

# consultation section

## cataract surgical problem

*edited by Samuel Masket, MD*

A now 40-year-old man had cataract surgery complicated by capsule rupture and posterior intraocular lens (IOL) dislocation at age 29 years. Eventually, it was necessary to perform a vitrectomy, retrieve and remove the IOL from the posterior segment, and suture a poly(methyl methacrylate) (PMMA) posterior chamber (PC) IOL to the sclera. According to the reports, an Alcon CZ70 IOL was sewn to the sclera under flaps using 10-0 polypropylene suture material, which was affixed to the haptic eyelets. The patient did well for a decade, during which time the fellow eye had uneventful phacoemulsification with in-the-bag IOL placement, and he continues to function normally.

After 10 years, 1 of the 10-0 polypropylene IOL sutures degraded and the nasal loop of the lens became mobile, inducing fluctuating vision and significant IOL tilt. During corrective surgery, both loops were suture fixated to the sclera with 9-0 polypropylene in a lasso fashion and the problem seemed to be ameliorated.

Now, 1 year later, the patient reports a sudden onset of glare symptoms and reduced vision quality, although the best corrected visual acuity (BCVA) remains 20/20 and the intraocular pressure is well within normal range. He denies meaningful trauma or unusual eye rubbing. As seen in the clinical photograph (Figure 1), the patient has developed pupil capture of the temporal aspect of the IOL. The IOL is immobile, both loops appear stable, and the suture loops appear intact under the conjunctiva, which is heavily scarred from previous surgery. Posterior segment examination is fully normal. Pharmacologic and laser attempts to reposit the optic behind the pupil have failed.

What is the best course of management?



**Figure 1.** The pupil has assumed a cat's eye appearance as a result of optic capture by the temporal aspect of the pupil.

■ Intervention is justified because of this young man's symptoms of glare and reduced vision quality. Wave-front analysis has confirmed that the Snellen acuity test will not demonstrate the reduction in image quality caused by IOL tilt and decentration. Pharmacologic and neodymium:YAG (Nd:YAG) laser methods were unable to reposit this malpositioned IOL. One might try using a Zeiss-style gonio lens to displace the optic posteriorly through a dilated pupil. If these maneuvers fail, surgical repositioning is indicated. With the patient under topical anesthesia, one should easily be able to push the optic back into the posterior chamber with an instrument introduced through a paracentesis. Given all of the preceding complications and problems, I would be wary of attempting to reposition the optic with a paracentesis needle in the office. To prevent a recurrence, I would place the patient on topical bromonidine drops to limit the amount of scotopic pupil dilation.

This case illustrates the potential drawbacks of scleral suture fixation of PC IOLs, particularly in younger patients. With 10-0 polypropylene, the incidence of suture degradation and breakage is rising as follow-up periods approach and pass 10 years. Because 9-0 polypropylene has a much greater cross-sectional diameter than 10-0, it should improve long-term scleral haptic fixation. However, no one knows how much longer 9-0 polypropylene or 8-0 expandable polytetrafluoroethylene (Gore-Tex) sutures will last. By eroding through overlying scleral flaps, exposed polypropylene knots can cause irritation and giant papillary conjunctivitis. If they protrude through conjunctiva, they create a potential entry path for endophthalmitis-causing pathogens. Intraocular lens tilt and decentration are additional concerns and are likely responsible for this patient's need for a fourth operation in the same eye.

Many individual factors must be considered when deciding where and how to best fixate an IOL in the absence of the posterior capsule. Angle, scleral, or iris fixation of the haptics are the usual options. The

presence of glaucoma, abnormal angle anatomy, iris tissue deficiency, and excessive pupil diameter complicate AC IOL use. Nevertheless, we know that long-term fixation of a properly sized AC IOL is permanent, secure, and well tolerated. In the absence of other complicating factors, this is my preference for a secondary or backup IOL in younger patients without posterior capsule support.

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■ This interesting case is a good depiction of the problems that can arise with sutured IOLs. It is significant that the current sutured IOL is immobile and stable with no movement of the loops and the loops appear intact. If this were not the case, the course of action would differ. Because nonsurgical techniques for management have been exhausted and the patient is symptomatic, the patient requires surgery to reposit the PC IOL. Because the patient is young, I would try to avoid using an anterior chamber (AC) IOL. It is important to have a well-dilated pupil for visualization. This can be achieved by using preoperative mydriatic agents and intraoperative intracameral lidocaine to help paralyze the iris sphincter and assist in pain control. If the pupil is still not well dilated, iris retractors could be used. It is important to “look around” and ensure that the haptics are still well positioned and secured.

The next step is to discern why the optic moved anteriorly and optic capture occurred. One might suspect that vitreous has moved anteriorly. At this point, 0.1 cc preservative-free Kenalog suspension (10 mg/cc triamcinolone acetate) could be used to determine whether vitreous is present in the anterior chamber. Kenalog would coat the surface of vitreous and stain it white, making it visible. If vitreous is present, the first step would be to remove it using a bimanual technique, splitting irrigation and aspiration/cutting. One could use a limbal or pars plana approach; however, the pars plana approach is probably better in this case. For a limbal vitrectomy, one would make 2 side-port incisions and use a 20-gauge cannula in the non-dominant hand for irrigation and a vitreous cutter through the second incision. The disadvantage of this technique is it provides poorer access to vitreous under

the iris. With the pars plana approach, one could use a 20- or 25-gauge cutter with a smaller sutureless incision placed 3.5 mm behind the limbus. Irrigation would still occur from the limbal site. With either technique, it is important to minimize vacuum and flow rates and maximize the cut rate. Periodic restraining of the vitreous with reinjection of Kenalog is necessary to ensure all vitreous is removed.

Next, the IOL must be repositioned. If any anterior capsule is present, one could partially capture the optic through the capsulotomy. Once the IOL is well centered behind the iris, one could inject acetylcholine chloride (Miochol) or carbachol to help the pupil constrict. A small peripheral iridectomy should be performed to avoid future risk for pupillary block.

Postoperatively, the patient should be placed on a low-dose topical miotic agent to ensure the optic stays posterior to the iris. It is also important that the patient have a thorough retinal examination postoperatively.

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■ This case is but 1 of many reported in which a previously transsclerally fixated PC IOL dislocated many years after the original placement despite the use of 10-0 polypropylene suture. The original thought that 10-0 polypropylene does not biodegrade is erroneous, as these numerous case reports prove. Some surgeons have likened this to a “time bomb waiting to happen” because it seems to be unpredictable which lenses will dislocate and which will not after transscleral fixation with 10-0 polypropylene suture. As a consequence, newer suture materials, including 9-0 polypropylene, various polyester materials, and Gore-Tex, are being investigated with the hope they will prove to be truly “life-long.”

In the case presented here, optic capture by the temporal aspect of the pupil has occurred, giving the patient a “cat’s eye” appearance. This is the cause of the glare symptoms and reduced vision quality despite 20/20 acuity. Given that pharmacologic and laser attempts have failed to reposit the optic behind the pupil and in the presence of stable fixation, I would recommend using topical anesthesia and intracameral anesthesia in the operating room. I would break the