

Combining Phacoemulsification and Trabeculectomy

Although infrequently utilized, a merged technique is important in select patients.

BY THOMAS W. SAMUELSON, MD

Over 2 million individuals in the United States have glaucoma. Most of these persons will develop cataracts during their lifetime. Accordingly, coincident cataract and glaucoma are an extremely common clinical presentation. The treatment of these comorbid conditions has changed dramatically in recent years. For example, in the mid-1990s, combined phacoemulsification and trabeculectomy was the most common operation that I performed. My current use of combined surgery is considerably less. Several factors are responsible for this transformation.

CHANGES

The medical management of glaucoma has improved significantly because of the introduction of prostaglandin analogues in 1996. Alpha-2 agonists, topical carbonic anhydrase inhibitors, fixed-combination drugs, and a renewed interest in laser trabeculoplasty have further enhanced treatment options. As a result, more patients are able to achieve IOP control with noninvasive methods, and the need for surgical intervention is reduced.

Technological advances in phacoemulsification have been as important as pharmacological advances to transforming the management of coincident cataract and glaucoma. Modern cataract surgery leaves the sclera and conjunctiva completely untouched, whereas earlier cataract surgical techniques typically involved a superior conjunctival and scleral incision. A dramatic change in surgical planning for eyes with both cataract and glaucoma ensued. In the past, the conjunctival and scleral scarring inherent to cataract surgery was a major detriment to filtering surgery and was a primary impetus for antimetabolite-enhanced filtering surgery. In the

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clear corneal era, patients are actually better candidates for glaucoma surgery after than before cataract surgery because the conjunctiva and sclera remain untouched, the pseudophakic anterior chamber is less likely to become shallow postoperatively, and the risk of cataract formation is no longer relevant.

CATARACT SURGERY AS A GLAUCOMA OPERATION

Mounting evidence indicates that cataract surgery has a more favorable effect on IOP than previously recognized.¹⁻⁴ Traditionally, studies have suggested a 1-to 2-mm Hg lowering of IOP.⁵ Although this estimate may be true for the average patient, recent research has shown that patients with higher preoperative pressures have a more pronounced decrease in IOP from cataract surgery.^{1,2}

This lens-related effect has led to speculation that there is a phacomorphic component to adult-onset open-angle glaucoma. Although the mechanism is unclear, one could easily postulate that the enlarging cataractous lens somehow alters the lens iris scleral spur relationship such that the outflow facility is reduced. Cataract surgery allows the lens/iris diaphragm to fall back, thus restoring more physiological outflow. This phenomenon deserves intensive investigation. At present, it seems reasonable to conclude that, for most

patients, cataract surgery has a favorable effect on IOP and should be considered an incremental step in the management of phakic eyes with glaucoma.

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Because cataract surgery no longer has to compromise future glaucoma surgery and owing to the evidence that cataract removal lowers the IOP, it stands to reason that earlier rather than later intervention is warranted in this patient population.

COMBINED SURGERY OR CATARACT EXTRACTION ALONE?

For most cases of cataract and glaucoma, I tend to remove the cataract without performing concomitant glaucoma surgery. I then reassess the patient postoperatively and proceed with glaucoma surgery as needed. Such patients require careful monitoring of their postoperative IOP. Quite often, I perform same-day pressure checks on patients who have advanced glaucoma or a propensity toward high IOP. This approach of cataract extraction first, followed by glaucoma surgery later if needed, is my typical strategy for patients with early-to-moderate glaucoma.

My approach to patients with far-advanced glaucoma is less straightforward. I will often perform combined phacoemulsification and glaucoma surgery in these individuals. As a general rule, if damage to the visual field or optic nerve is so far advanced that the patient can ill afford any progression whatsoever, I believe a more aggressive approach is warranted and will often perform trabeculectomy, place an aqueous drainage device, or perform an alternative procedure such as canaloplasty concomitantly. This is especially true if the preoperative pressure is markedly uncontrolled. On the other hand, for the patient with advanced glaucoma and well-controlled IOP, I will often perform cataract surgery alone and check the pressure 4 to 6 hours after surgery. I will alter medications or add a dose or two of oral acetazolamide as needed.

Trabeculectomy is not a benign intervention. Although, when well timed, it can save the sight of many patients at high risk for vision loss, the risk inherent to a lifelong bleb is not insignificant. In view of recent evidence, I believe it is important that surgeons employ a

conservative approach prior to committing the patient to the risk of bleb-related infections.¹⁻⁴ Late leaks or, worse, endophthalmitis is quite disconcerting in patients whose surgical indications were marginal in the first place. For that reason, I still perform a trabeculectomy on the eyes of patients with greatly advanced disease (for example, fixation threatened on both sides of the horizontal midline) or markedly elevated IOP. This is especially true if recent progression is well documented.

On the other hand, I perform far fewer trabeculectomies on individuals with early-to-moderate disease. For such patients, I generally prefer a less invasive approach such as canaloplasty, timely cataract surgery, or other blebless options such as ab interno trabeculotomy or the placement of an aqueous drainage device.

IN SUMMARY

Combined cataract surgery and trabeculectomy still plays an important role in my practice. For the most part, however, I now reserve this option for patients with very advanced glaucoma. As safer, blebless surgical options become available, the pendulum may swing back toward more combined procedures. surgery has become a pivotal moment in the lifetime of glaucoma patients. Most of them will achieve visual acuity, lower IOP, a decreased need for medication, and an improved refractive error. Although cataract surgery alone represents a tremendous opportunity to enhance patients' quality of life, the combined procedure still plays an important role in select individuals. ■

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