MY MOST DIFFICULT CASE

SNUFF-OUT

Permanent vision loss after trabeculectomy surgery is rare, but the risk remains.

BY LEON W. HERNDON, MD

During our careers as glaucoma surgeons, we have all managed challenging cases, many of which cause us to lose sleep at night. Contributors to this new column in *GT* will describe a difficult management scenario from their careers and share what they learned from the experience. The goal is to help colleagues avoid the same mistakes. In the first installment of this series, I present a surgical case that was not my most technically demanding (I have plenty of those) but one in which a patient lost a significant amount of independence and ability to function based on the outcome of his surgery.

I hope that this column proves a useful resource to the glaucoma community, and I welcome readers' feedback.

THE CASE

I first met the patient, a 78-year-old African American man, on June 17, 2003, and diagnosed him with severe primary open-angle glaucoma, more advanced in his left than right eye. On August 29, 2003, he underwent a trabeculectomy to his left eye, and he required a repeat trabeculectomy on April 4, 2005. Due to worsening of the cataract (20/400) in his left eye and a persistently elevated IOP, the patient underwent phacoemulsification with placement of an IOL and a Baerveldt glaucoma drainage device (Abbott) in this eye on May 28, 2007. Despite good IOP control, the vision in his left eye never improved.

The visual acuity in the patient's right eye remained 20/20 despite severe visual field loss (Figure 1) and advanced optic nerve cupping (Figure 2). I noted progressive visual field loss in this eye on October 8, 2013 (Figure 3) despite an IOP of 16 mm Hg. The patient underwent trabeculectomy with an Ex-Press Glaucoma Filtration Device (Alcon) in the right eye on October 30, 2013, followed by phacoemulsification with IOL placement and bleb revision on September 3, 2014. At

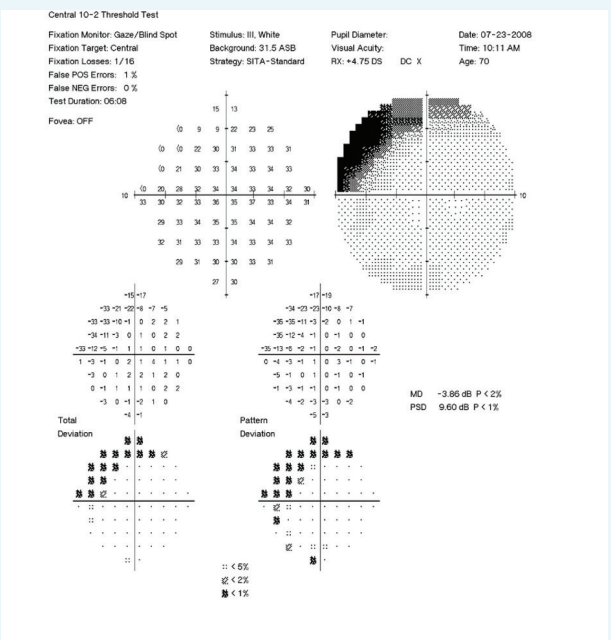

Figure 1. A 10-2 visual field of the patient's right eye from July 23, 2008.

AT A GLANCE

- All glaucoma surgeons have cases that kept them up at night. Contributors to this new column will describe such challenges from their careers and share the lessons they learned.
- Patients with severe visual field loss and split fixation are at risk of permanent vision loss after glaucoma surgery.
- Patients with severe glaucoma should be observed closely during the postoperative period to monitor for IOP elevation.

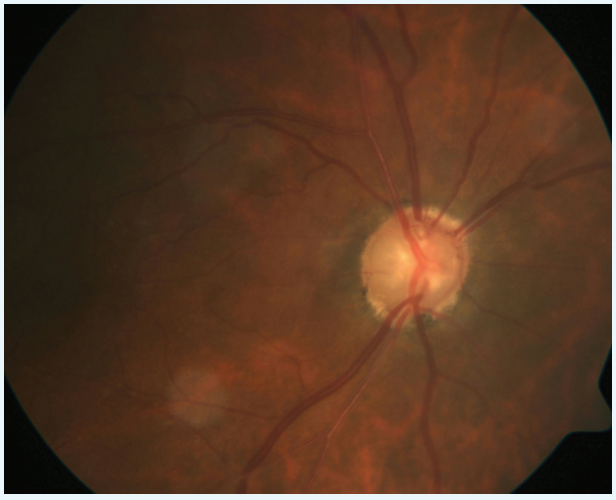

Figure 2. A disc photograph of the right eye from July 8, 2015.

