

# Managing Astigmatism at the Time of Cataract Surgery

New technology may aid in accuracy.

BY ROBERT WEINSTOCK, MD

**D**espite presentations, articles, and even books on the subject, few ophthalmologists correct astigmatism at the time of cataract surgery, but that is beginning to change. The increasing use of accommodating, multifocal, and other premium IOL technologies is creating the new specialty of refractive cataract surgery. A growing number of patients now expect to have excellent postoperative vision and minimal dependence on spectacles. The only way for us to achieve these goals is to use all of the principles of refractive surgery in cataract surgery, including the reduction of astigmatism.

The challenge with any form of astigmatic correction is to be accurate and predictable in order to provide the desired results for our patients. A new intraoperative wavefront aberrometer may help.

## OPTIONS FOR ASTIGMATIC CORRECTION

Estimates vary, but between 40% and 50% of patients have enough corneal astigmatism to be corrected at the time of cataract surgery. For many years, a small number of cataract surgeons have made corneal (limbal) relaxing incisions (LRIs) for this purpose. Another, increasingly popular option is the use of toric IOLs to reduce or neutralize corneal astigmatism—alone or in combination with LRIs or LASIK.

Prior to surgery, it has been extremely important to perform accurate manifest and cycloplegic refractions,



Figure 1. Dr. Weinstock uses the ORange intraoperative wavefront aberrometer. The device is attached to the bottom part of the microscope.

wavefront aberrometry, and corneal topography to provide an overview of the total optical system. We evaluate the preoperative data, devise a surgical plan for correcting astigmatism, execute it in the OR, and then wait to see what the results are.

In many cases, the waiting game works well, but there may be a better option. I am currently involved in clinical studies for the ORange intraoperative wavefront aberrometer (WaveTec Vision Systems, Aliso Viejo, CA). As an investigator, I am studying the use of the ORange to help guide astigmatic corrections at the time of cataract surgery. The device is designed to provide a real-time analysis of changes in the refractive status of the

eye during surgery. For example, images captured with the device allow me to see if I have corrected all of the astigmatism or if I need to change the arc length or depth of an incision.

When implanting a toric IOL, I can obtain an image with the aberrometer while the patient is still on the table (Figure 1) and see to what degree the corneal astigmatism has been corrected. If there is residual astigmatism, I can rotate the lens and/or create additional LRIs before obtaining another image to re-evaluate the effect. These intraoperative measurements may help guide surgery and limit the need for additional procedures.

The ORange may also allow us to calculate the proper IOL power intraoperatively. By performing a wavefront measurement after removing the crystalline lens and then using the aphakic refractive data to determine the accurate implant power, I could verify that I selected the proper IOL power. This technique might be particularly useful in patients who have undergone previous corneal refractive surgery.

### PREMIUM PROCEDURES

Although our efforts to satisfy patients' rising expectations may demand more time from us and raise our stress level, the combination of premium IOLs and the intraoperative analysis of refractive results also represents an opportunity for us to market a premium procedure and to validate the charge to the patients for the additional work. As the public becomes increasingly aware of premium IOL technologies and the possibilities for presbyopic and astigmatic correction, their demand for these products will grow. We refractive cataract surgeons must ensure that we have the right technology to meet these patients' demands. The ORange intraoperative wavefront aberrometer may be an essential tool for achieving this goal. ■

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