



Pediatric Glaucoma From Clinic To OR

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Decision Making

- ▀ Pediatric glaucoma is mostly treated surgically
- ▀ Role of antiglaucoma topical ttt (prior to surgery or postoperatively)



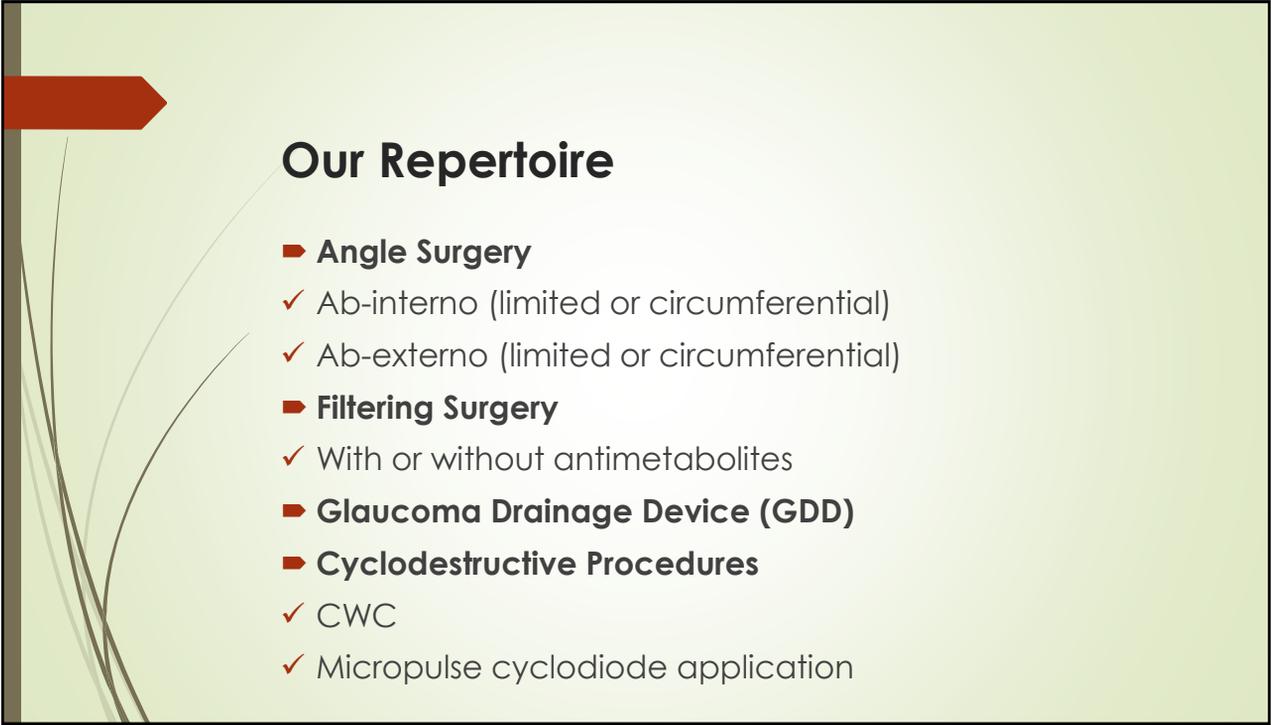
Decision Making

- Challenging decision due to high incidence of failure
- Long life expectancy
- Limited surgical repertoire (*modifications are within*)



