IOP) reduction, reduction in glaucoma medications, and surgical success. Complete success was defined as target IOP without medications, and partial success as target IOP with medications. Failure was defined as reoperation or device removal.

Results: Median follow-up was 24.6 months (IQR, 15.7-33.4). Mean baseline IOP was 27.9 ± 5.2 mmHg on 3.0 ± 0.7 medications. At one year, mean IOP decreased to 13.5 ± 3.2 mmHg, with 0.2 ± 0.6 medications, representing a 49.6% reduction in IOP. At two years, mean IOP was 14.0 ± 2.3 mmHg without medications, maintaining a 47.1% reduction. One-year success rates were 84.6% (76.9% complete) using a ≥20% IOP reduction criterion and 76.9% (69.2% complete) using a ≥ 30% criterion. At two years, the success rate was 77.8% for both thresholds, with all successful cases achieving complete success. Three cases failed due to revision at 161, 294, 350 days. Complications included one intraoperative hemorrhage and one early hypotony.

Conclusion: PMS implantation appears to be a safe and effective option for refractory childhood glaucoma after failed trabeculectomy, offering substantial and sustained IOP and medication reduction.

THE QIDWAI QUILT PULL-OVER PATCH-GRAFT (Q-POP) TECHNIQUE: A NOVEL METHOD FOR REPAIRING GLAUCOMA TUBE EXPOSURE IN CONJUNCTIVAL ADHESIONS

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We describe a novel surgical technique-Qidwai Quilt Pull-Over Patch graft (Q-POP)-designed to manage glaucoma drainage device (GDD) tube exposure in high-risk patients with conjunctival scarring and mechanical stress due to severe nystagmus. This report presents the case of a monocular 45-year-old male with a complex ocular history including aphakia, silicone oil tamponade, prior retinal surgeries, and secondary glaucoma. The conjunctiva over the drainage tube showed progressive thinning and posterior graft migration, raising concern for imminent tube exposure. Given the patient's monocular status and previous contralateral endophthalmitis, a preventive revision using the Q-POP technique was undertaken. The procedure involved hydro dissection, subconjunctival tunnel creation, and delivery of a scleral graft via a pullover maneuver without limbal peritomy. Postoperatively, the tube remained well covered, conjunctival integrity was preserved, and intraocular pressure was well controlled. This technique demonstrates a safe and minimally invasive alternative to traditional approaches, especially valuable for patients with limited conjunctival mobility and significant surgical risk.

STANDALONE VERSUS COMBINED PRESERFLO MICROSHUNT SURGERY: A TWO-YEAR CONTROLLED COHORT STUDY

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Purpose: To compare efficacy, safety, and surgical success of standalone Preserflo MicroShunt (PMS) implantation versus PMS combined with phacoemulsification in open-angle glaucoma (OAG).

Methods: A retrospective cohort study included consecutive OAG patients who underwent standalone or combined PMS surgery with 0.04% mitomycin C at a tertiary centre. Primary outcomes were intraocular pressure (IOP), glaucoma medications, and surgical success at 2 years. Success was defined as ≥ 20% IOP reduction with IOP < 18 mmHg (criterion 1) or ≥ 30% reduction with IOP <18 mmHg (criterion 2).

Results: A total of 173 eyes (113 standalone, 60 combined) were analysed. Mean IOP decreased from 22.1 ± 5.8 mmHg to 12.5 ± 3.1 mmHg (-39.4%) in the standalone group and from 20.6 ± 6.7 mmHg to 14.2 ± 4.0 mmHg (-33.0%) in the combined group (p = 0.023; CI -3.162, -0.245), with similar medication use in both groups. Success rates were 76.1% versus 61.7% for criterion 1 (p = 0.084) and 70.0% versus 41.7% for criterion 2 (p = 0.001). Kaplan-Meier analysis showed higher cumulative success in standalone surgery (criterion 1: HR 1.77, p=0.044; criterion 2: HR 2.40, p = 0.0003). Complications occurred in 38.2% of eyes (36.3% standalone, 41.7% combined), with only 6.4% requiring surgical intervention.

Conclusion: Both standalone and combined PMS implantation achieved significant IOP and medication reductions with acceptable safety. However, standalone PMS appears to offer superior mid-term IOP control and higher surgical success, supporting its use in advanced glaucoma cases requiring maximal pressure reduction.

COMPARATIVE CASE SERIES STUDY OF GONIOTOMY WITH MODIFIED BANG (MBANG) TECHNIQUE VERSUS GCV (GONIOTOMY, CANALOPLASTY AND VISCODILATION) TECHNIQUE IN THE MANAGEMENT OF OPEN-ANGLE GLAUCOMA

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Purpose: This study compares outcomes of goniotomy after modified BANG with Goniotomy after modified BANG with Canaloplasty and Viscodilation of Schlemm's canal (GCV) ab interno by using a 38 gage subretinal cannula. The aim is to compare the efficacy and safety of GVC to maximize the reduction of IOP and medication burden in patients with mild to moderate OAG.

Methods: A retrospective comparative case series of 29 eyes of 26 patients in two groups. Group 1: (17 eyes) treated with mBANG, and Group 2: (12 eyes) treated with GCV, with 4 months follow-up. Main outcomes included mean IOP reduction, number of medications, and complications.

Results: At 4 months, mean IOP decreased from 20.64± 3.2 mmHg to 15.82±2.52 mmHg in the group 1 ($p < 0.01$) and from 22.27± 6.4 mmHg to 12.45± 3.73 mmHg in the group 2 ($p < 0.01$). The reduction in medications was from 1.64±0.65 to 1±0.85 in Group 1 and from 1.91 ± 1.00 to 0.64± 0.81in Group 2.

Conclusion: Mixing two MIGS proceduers in GCV is effective and safe in lowering IOP and reducing medication use in OAG and had better results within 4 Months over modified BANG alone, and offers an affordable technique in many developing countries. Futher studies are recommended in the future. The results will be apdated at the time of presentation.

SELECTED ORAL PRESENTATIONS B

AGING EYES, AGING LIVES: SYSTEMIC HEALTH, NOT GLAUCOMA SEVERITY, PREDICTS MORTALITY AFTER GLAUCOMA SURGERY IN OCTOGENARIANS

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Purpose: This study aims to quantify the mortality rate following glaucoma surgery in octogenarian patients with POAG and identify risk factors associated with mortality in this age group.

Methods: A retrospective single centre consecu- tive case series was conducted involving 115 patients aged 80 and over who underwent glaucoma surgery at the Birmingham Midland Eye Centre between January 2015 and December 2019.

Results: The all-cause mortality incidence for patients over 80 undergoing glaucoma surgery is 66.86 deaths per 1000 person-years. On univariable analysis, pre-operative risk factors [HR (95% CI)] for increased mortality include age, [1.099 (1.013, 1.192)], Clinical Frailty Score (CFS) [1.250 (1.036, 1.507)], COPD [2.187 (1.252, 3.818)], dementia [2.397 (1.075, 5.343)], myocardial infarction [2.392 (1.208, 4.737)], respiratory system disease [1.974, (1.179, 3.305), and solid tumours [7.344 (2.170, 24.849)]. Visual acuity was the only ophthalmic factor significantly associated [1.745 (1.046, 2.902)] with mortality, while other glaucoma related parameters, such as IOP and RNFL thickness, were non-significant. On multi-variable analysis, Afro-Caribbean became significant [0.469 (0.224, 0.979)], and all univariable risk factors remained significant except for clinical frailty score and dementia. In terms of glaucoma surgery, cyclodiode laser is the only operation that had a significant hazard ratio [2.271 (1.083, 4.762)], likely due to selection bias of ill patients.

Conclusion: The overall five-year survival rate post- surgery was 72.01%, with a nine-year survival rate of 43.30%. CFS should be assessed for all elderly patients Assessing systemic health in elderly patients is cru- cial for optimizing surgical outcomes and improving survival.

CORNEAL TOMOGRAPHY AND ENDOTHELIAL CELL DENSITY AFTER PAUL GLAUCOMA IMPLANT SURGERY

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Purpose: To evaluate changes in corneal astigmatism, pachymetry and endothelial cell density (ECD) following Paul glaucoma implant (PGI) surgery.

Methods: Seventy-three patients (73 study eyes, 73 fellow controls) were prospectively examined. Repeated-measures ANOVA was used to analyze corneal astigmatism, corneal thickness and ECD at baseline, 6 and 12 months.

Results: PGI surgery was not associated with clinically meaningful changes in corneal tomography parameters. Simulated anterior and posterior astigmatism remained stable over 12 months. Simulated anterior keratometry showed a small but statistically significant flattening (≈0.3 D), whereas posterior keratometry remained unchanged. Although some differences reached statistical significance, their magnitude was minimal and unlikely to clinically relevant. Central corneal thickness did not change significantly, but there was a trend toward localized thickening in the tube quadrant of operated eyes, while pairwise comparisons did not reach significance after adjustment. Central ECD remained stable after surgery ($p = 0.67$). In contrast, paracentral (-2.9%) and peripheral (-4.7%) ECD values declined significantly over 12 months ($p = 0.03$ and $p = 0.001$, respectively), and study eyes consistently showed lower values than controls. However, PGI surgery did not accelerate the rate of endothelial cell loss.

Conclusion: PGI surgery did not induce progressive changes in corneal astigmatism or pachymetry during the first postoperative year. Central ECD remained stable, while paracentral and peripheral regions showed moderate decline. PGI did not increase the rate of endothelial cell loss, and the observed reduction was lower than previously reported for other glaucoma drainage implants.

CLINICAL EXPERIENCE WITH GLAUCOMA DRAINAGE DEVICE IMPLANTATION IN IRIDOCORNEAL SYNDROME: A CASE SERIES WITH THREE-YEAR FOLLOW-UP

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Purpose: To present the intraocular pressure outcomes of five patients with iridocorneal syndrome treated with glaucoma drainage device (GDD) implantation.

Methods: A retrospective study of five patients who underwent GDD implantation. Visual acuity, intraocular pressure (IOP) and postoperative complications were evaluated over a three-year follow-up period.

Results: The mean age of the patients was 52.49 years. Four patients had previously undergone cataract surgery and one patient received cataract extraction and GDD implantation. Mean baseline IOP was 28.60 mmHg (SD 6.65). At three years postoperatively, mean IOP was 11.25 mmHg (SD 1.5). In all cases, the tube was placed in the posterior chamber. Despite this, corneal decompensation was observed in two patients during the second year of follow-up and in two additional patients during the third year. Only one patient completed a five-year follow-up.

Conclusion: Iridocorneal syndromes represent a challenging condition in terms of both intraocular pressure and visual prognosis. Angle malformation predisposes patients to aggressive glaucoma that is difficult to manage and frequently associated with corneal damage. For this reason, GDD implantation techniques recommend positioning the tube as far as possible from the corneal endothelium. In this case series, GDD surgery was effective in lowering intraocular pressure; however, secondary failure due to corneal decompensation was observed.

COMPARATIVE SAFETY AND EFFICACY OF THE BAERVELDT AND PAUL GLAUCOMA IMPLANTS UP TO 5 YEARS AFTER SURGERY

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Purpose: To report the comparative safety and efficacy of 2 non-valved glaucoma drainage devices (GDD); Baerveldt and Paul Glaucoma Implants (BGI and PGI) up to 5 years after implantation.

Methods: Single surgeon, registry-based, comparative, retrospective case series, of 566 eyes (566 patients) that underwent implantation of BGI (165) or PGI (401). The primary outcome was surgical failure, defined per the tube versus trabeculectomy study. Success was considered qualified if medicated and complete if not. Secondary outcomes included intraocular pressure (IOP), number of glaucoma medications, visual acuity, postoperative interventions, and complications.

Results: At a median follow-up of 60.5 months for BGI and 25.1 months for PGI, the cumulative surgical failure was 30.3% and 19.9%, respectively (p = 0.23), with comparable success rates (qualified=medicated/complete=unmedicated): BGI = 42.4%/27.3% vs. PGI = 48.1%/32.2%. At years 3 (n = 106/158) and 5 (n = 86/30), mean IOPs were similar between groups: 13.4/13.4 mmHg and 13.0/12.2 mmHg (BGI/PGI), respectively. Corresponding IOP reduction was similar at 3 years (39.2%/43.4%), but higher in the PGI group at 5 years (40.8%/54.4%, p=0.02); medication reduction was 38.2%/53.6% and 39.1%/37.8%, respectively. PGI cases required fewer additional glaucoma procedures (1.5% vs. 4.8%, p = 0.003), fewer post-operative interventions (mean 1.1 vs. 1.8 per case, p < 0.001), and experienced lower rates of choroidal effusion (6.4% vs. 13.3%, p = 0.012).

Conclusions: Both devices achieved similar levels of cumulative success with good safety profiles. PGI cases required fewer subsequent glaucoma procedures, less post-operative intervention and tended to develop fewer complications.

TWELVE-MONTH CLINICAL OUTCOMES OF A TITRATABLE AQUEOUS SHUNT IN THE MANAGEMENT OF MODERATE TO SEVERE GLAUCOMA

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Initial 12 month results from a single-arm pilot study of an investigational laser-adjustable subconjunctival aqueous shunt are presented. Safety results in 42 implanted eyes were comparable to existing aqueous shunts. In the 12 subjects with complete 12 month follow up, an IOP reduction >20% was achieved in 83% of eyes, with 58% of eyes remaining medication free at 12 months.

Background Statement: The aqueous shunt studied is designed for reversible adjustment of aqueous outflow resistance, with the goal of allowing physicians to reversibly modify IOP post-operatively. This is the first study to evaluate safety and efficacy in patients.

A pilot study evaluating a titratable aqueous shunt (Calibreye System, Myra Vision, Campbell, CA) with modifiable nitinol valves permitting reversibly adjustable postoperative outflow resistance, is being conducted. A total of 42 eyes were implanted in this ongoing, single-arm, multi-center trial. Mean baseline intraocular pressure (IOP) for all eyes (n = 42) was 22.7 ± 4.2 mmHg on 3.2 ± 1.1 medications. At 12 months, mean IOP (n = 12) was 16.1 ± 5.8 mmHg on 0.9 ± 1.4 medications. An IOP reduction >20% was achieved in 83% of eyes at 12 months, with 58% remaining medication-free. In the first month of follow up, 78 laser titration procedures were performed to modify IOP. Adverse events were reported in 20 of 42 eyes; most were mild/moderate and transient with no titration-related complications. No cases required bleb needling. The aqueous shunt demonstrated IOP and medication reduction with a safety profile comparable to existing aqueous shunts.

SHORT-TERM OUTCOMES OF THE EYEPLATE S IN THE MANAGEMENT OF REFRACTORY GLAUCOMA

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Purpose: To evaluate the short-term clinical outcomes of EyePlate S implantation in patients with refractory glaucoma.

Methods: This prospective study included patients with refractory glaucoma who underwent EyePlate S implantation. Demographic data, glaucoma type, prior ocular surgeries, visual acuity, cup-to-disc ratio, intraocular pressure (IOP), and number of glaucoma medications were recorded preoperatively and during postoperative follow-up. Outcomes were assessed at 1 week, 1 month, 3 months, and 6 months after surgery. The primary outcome measure was change in IOP, while secondary outcomes included change in the number of glaucoma medications and visual parameters.

Results: A total of 68 eyes from 64 patients were included, with a mean age of 46.3 ± 23.2 years. Males constituted 63.2% of eyes. The most common glaucoma type was primary open-angle glaucoma (48.5%), followed by primary congenital glaucoma (11.8%). Trabeculectomy was the most frequent prior surgical intervention (38.2%). Mean preoperative visual acuity was 0.4 ± 0.3, and the mean cup-to-disc ratio was 0.9 ± 0.1. Mean IOP significantly decreased from 25 ± 10.9 mmHg preoperatively to 11.6 ± 5.9 mmHg at 1 week, 13.4 ± 5.4 mmHg at 1 month, and 15.4 ± 6.3 mmHg at 6 months ($p < 0.001$ at all-time points). The mean number of glaucoma medications was significantly reduced from 3.3 ± 0.9 preoperatively to 0.2 ± 0.7 at 1 month and 0.4 ± 0.9 at 3 and 6 months ($p < 0.001$).

Conclusion: EyePlate S implantation provides effective short-term IOP reduction with a substantial decrease in medication burden in patients with refractory glaucoma, supporting its role as a viable surgical option in this challenging population.

ONE-YEAR EFFICACY AND SAFETY OF THE A-STREAM GLAUCOMA SHUNT COMPARED WITH TRABECULECTOMY

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Purpose: To compare the 1-year surgical efficacy and safety of trabeculectomy (TRAB) and the A-stream Glaucoma Shunt, a subconjunctival microshunt featuring a ripcord-based intraluminal flow control mechanism.

Methods: This retrospective multicenter study included 68 eyes with medically uncontrolled open-angle glaucoma (30 A-stream, 38 TRAB) and a minimum follow-up of 12 months. Surgical success was defined as intraocular pressure (IOP) ≤18 mmHg with ≥20% reduction from baseline, categorized as complete (without medication) or qualified (with medication). Secondary outcomes included mean IOP, medication burden, postoperative interventions, and complications.

Results: At 1 year, complete and qualified success rates were 56.7% and 80.0% in the A-stream group and 44.7% and 65.8% in the TRAB group, respectively ($p > 0.05$). Mean IOP decreased from 24.5 ± 5.5 to 11.4 ± 1.8 mmHg after A-stream implantation and from 25.7 ± 4.6 to 11.3±3.3 mmHg after TRAB. The number of glaucoma medications was reduced from 3.7±0.8 to 0.4±0.9 in the A-stream group and from 3.8±0.5 to 0.6±1.0 in the TRAB group. Clinically significant hypotony occurred only in the TRAB group. Ripcord removal in A-stream eyes enabled effective postoperative IOP modulation without hypotony-related reoperations.

Conclusions: The A-stream Glaucoma Shunt achieved IOP and medication reduction comparable to trabeculectomy at 1 year, with fewer hypotony-related complications. Its adjustable intraluminal ripcord offers a unique advantage for postoperative IOP titration, suggesting A-stream as a promising alternative to conventional filtering surgery.

E-POSTERS

ANGLE CLOSURE GLAUCOMA

P02

DOES SIZE REALLY MATTER?

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Purpose: To determine the optimal functional size of laser peripheral iridotomy (LPI) associated with anterior chamber parameter improvement in primary angle-closure disease (PACD) and to propose evidence-based efficacy cutoffs.

Methods: This retrospective cohort study included 109 phakic eyes from 62 patients with PACD. All patients underwent a single LPI. Anterior chamber parameters (including anterior chamber volume [ACV] and area [ACA]) and iridotomy dimensions (superficial and narrow areas) were measured using anterior-segment OCT at baseline and one-week post-LP. The relationship between iridotomy size and anatomical changes was assessed using linear mixed-effects models (LMMs) and generalized additive models (GAMs). A receiver operating characteristic (ROC) curve analysis was used to identify optimal size cutoffs for "anatomical success".

Results: LPI resulted in statistically significant increases in ACA (+7.54°), ACV (+11.09 mm^3) at one week ($p<0.001$). LMMs revealed a significant positive association between iridotomy size at one week and ΔACV ($\beta=3.37$ per 0.1 mm^2, $p<0.001$) and ΔACA ($\beta=2.51$ per 0.1 mm^2, $p=0.006$). GAMs revealed a non-linear saturation effect for ΔACV, with efficacy plateauing at a superficial area of approximately 0.25-0.30 mm^2. Relationship with ΔACA was predominantly linear. ROC analysis identified optimal superficial area cutoffs for volumetric success (0.14 mm^2) and angular success (0.12 mm^2).

Conclusion: LPI size is a critical determinant of anatomical outcomes. The study suggests clinically practical targets for the superficial LPI area of approximately 0.12-0.14 mm^2 to maximize anatomical success. These findings support moving beyond simple patency to achieving an optimally sized iridotomy for improved outcomes.

P03

SECONDARY ANGLE CLOSURE AFTER DESCEMET STRIPPING AUTOMATED ENDOTELIAL KERATOPLASTY

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Purpose: To describe a rare clinical case of secondary angle closure due to posterior migration of intraocular gas, SF6, in the early postoperative period after Descemet Stripping Automated Endotelial Keratoplasty (DSAEK).

Methods: We report and analyze this phenomenon based on a clinical case observed in our department.

Results: A 42-year-old male underwent DSAEK due to endothelial decompensation without a clear trigger, probably herpetic. During the procedure, part of the injected gas migrated behind the iris through the pupil, causing anterior displacement of the iris and angle closure. Postoperative examination the following day, revealed elevated intraocular pressure (IOP) and a markedly narrow anterior chamber, with the graft well attached. Surgical intervention was performed due to persistent iridocorneal adhesions: air was injected into the anterior chamber, which again migrated retropupillary. A careful detachment of iris-endothelium adhesions was performed using a spatula, achieving around three quadrants separation. After surgery, intraocular pressure normalized, the anterior chamber deepened, and the graft maintained good attachment and function.

