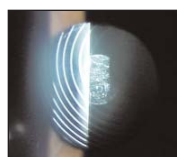


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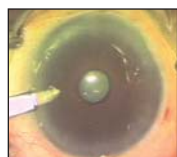
Highlights from the
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37 PEARLS FOR IOL EXCHANGES WITH MULTIFOCALS

Strategies for avoidance, and management when necessary.

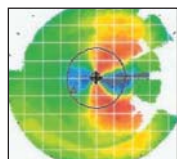
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A series of management strategies can reduce the difficulty of small-pupil surgery.

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Topography is a critical planning tool for challenging cases.

BY WILLIAM B. TRATTLER, MD

CONTRIBUTORS



Steven J. Dell, MD, is Director of Refractive and Corneal Surgery at Texan Eye in Austin, Texas, and Medical Director of Dell Laser Consultants. He is a consultant for Allergan, Inc., Advanced Medical Optics, Inc., and Bausch and Lomb. Dr. Dell may be reached at (512) 327-7000.



R. Bruce Wallace III, MD, is Medical Director of Wallace Eye Surgery in Alexandria, Louisiana, Clinical Professor of Ophthalmology at the LSU School of Medicine, and Assistant Clinical Professor of Ophthalmology at the Tulane School of Medicine in New Orleans. He is a consultant for Advanced Medical Optics, Inc., Allergan, Inc., and Bausch & Lomb. Dr. Wallace may be reached at (318) 448-4488; rbw123@aol.com.



William B. Trattler, MD, is a corneal specialist at the Center for Excellence in Eye Care in Miami and a volunteer assistant professor of ophthalmology at the Bascom Palmer Eye Institute in Miami. He has received research support from Allergan, Inc., and Ista Pharmaceuticals, Inc., and he has received honoraria for lectures and consulting from Allergan, Inc. Dr. Trattler may be reached at (305) 598-2020; wtrattler@earthlink.com.

Pearls for IOL Exchanges With Multifocals

Strategies for avoidance, and management when necessary.

BY STEVEN J. DELL, MD

Some premium IOL patients experience a host of problems in the early postoperative period, rather than a chief complaint. Multiple irritations can compound one another until the patient is so frustrated that he cannot rationally describe what is bothering him. This can result in a flood of complaints that seem insurmountable. The trick to assuaging these patients is to maintain a calm and helpful demeanor and then systematically break each complaint down into a manageable component.

ASK A LOT OF QUESTIONS

I have found that some patients have a difficult time differentiating between problems they *see* and problems they *feel*, and they may assume the two types of complaints are linked. For example, if a patient says, "I feel like there's something in my eye,"

you must ask him to clarify. Is he seeing something in his field of vision, or is he feeling an irritant in his eye? Is he seeing unwanted images? You must determine whether this is a refractive error, or if it is something like cystoid macular edema or capsular opacification. Is the accommodation insufficient, or is the near visual range in the wrong place? Is he simply unhappy with his intermediate vision? Is the problem something he is feeling; is it an irritation due to the cataract incision, a limbal relaxing incision, dry eye, or blepharitis? These things are obviously important to differentiate, and they often coexist.

REFRACTIVE PROBLEMS

Contact Lens Trial

The next level of possibilities revolve around the IOL power and any remaining astigmatism. With any

