

Cataract and High IOP Uncontrolled by Filtering Surgeries

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CASE PRESENTATION

A 35-year-old Hispanic man was referred to me for uncontrolled IOP and decreasing vision bilaterally but predominantly in his right eye. The patient had severe pigmentary glaucoma and was using four different topical glaucoma medications with borderline control of his IOP (Figure). He had previously undergone trabeculectomies in both eyes. In addition, two tube shunts had been placed in his right eye and one in his left eye.

Upon examination, the IOP measured 18 mm Hg OD and 30 mm Hg OS. The patient had a visual acuity of 20/20 OD and 20/30 OS. He had inferior and superior arcuate scotomata in his left eye and a nasal step in his right eye. A mild posterior subcapsular cataract was visible in the right eye and a moderate cataract in the left eye.

As an engineer, this patient depends on his visual ability.

HOW WOULD YOU PROCEED?

- Would you consider a repeat trabeculectomy?
- Placing additional drainage devices?
- Transscleral cyclophotocoagulation?

SURGICAL COURSE

Because the patient had cataracts in addition to glaucoma, I decided to combine cataract surgery with endocyclophotocoagulation (ECP) for his left eye. Typically, I have patients begin using a steroid and a topical nonsteroidal anti-inflammatory drug q.i.d. 3 days preoperatively. My

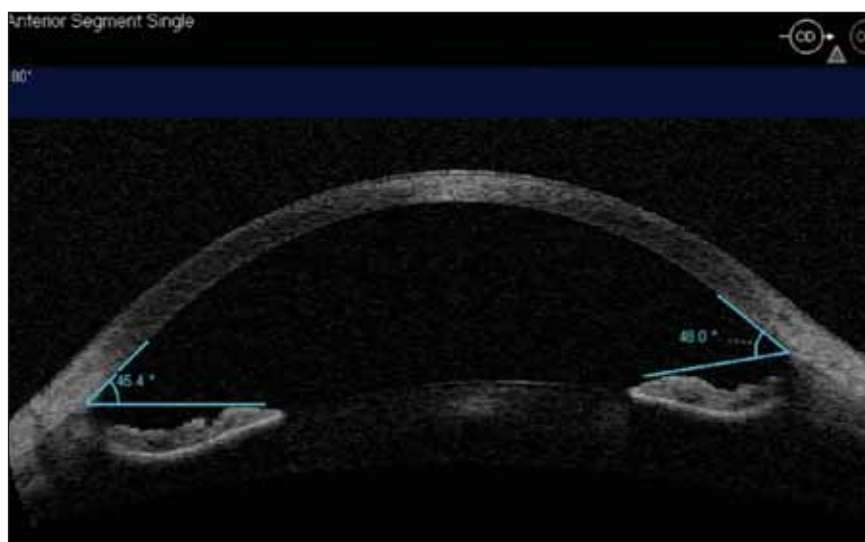


Figure. Anterior segment optical coherence tomography shows significant posterior bowing of the iris in this eye with pigmentary glaucoma.

goal is to facilitate the ocular surface's recovery from the side effects of topical glaucoma therapy¹ and to reduce intraocular inflammation as quickly as possible. I find that this form of pretreatment lowers the incidence of cystoid macular edema and anterior segment inflammation. In this case, I had the patient begin q.i.d. dosing of difluprednate ophthalmic emulsion 0.05% (Durezol; Alcon Laboratories, Inc.) and ketorolac tromethamine ophthalmic solution 0.45% (Acuvail; Allergan, Inc.) 1 week before surgery.

Intraoperatively, the patient received 8 mg of dexamethasone (Decadron; Merck & Co., Inc.) intravenously to increase his comfort. This technique is common to many other types of surgery such as orthopedic and dental procedures, and I find that it helps to reduce postoperative swelling.

I completed standard phacoemulsification. Next, using the same cataract incision and a second incision that I

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created 120° away, I ablated a full 360° of the ciliary processes. The endpoint of the treatment was whitening and shrinkage of each entire ciliary process. I then injected 0.1 mL of triamcinolone acetonide into the eye to blunt any immediate postprocedural inflammation.

OUTCOME

Postoperatively, the patient continued using ketorolac tromethamine and difluprednate for 6 to 8 weeks to prevent inflammation. In addition, I prescribed moxifloxacin hydrochloride ophthalmic solution 0.5% (Vigamox; Alcon Laboratories, Inc.) q.i.d. for 1 week. Initially, he remained on one glaucoma medication, brimonidine t.i.d., but the IOP decreased so quickly to 10 mm Hg that he was able to discontinue the drug 1 day after surgery. The patient maintained a visual acuity of 20/20 OS and was extremely happy with his outcome.

One year after surgery on the patient's left eye, the posterior subcapsular cataract in his right eye had worsened, and the IOP had increased to the 20s on medical therapy. He subsequently underwent combined cataract surgery and ECP. One month postoperatively, he was using only difluprednate in his right eye b.i.d. His UCVA measured 20/25. He was functioning normally in his engineering job.

DISCUSSION

A study comparing phacoemulsification combined with trabeculectomy to phacoemulsification combined with ECP generally found that the former lowers IOP more effectively but is associated with a greater incidence of complications.² The eyes of young patients and those of African American or Hispanic descent tend to develop more scar tissue than other patients'. This is likely why trabeculectomy was inadequate for the patient in this case. Because ECP is performed from an ab interno approach, the procedure's success is not affected by the amount of scar tissue present. Tube shunts also had not sufficiently lowered this patient's IOP. Brian Francis, MD, recently studied a limited number of cases in which an initial tube shunt failed, and he found that ECP was more likely to succeed than the placement of an additional drainage device.³

ECP is a flexible procedure in that it can be performed at any stage of glaucoma. When other procedures fail, ECP may still be an option, which is not true of other surgical interventions. Not only had glaucoma treatment failed in this case, but the patient was young and concerned about the possibly detrimental effects of surgery on his lifestyle. He was myopic and a longtime wearer of contact lenses, with which a filtering bleb typically interferes. Moreover, he had preexisting moderate mydriasis after previous surgery and found that colored contact lenses helped to reduce glare.

The most frequent complication of ECP is inflammation. The problem arises from either contact between the iris and the probe or overtreatment. The latter essentially produces too much heat and creates a "pop" or bubble, which is an indication of deep tissue damage. Experience is the best educator as to the optimal amount of treatment. I have found that the best ways in which to manage inflammation are (1) to recognize the signs and avoid it when possible and (2) to treat the problem aggressively when it occurs. Anti-inflammatory therapy before, during, and after surgery is also helpful. Preventing swelling during the recovery process preserves the patient's vision and comfort.

I believe that the key to success with ECP is combining a thorough treatment with control of inflammation. Placing the eye in a pseudophakic state facilitates access to the ciliary processes. The more ciliary processes the surgeon can see, the more of them he or she can ablate with the laser, and the lower the IOP is likely to be postoperatively. If the natural lens is present in the eye, ECP can still be performed, but the treatment will be less thorough and may not achieve the same degree of success. (Conservative treatment is warranted in these eyes to avoid cataract formation.) Direct visualization also helps to prevent overtreatment. It is not possible to access more than 300° from a single incision, even with the curved probe. By making a second incision, I was able to treat a full 360°. □

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