

Grand Rounds

A 27-year-old man with traumatic partial dislocation of an intraocular lens

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History

A 27-year-old man presented to the Department of Ophthalmology at the University of Minnesota, in March 2011 complaining of redness, soreness, blurry vision and an irregular pupil in the right eye immediately following trauma with a hand to the right eye. His past ocular history was significant for congenital cataracts. In August 2007, he had a 19 D intraocular lens (IOL; CZ70BD; Alcon, Hünenberg, Switzerland) sutured into the ciliary sulcus of the right eye under endoscopic guidance. A 20.5 D IOL (CZ70BD; Alcon) was sutured in the sulcus of the left eye in June 2007.

Examination

On examination, uncorrected visual acuity in each eye was 20/25. Intraocular pressure (IOP) measured by Tono-Pen (Reichert Inc, Buffalo, NY) was 17 mm Hg in each eye. There was no relative afferent pupillary defect in either eye. Pupillary discoria of the right eye was observed. On slit-lamp examination of the right eye, the conjunctiva, sclera, and cornea were normal. There were a few pigmented cells in the anterior chamber. The optic of the IOL had a partial pupillary capture in which half of the optic was anterior to the iris. The haptics of the lens remained in the sulcus (Figure 1). Anterior segment examination of the left eye was unremarkable and revealed a well-positioned posterior chamber IOL. Fundus examination of both eyes revealed pink optic nerves, flat maculae, and attached retinae.

Treatment

Both conservative treatment and surgical options for repositioning the IOL were discussed with the patient. The patient opted to first try supine positioning for 6

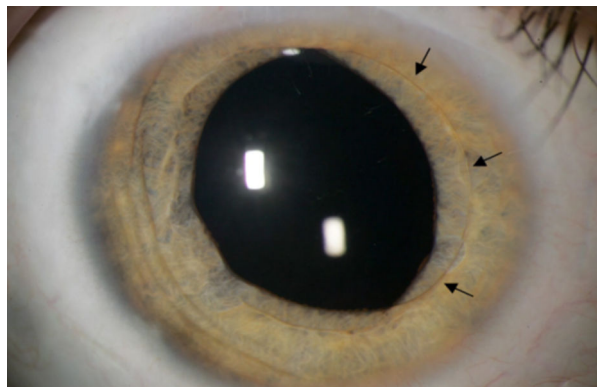


Figure 1. Partial pupillary capture of the intraocular lens (IOL). Arrows indicate the edges of the anteriorly dislocated optic.

hours after dilation of the right pupil with 10% phenylephrine. After this time, his IOL repositioned spontaneously, and his pupil was normal. At follow-up 1 week later, the patient was doing well, with no pain or discomfort. His visual acuity remained 20/25, and his IOP remained normal. Slit-lamp examination revealed that the shape of the right pupil had only a slight peak superior temporally. The IOL was in the sulcus (Figure 2). The rest of the eye examination was unremarkable.

Diagnosis and Discussion

Pupillary capture of posterior chamber IOLs used to be common, with an incidence as high as 3% in the 1970s. It has since declined to between 0.6%–2.6% due to better IOL design and in-the-bag implantation.¹ However, several cases of pupillary capture after in-the-bag implantation of foldable silicone or soft acrylic IOLs have been reported, highlighting the ongoing importance

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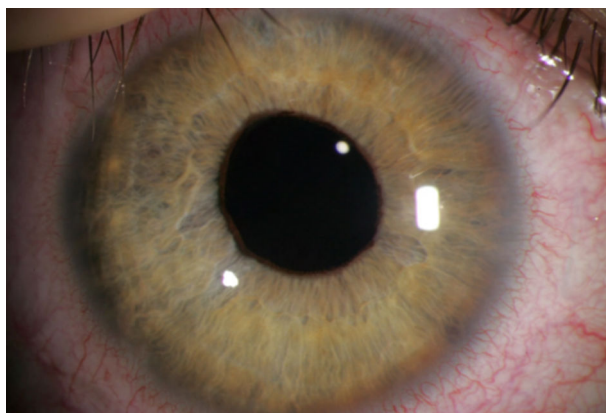


Figure 2. IOL repositioned after dilation with 10% phenylephrine and supine positioning for 6 hours.

of this complication.²⁻⁴ Options for management of anterior dislocation of a posterior chamber IOL include no intervention, mydriasis with external manipulation and subsequent pharmacological myosis, direct surgical manipulation, and laser-induced mechanical shock-wave lens retropulsion.⁵

Galvis et al⁶ described a case of complete pupillary capture of an IOL after routine dilation with uncomplicated extracapsular cataract extraction 6 years previously. After unsuccessful relocation with simple dilation, the IOL was successfully relocated with complete dilation and lens manipulation by applying corneal pressure with a three mirror lens and subsequent pupil constriction. Bowman et al reported a patient presenting with blurry vision and partial pupillary capture of an inferior optic that repositioned into the plane of the ciliary sulcus after gentle digital percussion on the temporal side of the patient's closed lid.⁷

Other cases of surgical treatment for anterior dislocation of the IOL have been reported with an unremarkable recovery.⁸ Superstein and Gans⁹ reported a case of traumatic anterior dislocation of a posterior chamber IOL in an 85-year-old man leading to reduction of visual acuity to hand motions and hyphema. The dislocated IOL was exchanged for an anterior chamber IOL, with improvement of visual acuity to 20/40.

Nd:YAG laser photodisruption has also been described as a method for IOL relocation. For optics that are sufficiently mobile, the pressure wave created by the laser shifts the IOL back into position. Steinert and Puliafito¹⁰

reported a case of a posterior chamber IOL that dislocated anteriorly with routine pupillary dilation. Redilation and mechanical manipulation were unsuccessful at relocating the optic. A 6 mJ pulse from an Nd:YAG laser applied to the peripheral edge of the IOL created pressure anteriorly that pushed the optic posteriorly behind the pupillary sphincter. Bartholomew¹¹ reported 8 successful relocations of posterior chamber IOLs using Nd:YAG in 12 attempted treatments.

In the present case a traumatic partial dislocation of a posterior chamber IOL with pupillary capture was successfully relocated with simple dilation and supine positioning. We recommend attempting this approach first in uncomplicated cases to avoid surgical, laser, or external lens manipulation treatment. If this technique is unsuccessful, pupil dilation with external manipulation may be indicated. If external manipulation fails, laser or surgical therapy can be considered.

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