

# Accurate Results and High Premium IOL Conversions

Careful patients' and staff education help patients select the best technology available.

**BY ALAN SHELTON, MD**

**R**esearch firm Market Scope reports that almost 85% of US cataract surgeons offer premium IOL options to their patients and that 15.2% of all cataract and refractive lens exchange patients elect one of these lenses.<sup>1</sup> Although the slow market penetration can be somewhat attributed to the economy, it may be more influenced by physicians' attitudes toward educating their patients about premium IOLs. I find that achieving accurate, tight results goes hand in hand with high conversion rates.

My practice serves a predominantly managed care population in a suburban area, and 20% to 25% of my patients are not candidates for premium lenses. Even so, approximately 35% of all my patients (and 50% of candidates) elect them. Excellent education and precise results are what I believe contribute to a high conversion rate.

## **TOP-DOWN CONVERSION**

The first essential characteristic of a practice that offers premium IOLs is a practice-wide belief and

### **CASE STUDY**

I have implanted approximately 250 Tecnis Toric IOLs (Abbott Medical Optics). Based on my entire data set, no patients' outcome was more than 2° off the planned axis, a slightly better result than the data from the FDA studies that showed all lenses were within 3°.<sup>1</sup> In my experience, if there is capsular overlap all the way around the lens, and if the haptic is completely covered by the capsular bag, the lens stays in place. Intraoperatively, the implant can be rotated backward if removing the viscoelastic causes it to move.

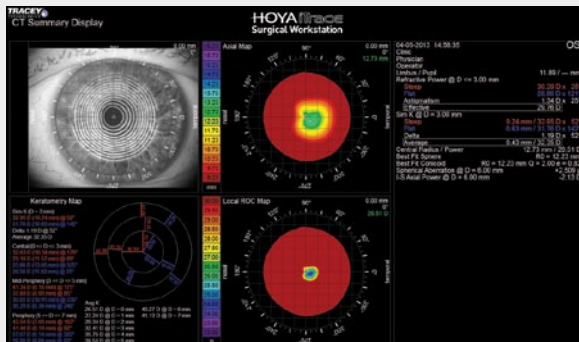
It can be quite difficult to measure astigmatism in the eyes of patients who have undergone refractive surgery, particularly RK. Such individuals can have 2.00 to 3.00 D of astigmatism on a nonorthogonal axis, presenting the challenge not just of on what axis to align the lens but also what IOL power to use spherically. With these cases in particular, it is essential to precisely define the volume of astigmatism and tightly match the corneal power to the implant. Patients who have had LASIK or penetrating keratoplasty and those with keratoconus and scarred corneas also have irregular astigmatism. The key is to determine

the steep axis for orientation, and the lens' power can be determined by refractive keratometry (K) values. In my experience, anatomic landmark determination with the iTrace has eliminated the inaccuracies of marking.

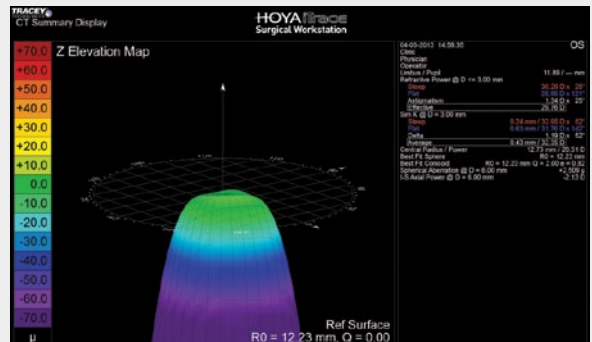
A 69-year-old patient who underwent bilateral RK 23 years earlier was diagnosed with cataracts and planned to have monovision correction, with the left eye targeted for distance correction. No data previous to the RK procedure were available. Historically, the patient was consecutively hyperopic 8 to 10 years after RK in both eyes, with hyperopia in the left eye that was relatively stable at +3.25 +1.00 × 102 and a visual acuity of 20/30 in 2008. Her cataracts progressed 1 year prior to the current presentation, and the BCVA declined to 20/60 OU. The patient has well-controlled diabetes on insulin with an A1C of 5.8, mg/dL no other ocular issues, a normal retina, and an IOP of 18 mm Hg with a 0.2 cup-to-disc ratio.

