10/10/2021 8:09AM

Evaluation of Subretinal Fluid Drainage Techniques in Pars Plana Vitrectomy for Primary Rhegmatogenous Retinal Detachment Repair (ELLIPSOID Study)

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OBJECTIVE What is the best method for sub-retinal fluid drainage at the time of pars plana vitrectomy for primary uncomplicated rhegmatogenous retina detachment in terms of vision and photoreceptor integrity?

PURPOSE To compare visual acuity and photoreceptor integrity following pars plana vitrectomy (PPV) with subretinal fluid (SRF) drainage from the original retinal breaks (RB) vs. posterior retinotomy (PR) vs. perfluorocarbon liquid (PFCL) for rhegmatogenous retinal detachment (RRD).

METHODS Retrospective analysis of 300 eyes (300 patients) with primary uncomplicated RRD that underwent PPV (100 consecutive patients included in each group). Exclusion criteria included giant retinal tears, grade B or worse proliferative vitreoretinopathy, ocular trauma, retinopexy or other vitreoretinal diseases. Primary outcomes were visual acuity and discontinuity of the external limiting membrane (ELM), ellipsoid zone (EZ) and interdigitation zone (IDZ) on spectral-domain optical coherence tomography (SD-OCT) at 1 year assessed independently by 2 masked graders with adjudication by a third senior masked grader.

RESULTS Proportion of patients with visual acuity assessment and gradable SD-OCT at 1 year was similar between group (RB 90%, PR 87%, PFCL 90%). There were no significant differences in age, sex, baseline visual acuity, lens status, extent of RRD and time from macula-off to presentation. Single-operation reattachment rate at 12 months was similar between groups (RB 86%; PR 85%; PFCL 83%, p=0.9). Mean(±SD) logMAR visual acuity at

12 months was significantly better in the RB and PR groups compared to PFCL (RB 0.6±0.5; PR 0.7±0.6; PFCL 0.9±0.6, p=0.002). There was an association between drainage technique and discontinuity of the ELM (PFCL 44%, PR 24%, RB 26%, p=0.001), EZ (PFCL 49%, PR 31%, RB 29%, p<0.001) and IDZ (PFCL 56%, PR 39%, RB 43%, p=0.004) on the 3-mm foveal scans. There was also an association of drainage technique with the risk of cystoid macular edema (CME) (PFCL 46%, PR 39%, RB 28%; p=0.003) and ERM formation (PFCL 61%, PR 90%, RB 64%, P<0.001).

CONCLUSION Visual acuity at 1 year was inferior in eyes with PFCL compared with drainage from the original breaks or posterior retinotomy for primary uncomplicated RRD. There was a corresponding greater risk of discontinuity of the EZ, ELM and IDZ in PFCL cases, and a greater risk of CME with PFCL and ERM with PR. Drainage technique may impact long-term visual acuity results and photoreceptor integrity.

IRB APPROVAL Yes — *IRB Approval Letter may be requested*.

10/10/2021 8:15AM

Endophthalmitis Following Minimally Invasive Glaucoma Surgery: Incidence, Clinical Features, Microbiology, and Management Outcomes

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- Marc J Spirn, MD
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OBJECTIVE What is the incidence, clinical features, microbiology, and management outcomes of endophthalmitis following minimally invasive glaucoma surgery (MIGS)?

PURPOSE MIGS is an increasingly popular procedure, but very little is currently known about endophthalmitis following these surgeries. In this large-scale study, we determine the incidence of endopthalmitis following MIGS, and detail the patients' clinical courses.

METHODS This study is a retrospective interventional case series of all patients diagnosed with acute exogenous bacterial endophthalmitis associated with MIGS who were treated for the endophthalmitis at Wills Eye Hospital and Mid Atlantic Retina, from October 1, 2015 to July 1, 2020. Eyes were excluded if they had other recent intraocular procedures or

systemic infections that may have otherwise been the likely infectious source.

RESULTS 979 patients with endophthalmitis were managed during the study period, of which 13 (1.3%) were associated with MIGS. Of the affiliated glaucoma practices where the case denominator is known, the incidence was 0.13% (4/3055). Median time from MIGS to endophthalmitis was 9.5 days. There were both acute, chronic, and delayed infections. 9 were associated with iStent, 3 with Xen Gel stent, and 1 with Cypass Microstent . 7 (53.8%) eyes had culture growth. All were staphylococcal (3/7, 42.9%) or streptococcus species (4/7, 57.1%), all sensitive to vancomycin. Mean presenting visual acuity (VA) was 1.84 ± 0.59 (20/1384) and mean final VA improved to 1.24 ± 1.04 (20/348, p = 0.0168). 2 patients (15.4%) developed no light perception - both were streptococcus related. All patients were treated initially with intravitreal antibiotics and 4 (30.8%) underwent vitrectomy. 1 eye (7.7%) had the MIGS device explanted. Post-endophthalmitis retinal detachment occurred in 4 eyes (30.8%).

CONCLUSION Endophthalmitis remains an uncommon risk in the setting of MIGS, but clinicians need to be aware of the risk following device implantation. The prevalence of MIGS-related endophthalmitis in this study was 0.13% (1 in 769), with variable outcomes.

IRB APPROVAL Yes — *IRB Approval Letter may be requested*.

10/10/2021 8:25AM

Comparison of 25- and 27-Gauge Sutureless Cannula-Based Intraocular Lens Scleral Fixation Visual Acuity Outcomes and Complication Rates

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OBJECTIVE We evaluated whether 27G sutureless cannula based scleral fixation would lead to improved visual recovery and reduced complications compared to use of 25G instrumentation.

