GATT in PCG

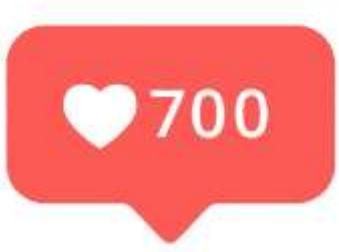
Evidence & Experience

REEM MAMDOUH, MSC

ASSISTANT LECTURER OF OPHTHALMOLOGY

CAIRO UNIVERSITY

GATT in PCG



- ***Minimally invasive***
- ***Fast***
- ***Economical (prolene suture)***
- ***Tackles 360º of the angle***
- ***Under direct angle visualization***
- ***Spares the conjunctiva and scleral dissection***

Is it safe & effective?

Is it more effective than conventional/ab externo angle surgery?

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Evidence

- **Grover et al 2015**
  - PCG and JOAG
  - 14 eyes, age range from 17 to 30 years.
- **Quan et al 2022**
- **Aktas et al 2023**

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Evidence

Grover et al 2015

- IOP: 27.3mmHg→14.8 mmHg
- Meds: 2.6→0.89

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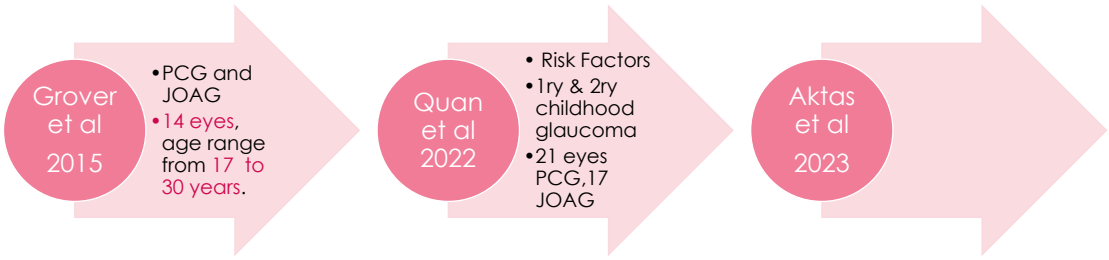
Evidence



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Evidence

Quan et al 2022

Success rate 51%

Risk factors:
Post op steroids
IOP spikes
<360

TABLE 5. Patient Subgroups According to the World Glaucoma Association/Childhood Glaucoma Research Network Classification System

Subgroups by Diagnosis	No. of Eyes (% of Total Eyes)	Success	Mean Degrees of Angles Incised (SD)	Successful Circumferential Angle Treatment (%)
PCG	21 (28.4%)	33.3%	282.4 (78.7)	11 (52.4%)
JOAG	17 (23%)	64.7%	319.4 (81.3)	13 (76.5%)
Glaucoma associated with a nonacquired systemic disease or syndrome	4 (5.4%)	25%	225 (90)	1 (25%)
Glaucoma associated with a nonacquired ocular anomaly	7 (9.5%)	57.1%	360 (0)	7 (100%)
Glaucoma associated with an acquired condition	12 (16.2%)	83.3%	337.5 (77.9)	11 (91.7%)
Glaucoma following cataract surgery	13 (17.6%)	38.5%	339.2 (53.9)	11 (84.6%)

IOP = intraocular pressure; JOAG = juvenile open-angle glaucoma; PCG = primary congenital glaucoma.

Quan AV, Chen J, Wang YE, Vanner EA, Grajewski AL, Hodapp EA, Chang TC. Factors Associated With Gonioscopy-Assisted Transluminal Trabeculotomy (GATT) Complications and Failure in Children. Am J Ophthalmol. 2022 Sep;241:168-178. doi: 10.1016/j.ajo.2022.04.023. Epub 2022 May 9. PMID: 35551908.

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Evidence

Grover et al 2015
- PCG and JOAG
- 14 eyes, age range from 17 to 30 years.

