

Complex Cataract Surgical Technique: IOL Exchange With Iris Repair

This repair and rehabilitation required a long and involved surgery.

BY UDAY DEVGAN, MD

It has happened to all of us: during cataract surgery, the iris becomes more mobile, the pupil constricts, and then pressure gradients cause the iris to prolapse out of the incision. With its delicate structure, every manipulation of the iris induces iatrogenic damage until the iris tissue is severely compromised. In the case discussed herein, the patient underwent a complicated cataract surgery approximately 1 year before presenting to my clinic. With poor pupillary dilation and a dense cataract, the case was further complicated by intraoperative floppy iris syndrome resulting in sectoral iris loss.

CONSULTATION AND EXAMINATION

During my initial consultation, the patient noted that his vision was still blurry in his right eye and that he was suffering from glare and ghosting even with his optimal spectacle prescription. An examination showed a nasally decentered three-piece acrylic IOL with the optic in the intact capsular bag but the trailing haptic above the capsulorhexis and in the sulcus. I observed 2 clock hours of sectoral iris loss under the temporal clear corneal incision. Presumably, the patient had extensive prolapse of the iris material and then iatrogenic damage, which led to the loss of iris stromal material and deformation of the pupil (Figure 1).

It was clear that this patient would benefit from at least a repositioning of the IOL. Because I could not determine if the nasal haptic were intact, however, I felt that the best decision was to perform an IOL exchange. I wanted to explant the decentered IOL and replace it with a new, defect-free IOL. I later discovered that the nasal haptic was bent and deformed, likely at the time of insertion, so it would not have been possible to mend and preserve this damaged implant.

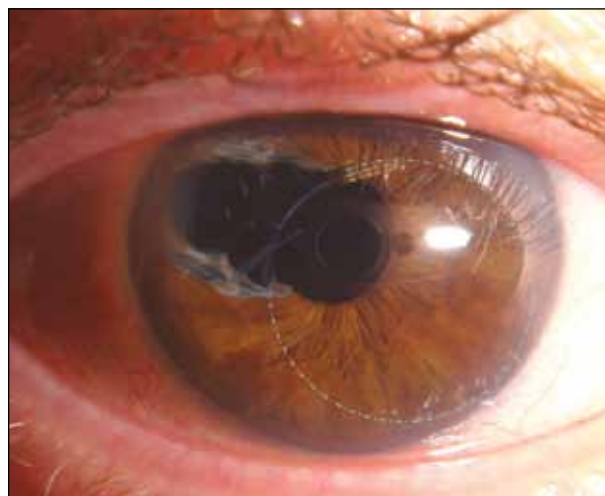


Figure 1. There is a sectoral area of iris loss and a nasally decentered three-piece IOL. The dotted blue line indicates the position of the optic.

SURGERY

To surgically repair and rehabilitate this eye required a lengthy and involved surgery, so it was crucial to schedule plenty of time in the OR. To ensure a patient's comfort during a surgery like this, an anesthetic block can be given along with systemic sedation. My first step was to inflate the anterior chamber with viscoelastic and then lift the iris in all four quadrants to determine the exact position of the IOL, the status of the posterior capsule, and any complicating factors. Iris hooks or a retraction device can be used to



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Figure 2. The first key is using a 27-gauge needle on the viscoelastic syringe to dissect the anterior capsular rim away from the IOL's optic (A). The second key is inserting the new IOL first, prior to cutting out the old IOL, so that the former can protect the posterior capsule (B). The third key is to suture the iris defect while the eye is full of viscoelastic and to use a 25-gauge needle to dock and guide the 10-0 suture needle out of the eye (C).

"I placed a sharp 27-gauge needle on my dispersive viscoelastic syringe via a technique that I learned from Garry P. Condon, MD."

keep the iris tissue out of the way during a lens exchange, although they were not necessary in this case.

To viscodissect the anterior capsule from the optic's surface, I placed a sharp 27-gauge needle on my dispersive viscoelastic syringe via a technique that I learned from Garry P. Condon, MD, where he uses the sharp bevel of the needle to help dissect the anterior capsular rim from the lens optic while injecting viscoelastic. This step allowed the viscoelastic to penetrate and effect dissection in this narrow space. Once a gap between the optic and the capsule was created, I switched back to the 27-gauge blunt cannula to prevent capsular damage. Making two paracentesis incisions 180° apart from each other allowed me to fully access the capsular bag for complete viscodissection of the IOL.