Conclusion: Posterior migration of gas following DSAEK is an unusual complication that can end in an acute angle closure and ocular hypertension. Awareness of this possibility, careful control of intraocular gas volume, and the presence of a patent peripheral iridectomy are essential preventive measures. Early recognition and management are crucial to minimize irreversible damage to the graft and optic nerve.

P04

EFFICACY OF GONIOSCOPY ASSISTED TRANSLUMINAL TRABECULOTOMY (GATT) ALONE OR COMBINED WITH PHACOEMULSIFICATION IN MANAGEMENT OF CASES OF PLATEAU IRIS SYNDROME. A RETROSPECTIVE CASE SERIES

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Purpose: To study the IOP lowering effect of GATT whether alone or combined with phacoemulsification on cases of plateau iris syndrome.

Methods: This is a retrospective case series of 12 eyes of 8 patients with plateau iris syndrome. GATT was performed as a standalone procedure or in combination with cataract extraction in a tertiary eye centre. Outcome measures were change in the IOP, the number of medications, success rate (IOP reduction ≥20% from baseline and IOP between 6 and 21 mmHg, without further glaucoma surgery), and complication rate.

Results: Twelve eyes with plateau iris syndrome were included, seven eyes underwent phacoemulsification and GATT and 5 patients underwent GATT alone. The mean follow up period was 16 ± 7.4 months. The preoperative IOP decreased from 24.5 ± 9.3 mmHg on 3.33 medications to 13.09 ± 3.7 mmHg on 0.45 medicationss at the final follow up (p-value = 0.004). The final success rate was 91.6% with 58.3 % of patients being off medications..

Conclusion: GATT whether alone or combined with phacoemulsification is a safe and effective method for treatment of cases of plateau iris syndrome.

P05

LATE-ONSET OCULAR HYPERTENSION RESOLVED WITH PERIPHERAL LASER IRIDOPLASTY (PLI) AFTER ICL IMPLANTATION

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Introduction: The correction of high myopia using posterior chamber phakic lenses has become an effective alternative to corneal refractive surgery. However, it may be associated with late complications such as secondary glaucoma. Among the mechanisms involved we can find chronic angle closure due to excessive vault or shallow anterior chambers. We present a case of late-onset ocular hypertension resolved with peripheral laser iridoplasty (PLI).

Case Report: A 32-year-old man with high myopia (-14.25 D) underwent ICL implantation 6 years earlier at a private center. In the early postoperative period, he developed OHT and required lens exchange. He visited our center years later and was referred to the glaucoma unit due to IOP values up to 30 mmHg (Goldmann, values adjusted for pachymetry).

- Gonioscopy: closed angle (Shaffer 0 in 360°).
- UBM/AS-OCT: high-borderline vault and angle opening ≈ 10°, extensive iridotrabecular contact (chronic angle closure).
- Fundus examination: myopic chorioretinosis, optic disc without glaucomatous damage.

Treatment

Bilateral peripheral laser iridoplasty was chosen before attempting topical hypotensive therapy or a second explant. Contraction of the iris stroma opened the angle (> 270° visible) and reduced IOP to 18 mmHg. PLI is considered a less invasive alternative for residual angle closure after ICL implantation.

Conclusions:

- Chronic angle closure is an uncommon cause of late-onset OHT after ICL and should be suspected in eyes with high vault or shallow anterior chambers.
- PLI is effective in widening the angle and avoiding more invasive surgeries, preserving the refractive benefit.

P06

INFERIOR PRESERFLO IMPLANTATION FOR SECONDARY OPEN-ANGLE GLAUCOMA POST VITRECTOMY AND SILICONE OIL: A CASE SERIES

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Purpose: To evaluate the efficacy and safety of inferior Preserflo MicroShunt (PMS) implantation in patients with silicone oil (SO)-induced glaucoma following pars plana vitrectomy (PPV).

Methods: This case series includes four patients who developed medically uncontrolled glaucoma after PPV with SO tamponade. All patients underwent PMS implantation in the inferonasal or inferotemporal quadrant. Intraoperative techniques varied slightly between cases, particularly regarding the use of a stent suture and fixation sutures. Pre- and post-operative intraocular pressure (IOP), visual acuity, surgical complications, and need for additional interventions were recorded over a follow-up period of up to one year.

Results: Out of four patients, two achieved well-controlled IOP (≤ 15 mmHg) on monotherapy, while the remaining two required additional glaucoma drainage devices due to persistent IOP elevation. The presence of emulsified SO in the AC appeared to negatively impact the surgical outcome. In the successful cases, either a thorough AC washout was performed at the time of shunt implantation, or the AC was free of SO preoperatively. Cases that involved the use of a 10-0 nylon suture as an internal stent and fixation suture experienced less favorable outcomes. No cases of hypotony or vision-threatening complications were reported.

Conclusion: Inferior PMS implantation can be a viable option for select cases of SO-induced glaucoma, particularly when the AC is free of SO or concurrent AC washout is performed. Surgical technique, including avoidance of stent sutures, may influence the success rate. Further studies are needed to validate these findings and identify key prognostic factors.

CATARACT AND GLAUCOMA SURGERY

P07

OPTIMIZING OUTCOMES: CATARACT SURGERY WITH OR WITHOUT ISTENT IMPLANT IN GLAUCOMA

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Purpose: This comparative study evaluates the efficacy and safety of isolated cataract surgery versus combined cataract surgery with iStent implant in patients with ocular hypertension or open-angle glaucoma.

Methods: A retrospective observational study with 12-month follow-up was designed for 68 patients who underwent surgery at the University Hospital of Burgos.

Results: Both groups showed a significant reduction in intraocular pressure (IOP), with no statistically significant differences between techniques. The medication burden was also significantly reduced, with a higher percentage of patients becoming treatment-free in the combined group. Although no relevant complications were observed, the retrospective design and limited sample size are important limitations.

Conclusion: The findings support the use of combined surgery as an effective and safe alternative, especially in patients with poor tolerance to eye drops or poor adherence. Further prospective studies of a larger scale are recommended to confirm these results.

P08

GONIOSCOPY-ASSISTED TRANSLUMINAL TRABECULOTOMY (GATT) IN 17 EYES WITH PSEUDOEXFOLIATION GLAUCOMA

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Purpose: To describe a case series of pseudoexfoliation glaucoma (PXG) patients treated with gonioscopy-assisted transluminal trabeculotomy (GATT).

Methods: Retrospective case series of all PXG patients who underwent GATT at the Cleveland Clinic Cole Eye Institute with at least 6 months of postoperative follow-up.

Results: A total of 17 eyes from 16 PXG patients were included. Mean age was 79.0 years (range 68 to 93 years). Phaco-GATT was performed in 10 eyes from 9 patients, and GATT-alone was performed in 6 pseudophakic eyes and 1 phakic eye. Mean follow-up was 17.1 months (range 6-40 months). Overall, the mean preoperative IOP was 21.2 ± 6.2 mmHg on 3.3 ± 0.7 medications, and the mean postoperative IOP was 12.8 ± 3.4 mmHg on 1.6 ± 1.4 medications. In the GATT-alone group, mean preoperative IOP was 25.0 ± 6.1 mmHg on 3.3 ± 0.7 medications, and mean postoperative IOP was 12.4 ± 3.9 mmHg on 1.9 ± 1.6 medications. In the phaco-GATT group, mean preoperative IOP was 18.5 ± 4.6 mmHg on 3.3±0.6 medications, and mean postoperative IOP was 12.7 ± 3.2 mmHg on 1.4 ± 1.3 medications.

Conclusion: GATT is effective in patients with pseudoexfoliation glaucoma. Further studies are needed to directly compare the safety and efficacy of GATT versus traditional glaucoma surgery.

P09

AB-INTERNO CANALOPLASTY FOR IOP AND MEDICATIONS REDUCTION IN UNCONTROLLED AND CONTROLLED GLAUCOMA EYES

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Purpose: To evaluate the effectiveness of ab-interno canaloplasty with the iTrack microcatheter in lowering intraocular pressure (IOP) in uncontrolled glaucoma and reducing medication burden in controlled glaucoma.

Methods: This study analyzed eyes that underwent ab-interno canaloplasty with the iTrack microcatheter (Nova Eye Medical) combined with phacoemulsification. Data were collected from the International Glaucoma Surgery Registry (IGSR). Eyes were classified as uncontrolled if preoperative IOP was above 18 mmHg and controlled if IOP was 18 mmHg or lower. The primary endpoints were IOP reduction in uncontrolled eyes and medication reduction in controlled eyes. Success was defined as achieving criteria set by the American Academy of Ophthalmology. Postoperative data were based on the last recorded observation.

Results: The study included 209 controlled eyes and 104 uncontrolled eyes. The mean preoperative IOP and medication use were 14.3±2.3mmHg and 2.2±1.1 in controlled eyes, and 22.8±5.0mmHg and 1.8 ± 1.2 in uncontrolled eyes, respectively. At mean follow-up of 20.4±7.9 months, medication use in controlled eyes significantly decreased to 1.3±1.4 (-40%; $p<0.001$) while IOP remained stable. In uncontrolled eyes, IOP and medication use were significantly reduced to 15.6±4.0mmHg (-32%) and 1.1±1.3 (-39%), respectively ($p<0.001$), with 82% of previously uncontrolled eyes achieving IOP control postoperatively. Surgical success was observed in 82.7% of uncontrolled eyes and 53.1% of controlled eyes ($p<0.001$).

Conclusion: Ab-interno canaloplasty significantly reduced IOP in previously uncontrolled glaucoma eyes, with the majority achieving postoperative IOP control. In controlled eyes, the procedure effectively reduced medication burden while maintaining IOP stability.

P10

AFFORDABLE SINSKEY HOOK GONIOTOMY AND CATARACT SURGERY IN BLACK AND AFRO-LATINO PATIENTS: RETROSPECTIVE REAL WORLD 2-YEAR RESULTS

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Methods: This single-center retrospective study at Advanced Eye Care of New York evaluated predominantly Black and Afro-Latino patients with mild to moderate glaucoma who underwent early phacoemulsification and goniotomy using a reusable Sinskey hook. Only patients with a 2-year follow-up were included. Outcomes measured were intraocular pressure (IOP), medication use, visual field mean deviation and index, visual acuity, adverse events, and pre/postoperative spherical refractive error.

Results: Ninety-nine eyes with 2-year follow-up were analyzed; 22 of 121 eyes with 1-year data were lost to follow-up. Mean age was 65. Mean preoperative IOP decreased from 16.40 to 15.73 mmHg at 2 years. The average number of IOP-lowering medications dropped from 1.67 to 0.50. Visual field measures improved from a mean VFI of 86.2% and MD of -6.63 to 89.0% and -5.5. At 2 years, 73% of eyes were medication-free. Postoperative events included five IOP spikes, all treated, and eight hyphemas that resolved without long-term sequelae or additional intervention.

Discussion: This approach reduced IOP and significantly lowered medication burden over two years. The smaller IOP reduction at two years may reflect physiological decline in goniotomy effect and loss to follow-up. As a low-cost option compared with other microinvasive procedures, this technique may improve access to glaucoma surgery in resource-limited settings and among underserved communities.

Conclusion: Early cataract surgery combined with Sinskey-hook goniotomy is an affordable microinvasive procedure that lowers IOP and reduces medication needs in Black and Afro-Latino patients with primary open-angle glaucoma at 2-year follow-up.

P11

RESULTS OF ITRACK GLOBAL DATA REGISTRY TO SUPPORT THE ROLE OF CANALOPLASTY FOR TREATMENT OF GLAUCOMA

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Purpose: The iTrack Global Data Registry (iTGDR) was established to collect comprehensive real-world data on the efficacy and safety of canaloplasty.

Methods: This is a prospective, multicenter, real-world study conducted in the USA, Canada, Europe, Asia, and Australia. Data were collected in a cloud-based registry and included patients with primary and secondary open-angle glaucoma undergoing canaloplasty. Only eyes with at least 12 months of follow-up and combined with phacoemulsification were included. Outcomes were assessed at baseline and at the last available follow-up. Success was defined as achieving criteria set by the American Academy of Ophthalmology.

Results: This study included 318 eyes of 237 patients up to May 2025. Mean baseline IOP and medication use were 17.2 ± 5.3 mmHg and 2.1 ± 1.1, respectively, and were significantly reduced to 14.1 ± 3.9 mmHg and 1.3 ±1.4 medications ($p < 0.001$) at the last available follow up (mean: 20.4 ± 7.9 months). Medication-free eyes increased from 7.0% (n = 22) at baseline to 42.8% (n = 134) postoperatively. Success was achieved in 61.9% of eyes (n = 197) at postop. Intraoperative complications occurred in 0.3% of cases (n = 1), and postoperative complications in 2.2% of cases (n = 7)

Conclusion: Canaloplasty performed via an ab-interno approach reduced IOP and medications in patients with primary and secondary open-angle glaucoma. The iTGDR provides valuable real-world evidence on the clinical effectiveness of canaloplasty, supporting evidence-based decision-making in glaucoma treatment.

P12

CHOOSING WISELY: WHICH GLAUCOMA SURGERY IS BEST FOR OCTOGENARIANS?

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Purpose: To compare the outcomes, efficacy, and safety of glaucoma procedures performed in patients aged ≥ 80 years with POAG at a single tertiary centre.

Methods: This retrospective consecutive case series included cyclodiode (n = 11), Cypass (n = 5), Hydrus (n = 2), iStent (n = 78), trabeculotomy (n = 21), trabeculectomy (n = 19), tube shunt (n = 7), viscocanalostomy (n = 2), and Xen (n = 1) procedures performed between 2015-2019. Primary outcome was surgical success; secondary outcomes included intraocular pressure (IOP), medication burden, visual acuity, visual field, RNFL changes, and reoperations.

Results: A total of 146 eyes from 115 patients (mean age 84.4 ± 3.4 years; mean follow-up 5.2 ± 2.2 years) were analysed. Surgical success varied significantly between procedures (log-rank p = 0.0098). Tube shunts demonstrated the longest mean qualified success (6.7 years), whereas cyclodiode showed the shortest (1.8 years). All procedures except cyclodiode significantly reduced IOP and medication burden. Tube shunts (-47.4%) and trabeculectomy (-39.4%) achieved the greatest IOP reduction, while iStent achieved the least. BCVA declined slightly in the tube and trabeculectomy groups. Overall failure occurred in 58.9% of eyes, with highest rates following cyclodiode (72.7%) and iStent (67.9%). Tube shunts and trabeculotomy demonstrated the lowest 5-year failure rates (40.6% and 41.9%). Reoperations were most frequent after cyclodiode (27.3%) and iStent (17.0%). On multivariable Cox regression, lower Clinical Frailty Scale score predicted complete success (HR 0.16, p = 0.002), whereas systemic comorbidities, dementia, cognitive impairment, and history of falls-were associated with increased failure risk.

Conclusion: Frailty and systemic comorbidities significantly influence surgical outcomes, underscoring the value of comprehensive geriatric assessment in procedure selection.

P13

TRAUMATIC GLAUCOMA AND DRAINAGE DEVICES: EVOLUTION AND OUTCOMES

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Purpose: To evaluate the outcomes and follow-up of patients with traumatic glaucoma who required surgery involving the implantation of a glaucoma drainage device (GDD) at the Hospital Universitario 12 de Octubre.

Methods: This was a retrospective study of 9 cases of traumatic glaucoma patients who underwent GDD implantation surgery between 2000 and 2023 due to poor intraocular pressure (IOP) control.

Results: The mean age was 47.8 years SD 17.2. The mean pre-operative IOP was 32.88 mmHg SD 14.8, which reduced to 16.16 mmHg SD 9.38 at one year (a reduction of 49.68%) and 19.25 mmHg SD 3.30 at 5 years (a reduction of 39.66%). The devices implanted were predominantly Ahmed valves (77.7%) and, to a lesser extent, Molteno implants. Mean visual acuity (VA) improved from 0.12 SD 0.08 pre-operatively to 0.32 SD 0.24 at one year post-surgery, and 0.31 SD 0.41 at 5 years. Three surgical failures occurred: one due to poor IOP control, one due to device extrusion, and one due to phthisis bulbi.

Conclusion: Glaucoma drainage devices are considered a valid and safe treatment option for traumatic glaucoma, particularly in cases with severe angle disorganization or superior ring involvement.

P14

IMPACT OF LENS THICKNESS ON INTRAOCULAR PRESSURE OUTCOMES AFTER CATARACT SURGERY VERSUS COMBINED CATARACT-GONIOTOMY IN A PREDOMINANTLY BLACK POPULATION

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Purpose: To evaluate the role of lens thickness in outcomes following cataract surgery or combined cataract and glaucoma surgery in a predominantly Black patient population.

Methods: We conducted a retrospective cohort study of patients aged ≥50 years from a majority Black population who underwent either cataract surgery alone or combined cataract-glaucoma surgery. Preoperative biometric data-including lens thickness, axial length, and anterior chamber depth-were collected. Patients were stratified by surgical type and glaucoma status. Outcomes assessed over a 3-month follow-up included changes in IOP, number of glaucoma medications, and visual function indices.

Results: 190 eyes from 360 cases met inclusion criteria. Overall, surgery resulted in a mean IOP reduction of -2.27 mmHg. Cataract surgery alone achieved a modest IOP decrease (-1.69 mmHg). Combined procedures yielded superior IOP reduction and a decrease in glaucoma medication use. Mean lens thickness was 4.53 mm overall, and was greater among patients undergoing combined surgery compared to cataract surgery alone at 4.55 mm and 4.51 mm, respectively. Subgroup analyses demonstrated that patients with preoperative IOP ≥18 mmHg had thicker lenses (4.84 mm) and achieved greater postoperative IOP reduction (-7 mm Hg).

Conclusions: In this majority-Black population, increased lens thickness was associated with higher preoperative IOP, greater surgical complexity, and larger postoperative IOP reductions. Lens thickness may serve as a valuable biomarker for identifying patients at higher risk for glaucoma progression who may benefit from combined cataract and glaucoma interventions. Further studies with longer follow-up are warranted to validate these results.

P18

EFFICACY AND SAFETY OF XEN63 GEL IMPLANT WITH OPEN CONJUNCTIVA TECHNIQUE

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Purpose: To assess the efficacy and safety of open conjunctiva XEN63 Gel Stent implantation

Methods: A retrospective chart review of consecutive patients who underwent XEN63 implantation using an open conjunctiva technique between 2023 and 2024 in the two University Eye centers was conducted. Only patients with at least 6 months of follow-up were included. Patient demographics, preoperative and postoperative clinical data were collected. Study variables were analyzed using Student's t-test and Mann-Whitney U test. All tests were two-tailed, and statistical significance was defined for $p < 0.05$. Kaplan-Meier survival analysis was used to estimate the probability of surgical success.

Results: A total of 138 patients with open- angle glaucoma who underwent XEN63 implantation with open conjunctiva as a stand-alone procedure or combined with cataract surgery were included. Mean IOP decreased from 20.19 ± 5.76 mmHg at baseline to 10.47 ± 3.28 mmHg at postoperative month 12 ($p < 0.001$) and mean number of medications decreased from 2.83 ± 0.78 preoperatively to 0.15 ± 0.66 at 12 months ($p < 0.001$). Qualified success rates ranged from 48.5 % to 71.0 %, whereas complete success rates ranged from 48.5% to 65.9%, according to different defined criteria. During the follow-up, 10.8% of the eyes required one or more needling and 5.8 % needed bleb revision or secondary glaucoma surgery.

Conclusion: Open-conjunctiva XEN63 Gel Stent implantation resulted in significant reductions in IOP and medication burden, with a favorable safety profile and low intervention rates, in both stand-alone and combined procedures.

P19

MEASURING LONG-TERM EFFICACY OF COMBINED PHACOEMULSIFICATION AND EXCIMER LASER TRABECULOSTOMY (ELT) UNDER DIFFERENT SUCCESS CRITERIA: FIVE-YEAR FOLLOW-UP

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Purpose: To evaluate the long-term efficacy of phacoemulsification (PHACO) combined with Excimer laser trabeculostomy (ELT) for co-existing cataract and open-angle glaucoma (OAG) or Ocular Hypertension (OH) over a five-year follow-up, focusing on sustained intraocular pressure (IOP) reduction, medication independence, and best-corrected visual acuity (BCVA).

Methods: Retrospective, single-center study analyzing 129 eyes with mild to moderate OAG/OH and visually significant cataracts who underwent the combined procedure between October 2017 and December 2021. Primary outcomes were mean IOP and mean number of glaucoma medications at 1, 2, 3, 4, and 5 years. Secondary outcomes included BCVA and complications. Success was defined by three criteria: A (IOP reduction ≥ 20% without further surgery), B (IOP ≤ 18mm Hg without medication), and C (IOP ≤ preoperative IOP without medication).

Results: At 5 years, the mean IOP decreased significantly from a preoperative medicated 20.8 ± 0.32 mmHg to 17.5 ± 0.37 mmHg ($p < 0.001$). The mean number of glaucoma medications decreased substantially from 1.74 preoperatively to 0.50 ($p < 0.001$). 62% cases remain free of medication at 5 years. BCVA improved significantly from 0.4 to 0.8 ($p < 0.001$). The cumulative success rate was 47.1, 57.5, and 65% at one year, and slightly decreased to 41.4, 38, and 41.4% at 5 years for A, B, and C criteria respectively. Only nine cases required additional surgery (7%).

