**CASE PRESENTATION**

A 69-year-old white male presented for glaucoma evaluation in December 2002. His past medical history was significant for long-standing noninsulin-dependent diabetes mellitus, Graves’ disease, systemic hypertension, anemia, ulcerative colitis, chronic renal failure, obesity, and allergies to sulfa drugs. His ophthalmic history included panretinal photocoagulation for neovascularization secondary to diabetes and recent phacoemulsification with the implantation of a posterior chamber IOL (PCIOL) in both eyes. He had been diagnosed with glaucoma 1 year earlier. The patient was taking steroids and antibiotics in his right eye and latanoprost, timolol, and brimonidine in his left eye.

Upon initial examination, the patient’s visual acuity was 20/200 OU. His IOP was 28 mm Hg OD and 26 mm Hg OS. He had significant proptosis and engorged episcleral vessels in both eyes. Examination demonstrated iridocorneal adhesions, moderate rubeosis, and the absence of posterior capsules, with a slightly decentered PCIOL in the sulcus of each eye. Gonioscopy showed open angles with multiple, scattered, peripheral anterior synechiae bilaterally. Fundus examination revealed macular degeneration, post-laser peripheral retinal scars, the absence of rubeosis, and pale optic nerves with very thin rims in both eyes. Central corneal thickness measured 541 to 556 µm OD and 564 to 588 µm OS. Carotid and ocular bruits were not present. The patient was not able to perform an automated visual field test, but confrontation visual fields showed 360º constriction in his right eye and an inferior visual field defect in his left eye.

**HOW WOULD YOU PROCEED?**

1. What is the target IOP in this patient?
2. What are the most appropriate treatment options (eg, valved vs nonvalved drainage implant, cyclophotoagulation, laser trabeculoplasty, trabeculectomy, medical treatment)?
3. What complications would you expect from the treatment options mentioned?

**SURGICAL COURSE**

I placed an Ahmed Glaucoma Valve (model S2; New World Medical, Inc., Rancho Cucamonga, CA) in the patient’s right eye without complications in January 2003 (Table 1). He was admitted to the hospital after surgery. On the first postoperative day, the anterior chamber was almost flat, with the tube touching both iris and cornea superotemporally. Although IOP measurements were unreliable, the eye was not soft. The PCIOL had dislocated nasally into the anterior chamber, but without corneal touch. After positioning the patient at the slit lamp, I filled the anterior chamber with Viscoat (Alcon Laboratories, Inc., Fort Worth, TX) and...
repositioned the PCIOL behind the iris. The IOP measured 24 mm Hg OD 1 hour later. The patient began taking topical antibiotics and steroids. I considered but did not prescribe atropine because a dilated pupil would have increased the risk of PCIOL dislocation into the anterior chamber.

On the next day, the patient presented with severe chemosis in his operated eye. The anterior chamber was formed only above the PCIOL, and the IOP measured 20 mm Hg. I observed moderate superior and inferior peripheral choroidals, which appeared to be hemorrhagic. Lubrication and a moisture chamber decreased chemosis significantly by the subsequent day.

At 1 week postoperatively, the anterior chamber of the patient’s right eye remained flat, without lens-cornea touch. The IOP was 18 mm Hg, and only very shallow peripheral choroidal detachment was observable on B-scan. I suspected aqueous misdirection and performed a YAG anterior vitreolysis. The IOP then decreased to 14 mm Hg, with slight deepening of the anterior chamber temporally, but an acute nasal suprachoroidal hemorrhage developed.

Five days after the vitreolysis, the anterior chamber remained formed temporally and was shallow nasally (Figure 1). B-scan demonstrated nasal and posterior choroidal detachment (Figure 2). One month following the original procedure, although the anterior chamber reformed and the choroidal hemorrhage resolved, anterior synechiae remained. At 2 months postoperatively, the IOP measured 20 to 24 mm Hg without IOP-lowering medications.

The patient was scheduled to undergo anterior synechiolysis in his right eye and placement of an Ahmed Glaucoma Valve in his left eye. His IOP measured 28 mm Hg OS on latanoprost, timolol, and brimonidine. His left eye demonstrated prominent episcleral veins but was otherwise quiet (Figure 3). The surgeries were performed on the same day and were uneventful.

