

HOW TO ENSURE YOU CAN SEE THE CANAL: A REVIEW OF GONIOPRISM AND TIPS FOR EN FACE VIEW

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SAT FEB 11 2:30 PM-2:45PM 15 MIN

IF YOU DON'T SEE IT... YOU WON'T GET IT RIGHT

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Disclosures

- AbbVie-Allergan
- Alcon
- Elios
- Glaukos
- Iridex
- New World Medical
- Nova Eye
- Oculus
- Sight Sciences

How do we find the obstruction without a test for the Aqueous Venous Channel Capacity?

- Normal

- Advanced Glaucoma

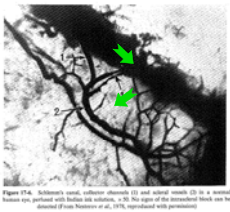
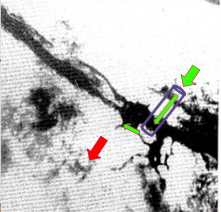
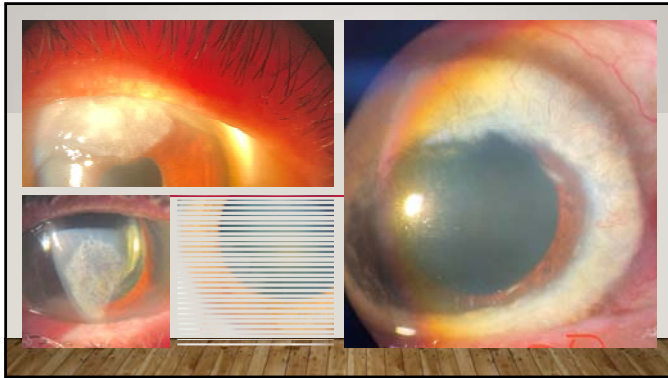



Figure 17-6. Intraocular angle, inferior drainage (1) and superior vessels (2) in a normal human eye, perfused with fluorescein solution, x15. The angle of the peripheral block can be identified from Neuman et al., 1976, reproduced with permission.

D.Greiner, 2021

Pre op consideration for angle surgery

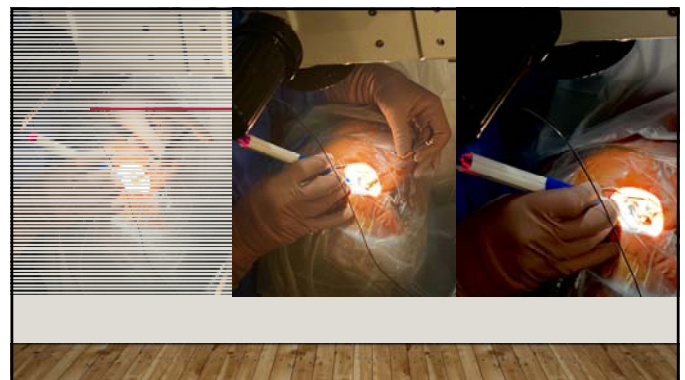
- Check the angle pre op
- R/o trauma, pas and pigment
- Most of drainage is believed to be inf nasal (1)
- Check for visibility: scarring, corneal dystrophies, pterygium
- Surgical decision: angle visibility, goniosynechialysis
- Patient cooperation



Intraoperative planning

- Position to seat and patient's position
- Your wound: avoid limbal vessels, even on the paracentesis
- Good IA, avoid pigment, debris and air bubbles in AC
- Gonioprisms and coupling agent
- Cohesive viscoelastic, reinflate the anterior chamber
- Prevent pushing down on wound
- Prevent striae and torque

Getting started, position the patient



Gonioprism choices

- Reusable/disposable
- Direct or indirect view
- Handfree vs handle



Ahmed



Gonio Ready



Gonio Ready



Gonio Ready



Swan Jacobs



Gonio Ready



IF YOU DON'T SEE THE HALO ANGLE, YOU WON'T GET IT. GETS YOU HALF THE WAY FORWARD BASED ON THE MIGS RIGHT

A Decade of MIGS

Mark F. Pyfer MD
NOAO Symposium
Feb 2024

Background

Glaucoma worldwide: 80 million in 2020 -> 110 million in 2040.
MIGS - "Micro-Invasive Glaucoma Surgery" – Ike Ahmed 2009