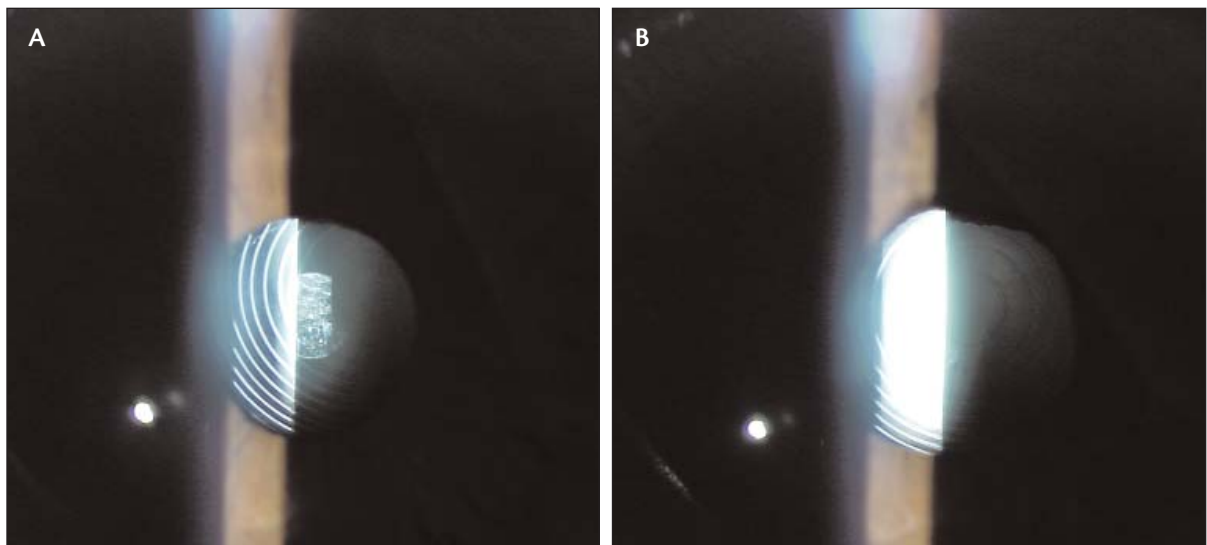


Figure 1. One approach for correcting a decentered multifocal diffractive IOL is to apply four iridoplasty treatment spots with an argon laser to align the pupil with the IOL. Shown here are the pre- (A) and postoperative (B) images.

(Courtesy of Eric D. Donnenfeld, MD.)

multifocal or accommodating lens, does the complaint resolve when the eyes are taken to their refractive target (if the original target was not achieved)? Try placing the patient in trial frames, contact lenses, or spectacles that give him the prescription you originally intended. For instance, if you planned -0.75 D OD and -0.25 D OS, and you achieved -2.00 D OD and 0.25 D OS, take the eyes to their target and see if the problem goes away. The best and most precise solution for refractive enhancements in my experience is the excimer laser.

Red Glasses

Sometimes, a patient who has received bilateral diffractive multifocal IOLs appears perfect on paper, but he still dislikes his postoperative vision for nonspecific reasons. After excluding all other remedies, you might want to try this test. Alcon Laboratories, Inc. (Fort Worth, TX), makes a pair of red-framed glasses in -3.00 D. You ask the unhappy patient to try them on, and these glasses will take his near point out to infinity, forcing him to use his near focus for distance. With no near focal point, he will experience the absolute presbyopia of pseudophakia. Explain that that is what his vision would be like with standard monofocal IOLs. Often, these patients instantly decide that the vision they have is not so bad after all, and they quickly become quite satisfied.

EXCHANGING

Setting Expectations

If you have exhausted other forms of visual correction and the patient still wishes to have his IOL(s) exchanged, it is critical that he be willing to accept any possible complications that can occur with the procedure. If I feel I need to get this point across to a patient, I may say something like, "Important parts of your eye might need to be removed along with the IOL." Furthermore, I often suggest that the patient seek a second opinion, because they can be very helpful in such emotional situations.

Does the Lens Always Have to Come Out?

It is possible that an IOL needs only to be repositioned rather than replaced. The ideal placement for multifocal diffractive IOLs is controversial. Some surgeons believe that they should be centered on the entrance pupil, but I tend to center them on the best

approximation of the visual axis. One reliable way to do this is to instill a little bit of Miostat (Alcon Laboratories, Inc.) and let the pupil come down to a mid-dilated range, and then nudge the lens slightly nasally from the center of the pupil. For eyes in which these lenses are clearly decentered, Eric D. Donnenfeld, MD, of Rockville Centre, New York, has a slightly different approach. He makes four spots with an argon laser (500 mw for 500 milliseconds to produce a 500- μ m spot size) to pull the pupil toward the IOL, instead of moving the IOL to the pupil (Figure 1A and B).

What if a patient has a Crystalens accommodating IOL (Bausch & Lomb, Rochester, NY) with insufficient accommodation? All the data from the patients in the Crystalens FDA clinical trial¹ indicate that their accommodation improved with time. Furthermore, the new Crystalens HD (Bausch & Lomb) offers improved near vision over the original Crystalens AT-45, so perhaps this issue will be less of a problem in the future. In general, I prefer discussing complaints of insufficient accommodation over those relating to distorted vision from a multifocal, because the former discussion usually ends when I tell the patient that the remedy is a weak pair of readers worn occasionally.

