Younger age at onset, longer duration of disease, and greater inflammation at the time of diagnosis are important predictors of the development of vision-threatening complications in children with anterior uveitis.

**Objective:** To describe the clinical course of chronic anterior uveitis in children, and to identify risk factors for the development of vision-threatening complications in affected patients.

**Design:** Retrospective, non-interventional, clinical case series.

**Participants/Methods:** A cohort of children age ≤16 years at the time of diagnosis of chronic anterior uveitis was identified. All children were examined by a single uveitis specialist during a 7-year period and had a mean follow-up of 5 years after referral. A review of medical records allowed the identification of clinical and demographic information, which was analyzed to identify the development of vision-threatening complications and factors predictive of these outcomes. Vision-threatening complications included the development of band keratopathy, glaucoma, cataract, ocular hypotony, cystoid macular edema, and inflammatory membranes.

**Results:** 115 patients were included in the study. Anterior chamber flare was the clinical sign most consistently associated with complications at baseline. Baseline factors that were predictive of the development of future complications included age ≤3 years at the time of diagnosis, increased cell and flare, keratic precipitates, signs of intermediate uveitis, and papillitis. Clinical outcomes were similar in children with juvenile idiopathic uveitis who had similar levels of ocular inflammation, indicating that specific ocular signs rather than systemic disease processes are more important predictors of the development of vision-threatening complications in children with chronic anterior uveitis.

**Conclusions:** Chronic anterior uveitis in children is associated with numerous vision-threatening complications, and a variety of baseline clinical features are predictive of the development of these complications.

**Reviewer's Comments:** These results indicate that younger age and longer duration of disease are particularly important factors in the development of complications, and suggest that early intervention is critical in achieving good clinical outcomes. It is imperative that ophthalmologists recognize the importance of elimination of inflammation in these children, and not allow chronic, smoldering inflammation to occur that may lead to the development of vision-threatening complications. Prompt referral to the appropriate specialist is important to initiate proper immunomodulatory therapy. (Reviewer-Scott D. Smith, MD, MPH).

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Keywords: Pediatrics

Print Tag: Refer to original journal article
Intravitreal triamcinolone injection is more effective than sub-Tenon's depot in preventing macular edema after cataract surgery in patients with uveitis.

**Objective:** To compare the efficacy of intravitreal and periocular triamcinolone acetonide (Kenalog) injection on the outcome of cataract surgery in patients with chronic uveitis.

**Design:** Prospective, randomized, clinical trial.

**Participants/Methods:** 40 patients with chronic uveitis and visually significant cataracts requiring cataract surgery were enrolled in this study. Patients were randomly assigned to receive either a 40-mg orbital floor injection of triamcinolone acetonide or an intravitreal injection of 4 mg of triamcinolone acetonide at the conclusion of surgery. The surgical procedure was performed by phacoemulsification with implantation of an acrylic foldable posterior chamber IOL in all patients. The primary outcome was the development of cystoid macular edema and the mean central foveal thickness after surgery. Additional outcomes evaluated included the severity of postoperative inflammation and the level of visual acuity through 6 months of follow-up.

**Results:** A significantly smaller proportion of patients in the intravitreal injection group had cystoid macular edema at the 3-month follow-up (25% vs 60%; \( P < 0.05 \)). In addition, mean central foveal thickness was significantly reduced in the intravitreal injection group compared to baseline values at both the 1- and 3-month time points, but was unchanged from baseline in the periocular injection group. No significant difference in best-corrected visual acuity was found between groups. However, significantly reduced anterior chamber cell and flare were measured in the early postoperative period in the intravitreal injection group. No differences were seen between the 2 groups in the development of posterior capsule opacification or elevation of IOP.

**Conclusions:** Intravitreal injection of triamcinolone acetonide is beneficial in reducing macular thickness and the likelihood of developing cystoid macular edema after cataract surgery in patients with chronic uveitis.

**Reviewer's Comments:** Although intravitreal injection of steroids carries certain risks in patients who are at high risk for the development of cystoid macular edema following cataract surgery (such as those with chronic uveitis), the risks of infection or secondary glaucoma appear to be warranted. (Reviewer-Scott D. Smith, MD, MPH).

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Keywords: Cataract Surgery

Print Tag: Refer to original journal article
Objective: To identify factors associated with late in-the-bag spontaneous dislocation of IOLs in patients who have undergone previous cataract surgery.

Design: Retrospective, consecutive, clinical case series.

Methods: 86 consecutive cases of spontaneous in-the-bag IOL dislocation reported to the Intermountain Ocular Research Center at the John A. Moran Eye Center at the University of Utah were included in this series. All IOLs were submitted for pathological evaluation between March 2000 and March 2008. Surgeons were asked to complete a clinical case summary for each patient providing demographic and clinical details of the case. Potential risk factors for the development of this complication were recorded, including the presence of pseudoexfoliation, trauma, uveitis, and other ocular disease.