The anterior chamber of the patient’s right eye remained deep after anterior synechiolysis, with a high

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**TABLE 1. A CHRONOLOGY OF EVENTS**

<table>
<thead>
<tr>
<th>Date</th>
<th>Right Eye</th>
<th>Left Eye</th>
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</thead>
<tbody>
<tr>
<td>January 14, 2003</td>
<td>Ahmed Glaucoma Valve implanted</td>
<td></td>
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<tr>
<td>January 15, 2003</td>
<td>Anterior chamber filled with Viscoat</td>
<td></td>
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<tr>
<td>January 22, 2003</td>
<td>YAG vitreolysis performed</td>
<td>Ahmed Glaucoma Valve implanted</td>
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<tr>
<td>April 15, 2003</td>
<td>Anterior synechiolysis performed</td>
<td>Anterior synechiolysis performed</td>
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<tr>
<td>June 24, 2003</td>
<td></td>
<td></td>
</tr>
<tr>
<td>December 17, 2003</td>
<td>Pars plana vitrectomy and choroidal drainage performed</td>
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**Figure 2.** Horizontal (A) and vertical (B) B-scans of the patient’s right eye showed choroidal detachment.
tering bleb over the external plate. The tube in his left eye was well positioned, and the anterior chamber remained formed, although slightly shallow, with 4 to 5 mm of hyphema. I prescribed antibiotics and steroids for both eyes. One week postoperatively, the anterior chamber in the left eye became very shallow (Figure 4), with large choroidals seen ophthalmoscopically and on B-scan (Figure 5). The patient’s right eye remained stable and maintained an IOP of between 24 and 26 mm Hg without IOP-lowering medications (Figure 6). The choroidals disappeared within 6 weeks after valve placement in the patient’s left eye (Figure 7), and the anterior chamber reformed completely, although a significant amount of iridocorneal adhesions remained inferiorly.

Two months after insertion of the Ahmed implant in the patient’s left eye, the IOP was 24 mm Hg OD and 36 mm Hg OS. The anterior chamber of the patient’s left eye was formed but shallow. The edge of the Tutoplast graft (IOP Inc., Costa Mesa, CA) in this eye became exposed, and the patient complained of discomfort. Surprisingly, despite the elevated IOP, a very thin space between the ciliary body and sclera was observable 360º on ultrasound biomicroscopy (Figure 8).

I repositioned the conjunctiva of the left eye without difficulty, but significant posterior pressure during anterior synechiolysis caused a collapse of the anterior chamber, with iris prolapse through the paracentesis. I eventually reformed the anterior chamber and repositioned the iris successfully.

**OUTCOME**

In June 2003, on the day following anterior synechiolysis, the patient’s left eye had an IOP of 24 mm Hg and a deep anterior chamber. The IOP stabilized at 20 mm Hg OD and...
25 mm Hg OS. The patient’s visual acuity remained 20/400 OU. Brimonidine was prescribed for his left eye but did not achieve a significant IOP-lowering response.

In December, the patient complained that the vision in his right eye had decreased approximately 1 week earlier. The anterior chamber of that eye was very shallow. Upon examination, the visual acuity was hand motion OD and 20/200 OS. The IOP was 14 mm Hg OD and 25 mm Hg OS. I observed a large choroidal hemorrhage nasally in his right eye. I prescribed atropine drops t.i.d. and referred him to a retinal specialist, who performed a pars plana vitrectomy and choroidal drainage in the patient’s right eye. The patient recovered well after surgery; his low-lying choroidals persisted for 2 months, and the IOP in his right eye stabilized in the midteens. He achieved a visual acuity of 1/800 OD, due to persistent macular edema, and his visual acuity remained 20/200 OS.

**DISCUSSION**

The differential diagnosis of the patient’s condition in this case included aqueous misdirection, suprachoroidal hemorrhage, supraciliochoroidal fluid, choroidal detachment, annular peripheral choroidal detachment, angle-closure glaucoma associated with occult ciliary body detachment, and pupillary block.

I cannot declare definitively which of the aforementioned conditions caused the unusually similar postoperative course of both eyes (consisting of shallow anterior chambers and high IOPs). I speculate that a combination of these conditions caused the situation described herein.

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