CONCLUSION

Multifocal IOLs require a mixed application of art and science. Recall that preoperatively, we practitioners actively solicit complaints from our patients to determine their need for cataract surgery. We prompt them to describe things such as glare and halos in detail, and we document their lifestyle impairments due to these visual problems. We shouldn't be surprised or defensive, therefore, when they continue this pattern of complaint reporting postoperatively. The first steps toward resolving postsurgical dissatisfaction is correctly identifying the problem(s), and then helping the patient understand the available options for solving them together. ♦

Steven J. Dell, MD, is Director of Refractive and Corneal Surgery at Texan Eye in Austin, Texas, and Medical Director of Dell Laser Consultants. He is a consultant for Allergan, Inc., Advanced Medical Optics, Inc., and Bausch and Lomb. Dr. Dell may be reached at (512) 327-7000.

1. Data on file with Bausch & Lomb.

Handling Small Pupils During Lens Surgery

A series of management strategies can reduce the difficulty of small-pupil surgery.

BY R. BRUCE WALLACE III, MD

Small pupils during cataract surgery, which I classify as being less than 5 mm in diameter, are a challenge that we surgeons encounter more often than we would like. At the beginning of phaco procedures, I have been utilizing a method to gauge the size and centration of the anterior capsulotomy by placing a 6-mm optical zone marker on the central cornea. By staying inside the mark and using corneal magnification, this will lead to a 5-mm central capsulotomy.¹ When the pupil is smaller than this corneal mark, I consider whether I need to approach the eye differently than routine eyes. As with any surgical challenge, we increase our chances of operating successfully on these eyes if we have an armamentarium of strategies for managing the obstacles associated with small pupils (Figure 1). Preoperative mydriatics can be ineffective in eyes with previous iritis, previous miotics (although we see this complication less than we used to, now that glaucoma patients are rarely prescribed pilocarpine), and intraoperative floppy iris syndrome (IFIS) related to Flomax (Boehringer-Ingelheim Pharmaceuticals, Inc., Ridgefield, CT).²

IFIS

Flomax in particular is creating a considerable problem in cataract surgery these days. The pupil can look stable at the beginning of a case, but once nuclear dissection begins, it can start to come down quickly. Obviously, this compounds the difficulty of small-pupil surgery.

CASE EXAMPLE

A recent surgical case demonstrates the quick decision making that smaller pupils and IFIS eyes often demand. The pupil was 5 mm, but I thought it would be large enough to proceed. I began the case as usual, marking the cornea and performing the capsulotomy.

Next, I used a Wallace-Maloney diamond knife (Rhein Medical, Inc., Tampa, FL; Duckworth & Kent USA, St. Louis, MO; and Storz Instruments, Rochester, NY) to fixate the globe while I made the phaco incision.

I began disassembling the nucleus with the Burst Hemi-flip technique, which splits the nucleus in half. This technique works equally well on hard and soft nuclei in patients older than 50 years of age (I still perform full nuclear flips on patients younger than 50), and does not require enlarging the capsulotomy. Chopping techniques are not as effective on soft lenses.

Although this step usually progresses fairly quickly, in this case, the nucleus was more difficult to maneuver. It finally came apart, however, just as the pupil started coming down. I thought I still had plenty of room in which to phacoemulsify the lens, but the pupil continued to get smaller (Figure 2). As it usually happens in these eyes, I inevitably grabbed a section of iris and found it to be extremely unstable. This is typical in IFIS eyes; the pupil is so soft that it keeps coming forward.



Figure 1. Small pupils require special operative strategies.

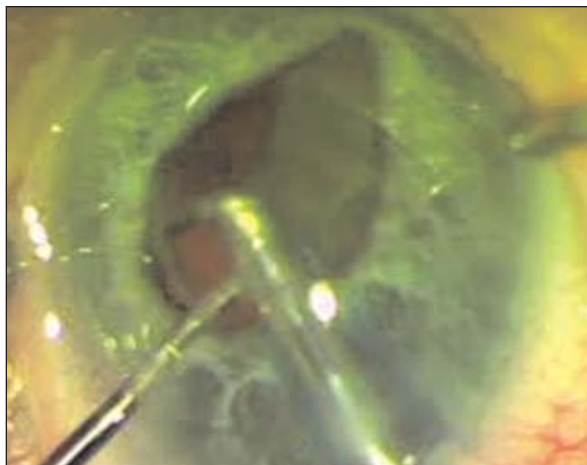


Figure 2. The pupil is starting to lose its dilation while the author is disassembling the nucleus.