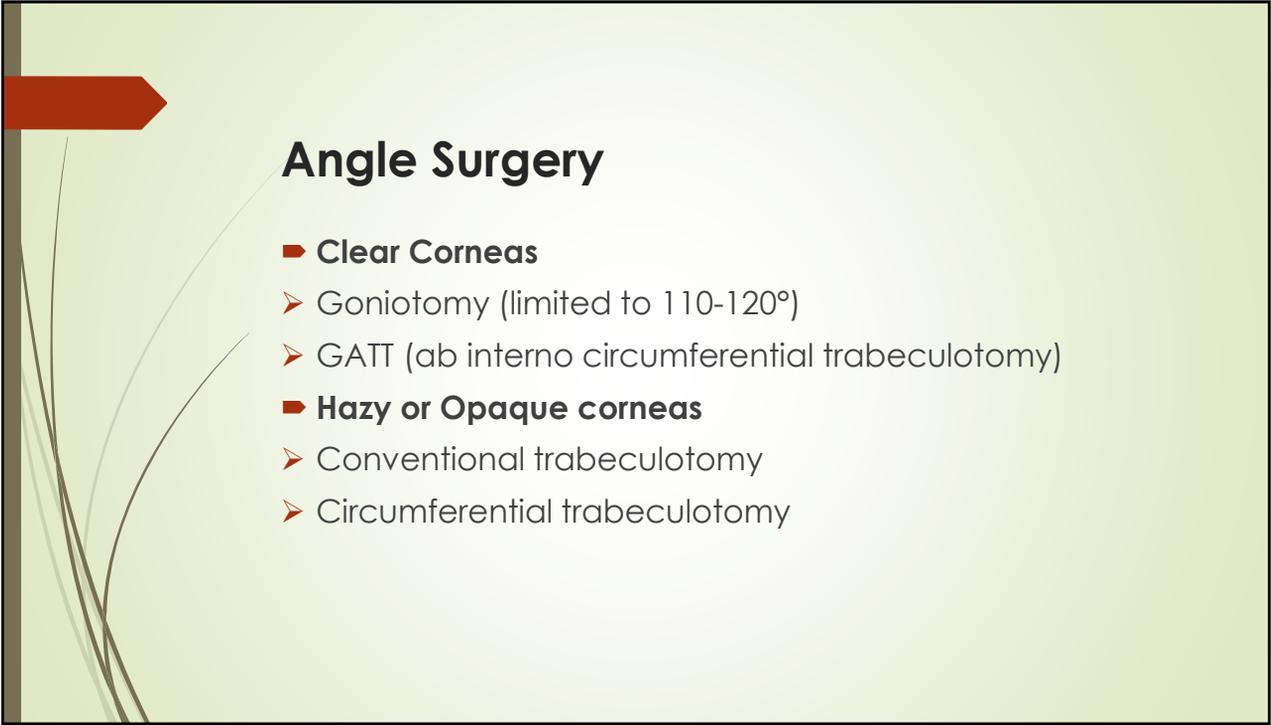
Role Of First Surgery

- This is the most important surgery , when properly chosen and donesaves the patient a lot.