PURPOSE To compare the visual outcomes and complication rates of sutureless cannula-based intraocular lens (IOL) scleral (SCILS) fixation performed with 25-gauge (25G) versus 27-gauge (27G) instrumentation.

METHODS Retrospective chart review of consecutive cases of eyes without capsular support that underwent SCILS fixation of a three-piece IOL. SCILS fixation was performed by transconjunctival use of either 25G or 27G trochar cannulas. During postoperative follow-up evaluations, visual acuity (VA) and intraocular pressure were measured, and slit lamp and indirect ophthalmoscopy examinations were performed to assess for development of known complications.

RESULTS A total of 69 eyes underwent 25G (27 eyes) or 27G (42 eyes) SCILS fixation. Mean preoperative logarithm of the minimum angle of resolution (logMAR) VA trended towards improvement from 0.95 ± 0.68 (20/178 Snellen equivalent) to 0.67 ± 0.64 (20/94 Snellen equivalent) for 25G group at 1-year. Similar trend towards VA improvement was seen in 27G group with mean preoperative logMAR VA of 1.43 ± 0.94 (20/538 Snellen equivalent) improving to 0.86 ± 1.00 (20/145 Snellen equivalent) at 1-year. Statistically significant improvement was seen as early as postoperative week one for 27G group

(p<0.01), whereas statistically significant worsening was noted at the same time in 25G group (p=0.01). There was a statistically significant reduction in IOL displacement (p=0.01) and need for reoperation (p=0.01) in 27G group.

CONCLUSION Compared to 25G SCILS fixation, eyes managed with 27G SCILS fixation experienced more rapid VA improvement. Additionally, there was a lower rate of complications including IOL displacement and need for re-operation.

IRB APPROVAL Yes — *IRB Approval Letter may be requested*.

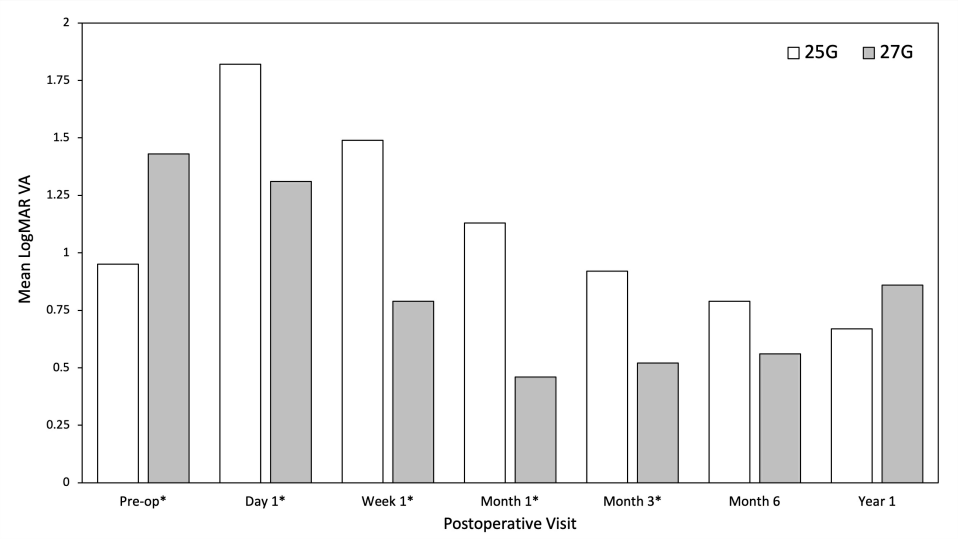

Figure 1. Mean visual acuity outcomes in Logarithm of the Minimal Angle of Resolution (LogMar) up to 1-year follow-up postoperatively. Statistically significant (p = < 0.05) differences are demonstrated by (*).

10/10/2021 8:29AM

Scleral-Sutured Intraocular Lens Dislocations Secondary to Eyelet Fractures

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OBJECTIVE To report clinical features and visual outcomes following eyelet fractures of scleral-sutured enVista MX60 intraocular lenses

PURPOSE Surgery for secondary scleral sutured intraocular lenses (IOL) is increasing in frequency. The decision of which technique to select remains a topic of debate. This study is a series detailing IOL fractures that required reoperation. Surgeons performing secondary IOL implantation may now consider eyelet breakage a factor in clinical decision making.

METHODS This is a retropective, multucenter, non-consecutive series. Patients with scleral-sutured enVista MX60 IOLs that experienced either an intraoperative or post-operative eyelet fracture associated with dislocation or subluxation were included. Clinical features and outcomes were gathered including setting, technique, complications, and visual acuity.

RESULTS A total of 25 scleral-sutured enVista MX60 IOLs displacements secondary to eyelet fractures in 23 eyes of 23 patients were included. There were 20 IOLs that sustained a postoperative fracture and 5 IOLs that sustained an intraoperative fracture. Of the postoperative fractures, 7 were dislocated and 13 were subluxed. Gore-Tex was the suture of choice for 19 of the postoperative fractures and all 5 of the intraoperative fractures, and Prolene was used for 1 postoperative fracture. The mean time until postoperative fracture was 96 ± 125 days, and the median time was 61 (IQR 48-144) days. . The mean preoperative best-corrected logMAR visual acuity for all patients improved from 1.2 ± 0.8 (20/317 Snellen equivalent) to 0.5 ± 0.5 (20/63 Snellen equivalent) at most recent follow-up after lens replacement.

CONCLUSION Scleral-sutured MX60 intraocular lenses can experience intraoperative or postoperative eyelet fractures, resulting in lens subluxation or dislocation. Surgeons should

be aware of this complication when evaluating secondary intraocular lens options.

IRB APPROVAL Yes — *IRB Approval Letter may be requested*.