

DEPLOYMENT OPHTHALMOLOGY



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WHEC/BAMC

Disclaimer

- ⦿ No financial interests to disclose
- ⦿ The views expressed do not necessarily represent those of the USAF or the DOD

Disclaimer

- Remember your eye protection







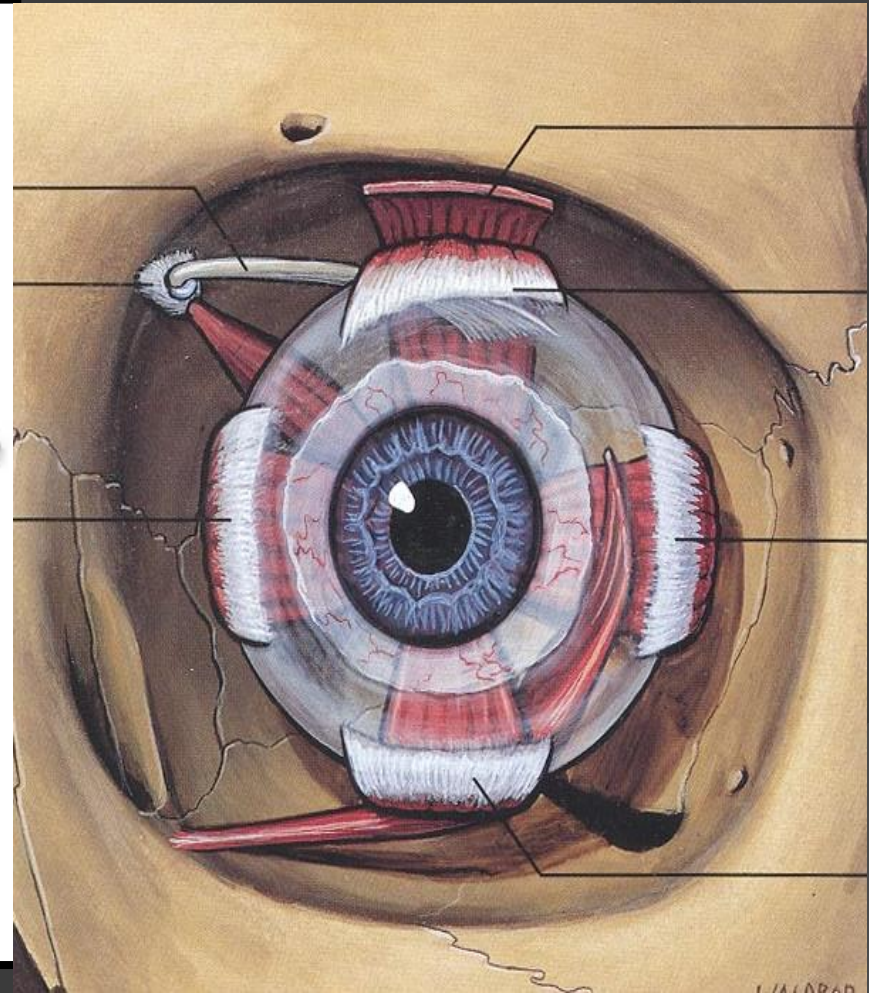
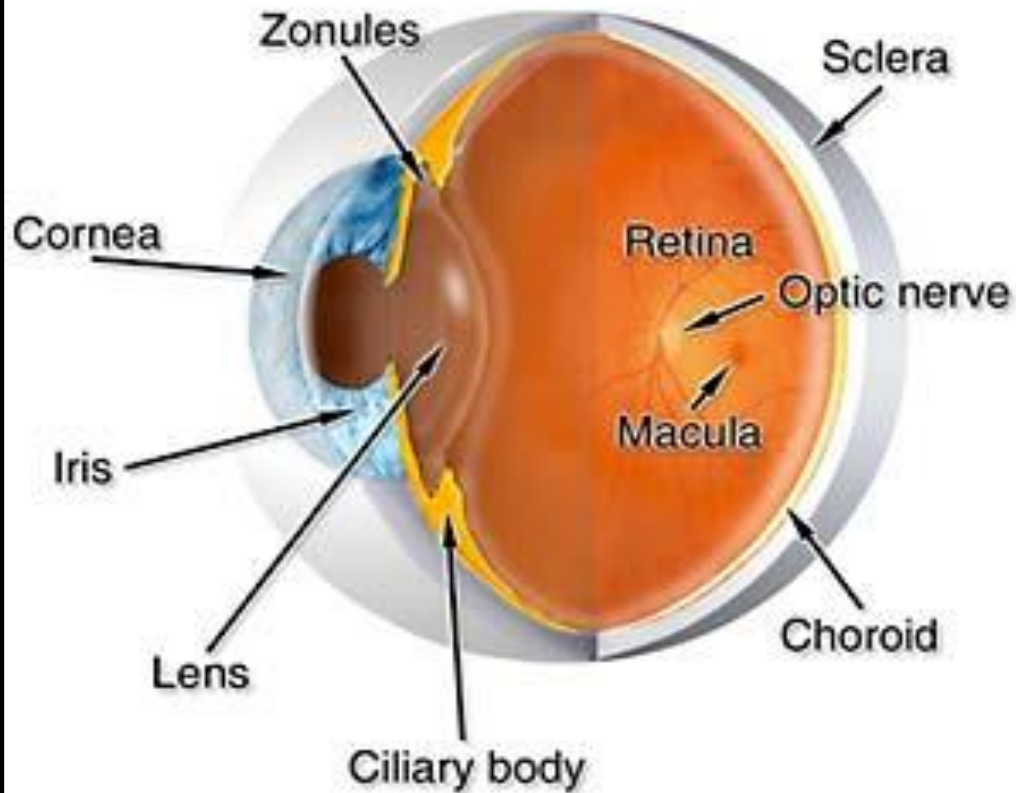
Overview

- Eye Anatomy
- Diagnosing Eye Trauma
- Initial Management
 - FART
 - Surgical Management



Anatomy

Normal Eye Anatomy

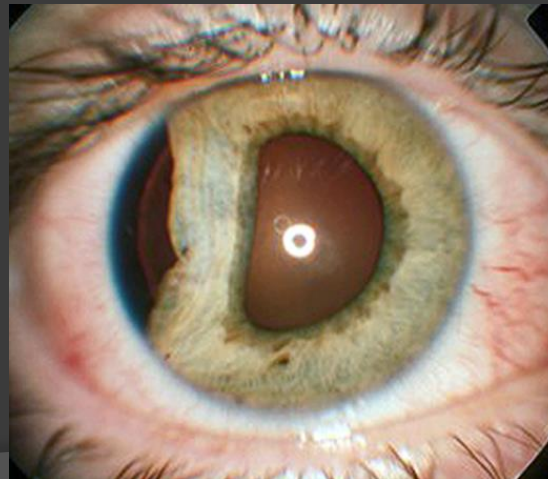


Ocular Trauma Exam

- Vision
- Pupils
- Pen light/Slit lamp exam
- Pressure
- External/Adnexa
- Motility
- Visual Fields
- Dilated Exam
- Imaging