Conclusion: Combined PHACO-ELT is an effective surgical approach for patients with co-existing cataract and OAG/OH, providing a sustained reduction in both IOP and medication use over five years while concurrently improving visual function.

P20

THREE-YEAR CLINICAL OUTCOMES OF AB INTERNO CANALOPLASTY (ABIC) IN A TERTIARY ACADEMIC OPHTHALMOLOGY UNIT

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Purpose: Canaloplasty is a minimally invasive glaucoma surgery aimed at improving physiological aqueous humor outflow through Schlemm's canal. Among its variants, ab-interno canaloplasty (ABiC) enables intraocular pressure (IOP) reduction while minimizing the risk of postoperative hypotony by preserving natural drainage pathways. This study evaluates the safety and efficacy of ABiC in patients with open-angle glaucoma over a 3-year follow-up, with an expanded study scope.

Methods: Fifty-two adult patients with various subtypes of open-angle glaucoma and inadequately controlled IOP despite maximally tolerated medical therapy were included. All underwent ABiC between 2017 and 2022 and completed at least 3 years of follow-up. The procedure was performed using the iTrack canaloplasty microcatheter (Nova Eye Medical). Only cases with successful 360° catheterization were analyzed. Postoperative assessments included IOP, best-corrected visual acuity (BCVA), optical coherence tomography (OCT), antiglaucoma medication use, and adverse events.

Results: A significant and sustained reduction in mean IOP was observed after surgery, decreasing from 23.31 ± 9.10 mmHg preoperatively to approximately 15-17 mmHg throughout follow-up up to 36 months. The mean number of topical antiglaucoma medications was reduced postoperatively, although gradual increases were noted over time. No significant changes in ganglion cell complex thickness, no BCVA deterioration, and no severe complications were observed. Some patients required additional glaucoma surgery due to insufficient IOP reduction.

Conclusion: Ab-interno canaloplasty is a safe and effective treatment option for open-angle glaucoma at various disease stages. Further studies are needed to evaluate long-term outcomes and late postoperative complications.

P21

REFRACTORY TRAUMATIC PIGMENT DISPERSION SYNDROME WITH SECONDARY GLAUCOMA: SURGICAL MANAGEMENT AND OUTCOME - A CASE REPORT

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Background: Traumatic pigment dispersion syndrome is a rare cause of secondary glaucoma and can present with refractory IOP. Early recognition is essential to prevent irreversible optic nerve damage.

Case Presentation: A 40-year-old medically free male presented to KKESH ER with severe right eye pain and progressive visual loss ten days following. Initial brain and orbital imaging performed which were unremarkable. Despite intensive topical and systemic anti-glaucoma therapy initiated, his symptoms persisted with progressive elevation of IOP. On presentation, visual acuity in the right eye was hand motion, with an IOP of 52 mmHg. Slit-lamp examination revealed conjunctival injection, corneal epithelial edema, a deep anterior chamber with significant pigmentation, a dilated pupil, and a hazy fundus view with moderate cupping. Ultrasound biomicroscopy demonstrated reverse iris bowing. Medical management, including intravenous mannitol, resulted in only transient reduction of IOP. Due to refractory elevation of IOP, a penetrating deep sclerectomy was performed. On postoperative day one, visual acuity improved to 20/40 with an IOP of 3 mmHg, a diffuse functioning bleb with a self-limited microleak, and a deep anterior chamber. Fundus examination revealed compression retinopathy with a hyperemic optic disc. The microleak resolved with conservative management. At one month postoperatively, visual acuity improved to 20/30 with an IOP of 17 mmHg on adjunctive topical timolol.

Conclusion: Traumatic pigment dispersion syndrome should be considered in patients presenting with acute secondary glaucoma following blunt ocular trauma. Surgical intervention may be necessary when IOP is refractory to medical therapy, with favorable visual and pressure outcomes.

P22

COMPARISON OF LOCAL ANAESTHETIC TECHNIQUES IN CATARACT SURGERY

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Purpose: The purpose of this study was to compare and assess the main approaches of local anaesthetic methods typically used in cataract surgery including retrobulbar, peribulbar, subconjunctival and topical regional blocks.

Methods: The main factors that were compared were pain scores, patient perceptive, ocular akinesia, ocular complication and systemic complications. Search databases were used to compare the local blocks in cataract srugery.

Results: Overall, there was little difference in patient perceptive to pain associated with different types of blocks. There was little evidence to show any differences in complete ocular akinesia and the need for further use of anaesthetic agent.

Conclusion: Retrobulbar block carried a higher risk of retrobulbar haemorrhage and damage to globe, optic nerve and extraocular muscles. Peribulbar block carried an increased risk of Conjunctival chemosis. Overall, there was very little serious systemic and ocular complications in all types of blocks used.

P23

GLAUCOMA PROGRESSION AFTER COMBINED PHACOEMULSIFICATION AND EXCIMER LASER TRABECULOSTOMY (ELT): FIVE-YEAR FOLLOW-UP

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Purpose: To evaluate glaucoma progressión after combined phacoemulsification (PHACO) with Excimer laser trabeculostomy (ELT) for co-existing cataract and open-angle glaucoma (OAG) over a five-year follow-up, focusing on Visual field damage and peripapillary retinal nerve fiber layer thickness (PRNFLT) changes.

Methods: This retrospective, single-center study analyzes 73 eyes with OAG and visually significant cataracts who underwent the combined procedure between October 2019 and December 2020. Primary outcomes were visual field damage measured by Humphrey Field Analyzer 3 Mean Deviation (MD) in dB and mean PRNFLT by Heidelberg Spectralis OCT.

Results: Most cases were mild glaucoma damage (63%). MD improved and remained stable, not significantly, from -5.38 ±1.0 dB to -4.81 dB at 5 years (p = 0,73). This improvement was 2.4, 4.4, and 1.3 dB for mild, moderate, and severe, respectively. Mean PRNFLT of 82.5 µ increased 0.4 µ at one year and started to decrease 0,5 µ per year up to 79.6 µ at 5 years (p < 0.001) but with a slope close to physiological. There was a reduction of -2.4, -3.9, and 3.3 µ for mild, moderate, and severe, respectively.

Conclusion: This is the first evidence that combined PHACO-ELT improves Visual Field and reduces the PRNFLT lost to values close to physiological after 5 years, reaching the aim of glaucoma treatment.

GLAUCOMA MEDICATIONS

P26

COMPARISON OF CHANGES IN OCULAR PERFUSION, RETINAL NERVE FIBER LAYER THICKNESS, AND INTRAOCULAR PRESSURE IN PRIMARY OPEN ANGLE GLAUCOMA WITH TIMOLOL MALEATE 0.5% EYE DROPS WITH AND WITHOUT MIRTOGENOL SUPPLEMENTATION

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Purpose: The development of adjuvant therapies in glaucoma to slow its progression is currently being explored. This study evaluates the effects of Mirtogenol on changes in ocular perfusion, retinal nerve fiber layer (RNFL) thickness, and intraocular pressure (IOP) in primary open-angle glaucoma (POAG) patients receiving topical 0.5% timolol maleate.

Methods: This study is a double-blind, randomized controlled clinical trial. We included 36 POAG subjects (37 eyes) with IOP < 21 mmHg randomized to receive oral Mirtogenol or placebo for 8 weeks. A ophthalmological examination, OCTA and OCT test examination was done to evaluate IOP, capillary perfusion and flux index, as well as mean RNFL thickness.

Results: Compared between the two groups, the Mirtogenol group showed a better average improvement in capillary perfusion and flux index, with statistically significant results in the superior quadrant after 4 weeks ($p = 0.018$). The mean difference in RNFL thickness across all quadrants showed a smaller reduction in the Mirtogenol group ($p > 0.05$). There was a consistent decrease in IOP in the Mirtogenol group after 8 weeks ($p > 0.05$).

Conclusions: Mirtogenol as an adjuvant therapy in glaucoma treatment may offer better ocular perfusion, maintained RNFL thickness, and better IOP reduction.

GLAUCOMA SURGICAL COMPLICATIONS

P27

CORNEAL DECOMPENSATION AFTER PRESERFLO MICROSHUNT SURGERY

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Purpose: To describe a case series of patients presenting with corneal decompensation following PreserFlo MicroShunt (PFMS) implantation and to discuss potential risk factors and management considerations.

Methods: A retrospective audit was performed at Aarhus University Hospital identifying patients referred with corneal decompensation after PFMS implantation between 2019 and 2025. Clinical data and anterior segment OCT were reviewed to assess device position and corneal status.

Results: Eight patients were identified with a mean interval of 3 years (range 1-5) from PFMS implantation to corneal decompensation. An additional patient presented with a low endothelial cell density (890 cells/mm^2) but a clear cornea. In five of the eight decompensated eyes, the PFMS was in direct contact with or < 250 µm from the corneal endothelium. Two patients had previously undergone repositioning or removal due to malposition. One patient with a 640 µm distance had synechiae around the device. Approximately 400 PFMS procedures were performed annually in the catchment area during this period.

Conclusion: Corneal decompensation may occur as a late complication after PFMS surgery, particularly when the device is placed too close to the corneal endothelium. Careful angle assessment and intraoperative positioning parallel to the iris are crucial to reduce risk. In patients with low endothelial cell density, trabeculectomy or sulcus-placed drainage devices may be safer alternatives.

P29

COMPLEX MULTISTAGE RECONSTRUCTIVE SURGERY IN A PATIENT WITH EARLY CORNEAL PERFORATION FOLLOWING AHMED GLAUCOMA VALVE IMPLANTATION: TO BE CONTINUED

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Purpose: We report a rare case of non-traumatic corneal perforation after Ahmed glaucoma valve implantation (AGVI) in a patient with neovascular glaucoma (NVG), managed with multiple staged surgical reconstructions.

Methods: Retrospective case review.

Results: A 90-year-old pseudophakic woman with NVG secondary to retinal vein occlusion, who had unrdergone combined retina and glaucoma surgery with AGVI two weeks earlier, presented with a large central corneal perforation with melting, exposing the tube. Temporal conjunctivo-scleral thinning and a positive Seidel test at the bleb base were observed. Urgent closure was achieved using an adhesive matrix patch over the perforation, reinforced with a bovine pericardium patch covering both the corneal defect and bulbar conjunctiva at the aqueous leakage (AL) site. By the third postoperative day, no AL was detected and intraocular pressure (IOP) remained stable. Definitive anterior segment reconstruction included tectonic penetrating keratoplasty (PKP), internal AB tube shortening, new pericardium patch, conjunctival advancement, and double-layer amniotic membrane (AM) coverage. The intervention was successful for over a year. By nearly two years, recurrent conjunctivo-scleral thinning developed at the valve site, with near tube exposure and complete pericardium resorption. Reoperation included a scleral patch, conjunctival advancement, and additional AM coverage. Currently, almost three years after the first surgery, the patient has a functioning bleb, optimal IOP, and a clear corneal button.

Conclusion: In the absence of trauma or tube malposition, corneal perforation was likely driven by a mixed inflammatory melting process. Multimodal reconstruction preserved anatomical integrity, maintained glaucoma surgery function, and ensured long-term IOP stability.

P30

SURGICAL MANAGEMENT OF BAERVELDT TUBE-ASSOCIATED MYCOBACTERIUM CHELONAE INFECTION WITH CONJUNCTIVAL MELTING AND PREVIOUS FAILED CONJUNCTIVAL REPAIRS

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Purpose: To report a rare case of Mycobacterium chelonae infection associated with a Baerveldt glaucoma drainage device (BVT) in an eye with longstanding conjunctival melting and recurrent tube exposures, highlighting surgical decision-making, explantation strategy, the intraoperative finding of caseous granulomatous tissue and correlation with microbiological findings.

Methods: A 65-year-old man with a 15-year-old BVT presented with recurrent tube exposures and progressive conjunctival melting. Intraoperatively, extensive caseous granulomatous material was identified surrounding the tube tract and scleral entry site, prompting complete explantation of the BVT tube and excision of abnormal tissue. The scleral tunnel was occluded with a Tutoplast pericardium graft, followed by conjunctival closure to re-establish surface integrity. Tissue samples underwent auramine-rhodamine staining and extended culture; identification of the mycobacterial species was performed with MALDI-TOF mass spectrometry. Postoperative therapy was guided in conjunction with Microbiology.

Results: Heavy growth of Mycobacterium chelonae was confirmed on re-cultured plates with characteristic yellow-green bacilli on auramine staining. The organism demonstrated susceptibility to macrolides and aminoglycosides. Complete tube explantation effectively removed the nidus of infection, and targeted topical therapy (azithromycin and tobramycin) with reduction of topical steroids led to progressive clinical improvement. The eye remained quiet postoperatively, with no recurrent melting, inflammation, or evidence of ongoing infection.

Conclusion: Nontuberculous mycobacterial infection should be considered in chronic conjunctival melting and recurrent device exposure. In this case, the presence of caseous granulomatous tissue was an intraoperative indicator of deep-seated infection. Successful management required full explantation of infected material, secure scleral tunnel closure, and species-directed antimicrobial therapy.

P31

MANAGEMENT OF POSTOPERATIVE HYPOTONY AFTER XEN-63 SURGERY

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Purpose: To describe the management of persistent postoperative hypotony following XEN63 glaucoma surgery and to evaluate intraluminal XEN63 stenting as a reversible alternative to implant removal.

Methods: We report two cases of glaucoma patients who developed sustained postoperative hypotony after XEN63 implantation. Clinical assessment included intraocular pressure (IOP) measurements, slit-lamp examination, fundus examination, visual field testing, and macular optical coherence tomography (OCT). In both eyes, hypotony was managed surgically by intraluminal stenting of the XEN63 implant using 10-0 suture material (nylon or prolene) to reduce excessive aqueous outflow.

Results: Case 1 was a 78-year-old woman with primary open-angle glaucoma who developed persistent hypotony (IOP 5-6 mmHg) and hypotony maculopathy one month after combined phacoemulsification and XEN63 surgery. Following XEN63 stenting with 10-0 nylon, IOP increased to 12 mmHg, visual acuity improved from 0.1 to 0.6 (decimal), and macular folds resolved on OCT. At 3-month follow-up, IOP remained stable at 12 mmHg with a diffuse filtering bleb. Case 2 was a 75-year-old man with pigmentary glaucoma who developed severe hypotony (IOP 2-4 mmHg) complicated by choroidal detachments after XEN63 implantation. Conservative measures were ineffective. XEN63 stenting with 10-0 prolene resulted in immediate IOP normalization (12 mmHg), resolution of choroidal detachments, and maintenance of IOP at 10 mmHg at 3 months with a deep anterior chamber and diffuse bleb.

Conclusion: Intraluminal XEN63 stenting is an effective and reversible surgical option for managing persistent postoperative hypotony, allowing preservation of the implant while restoring physiological intraocular pressure.

P32

VISION-THREATENING COMPLICATIONS IN GLAUCOMA DRAINAGE DEVICE SURGERY

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Objective: To describe the frequency of vision-threatening complications after more than 20 years of glaucoma drainage device (GDD) implantation.

Methods: A descriptive, retrospective, single-center study was conducted at the 12 de Octubre University Hospital in Madrid. All patients who underwent GDD surgery between 1996 and 2024 were studied. Variables that could threaten vision, such as persistent hypotony, conjunctival erosion from the tube, infection, vision loss, and suprachoroidal hemorrhage, were analyzed and grouped under the variable: “vision-threatening complications.”

Results: We studied 285 GDD implant surgeries, of which 159 (55.7%) were valved devices and 126 (44.2%) were free-flow devices. We found a cumulative complication rate of 15 patients (9.4%) for valved devices and 24 patients (19.0%) for free-flow devices. When specifically analyzing surgeries during the learning curve (between 1996 and 2000), we observed that the frequency for valved devices was 12.5%, while for free-flow devices it rose to 32% during this period. After the learning period, the cumulative frequency for valved devices was 8.8% and for non-valved devices 15.3% ($p = 0.002$).

Conclusions: Vision-threatening events are serious complications that can occur in DDG implant surgeries. The data presented highlight the importance of the learning curve, especially in the management of the restriction and protection mechanisms of the tube in non-valved devices, which could explain the difference observed.

LASERS

P33

GOOD RESULTS OF MICROPULSE LASER IN ADVANCED EXFOLIATIVE GLAUCOMA, 1-YEAR FOLLOW-UP

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Purpose: To estimate the efficacy of micropulse laser in advanced exfoliative glaucoma patients.

Methods: Retrospective study. All patients were diagnosed with advanced exfoliative glaucoma (MD ≤ -12 dB). Treatments occurred from January 2021 to March 2024. Each patient was followed for 1 year. If both eyes were treated, only one was randomly chosen. A micropulse laser was applied at 360 degrees with a power of 2500 mW for 160 seconds. Success was defined as reducing intraocular pressure (IOP) by 20% and/or achieving an IOP of 21 mmHg.

Results: Fifty-nine eyes were treated. Eight patients were excluded. Thus, fifty-one eyes were used for analysis. At baseline, the mean age was 80.33 ± 6.88 years. Sex: M:26/W:25 (51/49%). Mean IOP was 27.29 ± 5.06 mmHg. Patients used an average of 3.88 ± 0.77 medications. Visual field MD: -25.20 ± 4.33 dB. VFI: 14.24 ± 14.72%. The last eye was treated in 25 patients (49%). Acetazolamide (250 mg) was used by 23 patients (48%) at a dose of 2.31 ± 0.83 pills/day. The IOP at 1 year was 18.62 ±4.67 mmHg (t-test < 0.005). At 1 year, 40 patients (78%) demonstrated a reduction in IOP of at least 20%. At the same follow-up, 39 patients (76%) achieved IOP < 21 mmHg, and 36 (71%) met both success criteria. During this period, 12 patients (24%) were using Acetazolamide (Chi-square ≤ 0.05), with an average dose of 1.76 ± 0.43 pills/day (t-test = 0.02).

Conclusion: The micropulse laser appears to be effective for advanced exfoliative glaucoma. A longer follow-up is recommended.

P34

LOW-ENERGY SELECTIVE LASER TRABECULOPLASTY IN OPEN-ANGLE GLAUCOMA AND OCULAR HYPERTENSION: TWELVE-MONTH OUTCOMES IN A TERTIARY CENTER

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Purpose: To assess real-world outcomes of low-energy selective laser trabeculoplasty (SLT) in patients with open-angle glaucoma (OAG) and ocular hypertension (OHT) treated in a tertiary center.

Methods: A retrospective analysis was performed on 77 eyes undergoing low-energy SLT (0.4-0.6 mJ) with a minimum follow-up of 12 months. Primary outcome measures included intraocular pressure (IOP) change at 1, 3, 6 and 12 months. Secondary variables included variation in topical antiglaucoma medication and the need to repeat SLT or undergo glaucoma surgery during follow-up.

Results: Mean IOP reductions were 2.49 mmHg at 1 month ($p < 0.001$), 2.00 mmHg at 3 months ($p < 0.001$), and 3.24 mmHg at 6 months ($p < 0.001$). No significant reduction in topical medication was observed ($p = 0.58$ at 3 months; $p = 0.251$ at 6 months). Overall, 27 eyes (35.1%) required additional intervention within 12 months (1 eye within 3 months, 11 eyes within 6 months). No sight-threatening complications or clinically relevant adverse events were reported.

Conclusion: Low-energy SLT showed an excellent safety profile but produced modest IOP reductions, which may limit its utility in patients requiring substantial IOP lowering or with low baseline IOP. The magnitude of effect appears lower than that reported for standard-energy SLT protocols, which show more robust reductions in IOP and topical medication. These observations suggest that energy titration may play a pivotal role in SLT outcomes. Further studies are warranted to refine energy parameters and to better define SLT within OAG and OHT treatment.

P35

TRAINING AND CLINICAL OUTCOMES OF COMBINED PHACO-ELIOS MIGS: A RESIDENT'S PERSPECTIVE

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Purpose: To describe the resident training pathway for performing ELIOS MIGS and to evaluate one-year clinical outcomes in patients undergoing combined phaco-ELIOS surgery, focusing on intraocular pressure (IOP) control and reduction in glaucoma medications.

Methods: A retrospective analysis was conducted on 62 eyes with mild to moderate primary open-angle glaucoma (POAG), including pigmentary and pseudoexfoliative subtypes, that underwent combined phacoemulsification and ELIOS MIGS. All procedures were performed with a standardized training approach under supervision. Preoperative and one-year postoperative IOP and number of glaucoma medications were recorded. Outcomes included mean IOP, mean number of medications, and the proportion of eyes achieving IOP <18 mmHg without medications.

Results: Mean preoperative IOP was 16.0 mmHg, with patients using an average of 1.5 glaucoma medications. At one-year follow-up, mean IOP remained stable at approximately 16.0 mmHg, while medication use decreased to 0.4 medications on average. Notably, 70% of eyes achieved an IOP below 18 mmHg without any glaucoma medication at one year. No major intraoperative or postoperative complications were observed.

