

ICE Combination Therapy

This procedure allows my patients with early glaucoma to benefit from refractive cataract surgery and a reduction of the burden of medication.

BY STEVEN R. SARKISIAN JR, MD

Since the iStent Trabecular Micro-Bypass Stent (Glaukos) was released on the US market, I have combined its implantation with cataract surgery and endoscopic cyclophotocoagulation (ECP using the E2 Microprobe Laser and Endoscopy System [Endo Optiks]) to perform what has been dubbed the “ICE procedure” on patients with early glaucoma for whom I want to eliminate medication use. Combining a procedure that increases aqueous outflow (implantation of a trabecular microbypass stent) with a procedure that decreases aqueous production (ECP) has been an effective option for the medical management of my glaucoma patients. Being able to perform these two micro-invasive procedures without sutures through the same incision created for cataract surgery, however, offers unique advantages to patients with early to moderate glaucoma.

SURGICAL PROCEDURE

My protocol for performing ICE starts with positioning myself in a temporal seated position, just as I would sit to perform cataract surgery. My first surgical step is clear corneal cataract surgery. After implanting the IOL, I remove the viscoelastic from the capsular bag and place just enough viscoelastic in the ciliary sulcus for me to see the entire ciliary process. I then perform ECP for 360°.

I remove the viscoelastic from the ciliary sulcus and instill acetylcholine chloride intraocular solution to bring down the pupil so that I can visualize the angle and implantation of the stent (Figure). I administer additional sodium hyaluronate in the anterior chamber in order to visualize the entire nasal angle. Next, I turn the patient's head 30° to 45° away from me and tilt the microscope. I use a surgical gonioprism to view the angle and implant the stent by my usual technique through the cataract incision. I should note

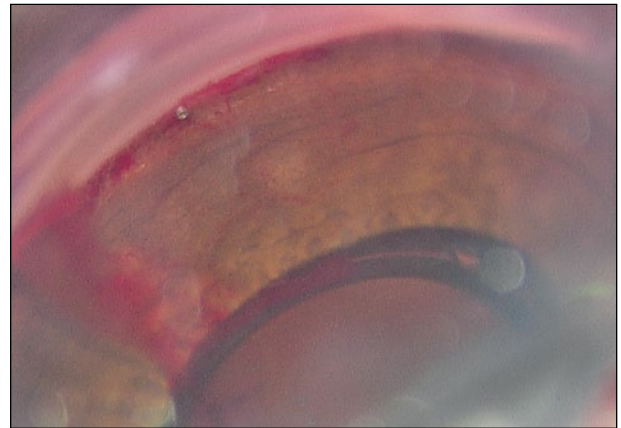


Figure. The iStent viewed with the endoprobe.

that I attempt to implant the device where I surmise a collector channel to be; I postulate this by visualizing the aqueous veins on the surface of the eye and also by looking for pigment collected over the trabecular meshwork or blood collected in the canal. After making sure I have removed all of the viscoelastic, I check that the wounds are watertight before removing the speculum.

ICE could be performed under topical anesthesia, but when the patient might not tolerate the discomfort of ECP, I administer a retrobulbar block. I instruct patients to use fluoroquinolone and difluprednate drops every 2 hours while awake on the day of the surgery. I prescribe difluprednate to maximally decrease inflammation at the start of the postoperative period and then rapidly taper the dosage to four times a day for 1 week and then twice a day for 2 weeks. Unlike after typical cataract surgery or implantation of the trabecular microbypass stent on its own, I find it is necessary to be more aggressive with steroid treatment in order to achieve positive results with ECP. I

"Patients with controlled open-angle glaucoma and a cataract who are using multiple IOP-lowering medications are generally excellent candidates for ICE."

see patients 1 day, 1 week, and 3 weeks postoperatively to monitor them for IOP spikes in response to steroid therapy.

PATIENT SELECTION

Patients who have angle-closure glaucoma or plateau iris are typically better candidates for ECP alone, especially if there are any peripheral anterior synechiae. Patients with controlled open-angle glaucoma and a cataract who are using multiple IOP-lowering medications are generally excellent candidates for ICE. For someone who has a visually significant cataract and is using a single IOP-lowering drug, either ECP or a trabecular microby-pass stent will work well on its own. If the patient is on more than one medication or is on one medication and has an IOP just above the target, then ICE may be a better choice. Pigment dispersion glaucoma and pseudoexfoliation glaucoma are not contraindications for ICE.

I have also performed ICE on patients with moderate to advanced glaucoma who had a "bad experience" with filtering surgery in their other eye or who have already undergone glaucoma drainage device or filtration surgery on the same eye. The chance that ICE will eliminate their need for IOP-lowering medication is certainly lower than for individuals with early glaucoma. I therefore carefully educate patients with moderate to advanced glaucoma about the likelihood that they will need medication postoperatively, and I explain that they may later require canaloplasty or filtering surgery if their target IOP is not reached with ICE.

CONCLUSION

My patients appreciate that ICE involves no external sutures and thus does not induce astigmatism or cause foreign body sensation, both of which are typical of a trabeculectomy. Furthermore, this combined procedure does not produce an extraocular reservoir or subconjunctival filtration. For that reason, ICE carries no long-term risk of bleb-related infection, bleb leaks, or dysesthesia.

In my experience, patients' postoperative visual recovery is rapid. In fact, it is essentially the same as after cata-

Weigh in on this topic now!



<https://www.surveymonkey.com/s/GT20>

1. Have you performed the ICE procedure?

☐ Yes

☐ No

2. If not, do you plan to in the next 12 months?

☐ Yes

☐ No

ract surgery alone. I would argue that ICE retains the refractive aspect of cataract surgery but changes the widely held perception of glaucoma surgery as a desperate rescue to a procedure that restores natural physiology in patients who desire the best visual outcomes. ■

Section Editor Richard A. Lewis, MD, is in private practice in Sacramento, California. Dr. Lewis may be reached at (916) 649-1515; rlewiseyemd.yahoo.com.

Steven R. Sarkisian Jr, MD, is the glaucoma fellowship director at the Dean McGee Eye Institute, and he is a clinical associate professor at the University of Oklahoma College of Medicine in Oklahoma City. He is an investigator in the MIGS Study Group and the iStent Inject Study sponsored by Glaukos, and he is on the advisory board for Endo Optiks. Dr. Sarkisian may be reached at (405) 271-1093; steven-sarkisian@dmei.org.



eyetube.net

<http://bit.ly/1iG40R2>

SHARE YOUR FEEDBACK

Would you like to comment on an author's article?

Do you have an article topic to suggest?

Do you wish to tell us how valuable **Glaucoma Today** is to your practice?

We would love to hear from you.

Please e-mail us at gletters@bmctoday.com with any thoughts, feelings, or questions you have regarding this publication.