

TORIC IOL ROTATION THAT JUST WON'T QUIT

What's the next step when a toric IOL rotates significantly after a repositioning procedure?

BY LISA BROTHERS ARBISSER, MD; RUPERT MENAPACE, MD, FEBO; AND NANDINI VENKATESWARAN, MD

CASE PRESENTATION

A 55-year-old woman presented with bilateral 3+ milky nuclear sclerotic cataracts. The patient had been wearing rigid gas permeable contact lenses for more than a decade. She discontinued contact lens wear until refractive stability was achieved, at which point she had just under 3.00 D of regular with-the-rule astigmatism. An examination was normal and revealed symmetrically deep chambers consistent with myopia.

A decision was made to proceed with cataract surgery on the right eye first. The plan was to

correct this eye for distance. The patient elected to receive a toric IOL.

Cataract surgery was uneventful. Phacoemulsification was performed, and an AcrySof IQ Toric IOL (model T6, Alcon) was implanted. After removal of the OVD from the anterior and posterior chambers, an Illuminated Surgical Keratoscope (Mastel) was used to confirm the axis of astigmatism with the corneal reflex and to ensure that the IOL was positioned properly.

One day after surgery, the IOL was noted to have rotated almost 40°. The patient was

reassured that the lens would be repositioned in 2 to 3 weeks, after mild fibrosis shrank the capsular bag. Repositioning of the IOL under topical anesthesia went as planned, and proper alignment of the lens was confirmed. On the following day, however, the IOL was observed to have rotated again to nearly the same position it was in on postoperative day 1.

How would you resolve this situation? What would your surgical plan for the second eye be?

—Case prepared by Lisa Brothers Arbisser, MD



RUPERT MENAPACE, MD, FEBO

IOLs are rotationally stable in most eyes, but they may rotate significantly in individual eyes, typically during the first 24 hours after surgery. It is not the reported means or standard deviations but the outliers and extremes that must be considered to adequately characterize rotational stability. This has been confirmed by studies evaluating the rotational stability of the most widely used IOL platforms.¹⁻⁵

If an OVD was used and the whole capsular bag circumference was expanded during the original surgery, I would reposition the IOL under balanced salt solution using a bimanual irrigation instrument and a lens hook. If the attempt is unsuccessful, I would consider repositioning the IOL again after another 2 to 3 weeks. At that time, I would try to avoid the use of an OVD, and I would attempt to expand only the capsular fornix. I have had success with this surgical strategy in two cases.

If repositioning is again unsuccessful, I would consider two options: (1) repositioning the IOL once more after implanting a capsular tension ring (CTR) or (2) exchanging the IOL for a platform with better proven rotational stability.

A CTR does not influence mean IOL rotation, but it avoids extreme amounts of rotation. An indented CTR such as a type 10C (Morcher) could be even more effective than a standard CTR in this situation. If an IOL exchange were elected, my preference would be to use a Vivinex iSert IOL (model XY1, Hoya Surgical Optics) because it was the only IOL platform that did not rotate more than 5° in an institutional trial.³ It is generally easy to exchange an IOL through a 2.2-mm internally funneled incision.⁶

set the stage for toric IOL rotation. Lee and Chang found the incidence of rotation to be lower with the AcrySof Toric IOL platform (Alcon) than with the Tecnis Toric IOL platform (Johnson & Johnson Vision) in 2018,⁷ but design changes to the latter have improved toric IOL results overall. When the capsular bag is large, however, a toric IOL can rotate regardless of which lens platform is used.

A rotation of more than 30° negates almost all of the astigmatic correction offered by a toric IOL. Assuming the current implant is of the correct dioptric power and toricity, I would take the patient back to the OR. The capsular bag would be inflated with a viscoadaptive OVD such as Healon (Johnson & Johnson Vision). Viscodissection would be performed if fibrosis is observed between the IOL and the capsular bag, especially at the IOL's terminal bulbs. Once the toric IOL is completely free, a CTR would be inserted into the equator of the bag, and the IOL would be rotated into the desired axis, as determined preoperatively. The OVD would be removed—with particular attention



NANDINI VENKATESWARAN, MD

The patient likely has axial myopia and a large capsular bag, which can

paid to underneath the IOL—to prevent postoperative rotation of the lens. The IOL's axial orientation would be checked after OVD removal and adjusted if necessary. Acetylcholine (Miochol-E, Bausch + Lomb) would be instilled to constrict the pupil to help lock the IOL in the correct position. All incisions would be checked for a watertight seal. Resure Sealant (Ocular Therapeutix) can be applied, or a 10-0 nylon suture can be placed to reinforce the incisions and prevent postoperative chamber instability that could lead to IOL rotation. These measures should hold the toric IOL at the correct axis.

