

Clever Techniques for Inside and Outside the OR

Surgeons provide a step-by-step analysis of some of the most watched videos on Eyetube.net.

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UDAY DEVGAN, MD; DAVID R. HARDTEN, MD; AND RUPAL SHAH, MD**

AMAR AGARWAL, MS, FRCS, FRCOPHTH, AND SOOSAN JACOB, MS, FRCS, DNB

In our video, we present the IOL scaffold technique, whereby a three-piece IOL acts as a temporary platform to prevent nuclear fragments from falling into the vitreous cavity (Figure 1). We favor this technique in cases of posterior capsular rupture in eyes with moderate to soft nuclei that have not been phacoemulsified and remain in the capsular bag.

To begin, we introduce an anterior chamber maintainer through a 1.2-mm stab incision made with a microvitrectomy blade. The maintainer is positioned away from the posterior capsular rupture, and the flow is low. We perform an anterior vitrectomy to remove the vitreous that prolapsed into the anterior chamber. Then, we pass an Agarwal globe stabilization rod (Katena Products, Inc.) through the sideport incision to push the fragment away from the ruptured posterior capsule.

After the nuclear fragments are brought up into the anterior chamber, we inject a foldable IOL via the existing corneal wound and maneuver the lens below the nucleus. The leading haptic of the IOL is positioned above the iris, and the trailing haptic is placed just outside the incision. Using a dialer in our nondominant hand, we maneuver the junction of the optic-haptic on the trailing side so that the IOL blocks the pupil. In this way, the IOL acts as a scaffold and prevents the fragments from falling into the vitreous cavity. Alternatively, we can implant the IOL in the sulcus above the capsulorhexis if the anterior capsule is supported or place both of the haptics above the

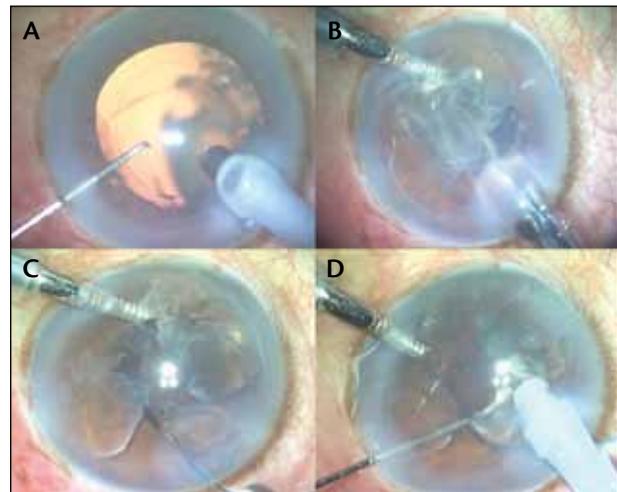


Figure 1. The IOL scaffold technique. A posterior capsular rupture occurs during phacoemulsification while the epinucleus is still in the eye (A). The surgeon places an anterior chamber maintainer, performs a vitrectomy, and brings the epinucleus anteriorly. Next, the surgeon injects a three-piece IOL under the epinucleus (B). One haptic can be placed above the iris, and one haptic can be placed outside of the incision. Alternatively, both haptics can be placed above the iris or above the anterior capsule (C). The IOL acts as a scaffold and prevents the epinucleus or nuclear pieces from falling into the vitreous cavity. The surgeon can now safely emulsify the nuclear or epinuclear material and then implant an IOL in the sulcus (D).

iris. We remove the nuclear fragments with a phaco probe on low flow and vacuum. Cortical material is removed using a vitrectomy probe with suction and low aspiration. With the nondominant hand, the trailing optic-haptic junction is adjusted so that the

IOL is well centered over the pupil, where it acts as a scaffold while the nucleus is emulsified. Once cortical cleanup is complete, we place the IOL over the capsular remnants in the ciliary sulcus. At the conclusion of the procedure, we remove the anterior chamber maintainer and hydrate the wound.

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UDAY DEVGAN, MD

I present an IOL exchange and iris repair that ensued after a complex cataract surgery. During the initial surgery, intraoperative floppy iris syndrome due to the α -blockers used to treat the patient's enlarged prostate caused the iris to prolapse out of the phaco incision and led to the subsequent loss of iris stromal tissue. A three-piece IOL was partially placed in the capsular bag, with the trailing haptic in the ciliary sulcus (Figure 2).

With careful dissection, I freed the IOL from the posterior chamber and brought it up into the anterior



Figure 2. This patient has a dislocated IOL and loss of iris tissue near the phaco incision after difficulty with iris prolapse during cataract surgery.