Results: The mean time between surgery and spontaneous IOL dislocation was 8.5 years. The most common condition associated with the development of IOL dislocation was pseudoexfoliation, occurring in 50% of cases. Previous vitreoretinal surgery was reported in 19% of patients, while a history of trauma was reported in 6% and uveitis in 2%. Twenty-three percent of cases had no identifiable risk factor for the development of spontaneous IOL dislocation. There were no specimens submitted with in-the-bag IOL dislocation with a capsule tension ring. The types of IOLs submitted covered the entire range of designs, including rigid polymethyl methacrylate and foldable silicone, and acrylic lenses with both 1- and 3-piece designs.

Conclusions: Patients with any type of IOL are at risk for late in-the-bag IOL dislocation. Pseudoexfoliation and previous vitreoretinal surgery appear to be the most common conditions associated with this complication.

Reviewer's Comments: Although no in-the-bag dislocations of IOLs with capsule tension rings were seen in this series, this device has been introduced into clinical practice only in recent years in the United States, and it is likely that such dislocations will begin to occur. Although the capsular bag may be supported by a capsule tension ring, the surgeon must take care to evaluate the extent of zonular dialysis and the presence of concurrent pseudoexfoliation to determine whether long-term stability of the IOL can be achieved with the use of the device. In general, patients with >4 clock hours of zonular dialysis should not have a capsule tension ring placed, particularly if pseudoexfoliation is present. In addition, younger patients who are more likely to keep their IOL for many years may be at greater risk for eventual spontaneous IOL dislocation. Each surgeon must make a clinical judgment as to the best method of IOL fixation at the time of surgery. (Reviewer-Scott D. Smith, MD, MPH).

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Keywords: Intraocular Lens

Print Tag: Refer to original journal article
Clinical Predictors of Pars Plana Vitrectomy for Retained Lens Material After Cataract Extraction

Objective: To determine clinical factors associated with the visual outcome after pars plana vitrectomy for retained nuclear material after complicated phacoemulsification.

Design: Retrospective, noncomparative, clinical case series.

Methods: Medical records were reviewed of a consecutive series of 166 patients managed with pars plana vitrectomy in a single retina practice following complicated phacoemulsification with retained nuclear fragments. Charts were reviewed to determine clinical and demographic factors that were analyzed statistically to determine which ones were associated with final visual outcome and the development of associated complications.

Results: After excluding patients with pre-existing retinal disease, a final visual outcome of 20/40 or better was achieved in 83% of patients. Factors associated with a visual outcome of 20/40 or better included better presenting visual acuity, insertion of a posterior chamber lens, and absence of secondary glaucoma. Performance of a pars plana vitrectomy within 7 days of complicated cataract surgery was associated with a lower risk of developing secondary glaucoma.

Conclusions: Various clinical factors are associated with an improved visual outcome after complicated cataract extraction with retained nuclear material. Prompt referral to a vitreo-retinal surgeon for management of this complication improves the clinical outcome.

Reviewer's Comments: In this study, the authors discussed the fact that appropriate management by the anterior segment surgeon at the time of complicated cataract surgery is important with performance of an anterior vitrectomy to eliminate vitreo-retinal traction and, when possible, placement of a posterior chamber IOL in the bag. In addition, prompt referral to a vitreo-retinal surgeon within 1 week is important to minimize the risk of inflammatory complications and secondary glaucoma, which were found to be associated with a worse visual outcome. (Reviewer-Scott D. Smith, MD, MPH).

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Keywords: Cataract Surgery

Print Tag: Refer to original journal article

Jordan CS, Price MO, et al:


An endothelial rejection line is not seen during episodes of graft rejection following DSEK.

Objective: To describe the clinical features of graft rejection following Descemet stripping with endothelial keratoplasty (DSEK).

Design: Retrospective, consecutive, interventional, clinical case series.

Methods: Clinical records were reviewed of a consecutive series of 598 eyes that underwent DSEK at a single referral center during a 3.5-year period. All patients included in the study had at least 3 months of follow-up. Review of the medical records allowed the identification of clinical signs and symptoms that were present at the time of diagnosis of an episode of graft rejection. In addition, the clinical outcome of treatment of any rejection episodes was recorded.

Results: Rejection episodes occurred in 54 eyes of 48 patients. Six cases of bilateral simultaneous graft rejection were observed. One-third of patients were completely asymptomatic at the time of diagnosis of graft rejection, which was made during a routine follow-up examination. Two-thirds of patients presented with conjunctival redness and/or reduction of visual acuity. Graft edema, conjunctival injection, and/or keratic precipitates were the clinical findings seen at the time of graft rejection. Endothelial rejection lines were not observed. Treatment led to resolution of the rejection episode, with clearing of the graft in 93% of cases.

Conclusions: Graft rejection is an important potential complication of DSEK. Clinical findings are not entirely the same as those seen following full-thickness penetrating keratoplasty.

Reviewer’s Comments: This study highlights the importance of evaluating patients for subtle findings of graft rejection, as classic endothelial and epithelial rejection lines are not seen. In addition, patients should be informed of the symptoms of graft rejection and the importance of returning promptly if a rejection episode is suspected. (Reviewer-Scott D. Smith, MD, MPH).

