Abureesh Children's Hospital

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Circumferential Trabeculotomy

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Historical Background

Goniotomy: clinical value.
7310. BETTMAN JW.
Eye Ear Nose Throat Mon. 1962 Jul;41:537-42. No abstract available.
PMID: 13868667
Similar articles

Nylon filament **trabeculotomy** in glaucoma.
7311. SMITH R.
Trans Ophthalmol Soc U K. 1962;82:439-54. No abstract available.
PMID: 13989547
Similar articles

Trabeculotomy ab externo. A new glaucoma operation: technique and results of exp
7312. surgery.
ALLEN L, BURIAN HM.
Am J Ophthalmol. 1962 Jan;53:19-26. No abstract available.
PMID: 13860556
Similar articles

[On the surgical treatment of glaucoma (iridectomy with **trabeculotomy**)].
7313. KHAIUTIN SM.
Vestn Oftalmol. 1961 Nov-Dec;74:3-11. Russian. No abstract available.
PMID: 14455509
Similar articles

[Goniotomy in hydrophthalmos and related forms: results of over a decade of experie
7314. operated eyes].
BIETTI GB.
Boll Ocul. 1961 Jun;40:401-23. Italian. No abstract available.
PMID: 13869099
Similar articles

Circumferential vs Conventional <180-degree Angle Surgery

	Design	Micro-catheter type	Minimum follow up	Inclusion	Number of eyes		Age at surgery	Preoperative IOP (mmHg)		Success criteria	Postoperative IOP at final follow-up(mmHg)		Success rates	
					MT	CT		MT	CT		MT	CT	MT	CT
Lim et al.	Retrospective	Not specified	6 months	1ry and 2ry childhood glaucoma <18 years	14	77	0.61 ±0.42 years in MT group 1.52 ±2.68 years in CT group	30.35 ±6.04	28.75 ±8.80	Need for additional glaucoma surgery is considered failure	11±2.31	17.05 ±5.92	85.71%	58.44%
Shi et al.	Retrospective	iTrack	6 months	1ry and 2ry childhood glaucoma	22	21	33±34 months	33.1±6.1	33.2±7.2	IOP <21 mmHg and ≥30% IOP reduction	14.8 ±2.5	19.0±7.1	Complete:81% Qualified:86.4%	Complete:51.6% Qualified:61.9%
Celea C. et al.	Retrospective	NA	24 months	PCG	41	38	5.37 ± 6.32 months	27.29 ± 4.86	25.1 ± 2.56	NA	13.61± 2.02	15.73 ± 1.89	NA	NA
El Sayed et al.	Prospective randomized controlled	Glaucolight	24 months	1ry and 2ry childhood glaucoma	20	16	5.8 ± 6.7 months in MT group	25.1 ±6.4	22.3 ±5.2	-Complete= IOP<18 mmHg on no medications	11.4 ±2.5	12 .6 ±4.4	Complete:67%	Complete:47%
Shakrawal et al.	Prospective randomized controlled	Glaucolight	12 months	PCG	20	20	8.35 ± 1.2 months	24.70 ± 3.90	24.60 ± 3.31	Complete:IOP<12 mmHg on no medications	9.5 ± 2.4	11.7 ± 2.1	Complete:80% Qualified:90%	Complete: 60% Qualified:70%
Neustein et al.	Retrospective(compared to standard trabeculotomy/goniotomy)	NA	7.2 ±4.0 years in MT 8.2±4.5 years in CT/goniotomy	PCG	58	42	NA	NA	NA	Success: IOP<22 mmHg with or without medications	15.2 ± 3.6	18.2 ± 7.0,	Overall successs:81%	Overall success:31%

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Eye (2016), 1–8

www.nature.com/eye

Outcomes of microcatheter-assisted trabeculotomy following failed angle surgeries in primary congenital glaucoma

