

Pearls for Success With Premium IOLs

One surgeon provides tips for smooth pre-, intra-, and postoperative processes.

BY MICHAEL C. KNORZ, MD

I have implanted my share of premium IOLs over the years—some resulting in outstanding postoperative outcomes and some with outcomes that were less impressive. Through my experience, I have constructed a surgical process that works for me. I doubt I will ever be finished tweaking this process, from the preoperative exam to the surgery itself and finally to the postoperative follow-up, but along the way I have formulated a few tips and tricks that aid in producing a final result that I, and my patient, can be proud of. Below is a compilation of these pearls.

PREOPERATIVE PEARLS

No. 1: Set realistic patient expectations. My most important pearl is obvious, but one that is in my experience often not taken seriously enough: We must understand what the patient expects! My patients in Germany, for example, typically expect that they will be able to read without any effort after cataract surgery. It is difficult to make them understand the limitations of monovision or intermediate vision because they simply expect to read without glasses. My first pearl is to make the patient understand.

But how?

If the lens opacity is slight or if the patient is undergoing a refractive lens exchange, I demonstrate monovision with disposable contact lenses (dominant eye, plano; nondominant eye, -1.25 D). If the patient finds monovision acceptable, I implant accommodating IOLs in both eyes, typically

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Synchrony IOLs (Abbott Medical Optics Inc., Santa Ana, California), and aim for some monovision (dominant eye, plano; nondominant eye, -0.50 to -0.75 D). I counsel the patient that reading glasses will still be necessary for prolonged reading. If this strategy is not acceptable because the patient's reading ability is not good enough with monovision, I use a diffractive multifocal IOL in both eyes, the AcrySof IQ ReStor +3.0 D (Alcon Laboratories, Inc., Fort Worth, Texas) being my preferred lens because of its lower near add.

No. 2: Consider toric multifocal IOLs. My second pearl is also common knowledge: In premium IOL surgery, we must hit the target refraction precisely. If we miss, the patient is sure to be unhappy, especially if we promised some degree of spectacle independence. Laser vision correction is a safe way to enhance the unhappy patient after IOL implantation, and it can certainly be used to treat residual errors.

As most residual errors are actually due to induced or incompletely corrected corneal astigmatism, my pearl is to increase the use of toric multifocal IOLs. Even small

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amounts of astigmatism are detrimental to vision with a multifocal IOL. I therefore use toric multifocal IOLs such as the ReStor Toric, even for patients with small amounts of corneal astigmatism (0.75–1.00 D). This has significantly reduced the number of laser enhancements we perform.

No. 3: Be honest with the patient. Another issue is to address the patient's expectations for postoperative refraction preoperatively. With many accommodating IOLs, postoperative refraction changes significantly over the first few weeks, typically starting on the myopic side. I find it helpful to point out to my patients that they will need glasses for driving and other distance tasks in the immediate postoperative period and for up to a couple of weeks after surgery.

INTRAOPERATIVE PEARLS

No. 4: Locate the pupil center. Centration is extremely important when implanting a premium IOL. More specifically, a multifocal IOL will not perform well if it is decentered in reference to the normal-diameter pupil. The fact that we dilate the pupil before surgery frequently makes it difficult to judge where to center the capsulorrhexis. As a small pearl, I recommend noting in the patient's chart where the pupil center is located when he or she is examined with undilated pupils at the slit lamp. A larger pearl is use of a sophisticated device, the Surgery Guidance (SG) 3000 or SG 5000 (Sensomotoric Instruments [SMI], Berlin, Germany), which allows the surgeon to measure the center of the normal pupil and the axis of astigmatism before surgery. During surgery, a video overlay is displayed on the surgical monitor or in the operating microscope. This overlay provides the exact axis of corneal astigmatism, the size and the position of the capsulorrhexis to be performed, and the ideal position of the toric and/or multifocal IOL to be implanted as a reference for the surgeon. Using such a guidance system takes all the variability out of IOL placement and increases predictability. I am confident these systems will become the standard of care for premium IOL implantation soon.

No. 5: Address corneal astigmatism. Another small pearl is the use of incision placement to address corneal

astigmatism. Currently there are no toric accommodating IOLs, but it is important to minimize corneal astigmatism every time such an IOL is implanted. I always use incision placement to achieve this goal.

My standard incision is a clear corneal 2.2-mm incision. If there is no astigmatism, I perform a 2.2-mm limbal incision located superotemporally (not in clear cornea), as this will induce no astigmatism. If there is 0.50 to 0.70 D of corneal astigmatism, I use one clear corneal 2.2-mm incision placed on the steep meridian. If corneal astigmatism ranges from 0.75 to 1.25 D, I add a second clear corneal 2.2-mm incision on the opposite half-meridian. If there is 1.50 to 2.00 D, I enlarge those two incisions to 3.0 mm prior to IOL implantation. In my experience, higher amounts of astigmatism cannot be corrected with this technique; in these cases, I inform the patient that laser vision correction will likely be needed 3 months after IOL implantation.

POSTOPERATIVE PEARLS

No. 6: Use aberrometry. Dealing with multifocal or other premium IOLs, we come across the occasional unhappy patient. It is important to analyze the reason for the unhappiness. Corneal topography must be performed to locate corneal irregularities or tear film abnormalities. Aggressive treatment of dry eye frequently will improve results, and optical coherence tomography must be used to evaluate the retina.

The real pearl here is to use aberrometry to judge the impact of the IOL. Typically with a normal cornea—meaning one with normal corneal topography—the wavefront measurement of a diffractive multifocal IOL will not show a lot of higher-order aberrations (HOAs); however, this is different for a refractive multifocal IOL. The reason is that the aberrometer picks up the distance focus of the diffractive IOL and neglects the near focus. If the aberrometer shows a lot of HOAs, this indicates that the IOL is decentered or tilted or that something else is wrong with it. The aberrometry therefore proves that the IOL is the cause of the patient's unhappiness. In these circumstances, the IOL should be exchanged, and I would typically exchange the multifocal IOL for a monofocal IOL. However, if there is visible decentration (in reference to the pupil), it is worthwhile to recenter the IOL first. ■

TAKE-HOME MESSAGE

- The use of toric IOLs is likely to reduce the number of laser enhancements needed.
- A guidance system can take the variability out of IOL placement.
- If the patient is unhappy after surgery, analyze the reason for his or her unhappiness.

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