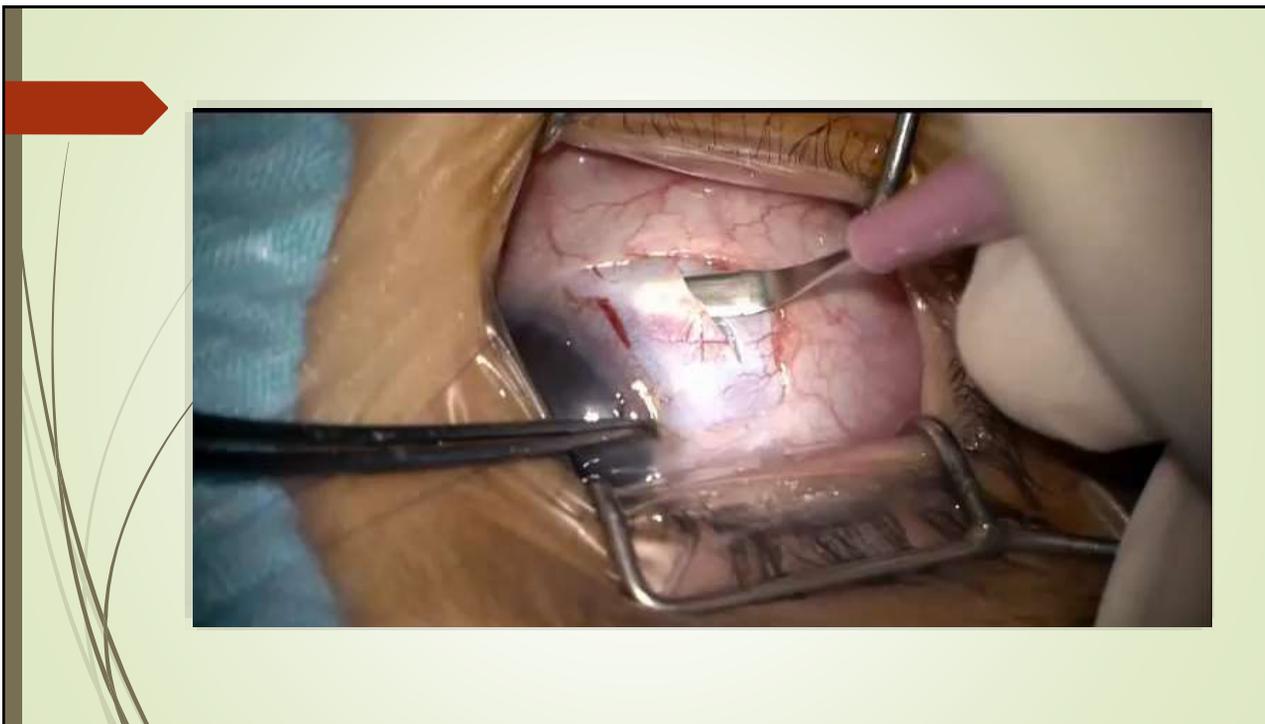
Our Repertoire

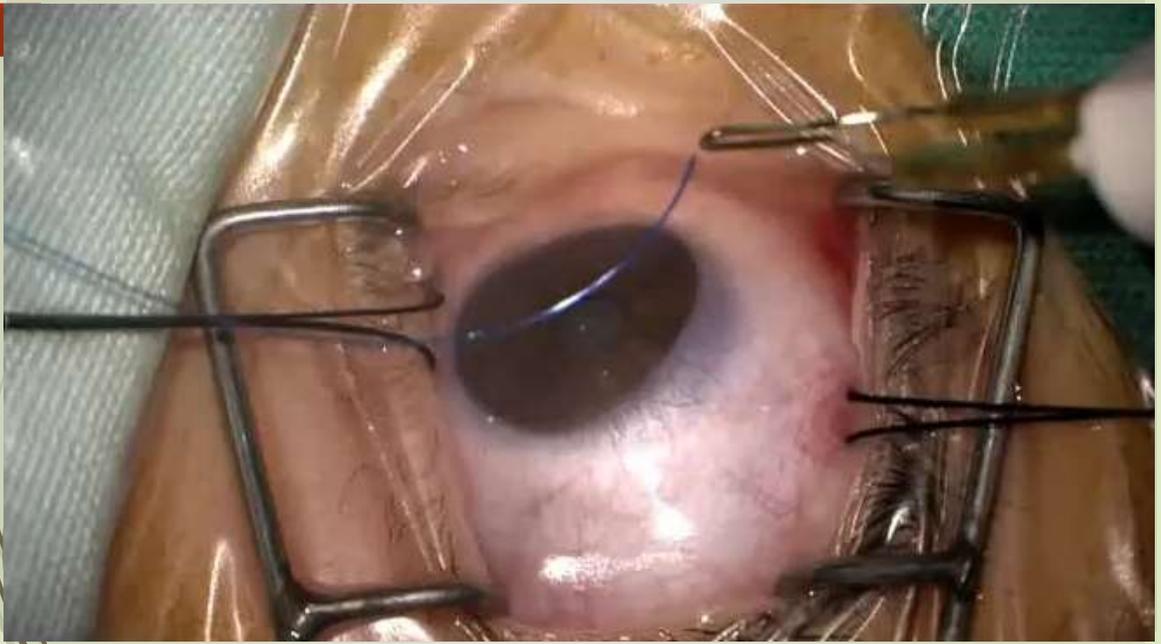
- ▀ **Angle Surgery**
 - ✓ Ab-interno (limited or circumferential)
 - ✓ Ab-externo (limited or circumferential)
- ▀ **Filtering Surgery**
 - ✓ With or without antimetabolites
- ▀ **Glaucoma Drainage Device (GDD)**
- ▀ **Cyclodestructive Procedures**
 - ✓ CWC
 - ✓ Micropulse cyclodiode application



Angle Surgery

- ▀ **Clear Corneas**
 - Goniotomy (limited to 110-120°)
 - GATT (ab interno circumferential trabeculotomy)
- ▀ **Hazy or Opaque corneas**
 - Conventional trabeculotomy
 - Circumferential trabeculotomy





Advantages Of Angle Surgery

- Tackling site of the pathology (1ry/2ry).
- Sparing the conjunctiva in goniotomy and GATT surgeries thus preserving them for future intervention if needed.
- Circumferential surgery makes drainage to more collector channels to further reduce IOP.

Why Circumferential??

Acta Ophthalmologica

Original Article · [Free Access](#)

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

Yasmine El Sayed¹, Ghafar Gawdat

Comparative Study · *J Glaucoma*. 2018 Apr;27(4):371-378. doi: 10.1097/IJG.0000000000000484.

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

Yasmine M El Sayed¹, Ghafar I Gawdat

[Eye \(Lond\)](#). 2021 Jun; 35(6): 1637-1643.

Published online 2020 Aug 21. doi: [10.1038/s41433-020-01138-w](#)

PMCID: PMC8169646

PMID: 32827001

One-year results of two-site trabeculotomy in paediatric glaucoma following cataract surgery

Yasmine M. El Sayed¹, Abdelrhman M. El-Fasouy, Ghafar I. Gawdat, and Hala M. El-Hadi

Angle Surgery

- **Primary congenital glaucoma**
 - In western communities, goniotomy and trabeculotomy carry from 75-90% success rate # middle east where the disease is more aggressive (54-60%)
- **Secondary pediatric glaucoma**
 - Cases of aniridia, SWS, glaucoma following cataract surgery, the response to angle surgery is guarded.