Quan et al 2022
- Risk Factors
- 1ry & 2ry childhood glaucoma
- 21 eyes PCG,17 JOAG

Aktas et al 2023
- PCG only Prolene
- 22 eyes
- Retrospective

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Evidence

Aktas al 2023

54% ↓ Mean Pre-Op IOP

Qualitative success: 95%

Complete success: 66%

Aktaş Z, Özmen MC, Zeydanlı EÖ, Oral M, Eskalen O. Efficacy and Safety of Gonioscopy-assisted Transluminal Trabeculotomy for Primary Congenital Glaucoma. J Glaucoma. 2023 Feb 28. doi: 10.1097/IJG.0000000000002192. Epub ahead of print. PMID: 36847666.

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CUPS experience

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CUPS experience

Courtesy of Prof Dr Yasmine El Sayed

- Prospective
- 60 eyes ,PCG, < 12 years of age
- 5 had undergone previous surgery
- Success Criteria: IOP < 18mmHg
  - achieve > 20% IOP reduction, on same or fewer number of medications

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CUPS experience

- Mean Preoperative IOP

24mmHg± 5.8

12.76 ± 5.5

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CUPS experience

- Mean IOP lowering medications:

0.9±1.0

↓

0.36±0.8

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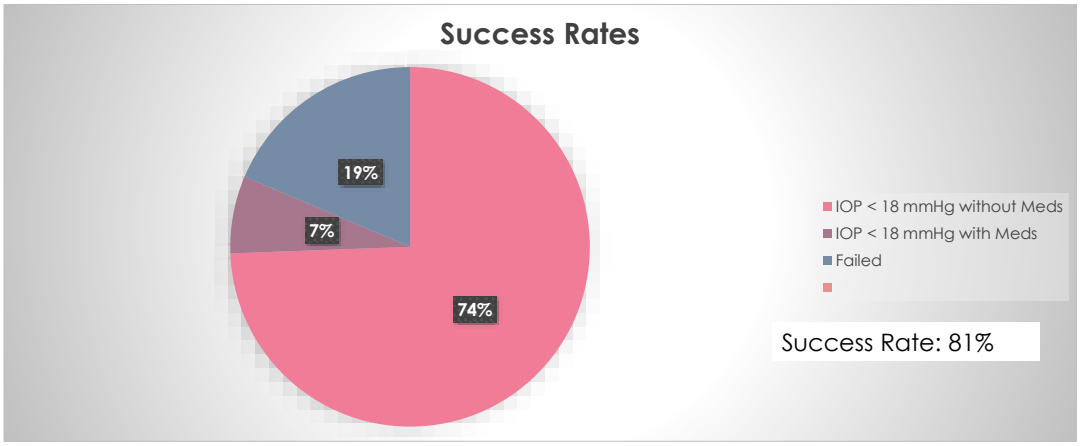
CUPS experience: 43 eyes → 2 year FU



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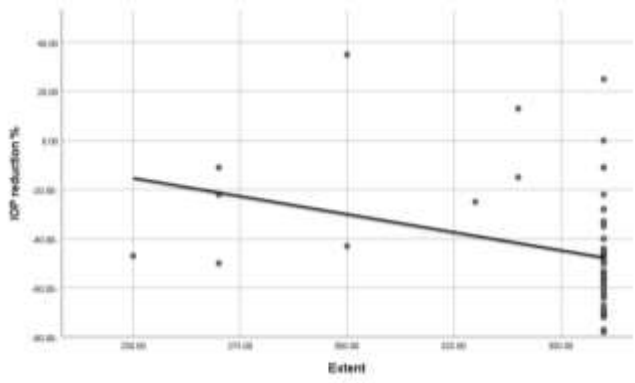
CUPS experience: Correlation with extent of incision



Mean: 353+/-21 (270-360)