Y Shi[1], H Wang[1], J Yin[2], X Zhang[1], M Li[1], C Xin[3], X Chen[4] and N Wang[1]

CLINICAL STUDY

- The success rate: 77.3%

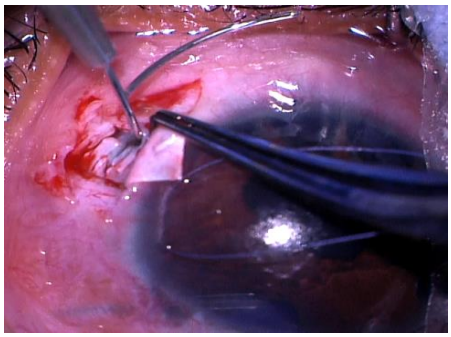
ORIGINAL STUDY

Microcatheter-assisted Trabeculotomy for Primary Congenital Glaucoma After Failed Glaucoma Surgeries

Man Hu, MD,† Huaizhou Wang, MD, PhD,* Alex S. Huang, MD, PhD,‡ Li Li, MD,† Yan Shi, MD,* Yongli Xu, PhD,§ and Ningli Wang, MD, PhD**

J Glaucoma, 2019

- Previous trabeculotomy, trabeculectomy, GDDs, cyclodestruction, or a combination of these.
- 80% complete success at 12 and 36 months (<21 mmHg)



360-Degree Trabeculotomy for Medically Refractory Glaucoma Following Cataract Surgery and Juvenile Open-Angle Glaucoma

MARIA E. LIM, JENNIFER B. DAO, AND SHARON F. FREEDMAN

AJO, 2017

- Retrospective
- Illuminated microcatheter-assisted 360-degree trabeculotomy
- Success: IOP≤ 22 mmHg with >20% IOP reduction
- 25 eyes
- Success in 18/25 eyes (**72%**)

SURGICAL TECHNIQUE

360° Trabeculotomy for Primary Congenital Glaucoma

Allen D. Beck, MD, Mary G. Lynch, MD

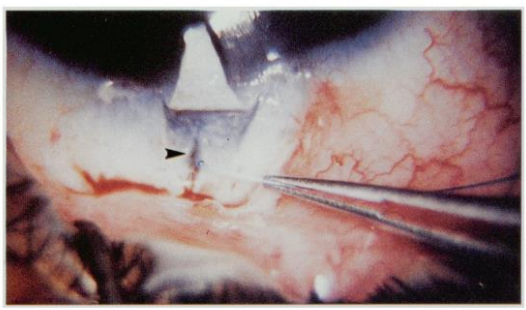


Figure 1. *The end of a 6-0 blue polypropylene (Prolene) suture fragment is blunted with a disposable cautery unit. The rounded end is threaded into Schlemm's canal via a radial incision (arrowhead) beneath a partial-thickness scleral flap.*