I considered my options, and decided to first try viscoenlargement of the pupil, using 1:10,000 epinephrine. My staff and I mix 9 mL of BSS (Alcon Laboratories, Inc., Fort Worth, TX) with 1:1000 mL of nonpreserved epinephrine. Adding this mixture did not enlarge the pupil as much as I wanted, so I next attempted pupil stretching by inserting a Graether Retractor (Eagle Vision, Memphis TN) through the phaco incision and a Lester hook through the sideport incision and then stretching the pupil. I also used Viscoat ophthalmic viscosurgical device (Alcon Laboratories, Inc.) to push the pupil back into place. These strategies worked, and I was finally able to extract the entire nucleus.

The patient saw fine postoperatively, and other than a slight iris defect inferiorly, the pupil remained round and regular.

ROUTINE MANAGEMENT STRATEGIES

I now use intracameral epinephrine routinely to enlarge small pupils, not just those affected by Flomax. I have also started using atropine preoperatively with mixed results.

If visco-enlargement does not work, I next try pupil stretching, usually with the Graether Pupil Expander through the phaco incision and a Lester hook through the sideport incision. Be aware, however, that pupil stretching is uncomfortable for patients under topical anesthesia. If you are not using intracameral anesthetics, before inserting the retractors, you may want to ask your anesthesia provider to add IV sedation to ease the

patient's discomfort. I opt for DuoVisc (Alcon Laboratories, Inc.) with small pupils, using the Viscoat first and then adding the Provisc if I decide to use manual stretching. For me, this dual strategy is the best for pupil enlargement. The combination of retentive and dispersive OVDs and the added volume helps to widen the pupil.

I also rely on advanced phaco technology to reduce intraoperative complications with small pupils. I recently adopted the Stellaris Vision Enhancement System (Bausch & Lomb, Rochester, NY), and I feel that its fluidics and anterior chamber stability allow me to operate safely in compromised eyes. For example, I do not think I could have salvaged the case described here if I had been using older phaco equipment. With such controlled fluidics, I am sometimes able to work in a small space without having to use expansion devices on the iris.

ALWAYS FOREWARN

An important detail when scheduling surgery on an eye with a small pupil or Flomax history is to hold a preoperative discussion with the patient and his family about the fact that the surgery will be more challenging due to these factors. My staff and I go an extra step and record the date of this conversation in the patient's chart. Then, when I enter the OR on the day of surgery, I will often remind the patient that the procedure may take a little longer than usual. For example, if the patient has been taking Flomax, I may say, "Remember that we talked about your pupil being more challenging, just like the TV ads that warn patients about having cataract surgery while on Flomax." With these eyes, I prefer to err on the side of redundancy than risk the patient claiming that we did not inform him of the surgery's risk. ♦

R. Bruce Wallace III, MD, is Medical Director of Wallace Eye Surgery in Alexandria, Louisiana, Clinical Professor of Ophthalmology at the LSU School of Medicine, and Assistant Clinical Professor of Ophthalmology at the Tulane School of Medicine in New Orleans. He is a consultant for Advanced Medical Optics, Inc., Allergan, Inc., and Bausch & Lomb. Dr. Wallace may be reached at (318) 448-4488; rbw123@aol.com.

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Cataract Surgery With Pterygium

Topography is a critical planning tool for challenging cases.

BY WILLIAM B. TRATTLER, MD

When faced with a challenging cataract surgical case, topography can be your best tool for understanding all aspects of the problem and how best to approach it. A case that I presented at the SOURCE regional symposium in Houston this spring illustrates how reliable topographical information enables careful surgical planning and appropriate IOL selection.

PRESENTATION

The case was that of a colleague, not mine. In May of 2007, a 74-year-old Hispanic female patient presented with a nasal pterygium and a cataract in her left eye. The surgeon had to decide how to proceed; should he perform the pterygium excision first, the cataract surgery first, or perhaps do both surgeries together? After a long discussion with the patient, he decided to carry out both procedures at once.

CONSIDERATIONS

Preoperative topography revealed a further complication in this eye: approximately 7.00 D of astigmatism (Figure 1). Again, the surgeon conferred with the patient; he suggested placing limbal relaxing incisions intraoperatively to help reduce the astigmatism combined with the placement of a toric IOL to achieve a satisfactory visual outcome. The patient agreed.