IOL SWAP

The old IOL was carefully dissected out of the capsular bag and brought into the anterior chamber. The new IOL was injected into position in the sulcus of the posterior segment while the old IOL was still in the anterior chamber. The new IOL protected the posterior capsule from damage as I bisected and removed the old IOL from the eye. The microscissors has sharp tips that could have damaged the posterior capsule if the new IOL had not been there to protect it. I removed the old IOL's pieces from the anterior chamber and reassembled them outside the eye to ensure that the entire device was successfully explanted.

To repair the iris defect, I used 10-0 Prolene (Ethicon, Inc.) on a long, straight needle. In most situations, iris



Figure 3. At the end of the case, the new IOL is well centered, and the iris defect is closed, resulting in a round pupil.

defects of 2 clock hours or less can be successfully sutured, whereas larger sectoral defects may be better addressed with prosthetic iris implants. I passed the 10-0 suture through the peripheral cornea and into the iris stroma, which was somewhat atrophic and fragile. I used a 25-gauge needle to help guide the suture into the receiving iris tissue and then out the paracentesis incision. I used a McCannell knotting technique to tie the suture securely via the main temporal incision. I repeated this process and placed more interrupted 10-0 sutures to completely close the defect (Figure 2).

FINISHING UP

At this point, I removed the viscoelastic from the eye and hydrated and sealed the corneal incisions. The post-operative period was uneventful, with progressive healing over the course of the ensuing few weeks. The patient recovered excellent vision and no longer has issues with

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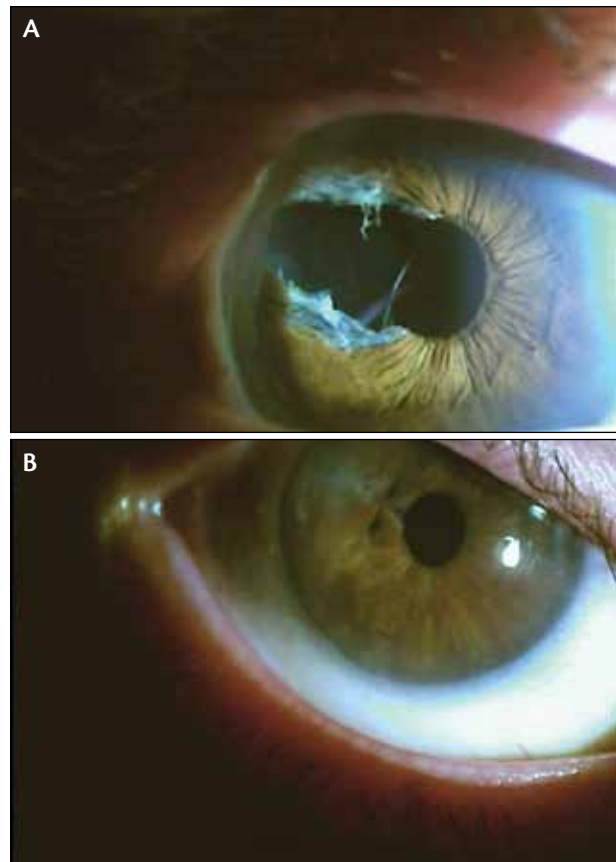


Figure 4. The before (A) and after (B) pictures show a significant improvement in the patient's cosmetic appearance, but more importantly, he reports a dramatic improvement in his vision.

glare or ghosting. An added benefit was the restoration of his ocular anatomy with an excellent cosmetic appearance.

Complications from cataract surgery can happen to any ophthalmologist, but fortunately, there is often a way to restore vision to the patients. The risks are higher, and the procedure is more challenging than the original cataract surgery. In many cases, however, the potential benefit makes it all worthwhile. Using the techniques of lens exchange and iris suturing, this patient's extensive complications from prior cataract surgery were successfully addressed, with restoration of excellent visual function (Figures 3-4). ■

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