Conclusion: Combined phaco-ELIOS MIGS provides stable IOP control with a significant reduction in glaucoma medication use at one year. The procedure is safe and teachable for residents under supervision. Most importantly, it relies on achieving high-quality intraoperative gonioscopic visualization. These findings support ELIOS MIGS as an effective and teachable option in the management of mild to moderate POAG.

P37

RESULTS OF DIRECT SELECTIVE LASER TRABECULOPLASTY (DSLT) IN PATIENTS WITH GLAUCOMA AND OCULAR HYPERTENSION

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Purpose: Selective laser trabeculoplasty (SLT) is an effective and widely used modality for reducing intraocular pressure (IOP) in glaucoma management. DSLT represents a significant technological advance, enabling automated treatment without the need for a contact gonioscopy lens. This study presents the preliminary outcomes of DSLT in patients with glaucoma and ocular hypertension (OHT) treated at our center.

Methods: We conducted a retrospective review of patients diagnosed with glaucoma or OHT who underwent DSLT at our institution. Both treatment-naïve individuals and those previously managed with hypotensive medications were included.

Results: Eighteen eyes (9 patients) were analyzed. Of these, 78% (14 eyes) had primary open-angle glaucoma (POAG) and 22% (4 eyes) had OHT. Prior to DSLT, 89% (16 eyes) were receiving hypotensive therapy, while 11% (2 eyes) were treatment-naïve. Mean pre-DSLT IOP was 18.5 mmHg, decreasing to 14.5 mmHg at two months post-DSLT, corresponding to an average reduction of 22%. The mean IOP reduction was 17% in POAG eyes and 26% in OHT eyes. A reduction in the number of hypotensive medications was achieved in 88% (16 eyes), with a mean decrease of 50%. Only one patient reported an adverse event (transient dizziness), which resolved spontaneously.

Conclusion: Despite the limited follow-up period, these early results indicate that DSLT effectively reduces both IOP and treatment burden in patients with glaucoma and OHT. DSLT appears to be a safe, rapid, and efficient first-line therapeutic option, enhancing access to selective trabeculoplasty in routine clinical practice.

P39

SELECTIVE LASER TRABECULOPLASTY VERSUS TRAVOPROST EYE DROP AS FIRST LINE OF TREATMENT IN PRIMARY OPEN ANGLE GLAUCOMA

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Purpose: Compare SLT to travoprost as first line of treatment in POAG.

Methods: 96 eyes from 56 patients diagnosed with POAG were enrolled and divided to 2 arms. All patients' demographic data were recorded. Visual field (VF) and OCT ONH were done. 360 degrees SLT was done. Travoprost eye drop was started as initial treatment in Travoprost arm. follow up 1-week, then monthly for 6 months was preformed. A new VF and OCT ONH were preformed at 3 and 6 months., a questionnaire was given to assess the quality of life (QOL) with eye drops and SLT.

Results: Mean IOP decreased from 26.83 ± 1.86 mmHg to 14.50 ± 1.27 mmHg ($p < 0.001$) in SLT arm and 27.71 ± 3.48 mmHg to 14.75 ± 3.50 mmHg ($p < 0.001$) in Travoprost arm, with no statistically significant difference except for weak 1.no significant change in the MD and PSD of VF in both groups. no statistically significant change in either groups in RNFL thickness . 6 eyes (12.5%) required antiglaucoma drops in the Travoprost group while (0%) in SLT group.2 eyes (4.2%) required SLT retreatment. 2 eyes (4.2 %) experienced mild complications from SLT. No IOP spikes were observed. Results of questionnaire given showed SLT group had better QOL. Cost effectiveness was calculated showing SLT to have better cost effectiveness.

Conclusion: SLT and Travoprost had almost same IOP reduction effect as1st line treatment in POAG, SLT patients reported better quality of life and to be more cost effective than Travoprost eye drop.

P40

COMPARATIVE OUTCOMES OF FIRST AND SECOND GENERATION MICROPULSE TRANSSCLERAL LASER THERAPY PROBES IN REFRACTORY GLAUCOMA: A RETROSPECTIVE COHORT STUDY

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Purpose: Transscleral cyclophotocoagulation (TSCPC) has been traditionally used for refractory glaucoma, but MicroPulse has enabled earlier, safer intervention. The revised MicroPulse P3 probe, released in 2019, supports this shift with design refinement to improve energy delivery over the original probe. This study compares outcomes.

Methods: This retrospective cohort evaluated 74 eyes treated with MicroPulse at a London tertiary centre (37 per probe). Eyes were matched 1:1 by glaucoma subtype, baseline intraocular pressure (IOP), and age. Probes operated at 2500mW and 31.3% duty cycle. The original probe (OP) employed continuous sweeping (80 seconds per hemisphere); the revised probe (RP) structured sweeps (4 x 20-second sweeps per hemisphere). Primary outcome was success (≥20% IOP reduction and IOP 6-21 mmHg without additional medications or surgery). Secondary outcomes included medication burden, complications and further glaucoma interventions.

Results: At 12 months, RP achieved a 54.8% IOP reduction (p = 0.0234) compared to 40.3% with OP (p = 0.0027). Topical medication use with RP decreased from 1.92 ± 0.14 to 1.33±0.15 at 3 months (p = 0.0298); OP decreased from 2.03±0.17 to 1.69 0.16 at 1 month (p = 0.0215). Systemic medications were withdrawn by 6 months in all RP eyes; one OP eye (2.7%) continued at 12 months. Numerical hypotony (IOP ≤ 5mmHg) occurred in 2 eyes per group (5.4%, p = 0.99); corneal epithelial defects occurred only with OP (8.1%; p = 0.24). Kaplan-Meier success rates were 21.4% for OP and 16.6% for RP (p = 0.8721).

Conclusion: Both probes reduced IOP and medication use. RP showed sustained pressure control and fewer additional surgeries, supporting its safer use in refractory glaucoma.

P42

CLINICAL OUTCOMES AND SAFETY OF THE MICROPULSE TRANSSCLERAL CYCLOPHOTOCOAGULATION (VITRA 810® SUBCYCLO LASER) IN GLAUCOMA

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Objective: To evaluate the efficacy and safety of the 810-nm laser (Vitra 810®) in micrupulse mode for the treatment of glaucoma at Hospital Universitario 12 de Octubre, assessing its impact on intraocular pressure (IOP) and safety.

Methods: A retrospective study was conducted including 27 eyes treated with micropulse transscleral cyclophotocoagulation since 2018. Demographic data, type of glaucoma, best-corrected visual acuity (BCVA), number of hypotensive medications, and IOP before and after treatment were collected. SubCyclo acts by stimulating the ciliary body and enhancing uveoscleral outflow without inducing thermal damage. Two patients were referred from other centers after the procedure and lacked postoperative follow-up data.

Results: Fifty-one point nine percent of patients were male. Secondary glaucoma was present in 61.5% of cases and primary glaucoma in 38.5%. Mean baseline BCVA was 0.2. Prior to treatment, patients used a mean of 2.81 hypotensive medications, and mean baseline IOP was 22.38 ± 6.66 mmHg. Thirty percent of patients achieved 5-year follow-up, with a mean IOP of 18.78 ± 8.32 mmHg ($p < 0.001$). Sustained IOP reduction was observed in 21 eyes (77.8%), while 6 eyes maintained elevated IOP levels, and 5 required retreatment or glaucoma surgery. No serious complications were recorded.

Conclusions: The 810-nm SubCyclo laser is a safe and effective technique for IOP reduction in advanced glaucoma. Its non-destructive mechanism preserves the ciliary body and allows retreatment. Although IOP reduction was moderate, it was sufficient in many eyes with severe structural damage, positioning SubCyclo as a valid alternative to traditional cyclophotocoagulation techniques.

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EFFECTIVENESS OF SELECTIVE LASER TRABECULOPLASTY IN PATIENTS WITH PRIMARY OPEN-ANGLE GLAUCOMA AND OCULAR HYPERTENSION IN WARTIME CONDITIONS

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Purpose: To evaluate the effectiveness of selective laser trabeculoplasty (SLT) in patients with primary open-angle glaucoma and ocular hypertension.

Methods: A retrospective analysis of patients treated with SLT in 2023-2024 was conducted. The results of SLT in 200 eyes (182 patients) were analyzed: 135 eyes (67%) with primary open-angle glaucoma and 65 eyes (33%) with ocular hypertension. The effectiveness of SLT was assessed by the level of IOP before laser treatment, after 1 month, after 2 months, after 6 months and after 1 year using the perimetric MD index. The criterion for complete success was the achievement of the target IOP and the effectiveness of reducing IOP by ≥ 20% from baseline without any additional interventions. Only patients with a complete medical record at the 1-year follow-up visits were included in this study.

Results: The mean intraocular pressure (IOP) before SLT was 29.05 ± 2.04 mm Hg. After 1-month follow-up, the mean IOP was 15.32 ± 2.41 mmHg ($p < 0.01$). Overall, the effectiveness of reducing IOP by ≥ 20% from baseline was found in 171 eyes (86%) after 6 months and in 162 eyes (81%) after 1 year. Incomplete IOP control was noted in 10 eyes (5%) with the need for additional interventions: trabeculectomy (n = 5) and transscleral cyclophotocoagulation (n = 5).

Conclusion: In majority of cases, target IOP was achieved and evidenced with stabilization of retinal sensitivity. Our study also notes the necessity of a regular follow-up of these patient cohorts.

P44

RESULTS AND SAFETY OF DIODE LASER CYCLOPHOTOCOAGULATION

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Purpose: To evaluate the efficacy and safety of diode laser cyclophotocoagulation for the treatment of glaucoma and painful blind eye at the 12 de Octubre University Hospital.

Methods: Retrospective study of 91 eyes treated since 2016 with diode laser cyclophotocoagulation. Demographic data, type of glaucoma, visual acuity (VA), number of hypotensive medications, and intraocular pressure (IOP) were collected before and after treatment. The diode laser acts by destroying the ciliary body and periciliary nerves, reducing aqueous humor production and relieving pain.

Results: 50.5% of the patients were male. 69.2% presented with secondary glaucoma. The initial IOP was 36.87 mmHg (SD 13.67) and at 5 years, 29.11 mmHg (SD 15.37). After the procedure, 6 eyes (6.6%) were eviscerated, 13 (14.3%) continued to experience pain, 33 (36.3%) presented with elevated IOP, and 6 (6.6%) required additional glaucoma surgery. 14.3% of the patients were referred from other centers. No cases of phthisis were recorded.

Conclusion: Diode laser cyclophotocoagulation remains a therapeutic option for end-stage glaucoma and painful blind eyes. It is a quick and relatively painless procedure performed under retrobulbar anesthesia, requiring careful patient selection. It modestly reduces IOP and is more effective in pain control.

NEW GLAUCOMA DRAINAGE DEVICES

P45

OUTCOMES OF AB INTERNO 63 μM VS. 45 μM XEN® GEL STENT IN OPEN-ANGLE GLAUCOMA: A FIVE-YEAR FOLLOW-UP STUDYYELLOW = INSTRUCTIONS TO BE REMOVEDGREEN = TO COMPLETE

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Purpose: To compare the long-term efficacy and safety of the XEN® 63 Gel Stent (XEN63) with the XEN® 45 Gel Stent (XEN45) in patients with open-angle glaucoma.

Methods: A retrospective matched case-control study at University Hospitals UZ Leuven was conducted, including open-angle glaucoma patients who underwent implantation of either XEN63 or XEN45 between 2014 and 2021. The primary outcome was intraocular pressure (IOP) at 5 years. Secondary outcomes included topical medications, postoperative hypotony, complications, additional interventions and surgical success, defined as complete success (IOP 6-15 or 6-18 mmHg without medications, SLT, secondary glaucoma surgery, surgical revision, or loss of light perception) and qualified success (same IOP criteria allowing medications or SLT).

Results: Thirty eyes (15 XEN63, 15 XEN45) with balanced baseline characteristics were included. XEN63 achieved higher complete success over 5 years for both IOP 6-15 mmHg ($p = 0.008$) and 6-18 mmHg ($p = 0.047$). Mean IOP and medication use was equal at year 5 (respectively, 0.6 vs 0.9 drops, $p = 0.57$; 11.5 vs 11.0 mmHg, $p = 0.53$). Early hypotony was more frequent with XEN63 (13 vs 5 eyes; $p < 0.01$), whereas needling (47% vs 7%; $p = 0.04$) and secondary surgery (40% vs 7%; $p = 0.08$) were more common after XEN45.

Conclusion: XEN63 demonstrated superior long-term complete success but was associated with a higher rate of postoperative hypotony. These findings support XEN63 as a more effective long-term option for IOP control, provided that postoperative hypotony is appropriately managed.

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REAL-WORLD OUTCOMES OF A NOVEL SUPRACHOROIDAL DRAINAGE DEVICE (MINIJECT)

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Purpose: To assess the real-world outcomes of a novel MIGS device implanted into the suprachoroidal space (Miniject).

Methods: A retrospective review of all Miniject procedures performed at a single centre between November 2023 when it was introduced and September 2025.

Results: 21 eyes of 14 patients received a Miniject implant. The mean age was 72. Primary open angle glaucoma was the diagnosis in 18 cases (86%) and the remainder were normal tension glaucoma. All except two were performed with cataract surgery. Mean follow-up was 12.3 months (± 7.2 months). The pre-operative mean IOP was 18.5 mmHg (±4.5 mmHg) on a mean of 2.2 medications. At last visit, the mean IOP was 17.7mmHg (±7.8 mmHg) on 0.8 medications. While the IOP was below baseline at every timepoint, this reached significance only at six months (p=0.04). The number of medications was significantly lower at week 1, month 1, and month 6. No significant intra-operative complications occurred. Post-operatively, one patient required repositioning of the Miniject at two weeks. In a further patient, the device was removed, resulting in a cyclodialysis cleft but no hypotony. One patient experienced an early IOP rise to 40 mmHg, which returned to normal subsequently. Two eyes (9.5%) went on to have filtration surgery at a mean of 6 months.

Conclusion: In our series, a small but sustained reduction in IOP was observed in patients who received the Miniject implant, and a modest reduction in number of medications. There were few significant safety issues, although two devices needed to be repositioned or removed.

P48

4-MM RIPCORD WITHDRAWAL WITHOUT LIGATION DURING AHMED CLEARPATH SMALL TUBE® IMPLANTATION

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Purpose: To introduce partial ripcord removal as an intraocular pressure (IOP) titration technique for the Ahmed Clearpath Small Tube(CPST)® glaucoma drainage system.

Methods: This retrospective cohort study reviewed eyes undergoing primary ripcord withdrawal 4-mm from the limbus during Ahmed CPST implantation between February-November 2025. Surgical success was defined as IOP≤21mmHg with an IOP reduction of ≥20%. Detailed evaluations on postoperative day (POD)1, week (POW)1, and months(POM)1, 3 and 6 included best-corrected visual acuity(BCVA [logMAR]), IOP(Goldmann applanation tonometry), and number of antiglaucoma medications(NAGM). Hypotony was defined as IOP<5mmHg. Transient IOP elevation was defined as an IOP increase of ≥5 mmHg for 1 visit.

Results: Fifteen eyes of fifteen patients (age:68.8,female:10,pseudophakic:12) underwent CPST implantation for primary open-angle(n=9), pseudoexfoliative(n=3), and uveitic(n=3) glaucoma. Mean follow-up was 3.76 months. Baseline preoperative IOP was 25.95±4.7mmHg, cup-to-disc:0.725±0.166, visual field [VFI/MD]: 78%±23%/-9.01±6.93dB, logMAR:0.54±0.66, NAGM:4±0.93. Mean IOP significantly decreased at all postoperative visits:POD1(10.2±8.60 mmHg), POW1(12.2±7.2 mmHg), POM1(13.1±7.2 mmHg), POM3(10.3±7.2 mmHg), POM6(11.2±2.21mmHg). Successful surgery was achieved in 11/13 eyes at POM1, 10/10 at POM3, and 6/6 at POM6. Mean NAGM decreased to 1.16±0.98 by PODM6. BCVA improved versus baseline by POM6(0.22±0.13;p=0.06). Transient IOP elevations occurred due to uveitis(n=1), hyphema(n=2), and ocular pain(n=1). Hypotony was numerical(n=2) or asymptomatic clinical(n=1), limited to POD1, and resolved without intervention.

Conclusion: The preliminary results and safety profile suggest that Ahmed ClearPath Small Tube® implantation performed with partial intraoperative ripcord removal is a promising, safe, and effective surgical technique that achieves significant IOP reduction and decreases the number of antiglaucoma medications.

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TEMPORARY INTRALUMINAL MODULATION OF THE XEN63 TO PREVENT HYPOTONY IN MYOPIC GLAUCOMA EYES

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Purpose: To evaluate the safety and efficacy of tutored XEN63 implantation in glaucomatous eyes with axial length >24mm, a group at increased anatomical risk for postoperative hypotony, and to assess the intraluminal stent as a temporary flow-modulating element.

Methods: This case series included patients with axial length >24 mm and primary open-angle glaucoma treated at Hospital Universitario Virgen de las Nieves. A tutored ab externo XEN63 was implanted using 10-0 nylon or 10-0 prolene as an intraluminal stent; two cases underwent combined phacoemulsification. Intraocular pressure (IOP), glaucoma medications, and postoperative course - especially after tutor removal - were recorded. Follow-up ranged from 6 to 15 months.

Results: The intraluminal tutor temporarily reduced the functional lumen of the XEN63, providing controlled early filtration without clinical hypotony, even in highly myopic eyes and single functional eyes. During the first postoperative month, IOP remained between 8-14 mmHg with the tutor in place. Three patients developed late ocular hypertension or tutor exposure; the stent was easily removed, producing minimal IOP reduction and restoring full XEN63 flow. Final IOP ranged from 13-18 mmHg depending on medication. One patient experienced early hypotony due to a conjunctival leak, resolved after suturing, without persistent hypotony.

Conclusion: Temporary intraluminal modulation of the XEN63 functions as a reversible flow-restriction strategy, effectively preventing early hypotony in long axial length eyes. Tutor removal restores full lumen capacity when increased filtration is required. This technique appears to be a safe and effective option for eyes at high anatomical risk of overfiltration.

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PAUL GLAUCOMA IMPLANT IN A PATIENT WITH REFRACTORY GLAUCOMA ASSOCIATED WITH CONGENITAL ANIRIDIA AND AN IRIS PROSTHESIS

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Purpose: To present the management of refractory glaucoma in a patient with congenital aniridia, nystagmus, and an implanted artificial iris, analyzing the outcomes following implantation of a Paul Glaucoma Implant (PGI).

Methods: A review was conducted of intraocular pressure (IOP) evolution, hypotensive medication, corneal status, and stability of the artificial iris in an eye with multiple previous anterior segment surgeries. The surgical technique and postoperative course of the PGI were evaluated, including its interaction with the prosthesis and the cornea.

Results: A patient with bilateral aniridia, nystagmus, and prior cataract surgery with IOL and artificial iris presented with sustained IOP elevations (≥ 35-40 mmHg) despite maximum medical therapy. The artificial iris contributed to anterior displacement of the iris-lens complex and chronic inflammation, complicating glaucoma control. Due to disease progression, a PGI was implanted. Postoperatively, a significant and stable reduction in IOP was achieved, with no hypotony or tube-prosthesis contact. IOP remained well controlled, and ocular surface status was preserved despite pre-existing endothelial compromise.

Conclusion: Glaucoma associated with aniridia and an artificial iris poses a significant challenge due to anatomical instability and corneal vulnerability. The Paul Glaucoma Implant, thanks to its design characteristics, offers an effective and safe option in complex eyes, enabling proper tube positioning and sustained IOP control. Close follow-up is essential given the increased risk of corneal and anterior segment complications.

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PRESERFLO™ MICROSHUNT IN PATIENTS WITH MEDICALLY RESISTANT GLAUCOMA: ONE-YEAR RESULTS ON EFFICACY AND SAFETY

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Purpose: To review the efficacy and safety of PreserFlo™ MicroShunt combined or not combined with phacoemulsification for the surgical treatment of open-angle glaucoma.

Methods: Retrospective review of thirty-two patients diagnosed with chronic open-angle glaucoma who underwent a PreserFlo™ implantation at the Hospital La Princesa in Madrid between the years 2023 and 2024. MicroShunt implantation was augmented with 0.4 mg/ml Mitomycin-C. The primary outcome was intraocular pressure (IOP) during follow-up. Additionally, information on IOP-lowering medication use, postoperative complications, reoperation rates and success rates, was collected.

Results: Diagnoses included primary open-angle glaucoma (94%), pigmentary glaucoma (3%) and pseudoexfoliation glaucoma (3%). Mean IOP dropped from 22.2 at baseline to 13.6 at six-months and to 13.8 after one-year (13.2 and 12.6 in the subgroup combined with phacoemulsification). Mean number of topical antiglaucoma medications was reduced from 3.2 at baseline to 0.29 and 0.6 after six months and one year. Reoperation rate was 22% (7 patients), including needling, surgical revision and administration of 5-fluorouracil. One patient (3%) required additional glaucoma surgery afterwards. Only six patients (18%) suffered mild and self-limiting postoperative complications, including early hypotony, cystoid macular edema and choroidal detachment. At one-year follow-up 75% of the patients achieved an IOP reduction >20% and 60% didn´t need any IOP-lowering medication.