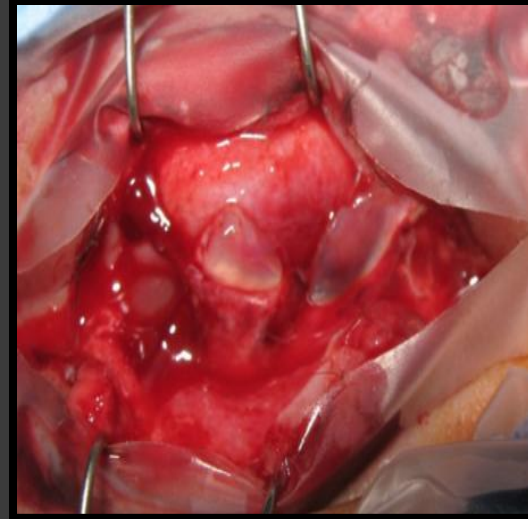
Blunt Trauma

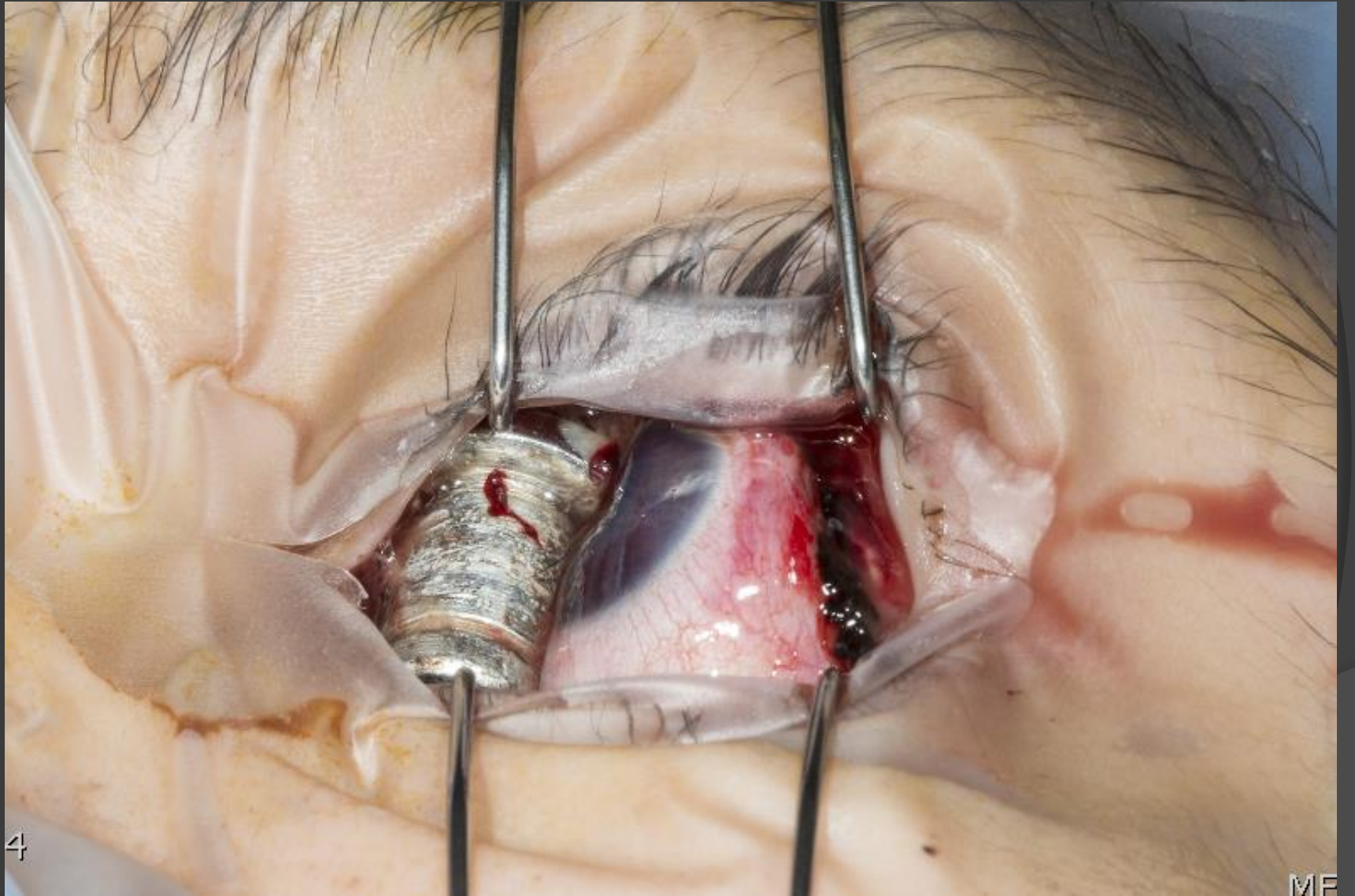
- Subconjunctival hemorrhage
- Hyphema
- Corneal Edema
- Iridodialysis
- Cataract
- Vitreous Hemorrhage



Open Globes

- Penetrating
 - Corneal laceration
 - Scleral laceration
- Blunt
 - Limbus
 - Muscle insertions
 - Previous incisions



