

Combined Glaucoma and Cataract Surgery

One surgeon's tips and techniques.

BY SANDRA M. JOHNSON, MD

The decision for a combined procedure may be initiated by a need for cataract surgery or by a need for a filtration procedure. In the presence of glaucoma, a filtration procedure at the time of cataract surgery can allow for better IOP control if cataract surgery alone is not likely to adequately decrease the pressure.¹ If a filter is required, it can be upsetting for a patient to have to undergo a second procedure. Careful examination of the lens and a combined procedure can spare the patient a second procedure, not to mention that a later cataract surgery could jeopardize filtration.² This article discusses how to approach a combined trabeculectomy or implantation of an Ex-Press Glaucoma Filtration Device (Alcon Laboratories, Inc.) combined with cataract surgery.

ONE- AND TWO-SITE PROCEDURES

Eyes on maximal tolerated medications and eyes with significant glaucomatous field loss are likely to benefit from a filter at the time of cataract surgery. This regimen can help protect further glaucoma damage, reduce visits to the OR, and relieve the burden of medications after surgery.

Efficiency in the operating room is an important element in the practice of medicine. A single-site cataract and glaucoma procedure achieves this component without jeopardizing the outcome of the procedure.^{3,4} This technique, however, requires that the surgeon be comfortable with cataract surgery from a superior approach. It combines nicely with smaller-incision phacoemulsifi-



Figure 1. A patient 1 day postoperatively after a one-site combined procedure with some residual Healon (Abbott Medical Optics Inc.) in the well-formed anterior chamber with no concern about IOP elevation.

cation techniques and incisions that can be easily completed under a 3-mm trabeculectomy flap. A single-site cataract and glaucoma procedure is easily completed using topical and intracameral anesthesia techniques. The data from Cotran and Buys support a surgeon's choice of the one-site procedure or, if preferred, a two-site procedure augmented by mitomycin C (MMC) and combined trabeculectomy with a cataract extraction and implantation of an IOL.^{3,4} A two-site surgery would be the optimal choice for a filter with implantation of the



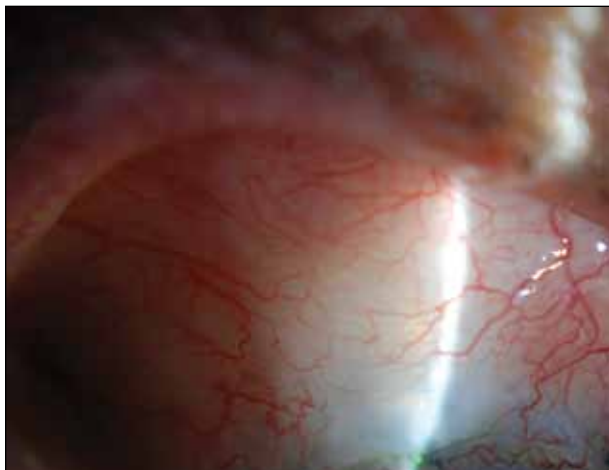


Figure 2. Another patient, 1 week postoperatively after a one-site combined procedure. Note the low diffuse bleb formation. IOP is well controlled on no glaucoma medications.

Ex-Press rather than a trabeculectomy. In studies of this implant versus conventional filtration surgery, the outcomes are comparable when it is used under the scleral flap, after application of MMC, in lieu of removing tissue. Thus, this is also likely true for its use in combined procedures⁵ despite the results of a study by Rivier et al, using the initial full-thickness technique for the Ex-Press.⁶

WOUND CONSTRUCTION

To complete the one-site procedure, the surgeon must be comfortable with a fornix-based trabeculectomy approach, as this technique yields the best exposure. I tend to make a 5-mm peritomy in the quadrant or just to the side of the 12-o'clock position, where I can work with my dominant hand. This leaves another quadrant for a future glaucoma procedure, if needed. After blanching the episclera, I then complete a 3- × 3-mm trabeculectomy flap that is centered in the peritomy site. This maneuver allows good closure of the conjunctiva over the edges of the flap. I use MMC 0.4 mg/mL for 3 minutes for a combined procedure and place pieces of a Meroceel sponge (Medtronic, Inc.) in a wide area around the flap, especially posterior and along the 12-o'clock limbus before entering the eye. Likewise, I center my sclerostomy under the flap so that it allows good coverage of the opening and control of flow. I use a pinpoint cautery probe at the sclerostomy site to control any bleeders to avoid excessive collagen shrinkage that could lead to astigmatism. In a personal review of 25 cases using this technique, the postoperative cylinder was similar to the preoperative cylinder's keratometry readings (S. Johnson, MD, unpublished data, May 2006).



Figure 3. An elderly man who presented for cataract surgery 1 year ago with a maximum IOP in the 30s due to pseudoexfoliation. His presenting IOP was 28 mm Hg on three medications with chronic red eye. One year postoperatively, the patient remains off glaucoma medications with an IOP of 10 mm Hg. His bleb is shown.

VISCOELASTIC USE

When injecting viscoelastic into an eye with severe glaucoma, caution should be used not to overfill the anterior chamber and overly elevate the IOP. For this reason, I re-form the anterior chamber after creating the keratome incision. I find this step allows easier escape of excess viscoelastic compared to placing it through the paracentesis before the phacoemulsification incision.

In a combined procedure, after removing the cortical material and inserting the lens, there is no indication to immediately remove the viscoelastic. At this time, the viscoelastic in the anterior chamber serves to maintain the form of the eye and avoid hypotony during the creation of the sclerostomy in a one-site procedure (Figures 1 and 2). Likewise, in a two-site procedure, after phacoemulsification and implantation of the IOL, the eye is left firmer with retained viscoelastic for the completion of filtration surgery. Once the filter is complete, some viscoelastic can be irrigated from the eye.

VITREOUS LOSS

Vitreous loss, a complication of cataract surgery, can lead to bleb failure, due to a postoperative increase in inflammation and the possibility of vitreous incarceration into the filtration site. Vitreous loss is managed in much the same fashion as in a phacoemulsification procedure alone. Care should be taken, however, to remove vitreous from a site away from the trabeculectomy, and viscoelastic can be used through the sclerostomy or at the base of the Ex-Press to block the

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entrance to vitreous. Some surgeons remove the vitreous using a pars plana approach, and one must use techniques that are suitable to one's skill set. In these cases, consideration should be taken to avoid an iridectomy to decrease potential access of the vitreous to the filtration site. As suggested by Shingleton et al, this measure of precaution should have no impact on outcome.⁷ The surgeon should also close the flap securely to avoid hypotony and keep vitreous from prolapsing forward in the early postoperative period.

CONTROL OF INFLAMMATION

In a cataract procedure combined with a filter, meticulous cortical cleanup can contribute to less postoperative inflammation and avoid vitreous loss. At the end of the procedure, I place subconjunctival dexamethasone. I start with prednisolone acetate four times per day for the first week to allow the limbal wound to heal. Then, I use more aggressive steroid dosing if the conjunctiva remains injected or if there is no reduction in the anterior chamber reaction. These eyes require more steroids than phacoemulsification alone to allow for successful filtration. Difluprednate is a more potent topical steroid that can also be employed⁸ as needed for patients with a greater need for inflammation control.

CONCLUSION

Combined surgery can be a very satisfying procedure for both the physician and the patient. Generally speaking, patients are very happy with their improvement in vision and the need for fewer medications to control their glaucoma (Figure 3). Glaucoma can cause permanent vision loss, whereas a cataract is usually a reversible condition. Therefore, a cataract in a glaucoma patient should be approached in a fashion that best controls the glaucoma. ■

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