Conclusion: After one year follow-up PreserFlo™ MicroShunt was found to be an effective and safe procedure for patients with medically resistant glaucoma, leading to a significant and sustained reduction in IOP and number of antiglaucoma medications, and presenting a favorable safety profile.

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A NOVEL NICKLE-TITANIUM DEPLOYABLE MICROSTENT EXCEEDS BIOCOMPATIBILITY AND LONG TERM IOP REDUCTION TO A COMMERCIALLY AVAILABLE MINIMIALLY INVASIVE GLAUCOMA SURGICAL DEVICE

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Purpose: Minimally invasive glaucoma surgery (MIGS) has grown in popularity, yet glaucoma drainage devices (GDDs) targeting the subconjunctival space can still be complicated by tube obstruction and bleb fibrosis. To address these limitations, we developed a novel deployable microstent using nickel titanium and a Kirigami-based design.

Methods: We conducted a 6-month head-to-head comparison in rabbit models, implanting either the microstent or the commercially available XEN-45 gel stent. Eighteen New Zealand white rabbits were randomly assigned to three groups: XEN implant (n = 6), microstent implant (n = 6), and microstent with mitomycin C (MMC) (n = 6). Intraocular pressure (IOP), anterior/posterior segment imaging, anterior segment OCT (AS-OCT), outflow assessments, and histology were evaluated to determine safety and efficacy.

Results: Microstent groups achieved sustained IOP reduction (-15.62%) throughout follow-up, with or without MMC. In contrast, the XEN group showed no significant reduction after day 14. AS-OCT confirmed expansion of the microstent components and mechanical support of the subconjunctival bleb. Fluorescein injection revealed visible blebs in all microstent eyes at postoperative days 28, 90, and 180, whereas 83.3% of XEN eyes lacked blebs after day 28. At day 180, the microstent showed excellent positional stability, minimal fibroblast presence, no significant inflammation, and loose connective tissue consistent with functional filtering blebs.

Conclusion: This study introduces the first deployable MIGS device employing a Kirigami design. The microstent demonstrated long-term safety and efficacy in normotensive rabbits, with or without MMC.

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A CASE REPORT: SURGICAL MANEUVER TO PREVENT HYPOTONY AFTER GLAUCOMA SURGERY IN HIGH MYOPIA

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Purpose: To report the application of a minimally invasive glaucoma surgery (MIGS) with intraluminal stenting in a highly myopic patient with uncontrolled primary open-angle glaucoma, highlighting its effectiveness in preventing postoperative hypotony.

Methods: A 75-year-old male with high myopia (-21.25 D) and associated amblyopia, diagnosed with primary open-angle glaucoma in 2018, experienced recurrent episodes of ocular hypertension despite maximal tolerated medical therapy, along with progressive visual field loss. A MIGS procedure was performed using a Preserflo® MicroShunt with adjunctive mitomycin C. Due to the high risk of early postoperative hypotony in highly myopic eyes, a 9-0 nylon intraluminal stent was employed as a prophylactic strategy. Postoperative intraocular pressures (IOP) were measured on day 1, day 10, 1 month, and 6 months, with close clinical follow-up.

Results: The postoperative course was favorable. IOP values were 9.8 mmHg on day 1, 12-13 mmHg on day 10, and 13 mmHg at 1 month, remaining stable at 6 months without additional medication. No clinical signs of hypotony, choroidal detachment, choroidal folds, or hypotony maculopathy were observed. The patient's visual function remained stable, and the procedure was well tolerated.

Conclusion: Highly myopic eyes are predisposed to early postoperative hypotony due to longer axial length and thinner scleral architecture. Intraluminal stenting of subconjunctival drainage devices increases flow resistance, effectively preventing hypotony while maintaining medium-term IOP control. This case supports the use of intraluminal stents as a prophylactic strategy in high-risk patients undergoing MIGS and illustrates their safety and efficacy in complex anatomical scenarios.

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EARLY OUTCOMES OF A STANDARDIZED 6-0 PROLENE RIPCORD TECHNIQUE FOR AHMED CLEARPATH® ST IN REFRACTORY GLAUCOMA: A PROSPECTIVE PILOT STUDY

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Purpose: To report very early 3-week outcomes of a standardized 6-0 Prolene ripcord technique for the non-valved Ahmed ClearPath® ST glaucoma drainage device in refractory glaucoma.

Methods: Prospective case series of 7 eyes with medically uncontrolled glaucoma undergoing Ahmed ClearPath ST implantation with a modified technique. The stock ripcord was removed and replaced with a 6-0 Prolene intraluminal ripcord whose distal tip was positioned 8 mm from the base tube entry and whose proximal end was sutured to sclera for possible later removal. All eyes received subconjunctival mitomycin C and a Healaflow behind the plate. Best-corrected visual acuity, intraocular pressure (IOP) and number of glaucoma medications were recorded preoperatively and up to 3 weeks postoperatively. Complete success at week 3 was defined as IOP >5 and ≤21 mmHg without medications; qualified success allowed medications.

Results: Seven eyes were included. Mean baseline IOP was 26.0 ± 6.8 mmHg on 3.7 ± 1.0 medications. At 3 weeks, mean IOP was 11.1 ± 3.5 mmHg (57% reduction) and the mean number of medications decreased to 0.4 ± 0.8. Complete success was achieved in 4/7 eyes (57%), qualified success in 2/7 eyes (29%) and 1/7 eye (14%) met failure criteria due to IOP 5 mmHg. One eye developed persistent low IOP and one a transient hypertensive spike; no reoperations or sight-threatening complications occurred.

Conclusion: Ahmed ClearPath ST implantation with this 6-0 Prolene ripcord technique produced early reductions in IOP and medication burden with an acceptable safety profile, supporting longer-term studies in refractory glaucoma.

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COMPARISON WITHIN THE FIRST YEAR OF XEN 45 VERSUS XEN 63

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Objective: To compare the efficacy of surgery with XEN 45 (injector and closed conjunctiva) versus XEN 63 (open conjunctiva) during the first year of follow-up.

Materials and Methods: A total of 86 operated patients with 1-year follow-up were included. Group 1 (n = 55) received XEN 45 via an ab interno approach with closed conjunctiva; group 2 (n = 31) received XEN 63 with open conjunctiva. In the XEN 45 group, mitomycin C 0.1 mg/ml was administered by subconjunctival injection; in the XEN 63 group, 0.2 mg/ml was applied with a sponge for 2 minutes. Intraocular pressure (IOP) and the number of medications were recorded before and after surgery.

Results: Baseline IOP was 17.8 mmHg in group 1 and 15.9 mmHg in group 2. IOP at 24 hours was 8 mmHg versus 5.7 mmHg. IOP at 12 months was 13.5 mmHg versus 15.5 mmHg. The preoperative number of medications was 1.7 versus 2.1; at 12 months, 0.6 versus 0.5. IOP <15 mmHg was achieved by 51.2% of group 1 and 69.2% of group 2 ($p < 0.05$). Medication-free status was achieved by 50.2% of group 1 and 76.9% of group 2 ($p < 0.05$).

Conclusions: During the first year, both implants show similar efficacy, with lower postoperative IOP at 24 hours in the XEN 63 group. At one year, XEN 63 maintains slightly higher IOP but requires fewer medications. Differences in IOP were not significant, whereas significant differences were observed in medication reduction.

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CLINICAL OUTCOMES OF THE PRESERFLO MICROSHUNT IN PATIENTS WITH HIGH MYOPIA: A 12-MONTH STUDY

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Purpose: To evaluate the 12-month efficacy and safety of the Preserflo MicroShunt (PMS) with mitomycin C (MMC) in patients with high myopia.

Methods: Retrospective observational study including patients with glaucoma and high myopia who underwent Preserflo implantation between 2016 and 2024. Primary outcomes were postoperative intraocular pressure (IOP), number of IOP-lowering medications, and surgical success. Success was defined as an IOP ≤18 mmHg with a ≥ 20% reduction from baseline, without additional glaucoma surgery or major complications.

Results: Fifty-eight eyes were analyzed (mean age 64.4 ± 10.9 years), with a mean axial length of 28.5 ± 3.1 mm. None of the procedures involved the use of an intraluminal stent. Mean IOP significantly decreased from 20.1 ± 5.2 mmHg preoperatively to 13.1 ± 4.6 mmHg at 12 months ($p < 0.001$). The mean number of antiglaucoma medications was reduced from 2.8 ± 0.7 to 0.4 ± 1 at 12 months ($p < 0.001$). Overall success was achieved in 69.6% of eyes, with complete success in 60.7%. Reported adverse events included intraoperative bleeding (1), numerical hypotony (12), hyphema (2), shallow anterior chamber (2), choroidal detachment with subsequent retinal detachment (1), intraocular lens dislocation (1), and subconjunctival leakage (positive Seidel test) (2). Five eyes required bleb revision, one implant was explanted, and one eye required rescue surgery.

Conclusion: Preserflo MicroShunt implantation with MMC appears to be a safe and effective surgical option in patients with high myopia, achieving significant intraocular pressure reduction with a low rate of hypotony-related complications.

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CONVENTIONAL FILTERING SURGERY VERSUS MINIMALLY INVASIVE BLEB SURGERY IN MODERATE GLAUCOMA: A PROSPECTIVE MULTICENTER COMPARATIVE ANALYSIS

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Purpose: To compare conventional filtering surgery and minimally invasive bleb-forming procedures in moderate open-angle glaucoma in terms of intraocular pressure and reduction of hypotensive medication, and to assess outcome differences between PreserFlo and XEN63.

Methods: This was a prospective, multicenter comparative study including patients with moderate glaucoma (MD 6-12dB). Conventional surgery (trabeculectomy or deep non-penetrating sclerectomy) was performed in 34 eyes, while MIBS was performed in 44 eyes, including PreserFlo (n = 17) and XEN63 (n = 27). IOP and number of hypotensive treatments were recorded preoperatively and at postoperative day 1, week 1, months 1, 3, 6, 12, 18, 24, and final follow-up. Data are presented as median with interquartile range or mean ± standard deviation. Between-group comparisons were performed using Mann-Whitney or t tests.

Results: Baseline IOP did not differ significantly between conventional surgery and MIBS (19.0 [15.0-23.0] vs 18.0 [16.0-20.0] mmHg; p = 0.659). No significant IOP differences were observed at most postoperative visits, except at month 24, when MIBS showed lower IOP (10.0 [8.0-12.5] vs 13.0 [12.0-16.0] mmHg; p = 0.0494). Conventional surgery required more preoperative medications (2.65 ± 0.92 vs 2.02 ± 0.76; p = 0.0016) and showed higher medication use at month 12 and final follow-up (p ≤ 0.0478). When comparing PreserFlo and XEN63, baseline IOP was lower in the PreserFlo group (p = 0.0454), while no significant postoperative IOP or medication reduction differences were observed.

Conclusion: In moderate glaucoma, conventional surgery and MIBS achieve comparable IOP control. MIBS is associated with a lower postoperative medication burden, while PreserFlo and XEN63 demonstrate similar efficacy profiles.

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CONVENTIONAL FILTERING SURGERY VERSUS PRESERFLO MICROSHUNT IN SEVERE OPEN-ANGLE GLAUCOMA: RESULTS FROM A PROSPECTIVE MULTI-CENTER STUDY

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Purpose: Conventional filtering surgery remains the standard approach, while bleb-forming minimally invasive devices have emerged as alternative options. The purpose is to compare IOP and hypotensive medication reduction between conventional filtering surgery and PreserFlo MicroShunt implantation in patients with severe open-angle glaucoma.

Methods: This was a prospective, multicenter comparative study including patients with severe glaucoma. Conventional filtering surgery was performed in 46 eyes, and PreserFlo implantation in 18 eyes. IOP and number of hypotensive treatments were recorded preoperatively and at postoperative day 1, week 1, months 1, 3, 6, 12, 18, 24, and final follow-up. IOP data are presented as median with interquartile range (25-75 percentiles), and treatment data as mean ± standard deviation. Between-group comparisons were performed using the Mann-Whitney or t test.

Results: Baseline IOP was comparable between conventional surgery and PreserFlo (17.0 [14.0-21.0] vs 18.0 [17.0-18.0] mmHg; p = 0.5371). No significant IOP differences were observed at early or intermediate postoperative visits. At final follow-up, conventional surgery achieved significantly lower IOP compared with PreserFlo (13.0 [10.0-14.0] vs 14.5 [12.5-17.0] mmHg; p = 0. 0256). Preoperative hypotensive treatment burden was similar between groups (2.41 ± 0.88 vs 2.22 ± 0.94; p = 0.4488). Postoperatively, both techniques achieved a marked reduction in the number of treatments, with no statistically significant differences between groups at any follow-up visit (0.18 ± 0.53 vs 0.50±0.97; p = 0.1044).

Conclusion: In severe glaucoma, both conventional filtering surgery and PreserFlo provide substantial IOP and medication reduction. Conventional surgery achieved lower final IOP, while postoperative treatment burden was comparable between approaches.

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SAFETY AND EFFICACY OF THE PAUL GLAUCOMA IMPLANT: A RETROSPECTIVE STUDY WITH 6-MONTH FOLLOW-UP

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Purpose: To evaluate the short-term efficacy and safety of the Paul Glaucoma Implant (PGI) in terms of intraocular pressure (IOP) reduction, decrease in glaucoma medications, visual acuity (VA) changes, and the need of ripcord removal.

Methods: A retrospective review was conducted of 19 eyes from 17 patients who underwent PGI implantation. Collected variables included demographics, type of glaucoma, baseline VA and IOP, number of medications, postoperative IOP at 1 day, 1, 3, and 6 months, postoperative VA, need for ripcord removal, and postoperative complications.

Results: Mean preoperative IOP was 33.1 mmHg. Postoperative IOP decreased to 14.8 mmHg at day 1 (-55.3%), 14.4 mmHg at 1 month (-56.5%), 16.3 mmHg at 3 months (-50.8%), and 13.1 mmHg at 6 months (-60.4%). A sustained IOP reduction greater than 50% was maintained throughout follow-up. Medication burden decreased from 3.20 drops preoperatively to 0.75 drops at 6 months (-76.6%). Visual acuity remained stable overall. Ripcord removal was performed when clinically indicated, ensuring adequate postoperative IOP control. Complications were infrequent: one retinal detachment occurred following hypotony during the first postoperative month; three cases of conjunctival dehiscence required surgical resuturing; and one graft rejection required corneal transplantation. No tube exposure, endophthalmitis, or device-related severe events were observed.

Conclusion: The Paul Glaucoma Implant provided robust IOP reduction, significant medication burden decrease, and a favorable safety profile at 6 months. Despite a few manageable complications, PGI remains an effective surgical option for the management of advanced glaucoma.

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TWENTY-FOUR-HOUR INTRAOCULAR PRESSURE FLUCTUATIONS AFTER TRABECULAR SURGERY WITH ISTENT INJECT® W IMPLANTATION USING A CONTACT LENS SENSOR

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Purpose: To evaluate the effects of iStent inject® W surgery on intraocular pressure (IOP) fluctuations.

Methods: This was a prospective study including 13 patients with open-angle glaucoma who underwent cataract surgery combined with trabecular surgery using iStent inject® W implantation. All patients underwent 24-hour IOP monitoring with a contact lens sensor before and after surgery. The main outcome measures were cosinor amplitude and biphasic amplitude (mVeq), as parameters reflecting the range of 24-hour IOP fluctuations.

Results: Mean IOP (mmHg) was 16.3 ± 3.0 mmHg preoperatively and 14.5 ± 3.0 mmHg after iStent surgery (p = 0.1084). The mean number of hypotensive medications decreased from 2.38 ± 0.51 preoperatively to 0.0 postoperatively (p = 0.0012). Mean preoperative cosinor amplitude was 145.83 ± 42.00 mVeq and decreased to 117.80 ± 63.97 mVeq after surgery (p = 0.0827). Mean biphasic amplitude was 163.27 ± 44.23 mVeq before surgery and 128.63 ± 60.12 mVeq after surgery (p = 0.0208).

Conclusion: Glaucoma surgery with iStent inject® W was associated with a reduction in 24-hour IOP fluctuations. Further studies are required to confirm these findings; however, this reduction in IOP fluctuations may represent an important factor in controlling glaucoma progression with this trabecular surgery, in addition to IOP lowering.

NEW TECHNOLOGY

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ELT (EXCIMER LASER TRABECULOSTOMY) COMBINED WITH PHACO FOR OPEN ANGLE GLAUCOMA. EXPERIENCE HOSPITAL LA PAZ

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Introduction: ELT is a MIGS procedure that uses a precise non-thermal laser to créate outflow channels in the trabecular meshwork without provoking a scarring response Reports have shown it effectively reduces IOP and medication use while preserving conjuntiva for potencial future surgeries.

Aim: To assess and report the effectiveness and safety of combined phacoemulsification and ELT phaceELT in reducing intraocular pressure (IOP) medication for patients with open-angle glaiucoma and concurrent catarats

Methods: Retrospective observational review of consecutive clinical notes of 30 glaucoma patients who underwent combined phacoELT surgery between september 2024- dicember 2025 at Hospital Universitary la Paz was performed. Data was collected for 1- demographics and medical history 2-intraocular pressure pre and post surgery 3-number of eye drops/medications pre and post surgery 4- previous SLT, MIGS, filtration surgery 5- adverse events/ complications pre and post surgery . Collection of data was at day 1, month 1, 6

Results: A total of 30 surgical procedures were review . We will analyze the reduction of intraocular pressure at 24 hours, and one year after surgery, taking into account the reduction in the number of the eye drops, quality of life, and patients satisfaction,

Conclusions: This new technique provides an adequate reduction of intraocualr pressure at 24 months post-surgery with a high safety profile for patients

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MINIMALLY INVASIVE NASAL TRABECULOSTOMY (MINT)

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Purpose: To present the efficacy and safety of a novel surgical technique for angle surgery in primary open-angle glaucoma, called minimally invasive nasal trabeculostomy (MINT), and its results when combined with cataract surgery in our first six patients.

Method: Five drainage channels were created in the nasal area, ab interno, with an opening of 140 microns and a depth of 0.5 mm, using a semi-automatic trephine (Sanoculis®, Israel). These channels were designed to create a direct opening in the trabecular meshwork, extending to the Schlemm's canal. The Iprisma SX goniolens and high-density cohesive viscoelastic were used to visualize the iridocorneal angle. In all six cases, the procedure was performed after cataract surgery to promote hypopressure and thus facilitate blood flow to the Schlemm's canal.

Results: The mean preoperative intraocular pressure (IOP) was 14.67 ± 1.53 mmHg with 1.66 ± 0.57 mmHg of medication. At six months of follow-up, the baseline IOP was 16 ± 1 mmHg without the need for antiglaucoma medication. No severe complications were observed during the intraoperative procedure or in the immediate postoperative period. Patients were evaluated at 24 hours, first week, one and six months of follow-up.

Conclusions: MINT is a new, minimally invasive, non-implantable, angle-shaped surgical technique that is safe and effective for lowering IOP when combined with cataract surgery. MINT can be performed as a standalone procedure or in combination with cataract surgery. Further studies in a larger number of patients, with different populations and types of glaucoma, are needed to confirm these findings.

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TRANS-PALPEBRAL INTRAOCULAR PRESSURE MEASUREMENT BYDIATON TONOMETER AND CENTRAL CORNEAL THICKNESS IN EYES BEFORE AND AFTER TRANSEPITHELIAL PHOTOREFRACTIVE KERATECTOMY OF SAUDI PATIENTS

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Purpose: The influence of central corneal thickness (CCT) on intraocular pressure (IOP) measurement by Diaton is debatable. We present a correlation of CCT to transpalpebral IOP (tpIOP) and its determinants in patients undergoing transepithelial photorefractive keratectomy (TPRK) in Saudi Arabia.

Methods: In this cross sectional study held in 2022, the IOP of patients undergoing TPRK was measured by Diaton tonometer. The CCT was measured before and 1 week after refractive surgery. The correlation coefficient of CCT and IOP and its Pearson P value were estimated. The effects of gender, type of refractive error (RE), and corneal epithelial thickness (CET) on the correlation of IOP to CCT were reviewed.

Results: We studied 202 eyes in 101 patients (Male : Female, 47 : 53; age 25.7 ± 5.8 years). The tpIOP was 15.1 ± 2.8 mmHg before, 15.9 ± 2.8 mmHg 1 week after, and 15.7 ± 4.1 mmHg 1 month after TPRK. The CCT was significantly correlated with tpIOP before surgery (Pearson correlation 0.168, $p = 0.017$) and after tPRK (Pearson correlation 0.246, $p < 0.001$). Gender ($p = 0.96$), CET ($p = 0.43$), and type of RE ($p = 0.99$) were not significant determinants of correlation between CCT and tpIOP before TPRK. The correlation of tpIOP and CCT was not affected by gender ($p = 0.07$), CET ($p = 0.39$), and type of RE ($p = 0.13$).

