Combined Cataract Extraction and Trabeculectomy Ab Interno (Trabectome®) for Open Angle Glaucoma

Brian A Francis, MD1, A. Shahem Kawji, MD1, Douglas Johnson, MD2, Don Minckler, MD4

1- Massachusetts Eye & Ear Infirmary, Boston, MA, 2- Department of Ophthalmology, University of California, CA

Introduction

- Trabeculectomy ab interno (with the Trabectome) is a procedure to permanently remove a strip of trabecular meshwork (TM) and Schlemm’s canal (SC) inner wall.
- The procedure is a form of angle surgery, or internal filtering surgery.
- Equipment: Trabectome probe with I/A and electrocautery applied via a special footplate designed to fit through TM into SC.
- There is no bleb formation or external filtration, thus reducing the risk of hypotony, late infection and other bleb related complications.
- This study describes the results of combined Trabectome and cataract extraction with 6 months of follow up.

Procedure Steps

- Procedure: Trabectome used to ablate ±90º of TM and SCIW via a clear corneal incision, followed by phacoemulsification of cataract and IOL implantation.
- Post-operative care: Glaucoma medications resumed and tapered as able due to IOP, pilocarpine 1% bid-tid for 1-3 weeks, topical steroid and antibiotic qid tapering.
- Inclusion criteria: open angle glaucoma or primary chronic angle closure glaucoma with a visually significant cataract. IOP controlled or uncontrolled with medications.
- Exclusion criteria: secondary angle closure glaucomas (NVG, uveitic), pediatric glaucomas.
- Main outcome measures: IOP and # medications at baseline compared to 6 months post op (paired T-test).
- Secondary outcome measures: visual acuity, complications.
- Success defined as eyes with a 20% decrease in IOP or decrease in meds.
- Failures defined as eyes not meeting success criteria, or requiring further surgical intervention, or with severe complications.

Results

- The overall IOP decrease among all 58 eyes was 19% (p<0.001).
- The mean number of medications dropped from 3 to 1.5 (p<0.001).
- Success rate at last visit is 89%.
- Failures included 4 eyes that underwent subsequent trabeculectomy and 2 eyes that underwent repeat Trabectome.
- The only significant intraoperative complication has been blood reflux, generally minimal or clearing in a few days.
- No hypotony, infection, wound leaks, choroidal effusions or hemorrhages were seen.
- Visual acuity improved by an average of 3 lines of Snellen visual acuity (SD=2) per patient at 6 months. All patients exhibited an improvement except one in which visual acuity remained unchanged.

Results Continued

- The mean number of medications dropped from 3 to 1.5 (p<0.001).
- Success rate at last visit is 89%.
- Failures included 4 eyes that underwent subsequent trabeculectomy and 2 eyes that underwent repeat Trabectome.
- The only significant intraoperative complication has been blood reflux, generally minimal or clearing in a few days.
- No hypotony, infection, wound leaks, choroidal effusions or hemorrhages were seen.
- Visual acuity improved by an average of 3 lines of Snellen visual acuity (SD=2) per patient at 6 months. All patients exhibited an improvement except one in which visual acuity remained unchanged.

Conclusion

- Trabeculectomy ab interno with the Trabectome® is a practical and minimally invasive means of reducing IOP and/or glaucoma medications for glaucoma patients undergoing cataract surgery.
- Advantages include compatibility with cataract surgery, minimal complications, reliable normalization of IOP, and preservation of the conjunctiva for future external filtering surgery.