Before surgery on the fellow eye, I would discuss the risk of toric IOL rotation in detail with the patient because this eye also likely has a large capsular bag. A 5.0-mm laser capsulotomy would be performed to ensure complete 360° overlap of the anterior capsule with the optic edges, which should promote excellent centration of the toric IOL. A CTR would be inserted prophylactically at the time of the insertion of the toric IOL to stabilize the IOL in the intended axis and prevent postoperative rotation. The OVD would be removed from behind and in front of the IOL. Acetylcholine would be instilled to constrict the pupil at the conclusion of surgery, and the incisions would be reinforced to prevent leakage during the postoperative period.

If the patient is loath to undertake the risk of toric IOL rotation in either eye, I would discuss the option of performing both an IOL exchange for a monofocal IOL and corneal laser vision correction to address the residual astigmatism. Limbal relaxing or laser arcuate incisions could also be considered to debulk the corneal astigmatism, but neither can address the approximately 3.00 D of corneal astigmatism that the patient has without destabilizing the cornea. I consider these options, although plausible, inferior to the implantation of a toric IOL for this patient.



WHAT I DID: LISA BROTHERS ARBISSER, MD

I was aware that placing a CTR might resolve the issue. I decided against this strategy for the first eye, however, because of the manipulation that might be required to get the CTR out to the equator in this eye 4 to 6 weeks after cataract surgery. I was also concerned that the IOL might rotate again despite the presence of a CTR. I opted instead for reverse optic capture.

Under topical anesthesia, through small sideport incisions, the IOL was freed and rotated into place. Keratometry was performed to confirm the axis of astigmatism with the corneal reflex image. Next, the IOL optic was elevated anterior to the intact capsulorhexis edge, while the haptics were left in the bag—reverse optic capture in effect. The procedure was uneventful and prevented repeat postoperative IOL rotation because the zonules were healthy. (Scan the QR code to watch the procedure.)

After surgery, the patient's uncorrected distance visual acuity was 20/20 OD. She was anxious to rehabilitate the fellow eye and be rid of her temporary readers. At the cataract surgery evaluation for her left eye 1 month later, I noticed—to my chagrin and for the first time—mild pigment dispersion and a retroplaced iris diaphragm in the right eye. The IOP had risen 3 mm Hg since her previous visit, and gonioscopy revealed pigment in the angle. I suspected that reverse pupillary block syndrome had developed and led to contact between the square-edged IOL optic and the iris pigment epithelium. My suspicion was confirmed by a measurement of anterior chamber depth. An Nd:YAG laser iridotomy was performed and immediately resolved the problem. The eye quieted, and the IOP decreased.

I planned to use a CTR during cataract surgery on the left eye to prevent IOL

rotation, which seemed likely to occur because the amounts of myopia and astigmatism were similar to preoperative amounts in the first eye.

Cataract surgery on the left eye was uneventful. One day after surgery, however, the toric IOL had rotated nearly 40° from the axis at which it had been placed. The patient elected to undergo corneal surgery to address residual astigmatism. Postoperatively, her uncorrected binocular visual acuity was 20/20 and J2. She was satisfied with her result. ■

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- Member, CRST Editorial Advisory Board
- drllisa@arbisser.com
- Financial disclosure: None

RUPERT MENAPACE, MD, FEBO

- Professor of Ophthalmology, Vienna General Hospital and Medical University of Vienna, Austria
- rupert.menapace@meduniwien.ac.at
- Financial disclosure: Medical monitor (Hoya Surgical Optics)

NANDINI VENKATESWARAN, MD

- Cornea, cataract, and refractive surgeon and Instructor of Clinical Ophthalmology, Massachusetts Eye and Ear Infirmary, Harvard Medical School, Waltham
- nandini.venkat89@gmail.com; Twitter @nandinivenkatmd
- Financial disclosure: Consultant (Alcon, Johnson & Johnson Vision)