Toric IOLs represent a valuable tool for managing eyes with preexisting corneal astigmatism and cataract and have been a valuable addition to the cataract surgeon’s armamentarium. In clinical practice, of course, cataracts often occur in aging eyes with comorbidities such as glaucoma. Can patients with concurrent glaucoma and cataract benefit from toric lenses?

CONSIDERATIONS

It stands to reason that, as long as an eye has good central visual field function, it should benefit from a toric IOL, and thus far, our experience implanting a toric IOL in glaucoma patients has been positive. Certainly, surgeons should take the standard steps of carefully marking the 90º and 180º axes preoperatively and marking the exact axis intraoperatively. It is important to note that glaucomatous eyes may not simply have high intraocular pressure (IOP). They are also more prone to zonular instability than eyes without the disease, and this weakness may be difficult to detect at the slit lamp due to poor pupillary dilation. The surgeon therefore must be watchful during the operative procedure for poor zonular support. In such eyes, the placement of a toric lens may be ill advised because slippage or rotation of the IOL will affect its refractive power. Additionally, glaucoma patients are at higher risk of capsular phimosis, so surgeons must carefully create an adequately sized capsulorrhexis. If there is early evidence of capsular phimosis, the surgeon can apply Nd:YAG laser energy to the anterior capsule at the 12-, 3-, 6-, and 9-o’clock positions to create 2- to 3-mm cruciate incisions. This step will prevent postoperative contracture of the capsule and possible rotation of the IOL.

COMBINED PROCEDURES

Toric IOLs may be used successfully in combined phacotrabececutectomy procedures. The trabeculectomy, however, can induce a significant amount of astigmatism, typically aligned against the rule or with the wound. The degree of induced astigmatism may decline over time as the eye heals. Ophthalmologists can take several steps to minimize surgically induced astigmatism. For example, preplacing flap sutures before the eye becomes hypotonous will minimize distortion. For surgeons who prefer single-site phacotrabececutectomy, there is evidence that a small incision induces less astigmatism, on par with cataract surgery alone. There are conflicting reports in the literature about whether removing sutures early alleviates some of the induced astig-
We remove conjunctival sutures around postoperative week 3. Moreover, we use a purse-string conjunctival closure, which, in a published study, induced less astigmatism than tight mattress sutures.

Before implanting a toric IOL in a phacotrabeculectomy procedure, surgeons should determine how much surgically induced astigmatism they can typically expect with their technique 6 months to 1 year postoperatively. That information should be factored into IOL power calculations.

Probably the biggest concern over using a toric IOL in the setting of a combined procedure is the risk of a flattened anterior chamber with either overfiltration or malignant glaucoma. Theoretically, early postoperative fluctuations in the depth of the anterior chamber could cause the lens to rotate in the bag. We have seen several flat anterior chambers after the placement of a toric IOL. One patient with primary open-angle glaucoma underwent combined bleb needling and cataract surgery. The early postoperative course was complicated by hypotony due to overfiltration with flattening of the anterior chamber. This patient required two re-interventions of the anterior chamber at the slit lamp in the first postoperative week. Six months later, his UCVA was 20/20, with an IOP of 15 mm Hg and no residual astigmatism to suggest significant rotation of the IOL. Another patient with pseudoxfoliation glaucoma developed malignant glaucoma with increased IOP, corneal edema, and a grade 2 flat chamber 3 days after phacotrabeculectomy (Figures 1 and 2). Fortunately, Nd:YAG vitreolysis successfully resolved the crisis. A refraction 6 weeks after the episode suggested slight rotation of the lens (approximately 7º), which did not exceed the degree of rotation reported in straightforward cataract cases. The patient’s refraction and vision were stable 1 year later.

**CONCLUSION**

We have used toric implants in cataract surgery in cases of established trabeculectomy as well as in the setting of combined phacotrabeculectomy. As long as patients with glaucoma have a strong potential for central vision, they can benefit substantially from a toric IOL.

Kathryn B. Freidl, MD, is a Glaucoma Fellow at Wills Eye Institute in Philadelphia. Dr. Freidl states that she has no financial interest in the products or companies mentioned. She may be reached at email: kfreidl@gmail.com.

Marlene R. Moster, MD, is a Professor of Ophthalmology at the Thomas Jefferson School of Medicine and is an attending surgeon at Wills Eye Institute, both in Philadelphia. She states that she is a consultant/advisor to and has received lecture fees and grant support from Alcon Laboratories, Inc. Dr. Moster may be reached at tel: +1 215 928 3342; email: marlenemoster@aol.com.

**TAKE-HOME MESSAGE**

- Before implanting a toric IOL in a phacotrabeculectomy procedure, surgeons should determine how much surgically induced astigmatism they can typically expect.
- Glaucoma patients with strong potential for central vision can benefit substantially from a toric IOL.