

Dislocated Single-Piece IOL

**BY KRISTIN CARTER, MD; STEVEN DEWEY, MD; DOUGLAS A. KATSEV, MD;
AND AUDREY R. TALLEY ROSTOV, MD**

CASE PRESENTATION

A 51-year-old man has a history of a nail injury to his left eye in 1984 with corneal laceration and traumatic cataract. The patient underwent primary repair of the corneal laceration and removal of the cataract 8 months later. In 1994, 10 years after the original injury and surgery, a secondary posterior chamber IOL (PCIOL) was placed. The patient did well until 3 weeks ago, when he noticed a sudden change in the vision of his left eye. He reports no new trauma.

On examination, his UCVA measures 20/25 OD and 20/50 OS. The manifest refraction in his left eye is $-0.75 +2.00 \times 139 = 20/30+1$. Keratometry readings for the left eye using the Pentacam Comprehensive Eye Scanner (Oculus

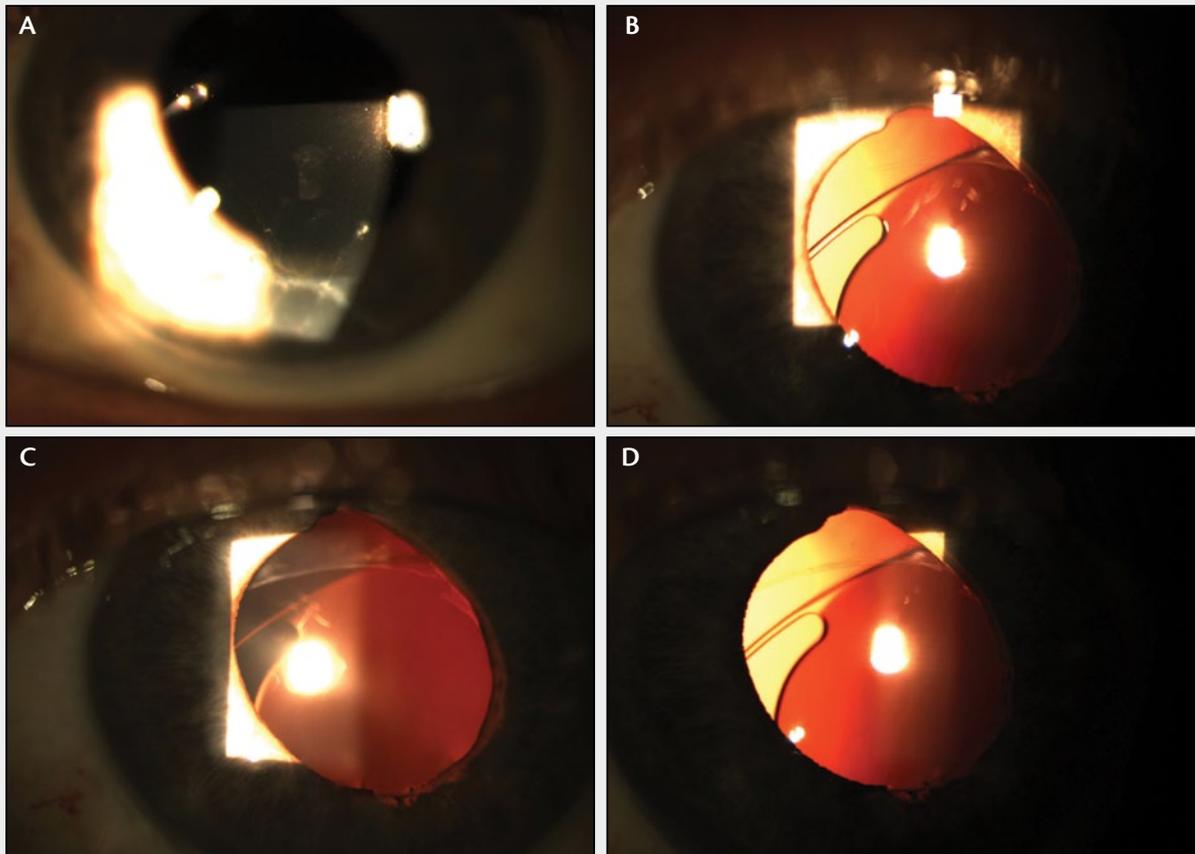


Figure. An inferior corneal scar (A). The polymethyl methacrylate (PMMA) IOL has dislocated inferiorly. An ovoid pupil and anterior capsular remnant are visible (B-D).

CASE PRESENTATION (CONTINUED)

Optikgeräte) are 43.00/45.20 × 120. The slit-lamp examination shows a well-healed inferior corneal scar in the periphery of the left cornea from 5 to 6:30 o'clock (Figure A) and an inferiorly dislocated single-piece PMMA IOL with a slight posterior tilt (Figure B-D). The pupil is peaked and irregular superiorly (Figure B), and there is visible anterior capsule superiorly. The IOL appears to be posterior to the superior anterior capsular leaflet (Figure C). An examination of the posterior segment is normal.

What surgical approach would you use?

—Case prepared by Audrey R. Talley Rostov, MD.

KRISTIN CARTER, MD

It appears that either a sulcus-fixated PCIOL dislocated due to inferior zonular dehiscence or one suture broke on a sclerally sutured IOL while the other remained intact. My first step would be to try to obtain records from the secondary IOL surgery. At the slit lamp, I would look for evidence of scleral sutures or scleral pockets at the 1:30- and 7:30-o'clock positions. An iris-sutured IOL is unlikely here, because sutures to the iris should be visible on examination.