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Keywords: Descemet Stripping Endothelial Keratoplasty

Print Tag: Refer to original journal article
When options for managing corneal opacity are limited due to multiple graft failure, limbal stem cell deficiency, or excessive corneal neovascularization, the Boston type I keratoprosthesis remains an option for visual rehabilitation.

**Objective:** To report the clinical outcomes of surgery with the Boston type I keratoprosthesis for the management of patients with corneal opacification and/or corneal limbal stem cell failure.

**Design:** Retrospective, consecutive, interventional clinical case series.

**Participants/Methods:** Medical records were reviewed of a consecutive series of 57 keratoprosthesis procedures performed on 50 eyes of 49 patients using the Boston type I device. Sixty-eight percent of patients had undergone multiple previous failed corneal transplantations; however, 16% underwent this procedure as a primary intervention for severe corneal opacity with limbal stem cell deficiency or corneal neovascularization that was not amenable to traditional penetrating keratoplasty. All patients had preoperative visual acuity of 20/200 or worse. Surgery was performed by a single experienced anterior segment surgeon, and all patients had a minimum of 3 years of follow up.

**Results:** At 1-year follow-up, 75% of patients had visual acuity of 20/100 or better, with 43% of patients having visual acuity of 20/50 or better. The most common complications that required management following surgery were formation of a retroprosthetic membrane, persistent epithelial defect of the host cornea surrounding the prosthesis, and secondary glaucoma. The overall retention rate of the keratoprosthesis was 85%. Only 1 patient with a history of glaucoma required additional glaucoma surgery after implantation of the keratoprosthesis.

**Conclusions:** The Boston type I keratoprosthesis is an effective method of managing patients with severe vision loss due to corneal opacification who are not candidates for penetrating keratoplasty due to limbal stem cell deficiency or multiple previous failed corneal transplantations.

**Reviewer's Comments:** The postoperative management of these patients is complex, and patients must understand that complications are common and require ongoing management. However, given the severity of vision loss in these patients and the absence of any alternative procedure to rehabilitate the vision, the Boston type I keratoprosthesis can be a very attractive option. An anterior segment surgeon experienced in the management of these patients who is willing to devote the time and effort required to the complex postoperative management is an essential part of achieving a successful outcome. (Reviewer-Scott D. Smith, MD, MPH).

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Keywords: Corneal Surgery

Print Tag: Refer to original journal article
A restricted visual field is more predictive of involvement in a motor vehicle accident than is visual acuity or contrast sensitivity.

Objective: To identify visual and medical factors associated with involvement in motor vehicle accidents (MVAs) in the older adult population.

Design: Pooled study of 4 cohort studies.

Methods: Data were pooled and analyzed from 4 cohort studies of older adult drivers in the United States. The studies were conducted in Kentucky, Alabama, and Maryland and included assessment of visual acuity, contrast sensitivity, and measurement of the useful field of vision (UFOV). The UFOV assessment involves tasks requiring central discrimination, dividing attention between central and peripheral tasks, and the ability to filter out distracting stimuli. Subjects were interviewed to obtain information on a wide range of other medical conditions. Data from state motor vehicle bureaus were obtained to determine involvement in MVAs, as well as associated injuries and whether the subject was at fault.

Results: A reduced UFOV was the only significant visual risk factor for involvement in an MVA. No significant association was seen between visual acuity or contrast sensitivity and risk of an MVA. Other medial factors associated with an increased likelihood of having an MVA were a history of a falling event, a history of neurological disease (multiple sclerosis, Parkinson’s disease, or stroke), and/or a history of arthritis.

Conclusions: Reduced UFOV is associated with an increased risk of involvement in an MVA. Other medical factors are also predictive of MVA involvement in the older adult population.

Reviewer’s Comments: This study provides additional support to the concept that visual field is more important than visual acuity in driving safety. These results indicate the need to improve methods to assess driving safety in adult drivers, and to create a uniform, evidence-based system for identifying at-risk drivers. (Reviewer-Scott D. Smith, MD, MPH).

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Keywords: Motor Vehicle Accidents

Print Tag: Refer to original journal article
Since complications are more likely after combined phacoemulsification/trabeculectomy, patients with controlled IOP and early glaucoma should usually be managed with cataract surgery alone.

**Objective:** To compare the clinical outcomes of phacoemulsification alone and combined phacotrabeculectomy in patients with medically uncontrolled chronic angle closure glaucoma with visually significant cataracts.

**Design:** Prospective, randomized, controlled, clinical trial.

**Participants/Methods:** 51 patients with medically uncontrolled chronic angle closure glaucoma and visually significant cataracts who needed cataract extraction were enrolled. Patients were randomly assigned to undergo either phacoemulsification alone or combined phacotrabeculectomy with mitomycin-C. Postoperative evaluations were conducted at regular intervals through 2 years of follow-up. Patients in each group were compared with regard to visual outcome, IOP control, requirement for glaucoma medications, and surgical complications.