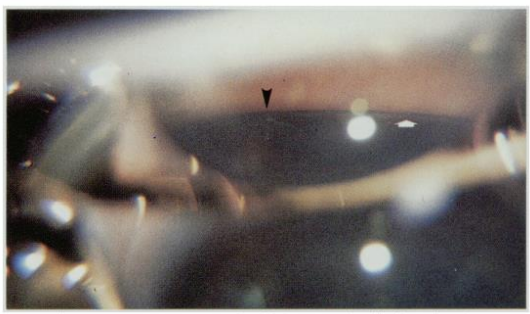
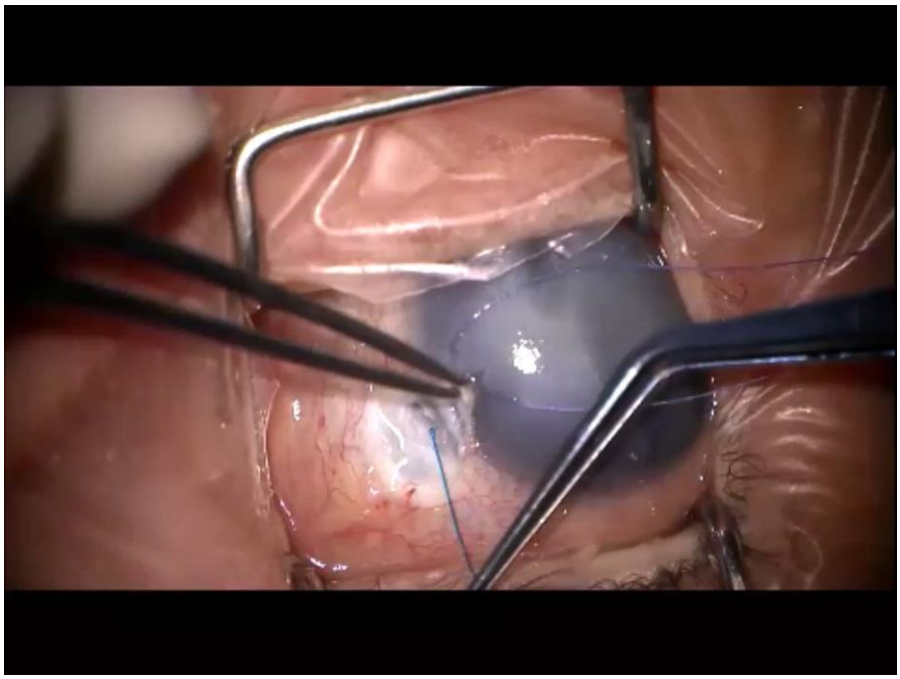


Figure 2. *Correct placement of the polypropylene (Prolene) suture is verified by gonioscopic visualization of the blue material in Schlemm's canal (black arrowhead). The white arrow demonstrates the anterior iris insertion characteristic of primary congenital glaucoma.*



False passages:

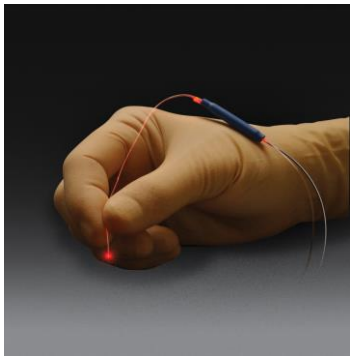
- Suprachoroidal
- Subretinal

Subretinal Suture Misdirection During 360 Degrees Suture Trabeculotomy

Elizabeth A. Verner-Cole, BA, Steven Ortiz, MD, Nicholas P. Bell, MD, and Robert M. Feldman, MD

