IOP CONTROL IN UNCONTROLLED GLAUCOMA

ABiC can successfully lower IOP and medication dependence in patients with uncontrolled glaucoma.

BY MARK J. GALLARDO, MD

Ab interno canaloplasty (ABiC; Ellex) is a new microinvasive glaucoma surgery (MIGS) procedure that can comprehensively restore the natural outflow pathways in glaucoma patients. During the ab interno MIGS procedure, ABiC uses a process of viscodilation of Schlemm canal to flush out the natural outflow channels without damaging tissue and without leaving behind a stent or shunt, achieving an average reduction in mean IOP of 30%, combined with a 50% reduction in medication burden.[1]

In contrast to other MIGS procedures, which treat only one aspect of aqueous outflow, ABiC successfully and comprehensively addresses all aspects of potential outflow resistance and is designed to access, catheterize, and viscodilate the trabecular meshwork, Schlemm canal, and the distal outflow system, beginning with the collector channels.

This is an important distinction of the procedure—especially considering that it is not always understood where the point of maximum resistance lies. It therefore makes sense to apply a procedure that comprehensively addresses the entire outflow system.

The procedure is minimally invasive and atraumatic, as evidenced in Figures 1 and 2. Figure 1 shows the eye after a combined ABiC and phacoemulsification procedure,

CASE STUDY: UNCONTROLLED GLAUCOMA

A 60-year-old man presented with uncontrolled open-angle glaucoma, an IOP of 21 mm Hg, and 20/40 BCVA (Table). His slit-lamp examination revealed 2+ nuclear sclerotic cataracts in both eyes. A dilated fundus examination revealed a cup-to-disc ratio of 0.8 in both eyes. Visual field testing confirmed worsening arcuate scotoma. The patient's ocular medications included latanoprost, timolol, and dorzolamide. He had an allergy to brimonidine. His ocular history included selective laser trabeculoplasty (SLT) 1 year prior. **Would you perform standalone cataract extraction, cataract extraction with filter, or cataract with microinvasive glaucoma surgery (MIGS)?**

Given the patient's confirmed progression of his visual field and visually significant cataract, I decided to perfom a combination cataract extraction with ab interno canaloplasty (ABiC; Ellex). There were several options for treating this patient, which included repeating an SLT and leaving the cataract alone, removing the cataract and reducing the IOP with a filter like a trabeculectomy, or combining the cataract surgery with a MIGS procedure. Given the history of MIGS success and our recent observations of ABiC efficacy in reducing IOP, I decided to include ABiC in this patient's treatment algorithm.[1]

The patient had a successful 360° of circumnavigation using the iTrack catheter (Ellex) with subsequent viscodilation following routine cataract extraction by phacoemulsification with IOL placement. The postoperative course was uneventful. The patient was treated with a 1-week course of a topical antibiotic and a 3-week course of a topical nonsteroidal anti-inflammatory drug. At 1 month, his BCVA was 20/20 and his IOP was 12 without medications. At 1 year, his IOP remains well controlled at 11 mm Hg on monotherapy with a prostaglandin analogue.

TABLE. PATIENT WITH UNCONTROLLED OPEN-ANGLE GLAUCOMA

60-year-old man
BCVA: 20/40
IOP: 21 mm Hg OU
Slit-lamp Examination: 2+ nuclear sclerotic cataract OU
Dilated Fundus Examination: cup-to-disc ratio of 0.8 OU
Visual Field: worsening arcuate scotoma
Medications: latanoprost, timolol, and dorzolamide
Allergies: brimonidine
Previous Ocular History: SLT 1 year prior

1. Ellex iScience. Inc. Data on File.

Figure 1. Postoperative photograph of combined ABiC and phacoemulsification procedure.

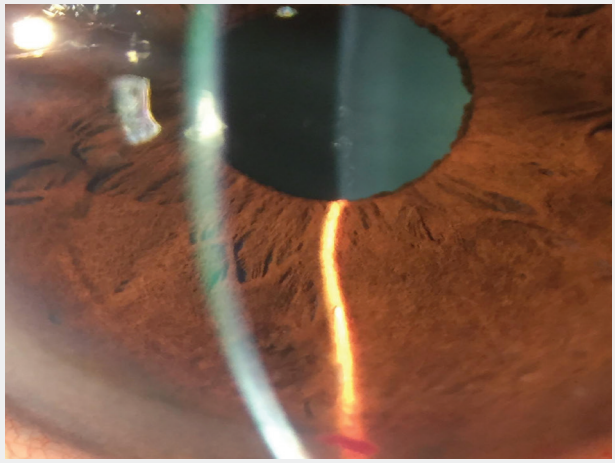

Figure 2. Postoperative photograph of standalone ABiC procedure.

TABLE. UNCONTROLLED GLAUCOMA: 12-MONTH IOP AND MEDICATION DATA

Examination	n	Mean IOP (mm Hg)	Mean Medications	Adverse Event	Treatment Failure
Baseline	35	22.23 ± 5.79	2.46 ± 1.01	N/A	N/A
3 months	30	14.87 ± 3.61	0.53 ± 0.86	None	1 (SLT)
6 months	24	15.17 ± 4.55	0.92 ± 0.93	None	1 (SLT)
12 months	20	14.80 ± 2.95	1.0 ± 0.92	None	1 (SLT)

and Figure 2 shows a phakic eye that underwent a standalone procedure. The most drastic postoperative finding you may encounter with ABiC would be a microhyphema that resolves without sequelae.

STUDY RESULTS

A 64-eye study of mild to moderate glaucoma patients found that ABiC effectively lowers IOP and medication dependence in cases of uncontrolled glaucoma.[1] Patients were grouped based on level of glaucoma control (controlled IOP < 18 mm Hg and uncontrolled IOP ≥ 18 mm Hg). Primary endpoints included reduction of medication burden in the controlled eyes and IOP reduction in the uncontrolled eyes. Secondary endpoints included adverse intraoperative or postoperative events and necessity for further incisional surgery.

A total of 19 eyes with uncontrolled glaucoma underwent standalone ABiC and 16 underwent combined phacoemulsification and ABiC. At 12 months, 10 standalone cases were off medication entirely, with an average IOP of 13.4 mm Hg (Table). There was a 31.0% reduction in IOP, which had decreased approximately 8 mm Hg (P = .00008).

CONCLUSION

ABiC effectively reduces IOP in patients with pressures considered high or uncontrolled for their stage of glaucoma. It is effective as a standalone or adjunct procedure to cataract extraction and can be performed in phakic and pseudophakic patients. ■

1. Ellex iScience. Inc. Data on File.

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