IOL EXCHANGE AND DOUBLE OPTIC CAPTURE FOR THE MANAGEMENT OF UVEITIS-GLAUCOMA-HYPHEMA SYNDROME

Ensuring IOL centration and stability while reducing the risk of uveal chafe.

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There are a number of indications for an IOL exchange. Reasons include refractive surprises, a patient's dissatisfaction with the refractive result, persistent negative or positive dysphotopsia, suboptimal visual quality through a multifocal IOL, lens opacification or lens-associated precipitates, or lens dislocation. The last may be a cause of posterior iris or ciliary body chafing, which can precipitate uveitis-glaucoma-hyphema (UGH) syndrome.[1-3]

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CASE PRESENTATION

This article discusses a 68-year-old white man with a past ocular history of uneventful phacoemulsification with IOL implantation, 8 months before referral to our center, with reported early postoperative steroid-associated ocular hypertension. The patient complained of intermittently blurry vision, predominantly upon waking with vision clearing somewhat throughout the day, and moderate glare.

Examination

On examination, the patient had a UCVA of 20/40 (Snellen chart) and an IOP of 22 mm Hg. The cornea was clear, with trace anterior chamber cells containing circulating pigmented cells. The iris had transillumination defects at the pupillary margin and at 6 o'clock. The angle was open (Shaffer classification, grade 4) except for inferiorly, where peripheral anterior synechiae were noted. The trabecular meshwork was heavily pigmented in comparison to the contralateral eye.

Diagnosis

The surgeon observed a large capsulorhexis, and a single-piece acrylic IOL was visualized with the superior haptic in the capsular bag and the inferior haptic in the ciliary sulcus. Mild posterior capsular opacification and fibrosis were present. Ultrasound biomicroscopy showed a tilted IOL with the inferior haptic in the ciliary sulcus. The rest of the ocular examination was unremarkable. The patient was diagnosed with UGH syndrome secondary to posterior iris chafing by the square-edged haptic of a tilted, single-piece acrylic IOL and was consequently scheduled for an IOL exchange.

Figure 1. Preoperative image demonstrating an inferiorly displaced single-piece acrylic IOL.

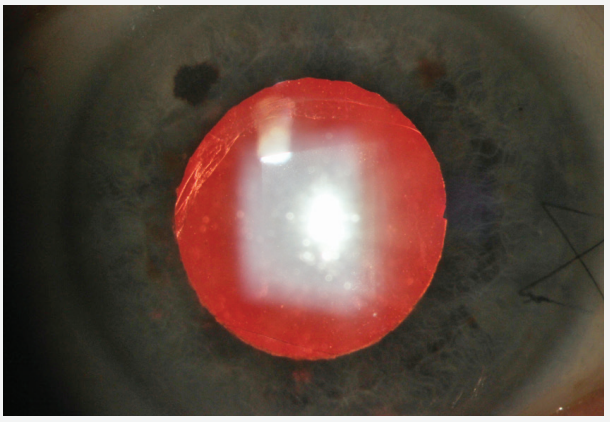

Figure 2. Preoperative ultrasound biomicroscopy shows the single-piece IOL partly in the capular bag and partly in the ciliary sulcus.

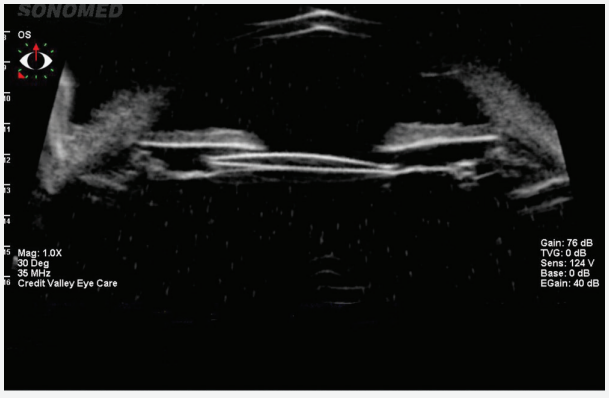

Figure 3. Postoperative image demonstrates the centered IOL optic with a double optic capture configuration (anterior and posterior capsular leaflets visible anterior to the IOL, best seen superiorly).

