

Foggy Vision After Multifocal IOL

BY GARY FOSTER, MD; SHERI ROWEN, MD; AND ELIZABETH YEU, MD

CASE PRESENTATION

A 72-year-old woman underwent uneventful cataract surgery and the implantation of a multifocal IOL in her left eye 6 months ago. She had a YAG capsulotomy on that eye 2 months ago. She now presents with a complaint of “foggy vision” at all distances. The patient says her glare and haloes are worse than before surgery and worse than she anticipated, despite a preoperative warning about these phenomena.

The patient’s refraction measures $-1.25 +1.50 \times 080 = 20/30-2$. Her distance UCVA is 20/50, and her near UCVA is 20/20. Optical coherence tomography of the macula is normal. Keratometry (K) readings obtained with topography are 43.9/44.2 @82, and Scheimpflug imaging is normal.

According to preoperative records, the patient’s refraction of $-1.25 +1.25 \times 110 = 20/30$ decreased with glare testing.

The patient has been using topical cyclosporine and artificial tears to treat dry eye disease for the past 4 months, but she has experienced only a mild improvement in visual symptoms.

A slit-lamp examination shows a clear cornea, no blepharitis or meibomian gland dysfunction, a clear cornea and tear film, a quiet anterior chamber, and a well-centered diffractive multifocal IOL with an open posterior capsulotomy (Figure).

The patient is anxious to improve her visual acuity. How would you proceed?

—Case prepared by Audrey Talley Rostov, MD.

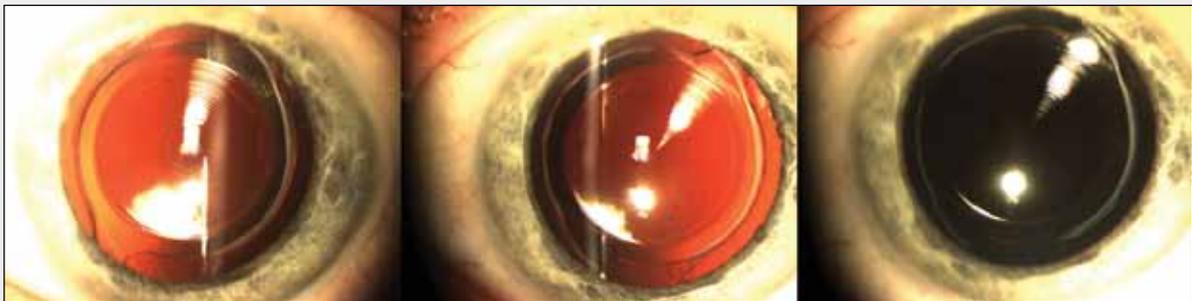


Figure. A well-centered multifocal IOL.

GARY FOSTER, MD

I would start with three tests: an iTrace (Tracey Technologies), a trial of glasses versus a toric contact lens, and an overrefraction with a rigid gas permeable (RGP) contact lens. I would discuss the results with the patient and determine her preferred course regarding keeping the IOL but maximizing the outcome versus undergoing a higher-risk IOL exchange. Preoperatively, I tell patients who choose a multifocal IOL that about one in 200 do not like multifocal vision and ultimately

request an IOL exchange. That counseling does not seem to lessen the angst of the aforementioned discussion if it is needed.

The first consideration in this particular case is the difference between the manifest astigmatism and the corneal K readings. It could represent lens tilt/coma. The iTrace examination will divide the aberrations between the cornea and the IOL. If significant coma is present and causative capsular forces are identified, then a targeted YAG laser capsulotomy may help.

If the patient sensed a significant improvement in her visual acuity during the glasses/toric contact lens trial, then glasses, contact lenses, limbal relaxing incisions, and laser vision correction become good long-term options, although 20/30 visual acuity does not elate most patients.

Another possibility is that the iTrace will define the optical problems as corneal, and the RGP contact lens overrefraction will not provide optical satisfaction to the patient. In that case, only IOL-based corrections could satisfy the patient's desire for visual quality.

If she is not open to the idea of an IOL exchange, then the discussion will be much more straightforward. With her input, I would move to the logical stopping point and counsel the patient to help her accept that hers is the best possible outcome that can be achieved.

SHERI ROWEN, MD

I would first ask the patient if she had ever been happy with her vision during the early postoperative period, before any posterior capsular opacification (PCO) occurred. If she never liked it and cannot adapt to the glare, then she obviously is not a suitable candidate for this multifocal lens. If she was satisfied prior to PCO, then there is a chance of salvaging this IOL. Performing a YAG capsulotomy on an unhappy patient who never attained a visual acuity better than 20/30 with refraction is not likely indicative of a successful outcome.

