

Unusual Secondary Glaucoma

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CASE PRESENTATION

A 71-year-old male was referred to the glaucoma service to determine the etiology of the elevated IOP in his left eye. He had recently been evaluated by a retina specialist for a small vitreous hemorrhage and by an uveitis specialist for the presence of cells in the anterior chamber of the same eye, but they did not detect an etiology for either condition. His past ocular history was

significant for previous cataract surgery and IOL implantation.

The patient's current medications included prednisolone acetate 1% b.i.d. and multiple topical glaucoma drops used as directed in his left eye only. When he presented to our clinic, his BSCVA was 20/20 in both eyes. His IOP with applanation tonometry measured 11 mm Hg OD and 21 mm Hg OS. Despite the use of topical glaucoma medications, the IOP in the patient's left eye had reached 30 mm Hg in the past. On slit-lamp examination, we noted pigmented cells in the anterior chamber of his left eye, posterior chamber IOLs (PCIOLs) in both eyes, and an open posterior capsule in his left eye. We also observed greater cupping of the optic nerve in his left versus his right eye (Figure 1). We did not note any blood in the vitreous of his left eye.

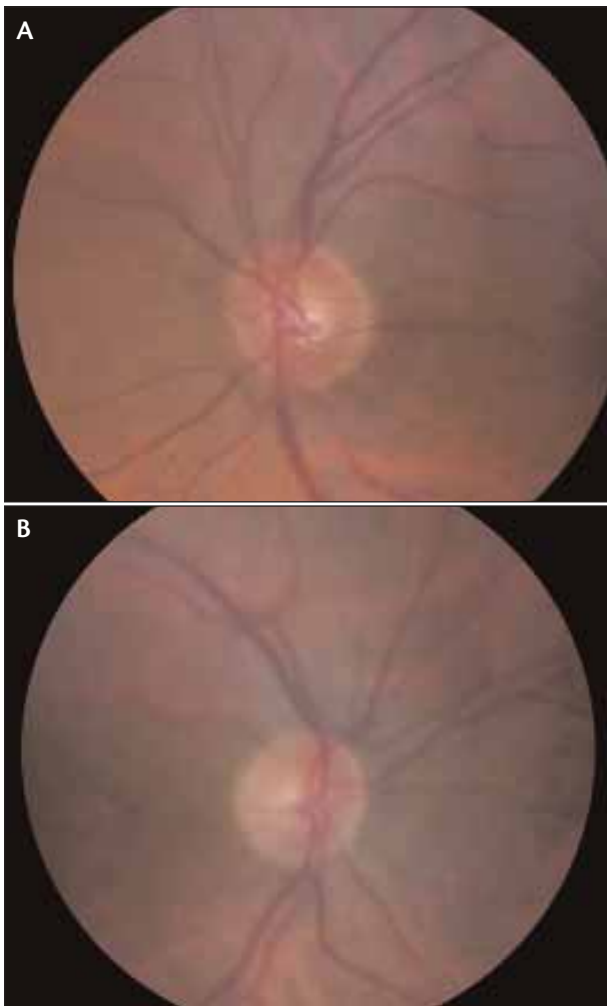


Figure 1. Fundus photography showed greater cupping of the optic nerve in the patient's left (A) versus his right (B) eye.

HOW WOULD YOU PROCEED?

1. What other examinations would you perform to determine if the patient's glaucoma were related to cells in the anterior chamber and the previous vitreous hemorrhage?
2. Would you manage the patient with maximal medical therapy?
3. Perform laser trabeculoplasty?
4. Perform surgery? If so, what type?

CLINICAL COURSE

We noted transillumination defects in the patient's left eye before pupillary dilation. His angles were open bilaterally on gonioscopy, which also showed dense pigmentary deposits in the trabecular meshwork of his left eye. Similar pigmentation was not visible in his right eye. After pupillary dilation, a slit-lamp examination showed an AcrySof PCIOL (Alcon Laboratories, Inc., Fort Worth, TX) in the capsular bag of the patient's right eye and the same lens in the sulcus of his left eye (Figure 2). He denied undergoing previous laser surgery.

We determined that the combination of the PCIOL's position in the sulcus, pigment in the trabecular meshwork, transillumination defects of the iris, cells in the anterior chamber, a history of blood in the vitreous

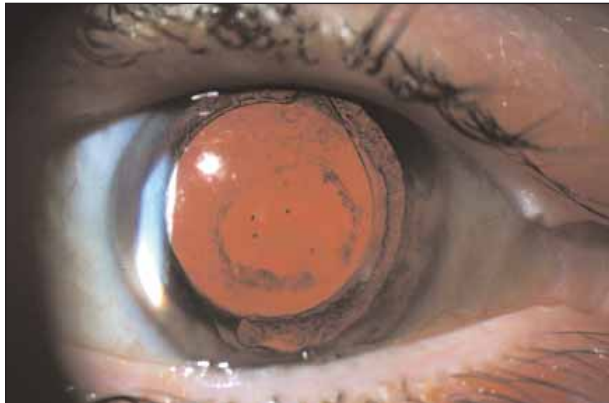


Figure 2. An examination of the patient's left eye after pupillary dilation showed pigment on the anterior capsule, a large opening in the posterior capsule, and an AcrySof PCIOL overlying a large capsulorhexis. The dilated pupil obscured transillumination defects that were visible with other examination techniques.