**Results:** The baseline clinical and demographic characteristics of the 27 patients assigned to undergo cataract surgery alone and the 24 patients assigned to undergo combined phacotrabeculectomy did not differ significantly. The baseline IOP in both groups was 24 mm Hg, which decreased significantly in both groups after surgery. In patients undergoing cataract surgery alone, the mean IOP decreased to 16 mm Hg and remained stable throughout the 2 years of follow-up. In contrast, the mean IOP decreased to 14 mm Hg in those undergoing the combined procedure, and remained stable throughout the 2-year study. In addition, patients who underwent combined phacotrabeculectomy required fewer topical glaucoma medications than those who underwent cataract surgery alone. However, postoperative surgical complications occurred significantly more often in those who underwent combined phacotrabeculectomy ($P < 0.001$).

**Conclusions:** Combined phacotrabeculectomy with mitomycin C is more effective than phacoemulsification alone in controlling IOP in patients with medically uncontrolled chronic angle closure glaucoma who require cataract surgery. However, combined phacotrabeculectomy results in more postoperative complications than simple cataract surgery.

**Reviewer's Comments:** This study illustrates the potential reduction in IOP that can occur in patients with chronic angle closure glaucoma who undergo cataract surgery. In contrast to those with primary open-angle glaucoma undergoing cataract surgery, in which a pressure reduction of 1 to 2 mm Hg may be anticipated, a reduction of 7 to 8 mm Hg was seen in these patients, even without a combined procedure. Therefore, in patients who do not require an extremely low IOP, whose severity of glaucomatous optic nerve damage is not extreme, and who may tolerate a transient IOP spike during the first few days after surgery, phacoemulsification alone may be a good choice for those with chronic angle closure glaucoma whose preoperative IOP is not optimally controlled. Phacotrabeculectomy may be reserved for patients who require particularly low IOP and who are at greater risk for postoperative vision loss due to a pressure spike from severe pre-existing optic nerve damage. (Reviewer-Scott D. Smith, MD, MPH.)

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**Objective:** To describe the variability of IOP measurements in the same eye and between eyes over time in patients enrolled in the Ocular Hypertension Treatment Study.

**Design:** Analysis of data from a prospective, randomized, clinical trial.

**Participants/Methods:** IOP measurements were obtained at baseline and 6-month intervals for all participants. Subjects included in this analysis were those who were enrolled in the Ocular Hypertension Treatment Study in the observation group. Statistical analysis allowed the determination of correlation of IOP measurements between right and left eyes at each visit, as well as within right and left eyes across study visits.

**Results:** Moderate correlation of IOP within the same eye between consecutive visits was seen ($r = 0.62$), whereas a strong correlation was found in IOP measurements between right and left eyes at the same visit ($r = 0.72$). Twenty-four percent of patients had a change in IOP between consecutive visits within the same eye of at least 15%, and 13% had a change of at least 20%. Measurements made within 2 hours of the same time of day between visits also had stronger correlation than those that were >2 hours apart.

**Conclusions:** Variability of IOP measurements within the same eye on consecutive visits was considerable in a significant minority of patients. The effect of IOP variability must be considered in evaluating the efficacy of glaucoma therapy.

**Reviewer's Comments:** Having a clear understanding of how IOP variability can influence the evaluation of efficacy of treatment is important in making rational decisions in the management of glaucoma patients. Having a good estimate of the baseline IOP is needed to avoid confounding due to regression to the mean. When possible, taking multiple baseline measurements before initiating treatment will assist in this matter. In addition, IOP variability can mask or enhance the apparent efficacy of glaucoma medications, so multiple measurements after initiation of therapy are generally needed to obtain a clear understanding of the new mean and range of IOP. (Reviewer-Scott D. Smith, MD, MPH).

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Keywords: Ocular Hypertension

Print Tag: Refer to original journal article
SLT and Latanoprost Reduce IOP Fluctuation

Intraocular Pressure Control and Fluctuation: The Effect of Treatment With Selective Laser Trabeculoplasty.

Nagar M, Luhishi E, Shah N:


Although both selective laser trabeculoplasty and latanoprost are effective in reducing intraocular pressure, latanoprost appears to be slightly more effective.

**Objective:** To evaluate the efficacy of selective laser trabeculoplasty (SLT) and latanoprost as primary treatment of primary open-angle glaucoma (POAG) and ocular hypertension (OHTN).

**Design:** Randomized, controlled, clinical trial.

**Participants/Methods:** 40 patients with newly diagnosed POAG or OHTN were enrolled in this study. Baseline evaluation included measurement of IOP at 8:00 AM, 11:00 AM, 2:00 PM, and 6:00 PM. Patients were randomly assigned to undergo SLT (100 spots over 360°) or to begin using latanoprost once daily at bedtime. Follow-up evaluations included IOP measurements at 8:00 AM at all visits and repetition of the same schedule of diurnal IOP measurement 6 months after treatment.

**Results:** Both SLT and latanoprost resulted in significant IOP reduction and a reduction in the range of daily IOP fluctuation from baseline. A greater mean reduction in IOP was seen at the 6-month study with latanoprost than with SLT (7.8 vs 6.2 mm Hg), although the difference was not statistically significant. A greater reduction in IOP fluctuation was also seen with latanoprost (reduction of 3.6 vs 2.5 mm Hg; \( P = 0.04 \)).

**Conclusions:** SLT and latanoprost are both effective in lowering IOP and reducing IOP fluctuation, although latanoprost appears to be slightly more effective.