The topographical summary of the patient's left eye showed refractive Ks of 30.29 @ 25 by 28.96 @ 121, a mean of 29.76 with 1.34 D @ 25°. The simulated Ks (3 mm) were

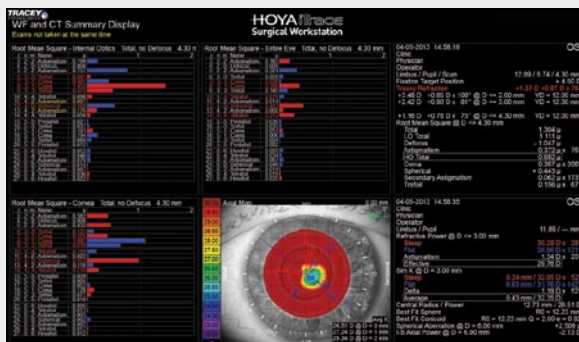
**CASE STUDY (CONTINUED)**



**Figure 1.** The K readings for a cataract patient who previously underwent RK surgery differ significantly.



**Figure 2.** A three-dimensional elevation map shows the small central island of flattening on the cornea, along with the marked peripheral steepening, resulting from the previous RK.

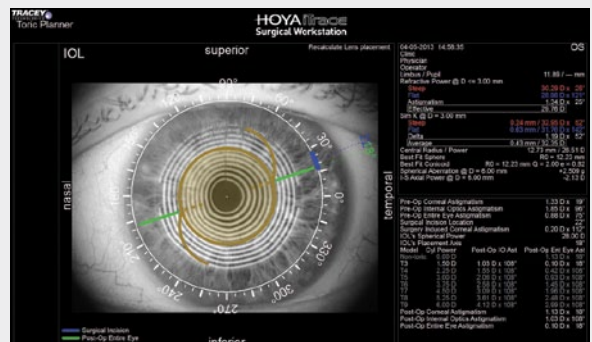


**Figure 3.** Spherical calculations made with distinct formulas produced a range of IOL powers from 27.00 D to 34.50 D.

32.95 @ 52 by 31.76 @ 143, a mean of 32.35 with 1.19 D @ 52°. This produced a difference in measured Ks of 2.59 D and 27° at the 3-mm zone (Figure 1). Additionally, the keratometric map showed remarkably irregular axes, with a central K of 26.51 D, which steepened to 41.13 D at 7 mm (Figure 2).

The patient also had significant aberrations from the cataract and the cornea, necessitating the use of all available spherical calculation formulas, including the ASCRS postrefractive calculator, Holladay I and II, Hoffer Q, SRK-T, and Haagis. Using both the refractive Ks and the simulated Ks calculated IOL powers ranging from 27.00 to 34.50 D (Figure 3). I elected to use the refractive Ks at 3 mm in the Holladay I formula, resulting in a calculation of 28.00 D for the spherical IOL power (Figure 4).

Wavefront aberrometry showed astigmatism of 1.33 D at 19°. This, along with the refractive Ks of 1.34 D at 25°, most accurately reflects the power and the axis. I used the



**Figure 4.** The toric IOL planner on the iTrace shows calculation of lens placement using both refractive power and simulated Ks.

mean of the axes, 22°, for the IOL's alignment, and 1.34 D for the cylindrical IOL model selection.

In eyes that previously underwent 8- or 16-cut RK, I avoid incisions in the cornea and opt for a scleral incision about 1.5 mm postlimbus, on the axis. I find this results in a negligible surgically induced astigmatic error (< 0.10 D) and avoids the previous RK incisions, minimizing induced incisional edema or instability.

Postoperatively, the patient initially had some asymmetric edema in the inferior RK incisions but stabilized by 15 days. The refraction was stable at 3 weeks at -0.50 D sphere with a UCVA 20/25-. A second procedure was performed on the right eye 2 months later, using a similar methodology and targeting plano. The results were similar, and the 1-year refraction and iTrace analyses have remained stable for both eyes.

1. Tecnis Toric 1-Piece IOL [package insert]. Santa Ana, Calif: Abbott Medical Optics.

endorsement that the lens that fits the eye the best is the best lens. Once the doctor believes that is the case, everyone—from the receptionist to the technicians to the patients—also needs to buy in to this philosophy. Word of mouth is very potent marketing, and patients who truly believe they got the best lens for their eyes are much more likely to tell others.

