Caring for the Glaucoma Patient With Uveitis

Separating glaucoma and cataract surgery in uveitic patients may be preferred.

BY STEVEN D. VOLD, MD

Uveitis in the glaucoma patient presents a unique group of challenges to physicians. Inflammation may affect the selection of topical glaucoma medication, IOP control, cataract development, surgical decision making, and medical management after glaucoma surgery. This article briefly reviews several of the issues facing glaucoma patients with uveitis (Figures 1-3) and offers some recommendations on management.

CHOICE OF MEDICATION

Uveitis may either lower or raise patients' IOP. When the trabecular meshwork is functioning well, anterior segment inflammation commonly lowers IOP by inducing an aqueous humor shutdown via a cyclitis mechanism. As peripheral anterior synechiae develop, IOP levels may increase due to compromised aqueous outflow. The use of steroids in uveitic patients may also have a variable impact on IOP. In eyes with increased IOP due to trabeculitis, topical steroids may actually improve pressure control. Conversely, in patients with both uveitis and glaucoma, chronic steroid treatment is certainly more likely to lead to uncontrolled IOP. The periocular or intravitreal application of steroids may also be necessary. Prednisolone acetate and dexamethasone are the most commonly used agents, but difluprednate (Durezol; Alcon Laboratories, Inc.) was recently shown to be an effective treatment for uveitis as well.[1,2]

When uveitic patients require topical glaucoma therapy, aqueous suppressants are recommended. Prostaglandins and miotic agents are known to exacerbate uveitis and are generally avoided in this clinical situation; beta-blockers, carbonic anhydrase inhibitors, and alpha-agonists are preferred. In patients with uveitis potentially due to a herpetic etiology, oral antiviral agents such as acyclovir, valacyclovir, and famciclovir may improve intraocular inflammation and IOP control. Cycloplegic agents may also be useful in preventing angle closure caused by posterior synechiae.

SURGICAL DECISION MAKING

When IOP levels remain uncontrolled despite maximal medical therapy, incisional glaucoma surgery may be indicated. Ideally, glaucoma surgery is undertaken after any anterior segment inflammation has resolved. In such cases, standard filtering surgery in the form of trabeculectomy with an adjunctive antifibrotic agent and with or without implantation of the Ex-Press glaucoma mini shunt (Alcon Laboratories, Inc., Fort Worth, TX) is com-

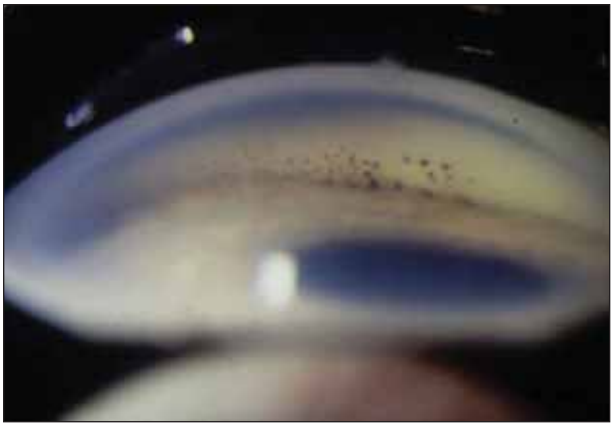

Figure 1. Keratic precipitates and synechial angle closure in an eye with uveitis.

Figure 2. Accumulated pigment in the inferior angle of an eye with herpes simplex-induced uveitic glaucoma.

(Photos courtesy of Matt Poe, COA, Boozman Hof Eye Clinic.)

monly recommended. For mild-to-moderate cases of open-angle glaucoma, canaloplasty (iScience Interventional, Menlo Park, CA) and Trabectome surgery (NeoMedix Corporation, Tustin, CA) may be considered. In children, goniotomy and trabeculotomy ab externo have provided successful outcomes. Cyclodestructive procedures should be avoided in uveitic children, however, due to the risk of worsening uveitic complications such as cystoid macular edema, choroidal effusion, cataract, and potentially phthisis bulbi.

