

Progressive IOL Decentration After Glaucoma Surgery on a Uveitic Eye

BY DAVID A. GOLDMAN, MD; MARK S. GOROVOY, MD;
AND SOOSAN JACOB, MS, FRCS, DNB

CASE PRESENTATION

A 56-year-old African American woman is referred with a dislocated IOL in her left eye. She has a long-standing history of recurrent uveitis (idiopathic, “autoimmune”) for which she has been treated at the National Institutes of Health and multiple academic facilities since 1998. She was initially diagnosed with sarcoidosis, but a subsequent workup was negative.

The patient developed severe secondary (inflammatory, angle closure) glaucoma involving her right eye that resulted in no-light-perception vision in 2002. Her left eye also developed secondary glaucoma with advanced cupping. The patient has undergone cataract surgery and multiple glaucoma procedures, including the placement of two tube shunts. She has experienced a significant decline in the vision of her left eye during the past year due to progressive decentration of her IOL (Figure). Her visual acuity is correctable to a poor-quality 20/70 OS, and her IOP is controlled at 6 mm Hg in that eye. Multiple ophthalmologists have expressed concern about further surgery on the patient’s sighted eye because of the uveitis and possible risk of endophthalmitis.

Her left eye has a low bleb from a previous trabeculectomy and a functioning glaucoma drainage device. Anterior synechiae extend 1.5 clock hours inferotemporally, and overlying band keratopathy obscures visualization of this area. The anterior hyaloid face is largely intact in the area of the IOL, but peripheral vitreous prolapse extends to the temporal corneal wound. A three-piece acrylic IOL with a loop design is

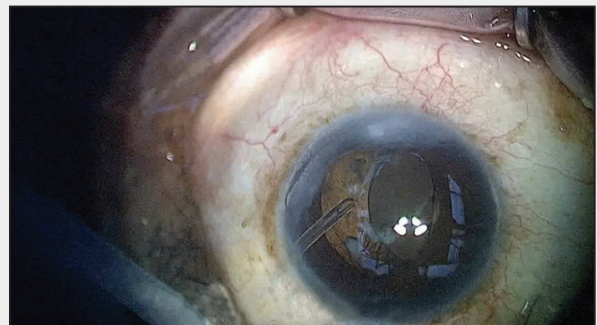


Figure. Monocular patient with a history of uveitis, advanced glaucoma, and progressive decentration of her IOL.

tilted and decentered, and a remnant of the capsular bag has scrolled up behind the optic. Support for the lens is poor, and further progressive decentration of the IOL appears likely.

The patient trained in the medical profession and is now unable to work or function adequately due to the vision loss in her left eye. She lost her driver’s license 8 years ago and says she is willing to undergo any procedure that will improve her vision.

What special steps would you take in addressing the patient’s concerns and repairing the dislocated IOL given her history of uveitis, advanced glaucoma, previous surgery with resultant conjunctival scarring and monocular status?

—Case prepared by Alan N. Carlson, MD.

DAVID A. GOLDMAN, MD

This is a challenging case because the patient is monocular and has multiple different pathologies in her sighted eye. If decentration of the IOL is progressive, then early intervention is preferable to waiting for the lens to fall entirely and require a complete pars plana vitrectomy (PPV). Although the patient is rightfully anxious, I would assure her that surgical correction for visual rehabilitation is prudent, given that she can no longer work or function adequately.

Minimal manipulation in an eye like this one is preferable. Ideally, I would preserve the IOL rather than replace it. An exchange would require a larger incision, and an anterior chamber lens (ACIOL) would be less desirable, given the tube shunt and anterior synechiae. Although no corneal guttata are present, owing to the patient's history of multiple surgeries, I would check an endothelial cell count. If low, I would counsel her that she might require Descemet stripping automated endothelial keratoplasty postoperatively.

Because the IOL has vitreous prolapse on one side, a partial vitrectomy will be required. I would make a small conjunctival peritomy away from the area of the bleb and, with the infusion through a small corneal incision, place the vitrector through the pars plana to avoid any anterior traction on the vitreous. After sufficient vitrectomy, I would suture fixate the lens. It is hard to tell from the figure, but if the IOL is well scarred within the capsular bag, I would fixate the lens-bag complex to the sclera; I would make sclerotomies at the 3- and 9-o'clock positions to avoid the bleb. If the bag were significantly compromised, I would dissect the IOL away from the bag with Packer/Chang IOL Cutters (MicroSurgical Technology) and glue fixate the haptics to the sclera.

MARK S. GOROVY, MD

If this patient is symptomatic from the dislocated IOL, which appears to be grossly subluxated as well as tenuously positioned over residual capsule, I would recommend fixating the IOL to the sclera with Prolene sutures (Ethicon) in a closed eye combined with PPV.