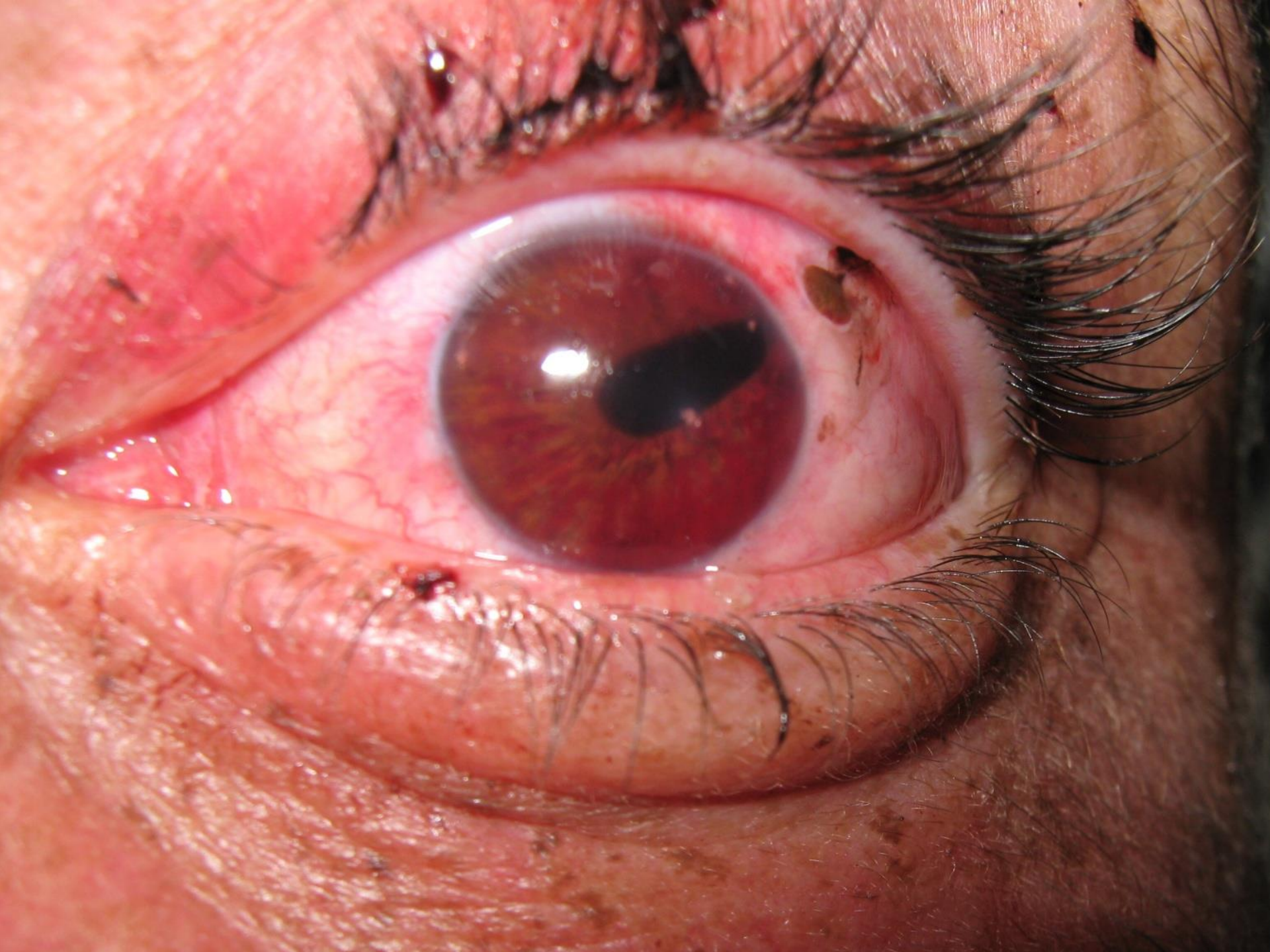


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MF

Signs of Open Globes

- Shallow or Deep Anterior Chamber
- Hemorrhagic Chemosis
- Peaked Pupil
- Intraocular blood (hyphema/vitreous heme)
- Uveal Prolapse
- Low intraocular pressure
- Intraocular Foreign Bodies
- Seidel Test



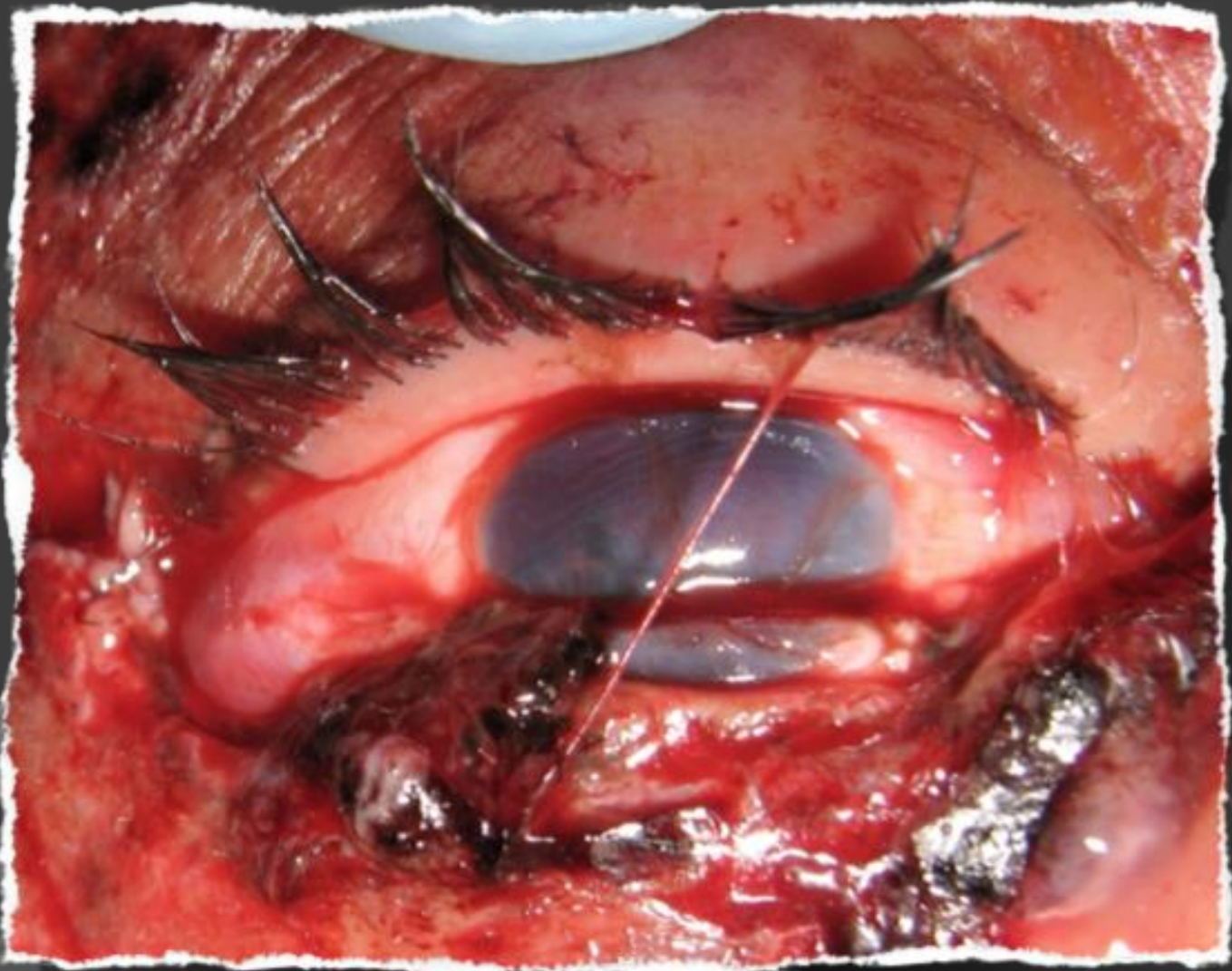
Peaked pupil/ uveal prolapse



Peaked pupil/ uveal prolapse



Uveal prolapse



Uveal Prolapse



Uvea (L. Uva=Grape)