In the setting of chronic or recurrent uveitis, filtration surgery commonly fails or may result in chronic hypotony and poor vision in eyes with large avascular blebs. In these clinical scenarios, tube shunt surgery with a patch graft may be advantageous. Based on my clinical experience, I generally prefer to use a valved device such as the Ahmed Glaucoma Valve (model FP7; New World Medical, Inc., Rancho Cucamonga, CA) or the Baerveldt 250 (not 350) tube shunt (Abbott Medical Optics Inc., Santa Ana, CA). When using a nonvalved device, preventing hypotony with utilization of a ripcord or tube suture may improve the patient's postoperative course and, ultimately, surgical outcomes. Long-term decreases in aqueous humor production must be considered in patients with chronic uveitis.

As a general rule, minimizing the amount of surgery in these patients is beneficial. For example, separating glaucoma and cataract surgery in uveitic patients could be advantageous. In a perfect world, clear corneal cataract surgery alone would be performed first when appropriate. Incisional glaucoma surgery would follow once the eye had quieted.

PERIOPERATIVE SURGICAL MANAGEMENT

In eyes undergoing incisional glaucoma surgery, the increased preoperative utilization of topical steroids may hasten postoperative recovery and enhance long-term surgical outcomes. More frequent steroid dosing for at least 3 to 7 days prior to surgery is often recommended. Intraocular (anterior chamber or intravitreal) injections of preservative-free triamcinolone (Triesence; Alcon Laboratories, Inc.) may be given at the time of surgery as well. Postoperatively, more frequent and longer steroid treatment is commonly required. The use of tissue glues or permanent sutures (eg, nylon) may reduce postoperative ocular surface inflammation. Removing irritating sutures when appropriate may also help decrease postoperative inflammation and improve surgical outcomes.

Following trabeculectomy, I prescribe Durezol starting at a minimum of four times per day but generally dosed every 2 hours (both preoperatively and postoperatively) in patients with concurrent glaucoma and uveitis. Although linked to perioperative IOP spikes possibly more frequently than other steroids, Durezol may actually be more effective than prednisolone acetate in facilitating successful filtration surgery outcomes due to its increased potency in reducing ocular inflammation. Regarding cycloplegic agents, my patients use cyclopentolate, scopolamine, homatropine, or atropine b.i.d. or t.i.d. postoperatively to maintain a deep anterior chamber, stabilize the blood-aqueous barrier, and prevent the formation of posterior synechiae. In patients with chronic uveitis, long-term steroid use may be necessary to maintain quiet eyes, adequate IOP control, and good vision. Periocular and intravitreal steroid drug delivery may benefit some patients. For combined trabeculectomy and cataract surgery, I administer topical nonsteroidal anti-inflammatory medications to reduce postoperative inflammation and prevent cystoid macular edema. Nonsteroidal anti-inflammatory drugs may also assist in postoperative pain control.

Figure 3. An eye with fibrinous uveitis.

SUMMARY

Uveitis can negatively affect the outcome of glaucoma surgery. I prefer to manage both glaucoma and uveitis medically whenever possible. However, if surgical intervention is necessary, proper precautions enhance the possibility of satisfactory surgical outcomes. ■

Steven D. Vold, MD, is the president and CEO of Boozman-Hof Eye Clinic, PA, in Rogers, Arkansas, and the chief medical editor of Advanced Ocular Care*'s sister publication* Glaucoma Today. *He is a consultant to Alcon Laboratories, Inc.; iScience Interventional; and NeoMedix Corporation. Dr. Vold may be reached at (479) 246-1700; svold@cox.net.*

1. Korenfeld MS, Silverstein SM, Cooke DL, et al. Difluprednate ophthalmic emulsion 0.05% for postoperative inflammation and pain. *J Cataract Refract Surg* 2009;35:26-34.
2. Foster CS, Davanzo R, Flynn TE, et al. Durezol (difluprednate ophthalmic emulsion 0.05%) compared to Pred Forte 1% ophthalmic solution in the treatment of endogenous anterior uveitis. *J Ocul Pharmacol Ther.* 2010;26:475-483.