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A MIGS Case Study

Transluminal viscoelastic delivery with titratable trabeculotomy offers an important implant-free approach.

BY NATHAN M. RADCLIFFE, MD

The emergence of microinvasive glaucoma surgery (MIGS) implants and procedures has sparked a paradigm shift in many practices across the country, including mine. Today, I would not think of performing cataract surgery for patients with coexisting glaucoma without offering the potential to improve their pressures and reduce or eliminate their need for IOP-lowering medications with a MIGS procedure. Furthermore, some of the newer MIGS procedures can be performed independent of cataract surgery, which creates a benefit for a whole new pool of patients.

Transluminal viscoelastic delivery and trabeculotomy are two procedures that can be conducted with the new OMNI Surgical System (Sight Sciences). ** It targets the conventional outflow pathway, enabling surgeons to perform this ab interno procedure in an effort to expand Schlemm canal and enhance or restore the outflow that was lost. I have performed more than 100 of these procedures and have found it to be a consistent and effective option, in my hands. While canal procedures like transluminal viscoelastic delivery and trabeculotomy are not without risk, they are generally safe. The main occurrence to watch for is transient postoperative hyphema, which will typically dissipate with observation. My experience with these procedures is that postoperative care is the same as for standard cataract surgery.

The following case, while not complicated or unique, demonstrates the utility of transluminal viscoelastic delivery and trabeculotomy for the types of patients we typically see in our practices, which, in my opinion, is reason enough to adopt this procedure.

Two Goals, One Device

This 67-year-old man was diagnosed with primary open-angle glaucoma 24 months before coming to see me. At his first visit, the untreated pressure in his right eye (my focus for this discussion) was 25 mm Hg. He appeared to have stable disease with an early visual field defect and some optic nerve damage (Figures 1 and 2). I prescribed a prostaglandin analogue and, eventually, a fixed combination adjunctive therapy; the pressure decreased to 16 mm Hg. The patient experienced some mild irritation and hyperemia but said he could tolerate these side effects.

During the next 2 years, the patient's preexisting cataract worsened, and we discussed his refractive goals for cataract

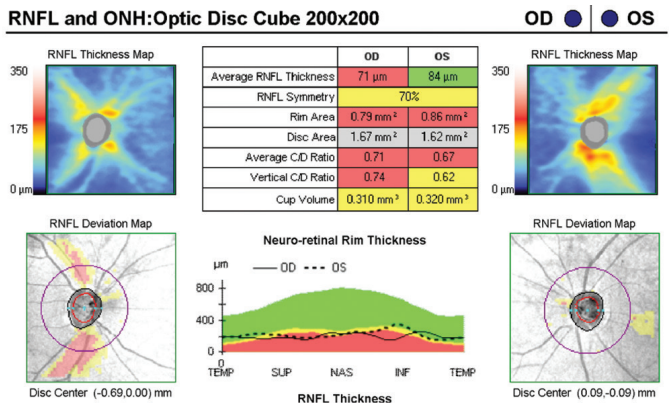

Figure 1. OCT image demonstrating unilateral glaucoma with an inferior retinal nerve fiber layer defect in the right eye.

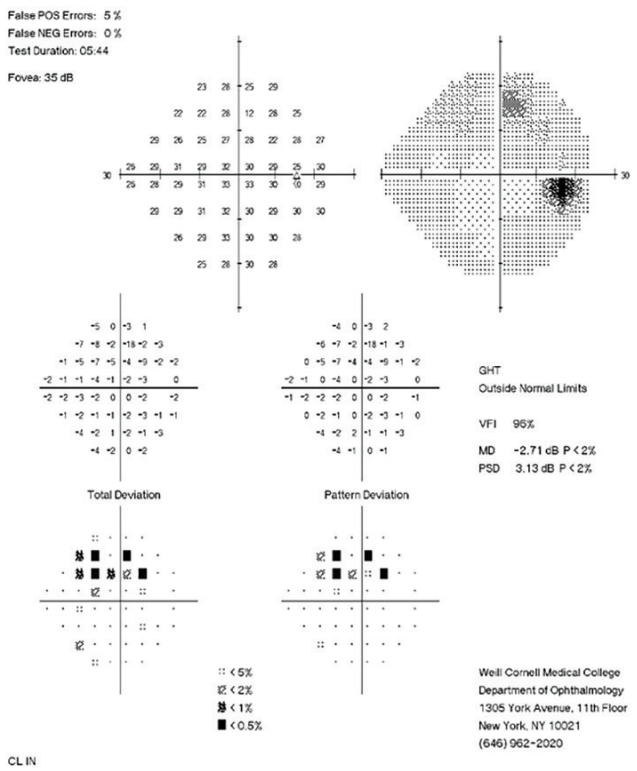

Figure 2. The right eye visual field test demonstrating a corresponding superior arcuate scotoma. The left visual field was normal.

surgery. He chose a monofocal lens for distance vision because he does not mind wearing reading glasses.

Considering the patient's early disease state and the fact that he preferred not to use the drops due to the side effects, I told him there were implant-free options that could be combined with his cataract surgery.

I performed uncomplicated cataract extraction and transluminal viscoelastic delivery with a titratable ab interno trabeculotomy. After successful placement of an IOL, I left a cohesive viscoelastic in his anterior chamber and obtained gonioscopic visualization. I used the OMNI device to enter the canal for 180° superiorly with the instrument delivering a controlled amount of viscoelastic upon withdrawal. To repeat the process in the opposite hemisphere, I withdrew the cannula from the anterior chamber and reoriented it in the opposite direction and repeated the maneuver inferiorly to cover the remaining 180° of the canal. Next, I reintroduced the cannula inferiorly for 180°, this time performing an ab interno trabeculotomy. I finished the procedure by performing the trabeculotomy on the superior meshwork and aspirating the remaining viscoelastic. If the pressure in the anterior chamber drops below episcleral venous pressure levels, one will likely observe intraoperative blood reflux, so I am sure to keep the eye well pressurized as I complete the procedure.

I instructed the patient to continue using the prostaglandin analogue (only) during the first postoperative week, which is my usual postoperative regimen. At the 1-week visit, his IOP was 17 mm Hg, and I instructed him to stop the latanoprost. He maintained a pressure of 16 mm Hg from that point forward without medication.

During the year after his surgery, the patient's pressure has been between 16 mm Hg and 18 mm Hg without antiglaucoma medication, which helps achieve his objective of reducing or eliminating his reliance on topical medication.

Conclusion

In summary, I have found that ab interno transluminal viscoelastic delivery and a titratable trabeculotomy offer me a good implant-free option to achieve my surgical plan both in combination with cataract surgery and as stand-alone procedures. Conceptually, I favor the idea of treating the outflow tissue directly with the hope that early intervention may stabilize or restore outflow. I believe that many more surgeons and their patients would benefit from adopting it. ■

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