# Minimally Invasive Tube Surgery (MITS)

Bharpoor Singh, Ahmed Al-Nahrawy, Neharika Sharma, Faisal Ahmed

*Western Eye Hospital, London, United Kingdom*

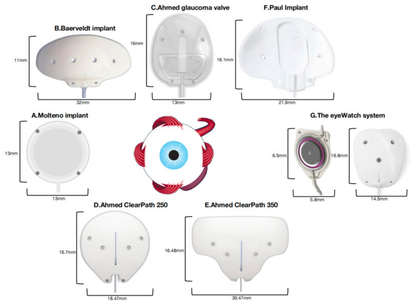
## Glaucoma Drainage Device: History

1907 Rollett used horse hair as a seton to drain aqueous

1912 Zorab used silk seton to drain aqueous

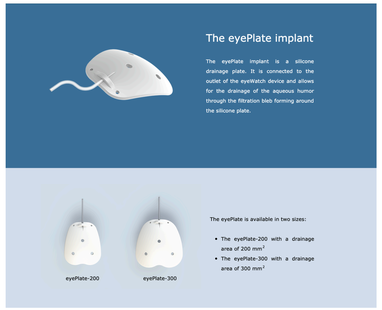



1976: Molteno created the first tube with a plate device




## eyePlate 300

This technique focuses on the use of the EyePlate 300 due to its unique plasticity allowing it to be folded




## New Technique & Advantages over Traditional Method

Please Scan QR Code For Video on Technique

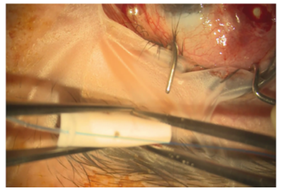
<u>Technique</u>

- Small radial conjunctival pocket 5mm away from limbus
- Plate is folded and inserted through the small peritomy and secured onto sclera after it unfolds
- Identify muscle with squint hooks
- Shunt inserted into AC
- Smaller wound closed

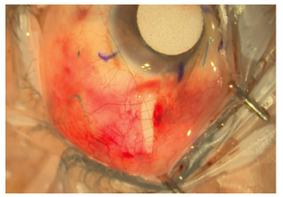
<u>Advantages</u>

- Allows a minimal limbal-sparing conjunctival peritomy
- Avoid limbal scarring
- Slicker surgery
- Less need for conjunctival sutures
- Quicker post operative recovery

Please Scan QR Code For Link to Published Paper



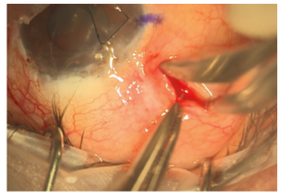
EyePlate300 is flexible and able to folded. Here you can see it being folded "Taco Style" before being inserted into the radial pocket next



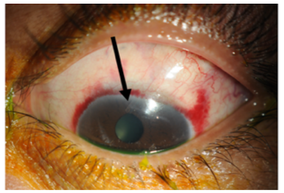
Small radial incision closed with a shoelace suture

## Pearls

- 4-0 prolene to stent tube and cauterise end to avoid exposure
- Moorfields and Jayles to fold plate
- Identify muscles with a squint hook before inserting folded plate
- Suture the plate with GoreTex 8-0
- Tutoplast with Tiseel Fibrin Glue to avoid exposure of tube
- Orbital floor steroid depot



Limbal sparing radial pocket. This is placed 5mm behind the limbus and extended approximately 8-10mm posteriorly



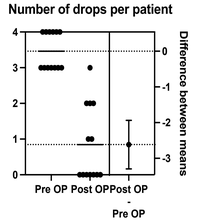
One week post operatively. The tube marked with a black arrow is situated in the anterior chamber and the conjunctiva has already healed within one week.

Correspondence to faisal.ahmed5@nhs.net

## MITS Study

- We performed a retrospective longitudinal analysis to assess the efficacy of the MITS technique using the eyePlate 300
- Western Eye Hospital, London, United Kingdom
- May 2021 to September 2022 twelve month follow-up
- Thirteen patients whom had MITS with eyePlate

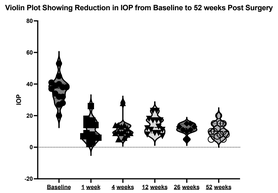
| Baseline characteristics | |
|---|---|
| Number of patients (number of eyes) | 12 (13) |
| Mean age | 57.16 years |
| Gender (%) | Female: 5 (42%) |
| | Male: 7 (58%) |
| Mean Number of Previous Surgeries: | 1.42 |
| Ethnicity (%) | Caucasian 3 (23%) |
| | Afro-Caribbean 3 (23%) |
| | Asian 2 (15%) |
| | Indian Subcontinent 5 (39%) |
| Laterality (%) | Left: 54% |
| | Right: 46% |
| Visual acuity (LogMAR) | Mean 1.35 (+/-1.007) range 0.0 to 2.4 (equivalent to Snellen 6/6– HM) |
| Medications Use: | 3.462 (+/- 0.5175) |




- Mean pre operative drops: **3.462** (3-4)
- Mean post operative drops: **0.85** (0-3)

### Results: Intraocular Pressure

- 92% patients had reduction in IOP (one patient achieved the same IOP) after 12 months
- Mean pre operative IOP was **35.69mmHg** (range 20-53mmHg)
- Mean 12 month post operative IOP was **11.08mmHg** (range 5-20mmHg)
- Mean reduction in IOP was **24.62mmHg** ± 2.863 **(p<0.00001)**




### Results: Visual Acuity

Pre operative had a range of 0.2 - 2.4 LogMAR
Mean= 1.15 LogMAR

Post operative had a range of 0.3-2.4 LogMAR
Mean 0.95 LogMAR

**No statistical difference**

### Results : Complications

- There were no intraoperative or post operative complications in any of the 8 patients

### Conclusion

- Minimally Invasive Tube Surgery using the EyePlate 300 shows
  - Statistically significant intraocular pressure reduction
  - Excellent safety profile over a 12 month period
- This is a new technique allowing minimal intra-surgical manipulation of conjunctiva
- Larger longer term studies are needed in the future
- Authors are currently analysing the three year data