Combined Cataract Extraction and Trabectome® Surgery (Trabeculectomy by Internal Approach) for Coexisting Cataract and Open-Angle Glaucoma

Brian A. Francis, MD, MS1, Don Minckler, MD, MS2, Laurie Dustin1, Shahem Kawji, MD1, Jason Yeh, MD1, Arthur Sit, MD4, Sameh Mosaed, MD2, Murray Johnstone, MD5, and the Trabectome Study Group*

1-Doheny Eye Institute, Keck School of Medicine, USC, Los Angeles CA, 2-UC Irvine Ophthalmology, Irvine CA, 3-USC Preventive Medicine and Biostatistics, 4-Mayo Clinic Ophthalmology, Rochester MN, 5-Private Practice, Seattle, Washington, * See appendix for Trabectome Study Group

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 36 months of follow up.

Methods

• Multi-center interventional case series.
• 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

304 consecutive eyes of study participants were included. Total mean pre-operative IOP was 20.0 mmHg ± 6.3. Mean post-op IOP was 14.8 mmHg ± 3.5 at 6 months, and 15.5 mmHg ± 2.9 at 1 year.

There was a corresponding drop in glaucoma medications from a baseline of 2.65 ± 1.13 at baseline to 1.76 ± 1.25 at 6 months and 1.44 ± 1.29 at 1 year.

Subsequent secondary glaucoma procedures were performed on 9 patients. The only frequent complication was blood reflux in 239 (78.4%) of patients, clearing within a few days.

Conclusion

Combined trabeculectomy by internal approach (Trabectome) and cataract extraction has provided a lowering of IOP and medication-use in the majority of patients. Complications have been minimal and comparable to the original series of Trabectome-only procedures.