

# Iritis and Elevated IOP After Piggyback IOLs

BY KEVIN J. DENNY, MD; JEREMY Z. KIEVAL, MD; KEVIN M. MILLER, MD;  
AND MICHAEL WONG, MD

*While he served as cochief medical editor, David Chang, MD, invited three knowledgeable surgeons to become the section editors of a new column. The goal was to educate readers by presenting a specific complication of cataract surgery, an illustrative figure, and the responses of several experienced ophthalmologists on how they would proceed in the case. I would like to thank Robert Cionni, MD;*

*Robert Osher, MD; and Michael Snyder, MD, for 5 years of illuminating service. Taking over for them this year are Bonnie Henderson, MD, and Tal Raviv, MD. Their experience as surgeons and dedication to education should ensure that this column remains an excellent resource for Cataract & Refractive Surgery Today's readers.*

*—Gillian McDermott, MA, editor-in-chief*

## CASE PRESENTATION

A 53-year-old male presents with chronic intermittent iritis and elevated IOP in his left eye. His past ocular history includes two macula-on retinal detachments, a pars plana vitrectomy, and scleral buckling surgery in his left eye. The patient's vision was correctable to 20/25 after the retinal surgeries until he developed a significant cataract in his left eye, when his vision worsened to 20/200.

The patient underwent phaco surgery and the placement of piggyback lenses due to 4.00 D of corneal astigmatism and great axial length. No toric IOL in low powers was available at the time. The surgeon therefore placed a 9.50 D STAAR Toric IOL with 3.50 D cylindrical correction (STAAR Surgical Company, Monrovia, CA) in the capsular bag and a -5.00 D AcrySof lens (model MA60MA; Alcon Laboratories,

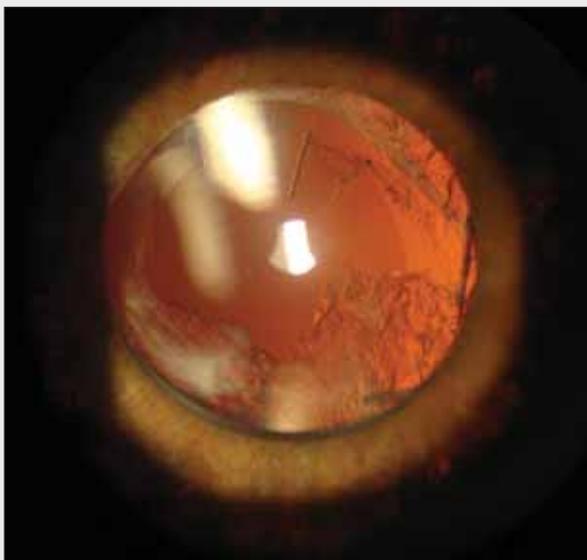


Figure 1. Piggyback silicone plate haptic toric lens in the capsular bag with a three-piece acrylic in the sulcus.



Figure 2. Iris transillumination defects.

**CASE PRESENTATION (CONTINUED)**

Inc., Fort Worth, TX) in the sulcus. Postoperatively, the patient did well with a UCVA of 20/25. Over the past 3 years, however, he has developed intermittent iritis and increased IOP. He underwent a YAG capsulotomy during the past year.

In his left eye, the patient currently has a UCVA of 20/25 and an IOP of 42 mm Hg on Cosopt b.i.d. (Merck & Co., Inc., Whitehouse Station, NJ), Alphagan

b.i.d. (Allergan, Inc., Irvine, CA), and Lotemax b.i.d. (Bausch + Lomb, Rochester, NY). An examination of the eye reveals 1+ cells in the anterior chamber, iris transillumination defects, well-centered piggyback lenses, and an open posterior capsule (Figures 1 and 2). The patient wears a contact lens on his right eye, which is normal with no lenticular opacity.

How would you proceed?

**KEVIN J. DENNY, MD**

This is a case of uveitis-glaucoma-hyphema (UGH) syndrome from IOL-iris chafing and pigment dispersion. Although the refractive result of 20/25 UCVA is impressive, the choice of a sulcus-fixated IOL with a sharp-edged optic (AcrySof MA60MA) is regrettable and the principal cause of the patient's troubles. Although not true in this case, too often, surgeons select a sulcus-fixated lens as an afterthought with unfortunate consequences. No IOL with a sharp anterior optic edge should ever be used when it will be placed purely in the sulcus.