SURGICAL COURSE

The surgeon performed the pterygium excision first, and he chose to do a primary closure rather than a graft. He also elected

to avoid the use of mitomycin C. The surgeon then performed the cataract surgery. He placed the limbal relaxing incisions superiorly and inferiorly, and inserted the toric IOL and oriented the axis of the IOL along the axis of the astigmatism, vertically, at 90°.

POSTOPERATIVE COMPLICATION

One week after the surgery, the patient's vision was functional but not satisfactory. A second topographical mapping revealed that her astigmatism had shifted to a horizontal orientation (Figure 2), with a 3.00 D magnitude of astigmatism. The surgeon scheduled an IOL repositioning procedure. He re-entered the eye through the same incision to rotate the toric lens. He used viscoelastic to free the lens from the capsule and rotated it 180°. Afterward, the patient experienced no further complications and was pleased with her UCVA of 20/40. Her refraction was -1.75 D sphere, which corrected her vision to 20/25 -2.

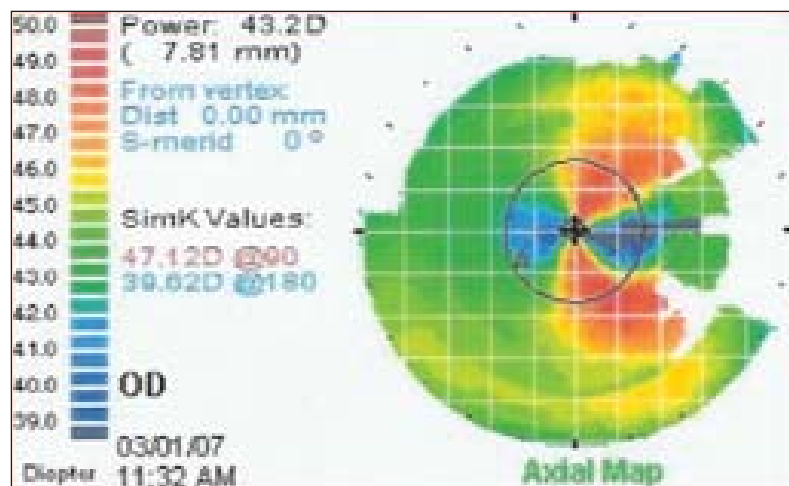


Figure 1. This patient presented with a cataract, pterygium, and 7.00 D of astigmatism in her left eye.

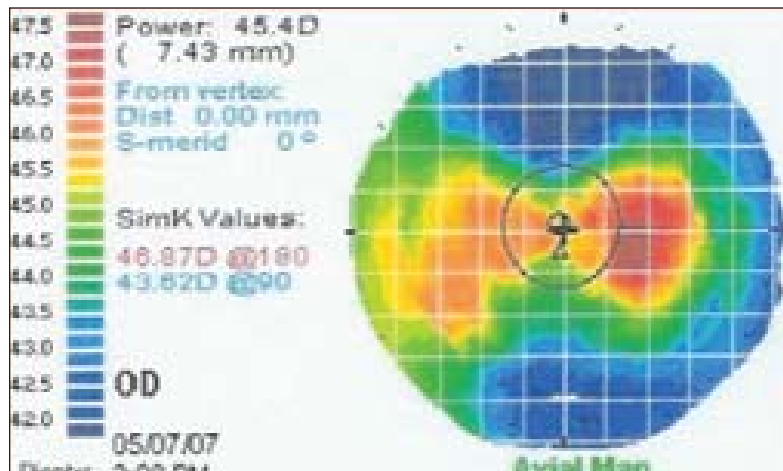


Figure 2. After the pterygium graft and placement of a toric IOL, the eye's astigmatism shifted to a horizontal orientation.

DISCUSSION

When faced with a pterygium in an eye that needs cataract surgery, keep in mind that the growth can induce some astigmatism. Removing a pterygium can cause the astigmatism to shift significantly. In most cases, I would suggest removing the pterygium first to allow the cornea to stabilize. Then, further testing with topography and an IOLMaster (Carl Zeiss Meditec, Inc., Dublin, CA) can help the surgeon determine the degree of astigmatism and the proper implant to place in the patient's eye. ♦

William B. Trattler, MD, is a corneal specialist at the Center for Excellence in Eye Care in Miami and a volunteer assistant professor of ophthalmology at the Bascom Palmer Eye Institute in Miami. He has received research support from Allergan, Inc., and Ista Pharmaceuticals, Inc., and he has received honoraria for lectures and consulting from Allergan, Inc. Dr. Trattler may be reached at (305) 598-2020; wtrattler@earthlink.com.