P value:0.001

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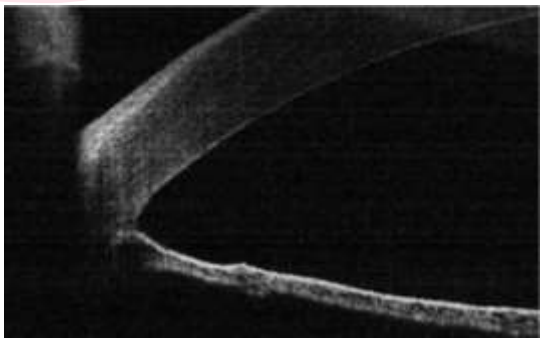
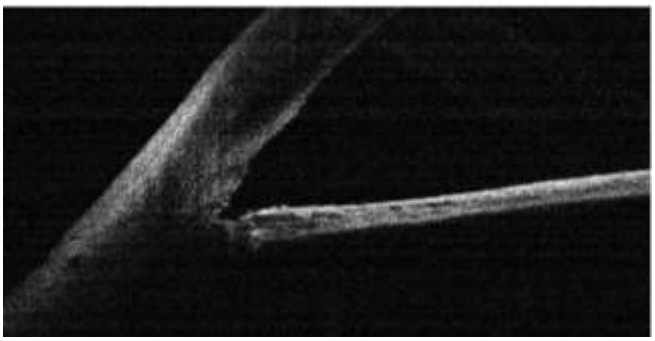
Results: AS-OCT Findings



Preoperative



Postoperative

Is it more effective than conventional or ab externo angle surgery?

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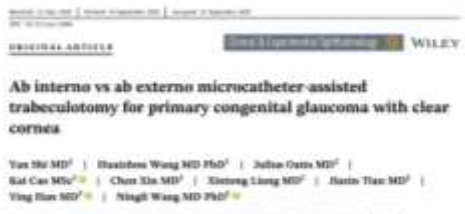
Evidence =



Ab interno vs ab externo microcatheter-assisted trabeculotomy for primary congenital glaucoma with clear cornea

Follow-up	Complete success (%)		Qualified success (%)	
	Ab interno MAT	Ab externo MAT	Ab interno MAT	Ab externo MAT
1 month	91.4	82.5	94.8	89.5
3 months	84.5	78.9	89.7	87.7
6 months	82.8	77.1	87.9	85.9
9 months	81.0	73.3	87.9	82.2
12 months	81.0	73.3	87.9	82.2

Abbreviation: MAT, microcatheter-assisted trabeculotomy.

(P = 0.32 and P = 0.40, respectively)

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GATT vs 2-site Rigid Probe Trabeculotomy

CUPS

Ahmed El Kateb MD

Ghada Gawdat, MD

Yasmine El Sayed MD, MRCSEd;

Amanne Faisal, MD;

Hala Elhilali,MD

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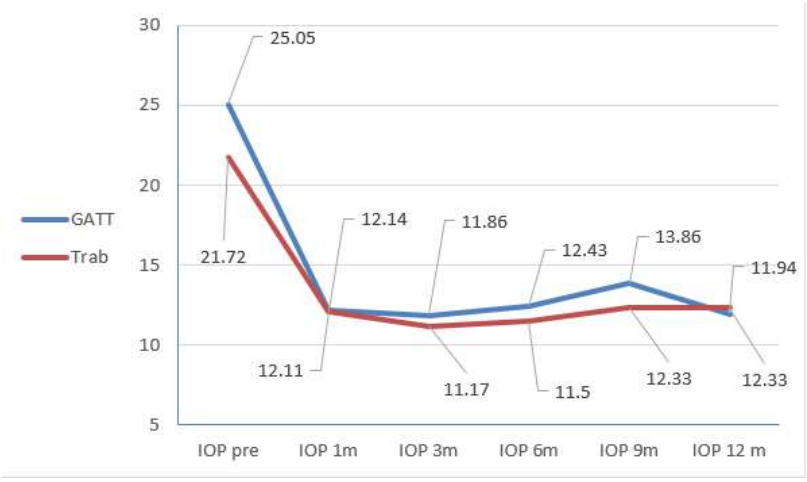
Comparison of Mean Pre- and Postoperative IOP between GATT and 2-Site RPT Group

