IS AN IOL EXCHANGE WARRANTED?

Surgeons discuss how they would approach a patient who has nighttime dysphotopsias and blurry distance vision after a refractive lens exchange.

BY AUDREY R. TALLEY ROSTOV, MD; JOSHUA FRENKEL, MD, MPH; BRENT KRAMER, MD; P. DEE STEPHENSON, MD, FACS; AND O. BENNETT WALTON, MD, MBA

CASE PRESENTATION

A 64-year-old woman presents for an evaluation. Eight months ago, she underwent a refractive lens exchange with a Tecnis Synergy IOL (Johnson & Johnson Vision) in the right eye and a Tecnis Symfony IOL (Johnson & Johnson Vision) in the left eye.

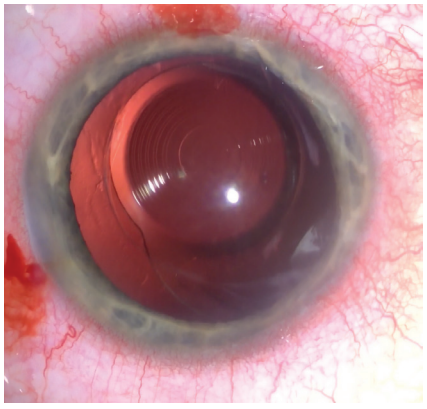

Figure. Slight superior displacement of the Tecnis Synergy IOL in the patient's right eye is evident.

Upon presentation, the patient's uncorrected distance visual acuity (UDVA) is 20/20 OU, but it is somewhat blurred in the right eye. Her uncorrected intermediate visual acuity (UIVA) is a crisp, clear 20/20 OU. Her uncorrected near visual acuity (UNVA) is a crisp J1 OU, J1 OD, and J3 OS. She experiences no improvement on refraction. OCT imaging of the macula is normal in each eye. The patient has been receiving lifitegrast therapy for 6 months and instills artificial tears in both eyes twice daily.

An examination finds slight superior displacement of the Synergy IOL and an intact posterior capsule in the right eye (Figure). The Symfony IOL in the left eye is well centered, and the capsule is open. The ocular surface of both eyes appears to be normal, and the corneas are clear.

The patient is unhappy with the distance vision in her right eye. She is pleased with the near vision and reasonably happy with the intermediate vision in both eyes. She sees halos and streaks around lights in the right and left eyes, respectively, especially at night, and finds nighttime driving difficult. She wishes to maintain a complete range of vision and does not want monofocal IOLs for distance only. Her refraction before the refractive lens exchange was +2.00 D OU.

How would you counsel the patient? Would you perform an IOL exchange in either or both eyes? If so, which IOL(s) would you choose?

–Case prepared by Audrey R. Talley Rostov, MD

JOSHUA FRENKEL, MD, MPH

My response presumes that the extended depth of focus IOL was implanted in the dominant eye to enhance the patient's distance vision and the trifocal IOL was placed in the nondominant eye to enhance her near vision. The surgical outcomes are perfect on paper but not in real life. Her UDVA is 20/20 OU, but it is not stated whether her UDVA is also 20/20 OD and 20/20 OS. The patient also has difficulty driving at night owing to dysphotopsias in both eyes.

There may be a few confounding factors in this case. First is the slight superior displacement of the IOL in the right eye, which could be causing blurred vision or reducing her quality of vision. Second is the intact posterior capsule in the right eye that could be developing opacification. Third is dry eye disease, which can exacerbate symptoms.

The fact that a refraction does not improve the patient's quality of vision suggests that the problem may relate to the IOL's position or incomplete neural adaptation to the multifocal lens. I would hold off on performing an Nd:YAG laser capsulotomy, which would severely limit the options for intervention and make further surgery more difficult. Instead, I would ask the patient when her symptoms started or worsened. If they have been an issue since the early postoperative period, the problem is more likely related to neural adaptation or the IOL's position than to posterior capsular opacification.

Next, I would treat her dry eye disease aggressively. Extended temporary punctal plugs would be placed, and a steroid taper (eg, fluorometholone or lotoprednol etabonate) would be prescribed. If no improvement occurs, surgical

options for only the right eye would be discussed. One strategy would be to reposition the IOL with reverse optic capture. If, however, further examination suggests that repositioning the lens may be challenging because of the size of the capsulorhexis, fibrosis, or another reason, I would offer the patient an IOL exchange, likely with capsular tension ring (CTR) placement. My preference for this scenario would be to implant a Light Adjustable Lens+ (LAL+, RxSight). As a three-piece lens, an LAL+ could be safely placed in the sulcus if difficulties are encountered during the exchange.

Before proceeding to surgery, I would inform the patient that the LAL+ is not a multifocal lens but can extend depth of focus somewhat. I would let her know that a near refractive target would be selected and emphasize the adjustability of the lens, which will allow her to test out her postoperative vision to some extent. I would then listen closely to the patient to ensure that the surgical plan ultimately selected aligns with her objectives.

BRENT KRAMER, MD

IOL centration is critical for good optical quality. Eight months after surgery, neural adaptation to the decentered IOL has not occurred, so it should be either recentered or replaced.