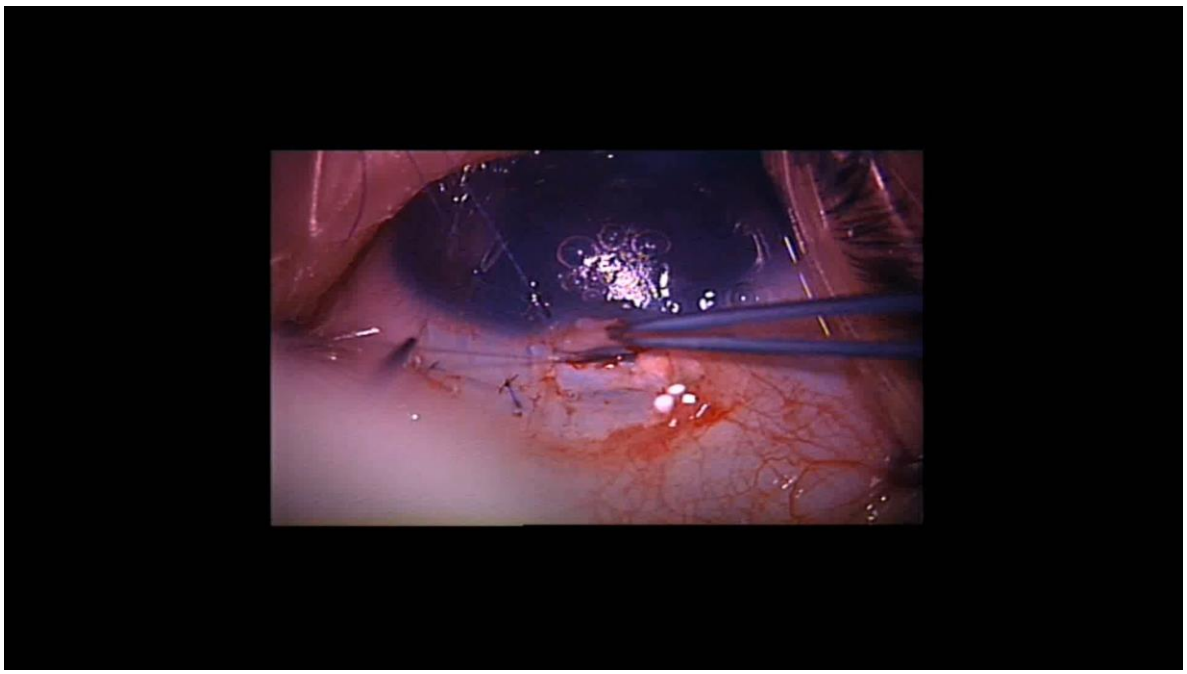
PURPOSE: To report a new complication of 360 degrees suture trabeculotomy attributable to subretinal suture misdirection.

Accepted for publication Aug 18, 2005.
From the Department of Ophthalmology and Visual Science at the University of Texas Health Science Center-Houston, Houston, Texas.
Inquiries to Robert M. Feldman, MD, Hermann Eye Center, 6411 Fannin, 7 Jones, Houston, TX 77030; fax: (713) 704-4864; e-mail: rmfeldman@swbell.net



iTrack (Ellex, Adelaide, SA)

Glaucolight (DORC International, Zuidland, The Netherlands)