Because immediate surgical intervention might be fraught with peril, the first step in this case would be to medically control inflammation and pressure. I would use a long-acting cycloplegic drop such as atropine 1% to reduce inflammation, pigment dispersion, and eventually, the patient's need for steroid drops, which may be contributing to the secondary glaucoma. I would also prescribe Alphagan t.i.d. and add methazolamide 50-mg tablets b.i.d., which patients generally tolerate better than acetazolamide. Why an oral carbonic anhydrase inhibitor can provide an additional benefit when a patient is already using a topical form of the drug is open to speculation.

Just as important as this patient's medical care is his management. He needs to clearly understand the seriousness of his situation and the plan to resolve it. The surgeon must help reset the patient's expectations. A cosmetic soft contact lens might reduce photophobia during extended pupillary dilation.

Frequent visits over several months may be required before the IOP and inflammation are better controlled on a minimum number of medications. After informed consent, I would fill the anterior segment with a dispersive ophthalmic viscosurgical device, bring the sulcus-fixated lens into the anterior chamber, and bisect it with the Packer/Chang IOL Cutter (MicroSurgical Technology, Redmond, WA). Next, I would place a STAAR Elastimide IOL (model AQ5010V), which has a

rounded anterior edge, in the sulcus and perform a small peripheral iridotomy.

**JEREMY Z. KIEVAL, MD**

There is considerable demand for freedom from spectacles among patients undergoing cataract surgery—the most common refractive surgery performed. For surgeons, spectacle independence is an incredibly gratifying outcome afforded by advances in IOL technology. Ophthalmologists must remember, however, that their foremost duty is to treat and prevent ocular disease.

Although I would consider it unusual for a patient with a high axial length to develop pigment dispersion from a piggyback IOL, the complication is possible and could be due to this particular lens' design. The MA60MA is a three-piece IOL that is acceptable for insertion in the ciliary sulcus, but this lens has a square-edged optic that is slightly thicker than that of other three-piece IOLs such as the MA60AC. Square-edged IOLs have been known to induce pigment dispersion with resulting ocular hypertension when they are placed in the sulcus if the sharp, square edge of the IOL comes into contact with the posterior iris.<sup>1,2</sup>

Management of this case requires explanation of the piggyback lens. I would perform this in concert with an exchange of the lens for one that has a rounder edge to the optic, such as the AQ5010V IOL. This lens would likely prevent iris chafing and is available in low powers. At a minimum, the surgeon should entertain the option of simply explanting the piggyback lens and having the patient wear a contact lens on this eye as well.

**KEVIN M. MILLER, MD**

This patient is well on his way to full-blown UGH syndrome. All that is needed is for the IOL to erode into the blood vessels in the iris, producing a hyphema.

The case presentation is not entirely accurate. The figures show that the piggyback lens is decentered superiorly and the toric lens is decentered inferiorly. Additionally, the posterior capsulotomy is too small.

The management of this case is fairly straightforward.

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**ATTENTION:** Reference the Physician Labeling/Directions for Use for a complete listing of indications, warnings and precautions.

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**Adverse Reactions:** Postoperative inflammatory reactions such as hypopyon and iritis have been reported with the use of ophthalmic viscoelastics, as well as incidents of corneal edema, corneal decompensation, and a transient rise in intraocular pressure.

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The problems are caused by chafing of the iris against the anterior square edge of the piggyback lens. It must come out. Continuing to manage the secondary medical problems is like rearranging the deck chairs on the Titanic. This eyeball is going down! It is just a matter of time.

**“Left untreated, the recurrent iritis, pigment dispersion, and glaucoma make for a veritable time bomb.”**

*—Michael Wong, MD*

Removing the piggyback lens would leave the patient with a hyperopic refractive error that is too large to correct by keratorefractive surgery. The toric lens must therefore also be removed. That might be tricky, given the posterior capsular opening and the vitrectomy, which undoubtedly weakened the zonules. The size of the fixation holes on the plate haptics will also affect the level of difficulty.

I would correct the resulting astigmatic error with peripheral corneal relaxing incisions and the resulting aphakic spherical error by implanting the STAAR Elastimide IOL (model AQ5010V), which has a rounded, iris-friendly edge.

If the patient had a significant refractive error after surgery, I would address it with LASIK or PRK.

### **MICHAEL WONG, MD**

My first goal would be to restore the health of the eye. Then, I would consider the patient's refractive needs. Left untreated, the recurrent iritis, pigment dispersion, and glaucoma make for a veritable time bomb. Considering the patient's complex history, the simplest solution would be the best.