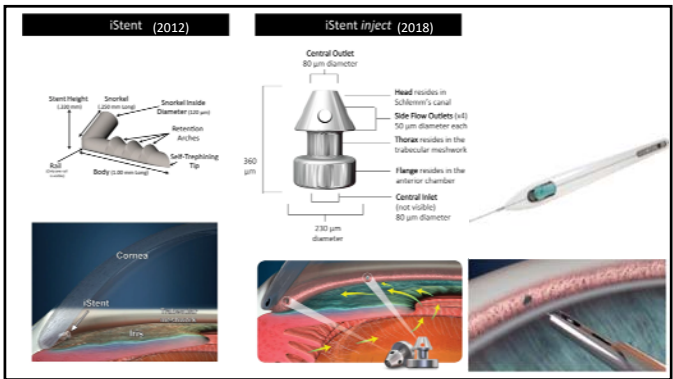
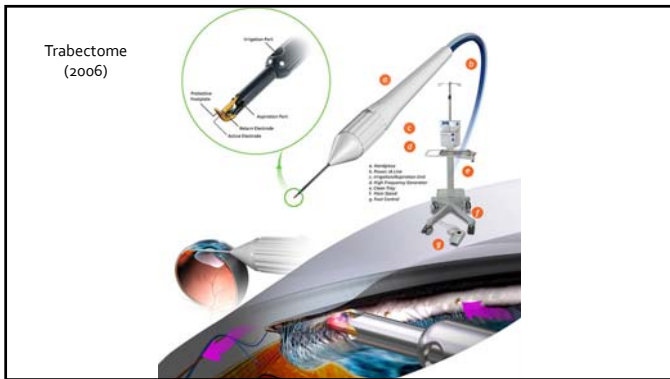
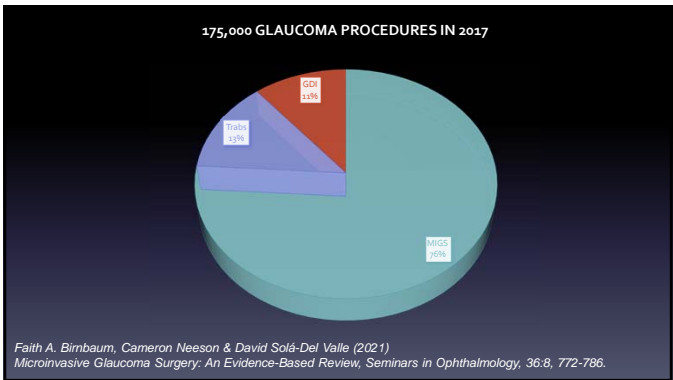
5 key aspects:

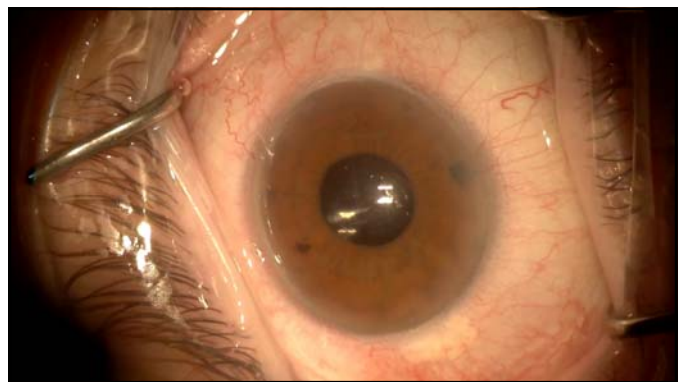
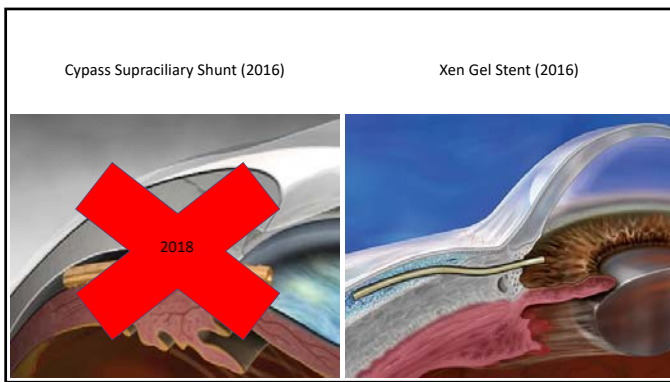
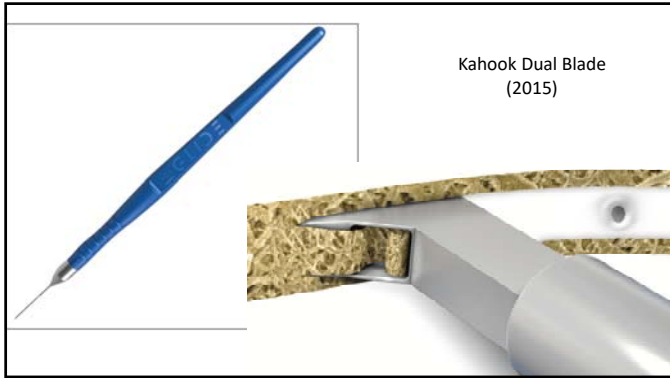
- Ab interno
- Minimal disruption of normal anatomy
- High safety profile
- Good efficacy
- Quick recovery