Acta Ophthalmologica

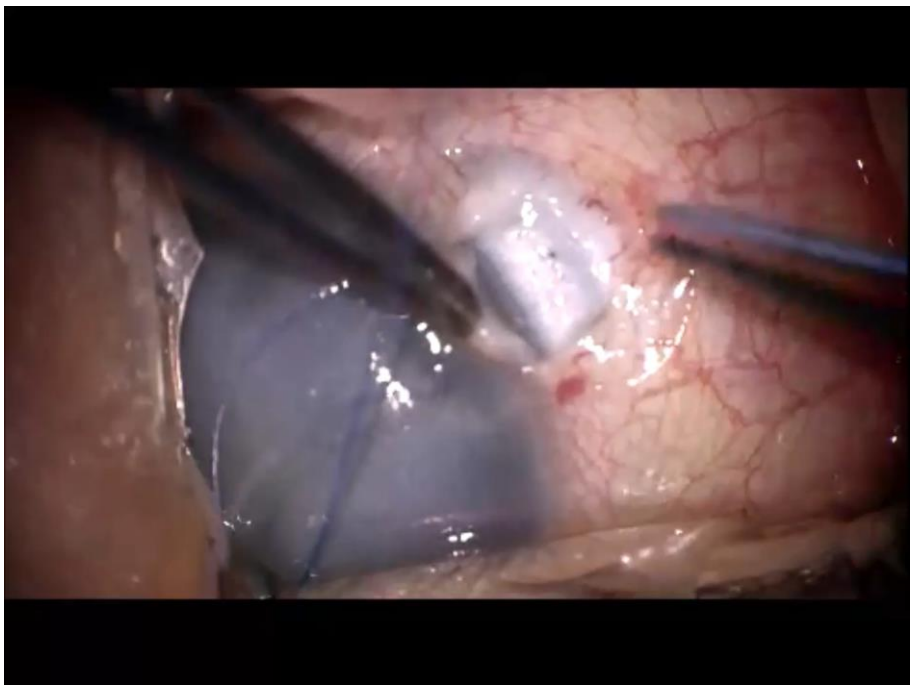
Acta Ophthalmologica 2017

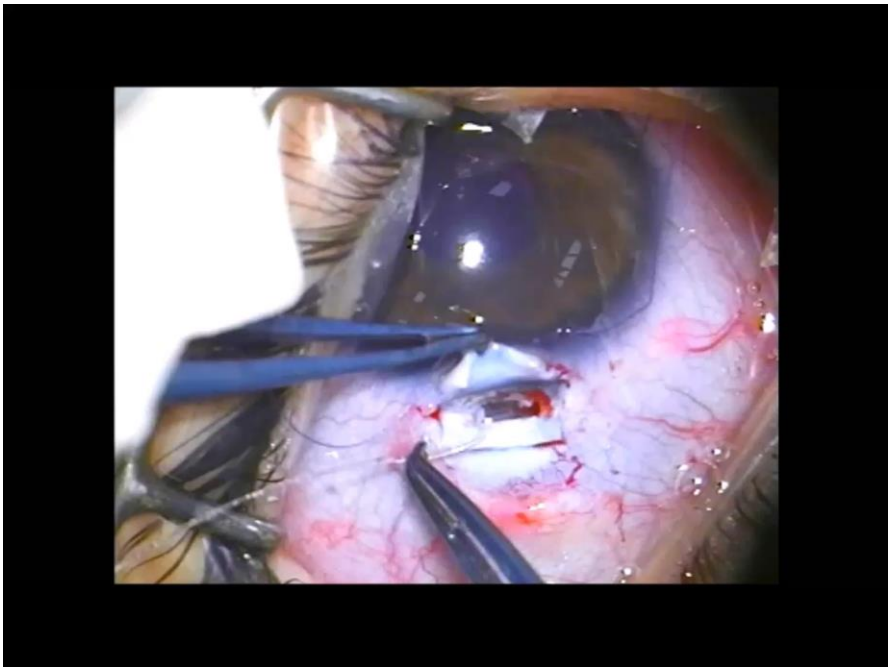
Two-year results of microcatheter-assisted trabeculotomy in paediatric glaucoma: a randomized controlled study

Yasmine El Sayed and Ghada Gawdat

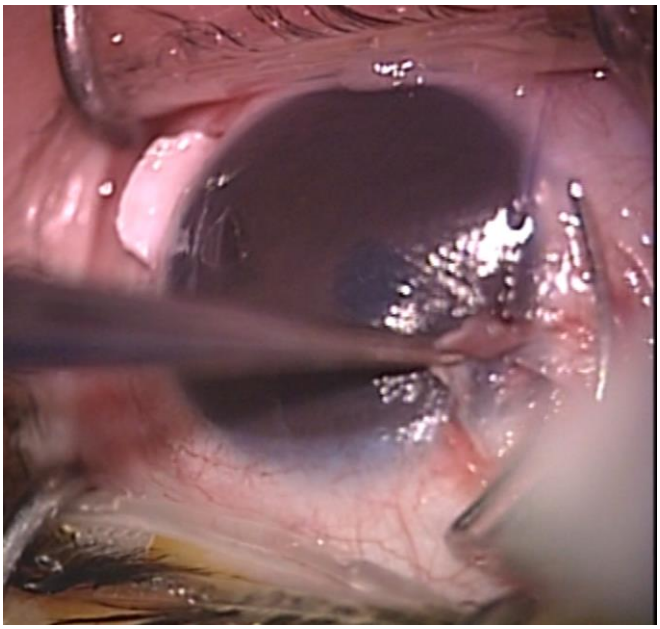
Cairo University Faculty of Medicine, Cairo, Egypt

