

Transitioning From Cataract to Refractive IOL Surgery

A primer on postoperative enhancements.

BY ERIC D. DONNENFELD, MD

I believe that refractive IOLs will take ophthalmology by storm in the coming years. Many surgeons are interested in adopting this technology but are also hesitant because of certain misconceptions they have about the procedure. I would like to debunk some of these “refractive legends” and also provide a brief primer on one of the most intimidating aspects of refractive IOL surgery: postoperative enhancements.

Refractive Legend No. 1: Presbyopic IOL patients tolerate small refractive errors.

Wrong. Presbyopic IOL patients are incredibly sensitive about their visual quality. One-half a diopter of mis-correction is sometimes too much. I perform refractive enhancements in approximately 10% of my multifocal IOL patients. I aim for +0.10 D of correction and use no adjustments. To perform refractive IOL surgery, you have to be willing and able to fix these errors.

Limbal relaxing incisions (LRIs) are among the fastest, easiest, and most effective ways to correct residual refractive error. Several notable physicians have excellent LRI nomograms, some of which are available on the Internet. I use a simplified nomogram for easy application. For 0.50 D of cylinder, I make one incision of one-half clock hour. For 0.75 D, 1.50 D, or 3.00 D, I make two paired incisions of 1 clock hour, 2 clock hours, or 3 clock hours (Figure 1 [slide 18]). I lengthen the incisions slightly for against-the-rule cylinder and younger patients and shorten the incisions somewhat for older patients. This approach is effective and useful for an initial experience with LRIs, although it may not be as precise as other nomograms.

Surgeons should perform their first few LRIs in the OR during cataract surgery and under peribulbar anesthesia. I first mark the correct axis of keratometric astigmatism and then I insert the diamond blade and let it settle into the cornea for a second. I then fixate they eye and draw the knife toward myself.

Refractive Legend No. 2: Surgeons are not comfortable performing LRIs.

LRIs are easy to perform; the problem is that many oph-

LIMBAL RELAXING INCISIONS FOR DUMMIES DONNENFELD NOMOGRAM: “DONO”

0.50 D: 1 incision 1.5 clock hours
0.75 D: 2 incisions 1 clock hour
1.50 D: 2 incisions 2 clock hours
3.00 D: 2 incisions 3 clock hours

- A little more for against-the-rule astigmatism and younger patients.
- A little less for older patients.

thalmologists do not have access to an operating microscope in their offices. The solution is to perform LRIs at the slit lamp for small amounts of cylinder. I have been using this technique for approximately 10 years because it is simple and effective. I use lidocaine gel and operate in the steep axis. When the patient is seated, I move the phoropter next to his head, and I dial in the plus-cylinder (steep) axis to determine where to place the incision.

First, I instill a drop of antibiotic 5 to 10 minutes before the surgery. I use Zymar (Allergan, Inc., Irvine, CA) with benzalkonium chloride (BAK) because it kills microorganisms rapidly. Because LRIs inoculate the deep cornea and an infection can be devastating, I feel more confident using an agent with BAK than without. I also treat these eyes with an NSAID preoperatively (Acular LS [Allergan, Inc.]) to inhibit the production of prostaglandins from causing ocular discomfort, iritis, and photophobia.

Next, I position the 600- μ m preset diamond knife at the side of the cornea and make the incision 0.5 mm from the limbus. Postoperatively, I have the patient use Zymar q.i.d. for 5 days. I may also prescribe Acular (Allergan, Inc.) q.i.d. for 5 days to ease any ocular discomfort. I instruct the patient not to touch his eye, because the incision can throb a little. Usually, this procedure makes the difference between a patient's being 20/25 unhappy and 20/20 delighted.

BEST OF SOURCE

Myth No. 3: If you offer multifocal IOLs, you have to be able to perform LASIK for refractive touch-ups.

Nothing could be farther from the truth. In fact, I think PRK is better than LASIK for postoperative touch-ups. If your refractive surgery volumes are not high but you want to get involved in multifocal IOLs, do PRK, because it is less stressful and may produce better results than LASIK. Two types of corneas that may tolerate PRK best are those of older patients that have less-adherent epitheliums and eyes that have undergone conventional ablations as opposed to customized. For conventional PRK, I position the patient under the VISX iris registration operating microscope (Advanced Medical Optics, Inc., Santa Ana, CA), mark the center of the cornea, and wipe off the epithelium, which usually comes off easily. I then perform photoablation and complete the operation. Making such small ablations, usually of 1.00 D or less, usually takes no more than 30 seconds.

I firmly believe that all refractive surgical eyes should receive an NSAID postoperatively as soon as possible. A bandage contact lens soaked in Acular LS controls pain excellently. However, I would never soak a contact lens in any other NSAID, because other agents may be too toxic, and there is no literature to support their use in this manner. I am also confident using Acular LS with Restasis (Allergan, Inc.) postoperatively. I prescribe Pred Forte (Alcon Laboratories, Inc., Fort Worth, TX), Acular LS, and Zymar q.i.d. I have the patient stop using Acular LS at 3 days, I discontinue the antibiotics when the epithelium closes (usually after 4 to 5 days), and I taper the Pred Forte over 3 to 4 weeks.

GETTING INVOLVED IN REFRACTIVE IOLS

Multifocal IOLs require expert cataract surgery. Pay attention to details and maximize outcomes with the appropriate pharmaceuticals. Be willing and able to treat small refractive errors. Learn how to perform LRLs and PRK or else partner with a refractive surgeon. Refractive IOL patients are among the most demanding and challenging ones we face, but they also represent an enormous opportunity. Giving a patient good near, far, and intermediate vision for the rest of his life is an incredibly satisfying feeling, and I am confident that we can now offer this procedure to the majority of patients. ○

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