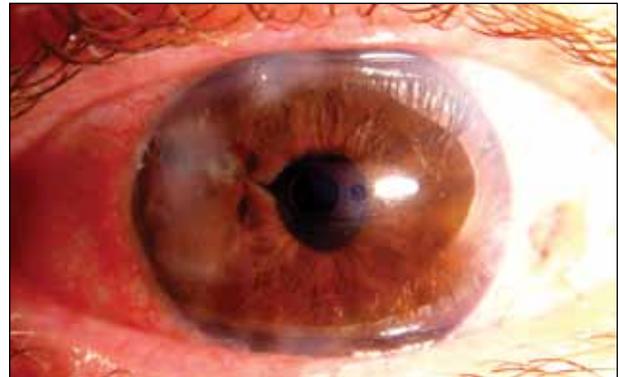


Figure 3. The final result after an IOL exchange with the new lens centered in the sulcus and suture repair of the iris defect.

chamber. To protect the intact capsular bag from iatrogenic trauma from the microscissors, I placed the new IOL in the ciliary sulcus first, and then, I bisected the initial IOL and removed it from the eye. The anterior and posterior capsular tissue was fused together, and the bag could not be opened to accept a new IOL; thus, the sulcus was chosen for IOL placement. Because the iris defect was about 2 clock hours in size, it could be closed with sutures. I placed sutures to approximate the residual tissue to re-form the pupil (Figure 3). I carefully avoided placing a suture at the pupillary margin, because the suture could restrict dilation as well as limit surgeons' ability to examine the posterior segment in the future.

One month later, I performed cataract surgery on the patient's other (virgin) eye. As expected, the pupil dilated poorly, and the iris was floppy. This was a challenging case that fortunately went well. The most important take-home lessons from this case are that

- complications happen to all surgeons, but it is possible to have a successful outcome even if it requires a second surgical procedure
- if a patient has a complication from surgery on one eye, then he or she is very likely to have a similar course in the other eye. Always give the first operating surgeon the benefit of the doubt.

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DAVID R. HARDTEN, MD

The management of meibomian gland inspissation has evolved tremendously over the past several years. For a long time, lid hygiene, tears, and oral tetracycline were the only treatments available to manage



Figure 4. After intense pulsed-light therapy, the patient is positioned at the slit lamp to undergo meibomian gland probing.

blepharitis. With the ophthalmic field's newfound understanding of the pathology, advanced treatments have become more common for patients with recalcitrant disease. My video reviews the practice protocol for aggressively managing meibomian gland inspissation with intense lid treatments. Meibomian gland probing (Maskin Meibomian Gland Intraductal Probe; Rhein Medical Inc.), intense pulsed-light therapy, and LipiFlow (TearScience, Inc.) are among the treatments I demonstrate (Figure 4).



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David R. Hardten, MD, is the director of refractive surgery at Minnesota Eye Consultants in Minneapolis. He stated that he has no financial interest in the instruments he developed for Rhein Medical Inc. He has performed consulting and research for TearScience, Inc. Dr. Hardten may be reached at (612) 813-3632; drhardten@mneye.com.



RUPAL SHAH, MD

I demonstrate how to perform ReLEx smile (Carl Zeiss Meditec AG; not available in the United States), a minimally invasive, all-in-one laser vision correction procedure performed with the VisuMax femtosecond laser (Carl Zeiss Meditec, Inc.). Using the laser, I carve out a refractive lenticule from within the corneal stroma. The application of ultrashort, high-intensity, tightly focused laser pulses to the cornea creates plasma bubbles in the focal center. When the bubbles fuse, I



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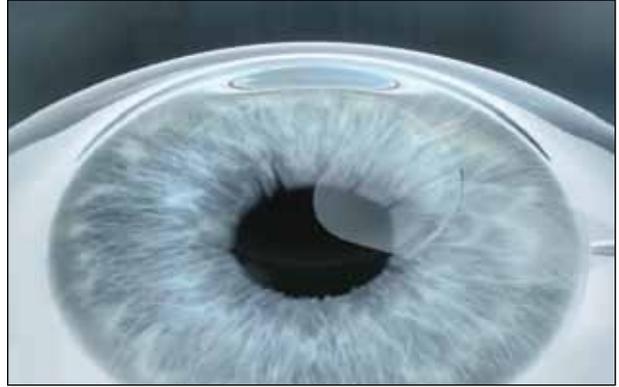


Figure 5. The lenticule is removed through a small incision 3- to 5-mm wide.

manually dissect the remaining bridges of tissue and remove the lenticule through a small incision 3- to 5-mm wide (Figure 5). Refractive errors are corrected through the reshaping of the cornea. In my experience, patients' visual recovery is similar to that after LASIK. ■

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