Second after creating that baseline understanding in your entire practice, is to sit down with the patient and determine which lens best fits his or her eye. That IOL is not necessarily the same as the one that is best for him or her. The former involves a psychosocial decision that includes the patient's lifestyle, habits, and preferences. From an anatomical standpoint, some patients will have multiple choices, but many have a single lens that will best fit their eye. For example, a patient with 3.00 D of cylinder will likely find that a toric IOL best fits his or her eye.

## **DELIVERING RESULTS**

Patients' education and physicians' recommendations are important, but the surgeon must produce the promised results. Accuracy starts with a combination of well-performed aberrometry and topography. In our experience, having the same technician take all patients' pre- and postoperative measurements and conduct both biometric and corneal assessments creates a more consistent data set. Then, it is up to the surgeon to evaluate all of the data and determine the patient's true amount and axis of astigmatism. I evaluate the entire cornea and determine the real axis on a global spectrum, at all pupillary sizes. Rather than using only 2- to 3-mm

**RESULTS WITH TORIC IOL TECHNOLOGY****By Kurt D. Weir, MD**

I have been very impressed with the results that I have had in my practice using the recently approved Trulign Toric posterior chamber IOL (Bausch + Lomb). My colleagues and I have implanted more than 200 of these lenses since the product's release. I also use the other available toric IOL technologies. In my hands, however, the Trulign is the most stable platform, and my patients attain an expanded range of vision.

**PATIENTS' EDUCATION AND CONVERSION CONVERSATIONS**

My practice's educational process begins when patients schedule an appointment for a cataract consultation. We send a small packet that discusses all of the premium implants as well as astigmatic correction. We also include a simple questionnaire that asks things like the following: Is reading without glasses important to you, and would you like to be less dependent on glasses after surgery? We list three different categories of IOLs and ask patients to check their preferences and note if they would be interested in hearing more if they were deemed a good candidate for the technology.

This introduction to the technology opens patients' minds to the options, and often, it encourages them to do their own research. My technician also "sets the table" for my discussion with patients. When I discuss the options for cataract surgery, I key in to how they respond to my statements about their dependency on glasses. This assists with efficiency and time, and it helps me tailor my conversation.

**EXPECTATIONS**

The conversion rate in our practice is about 50% overall but is far less in our rural satellite locations. I believe that patients' expectations are key: if you set them appropriately for the technology, I find patients are very happy with it.

I let them know that, with the Trulign, I expect them to have great distance and tremendous intermediate vision. I explain that they will be able to read in good light if the font is large enough but that they should expect to need readers.

I attribute the success of toric IOLs in our practice to a lot of little things we do well. I estimate that 80% of our Trulign patients are a source of referrals.

*Keith D. Weir, MD, is in private practice at Weir Laser Associates in Oklahoma City, Oklahoma. He is a consultant to Bausch + Lomb. Dr. Weir may be reached at (405) 605-4350; kurtweir@cox.net.*

data from a topographer or optical biometry, I rely on aberrometry and topography data from the iTrace unit. See the accompanying *Case Study*.

**EFFORTLESS CONVERSION**

My conversations with patients have changed. In the past, I informed my patients that surgery on their first eye went well and said we could proceed with their second eye. Now, my patients ask me a day or a week after the first procedure when I can operate on their second eye. That tells me that patients feel that they are healing faster or have better visual acuity at an earlier point.

When the physician and staff believe in the technology and are matching the anatomically best lens to the patient, and the practice is committed to obtaining

the best outcomes, economics take a back seat. Some patients simply cannot afford any out-of-pocket expense, and that is the number one reason patients in my practice do not choose a premium IOL. Most patients, however, when they perceive value, will opt for the premium option. ■

*Alan Shelton, MD, is the medical director at California Eye Specialists in Pasadena, California and the Eye Surgical Center in Glendale. He is a consultant to Abbott Medical Optics. Dr. Shelton may be reached at (626) 305-9100; drshelton@caleyems.com.*



1. Market Scope 2013 Survey of US Cataract Surgeons/Practices. Information found <http://bmctoday.net/crctoday/2013/10/article.asp?f=premium-cataract-surgery-goes-mainstream>. Accessed April 11, 2014.