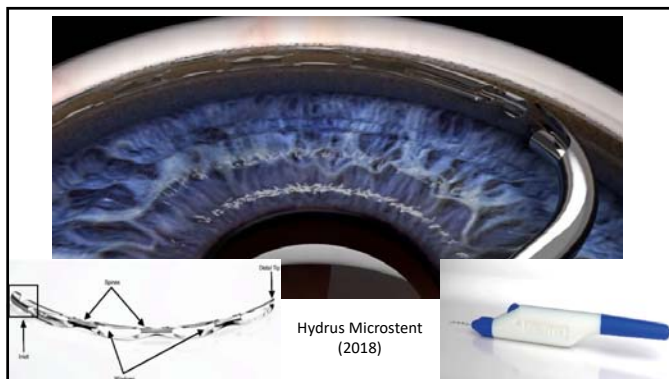
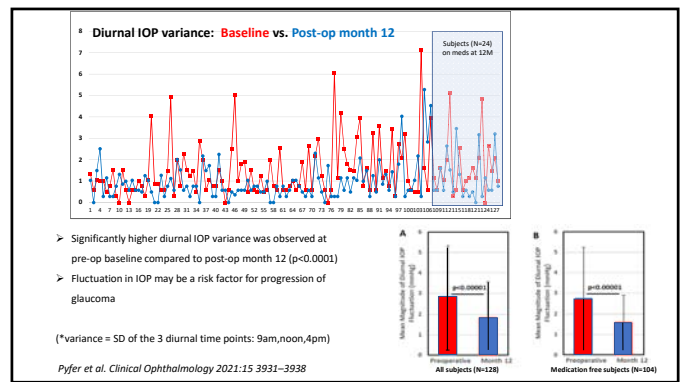
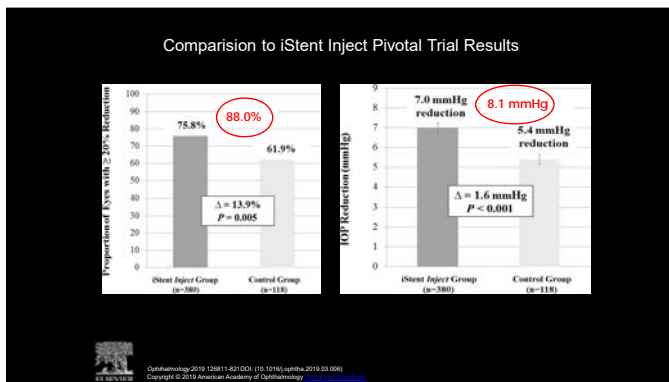
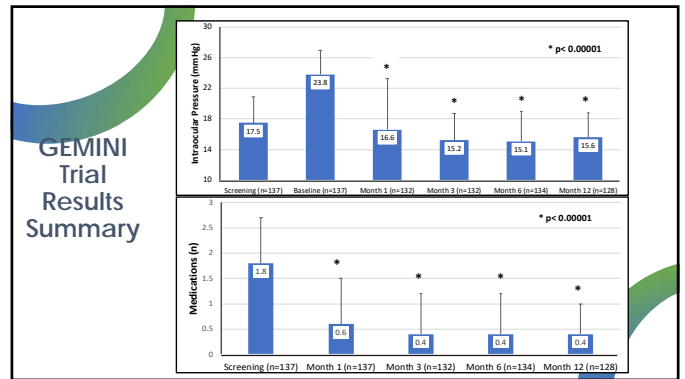
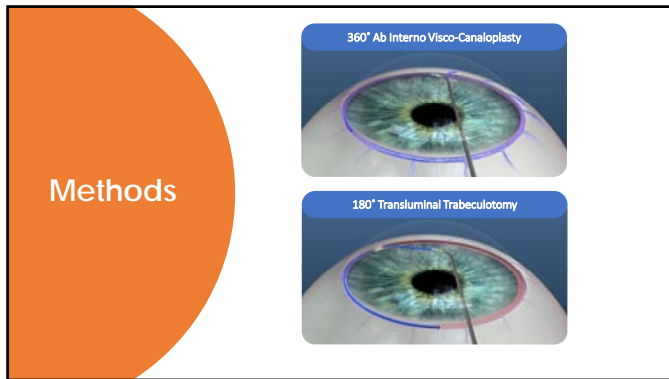
Explosive MIGS increase in US