Conclusion: CCT should be considered before interpreting tpIOP measured by with Diaton. Diaton could be a useful tool to monitor IOP changes in young patients undergoing refractive surgery.

P66

AGREEMENT BETWEEN ICARE REBOUND TONOMETRY AND GOLDMANN APPLANATION TONOMETRY IN PATIENTS WITH SUSPECTED OCULAR HYPERTENSION AND EARLY GLAUCOMA

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Purpose: To evaluate the agreement between intraocular pressure (IOP) measurements obtained using the iCare rebound tonometer and Goldmann applanation tonometry (GAT) in patients with suspected ocular hypertension and early glaucoma, and to assess whether user experience influences iCare measurement accuracy.

Methods: This study comprised two parts. Four experienced clinicians measured IOP in 300 eyes using both tonometers, with data stratified by GAT IOP values and adjusted for central corneal thickness and glaucoma diagnostic category. Secondly, IOP was measured in 109 eyes with iCare, first by a healthcare assistant and then by a consultant ophthalmologist.

Results: iCare underestimated IOP compared with GAT, particularly at higher pressures ($p < 0.001$). Bland-Altman analysis showed a mean bias of -1.16 mmHg (SD 3.13; LoA -7.25 to +7.59 mmHg), increasing across IOP strata to -6.28 mmHg at ≥30 mmHg. iCare underestimated IOP across all groups except in eyes with very thick corneas. No differences were observed between glaucoma diagnostic categories ($p = 0.952$). User experience did not affect accuracy. Methods were strongly correlated ($R^2 = 0.87$), with a mean bias of -0.40 mmHg (SD 2.05; LoA -4.42 to +3.63 mmHg).

Conclusion: iCare tonometer consistently underestimated IOP, with greater underestimation at higher GAT readings and in thinner corneas. Caution is therefore advised when iCare is used as the sole tonometry method in clinical practice. User experience did not significantly influence measurement accuracy, supporting the use of iCare in virtual clinics and non-specialist settings.

NON PENETRATING SURGERY

P67

MINIMALLY INVASIVE NASAL TRABECULOTOMY (MINT®): DESCRIPTION OF THE SURGICAL TECHNIQUE AND INITIAL EXPERIENCE IN COMBINED CATARACT PROCEDURES

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Purpose: To describe a recently approved minimally invasive glaucoma surgery (MIGS) technique in Europe Minimally Invasive Nasal Trabeculotomy (MINT), and to summarize the initial clinical experience with its combined use during cataract surgery, emphasizing the surgical approach and feasibility.

Methods: A prospective observational series was conducted including eyes with primary open-angle glaucoma (POAG) undergoing MINT combined with phacoemulsification. Key clinical variables included glaucoma subtype and severity, intraocular pressure (IOP), and number of ocular hypotensive medications. Intraoperative video documentation, postoperative gonioscopy, and anterior segment optical coherence tomography (AS-OCT) were used to assess the trabeculotomy site.

Results: All surgeries were successfully completed without major intraoperative complications. Mild transient hyphema or subconjunctival hemorrhage was occasionally observed and resolved within the first postoperative day. Gonioscopic evaluation consistently revealed clear trabeculotomy clefts, while AS-OCT visualization was variable. Early postoperative IOP outcomes were heterogeneous, with some cases showing meaningful reductions without additional medications.

Conclusion: MINT provides a straightforward ab interno nasal trabeculotomy that can be safely integrated into combined cataract and glaucoma procedures. The technique demonstrates reproducibility and minimal intraoperative morbidity. Further studies with larger controlled cohorts are warranted to assess long-term efficacy and durability.

P68

BLEB HEALING AFTER NPDS: QUANTITATIVE ASSESSMENT USING AS-OCT AND COMPUTER VISION TECHNIQUES

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Purpose: To identify and quantify objective indicators of bleb healing after non-penetrating deep sclerectomy (NPDS) using anterior segment optical coherence tomography (AS-OCT)

Methods: Observational, longitudinal, retrospective study based on AS-OCT image analysis from patients who underwent NPDS. Images were segmented and analyzed using advanced computer vision techniques to extract quantitative parameters, including bleb height, wall thickness, fluid area, wall reflectivity, homogeneity, microcyst count, and fluid area/total-pixel ratio. Segmentation accuracy was assessed using Bland-Altman analysis. Patients were grouped according to time since surgery: ≤ 1 month (n = 4) and > 1 month (n varied by parameter). Statistical comparisons were performed using Student's t-test or Mann-Whitney U test, as appropriate

Results: Bleb height and fluid area were significantly greater in the ≤1-month group (Mean ± SD: 266.25 ± 60.11 pixels; 223,492 ± 80,731.86 pixels^2) than in the > 1-month group (171.62 ± 49.11 pixels; 91,762.04 ± 35,388.21 pixels; p = 0.0447). Homogeneity was also higher early postoperatively (0.99 ± 0.00 vs. 0.98 ± 0.01; p = 0.0014). The fluid area/total-pixel ratio was significantly lower in the ≤1-month group (0.26 ± 0.03) than in the later group (0.47 ± 0.14; p < 0.0001). No significant differences were found in wall thickness, microcyst count, or wall reflectivity

Conclusion: Bleb height, fluid area, and homogeneity decrease after the first postoperative month, while the fluid area/total-pixel ratio increases, reflecting measurable changes in the healing process. Combined AS-OCT and computer vision analysis provides objective indicators of bleb evolution, supporting personalized postoperative management after NPDS

P69

NON-PENETRATING DEEP SCLERECTOMY (NPDS) VERSUS GLAUCOMA DRAINAGE DEVICES (GDD) IN FULL-THICKNESS CORNEAL KERATOPLASTY

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Purpose: Glaucoma is the leading cause of irreversible vision loss in patients who have undergone penetrating keratoplasty (PK) and the second leading cause of graft failure. The risk of graft failure increases to 40% when glaucoma requires surgery. The most important risk factor for developing glaucoma is having pre-existing glaucoma. Treatment options include medical therapy, laser therapy, and surgery, such as classic filtering surgery (trabeculectomy, non-penetrating deep sclerectomy [NPDS], trabecular procedures, minimally penetrating glaucoma surgery [XEN®, Preserflo®], and glaucoma drainage devices [GDD]).

Methods: This descriptive, retrospective, single-center study was conducted at the 12 de Octubre Hospital in Madrid. We studied patients with glaucoma secondary to PK who required NPDS or DDG surgery. The requirements for NPDS were: absence of peripheral anterior synechiae, no superior conjunctival scarring, and an open angle.

Results: We studied a total of 22 eyes. 14 eyes required GDD surgery, and NPDS was performed in 8 cases. Of the 14 eyes with GDD, 12 received an Ahmed valve. Among GDD patients, we observed a 40.6% reduction in intraocular pressure (IOP) at five years of follow-up, with a graft survival rate of 16%. For patients with NPDS, we achieved an IOP reduction of 52% at four years and a medication reduction from 3.38 to 1.25. Two patients had KP failures requiring re-KP and one patient required additional glaucoma surgery.

Conclusion: Various GDDs and NPDS options are available for glaucoma surgery after PK. NPDS provides better glaucoma management and preserves corneal transparency, however, specific criteria must be considered.

P70

SURGICAL MANAGEMENT OF SCLEROMALACIA AFTER FILTERING GLAUCOMA SURGERY: A CHALLENGING CASE

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Purpose: To describe the surgical management of post-filtering surgery scleromalacia complicated by bleb microperforation and severe hypotony.

Methods: We report a case of a 68-year-old highly myopic woman with glaucoma who had previously undergone bilateral non-penetrating deep sclerectomy with good intraocular pressure (IOP) control. She presented with ocular pain and blurred vision in the right eye. Examination revealed a flat avascular filtering bleb with microperforation, scleral thinning, and hypotony (IOP 1 mmHg). Initial conservative measures and amniotic membrane transplantation with conjunctival advancement failed. Definitive surgical reconstruction included release of conjunctival fibrosis, placement of a bovine pericardium patch graft over the scleromalacic area adjacent to the nasal limbal scleral flap, insertion of amniotic membrane beneath the patch, and layered closure with posterior conjunctival relaxation.

Results: Anatomical restoration was achieved with resolution of aqueous leakage. At eight months of follow-up, the filtering bleb remained functional with stable IOP control.

Conclusions: Post-filtering surgery scleromalacia is a rare but potentially vision-threatening complication. Combined tectonic reinforcement with a bovine pericardium patch graft and amniotic membrane allowed successful anatomical and functional preservation of the filtering bleb.

OCULAR IMAGING

P71

EVALUATION OF MACULAR VESSELS DENSITY CHANGES IN PATIENTS WITH PRIMARY OPEN ANGLE GLAUCOMA BY SWEPT-SOURCE OPTICAL COHERENCE TOMOGRAPHY ANGIOGRAPHY

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Purpose: This study aimed to compare the macular vessels density changes in patients with primary open- angle glaucoma with control subjects by Swept source optical coherence tomography angiography.

Methods: This was a comparative cross-sectional study included 40 eyes with POAG and 40 control subjects. Detailed ophthalmic examination was done including measurement of intraocular pressure and visual field evaluation by using Humphrey (2003 Carl Zeiss Meditec, Germany). All subjects were scanned using Swept source OCTA (Triton, Topcon, Tokyo, Japan). Quantitative analysis of the retinal vasculature was achieved by evaluating vessel density as the ratio of the retinal area occupied by vessels at the superficial and deep retinal layer.

Results: The mean vessel density ratio in the superficial vascular plexuses (SVP) was 32.77 ± 3.79 and 42.45 ± 1.99 in POAG patients and control, respectively ($p<0.001$), the mean vessel density of SVP was statistically significantly lower in POAG patients. The mean vessel density in the deep vascular plexuses (DVP) ratio was 36.37 ± 4.13 and 44.48 ± 0.91 in POAG patients and control, respectively ($p < 0.001$). The mean vessel density of DVP was statistically significantly lower POAG patients.

Conclusion: Macular superficial and deep vessel density by Swept-source optical coherence tomography angiography showed statistically significant decrease in POAG patients.

THE ROLE OF SURGERY IN GLAUCOMA RESEARCH

P72

NEOVASCULAR GLAUCOMA WITH IOP OUTSIDE GAT RANGE. CASE REPORT

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50 years old woman with diabetes type 2on insulin treatment. Diabetes retinopathy. Ischemic macula left eye and low vision since 2013. September 2013 she was complaining of a short period of severe pain in her left eye. The IOP was 89 mmHg using iCare. She was diagnosed with neovascular glaucoma associated with rubeosis iridis and corneal edema. The next week despite intensive glaucoma treatment the IOP has raised to 98 mmHg (iCare).

We decided for a surgical approach and eventually performed a trabeculectomy with MMC.

After a few more interventions and many controls in the initial postoperative period she has today an IOP below 20 mmHg without medication. Stable visual field and visual acuity.

TRABECULECTOMY

P73

IMPACT OF SURGEON EXPERIENCE ON SURGICAL OUTCOMES OF GDD SURGEREIS

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Purpose: To determine whether surgeon experience influences the outcomes of glaucoma drainage device (GDD) implant surgery.

Methods: This descriptive, retrospective study was conducted at Hospital Universitario 12 de Octubre in Madrid. We evaluated patients who underwent GDD surgery between 1996 and 2000 (Group 1: learning curve) and between 2000 and 2007 (Group 2: experienced). Complete success was defined as an IOP between 6 and 21 mmHg without medication; qualified success as achieving the target IOP with medication; and failure as an IOP lower than 6 or higher than 21 mmHg with or without medication, or the need for additional surgery.

Results: Our analysis included 103 GDD implantations, with 48 (46.6%) being valved devices and 55 (53.3%) being non-valved. The complete success rate for Group 1 was 26.5%, compared with 40.4% for Group 2 ($p = 0.003$), while qualified success rates were 22.4% for Group 1 and 22.2% for Group 2 ($p = 0.23$). Analyzing by device type, valved implants in Group 1 achieved a complete success rate of 23%, compared with 48.1% in Group 2 ($p = 0.01$). Qualified success rates were 23% and 25.9%, respectively ($p = 0.34$). For non-valved devices, the complete success rate was 28.5% in Group 1 versus 33.3% in Group 2 ($p = 0.02$). Qualified success rates were 21.4% in Group 1 and 18.5% in Group 2 ($p = 0.21$).

Conclusion: Our results confirm that the surgical learning curve significantly affects GDD outcomes. Greater surgeon experience leads to better intraoperative decisions, improved complication management, and more appropriate device selection.

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OPTICAL COHERENCE TOMOGRAPHY STRUCTURAL TRENDS AFTER TRABECULECTOMY: CORRELATION WITH INTRAOCULAR PRESSURE LOWERING AND PREDICTORS OF LONG-TERM STABILITY

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Purpose: Trabeculectomy effectively lowers intraocular pressure, but its influence on structural OCT parameters is not well established. This study assessed postoperative OCT changes in POAG and NTG eyes, explored associations between IOP reduction and structural outcomes, and evaluated predictors of long-term stability.

Methods: A retrospective review was conducted of POAG and NTG eyes undergoing trabeculectomy between January 2018-December 2020. Pre- and postoperative OCT (GCC, RNFL, GCIPL, GCV) and IOP measurements were analysed. Annual thinning was calculated as (Post-Pre)/Years of follow-up. Predictors of RNFL change were assessed using regression analysis.

Results: 45 eyes of 37 patients(mean age 68.8 ± 11.5 years) were included, with a mean follow-up of 2.54 ± 1.21 years (28 POAG, 17 NTG). Significant IOP reductions were achieved: mean ΔIOP -7.42 ± 3.65 mmHg overall(POAG -7.79 ± 4.15; NTG -6.82 ± 2.65; $p < 0.001$). OCT changes were minimal and non-significant(GCC -1.55 µm, RNFL -0.21 µm, GCIPL -0.88 µm, GCV -0.52 µm). Annualised thinning rates(RNFL -0.10 µm/year, GCIPL -0.36µm/year, GCC -0.61 µm/year) approximated normal age-related loss. Thinner baseline RNFL/GCC predicted greater postoperative stability, and younger NTG patients showed additional stability. Neither baseline IOP nor magnitude of IOP reduction were predictive.

Conclusion: Trabeculectomy achieved substantial IOP lowering but no measurable improvement in OCT parameters, with postoperative changes remaining within test-retest variability. Annualised thinning approximated age-related loss, suggesting substantial slowing of glaucoma progression rather than anatomical recovery. Postoperative stability was greatest in eyes with thinner baseline RNFL and in younger NTG patients.

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EFFECT AND SAFETY OF TRANSCONJUNCTIVAL SCLERAL FLAP RESUTURING AFTER TRABECULECTOMY WITH MITOMYCIN C

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Purpose: Transconjunctival scleral flap resuturing (TSFR) is a representative treatment to rescue over-filtration after trabeculectomy (TLE) with mitomycin C that causes hypotony maculopathy (HM) or flat anterior chamber (FAC). The aim of this study is to evaluate the effect and prognosis of TSFR.

Method: We retrospectively reviewed 156 TLE cases from April of 2023 to March of 2025 performed by one surgeon (DS). Five eyes of five individuals who underwent TSFR with 10-0 nylon suture were identified. We investigated clinical data in the five eyes. Numerical data are shown in median(range).

Results: Duration between TLE and TSFR was 37(19-86) days. The ocular conditions to treat with TSFR were HM in 4 eyes and FAC in 1 eye. HM remained in two eyes at last visits, and FAC in one eye resolved immediately after TSFR. Intraocular pressure (IOP, mmHg) at pre-TLE, pre-TSFR, post-TSFR visit and last visit were 15(12-18), 3(0-8), 10(7-20), 12(5-17), respectively. IOPs at the post-TSFR visit were elevated by more than 3mmHg in 4 eyes. Best corrected visual acuity (logMAR) at pre-TLE, pre-TSFR, post-TSFR visit and last visit were 0.00(-0.08-0.52), 0.30(0.10-0.70), 0.40(0.00-0.40) and 0.22(-0.08-0.70), respectively. Cataract progression thought to be related to shallow anterior chamber was observed in three eyes. Endophthalmitis associated with blebitis occurred in one eye with a 10-0 TSFR suture exposed on conjunctiva. Two eyes underwent needling revision due to IOP elevation after TSFR.

Conclusion: TSFR had limited effect and we should be aware of bleb related infections.

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MITOMYCIN C-AUGMENTED AB-INTERNO TECHNIQUE FOR FILTERING BLEB REVISION IN GLAUCOMA

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Purpose: To evaluate the safety and efficacy of a modified ab-interno bleb revision technique augmented with intraoperative Mitomycin C (MMC) for the management of non-functional filtering blebs following trabeculectomy.

Methods: This retrospective study included 46 eyes from 40 patients who underwent ab-interno bleb revision with intraoperative Mitomycin C. A subset also received combined phacoemulsification. The procedure utilised a Grover Fellman Sclerostomy spatula for direct ostial manipulation, and preoperative subconjunctival injection of 0.01 mg MMC in 0.1 ml lidocaine. Primary outcomes were postoperative intraocular pressure (IOP), glaucoma medication use, and complications. Statistical analyses included t-test, ANOVA, and Pearson's correlation.

Results: Mean IOP decreased from 21.39 ± 5.61 mmHg preoperatively to 13.36 ± 6.84 mmHg postoperatively (38.4% reduction, $p < 0.001$). Mean medication use declined by 44.6% (from 2.87 ± 1.41 to 1.59 ± 1.64, $p < 0.001$). Only one eye required subsequent glaucoma drainage device implantation. No significant complications, such as flat anterior chamber, hypotony maculopathy, or choroidal detachment, occurred. Combined phacoemulsification cases required significantly fewer postoperative medications ($p = 0.015$).

Conclusion: The MMC-augmented ab-interno bleb revision technique is a safe and effective option for restoring function to non-functional filtering blebs after trabeculectomy. It achieves significant IOP reduction, decreases medication burden, and poses minimal risk of complications, potentially delaying the need for more complex surgical interventions.

TUBE SHUNTS

P77

ENDOSCOPE-ASSISTED TECHNIQUE TO IMPROVE THE ACCURACY OF AHMED TUBE SULCUS PLACEMENT

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Purpose: Insertion of glaucoma drainage tubes through the ciliary sulcus can reduce corneal endothelial damage compared with anterior chamber placement. However, sulcus tube insertion is technically challenging because of anatomical variations among eyes. To facilitate accurate placement, we developed an endoscope-assisted technique for sulcus tube insertion.

Methods: Thirteen eyes underwent Ahmed tube implantation using this technique. A 25-gauge endoscope was introduced through a paracentesis and advanced across the anterior chamber toward the planned insertion site. When the ciliary sulcus was indented internally, the endoscopic light became visible through the sclera, indicating the optimal entry point. A 23-gauge needle was used to create a track for tube insertion at that location. After tube placement, endoscopic observation confirmed correct positioning within the sulcus. The success rate of correct placement on the first attempt, the distance from the entry site to the surgical limbus, pre- and postoperative intraocular pressure (IOP), number of glaucoma medications, and intraoperative complications were recorded. Patients with at least three months of follow-up were retrospectively reviewed.

Results: All tubes were correctly inserted into the sulcus on the first attempt. The distance between the entry site and the surgical limbus ranged from 1.0 to 2.0 mm. Mean preoperative IOP was 32.7 ± 13.9 mmHg, decreasing to 9.5 ± 3.2 mmHg at 3 months ($p < 0.001$). The mean number of medications decreased from 6.0 ± 1.6 to 1.5 ± 1.6 ($p < 0.001$). No intraoperative complications were observed.

Conclusion: This endoscope-assisted technique enables precise, consistent sulcus tube placement.

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EVAULATING SIX YEAR OUTCOME OF TUBE FLUSHING VERSUS CYCLOPHOTOCOAGULATION FOLLOWING TUBE SHUNT OCCLUSION IN REFRACTORY GLAUCOMA IN A SINGLE CENTER

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Purpose: To compare long-term outcomes of Tube Flushing (TF) and transscleral Cyclophotocoagulation (CPC) for tube implant failure by evaluating intraocular pressure (IOP).

Methods: This single-centre retrospective study (2014-2021) included 22 eyes with failed tube implants managed with TF (n = 12) or CPC (n = 10). Mean follow-up time 5.6 years. The primary outcome was achieving ≥ 20% reduction in IOP from baseline. Secondary outcomes included complete success, defined as IOP 5-21 mmHg on three visits ≥ 5 months post-procedure without medication and moderate success, defined similarly but on medication. Additional outcomes were time to failure and re-operation rates. Collected parameters included IOP, BCVA, cup-disc ratio, visual field indices, RNFL thickness, and medication burden.

Results: A ≥ 20% IOP reduction was achieved in 50% (n = 6) for TF and 60% (n = 6) CPC eyes. Mean IOP reduction was 14.10% for TF and 42.1% for CPC. Moderate success occurred in 14% (n = 2) of TF cases and 40% (n = 4) of CPC cases. Mean time to failure was 2.11 ± 1.80 years for TF and 2.51 ± 2.39 years for CPC. Re-operation rates were 25% (n = 3) for TF and 40% (n = 4) for CPC.