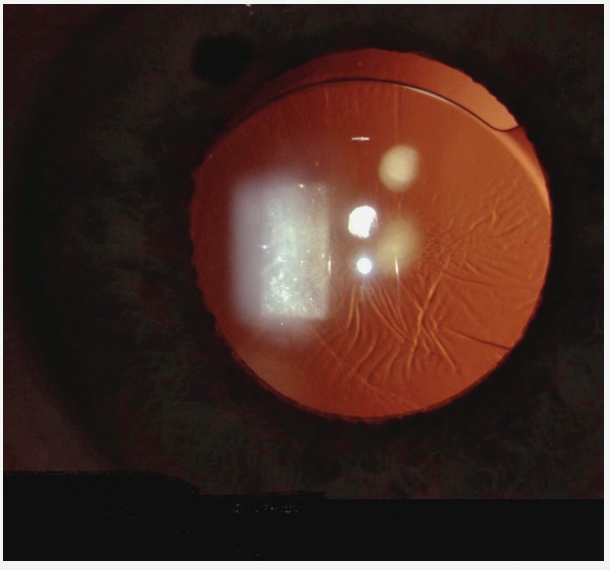

Figure 4. Gonioscopy shows the IOL haptic anterior to the anterior capsule, in the ciliary sulcus, with the optic posterior to the anterior and posterior capsules.

TECHNIQUE

Under topical anesthesia, three sideport incisions are fashioned in order to optimize access to the anterior and posterior capsules as well as the malpositioned IOL (see video at eyetube.net/?v=edini). Dispersive and cohesive viscoelastics are used to maintain the anterior chamber. A partial entry of a diamond microkeratome is fashioned temporally in order to provide a fourth access point without compromising chamber integrity. The superior anterior and posterior capsular leaflets are dissected apart with cohesive viscoelastic to free the superior haptic.

The surgeon gently rotates the IOL once adequate viscodissection has been achieved to ensure that the superior haptic is free. Because this single-piece acrylic IOL (AcrySof IQ, Alcon) has a terminal bulb, there is an increased risk that the haptic's end will remain fibrosed to the peripheral capsule, but thorough viscodissection is usually adequate to free this attachment. The IOL is typically dialed into the anterior chamber using a Kuglen hook and a Sinskey hook (both from Katena), although sometimes, the blunt ophthalmic viscosurgical device cannula can also be used to lift the IOL anteriorly. In the anterior chamber, surrounded by sufficient viscoelastic, the IOL is bisected and removed from the eye.

Posterior Capsule

The surgeon then directs his or her attention to the posterior capsule. Dispersive viscoelastic on a 30-gauge sharp

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needle is used to pierce the posterior capsule. Viscoelastic is injected to fill Berger space and tamponade the anterior hyaloid face. The posterior capsulotomy is propogated with the aid of iris microforceps and microscissors as needed. The posterior capsule is quite diaphanous, and a capsulotomy has the tendency to run peripherally, so care must be taken to avoid radialization.

IOL Injection

After the surgeon fills the sulcus space with cohesive viscoelastic, he or she injects a three-piece foldable IOL. He or she takes great care to ensure successful sulcus delivery of the leading IOL haptic. The trailing haptic is dialed into the sulcus space. Optic capture through the posterior capsulotomy is performed by "dunking" the inferior edge of the optic posterior to the capsulotomy, followed by the superior optic edge.

Successful sulcus implantation of the IOL haptic is confirmed by retracting the iris peripherally with a Kuglen hook. Intraoperative miosis is achieved with intracameral acetylcholine chloride intraocular solution, and the temporal clear corneal incision is secured with a 10–0 nylon cross-suture. Automated irrigation/aspiration is not performed due to concern about vitreous prolapse.

The patient was put on oral acetazolamide in anticipation of possible elevated postoperative IOP due to retained viscoelastic. Three weeks postoperatively, he had a subjective improvement in visual symptoms, a UCVA of 20/40, resolution of anterior chamber inflammation, and a stable IOL configuration.

DISCUSSION

UGH syndrome is associated with uveal chafing caused by IOL parts.[4] Factors influencing uveal chafing are IOL finish (rough edges), haptic design (square haptics), improperly sized IOLs, and unstable or mobile IOLs.[4-6] UGH syndrome may present as the classic triad of anterior chamber cellularity, increased IOP, and intraocular bleeding—or as any of its three separate components—in the presence of an improperly sized or positioned IOL.[7]

In this case, the IOL was improperly placed, with one haptic in the capsular bag and another in the ciliary sulcus. Thus, both the tilting of the IOL and the square-edge haptic in the sulcus caused iris chafing (Figures 1-4).

CONCLUSION

Treatment of UGH syndrome can be medical, targeting IOP and inflammation, or surgical via IOL repositioning or exchange.[5,8] When managed surgically, all offending IOL parts should be moved as far away as possible from uveal tissue. In this case, the anterior and posterior capsules had fused inferiorly, which precluded in-the-bag repositioning.

The IOL chosen has a round-haptic design that is compatible with sulcus placement (three-piece foldable acrylic IOL). Capturing the IOL optic behind the posterior curvilinear capsulorhexis reduced IOL movement and ensured adequate centration. ■

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