Factors influencing the outcome of goniotomy and trabeculotomy in primary congenital glaucoma

Yasmine El Sayed, Amanne Esmael, Nader Mettias, Zeinab El Sanabary,
Ghada Gawdat

Elsayed et al Bjo 2019

To study prognostic factors influencing IOP reduction , success and failure of angle surgery in PCG patients.

Results

- Retrospective study (2013-2016) in PCG cases <12yrs.
- Failure rate in goniotomy was 56% (*influenced by preop CD ratio*).
- Failure rate in trabeculotomy was 30% (*correlated to positive consanguinity, high preop IOP, female gender and younger age at surgery*).

Original research article

EJO | European
Journal of
Ophthalmology

Factors associated with early and late failure after goniotomy for primary pediatric glaucoma

Dina H Hassanein, Ahmed Awadein and Hala Elhilali

European Journal of Ophthalmology
2020, Vol. 30(1) 162-167
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DOI: 10.1177/1120672118805872
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Risk factors for early & late failure

- Surgery in first month
- Positive consanguinity
- Large corneal diameter
- Males > females

If angle surgery fails

- If conventional → circumferential (2 site trabeculotomy, GATT)
- Would try redo angle surgery even if it was circumferential
- If it fails → trabeculectomy w or without antifibrotic agents

Trabeculectomy

- **Not** recommended as **primary surgery** in pediatric glaucoma.
- Reported success rate is **lower** in children than adults (35-50%)
 - Thick tenon
 - Aggressive healing process
- This led to using **antifibrotic agents** (MMC, 5FU) to enhance drainage
 - Hypotony
 - Thin avascular blebs
 - Cystic blebs
 - Endophthalmitis



Primary Trabeculectomy In Pediatric Glaucoma???

Int Ophthalmol (2022) 42:2511–2518
<https://doi.org/10.1007/s10792-022-02298-2>

ORIGINAL PAPER

Factors affecting the surgical success of trabeculectomy performed as the first surgery in primary pediatric glaucoma

Gülizar Demirok · Güner Özkan ·
 Ahmet Kaderli · Umay Güvenç ·
 Mehmet Yakın · Ümit Ekşioğlu

Success was 61.4% 1st year for all cases (PCG/ Juvenile gl)

Primary Trabeculectomy In Pediatric Glaucoma???

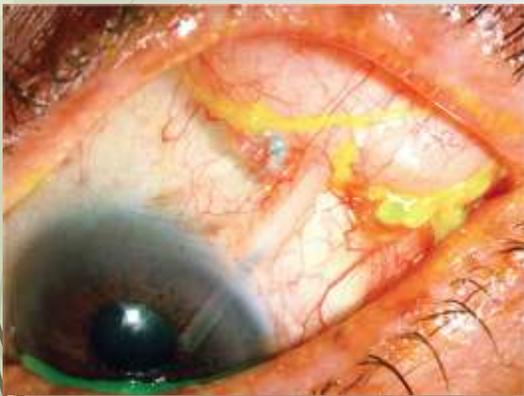
■ What about sequelae ??

- Hypotony (37.5%), Hyphema (16.6%), Flat AC (10.4%), choroidal detachment (22.9%), Intraoperative vitreous loss (4.1%)
- Bleb type unknown(35.4%), diffuse(35.4%), cystic(16%),shallow(10%),encapsulated(3%)
- Need for resurgery(29%)

Glaucoma Drainage Device

- GDDs offer the potential advantage of being of use in the presence of conjunctival scarring or in glaucomatous eyes with very thin sclera.
- The bleb of the GDD is far posterior to the limbus, making infection less than with trabeculectomy.
- Potential disadvantages of GDDs include the risk of implant erosion or occlusion of the tube with vitreous, long intracameral tubes may get in contact w back of the cornea.

Glaucoma Drainage Device



Cyclodestructive Procedures

- ▶ This is used in cases with refractory glaucoma or primarily in advanced cases of pediatric glaucoma with poor visual prognosis.
- ▶ The diode laser can be used as CWC or as micropulse.

Micropulse Versus Continuous Wave Transscleral Cyclophotocoagulation in Refractory Pediatric Glaucoma

*Ahmed M. Abdelrahman, MD, FRCSEd
and Yasmine M. El Sayed, MD, MRCSEd*

J glaucoma 2019

Both techniques showed no significant difference regarding efficacy, but complications were more in the CWC group

To Wrap Up

- ▶ Choice of glaucoma surgery in a child is so challenging.
- ▶ Lots of concerns have to be put in mind.
- ▶ Vision is our primary goal.