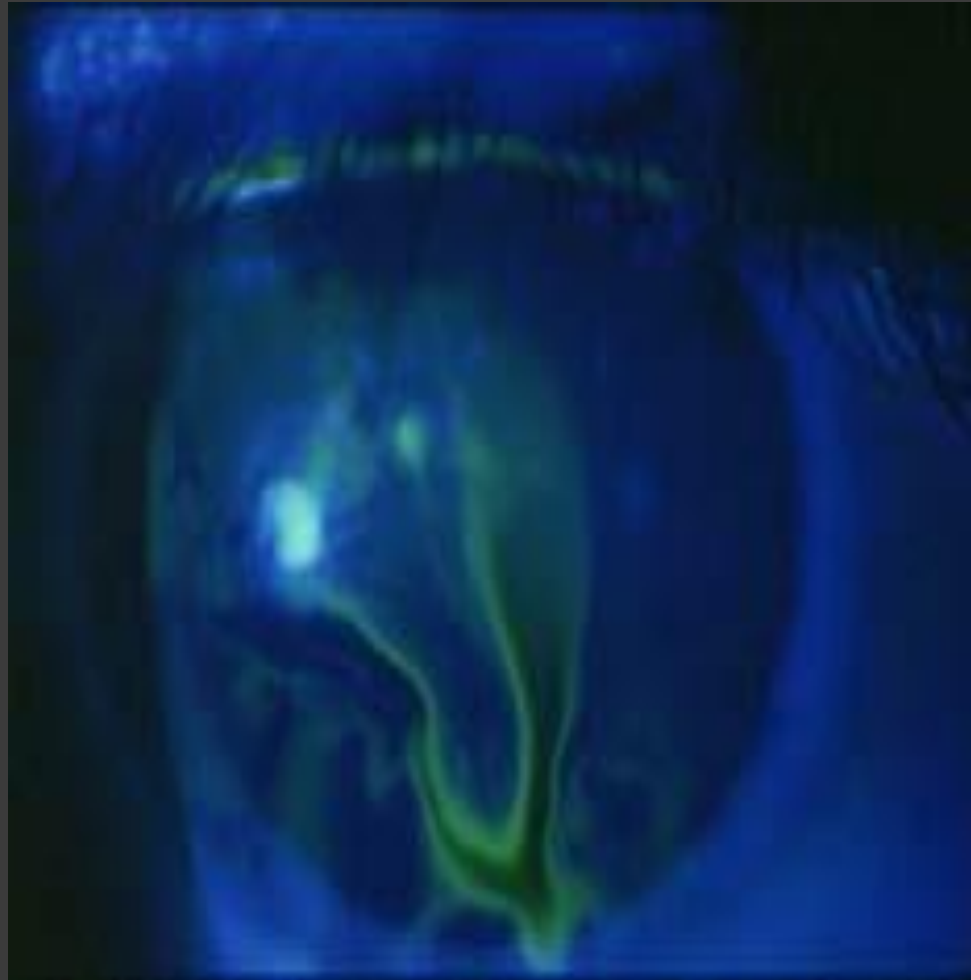




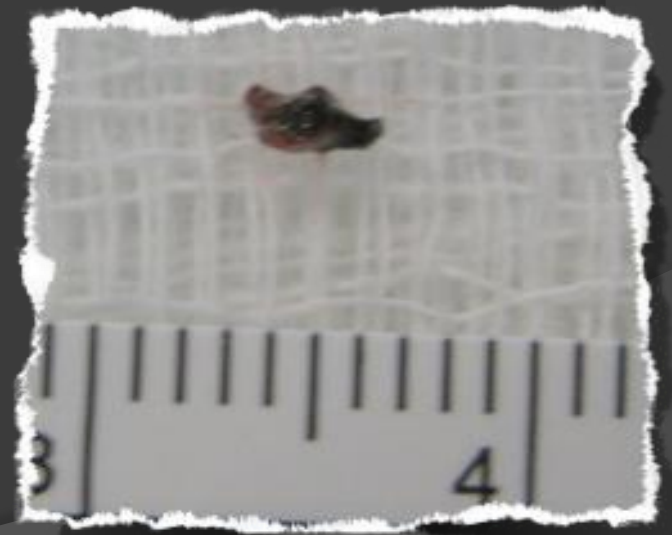
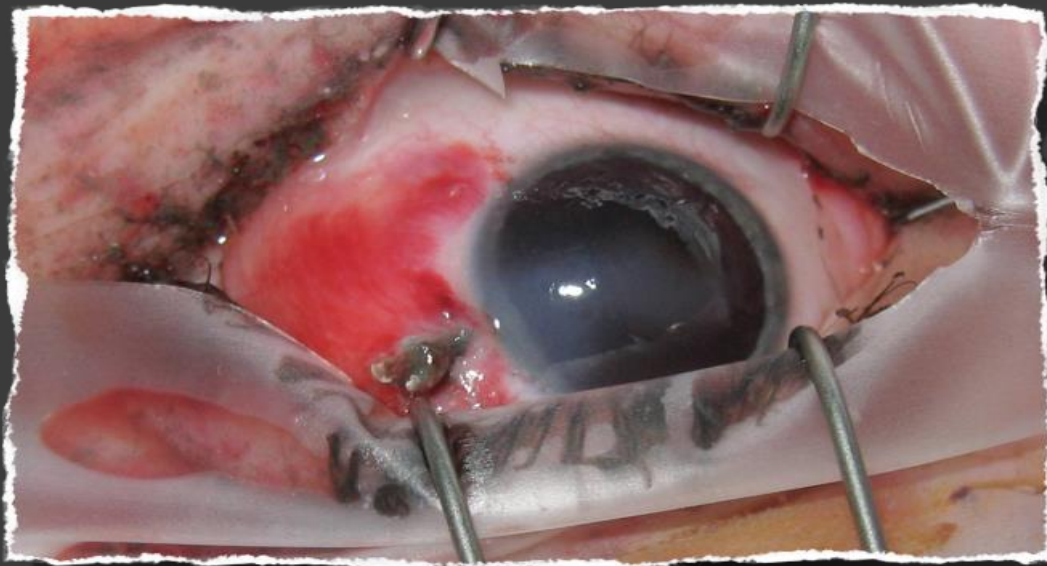
Hemorrhagic Chemosis