**Reviewer’s Comments:** Although slightly less effective than latanoprost, this study confirms that SLT is effective as primary therapy for POAG and is a viable option for initial therapy. This may be a particularly good option for patients who are concerned about the cost of medications or side effects, or in patients in whom daily dosing may be unreliable. (Reviewer-Scott D. Smith, MD, MPH).

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Keywords: IOP Control/Fluctuation

Print Tag: Refer to original journal article
Preoperative sub-Tenon levobupivacaine does not improve postoperative pain among children having strabismus surgery.

**Background:** It is extremely common for patients to experience postoperative pain after strabismus surgery, especially children. These patients are typically given oral analgesics, but postoperative nausea and vomiting can challenge this route. Some surgeons give sub-Tenon or subconjunctival injections of analgesics to help control postoperative pain.

**Objective:** To compare postoperative pain scores among patients receiving sub-Tenon levobupivacaine for strabismus surgery with control subjects.

**Design:** Prospective, randomized, masked clinical trial.

**Participants:** 54 children undergoing strabismus surgery in the United Kingdom.

**Methods:** 27 children from 1 to 16 years of age were randomized to receive a single injection of 0.75% levobupivacaine titrated by weight or nothing. The injection was administered prior to muscle surgery, but after induction of general anesthesia. Five minutes later, the patient underwent a limbal incision. During the perioperative course, all patients received rectal diclofenac and paracetamol. Standardized pain scores were recorded by a nurse masked to analgesia at 0.5, 2, 4, 6, and 24 hours postoperative. Following surgery, patients could take oral paracetamol or dihydrocodeine as needed.

**Results:** There were 27 patients in each group, with 15 of the 27 patients being boys in each group. No significant difference with regard to age (7 years in test group vs 6 years in control group) or bilaterality of surgery (14 in the test group vs 15 of the controls) between the groups (injection vs controls) was noted. Nausea and vomiting occurred in <5% of patients. The time to discharge was no different between groups, and there was no significant difference in pain scores between those who received an injection and those who did not. No complications were reported.

**Conclusions:** Preoperative administration of sub-Tenon levobupivacaine does not affect postoperative pain relief among children undergoing strabismus surgery.

**Reviewer's Comments:** This is a really interesting, negative, and also counterintuitive study. I would have expected that a long-acting analgesic like levobupivacaine would at least help patients in the first 2 hours, but that was not observed. Take note that this study did not look at postoperative or subconjunctival injections. (Reviewer-Michael S. Lee, MD).

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Keywords: Strabismus Surgery

Print Tag: Refer to original journal article
Although effective in reducing hyperglycemia, glitazone appears to increase the risk of developing macular edema in diabetic patients.

**Objective:** To investigate the association between the use of glitazone and diabetic macular edema (DME).

**Design:** Prospective cohort study.

**Methods:** A clinical database from Kaiser-Permanente Southern California was used to identify approximately 170,000 individuals with type 2 diabetes mellitus. Pharmacy database records were used to identify individuals treated with a glitazone drug for the management of their diabetes. Diagnostic coding within the database allowed the identification of new cases of DME that occurred during the study period. The relationship between the use of glitazone drugs and the occurrence of DME was evaluated.

**Results:** During the 1-year study period, 996 new cases of DME were identified. Glitazone users were significantly more likely to be diagnosed with DME than were non-glitazone users (OR, 2.6; 95% CI, 2.4 to 3.0). Even after controlling for prescription drug coverage, failure to have an eye examination, glycemic control and age, glitazone use remained significantly associated with the development of DME.

**Conclusions:** Glitazone use may be associated with an increased risk for the development of DME.

**Reviewer's Comments:** Glitazones are a class of drugs used in patients with type 2 diabetes to reduce insulin resistance. There are 2 drugs in this class that are currently available, rosiglitazone and pioglitazone. While the beneficial effect of these drugs may improve glycemic control in diabetic patients, there may be other factors that influence the other important clinical effects of diabetes on the retina. Although further investigation will be useful to confirm these findings, ophthalmologists should be aware of the possible increase in the risk of developing diabetic macular edema in patients using one of these drugs. (Reviewer-Scott D. Smith, MD, MPH).
Objective: To evaluate the vision-related quality of life (VR-QOL) in patients who undergo pars plana vitrectomy (PPV) for epiretinal membrane (ERM).

Design: Prospective, interventional, clinical case series.

Participants/Methods: A consecutive series of 28 patients undergoing PPV for the management of ERM completed the 25-item National Eye Institute Visual Function Questionnaire (VFQ-25). This assessment of VR-QOL was completed both before and 3 months after surgery. Clinical assessment of visual acuity, contrast sensitivity, macular thickness, and severity of metamorphopsia was also completed. A control group of 26 age-matched control subjects also completed the VFQ-25 assessment.

Results: The mean score on the VFQ-25 was significantly lower in patients with ERM prior to surgery than in the control subjects ($P<0.0001$). A significant improvement in the VFQ-25 score was seen on the composite score and on 10 of 12 subscales of visual function (all $P<0.001$). The VFQ-25 scores in patients with ERM remained lower than those of control subjects at the postoperative follow-up visit. The only clinical parameter that was predictive of a greater improvement in VFQ-25 score was the severity of preoperative metamorphopsia.