Conclusion: Tube implant failure occurs in approximately 38% of cases, with occlusion accounting for 8-10%. Both TF and CPC effectively lower IOP in refractory glaucoma after occlusion. CPC provides greater IOP reduction and sustained control due to longer time to failure, but greater moderate success. TF has fewer complications and re-operations. Larger studies are needed to confirm outcomes.

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AHMED VALVE IMPLANTATION IN AN EYE WITH EXTREME AXIAL MYOPIA AND POSTERIOR STAPHYLOMA: A CASE REPORT

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Introduction: To report the clinical course and surgical outcome of a patient with extreme axial myopia and posterior staphyloma who underwent Ahmed valve implantation.

Case Presentation: A 33-year-old male with high axial myopia (axial length: 41.4-41.6 mm), bilateral posterior staphyloma, and prior phacoemulsification presented with persistently elevated intraocular pressure (IOP) despite topical medical therapy. Preoperatively, the IOP was 27 and 24 mmhg in right and left eye respectivly, with optic nerve findings suspicious for glaucomatous progression. Orbital CT imaging demonstrated bilateral orbital proptosis, elongated globes consistent with high myopia, stretching of the posterior sclera, bilateral orbital staphyloma, and enlargement of the optic nerve sheath, without evidence of mass effect, intracranial abnormality, or compressive neuropathy. Given the uncontrolled IOP and high-risk anatomy, the patient underwent AGV implantation in the right eye. The procedure was uneventful, and the tube was well positioned. On postoperative day 1, IOP decreased to 13 mmHg with a formed anterior chamber and a flat retina. However, the patient developed lagophthalmos with inferior conjunctival exposure and 360° chemosis, likely related to myopic proptosis and stretched adnexal tissues. The eye remained stable with no signs of infection or retinal detachment.

Conclusion: Eyes with extreme axial elongation and posterior staphyloma present unique anatomic challenges when managing refractory glaucoma. Careful perioperative planning and aggressive ocular surface protection are essential in this subset of high risk myopic eyes.

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SHORT-TERM OUTCOMES OF XEN GEL STENT IMPLANTATION WITH AND WITHOUT PERICARDIAL PATCH GRAFT IN GLAUCOMA

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Purpose: To evaluate the short-term outcomes of XEN gel stent implantation with and without pericardial reinforcement in glaucoma.

Methods: This retrospective comparative case series included 40 eyes of 38 patients with uncontrolled glaucoma who underwent either XEN implantation alone (control group, n = 20) or with pericardial reinforcement (pericardium group, n = 20). All patients were followed for at least 3 months. Surgical success was defined as IOP ≤ 18 mmHg with ≥ 20% reduction from baseline without additional medications or further surgery. Outcomes assessed included IOP, medication use, surgical success, and postoperative complications.

Results: At 3 months, mean IOP decreased from 27.5 ± 9.3 to 19.3 ± 12.5 mmHg in the pericardium group ($p < 0.001$) and from 29.8 ± 10.8 to 19.8 ± 9.2 mmHg in the control group ($p = 0.04$). Final IOP did not differ significantly between groups. The pericardium group demonstrated a higher success rate (80.0% vs. 55.0%, $p = 0.04$) and required fewer additional interventions such as bleb needling or other glaucoma surgery ($p = 0.03$). Postoperative complications, including transient hypotony and wound leakage, were comparable, and no serious adverse events occurred. The number of medications decreased significantly in both groups, with no difference between them.

Conclusions: XEN implantation with pericardial reinforcement achieved higher short-term surgical success and required fewer additional interventions compared with XEN implantation alone, while maintaining a similar safety profile. These findings suggest that pericardial reinforcement may enhance the efficacy of XEN surgery in glaucoma management.

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TWELVE YEARS OF TUBE: LONG TERM OUTCOMES OF NON-VALVED GLAUCOMA DRAINAGE DEVICES IN UVEITIC GLAUCOMA

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Purpose: To evaluate the long-term efficacy and safety of non-valved glaucoma drainage devices (GDD) in the management of refractory uveitic glaucoma.

Methods: This retrospective interventional case series reviewed 65 eyes of 51 patients who underwent Baerveldt (78.5%) or Molteno (21.5%) GDD implantation at a single tertiary centre between 2000 and 2021. The mean follow-up period was 12.05 ± 4.9 years. The primary outcome was surgical success defined by World Glaucoma Association criteria. Secondary outcomes included intraocular pressure (IOP) control, medication burden, and complications.

Results: Mean IOP decreased significantly from 32.6 ± 8.4 mmHg preoperatively to 12.2 ± 5.2 mmHg at the last follow-up ($p < 0.0001$). Glaucoma medications decreased from 3.8 ± 0.8 to 0.9 ± 1.1 ($p < 0.0001$). At the final visit, qualified and complete success rates were 58.5% and 33.8%, respectively, with a mean survival time of 12.8 years for qualified success. Failure occurred in 41.5% of eyes, primarily due to hypotony or inadequate IOP reduction. Mean best-corrected visual acuity remained unchanged ($p = 0.34$). Multivariate analysis indicated that Baerveldt implantation (HR 4.73) and concurrent systemic biologic therapy (HR 7.47) independently favoured sustained qualified success.

Conclusion: GDDs offer durable IOP control and preserved vision in uveitic glaucoma for over a decade, achieving 58.5% qualified success at a mean follow-up of 12.05 years. These findings represent the longest reported outcomes for this specific cohort.

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SURGICAL TECHNIQUE AND CLINICAL OUTCOMES OF SIMULTANEOUS BILATERAL PAUL GLAUCOMA IMPLANT SURGERY

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Purpose: To describe the surgical technique and report early outcomes of immediate simultaneous bilateral Paul Glaucoma Implant (PGI) surgery. To the best of our knowledge, this is the first study reporting bilateral simultaneous PGI implantation.

Methods: A prospective case series of 10 eyes (5 patients) undergoing immediate simultaneous bilateral PGI insertion under general anaesthesia was conducted, and followed for up to 12 months. The primary outcome was surgical success, defined as IOP ≤ 21 mmHg with ≥ 20% reduction from baseline, either without medications (complete success) or with medications (qualified success). Failure was defined as not meeting success criteria on two consecutive visits ≥ 3 months postoperatively; persistent hypotony (IOP < 6 mmHg on two consecutive visits ≥ 3 months); further glaucoma surgery; loss of light perception; or implant removal.

Results: All patients underwent bilateral PGI implantation without intraoperative complications. Postoperatively, IOP reduction was achieved in all eyes with uneventful recovery under general anaesthesia. Surgical success was observed in 90% of eyes (10% complete, 80% qualified), while 10% did not meet success criteria. Mean follow-up was 8 months (range, 2-12). Mean IOP decreased from 31.6 ± 10.5 mmHg preoperatively to 15.4 ± 6.7 mmHg at 1 month, 15.8 ± 2.9 mmHg at 3 months, and 16.6 ± 8.1 mmHg at 6 months. No observed cases of anterior chamber shallowing, corneal endothelial touch, hypotony, implant exposure, or loss of light perception.

Conclusion: Immediate simultaneous bilateral PGI implantation appears feasible, safe, and effective, with favourable early outcomes. Larger studies with extended follow-ups are needed to confirm long-term impact.

P83

ULTRASOUND BIOMICROSCOPIC EVALUATION OF BLEB MORPHOLOGY FOLLOWING A MODIFIED DEEP SCLERECTOMY TECHNIQUE

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Purpose: To describe the long-term ultrasound biomicroscopy (UBM) characteristics of filtration blebs after a modified deep sclerectomy technique and to evaluate their relationship with intraocular pressure (IOP) control over extended follow-up.

Methods: This retrospective observational case series included 13 eyes of 12 patients with open-angle glaucoma who underwent deep sclerectomy using a modified technique promoting posterior filtration. All eyes had a minimum follow-up of 3 years. Serial UBM examinations were performed to analyze bleb morphology, bleb location, episcleral tissue characteristics, and the presence and persistence of the intrascleral lake. IOP measurements and the need for reintroduction of IOP-lowering medications were recorded throughout follow-up. Qualitative changes in echogenicity and thickness of tissues overlying the intrascleral lake were specifically assessed.

Results: UBM demonstrated a low, posteriorly located bleb in ~90% of examinations, consistently positioned posterior to the limbus. An intrascleral lake was present in nearly all eyes throughout follow-up, indicating sustained patency of the scleral reservoir. Mean IOP remained stable and within target in most eyes. In cases with secondary IOP elevation requiring reintroduction of topical therapy, UBM revealed progressive thinning and increased echogenicity of the episcleral tissue overlying the intrascleral lake, suggesting reduced permeability. 1 case of cystic anterior blebs and no persistent hypotony were observed.

Conclusion: Long-term UBM evaluation demonstrates stable posterior filtration, persistent intrascleral lake formation, and favorable IOP control. Increased echogenicity and thinning of episcleral tissues overlying the lake appear to be associated with secondary IOP elevation, highlighting the importance of periscleral tissue characteristics in long-term surgical success.

P84

THE BURNLEY CLASSIFICATION OF TUBE POSITIONS: A PROPOSED CLINICAL CLASSIFICATION TO DOCUMENT TUBE POSITION IN THE ANTERIOR CHAMBER

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Purpose: To analyse positions of PRESERFLO™ MicroShunt (PFMS), its relation to outcomes of surgery and introducing a clinical classification system for tube location.

Methods: A pilot study of 25 consecutive PFMS eyes operated by a single surgeon, followed for five years at a single centre retrospectively. Primary outcome - reduction in Intraocular pressure (IOP). Secondary outcomes- Visual acuity (VA) and Visual Field Index (VFI). Eyes were grouped P1-P6 at slit-lamp using novel "The Burnley Classification of Tube Positions" (BCTP): P1 close to endothelium; P2 between P1-P3; P3 mid-AC (angle bisector); P4 between P3-P5; P5 close to iris, P6 sulcus. Annual medians for IOP, IOP reduction, VA, and VFI were compared.

Results: Total Number (n) of 25 patients analysed. Percentage of IOP reduction was P2 69.4% (n1), P3 59.6% (n12), P4 (n10) 57.8 % and P5 (n2) 29.6 %. VA attenuation was P2 0%, P3 0%, P4 21.7% and P5 49.7%. VFI maintained was P2 100%, P3 98.6 %, P4 97.8%, P5 75.9%. The Mean postoperative IOP (mmHg) was P2 9.8, P3 13.2, P4 11.88, P5 16.2. All groups showed complete success except P5, which showed 100 % failure. P5 showed higher IOP and poorer VA/VFI from Year 1.

Conclusions: The BCTP is a simple clinical method of documenting tube position and reducing inter observational variability. The P5 position underperforms in all aspects due to its proximity to the iris, likely due to pigment dispersion, tube obstruction and increased bleb scarring. A prospective study examining endothelial cell outcomes is underway.

P85

THE UP TO 3-YEAR RESULTS OF THE PAUL GLAUCOMA IMPLANT

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Purpose: To report 3-year outcomes of the Paul Glaucoma Implant (PGI).

Methods: Eighty-three eyes with uncontrolled glaucoma underwent standard PGI implantation as either a primary (49.4%) or additional (50.6%) surgical intervention. The conjunctival opening was performed 4-5 mm from the limbus. Partial tube occlusion with a 6-0 Prolene intraluminal suture and plate fixation with 9-0 nylon at 10mm from the limbus were performed. Tube entry into the anterior chamber was created with a 26-gauge needle, and the tube was covered with a scleral patch graft secured with 9-0 nylon. The conjunctiva was closed with an 8-0 vicryl running suture. Mean preoperative intraocular pressure (IOP) was 23.37 ± 8.83 mmHg on 3.59 ± 1.25 medications.

Results: No intraoperative complications occurred. The intraluminal Prolene suture was removed no earlier than 3 months postoperatively. The mean patient age was 67.73 ± 14.44 years. At final follow-up (mean 12.66 months; range 6-36 months), mean IOP was 11.19 ± 2.56 mmHg on 1.53 ± 1.11 medications. Postoperative complications were mild and included one case of hyphema, one of iris entrapment, and one of choroidal detachment following suture removal. Younger age correlated with higher postoperative IOP ($p = 0.007$) and greater medication use ($p < 0.001$). Postoperative IOP did not differ significantly between eyes receiving PGI as primary versus secondary surgery ($p = 0.834$) or between standalone PGI and combined phaco-PGI procedures ($p = 0.950$).

Conclusions: PGI implantation is a safe and effective surgical option for lowering IOP, achieving a 52.12% reduction in IOP and a 57.38% reduction in medication use. It provides comparable outcomes when used as a primary or additional glaucoma procedure, either alone or combined with phacoemulsification.

P86

COMPARISON OF OUTCOMES IN PATIENTS UNDERGOING XEN 63 IMPLANTATION AB EXTERNO WITH A 30-G NEEDLE AND OPEN CONJUNCTIVA VERSUS AB INTERNO WITH INJECTOR AND OPEN CONJUNCTIVA

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Objective: Pilot study comparing intraocular pressure (IOP) outcomes at 1 year after XEN 63 implantation with open conjunctiva via the ab externo approach using a 30-G needle versus the ab interno approach using an injector.

Materials and Methods: Twenty-two patients operated on between 2023 and 2024 with 1-year follow-up were included. Group 1 (n = 10) underwent XEN 63 implantation via the ab interno approach with open conjunctiva; Group 2 (n = 12) via the ab externo approach with a 30-G needle and open conjunctiva. All procedures used mitomycin C 0.2 mg/mL applied with a sponge for 2 minutes. Intraocular pressure (IOP) and the number of IOP-lowering medications were assessed before and after surgery.

Results: Group 1: Baseline IOP 15.2 mmHg; 24-hour postoperative IOP 6.3 mmHg; 6 months 13.1 mmHg; 12 months 15.5 mmHg. Preoperative medication use averaged 2.1 drugs, decreasing to 0.5 at 12 months; 50% achieved IOP <15 mmHg without treatment. Group 2: Baseline IOP 16 mmHg; 24-hour IOP 4.6 mmHg; 6 months 10.4 mmHg; 12 months 13.7 mmHg. Preoperative medication use averaged 1.9 drugs, decreasing to 0.3 at 12 months; 71.4% achieved IOP <15 mmHg and 85% were medication-free ($p > 0.05$).

Conclusions: Despite the hypothesis of peritubular filtration associated with the use of an injector, no differences were observed in IOP at 24 hours or at 1 year between the two groups, nor in the number of medications required. These results suggest that both techniques are comparable in terms of IOP-lowering efficacy and medication reduction.

P87

BAERVELDT IMPLANT OR PRESERFLO MICROSHUNT? EVALUATING OUTCOMES IN GLAUCOMA SURGERY

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Purpose: To compare clinical outcomes of the Baerveldt BG101-350 implant and the Preserflo MicroShunt in patients undergoing glaucoma surgery.

Methods: This retrospective comparative case series included 417 eyes of patients with glaucoma treated at the Eye Clinic of Tartu University Hospital between 2022 and 2024. Of these, 257 eyes underwent implantation of the Baerveldt implant (Group A), and 160 eyes received the Preserflo MicroShunt (Group B). The primary outcome was overall surgical success, including complete success. Secondary outcomes included intraocular pressure (IOP), best-corrected visual acuity (BCVA), number of glaucoma medications, mean deviation (MD) of the visual field, complications, and postoperative interventions.

Results: Both surgical techniques resulted in a significant reduction in mean IOP at all postoperative follow-up time points compared with baseline ($p < 0.01$). Overall success at 6, 12, and 18 months was 93%, 90%, and 88% in Group A, respectively, and 88%, 82%, and 78% in Group B. Both groups demonstrated a significant reduction in the need for antiglaucoma medications ($p < 0.01$). Group B maintained stable median BCVA and mean visual field MD throughout follow-up, whereas Group A showed deterioration in both parameters ($p < 0.03$). Postoperative complications in Group A were predominantly related to hypotony, while complications in Group B were more frequently associated with elevated postoperative IOP.

Conclusions: Both the Baerveldt implant and the Preserflo MicroShunt were effective in lowering intraocular pressure in the postoperative period. The Baerveldt implant demonstrated higher surgical success rates, whereas the Preserflo MicroShunt was associated with greater visual field stability and a more favorable safety profile.

VIDEOS

V02

INSERTION OF THREE ALLOFLO SCLERAL REINFORCEMENT GRAFTS FOR SEVERE PRIMARY OPEN ANGLE GLAUCOMA

Samantha Goldburg[1], Mary Qiu[1]

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This is a video demonstrating the implantation of three AlloFlo scleral reinforcement grafts in the right eye of a 78-year-old female with severe primary open angle glaucoma (POAG). She had a failed XEN Gel Stent placed 9 months prior, with two revisions. She then had a cataract extraction with intraocular lens insertion and canaloplasty with inferior gonioscopy assisted transluminal trabeculotomy two months prior to the current surgery, for an intraocular pressure (IOP) of 19mmHg on 4 IOP lowering medications. Her pre-operative best corrected visual acuity (BCVA) prior to the current surgery was hand motion, and intraocular pressure (IOP) was 36mmHg on 4 IOP lowering medications. A paracentesis is made and Miostat followed by Healon 5 are inserted into the anterior chamber. A main wound is made an enface view of the nasal angle through a gonio lens is obtained. A viscoelastic canula is used to make a nasal cyclodialysis cleft, and three AlloFlo spacers are placed into the cleft. The eye is rotated back to primary position and irrigation / aspiration is used to remove the Healon 5 from the anterior chamber. The anterior chamber is then filled with cohesive viscoelastic for chamber stability. About 50% of the cohesive viscoelastic is removed from the anterior chamber. At post operative week 3 following AlloFlo insertion, BCVA improved to counting fingers and IOP was 6 on 3 medications.

Presenter biography: Samantha Goldburg is the current glaucoma fellow at the Cole Eye Institute, Cleveland Clinic.

V03

LET'S ACCEPT THE CHALLENGE! GATT COMBINED WITH PHACOEMULSIFICATION AND TRANSSCLERAL FIXATION

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[1]Department of Diagnostics and Microsurgery of Glaucoma, Medical University, Lublin, Poland

A patient with pseudoexfoliation syndrome, glaucoma and subluxated cataract was scheduled for combined surgery. We fought many difficulties - shallow anterior chamber , small pupil and extreme weakness of the zonules due to PEX. GATT was planned as the first step. Pupil was constricted and anterior chamber filled with viscoelastic. The angle was visualized. After 1 o'clock goniotomy with needle monofilament suture was insterted to the Schlems cannal. After 360degrees deroofing of the cannal was performed. Phacoemulsification of the lens followed with the help of iris and capsular hooks. Because of no capsular support the whole capsule was removed and anterior vitrectomy performed. Then intraocular, foldable, three piece intraocular lens was implanted using Yamane transscleral fixation technique. Conclusion: ab interno angle-based glaucoma techniques such as GATT can be combined with challenging cases of cataract extraction giving patients the opportunity to achive better vision and lower intraocular pressure during one procedure.

Presenter biography: I have experience in ocular surface disease, corneal disorders, cataract and iris. I perform surgical treatment such as corneal transplantations, cataract extraction, especially in subluxated cases and transscleral fixations, anterior segment reconstruction and glaucoma procedures. I have been active speaker of many scientific presentations. I also conduct didactic surgical courses. I work as an assistant in Department of Diagnostics and Microsurgery of Glaucoma in university hospital in Lublin. I also give educational support for trainees, along with didactic work with medical students and perform clinical research activity.

V04

PHACOEMULSIFICATION COMBINED WITH ENDOCYCLOPHOTOCOAGULATION (ECP) AND HIGH FREQUENCY DEEP SCLEROTOMY (HFDS) VIA AB INTERNO APPROACH FOR THE TREATMENT OF CLOSED-ANGLE GLAUCOMA

Juan Carlos Izquierdo[1], Elizabeth Santos Chu[1], Julio Del Pozo Muñoz[1], Adriano Leon[1]

[1]Oftalmosalud, Lima, Peru

Purpose: To present a video demonstrating the surgical technique of phacoemulsification combined with endocyclophotocoagulation (ECP) and high-frequency deep sclerotomy (HFDS) via ab interno approach for the treatment of closed-angle glaucoma.

Methods: A 66-year-old patient with retinitis pigmentosa and a prior laser iridotomy presented with counting-fingers vision despite maximum tolerated triple topical therapy, with an intraocular pressure of 16 mmHg. Examination revealed a shallow anterior chamber, non-patent iridotomy, 360° peripheral anterior synechiae, and complete angle closure. Ultrasound biomicroscopy confirmed a significant phacomorphic component. A combined procedure consisting of phacoemulsification, endocyclophotocoagulation under direct visualization, high-frequency deep sclerotomy using the Oertli OS4 device, and pupillary reconstruction was performed.

Results: On postoperative day one, intraocular pressure was 16 mmHg without medication, and visual acuity improved significantly to 20/200.

Conclusion: The surgical combination of phacoemulsification, endoscopic cyclophotocoagulation (ECP), and high-frequency deep sclerotomy (HFDS) represents a valuable addition to the treatment armamentarium for closed-angle glaucoma. This safe and effective combination leverages a dual mechanism of action (inflow and outflow modulation) and may offer a superior alternative to more invasive filtering surgeries in appropriate patients.