- From 2012 – 2016 + 426%
- Incisional glaucoma procedures down 11%
- Paradigm shift for cataract with mild – moderate glaucoma
 - 2010: Remove cataract, stay on meds
 - 2020: Cataract surgery + MIGS

Ophthalmology March 2023. Effectiveness of Microinvasive Glaucoma Surgery in the United States: IRIS Registry Analysis 2013-2019. Shuang-An Yang, et. al. (IRIS registry study group). 130:3.







MIGS with Premium IOLs? When to consider...

- Patients with mild open angle glaucoma or ocular hypertension
- Minimal visual field loss
- Well controlled on 1-3 medications (typically a prostaglandin analog possibly with a single or fixed-dose combination aqueous suppressant)
- Otherwise a good candidate for a presbyopia-correcting IOL (normal cornea and macula, angle alpha < 0.5, motivated)
- Avoid pseudoexfoliation, uveitic or traumatic glaucoma patients

Benefits of MIGS with PC-IOLs

- Topical medications can exacerbate ocular surface disease and retard healing after cataract surgery
- Better glaucoma control 24/7 - progression may compromise vision more than with a monofocal IOL
- Reduced medication burden improves quality of life

MIGS or Cataract First?

- Cataract is main reason for surgery – it has to go well
- Glaucoma is controlled with medications – it's a bonus to be able to stop them
- For me... ALWAYS cataract first, then MIGS



Thank you!

MIGS with Premium IOLs

NOAO Symposium, Feb. 2024

Mark F. Pyfer, MD



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MIGS Procedures

Trabecular Outflow	Suprachoroidal Outflow	Subconjunctival Outflow
Stenting • iStent • Hydrus	Stenting • iStent Supra • Cypass	Shunting • XEN • InnFocus
Trabeculotomy • Trabectome • Kahook Dual Blade • GATT, Trab360		
Canaloplasty • ABIC • Omni		



Use a hands-free self-retaining gonio lens

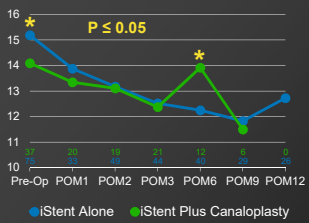


Outcomes of iStent vs. iStent Plus Ab-Interno Canaloplasty Performed with Cataract Surgery