In the OR, retracting the iris would help me to visualize sutures or sulcus fixation of the IOL. I would look for an inferior zonular dialysis if the lens were sulcus fixated. A single broken suture would require that the haptic be resutured to the sclera. It would be ideal to create a scleral flap or pockets at the beginning of the surgery. If the previous operation included a vitrectomy, infusion into the eye to maintain the IOP would be beneficial. If the superior aspect of the IOL is incarcerated in vitreous, a vitrectomy should be performed to minimize any vitreous traction created by manipulation of the IOL.

A dislocated PCIOL could be rotated into a more stable position in the sulcus, perhaps temporally and nasally, provided anterior capsular support were adequate. Otherwise, both haptics could be sutured to the sclera. It is possible that the inferior anterior capsule or zonules were damaged at the time of the original injury; an iris transillumination defect is visible inferiorly in Figure D.

I would try to avoid removing the PMMA IOL. Because cutting this style of lens is extremely difficult, its extraction would necessitate a large incision.

Limbal relaxing incisions could be used to reduce the patient's astigmatism.

STEVEN DEWEY, MD

The patient's low residual refractive error and the configuration of the IOL make the lens a good candi-

"The patient's low residual refractive error and the configuration of the IOL make the lens a good candidate for retention."

—Steven Dewey, MD

date for retention. The remaining capsule superiorly is fortuitous, but given the location of the injury, the opposite area of support is likely absent. Suturing the IOL to the capsule, iris, or sclera will stabilize the lens, with the capsule potentially decreasing the pantoscopic tilt. The haptic configuration and the size of this rigid IOL are likely inappropriate for scleral gluing.

In my experience, if the patient is satisfied with spectacle correction, a toric IOL is a reasonable option but precludes the future use of a contact lens. Suturing a toric IOL also presents a new set of confounding variables. I would probably discuss the option with this patient but advise him against it if he was previously satisfied with his visual acuity and function. Glasses are a reasonable option, and considering his history, a bit of protection would not be a bad idea.

Exchanging this IOL for an anterior chamber lens or a glued IOL is a reasonable option. It would require a larger incision than a suturing technique. Care should be taken in explanting this IOL, because it might have a 7-mm optic. The advantage of this approach is the greater likelihood of long-term stability, given the tendency of suture material to degrade.

Regarding the peaked pupil, the figures do not reveal vitreous to a (presumed) superior surgical incision, and the residual capsule has a smooth contour. I would be prepared to perform an anterior vitrectomy if needed. Once the IOL is in a stable position, a simple suture will close this defect.

DOUGLAS A. KATSEV, MD

First, the surgeon must decide whether to remove and replace current the IOL or to suture the presently dislocated lens. My preference would be to retain the IOL. I suspect that it would be possible to suture only the inferior haptic while the superior haptic remained stable on the anterior capsule in the sulcus. (I would be prepared, however, to suture both haptics.) This would be a judgment call, so I would recommend having both a sulcus and an anterior chamber IOL available in the OR in case removal of the current lens proved necessary.

The incisions needed could be placed at 120° to improve the astigmatism if the patient's anatomy is appropriate and the surgeon is comfortable working in this position. If supported by the results of preoperative topography, a limbal relaxing incision could be placed at the 120° axis inferior temporally to help lessen the 2.00 D of corneal astigmatism. Although I use the ORA System (WaveTec Vision) for most of my cataract procedures, its guidance might not be reliable in this case because of all the surgical gymnastics that could affect the result intraoperatively.

I would be ready to perform a vitrectomy and would have identified my backup retinal surgeon. Preoperatively, I would carefully explain to the patient the challenges and possible complications so that he understood that he might require further surgery. I would emphasize that his outcome could be affected by his previous surgery and injury. Informing (not scaring) patients is always appropriate when results are difficult to predict.

I would have the patient begin a regimen of a steroid (loteprednol etabonate ophthalmic gel 0.5% [Lotemax 0.5% Gel Drop; Bausch + Lomb]) and a nonsteroidal antiinflammatory drop (bromfenac [Prolensa; Bausch + Lomb]) as much as a week prior to surgery and continue their use for 6 weeks postoperatively. I am comfortable with the safety profile of these two medications, but this regimen would be off label.

WHAT I DID:**AUDREY R. TALLEY ROSTOV, MD**

After administering peribulbar anesthesia, I created two 1.3-mm bimanual incisions with a diamond blade temporally and superotemporally. I injected a dispersive and then a cohesive ophthalmic viscosurgical device (OVD). Then, I elevated the superior haptic and prolapsed the optic anterior to the iris. I discovered that the IOL was made of PMMA and had a 7-mm optic, and I found that the inferior haptic was still secured to the iris by a suture.

I performed a limited anterior vitrectomy to release vitreous from the superior haptic and also to free capsular

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—Douglas A. Katsev, MD

remnants from the superior haptic. With an OVD in the eye, I performed additional paracenteses at 12, 9, and 6 o'clock. After injecting acetylcholine (Miochol-E; Bausch + Lomb), I placed the superior haptic behind the iris while leaving the optic prolapsed anterior to the iris. While stabilizing the superior haptic with a forceps (MicroSurgical Technology), I secured the haptic to the iris with a Prolene suture on a CIF 4 needle (Ethicon). I used a 25-gauge needle to allow the CIF needle to exit via a pass-through technique from the 6-o'clock paracentesis. I cut the Prolene suture and placed a Siepser sliding knot. The optic was correctly positioned behind the iris, and further adjustments to the suture were made as necessary. I used automated, bimanual, low-flow I/A to remove residual OVD. I hydrated the multiple paracentesis/bimanual incisions and found them to be watertight.

Postoperatively, the patient has done well. His BCVA with glasses is -0.50 +1.50 x 130 = 20/30+2. ■

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