The capsulorhexis appears to be round, intact, and well centered, but 360° overlap of the optic is absent, which allowed IOL decentration to occur as the capsule fused during healing. The following surgical strategies assume no pseudophacodenesis is present, which could require a more invasive solution such as belt-loop fixation.

Plan A would be to open the bag carefully with a dispersive OVD. Opening would be initiated with a 25-gauge needle on an OVD cannula positioned at a superior location of good capsule-optic overlap. If the effort is successful and the IOL can be freed, the lens would be rotated 90° and recentered. A CTR could be placed to promote IOL stability. Reverse optic capture might also facilitate centration without requiring the bag to be opened fully and the IOL to be freed.

If plan A is unsuccessful, an IOL exchange for an LAL (RxSight) would be plan B. The LAL could be placed in the bag or sulcus with or without optic capture. In the event that plan B is pursued, I would consider exchanging the Tecnis Symfony in the left eye for an LAL as well to address the patient's nighttime dysphotopsias. Treating both eyes would also allow simultaneous healing and adjustments and permit the patient to determine how much near vision she desires.

P. DEE STEPHENSON, MD, FACS

I would begin by informing the patient that superior displacement of the lens in her right eye is the cause of her blurry vision.

In situations like this, I find it instructive to look at three basic elements of optical alignment with the iTrace (Tracey Technologies): (1) the visual axis on the first Purkinje image, (2) the angle between the visual axis and the pupillary center (angle kappa), and (3) the distance from the visual axis to the center of the limbus (angle alpha). Angle kappa is useful for LASIK, laser-assisted lenticule extraction, intrastromal corneal ring segments, and contact lenses. Angle alpha is useful for IOLs and for Visian and EVO ICLs (STAAR Surgical).

Regardless of the surgical plan selected, I would inform the patient that more than one procedure may be required to address her concerns. I would operate only on the right eye at this time. If the left eye is dominant, I would attempt to open the capsular bag in the right eye with an OVD, place a CTR, and recenter the IOL based on the Purkinje images. If the right eye is dominant, I would perform an IOL exchange for an aspheric neutral lens such as the enVista (Bausch + Lomb). If the IOL becomes decentered, the patient's visual acuity will not be affected. A refractive target of -0.50 to -0.75 D sphere should provide her with excellent UIVA, UNVA, and binocular vision at all distances and lessen the severity of the dysphotopsias she has been experiencing.

O. BENNETT WALTON, MD, MBA

The patient has no residual refractive error and is already receiving treatment for ocular surface disease. I would therefore ask her which of the following is more bothersome: nighttime dysphotopsias or the quality of her daytime UDVA in the right eye. Next, I would ask, "Would you be happier if the vision in your right eye were like the vision in your left eye, meaning your distance vision would be better but your near vision would be worse?" The key to helping the patient is identifying her priorities and the compromises she is willing to accept. Is she willing to sacrifice some of her UNVA (ie, drop from J1 to J3 OD) to improve her UDVA? If so, a Tecnis Symfony could be implanted in the right eye for the sake of symmetry. Contrarily, if resolving nighttime

dysphotopsias is her priority, then a Clareon Vivity IOL (Alcon) or LAL+ could be implanted in the right eye instead, in which case she must choose which distance to prioritize.

I suspect none of the aforementioned strategies would satisfy the patient because she seems to be extremely happy with her UNVA but reports her 20/20 UDVA is blurry. If she is unwilling to accept a reduction in her UNVA, then recentering the Tecnis Synergy IOL might partially alleviate the problems she is experiencing. If IOL decentration is the main issue, I would expect her UNVA to have been compromised, but this does not seem to be the case. My general sense is that the Synergy provides patients with better UNVA than UDVA, as happened here, which is why some surgeons mix and match this lens with another IOL to maximize the UDVA in the fellow eye. Exchanging the Synergy for a Tecnis Odyssey (Johnson & Johnson Vision) or a Clareon PanOptix IOL would offer a better chance of satisfying the patient in one surgery than recentering the existing IOL.

WHAT I DID: AUDREY R. TALLEY ROSTOV, MD

Despite her 20/20 UCVA, the patient had dysphotopsia complaints, especially in her right, nondominant eye, and slight superior decentration of the IOL. I therefore performed an IOL exchange.

With viscodissection, the trifocal IOL was removed from the bag without difficulty, and a small area where the capsules had fused together was opened. The IOL was segmented into thirds with partial cuts in two places and removed with a twist-and-turn technique. An LAL was then placed in the bag and fixated with a CTR to ensure centration.

The refractive target was -0.25 D. After light adjustments, the final refraction was -0.75 D, which provided the patient with 20/30 UDVA, 20/20 UIVA, and J1 UNVA. She was happy with her final outcome but expressed interest in possibly undergoing an IOL exchange in her left eye because she has no dysphotopsias in her right eye. I encouraged her to wait a few months to allow her brain to adapt to the new IOL pairing. An IOL exchange in the left eye may be considered in the future, but I am hopeful that it will not be necessary. ■

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