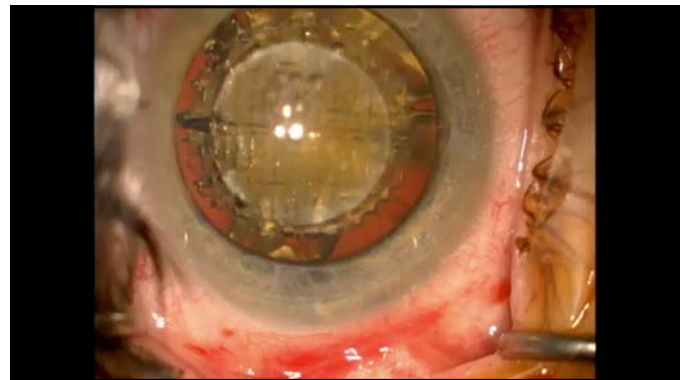
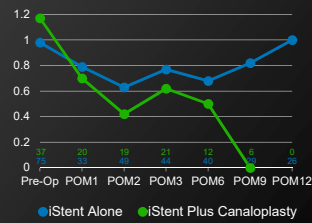
MICHAEL ABENDROTH MD
MARK F. PYFER MD
ESCRS Paris, October 2019



Intraocular Pressure



Glaucoma Medications




SLT TREATED Eyes:


- Less drops required to achieve target IOP
- Less progression of glaucoma damage (less fluctuation of IOP?)
- Decrease need for Incisional surgery and MIGS
- Decrease need for cataract surgery
- Decrease in drug related side effects
- Lower cost of treatment

Canaloplasty: An Alternative to Medication

- Medications: multiple drops, adherence, cost, surface toxicity, side effects. Are patients being compliant?
- Is BAK toxicity in drops worsening the TM function? Apoptosis and inhibition of mitochondrial O2 consumption
- Are we "shutting down the pipe"?



Baigún C, Delgado A, Diezhoar N, Ramo G, Gaze A. In vitro and in vivo experimental studies on trabecular meshwork degeneration induced by bimatoprost chloride (an American Ophthalmological Society Thesis). Trans Am Ophthalmol Soc. 2013;111:1046-48. PMID: 23833796. PMID: 23833796.
Mazzoni Daria, DiMartino Andrea, Fracalossi Filippo, Aquilino, Alessandro, DeAngelis, Gina A. Corneal, The Eye Drop Preservative Benzalkonium Chloride Potently Induces Mitochondrial Dysfunction and Preferentially Affects TMW. Invest Ophthalmol Vis Sci. 2017;58(11):2405-2412. doi: 10.1167/16.11.2405
https://www.glaucma.org/gi/glaucma/medications/overview



(Fig. A) Open or normal (Fig B) Partially obstructed (Fig C) Completely obstructed

Elevated IOP results in TM herniation into Collector Channel Ostia: 95% of channels blocked at 30 MMHg

1. Investigative Ophthalmology & Visual Science, December 2008, Vol. 49, No. 12 5346 Copyright © Association for Research in Vision and Ophthalmology

- UBM images of trabecular meshwork tissue herniations.¹

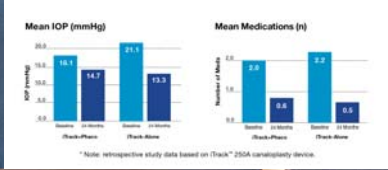
Why Canaloplasty?

- Maintains the physiological integrity of the Trabecular outflow
- 360-degree dilation of Schelm's canal
- Low complication rate
- Implant free
- Repeatable
- Releases obstruction of the collector channels

What outcomes can we typically expect with canaloplasty?

Itrack system Canaloplasty

N122 Retrospective
Mean age 72.8
3 year fu
Baseline IOP 19.7 Meds 2.1
1 year: 14.3 Meds 0.4
2 years 14.0 Meds 0.5
3 years 15.2 Meds 0.6
(p < 0.001).



*Note: retrospective study data based on Itrack™ 255A canaloplasty device.

Kilami, M. A., Deyouk, J. D., & Ding, K. An analysis of 3-year outcomes following canaloplasty for the treatment of open-angle glaucoma. Journal of ophthalmology. 2017.

