

# Multifocal IOL Exchange

An in-the-bag technique in the presence of a previously made YAG posterior capsulotomy.

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IOL exchange is a useful technique in a variety of circumstances, and it should be part of all refractive cataract surgeons' armamentarium. Our case involves a 65-year-old man who had undergone uneventful, sequential, bilateral phacoemulsification and the implantation of diffractive multifocal IOLs. Several months after surgery, he developed glaucoma in his right eye with an arcuate scotoma and nerve fiber layer defect that had not been present preoperatively. He could no longer tolerate multifocal vision in this eye. After a lengthy discussion regarding the risks of explanting the lens, the patient strongly requested an IOL exchange.

## SURGICAL TECHNIQUE

The basic principles of an IOL exchange involve a thorough preoperative evaluation of the position of the patient's IOL, the capsular bag, and the type of lens implanted at the time of the original surgery. The surgical plan can then allow for an IOL exchange.

The first and probably most important step in an IOL exchange is to examine the capsular bag. The surgeon should pay attention to the size of the anterior capsulotomy and the degree to which it covers the PCIOL. He or she should look for pseudophacodonesis, which would suggest zonular weakness. The surgeon should also evaluate the posterior capsule for tears or a previous YAG capsulotomy, as either will require changes in the surgical technique and dramatically increase the risk of vitreous loss.

The length of time that the IOL has been in the eye also plays a role in the safety and efficacy of an IOL exchange. In general, the longer the lens has been in situ, the more difficult it is to replace. We perform specular microscopy preoperatively to evaluate the health of the corneal endothelial cells.

In this case, the patient had received a single-piece

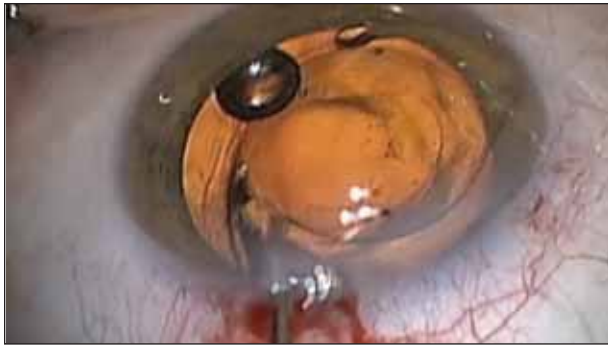


Figure 1. The surgeon uses a 30-gauge needle to dissect the anterior capsule off the IOL.

AcrySof Restor lens (Alcon Laboratories, Inc., Fort Worth, TX) 9 months earlier. The eye had also undergone a previous YAG capsulotomy. With this in mind, our surgical plan included the potential for lost vitreous and the possibility that the new lens might be placed in the sulcus or the capsular bag.

## METHODS

The patient's pupil was maximally dilated. At the time of surgery, a 2.65-mm incision was created, and a 1.2-mm stab incision was made at the 9-o'clock position. The eye was filled with a cohesive viscoelastic. An attempt to open the capsular bag with a dispersive viscoelastic on the blunt viscoelastic cannula was unsuccessful, because the capsular bag had shrink-wrapped around the IOL—a common problem. For this reason, a 30-gauge needle was inserted between the capsular bag and the IOL, and then a dispersive viscoelastic was used to inflate the capsular bag and dissect it away from the lens (Figure 1). The AcrySof Restor IOL has an acrylic haptic with a bulbous dilation, which generally encourages adhesion of the capsular bag to the haptic in this area. The surgeon therefore paid special attention to



**Figure 2.** The surgeon uses a Sinsky hook to carefully manipulate the multifocal lens out of the bag. Note the distal dilation of the haptic.

the peripheral insertion of the haptic into the capsular fornix and used a dispersive viscoelastic to open up this area. In most cases, viscodissection is helpful. In cases where the haptic is more fibrosed, it can be cut and left in place after removal of the optic.

At this point, the lens could be removed. A dispersive viscoelastic placed behind the IOL tamponaded the vitreous face in the area of the open capsulotomy. The lens was then “pea-podded” into the anterior chamber and out of the capsular bag (Figure 2). With a single-piece acrylic lens, it is best to lift the lens straight up rather than to rotate it circumferentially. In contrast, with a three-piece lens that has Prolene haptics, rotation is preferable for an IOL exchange.

The surgeon inserted a monofocal IOL into the eye beneath the multifocal lens after it was in the anterior chamber. In our experience, the anterior chamber is more than deep enough to safely allow the implantation of a second lens. The surgeon placed the three-piece monofocal aspheric IOL in the capsular bag and rotated it into position. Inserting the second IOL into the eye before removing the first lens allowed the latter to tamponade the vitreous face and dramatically reduce the risk of vitreous loss upon the original IOL's removal. A small degree of vitreous loss occurred that would have been significantly greater had the monofocal lens not been in place. Once the monofocal lens was well positioned, the surgeon grasped the multifocal IOL from the side using a Mackool Lens Removal System (Impex, Inc., Staten Island, NY). He used the scissors to cut the lens to 90% of its length. Next, he grasped the haptic and rotated half of the lens out of the wound. The lens was then rotated 90°, after which the trailing half of the lens was rotated out of the eye. Finally, with the haptics in the sulcus, the surgeon captured the optic behind the capsulotomy to ensure the IOL's centration.

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The surgeon instilled Miochol-E (Novartis Ophthalmics, Inc.) into the eye to make certain that there was no vitreous loss or adhesions. Postoperatively, the patient followed an aggressive topical nonsteroidal and corticosteroid therapy to reduce the risk of inflammation and cystoid macular edema. The patient had a two-line improvement in BCVA and, more importantly, a subjective improvement in his quality of vision. The IOL exchange is an important procedure in the armamentarium of the refractive cataract surgeon. ■

A video of this case is available at <http://eyetube.net/?v=hogis>.



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#### For further reading

1. Woodward MA, Randleman JB, Stulting RD. Dissatisfaction after multifocal intraocular lens implantation. *J Cataract Refract Surg.* 2009;35(6):992-997.
2. Galor A, Gonzalez M, Goldman D, O'Brien TP. Intraocular lens exchange surgery in dissatisfied patients with refractive intraocular lenses. *J Cataract Refract Surg.* 2009;35(10):1706-1710.
3. Karamaounas N, Kourkoutas D, Prekates C. Surgical technique for small-incision intraocular lens exchange. *J Cataract Refract Surg.* 2009;35(7):1146-1149.

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