> "The patient worked as a farmer, and now, he can no longer drive a car or operate the heavy machinery of his trade because of visual disability."

a follow-up visit on November 26, 2014, visual acuity measured 20/30 OD, but the IOP was elevated at 31 mm Hg. I recommended glaucoma drainage device surgery, but the patient was hesitant to proceed.

The patient returned to the clinic 2 months later with a visual acuity of 20/20 OD and hand motion OS. The IOP in his right eye remained too high at 20 mm Hg, but the patient was still not prepared to proceed with surgery. At a follow-up visit on March 12, 2015, visual acuity measured 20/25 OD, and the IOP was 18 mm Hg. A repeat visual field test result was worse (Figure 4), and the patient agreed to further surgery.

I performed a trabeculectomy to the patient's right eye on April 8, 2015. On postoperative day 1, the IOP was 40 mm Hg, and visual acuity measured 20/80. I performed the first laser suture lysis, and the IOP fell to 13 mm Hg. I asked the patient to return to the clinic 2 weeks later, at which time the visual acuity in his right eye was hand motion and the IOP measured 58 mm Hg. After the second laser suture lysis, the IOP decreased to 5 mm Hg, and visual acuity improved

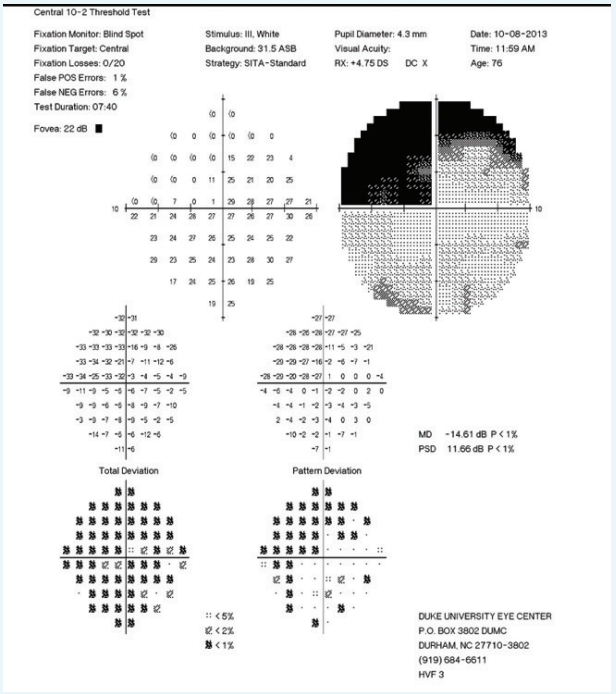

Figure 3. A 10-2 visual field of the right eye from October 8, 2013.

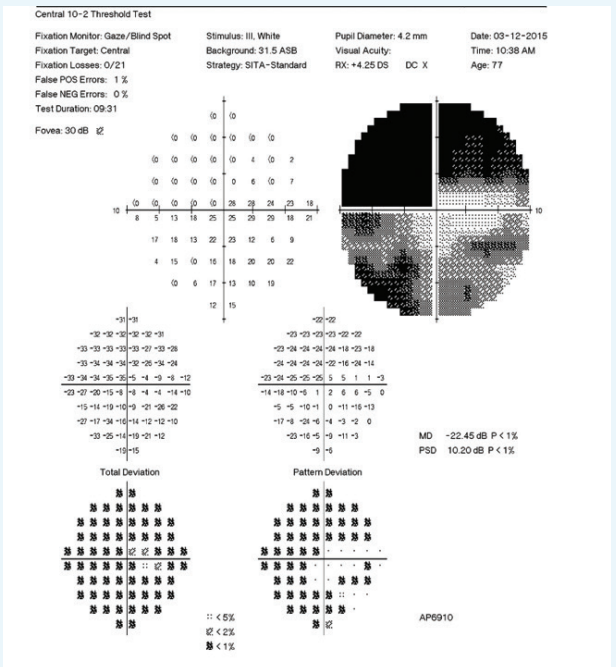

Figure 4. A 10-2 visual field of the right eye from March 12, 2015.

to 20/400. The patient returned to clinic the following week with an IOP of 5 mm Hg and a visual acuity of hand motion. I observed a choroidal effusion, which I suspected was