V06

HOW TO MAINTAIN YOUR FUNCTION: AMNION MEMBRANE FOR BLEB LEAK

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Late-onset bleb leakage is a well-known complication of filtering surgery, especially since the use of antifibrotic agents, and may have dramatic consequences. Conjunctival advancement is currently regarded as the standard treatment; however, it entails a risk of bleb function loss. Amniotic membrane grafting (AMG) has been proven effective in various ocular surface reconstruction procedures and has anti-scarring effects. We thus present a case of late-onset trabeculectomy bleb leak successfully managed with AMG. The video includes the presentation of the case, a per-operative film describing the surgical technique and the post-operative follow-up.

Presenter biography: Dr Dugauquier is Glaucoma specialist at the University Hospital in Brussels (UZB). She studied Medicine and Ophthalmology in Belgium, completed her subspecialty fellowship in The Netherlands but also gained experience in complex cases in difficult environments in India, Nepal, the Democratic Republic of Congo and Rwanda. She has been and continues to be involved in numerous research projects and recently achieved the highest results in the FEBOS-Glaucoma examination. These challenging experiences and extensive reading have led her to be open to original and innovative solutions to help her patients with the best tailored management options.

V08

SURGICAL REVISION OF A PAUL GLAUCOMA IMPLANT FOR CHRONIC HYPOTONY, CORNEAL DECOMPENSATION, AND TUBE-CORNEA TOUCH IN REFRACTORY PSEUDOEXFOLIATIVE GLAUCOMA

Juan Carlos Izquierdo[1], Elizabeth Santos Chu[1], Adriano Leon[1]

[1]Oftalmosalud, Lima, Peru

This surgical video presents the revision of a PAUL glaucoma implant in a 69-year-old patient with refractory pseudoexfoliative glaucoma and MRI-proven retro-laminar optic neuritis in the right eye. After phacoemulsification performed elsewhere, the patient developed posterior synechiae and iris bombé, treated with hyaloidectomy and anterior vitrectomy. A PAUL implant was later placed for uncontrolled IOP on four medications. The postoperative course was complicated by severe early hypotony with 360° serous choroidal detachment, medically managed for one month, followed by persistent visual loss, corneal decompensation, tube-cornea touch, and late IOP elevation. We demonstrate step-by-step surgical revision, including conjunctival and capsular dissection, tube removal, exchange of the original 7-0 ripcord for an intraluminal 6-0 Prolene (TAGUM®) stent whose distal tip was positioned 8 mm from the tube-plate junction, measured with a caliper, creation of a new scleral tunnel with tube repositioning, pupiloplasty, and periplate HealaFlow® injection. Early postoperative IOP and anatomical outcomes are highlighted, along with key pearls for managing tube-related hypotony and corneal compromise in complex pseudoexfoliative eyes.

Presenter biography: Juan Carlos Izquierdo Villavicencio, MD, is Head of the High-Complexity Glaucoma Unit at Oftalmosalud, center in Lima, Peru. He obtained his medical degree from Universidad San Martín de Porres and completed postgraduate glaucoma training at Conde de Valenciana , Mexico. His clinical practice focuses on glaucoma surgery, cataract surgery, and refractive procedures, with particular expertise in advanced and complex glaucoma. He is Past President of the Peruvian Glaucoma Chapter of the Peruvian Society of Ophthalmology.

V13

MODIFIED SURGICAL TECHNIQUE TO PREVENT HYPOTONY USING AHMED CLEARPATH ST IMPLANT WITH STANDARDIZED 6-0 PROLENE INTRALUMINAL RIPCORD IN A COMPLEX CASE

Juan Carlos Izquierdo[1], Elizabeth Santos Chu[1], Adriano Leon[1], Julio Del Pozo Muñoz[1]
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Purpose: To present a video demonstrating a modified surgical technique for using an Ahmed ClearPath® ST glaucoma drainage device, featuring a standardized 6-0 Prolene (TAGUM®) intraluminal ripcord, in a complex pseudophakic eye with a previous episode of uveitis and a heavy angle pigmentation.

Methods: We describe the case of an 80-year-old man with mild-to-moderate glaucoma who presented an intraocular pressure (IOP) of 27 mmHg on five medications (including oral valaciclovir) despite previous selective laser trabeculoplasty (SLT), phacoemulsification, and angle surgery. We demonstrate the step-by-step ClearPath ST implantation, which includes removing the stock ripcord, inserting a 6-0 Prolene stent positioned 8 mm from the base of the tube to ensure proper flow control, and injecting Healaflow® around the plate.

Results: At the one-month follow-up, the patient's IOP was 14 mmHg with stable visual acuity, a deep anterior chamber, a diffuse bleb, no signs of hypotony or inflammatory relapse, and IOP control maintained on a single fixed-combination topical drop.

Conclusion: Our video demonstrates that this modified surgical technique is easy to perform and safe, effectively minimizing the risk of early postoperative hypotony while achieving excellent IOP control in complex cases.

V14

PRESERFLO PLUS FOR OCD SURGEONS: PRACTICAL MODIFICATIONS FOR ENHANCED SURGICAL OUTCOMES

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A traction is applied at the corneal level using a silk suture. A supero-nasal peritomy is performed. The subconjunctival-sub-Tenon space is prepared, and sponges with mitomycin C are applied. A sclerotomy is performed with a calibrated knife. A 25G needle is first used to enter the anterior chamber through the irido-corneal angle; the same needle is then directed to create an additional scleral tunnel, which tucks away the distal end of the Preserflo. The drainage device is introduced into the anterior chamber, verifying correct positioning and free aqueous outflow. The device is then inserted into the distal tunnel as an anchoring point. Subsequently, a 10/0 suture is inserted into the distal lumen of the device, thus limiting the outflow of aqueous humor. This suture will be accessible near limbus, for postoperative flow adjustment. Conjunctival closure is performed according to conventional technique at the limbal level. We believe that this is the first video combining an additional distal scleral tunnel and a relesable suture for both improved device stability and flow control.

Presenter biography: Born in Lugano, Dr Meier (FEBO, FICO) is an anterior segment surgeon, currently glaucoma lead at Centre Neuchâtelois d'Ophtalmologie (CNO). He graduated in 2009 from Zurich medical school. He trained in ophthalmology at Hôpital Ophtalmique Jules-Gonin in Lausanne. From 2018 to 2020, he was senior glaucoma fellow in the Sir William Bowman Unit at King's College Hospital in London. Doctor of Medicine, he obtained his title from the University of Lausanne in 2017.

V15

RETROIRIDIAL PRESERFLO MICROSHUNT IMPLANTATION IN PATIENTS WITH PERIPHERAL ANTERIOR SYNECHIAE AND PREVIOUS FILTERING SURGERY

Maria Jesus Muniesa[1]

[1]*Hospital Clínic of Barcelona, Barcelona, Spain*

Presentation of videos of two surgical procedures illustrating two cases of glaucoma treated with PreserFlo MicroShunt implantation in the retroiridial space in patients with peripheral anterior synechiae and previous failed filtering surgery. The video shows the main surgical steps for PreserFlo implantation in the retroiridial space with the use of mitomycin C.

Presenter biography: Surgery performed by Dr. María Jesús Muniesa, ophthalmologist at Hospital Clínic de Barcelona and glaucoma specialist. Dra. María Jesús Muniesa holds a medical degree and a PhD from the University of Lleida. She is a specialist in ophthalmology and currently carries out her main clinical and research activity at Hospital Clínic de Barcelona, within the Glaucoma Section. Her main lines of research focus on glaucoma surgery using different subconjunctival and trabecular drainage devices, as well as on intraocular pressure fluctuations associated with the various surgical procedures.

V16

HYDRUS REMOVAL, ITRACK ADVANCE CANALOPLASTY, ALLOFLO SUPRACHOROIDAL SPACER INSERTION

Mary Qiu[1]

[1]*Cleveland Clinic, Cole Eye Institute, Cleveland, USA*

This video demonstrates a case of a Hydrus removal, iTrack Advance canaloplasty, and Alloflo suprachoroidal spacer insertion.

V17

PRESERFLO® STENT GUIDANCE LEADING TO ANATOMICAL AND FUNCTIONAL RESOLUTION

Alejandra Artiles[1], Silvia Iglesias Cerrato[1], Maria Lourdes Iglesias De Ussel Perez[1], Blanca Fatela Cantillo[1], Francisco Javier Abellan Martinez[1], Samantha Thomas[1], Ana Puchol Crespo[1], Maria Yañez[1], Andrea Bernal[1]

[1]Hospital la Princesa, Madrid, Spain

We report a case of postoperative hypathalamia without overt hypotony following combined phacoemulsification and Preserflo® MicroShunt implantation with MMC 0.04% in the left eye. Despite intraocular pressure (IOP) within an apparently optimal range (7 mmHg) and absence of choroidal detachment, the patient developed progressive anterior chamber (AC) shallowing, without endothelial touch but with imminent risk of iris-lumen obstruction. Anterior segment OCT demonstrated intraocular lens anteriorization. Best-corrected visual acuity decreased to 0.3, and Nd:YAG anterior capsulotomy was performed without clinical improvement. Surgical revision ruled out peritubular leakage. Preserflo® stent tutoring using 9-0 nylon resulted in restoration of AC depth, stabilization of IOP (10-15 mmHg), and improvement of final visual acuity to 0.9. This case highlights stent tutoring as a safe and effective strategy for managing functional hypathalamia after phaco-MIGS procedures, even in the absence of frank hypotony.

Presenter biography: Alejandra Artiles Hernández, MD, is a third-year ophthalmology resident at Hospital Universitario de La Princesa, Madrid, Spain, with a clinical interest in glaucoma surgery and anterior segment pathology.

V18

SINGLE PARACENTESIS AB INTERNO 3-0 SUPRAMID SUTURE STENT FOR TUBE ASSOCIATED HYPOTONY

Mary Qiu[1]

[1]*Cleveland Clinic, Cole Eye Institute, Cleveland, USA*

This video demonstrates via 3 different examples that a 3-0 Supramid suture can be inserted via a single paracentesis into AC or sulcus tubes to manage tube associated hypotony.

V19

AHMED GLAUCOMA VALVE REMOVAL WITH SCLERAL "TURTLE-PLAST"

Mary Qiu[1]
[1]*Cleveland Clinic, Cole Eye Institute, Cleveland, USA*

This is a case of an Ahmed Glaucoma Valve Removal for erosion with a scleral patch graft to plug the sclerotomy site. After the 4 anchoring sutures were placed, it looked like a turtle, so I am cheekily calling this the scleral turtleplast technique.

V20

BAERVELDT-350 REMOVAL WITH "T" SHAPED INCISION

Mary Qiu[1]

[1]*Cleveland Clinic, Cole Eye Institute, Cleveland, USA*

This video demonstrates the complete removal of a superotemporal Baerveldt-350 from the anterior chamber for tube erosion with associated hypopyon, without vitritis. The T-shaped incision is directly over the endplate, in between the two central anchoring stalks on the plate, and the incision is full thickness through the conjunctiva, tenons, and capsule. This technique offers quick access to the endplate but sacrifices the conjunctiva in this quadrant. This technique is advantageous if there is no future plan for any trab/tube in this quadrant. If there may be a need for a future trab/tube in this quadrant, this conjunctival opening is not recommended.

V21

AHMED CLEARPATH 250 WITH GUIDEWIRE-ASSISTED SULCUS TUBE PLACEMENT

Jessie Wang[1]
[1]*Cole Eye Institute, Cleveland, USA*

Accurate sulcus tube placement during an aqueous shunt surgery can be challenging for many surgeons. This video demonstrates a technique using a guidewire to faciliate in this surgical step.

Presenter biography: Jessie Wang is an Assistant Professor at the Cole Eye Insitute of Cleveland Clinic. She completed her undergraduate studies at Northwestern University majoring in Psychology, before heading to New York City to attend medical school at the Albert Einstein College of Medicine. During her time there, she was inducted into the Alpha Omega Alpha Society and the Gold Humanism Honor Society. At the University of Chicago, Jessie completed her ophthalmology residency and served as the chief resident in her final year. There, she discovered her interest in glaucoma and her love for the longitudinal relationships that come with caring for glaucoma patients. This led her to pursue her glaucoma fellowship at the Duke Eye Center. Jessie has authored over 20 peer-reviewed publications and presented at over 20 national and international conferences, is a peer reviewer for several journals including Ophthalmology Glaucoma and BMC Ophthalmology, and was awarded several awards focused on both research as well as patient care. In her spare time, she enjoys hiking, traveling, trying new restaurants, and most of all - spending time with family and friends.

V22

NOVEL SURGICAL MANAGEMENT OF ANTERIOR BAERVELDT TUBE EXPOSURE WITH CONJUNCTIVAL RELAXING INCISION, SULCUS REPOSITIONING OF THE TUBE, AND DONOR SCLERAL PATCH GRAFT INSERTION FACILITATED BY INTRAOCULAR LENS SHEETS GLIDE IN THE PRESENCE OF CONJUNCTIVAL SCARRING

Madalina Pavel[1], Tom Ayton[1], Hatch Mukherjee[2], Avi Kulkarni[1]

[1]King's College Hospital NHS Foundation Trust, London, United Kingdom, [2]Colchester Eye Centre, ESNE NHS Foundation Trust, UK, Colchester, United Kingdom

This case describes a modified technique for repositioning an exposed Baerveldt tube in a patient with limited conjunctival mobility. The original anterior chamber entry, located too close to the limbus, was sealed with a trimmed donor scleral plug secured using a 9/0 Prolene suture. A new scleral tunnel was created more posteriorly, and the tube was redirected toward the sulcus. Sulcus entry was confirmed using Healon 5 and two iris hooks for visualization. Due to tight conjunctiva, a relaxing incision was performed. Donor scleral graft placement was initially unsuccessful but later achieved atraumatically with the aid of an IOL Sheets Glide. The graft was secured with Tisseel glue. Postoperatively, the tube remained stable in the sulcus, with good intraocular pressure control and no complications.

Presenter biography: I am a Consultant Ophthalmologist and Glaucoma Surgeon at King's College Hospital in London, where I also serve as Clinical Governance Lead. My clinical work focuses on the diagnosis and management of glaucoma, cataract surgery, and general ophthalmology. I perform a broad range of glaucoma procedures, including laser treatments, filtration surgery, tube surgery, and minimally invasive glaucoma surgery. I completed my ophthalmology training in Romania in 2018 before joining the UK Specialist Register in 2019 and undertaking a two-year glaucoma fellowship at King's. I have worked across several NHS Trusts since 2017 and remain actively involved in teaching, surgical training, quality improvement, and patient safety. I also contributed internationally, participating in charitable glaucoma clinical and surgical work at Tenwek Eye Hospital in Kenya.

V23

EXPLANTATION OF A BAERVELDT TUBE FOR TREATING PAIN AND DIPLOPIA IN A YOUNG FEMALE

Ben Blackburn[1], Kavita Aggarwal[1], Rajen Tailor[1]

[1]Oxford University Hospital, Oxford, United Kingdom

A 41-year-old female was diagnosed with left eye open angle glaucoma secondary to trauma and juvenile idiopathic uveitis. She had a history of failed trabeculectomy surgery and therefore underwent Baerveldt tube insertion in 2014 which was revised in 2021 due to iris touch.

Unfortunately in 2025, she presented with worsening eye pain and diplopia, worse on adduction and she sought an oculoplastic opinion for removal of the eye. A second opinion was sought from the glaucoma team where gonioscopy revealed incarceration of the iris on the internal ostium of the Baerveldt tube and this was thought to be the cause of the symptoms. Her intraocular pressure was 17mmHg on g.dorzolamide.

We proceeded with Baerveldt tube removal and iris repositioning. Intra-operatively, a peritomy was performed, tube and end plate isolated and removed. The scleral defect was repaired with tutoplast and tissue glue. The iris was repositioned, seidel test was negative. Post operative pressure was 38mmHg with complete resolution of her symptoms. She was started on medical management bringing her pressure to 25mmHg.

This case highlights the importance of recognising symptomatic iris incarceration of the tube ostium and how careful explantation can completely resolve patients symptoms, without the need for enucleation.

Presenter Biography: Benjamin Blackburn is the senior Ophthalmology resident at Oxford University Hospital. He graduated from UCL in 2018 with distinction in Medical Physics and Bioengineering. His interests include Glaucoma and complex cataract surgery, and he is actively involved in teaching and mentoring medical students.

V24

NOVEL COMBINED CATARACT EXTRACTION AHMED FP7 RETROBULBAR/INTRACONAL GLAUCOMA SURGICAL TECHNIQUE

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The retrobulbar glaucoma tube shunt technique places is a silicone device that diverts aqueous humor from the posterior chamber to the retrobulbar space to lower intraocular pressure. Similar to Ahmed/Baerveldt/Aurolab, the plate can be modified and the tube secured to the sclera with 2 10-0 interrupted prolene sutures. This bypasses subconjunctival fibrosis and avoid ocular hypertensive phases. Under retrobulbar anesthesia, surgery includes a fornix flap, tube priming, ciliary sulcus needle entry, two-point prolene fixation, scleral patch or tunnel, and conjunctival closure. The plate extends intraconally beyond the equator, can be trimmed in small eyes, and aqueous is absorbed via orbital lymphatics.

V25

PAUL IMPLANT RE-STENTING TECHNIQUE VIA ANTERIOR CHAMBER, UNDER TOPICAL ANESTHESIA AND CHOROIDAL DRAINAGE IN COMPLICATED HYPOTONY. LESSONS LEARNED IN SEVERAL CASES

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A case of complicated hypotony after the removal of an intraluminal prolene stent in a single eye with advanced pseudoexfoliatve glaucoma is presented. The case was resolved following re-stenting via the anterior chamber using a minimally invasive, relatively straightforward, and effective technique. Technical aspects deemed relevant are discussed, including approach incisions, the most suitable fórceps to be used, and the method for cutting the prolene suture end. We also demonstrate how this manoeuvre has been repeated in subsequent cases, leading to the resolution of hypotony, and share the insights gained from our experience.

Presenter biography: Education: Medicine and Surgery Title. Oviedo (Spain) 1992. Specialist in Ophthalmology, Medical Internship Residency (MIR), January 1994 – December 1997, Vigo, Spain. Completed residency serving in the National Health Service (NSS).
Employment: Career in Medical and Surgical Ophthalmology. June 1998 – 2010: Ophthalmologist, General Hospital of Mérida (S.E.S). Since September 2010, I have worked in the Glaucoma Department at Complexo Hospitalario Pontevedra (SERGAS), where we serve a population of 300,000 with a high rate of pseudoexfoliative glaucoma (PSX). We perform a range of surgical interventions, including minimally invasive procedures, implant placements, and laser treatments. Surgically; we have moved from valved implants to free flux implants, placed in anterior chamber but with preference to sulcus or pars plana placement with remarcable results. We have extensive and encouraging experience with Paul GDD and are leaders in their use locally.

V26

TUBE INSERTION IN THE PRESCENCE OF AN ENCIRCLEMENT BAND

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Purpose: To demonstrate how to insert a tube shunt in the prescence of 360 encirclement band.

Methods: 18 years old patient who had advanced silicone induced glaucoma. He had PPV twice for RRD, on trial of insertion of the tube, the band objected its passage. The band was dissected from the sclera and the tube was passed beneath the tube and then internalized into the AC.

Results: The tube was functioning and th epatient has controlled without medications.

Conclusion: The tube shunt can be put safely beneath a band and will be functioning in anice way.

V27

MODERNISING FORNIX-BASED CONJUNCTIVAL CLOSURE IN INCISIONAL GLAUCOMA SURGERY: INTRODUCING A NOVEL TRAPEZOIDAL CORNEAL FIXATION TECHNIQUE

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Summary: We describe the evolution of conjunctival closure techniques for fornix-based glaucoma surgery, from limbal mattress sutures to corneal-slit burial and ultimately to trapezoidal corneal fixation. Two 10-0 Prolene/ Ethilon purse-string sutures are employed to facilitate lateral closure. Early limbal mattress sutures risked conjunctival dehiscence, wound leaks, difficult removal and suture-related infection. Corneal-slit burial facilitated suture removal but required precise depth and often resulted in suture exposure and a risk of infection, inflammation or instability. The latest trapezoidal technique using a limbal-corneal tunnel and suture knot burial in the cornea provides more reproducible central closure, with reduced inflammation and infection risk, no suture end exposure, easier removal, and improved patient comfort. This refined approach enhances postoperative stability in incisional glaucoma surgery.

Presenter biography: I am a Consultant Ophthalmologist at King's College Hospital, London. I have a specialist interest in the medical and surgical management of glaucoma in a busy tertiary glaucoma service, and perform complex glaucoma and cataract surgery including trabeculectomy, Preserflo microshunt and aqueous shunt implantation, complex glaucoma surgery revisions, and minimally invasive glaucoma surgery. I train junior ophthalmologists to subspecialty standard in glaucoma, with expertise in medical, Laser and complex surgical management of glaucoma and glaucoma-associated cataracts, all of whom are practising as successful consultant glaucoma specialists in the United Kingdom and abroad.