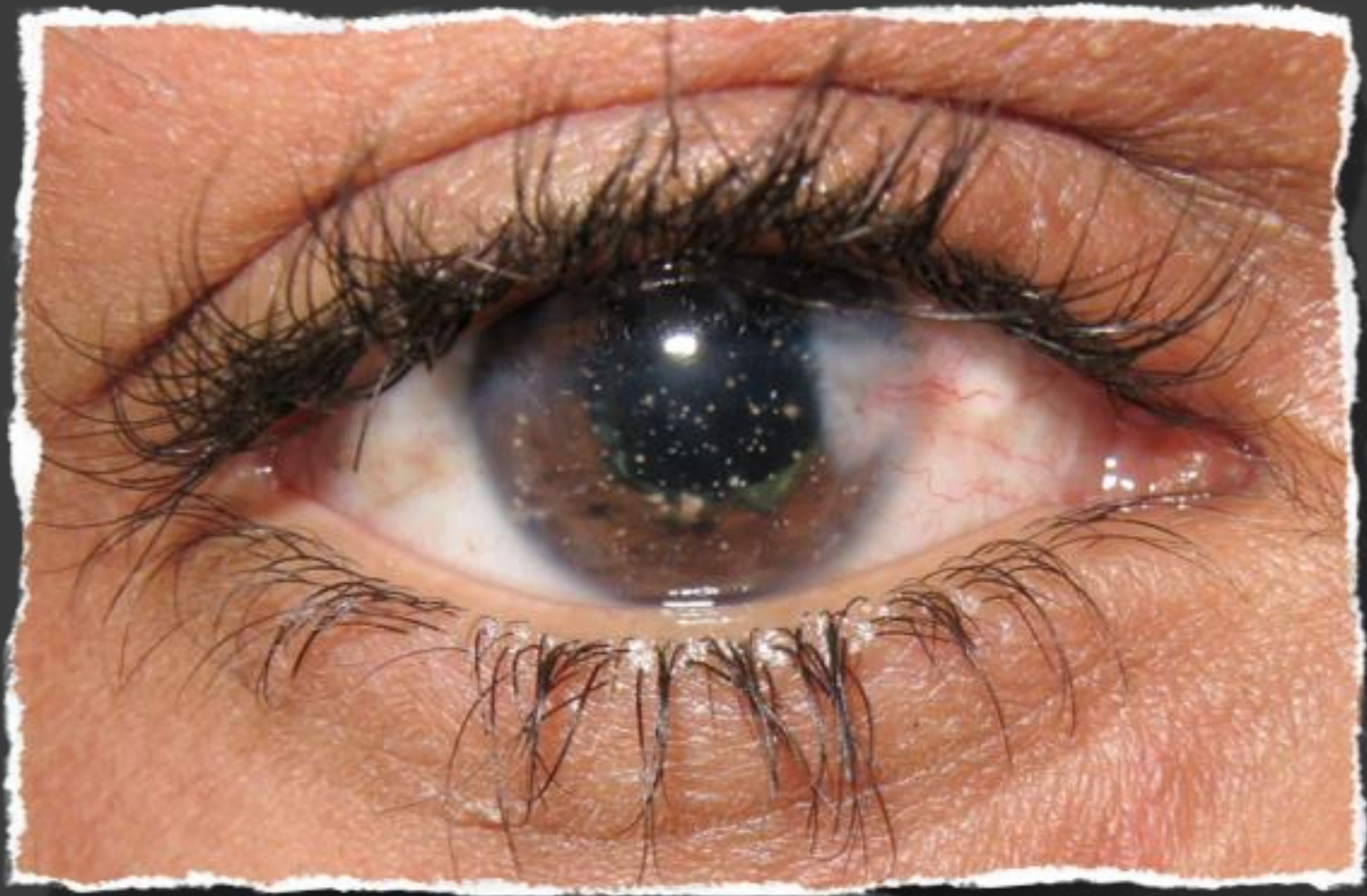
Seidel Test



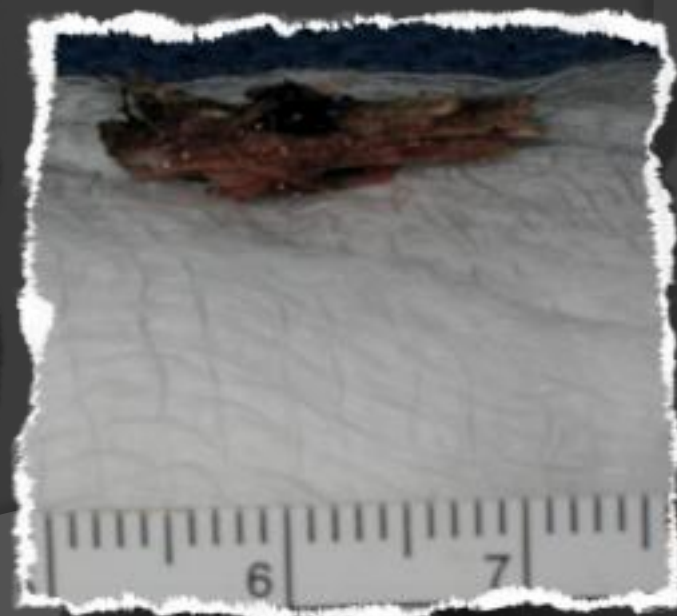
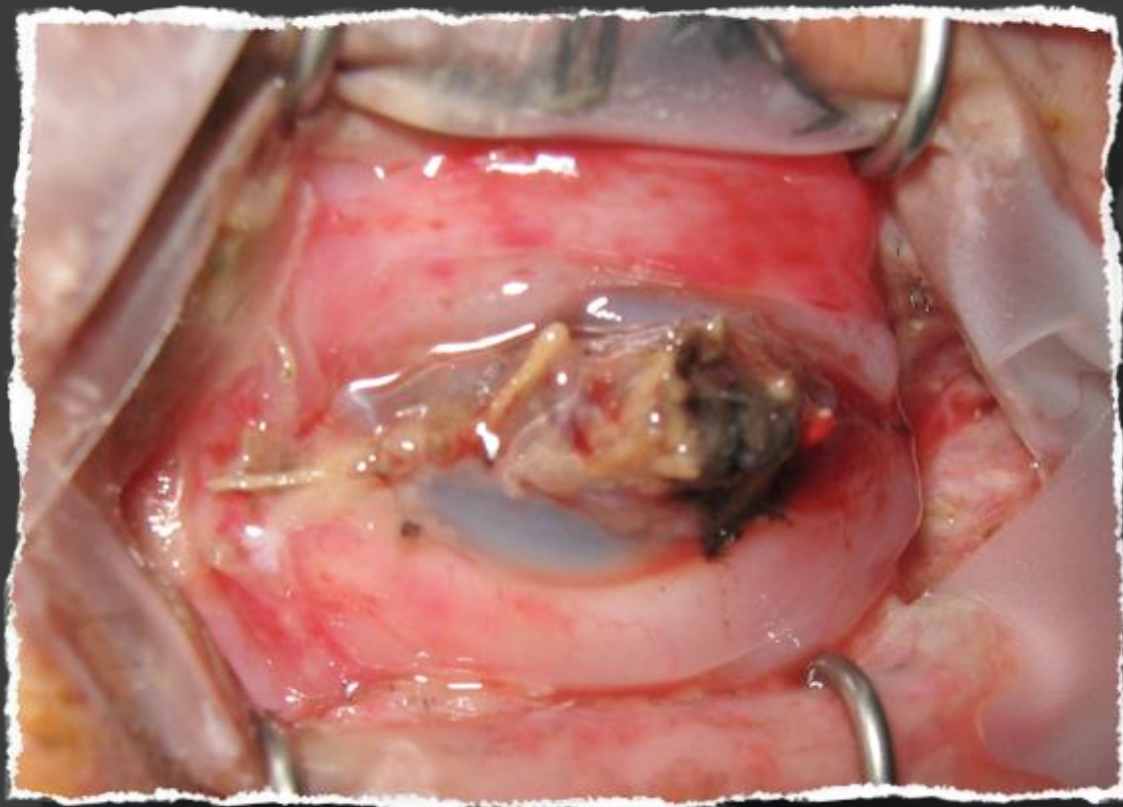
Foreign Bodies