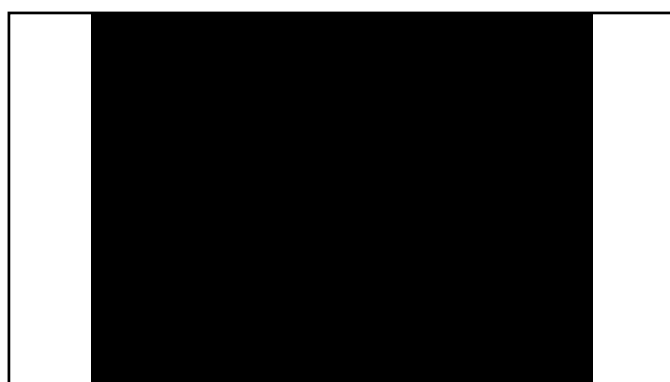
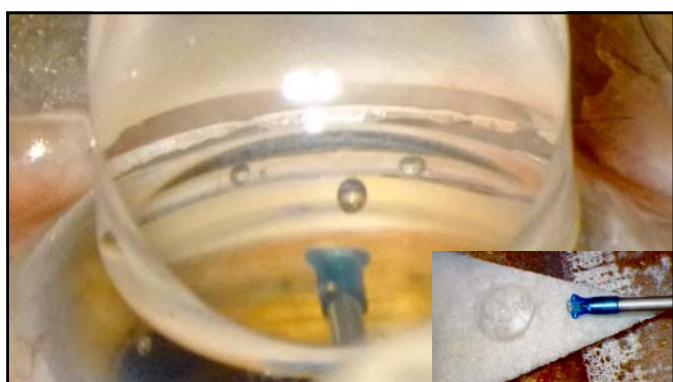
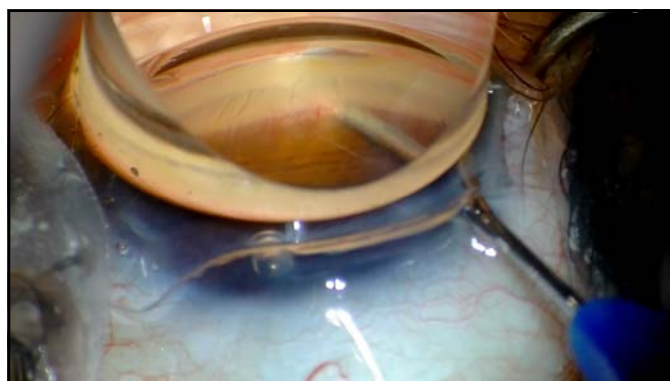
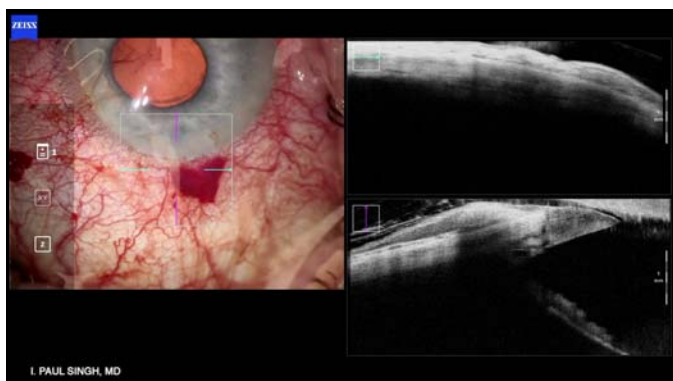
What outcomes can we typically expect with canaloplasty?

OMNI system GEMINI 2 STUDY

N120 Gemini 1, N66 Gemini 2, prospective, multicenter study with 36 months fu

GEMINI 2 Data for OMNI*	Mean IOP (mmHg)	Percent Mean IOP Reduction	Number of Medications	Percent Patients Medication Free at Each Reported Interval
Baseline	23.1		1.63	5%
12 Months	15.6	-32%	0.30	80%
24 Months	16.7	-27%	0.41	77%
36 Months	16.3	-29%	0.30	74%

*Data listed in the table is for the 66 patients at 11 investigational sites participating in GEMINI 2



Conclusion

- Never stop looking for a better way to preserve vision in your patients
- Remember, the damage from the delta between the high and the low IOP is causing damage
- Real control is not one IOP measurement every 4 months, most include control of fluctuation, minimal need for compliance and good good tolerability
- Life expectancy is long, keep your options open for the future