Starting 1 week before surgery, I would pretreat the patient with oral prednisone and topical steroids, preferably difluprednate ophthalmic emulsion 0.05% (Durezol; Alcon). During surgery, I would perform two conjunctival "cut downs" 180° apart for the suture exit sites. I would avoid the trabeculectomy and shunt sites, if possible. Next, I would pass a double-armed 10-0 or 9-0 Prolene suture around the haptics, tie the two ends on the scleral surface, and cut them long so as to avoid surface erosion of the sutures. To pass the sutures, which have long CIF needles, I would deliver the needle under the haptics from a clear corneal stab incision made 180° from the exit point, as guided out by a 23-gauge needle. The second pass would

take place in front of the haptic in the same manner, thereby looping the haptic, and then, I would tie the two ends of the Prolene suture together on the scleral surface. The same maneuvers would be repeated for the second haptic. Next, I would proceed with a two-port PPV. I would ignore the capsule during these passes, because the goal is to lasso the haptic. The capsule is no longer needed for support.

In my experience, the anatomical results of this technique are excellent and durable. I find it far superior to opening the eye for an IOL exchange, especially for an ACIOL. The glued posterior chamber IOL technique is my procedure of choice for new posterior chamber IOLs without capsular support, but attempting to convert this IOL to that technique might break the rigid haptic. For that reason, I prefer my sutured technique for this eye. Because of the patient's history of uveitis and the presence of a tube shunt, she should use topical steroids permanently.

SOOSAN JACOB, MS, FRCS, DNB

Because of the patient's uveitis and loss of one eye secondary to inflammatory glaucoma, the decision to proceed with surgery on the other eye should be weighed carefully. A visual acuity of 20/70 and controlled IOP are acceptable at this stage, so surgery may be deferred as long as possible.

Considering her history of multiple complicated procedures and the relatively long tube in the anterior chamber, I would obtain an endothelial cell count. If it were normal, because the patient is unable to work or function adequately, I would completely and openly discuss the pros and cons of intervention and obtain a detailed informed consent. An internist should be involved in the patient's management, and a complete systemic workup should be repeated. Surgery would involve intensive perioperative systemic and topical steroids. The three-piece acrylic IOL with a loop design has subluxated out of the bag. The easiest and least invasive way to fix the problem would be a closed-chamber translocation of the same IOL, followed by transscleral fixation using a glued-IOL technique. I would check the white-to-white diameter. If it were greater than 11.5 mm, I would glue the IOL to a vertical or oblique axis while taking care to avoid meridians with the trabeculectomy bleb and the glaucoma shunt.

After fixing an anterior chamber maintainer or infusion cannula, I would create two scleral flaps 180° apart that were narrow enough to allow greater haptic tuck. Next, I would fashion 23-gauge sclerotomies 1.5 mm behind the limbus. Vitreous staining with preservative-free triamcinolone would aid visualization as well as, to some extent, decrease postoperative inflammation. Holding the IOL haptic with a microforceps introduced through a paracentesis or one sclerotomy with one hand, I would perform a

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23-gauge vitrectomy through the opposite sclerotomy to clear vitreous. After freeing the IOL of all adhesions, I would use the handshake maneuver to sequentially externalize each of the haptics through the sclerotomies. I would then tuck the haptics within 26-gauge intrascleral Schiøtz tunnels and glue down the scleral flaps and conjunctiva.

An ACIOL would be contraindicated for this uveitic patient, and an iris-fixated lens would be relatively contraindicated in the setting of uveitis. Kumar and colleagues demonstrated well-positioned IOLs without significant tilting of the optic with glued IOL fixation,¹ so it would be my preferred choice in this case to prevent uveitis-glaucoma-hyphema syndrome. I would leave the iris and the anterior synechiae in the inferotemporal quadrant undisturbed to avoid releasing prostaglandins as much as possible. Postoperatively, the patient should be monitored closely for uveitic inflammation and cystoid macular edema, both of which should be treated aggressively. ■

Section Editor Alan N. Carlson, MD, is a professor of ophthalmology and chief, corneal and refractive surgery, at Duke Eye Center in Durham, North Carolina. Dr. Carlson may be reached at (919) 684-5769; alan.carlson@duke.edu.

Section Editor Steven Dewey, MD, is in private practice with Colorado Springs Health Partners in Colorado Springs, Colorado.

Section Editor R. Bruce Wallace III, MD, is the medical director of Wallace Eye Surgery in Alexandria, Louisiana. Dr. Wallace is also a clinical professor of ophthalmology at the Louisiana State University School of Medicine and an assistant clinical professor of ophthalmology at the Tulane School of Medicine, both located in New Orleans.

David A. Goldman, MD, is in private practice at Goldman Eye in Palm Beach Gardens, Florida. He acknowledged no financial interest in the product or company he mentioned. Dr. Goldman may be reached at (561) 630-7120; david@goldmaneye.com.



Mark S. Gorovoy, MD, is in private practice with Gorovoy MD Eye Specialists in Fort Myers, Florida. He acknowledged no financial interest in the products or companies he mentioned. Dr. Gorovoy may be reached at (239) 939-1444; mgorovoy@gorovoyeye.com.



Soosan Jacob, MS, FRCS, DNB, is a senior consultant ophthalmologist at Dr. Agarwal's Eye Hospital and Eye Research Centre, Chennai, India. Dr. Jacob may be reached at dr_soosan@hotmail.com.



1. Kumar DA, Agarwal A, Agarwal A, et al. Long-term assessment of tilt of glued intraocular lenses: an optical coherence tomography analysis 5 years after surgery [published online ahead of print September 4, 2014]. *Ophthalmology*. doi:10.1016/j.ophtha.2014.07.032.