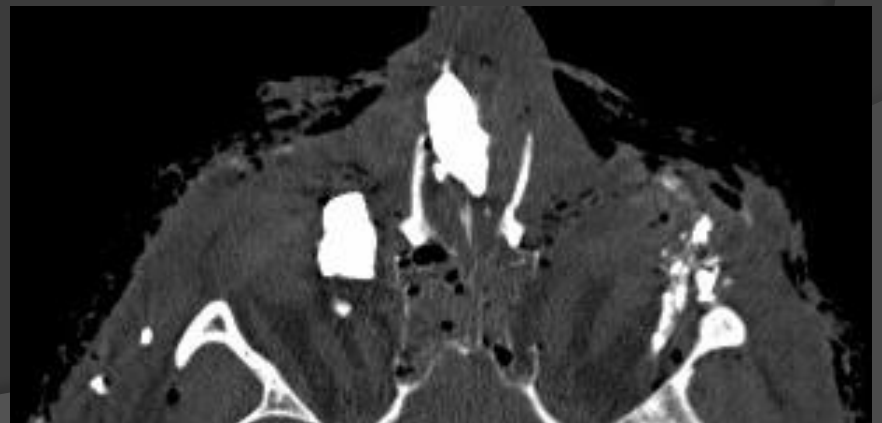
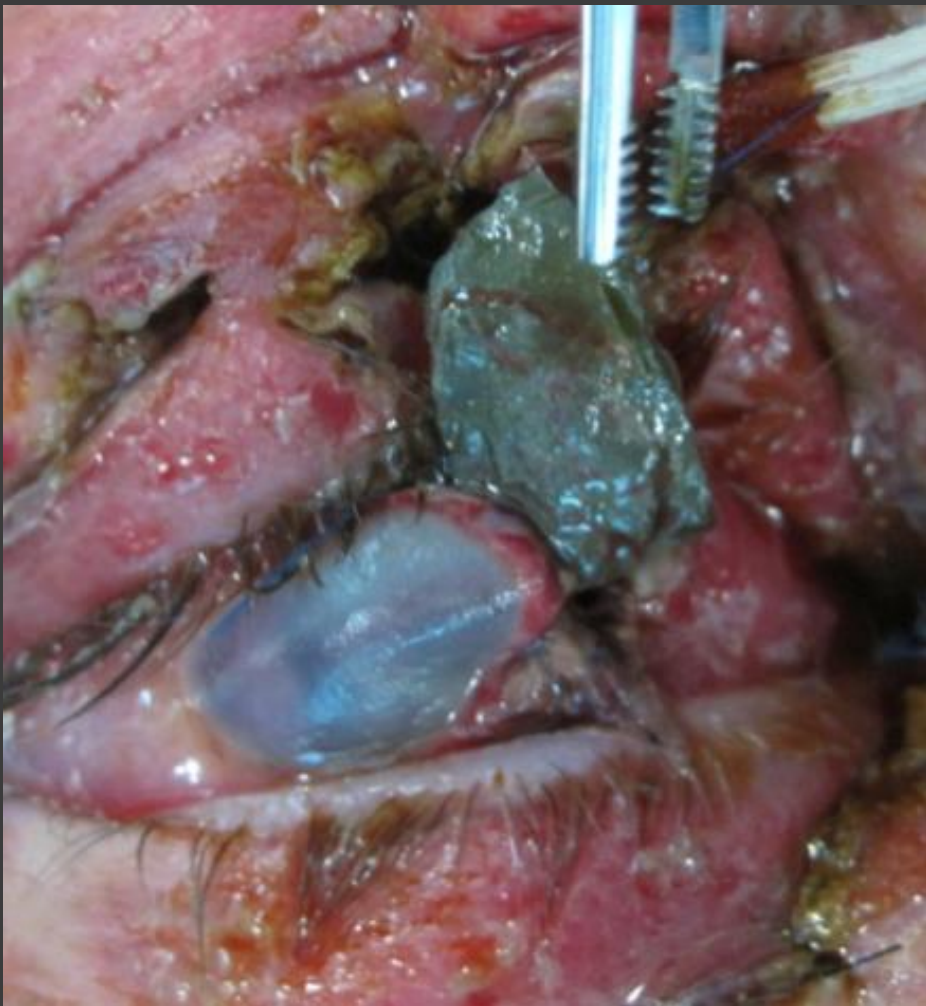
Multiple Corneal Foreign Bodies