1 Year Results:

GATT: 21 eyes

2-site rigid probe trabeculotomy: 18 eyes



Courtesy of Prof Dr Hala El Hilali

Comparison Of Intraoperative and Postoperative Complications

Intra/postoperative Complication	GATT Count	GATT %	2-Site RPT Count	2-Site RPT %	P- value
No. of complications	12	57.1%	5	27.8%	0.065
Hyphema	7	38.1%	5	27.8%	0.708
Iris Injury	2	9.5%	0	0%	0.49
Suprachoroidal Space passage	1	4.8%	0	0%	0.61
Shallow anterior chamber+hypotony	1	4.8%	0	0%	0.61

Courtesy of Prof Dr Hala El Hilali

Success/Failure rate at 1 year Follow-up

	GATT Count	GATT %	2-Site RPT Count	2-Site RPT %	P-value
Complete success	17	81%	17	94.4%	0.609
Qualified success	2	9.5%	0	0	
Overall success	19	90.5%	17	94.4%	
Failure	2	9.5%	1	5.6%	

Courtesy of Prof Dr Hala El Hilali

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Case Reports:

ORIGINAL STUDIES

Outcomes of Gonioscopy-assisted Transluminal Trabeculotomy (GATT) in Eyes With Prior Incisional Glaucoma Surgery

Grover, Davinder S. MD, MPH*; Godfrey, David G. MD*; Smith, Oluwatosin William J. MS*; Fellman, Ronald L. MD*

Author Information

Journal of Glaucoma 26(12):p 41-45, January 2017. | DOI: 10.1097/IJG.0000000

GATT appears to be safe and successful in treating 60% to 70% of open-angle patients with prior incisional glaucoma surgery. When considering all eyes, there was a significant decrease in IOP and required glaucoma medications at 24 months. This surgery should be considered in certain patients with open angles who have failed a primary traditional glaucoma surgery.

Adults
35 eyes
SST,trabecutome,GDD,CPC

Gonioscopy-Assisted Transluminal Trabeculotomy Following Failed iStent Surgery

Mark Sigona [1], Amrita Saravanan, Spyros Pipis, Imran Masood

Adults, i-stent was removed
All 5 eyes achieved controlled IOP

Literature Review: GATT in previous surgeries failed

Case report

Gonioscopy-assisted transluminal trabeculotomy using an illuminated catheter for infantile primary congenital glaucoma. Case series

Lydia Lehmann-Clarke[a,b,1], Yalda Sadeghi[b,1], Adriano Guarnieri[a], Eamon Sharkawi[a,b,*]

[a] Swiss Eye Centre, Avenue de Rumine 64, 1005, Lausanne, Switzerland
[b] Jules Gonin Eye Hospital, Avenue de France 15, 1002, Lausanne, Switzerland

2 eyes with previous goniotomy
At 30 months IOP≤ 18 mmHg

Courtesy of Prof Dr Yasmine El Sayed

Secondary childhood glaucoma?

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CUPS

- Sturge Weber
- Aphakic/Pseudophakic Glaucoma
- Post PPV
- Steroid Induced
- Uveitic Glaucoma

Conclusion:

GATT in PCG

Pros:

- Minimally invasive, circumferential → ab-interno & Under direct angle visualization
- High success rate in PCG
- Allows access to more collector channels
- Safe. Short. Economic
- Spares the conjunctival and scleral dissection

Cons:

- Relatively difficult Learning curve
- Requires clear cornea
- Intraoperative bleeding obscures angle

IS IT TIME TO "GATT" ALONG WITH PCG?


THANK YOU