Conclusions: VR-QOL is impaired in patients with clinically significant ERM and improves following surgery. The severity of metamorphopsia is of primary importance in the reduction of VR-QOL in these patients.

Reviewer's Comments: Patients must understand that even with successful surgery, VR-QOL remains decreased in eyes with ERM, and that restoration of completely normal vision without metamorphopsia is generally not expected. However, with this understanding, surgery can significantly improve VR-QOL, particularly in patients who are most bothered by metamorphopsia prior to surgery. (Reviewer-Scott D. Smith, MD, MPH).

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Keywords: Epiretinal Membrane

Print Tag: Refer to original journal article
Objective: To determine the effect of lens status on the IOP outcome of pars plana vitrectomy (PPV) for the management of recurrent retinal detachment (RD) due to proliferative vitreoretinopathy (PVR).

Design: Retrospective, consecutive, clinical case series.

Participants/Methods: The medical records were reviewed of 145 consecutive cases of PPV performed for management of recurrent RD due to PVR at a single academic center. The surgical procedure included the performance of a relaxing retinotomy and/or the use of perfluorocarbon gas or silicone oil according to the discretion of the operating surgeon. Analysis of the clinical outcomes, with regard to IOP, was evaluated according to the nature of the surgical procedure and the presence or absence of surgical aphakia at the time of surgery.

Results: Successful reattachment of the retina was achieved in all but 1 eye. The worst visual outcome was observed in patients who required both a relaxing retinotomy and use of silicone oil at the time of surgery. Ocular hypotony (IOP ≤5 mm Hg at final follow-up and on at least two sequential visits) occurred more frequently in this subgroup of patients, but was less commonly seen in eyes that were aphakic at the conclusion of surgery.

Conclusions: In patients with PVR who require a relaxing retinotomy and silicone oil during PPV, postoperative aphakia is associated with a lower risk of hypotony.

Reviewer's Comments: The authors believe that the crystalline lens or an IOL can act as a scaffold for recurrent proliferation of fibrovascular tissue along the ciliary body, which in turn can disrupt normal aqueous dynamics. Their results suggest that in cases of severe PVR where relaxing retinotomy and silicone oil are required, removal of the crystalline or IOL may improve the clinical outcome. (Reviewer-Scott D. Smith, MD, MPH).

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Keywords: Proliferative Vitreoretinopathy

Print Tag: Refer to original journal article
Long-term daily use of Viagra and similar drugs do not cause changes in the electroretinogram or visual function.

**Objective:** To investigate the effect of long-term daily use of tadalafil (Cialis) or sildenafil (Viagra) on retinal function.

**Design:** Prospective, multicenter, placebo-controlled, randomized, clinical trial.

**Participants/Methods:** 244 healthy men or men with mild erectile dysfunction (ED) were enrolled in this study. Participants were randomized to receive a daily dose of tadalafil 5 mg, sildenafil 50 mg, or placebo once daily for 6 months. A standardized protocol was used to perform electroretinography (ERG) before treatment and again after completion of the 6-month course of treatment. Equipment and technique for measuring the ERG was standardized across all 15 study sites. Visual acuity and color vision testing, as well as visual field testing, were also performed at each of the study visits.

**Results:** All study medications were well tolerated, and there were no significant differences in ERG parameters or other measures of visual function between either treatment group compared with the placebo group.

**Conclusions:** There is no evidence that the use of tadalafil or sildenafil on a long-term daily basis has any effect on retinal or visual function.

**Reviewer’s Comments:** The use of selective phosphodiesterase type-5 inhibitors, such as tadalafil and sildenafil, has increased steadily for the treatment of ED. Lack of complete selectivity for type-5 phosphodiesterase can lead to inhibition of retinal type-6 phosphodiesterase, and is believed to be the mechanism by which transient blurred vision, blue-tinged vision, and altered light perception have been reported. This study indicates that no long-term alterations in retinal function occur in association with the use of these drugs, which is important information to convey to patients who use these medications on a regular basis. (Reviewer-Scott D. Smith, MD, MPH).

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Keywords: Retinal Drug Toxicity

Print Tag: Refer to original journal article
Enucleation Not Often Required Following Open Globe Injury

Enucleation for Open Globe Injury.
Savar A, Andreoli MT, et al:


Even in cases of severe ocular trauma, surgical repair is almost always possible without the need for enucleation.

Objective: To report the experience of enucleation following penetrating globe injury at a tertiary ophthalmic referral center.

Design: Retrospective, noncomparative, clinical case series.

Methods: The medical records of a consecutive series of patients treated for penetrating ocular trauma at a single ophthalmic trauma referral center were reviewed. In addition to patient demographics, details of the nature of the injury and the timing of subsequent enucleation if required were ascertained. The development of subsequent sympathetic ophthalmia was also documented.