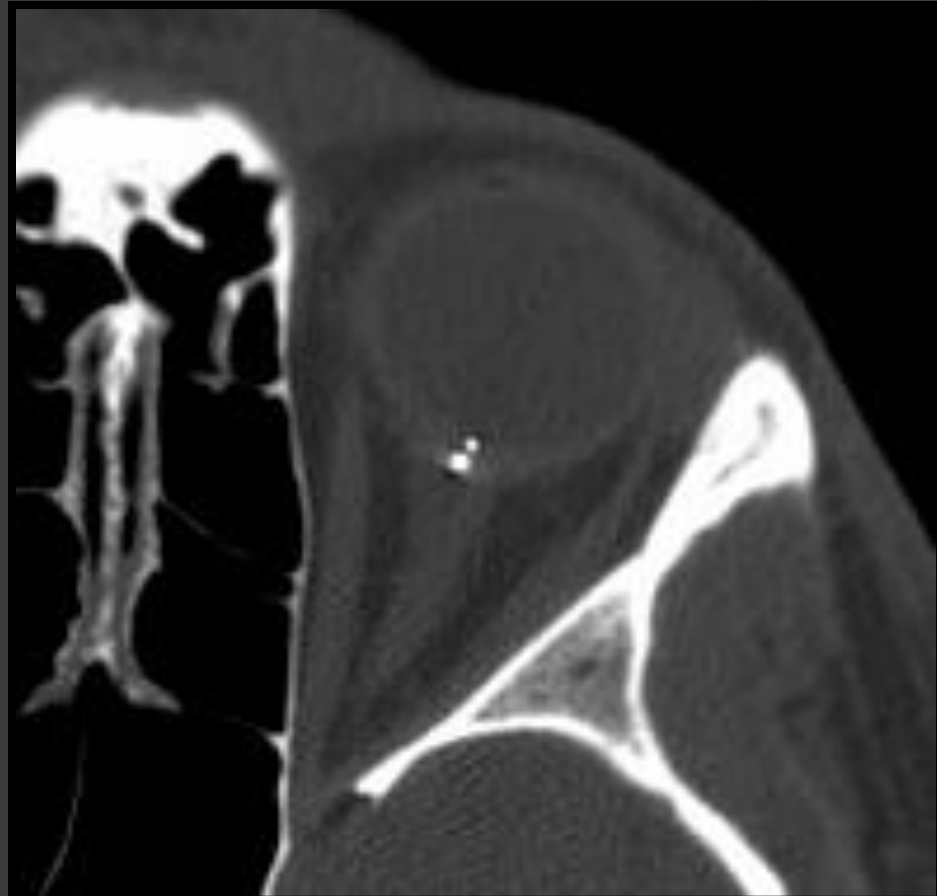
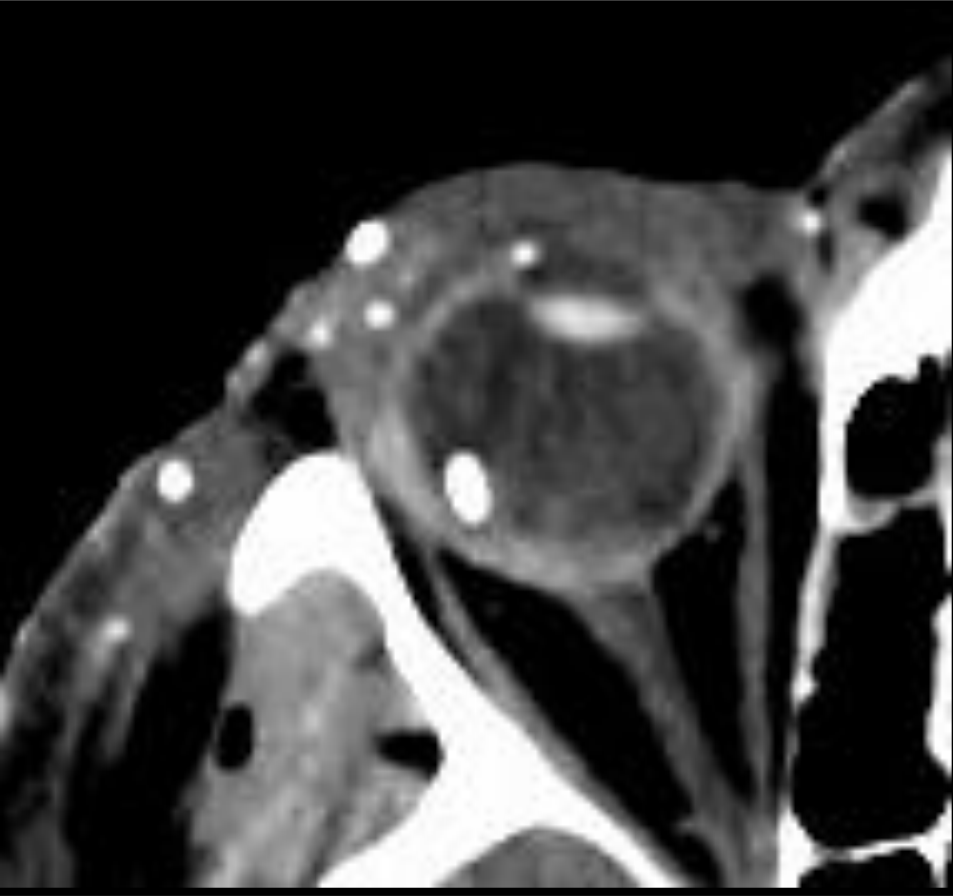
Organic Foreign Body



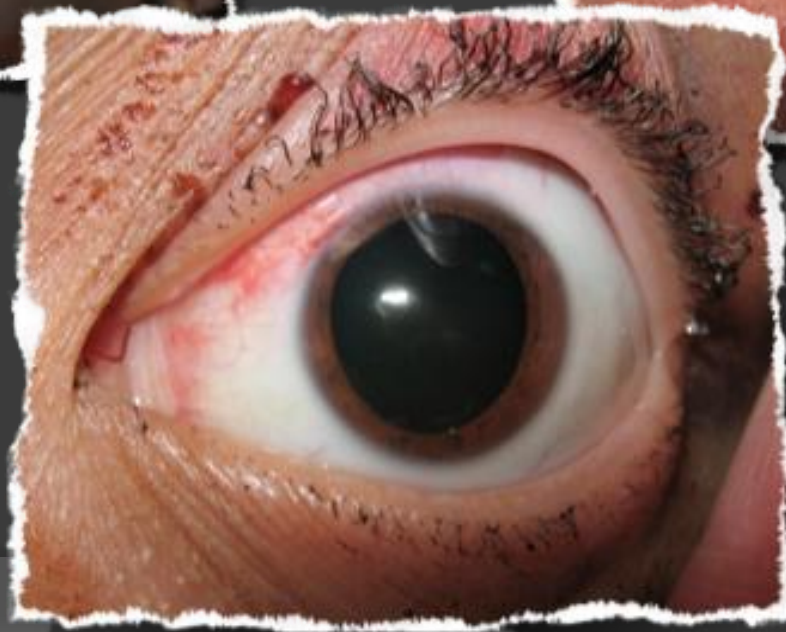
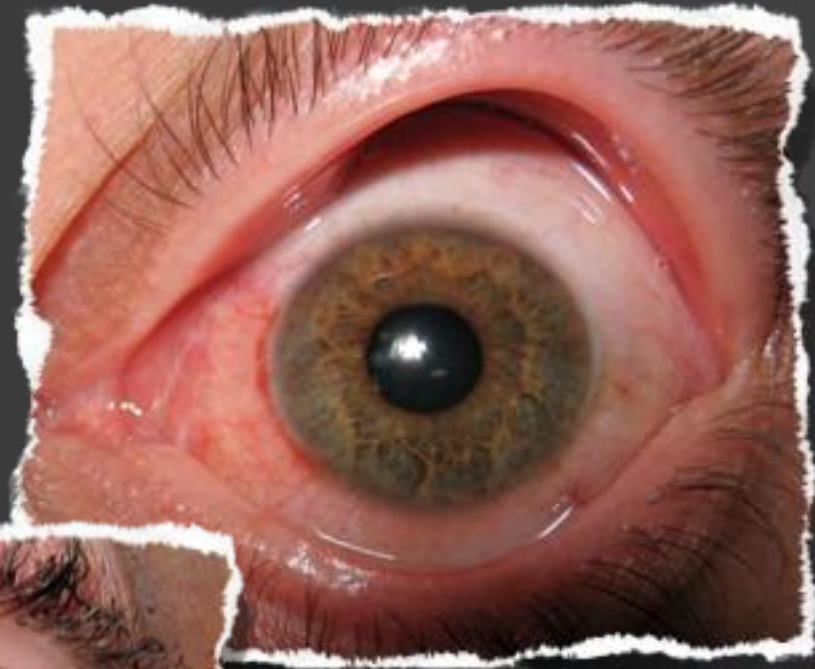
Inorganic Foreign Body