(due to the open capsule), and elevated IOP were consistent with a diagnosis of uveitis, glaucoma, hyphema (UGH) syndrome in the patient's left eye.

SURGICAL COURSE

We decided to replace the PCIOL in the patient's left eye with an anterior chamber IOL (ACIOL) (MTA4UO; Alcon Laboratories, Inc.). We chose an ACIOL, because we suspected that the large capsulorhexis and the defect in the posterior capsule would not adequately support another PCIOL in the sulcus.

An intraoperative examination of the eye with a 25-gauge shielded light pipe demonstrated no vitreous in the anterior chamber prior to the PCIOL's removal and after the implantation of the ACIOL.

OUTCOME

The patient's postoperative course was uneventful. Although his eye remained quiet, we needed to taper his steroids slowly to treat a rebound of inflammation that was not associated with elevated IOP. We suspected that the patient was a steroid responder, and we advised him to continue using topical timolol until he was completely weaned off the ocular steroid. By 20 months after his IOL exchange, the BCVA in his left eye was stable at 20/25, and his IOPs measured 14 mm Hg OD and 19 mm Hg OS on no medications.

DISCUSSION

Pigmentary dispersion syndrome, pigmentary dispersion glaucoma, and UGH syndrome have been observed in eyes implanted with a variety of IOLs.^{1,2} Most recently,

the placement of a single-piece AcrySof PCIOL in the ciliary sulcus versus the capsular bag has been associated with the last two conditions.³⁻⁵ It is suspected that the edge of the IOL's sharp, square optics or its haptics chafe the posterior surface of the iris and uvea. For example, LeBoyer et al implicated the AcrySof PCIOL in the etiology of pigmentary dispersion, bleeding, and glaucoma in three patients who subsequently underwent explantation of the IOL.⁶

In this case, the blood in the patient's vitreous observed by the retina specialist entered the posterior segment through an opening in the posterior capsule. Because the patient had no prior history of laser capsulotomy, we postulated that the capsule had torn during cataract surgery, which had necessitated the placement of the PCIOL in the sulcus. The subsequent development of pigmentary dispersion glaucoma and UGH syndrome contributed to the patient's elevated IOP.

The diagnosis of UGH syndrome was initially overlooked as the cause of the patient's elevated IOP and vitreous hemorrhage until additional examination of his pseudophakic eye revealed pigment in the trabecular meshwork and transillumination defects of the iris. We recommend that clinicians who observe these symptoms in a patient perform a slit-lamp examination to determine if an AcrySof PCIOL has been implanted in the sulcus and use this information to formulate an accurate diagnosis. Patients who have pigmentary dispersion glaucoma and UGH syndrome will likely require surgical intervention.

"The patient's presentation and clinical course draw attention to the signs of pigmentary dispersion glaucoma and UGH syndrome associated with the implantation of a PCIOL in the ciliary sulcus."

Our case highlights the importance of placing a single-piece AcrySof PCIOL inside the capsular bag. Although UGH syndrome has also been described with an unspecified PCIOL that was dislocated in the sulcus² and with an MA60MA PCIOL (Alcon Laboratories, Inc.) that was piggybacked in the sulcus with another lens,⁷ to our knowledge, the AcrySof is the only single-piece PCIOL associated with UGH syndrome.

The patient's presentation and clinical course also draw attention to the signs of pigmentary dispersion glaucoma and UGH syndrome associated with the implantation of a PCIOL in the ciliary sulcus. Various investigators report that

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the explantation of the AcrySof PCIOL improved the control of glaucoma by lowering IOP to normative levels (pre-operative range, 30 to 48 mm Hg) while maintaining good vision in several patients.³⁻⁵

Samples and Van Buskirk successfully managed pigmentary dispersion glaucoma related to PCIOLs in six patients with medical therapy.⁸ They suggested that this strategy could work as first-line therapy for the condition and, possibly, as an alternative treatment to the IOL's explantation. The patients they treated, however, did not have AcrySof PCIOLs. The utility of argon laser trabeculoplasty for treating this condition also seems to be limited, as reported by Smith.⁹ Only one of his patients—neither of whom had AcrySof PCIOLs—responded to the treatment. □

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