Results: 660 cases of open-globe injuries occurring over a 7-year period were included in the study. Enucleation or evisceration was performed in 55 patients. Primary enucleation at the time of initial surgery was performed in only 11 cases where the ocular contents were completely extruded and unrecognizable. Those patients who suffered globe rupture due to blunt ocular trauma were significantly more likely to require enucleation than those whose injury was a globe laceration (OR, 2.98; $P < 0.001$). The most common indication for secondary enucleation was a blind, painful eye. Sympathetic ophthalmia occurred in 2 cases (0.3%), but good visual acuity was maintained in both patients.

Conclusions: Primary enucleation is rarely required in patients suffering penetrating ocular trauma, and should be considered only when severe trauma prevents attempts at globe repair.

Reviewer’s Comments: Sympathetic ophthalmia occurred in a small proportion of patients in this series. With current methods of management of uveitis, treatment can be effective. Consequently, patients with no light perception in the traumatized eye may be observed without enucleation if the patient chooses, after being informed of the small risk of uveitis in the sound eye. (Reviewer-Scott D. Smith, MD, MPH).

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Keywords: Penetrating Ocular Injury

Print Tag: Refer to original journal article
Objective: To investigate the safety and efficacy of topical bevacizumab (Avastin) for the treatment of corneal neovascularization (NV).

Design: Prospective, noncomparative, open-label clinical study.

Methods: 10 eyes of 10 patients with stable corneal NV were recruited to participate in this study. All participants had superficial or deep corneal NV extending at least 2 mm beyond the limbus. Patients with active, progressive corneal lesions and those with a history of ocular surgery or amniotic membrane transplantation within 6 months were excluded. Eyes were treated with 1% bevacizumab eye drops 2 or 4 times daily for 3 weeks. The area of NV, the vessel caliber, and the proportion of cornea involved by NV were measured before and after treatment.

Results: A reduction in the area of NV of 47% was seen between baseline examination and final follow-up. Significant reductions in vessel caliber (54%) and in the proportion of corneal involvement of NV (12%) were also seen. No significant changes in visual acuity or corneal thickness were seen following treatment. There were no adverse events related to treatment seen in these patients.

Conclusions: Short-term topical application of bevacizumab induces regression of corneal NV without causing significant local or systemic side effects.

Reviewer's Comments: The vascular endothelial growth factor inhibitor, bevacizumab, has become widely used for the treatment of retinal disease. This study indicates that there are also potential applications for the treatment of anterior segment neovascularization in patients with inflammatory conditions. Further study is needed to determine the range of conditions that may benefit from this therapy, as well as optimal dosing regimens. (Reviewer: Scott D. Smith, MD, MPH).

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Keywords: Corneal Neovascularization

Print Tag: Refer to original journal article
New Bioadhesives May Be Useful for Sealing Clear Corneal Cataract Incisions

In Vitro Sealing of Clear Corneal Cataract Incisions With a Novel Biodendrimer Adhesive.

Johnson CS, Wathler M, et al:

Objective: To determine the effect of a biodendrimer polymer tissue adhesive on the integrity of clear corneal incisions.

Design: Experimental laboratory investigation.

Methods: Corneas were obtained from 8 human cadaver eyes, and mounted on an artificial anterior chamber after creating a 2.75-mm corneal incision using a keratome. Infusion through the system was maintained with balanced salt solution. Leaking pressures were measured before and after application of a biodendrimer polymer tissue adhesive to the corneal incision. Optical coherence tomography images were used to visualize wound dynamics during pressure cycling with and without the tissue adhesive.

Results: The mean leaking pressure increased from 77 mm Hg to 142 mm Hg after application of the tissue adhesive. No india ink entered the anterior chamber during pressure cycling prior to tissue adhesive application, but did enter the anterior chamber through adhesive-sealed wounds. Images of adhesive-sealed wounds demonstrated that the adhesive remained intact and stretched to conform to the wound during pressure cycling.

Conclusions: Biodendrimer adhesives may be useful in sealing clear corneal cataract surgery wounds to reduce the risk of wound leak and infection.

Reviewer’s Comments: Biodendrimers are a novel class of dendritic polymers composed of biocompatible monomers that attach to form tree-like polymers that have many desirable properties for ophthalmic use. The polymer is applied only to the corneal surface without causing trauma, does not act as a nidus for infection, does not require removal, and completely cures within 30 seconds after application. Further investigation is needed of these substances, but they may prove to be useful adjuncts to cataract surgery to reduce the risk of wound leakage and infection after sutureless clear corneal cataract surgery. (Reviewer-Scott D. Smith, MD, MPH).

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Keywords: Corneal Incision

Print Tag: Refer to original journal article
Ex-PRESS Glaucoma Shunt Interferes With MRI Imaging of Optic Nerve

Magnetic Resonance Imaging in Patients Implanted with Ex-PRESS Stainless Steel Glaucoma Drainage Microdevice.

De Feo F, Roccatagliata L, et al:

Am J Ophthalmol 2009; 147 (May): 907-911

The quality of MRI images of the optic nerve is decreased in eyes with an Ex-PRESS shunt in the anterior chamber, but orbital and brain imaging are unaffected.