The likely source of the uveal irritation, pigment dispersion, and trabecular meshwork's obstruction is the contact between the IOL in the sulcus and the posterior iris. The tackiness of the AcrySof IOL's acrylic material, the square edge of the optic, and the anterior vaulting of the meniscus lens design are contributing factors. Restoring the health of the eye necessitates removal of the sulcus-fixed IOL, which would be relatively easy under viscoelastic protection. The PMMA haptics can generally be spun out of the sulcus, but if stuck, they can be amputated and left in place. I would leave the STAAR Toric IOL in place.

Next, I would be vigilant about residual uveitis and glaucoma and treat them accordingly.

When the eye was quiescent and the pressure had

stabilized, my next consideration would be the patient's refractive needs. Given that he wears a contact lens successfully in his right eye, I would offer him this choice for his left eye as the safest option. If this solution became unacceptable, then laser vision correction would be a relatively easy alternative. Any residual astigmatism could be treated at that time as well. Because of the open posterior capsule and a plate haptic implant in the bag, I would perform surface ablation to avoid the possibility of the IOL's posterior dislocation from application of a suction apparatus. ■

Section editor Bonnie A. Henderson, MD, is a partner in Ophthalmic Consultants of Boston and an assistant clinical professor at Harvard Medical School. Tal Raviv, MD, is an attending cornea and refractive surgeon at the New York Eye and Ear Infirmary and an assistant professor of ophthalmology at New York Medical College in Valhalla. Dr. Henderson may be reached at (781) 487-2200, ext. 3321; bahenderson@eyeboston.com.

Kevin J. Denny, MD, is the chief of cataract and anterior segment surgery at California Pacific Medical Center in San Francisco. He acknowledged no financial interest in the products or



companies he mentioned. Dr. Denny may be reached at (415) 567-8200; kjdenny1@aol.com.

Jeremy Z. Kieval, MD, is the director of cornea and refractive surgery at Lexington Eye Associates in Lexington, Massachusetts. He acknowledged no financial interest in the products or companies he mentioned. Dr. Kieval may be reached at jkieval@lexeye.com.



Kevin M. Miller, MD, is the Kolokotronis professor of clinical ophthalmology at the Jules Stein Eye Institute, David Geffen School of Medicine at UCLA, Los Angeles. He periodically serves as a consultant to Alcon Laboratories, Inc. Dr. Miller may be reached at (310) 206-9551; kmiller@ucla.edu.

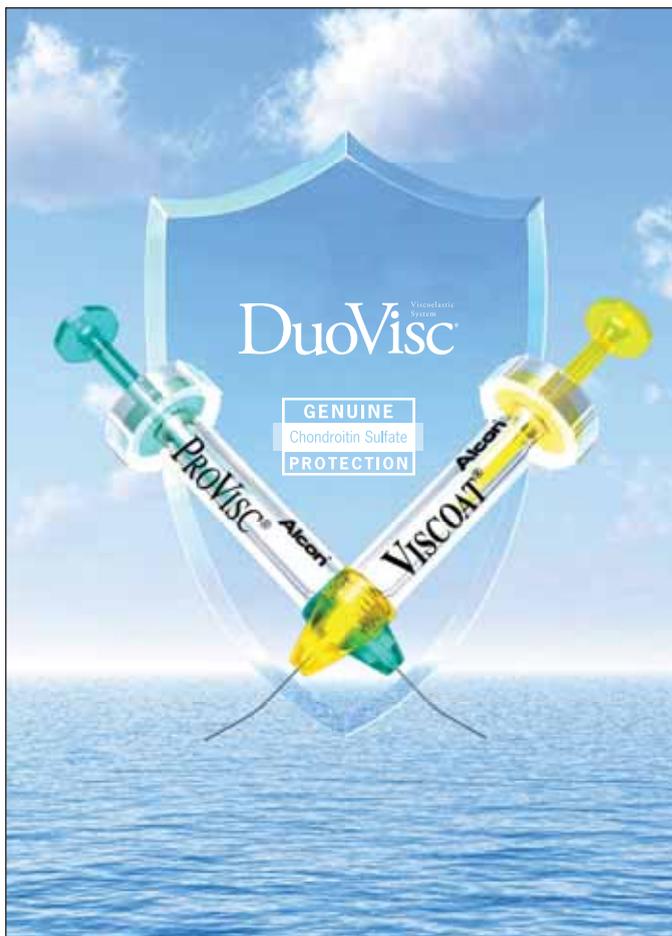


Michael Wong, MD, is in private practice with the Princeton Eye Group in Princeton, New Jersey, and he is the medical director of Wills Laser Vision at Princeton. He acknowledged no financial interest in the products or companies he mentioned. Dr. Wong may be reached at (609) 921-9437; mwong2020@hotmail.com.



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