The figure suggests that surgery was performed beautifully, and the lens appears to be perfectly centered in a pristine capsule. The big issue here is that the K readings do not match the patient's postoperative refraction. She has only 0.30 D of cylinder @ 82° according to her K readings, yet her refraction shows 1.25 D of cylinder @ 80°. Is there some tilt to the lens, as if one haptic is in the bag and perhaps the other is in the sulcus? This situation would certainly explain a mysterious refractive outcome and the patient's inability to see better than 20/30. A close look at the figure suggests that the inferior haptic could be in the sulcus, as it is hard to find the inferior anterior capsulorhexis.

Some patients are unable to tolerate or adapt to multifocality, even after what appears to be a perfect procedure. Visual quality is usually the issue. This patient is also particularly sensitive to glare, which I find can initially be a problem with multifocal IOLs. The mismatch of corneal and refractive cylinder must be explored, however, to explain what really may be wrong with the IOL's placement despite its perfect appearance in the figure. Regardless, the patient needs further surgery, either to reposition the haptic if it is out of the

“Just correcting the refractive error will not be enough to make her happy.”

—Sheri Rowen, MD

bag or to remove and replace the lens with a monofocal IOL. Just correcting the refractive error will not be enough to make her happy, and my guess is that she will not be able to tolerate the current lens long term. Patients are willing to try to adapt to and work with glare if their vision is of high quality. A visual acuity of 20/30 and symptoms of glare with a multifocal IOL are not a promising situation.

ELIZABETH YEU, MD

This case illustrates the “risk” of multifocal IOL surgery that can create the greatest anxiety: the lack of appropriate adaptation of vision through the lens. The problem may relate to the IOL's alignment in the visual axis (centroid vs center), corneal higher-order aberrations, or a problem with neuroadaptation. The patient in this case appears to be a perfect candidate for a multifocal lens. She has an otherwise healthy eye and a centered IOL but suboptimal vision.

In general, I do not proceed with surgery on the second eye until the patient is satisfied with the outcome in his or her first eye and the distance BCVA reaches at least 20/25 before any PCO forms. If a patient is unable to achieve appropriate BSCVA despite a clear ocular surface in the early postoperative period, I have yet to see a posterior capsulotomy serve as the solution. Rather, my experience has been that patients with a Tecnis Multifocal IOL (Abbott Medical Optics Inc.) can maintain a surprisingly excellent quality of vision despite mild causes of decreased contrast sensitivity such as mild/moderate dry eye disease and early PCO formation.

If the patient initially had a satisfactory quality of vision, then an evaluation for any other source of decreased vision needs to be undertaken, including visual field analysis and the possible management of sources of ocular surface disease that can exist without obvious clinical staining (ie, conjunctival chalasis, elevated tear film, or preservative sensitivities). If the patient's suboptimal vision was always present, then I would seek out causes of problems with adaptation, including angle kappa; evaluate the IOL relative to an

undilated pupil; and perform an RGP contact lens overrefraction.

Based on this patient's refraction, it would be unusual to see greater refractive with-the-rule (WTR) astigmatism than topographic WTR astigmatism. Usually, the manifest refraction demonstrates less WTR or more against-the-rule astigmatism than is seen topographically because of the contribution from posterior corneal astigmatism. Thus, a subtle tilt of the IOL could be exacerbating the problem in this case, although this is quite rare with currently available single-piece acrylic IOLs.

The solution is not always satisfying. I recommend starting with a pair of spectacles to see whether the patient's vision adapts or can improve over time (which usually does not happen) or if she can accept her outcome. Ultimately, though, an IOL exchange with a monofocal IOL may be the solution. The open posterior capsule would obviously make the surgery more challenging. ■

Section Editor Thomas A. Oetting, MS, MD, is a clinical professor at the University of Iowa in Iowa City.

Section Editor Tal Raviv, MD, is an attending cornea and refractive surgeon at the New York Eye and Ear Infirmary and an assistant professor of ophthalmology at New York Medical College in Valhalla.

Section Editor Audrey R. Talley Rostov, MD, is in private practice with Northwest Eye Surgeons, PC, in Seattle. Dr. Talley Rostov may be reached at (206) 528-6000; atalleyrostov@nweyes.com.

Gary Foster, MD, is the medical director for The Eye Laser Center of Northern Colorado in Fort Collins, Colorado. He acknowledged no financial interest in the product or company he mentioned. Dr. Foster may be reached at (970) 221-2222; website: garyfostermd.com.



Sheri Rowen, MD, is an assistant clinical professor of ophthalmology at the University of Maryland and the founder and medical director of the Eye & Cosmetic Surgery Center at Mercy Medical Center and the Rowen Laser Vision & Cosmetic Center in Baltimore. Dr. Rowen may be reached at (410) 332-9500 or (410) 821-5333; srowen10@gmail.com.



Elizabeth Yeu, MD, is in private practice at Virginia Eye Consultants and an assistant professor of ophthalmology at Eastern Virginia Medical School in Norfolk, Virginia. She is a consultant to Abbott Medical Optics Inc. Dr. Yeu may be reached at (757) 622-2200; eyeu@vec2020.com.

