

OCULAR SURFACE DISEASE: IMPACT ON GLAUCOMA SURGICAL DECISION MAKING

The preoperative planning process is more complex and requires careful attention to the unique issues at play.

BY TONY REALINI, MD, MPH



Glaucoma patients with coexisting ocular surface disease (OSD) often require laser or incisional surgical intervention to reduce their IOP. In these cases, the preoperative planning process is more complex and requires careful attention to the unique issues at play.

LASER TRABECULOPLASTY

Providing IOP reductions consistent with those achieved through prostaglandin monotherapy,^{1,2} selective laser trabeculoplasty (SLT) is an excellent option for first-line glaucoma treatment in most patients with primary open-angle glaucoma. In patients with OSD who may have trouble tolerating topical IOP-lowering medical therapy, the value of primary SLT is potentially even greater. The procedure may also be a reasonable alternative to bleb-based glaucoma surgery in patients with OSD whose glaucoma is advanced and poorly controlled on maximally tolerated medical therapy.

In general, SLT is well tolerated by the vast majority of patients, whether or not they have OSD. Even so, I have tailored my approach to SLT in several ways so as to minimize potential ocular surface complications. These precautions are particularly important in patients whose risk of intraoperative epithelial defects is higher than average, including those with anterior basement membrane corneal dystrophy, recurrent corneal erosion syndrome, and diabetes. First, I treat 360° of the trabecular meshwork in one sitting, rather than 180° in two planned or unplanned sessions. This strategy eliminates one cycle of lens insertion and removal, and it effectively halves the risk of corneal complications. Second, I have begun using a therapeutic nighttime gel tear product rather than a traditional gonioscopy coupling agent. The concentration of hydroxypropyl methylcellulose with the former is far lower (0.3% vs 2.5%),

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which decreases the strength of the adhesion between the SLT lens and the cornea. This, in turn, reduces the risk of corneal trauma during insertion, rotation, and removal of the lens. Third, when removing the lens upon the completion of the procedure, I use one finger to gently indent the perilimbal sclera through the eyelid to break the adhesive seal between the cornea and the lens, again with the goal of preventing epithelial trauma. This technique is in contrast to other methods, which include asking the patient to blink hard to break the seal or simply pulling the lens free at the end of the procedure. Because these modifications are simple and inexpensive, I have incorporated them into my routine protocol for all SLT patients, not just those with OSD.

INCISIONAL SURGERY

Many patients with OSD are intolerant to varying degrees of topical IOP-lowering medications, so these individuals may be relatively overrepresented in surgical practices. When considering the surgical options for a glaucoma patient with OSD, the first question I ask is whether I can avoid creating a bleb. OSD can increase the risk of bleb-related complications, and blebs can worsen the severity of OSD symptoms.



AT A GLANCE

- Ocular surface disease (OSD) can adversely affect the success of glaucoma surgery, and many glaucoma therapies can negatively influence the course of OSD. A large percentage of patients in a glaucoma practice have both conditions.
- Selective laser trabeculoplasty is well tolerated by the vast majority of patients, whether or not they have OSD. Even so, Dr. Realini has tailored his approach to the procedure in several ways so as to minimize potential ocular surface complications.
- OSD can increase the risk of bleb-related complications, and blebs can worsen the severity of OSD symptoms. Surgical procedures that do not create a bleb are an option if a patient does not require an IOP in the low teens or single digits.

Several incisional glaucoma surgeries offer an opportunity for surgically reducing IOP without creating a bleb. For example, cilioablative techniques decrease aqueous production and have a minimal impact on the ocular surface. Among the various microinvasive glaucoma surgery (MIGS) procedures, the ab interno options (eg, trabecular bypass stenting, trabecular ablation, and suprachoroidal shunting) have the least impact on the ocular surface. From the ab externo approach, canaloplasty requires conjunctival and scleral incisions, but both are small.

The increased safety associated with MIGS procedures is offset by a reduction in efficacy compared with more traditional bleb-based glaucoma procedures such as trabeculectomy or tube shunts.³ MIGS may not be an appropriate option for patients with a low target IOP (low teens or single digits) or in those for whom freedom from topical medication is the goal. In these cases, a more traditional bleb-based procedure may be warranted.

When approaching a conjunctiva-based, bleb-creating surgery, ocular surface inflammation is the enemy. The long-term use of topical medication can produce various changes to the ocular surface, including conjunctival inflammation and subconjunctival fibrosis, which in turn can reduce the success of filtering surgery.⁴ These deleterious effects are mediated, at least in part, by preservatives used to stabilize drug formulations.⁵ The role of preoperative anti-inflammatory therapy for glaucoma surgery remains controversial, although a recent randomized clinical trial demonstrated a significant improvement in trabeculectomy outcomes in eyes treated topically for

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30 days before surgery with either a steroidal or nonsteroidal anti-inflammatory agent versus placebo.⁶ It should also be noted that, although both trabeculectomy and tube shunt procedures create enduring blebs, those associated with the latter tend to be more posterior and therefore less likely to aggravate OSD symptoms. Any eye—one with or without OSD—will better tolerate a low, diffuse bleb than an elevated, focal bleb. The broad-based application of an antimetabolite can facilitate this outcome. It is worth bearing in mind that 5-fluorouracil is far more toxic to the ocular surface than mitomycin C.⁷ Also, in these cases, I am always prepared to increase the intensity of OSD therapy postoperatively.

Finally, the use of preservative-free medications, when available, should be considered during the perioperative period.

CONCLUSION

OSD can adversely affect the success of glaucoma therapy, and many glaucoma therapies can negatively influence the course of OSD. In a glaucoma practice, up to 60% of patients may have both conditions.^{8,9} Careful surgical planning can help to ensure the best possible outcomes. ■

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Tony Realini, MD, MPH

- professor of ophthalmology, West Virginia University Eye Institute, Morgantown, West Virginia
- (304) 598-6884; realinia@wvuhealthcare.com