**Objective:** To determine whether imaging artifacts caused by the stainless steel Ex-PRESS (Optonol Ltd, Neve Ilan, Israel) glaucoma shunt interfere with the interpretation of magnetic resonance imaging (MRI) of the optic nerve and brain.

**Design:** Prospective, noncomparative, interventional, clinical case series.

**Methods:** A consecutive series of 7 eyes of 5 patients underwent MRI of the brain, orbits, and optic nerves after having placement of a stainless steel Ex-PRESS glaucoma mini-shunt for the management of uncontrolled glaucoma. Each subject had axial T1-weighted and axial and coronal T2-weighted images with fat saturation, and proton density/T2-weighted images of the brain. All of the images were reviewed by a neuroradiologist. The effects of the presence of the stainless steel ocular implant on image interpretation were graded on a 5-point scale by the interpreting radiologist.

**Results:** For optic nerve imaging, images from 3 eyes were graded as having moderate to severe limitation in image quality, and none had excellent image quality. For brain imaging, all images were graded as having excellent or very good quality.

**Conclusions:** The Ex-PRESS glaucoma implant can significantly reduce the quality of MRI images of the optic nerve, but has little to no effect on the quality of brain imaging.

**Reviewer's Comments:** The authors of this study also reported that the quality of orbital imaging was not significantly impacted by the presence of the stainless steel implant. Although the need to obtain optic nerve MRI imaging in patients with an Ex-PRESS glaucoma implant is not likely to be common, clinicians should understand the impact of this device on this imaging modality. (Reviewer-Scott D. Smith, MD, MPH).

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Keywords: Drainage Microdevice

Print Tag: Refer to original journal article
A gold micro shunt placed between the anterior chamber and the supraciliary space appears to be safe and reduces intraocular pressure.

**Objective:** To investigate the safety and efficacy of Gold Micro Shunt (GMS) implantation to the supraciliary space for the reduction of intraocular pressure (IOP) in patients with medically uncontrolled glaucoma.  

**Design:** Prospective, interventional, clinical case series.  

**Participants/Methods:** This study reports the results following the surgery of 38 patients who underwent implantation of the GMS device. All patients had medically uncontrolled primary open-angle, pseudoexfoliation, pigmentary, or uveitic glaucoma. After surgical implantation of the GMS, follow-up evaluation of IOP and the development of surgical complications were performed with a mean follow-up of 11.7 months.  

**Results:** The mean baseline IOP was 27.6 mm Hg. At final follow-up, the mean IOP decreased to 18.2 mm Hg ($P < 0.001$). Surgical success, defined as IOP between 6 and 21 mm Hg with or without glaucoma medication, was achieved in 79% of patients. The only surgical complication reported was mild to moderate transient hyphema, which occurred in 21% of patients.  

**Conclusions:** The GMS shows promise as an alternative surgical technique for managing uncontrolled IOP.  

**Reviewer's Comments:** The GMS device is a nonvalved, flat plate, drainage device made of 24-karat medical grade gold. The thin plate is approximately 3 x 5 mm in size, and has micro channels that pass the length of the plate. When inserted with the anterior end in the anterior chamber and the posterior end in the supraciliary space, it allows the passage of aqueous into the supraciliary space to reduce IOP. Longer-term studies are needed to determine whether the early results are sustained, or whether late closure of the micro channels results in failure of IOP controls. (Reviewer-Scott D. Smith, MD, MPH).
New techniques, such as sustained-release of antifibrotic drugs, are being developed to improve the outcome of glaucoma drainage device surgery.

**Objective:** To report the results of in vitro and in vivo testing of a slow-release antifibrotic drug-coated glaucoma drainage device.

**Design:** Laboratory investigation.

**Methods:** Mitomycin C (MMC) was incorporated into a poly(2-hydroxyethylmethacrylate) (PHEMA) polymer sheet. Disks (5 x 6 mm) of this material were then fashioned and attached to model FP-7 Ahmed Glaucoma Valves. In vitro experiments were conducted to determine the rate of release of MMC by placing the device in a chamber and injecting sterile water through the tubing at a controlled rate. Ahmed valves were surgically implanted in 22 New Zealand white rabbits. Animals were divided into 4 groups, either with no MMC-containing polymer or with a slow-release polymer of 3 different concentrations.

**Results:** Sustained release of MMC was achieved with the modified implant. Histologic examination of specimens obtained 3 months after implantation demonstrated significant reduction in inflammation and fibrosis around the implants with the MMC-polymer.

**Conclusions:** A slow-release polymer-containing MMC reduces inflammation and fibrosis after implantation of a glaucoma drainage device in an animal model.

**Reviewer's Comments:** Failure of glaucoma drainage devices to control IOP usually results from the formation of a dense fibrous capsule surrounding the plate of the implant. The density of tissue within the fibrous capsule limits transmission of aqueous from the fluid-filled space surrounding the plate, increasing the resistance to aqueous outflow resulting in a corresponding rise in the IOP. This study describes a potentially important modification to the surgical technique that could improve the outcome of this type of surgery by reducing the density of tissue formation around glaucoma implants. (Reviewer-Scott D. Smith, MD, MPH).

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Keywords: Glaucoma Drainage Device

Print Tag: Refer to original journal article