# TRANSILLUMINATION DEFECTS AFTER THE IMPLANTATION OF A ONE-PIECE IOL IN THE BAG

Surgeons discuss how to manage a patient's glare symptoms.

**BY AUDREY ROSTOV, MD; SHEENA SONG, DO; CHARLES COLE, MD; AND MAGDA RAU, MD**

## CASE PRESENTATION

A 64-year-old man is referred for an evaluation 2 years after uneventful bilateral cataract surgery with a Clareon Vivity IOL (Alcon). The patient's uncorrected distance visual acuity is 20/20 OU, his uncorrected intermediate visual acuity is 20/25 OU, and his uncorrected near visual acuity is J3 OU. He is happy overall with his quantity and range of vision, but he reports increased glare in the right eye during the past 6 months.

A slit-lamp examination of the right eye finds a clear cornea, a quiet anterior chamber, and significant iris transillumination defects superiorly corresponding to the area of the superior haptic (Figure 1). The IOL appears to be in the bag. The IOP is within a normal range, and no other abnormalities are detected. A dilated retinal examination is also normal.

How would you proceed? If you would perform an IOL exchange, which replacement lens would you select? How would you address the iris defects?

–Case prepared by Audrey Rostov, MD

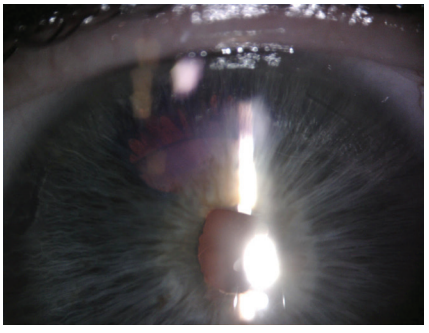

Figure. Iris transillumination defects are evident at the slit lamp.

**SHEENA SONG, DO, AND CHARLES COLE, MD**

Iris depigmentation following the placement of a one-piece acrylic IOL in the bag is rare.[1] Problems such as uveitis-glaucoma-hyphema syndrome, pigment dispersion glaucoma, and iris transillumination defects are typically associated with the placement of a one-piece IOL either partially or completely in the sulcus.[2-4] These transillumination defects and associated glare typically become apparent in the first few months after surgery. This case is unique in two respects: (1) the length of time that has elapsed between surgery and the onset of symptoms and (2) the apparent location of the lens in the bag.

Ultrasound biomicroscopy would be performed to confirm the location of the superior haptic. If it is inside the bag, a large capsulorhexis in the area of the optic-haptic junction might allow the square edge of the optic and haptic to rub against the posterior iris pigment. Alternatively, a localized area of zonulopathy (ie, trauma), general zonulopathy (ie, pseudoexfoliation syndrome), and conditions such as uveitic processes and pigment dispersion syndrome could have caused iris pigment loss. Reverse pupillary block can also cause iris transillumination defects, but the lack of signs or symptoms makes it unlikely in this case. In the absence of other physical examination findings, the patient's history seems consistent with one-piece IOL chafing.

An IOL exchange would be challenging and likely require the placement of a monofocal three-piece IOL in the bag and an artificial iris in the sulcus. By covering the edge of the existing optic, an artificial iris would likely resolve the patient's glare symptoms,[5,6] but it might be necessary to place the device in the sulcus if the bag cannot be opened fully. A pupilloplasty would be an option, but because the iris is thin in this area, the resultant pupil might be misshapen.

Given that the patient is happy overall with his quality and range of vision and his complaints are limited to glare symptoms, a conservative approach

would be our preference. We would recommend observation, a tinted contact lens, or keratopigmentation using color-matched micronized mineral pigments, which can provide good cosmetic and functional outcomes.[7]

**MAGDA RAU, MD**

The Figure shows an area of lost iris pigment and, behind it, something curved that does not resemble the haptic of a Vivity IOL but could be the edge of the optic or a capsular tension ring (CTR). The most likely reason for a CTR to be partly outside the capsular bag is incorrect implantation during cataract surgery.

Given the patient's excellent UCVA, significant decentration of the IOL is unlikely. Were the lens significantly decentered, moreover, its edge would be visible near the edge of the pupil.

If pupillary dilation does not allow identification of the curved object, anterior segment OCT would be performed, which would also help determine the cause of the iris pigment loss. The findings would determine my course of action.

Adequate surgical visualization would be essential for determining how best to correct malpositioning of one of the implanted devices. Should pupillary dilation prove inadequate, a Malyugin Ring (MicroSurgical Technology) or iris hooks would be placed. If a Malyugin Ring is employed, care would be taken to avoid attaching the scrolls in the area of the iris defect.

Whether the object behind the iris is an IOL haptic or a CTR, the goal would be to reposition it within the capsular bag. Opening the capsular bag with a dispersive OVD should allow a haptic or CTR to be repositioned. An OVD cannula would be inserted in the area of the capsular edge where the object is protruding. If the capsular bag can be opened adequately, the CTR—if present—would be removed and replaced with an aniridia implant (model 96F, Morcher) that can cover a coloboma of 3 hours or less. The device would be positioned behind the iris defect and in alignment with the IOL haptics.

Although the pupil appears to have a slight superior peak, there is no evidence of a vitreous strand in relation to the pupil. Diluted triamcinolone would be injected nevertheless, and any vitreous revealed would be removed with an anterior vitrectomy.

Gonioscopy would be performed to assess the angle for pigment deposition, which could lead to secondary glaucoma. If increased pigment deposits are found in the trabecular meshwork, selective laser trabeculoplasty treatment would be performed.

**WHAT I DID: AUDREY ROSTOV, MD**

Hydrophobic acrylic one-piece IOLs should not be placed in the sulcus because doing so often leads to uveitis-glaucoma-hyphema syndrome. That said, there have been case reports of iris depigmentation with these IOLs when they have been placed in the bag, especially if the capsulotomy was large.[8]

I was concerned the iris depigmentation would continue, the tissue would sustain further damage, and glaucoma might develop. The patient was therefore cautioned to avoid eye rubbing and scheduled for an IOL exchange for a three-piece silicone IOL.

A 3-mm temporal clear corneal incision and paracenteses at the 10, 2, and 6 clock positions were created. Sharp and blunt viscodissection was performed with a copious amount of an OVD to free the IOL from the bag. The lens was subsequently removed using IOL cutting scissors and forceps (both from MicroSurgical Technology). A SofPort IOL (model LI61AO, Bausch + Lomb) was then placed in the bag with the haptics oriented to the 3 and 9 clock positions. Next, a single-pass four-throw pupilloplasty using two 10-0 polypropylene sutures (Prolene, Ethicon) was executed in the superior iris to reduce the area of depigmentation.

Postoperatively, the patient has experienced less glare and is much happier. ■

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