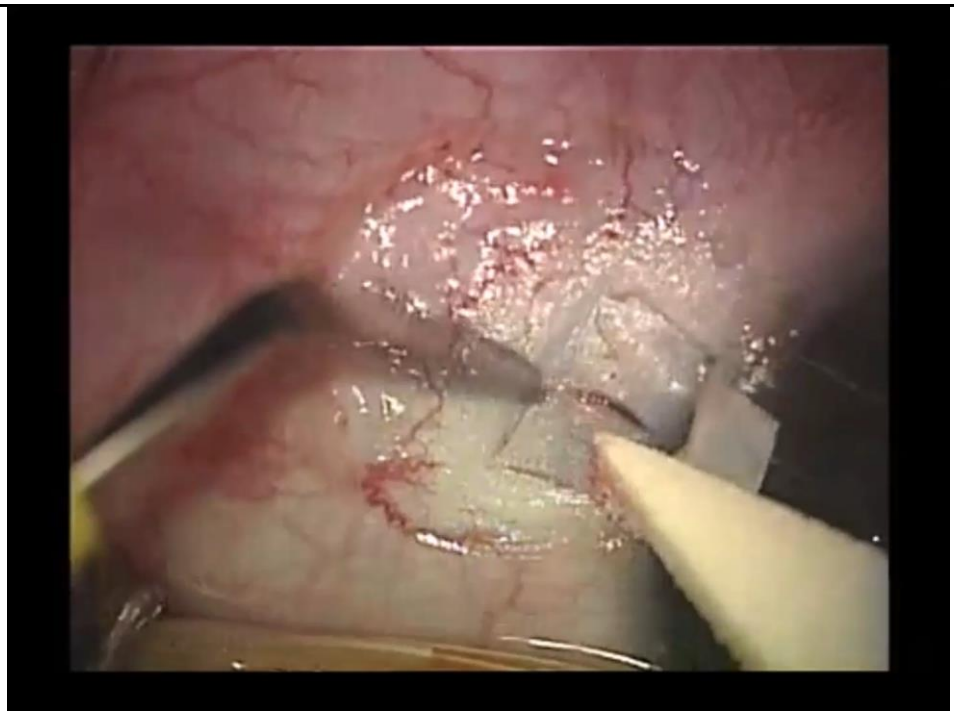
- **85%** success rate with *microcatheter-assisted trabeculotomy*
- **50%** success rate with *conventional 180° trabeculotomy*





Two-site trabeculotomy





ORIGINAL STUDY

Microcatheter-assisted Trabeculotomy Versus 2-site Trabeculotomy With the Rigid Probe Trabeculotome in Primary Congenital Glaucoma