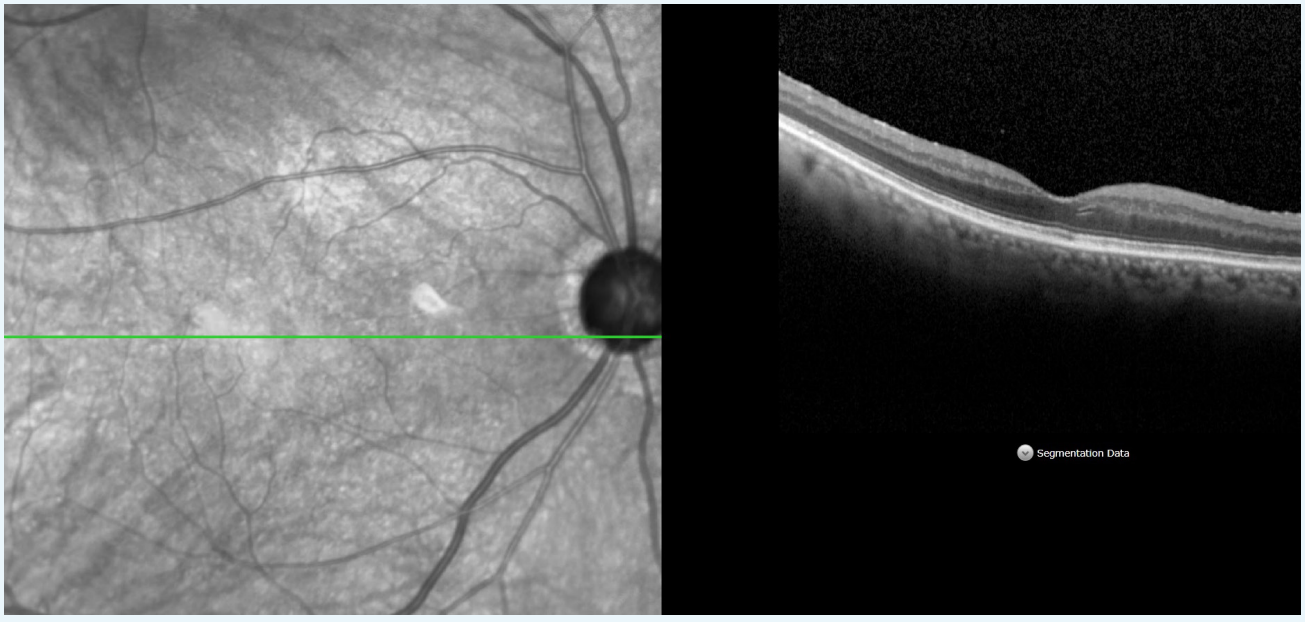

Figure 5. Macular optical coherence tomography of the right eye from May 28, 2015.

contributing to the patient's poor vision. The choroidal effusion resolved spontaneously, and by his return visit on May 12, 2015, the patient's visual acuity had improved to 20/400 OD (eccentric), but the IOP measured 20 mm Hg.

On May 28, 2015, the patient's IOP measured 19 mm Hg OD, and his vision was count fingers. Macular optical coherence tomography was within normal limits (Figure 5). I needled the filtering bleb in his right eye, and at the return visit on June 18, 2015, his visual acuity was count fingers in both eyes. IOP measured 16 mm Hg OD and 10 mm Hg OS.

At the patient's most recent visit on July 14, 2016, the IOP measured 14 mm Hg OD and 12 mm Hg OS. He was administering brimonidine and a fixed combination of dorzolamide and timolol to both eyes twice daily. Visual acuity was count fingers in both eyes.

LESSONS LEARNED

Severe unexplained vision loss (snuff-out) after trabeculectomy is rare, with rates ranging between 0% and 7.7% in the literature.[1-3] Risk factors include preoperative split fixation and postoperative choroidal effusions with eventual resolution.[4] The patient in this case likely does not fall into the category of snuff-out, because his progressive vision loss can most likely be attributed to the markedly elevated IOPs noted at his postoperative visits. My customary follow-up routine is to have patients return to clinic on postoperative day 1 and at postoperative week 2, especially when they have undergone trabeculectomy with the Ex-Press Glaucoma Filtration Device.

This patient presented with an IOP of 58 mm Hg 2 weeks after his most recent trabeculectomy surgery, and he has never recovered useful vision. The patient worked as a farmer, and now, he can no longer drive a car or operate the heavy machinery of his trade because of visual disability. He tells me he now feels that his left eye, which previously had more advanced glaucoma, is his better-seeing eye. The patient has been evaluated by Vision Rehabilitation Services and is considering further surgery (glaucoma drainage device implantation) in his right eye to try to maintain his present visual function.

Although permanent vision loss after trabeculectomy surgery is rare, this case impressed upon me the importance of counseling patients with severe glaucoma, especially those with split fixation, about the risk of vision loss during their preoperative evaluation. These individuals should also be closely observed during the postoperative period so that elevated IOP can be managed aggressively. ■

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4. Francis BA, Hong B, Winarko J, et al. Vision loss and recovery after trabeculectomy. *Arch Ophthalmol*. 2011;129:1011-1017.

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