Yasmine M. El Sayed, MD, MRCSEd and Ghada I. Gawdat, MD

Glaucoma J, 2018

- **MAT** (33 eyes):
<u>73%</u> complete success

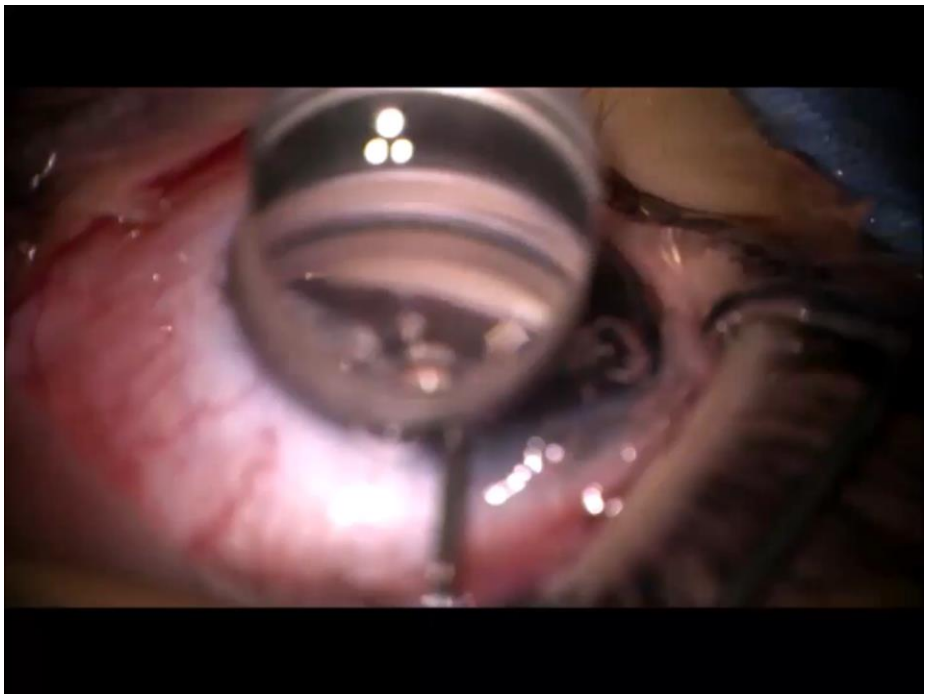
- **2-site trabeculotomy**(59 eyes):
<u>80%</u> complete success

(*P*=0.2)

Ab-interno Circumferential SC Surgery

GATT

Gonioscopy-assisted transluminal trabeculotomy



Gonioscopy assisted transluminal trabeculotomy: an ab interno circumferential trabeculotomy for the treatment of primary congenital glaucoma and juvenile open angle glaucoma

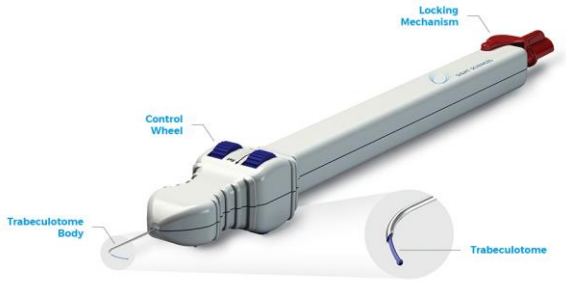
Davinder S Grover,[1] Oluwatosin Smith,[1] Ronald L Fellman,[1] David G Godfrey,[1] Michelle R Butler,[1] Ildamaris Montes de Oca,[2] William J Feuer[3]

BJO, 2015

- Retrospective
- 14 eyes of 10 patients
- Mean FU of 20 months
- Mean IOP decreased from 27.3 to 14.8 mm Hg
- Medications decreased from a mean of 2.6 to 0.86

TRAB360

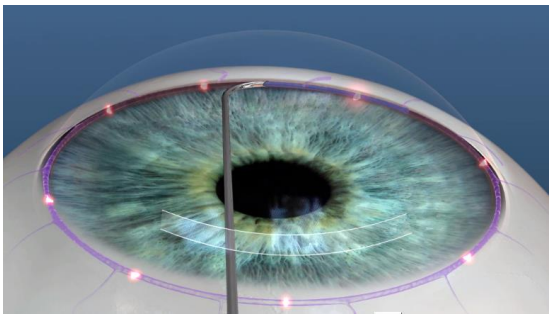
(Sight Sciences)



Courtesy of Sight Sciences

TRAB360

(Sight Sciences)



Courtesy of Sight Sciences

- 48 eyes
- A mean of 293 degrees of ab-interno trabeculotomy.
- The mean IOP was reduced significantly from 31.2 mmHg on 2.7 glaucoma medications to 17 mmHg on 1.2 glaucoma medications.
- Success rate: 69%

Areaux R et al, AAPOS meeting, 2019

Conclusion

- Circumferential SC surgery using a microcatheter, rigid probe or ab-interno has markedly improved the success rates of angle surgery in PCG.
- The risk of complications is not higher than conventional trabeculotomy.
- It may be used as a first line in all cases or reserved for high risk patients or recurrences.

Thank you for your attention