Intraocular Foreign Body



Occult Penetrating Injury



Globe Rupture: Initial Management

◎ FART

- Fox Shield
- Antibiotics
- Rads (CT)
- Tetanus



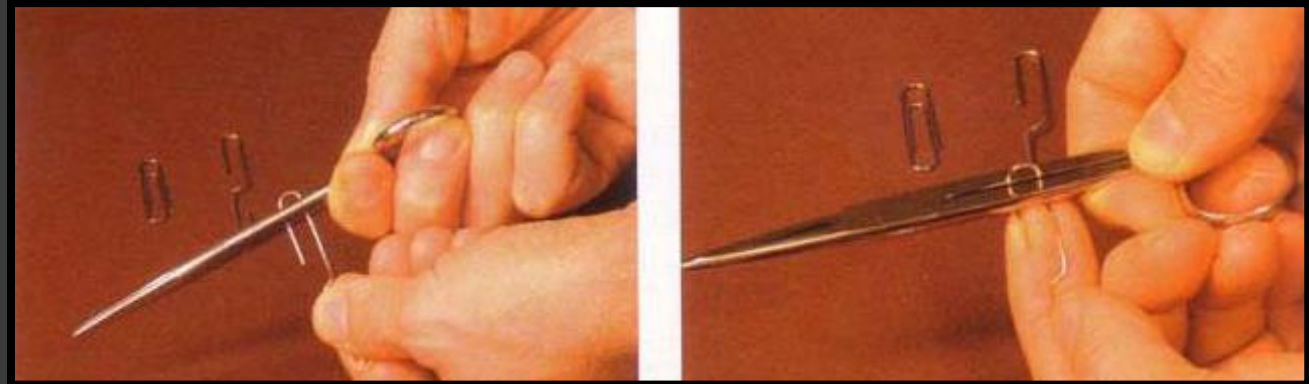
FART-Fox Shield

- Protect the eye- shield, no patch



FART

- Protect the eye- no pressure



FART- Antibiotics

- ⦿ Moxifloxacin/Gati/Levo 400mg qday
- ⦿ Can also use
 - Vancomycin 1 gm q 12
 - Cipro 400mg bid
 - Cefazolin 1 gm tid
- ⦿ Avoid topical gtts

FART- Radiology

⦿ CT

- Non-contrast
- Thin cuts
- Coronal recon



Surgical Management

- Repair
- Enucleation
- Evisceration

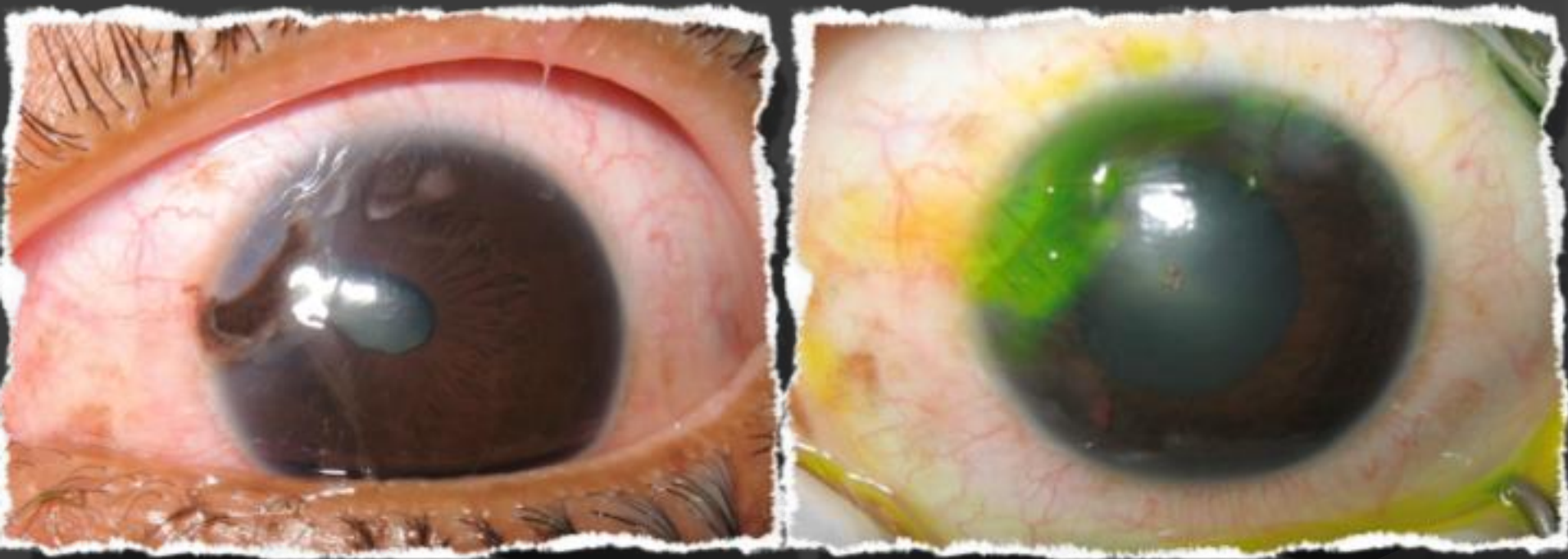
Table 1. Computational method for deriving the OTS score

| Initial Visual Factor | Raw points |
|---|---|
| A. Initial visual acuity category | NLP = 60 LP to HM = 70 1/200 to 19/200 = 80 20/200 to 20/50 = 90 ≥20/40 = 100 |
| B. Globe rupture | -23 |
| C. Endophthalmitis | -17 |
| D. Perforating injury | -14 |
| E. Retinal detachment | -11 |
| F. Afferent pupillary defect (Marcus Gunn pupil) | -10 |
| Raw score sum = sum of raw points | |

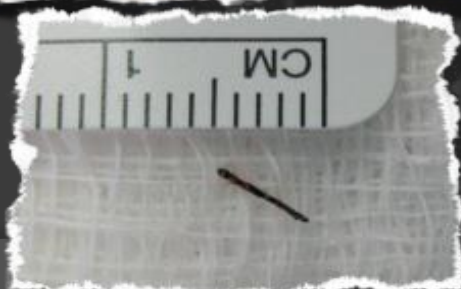
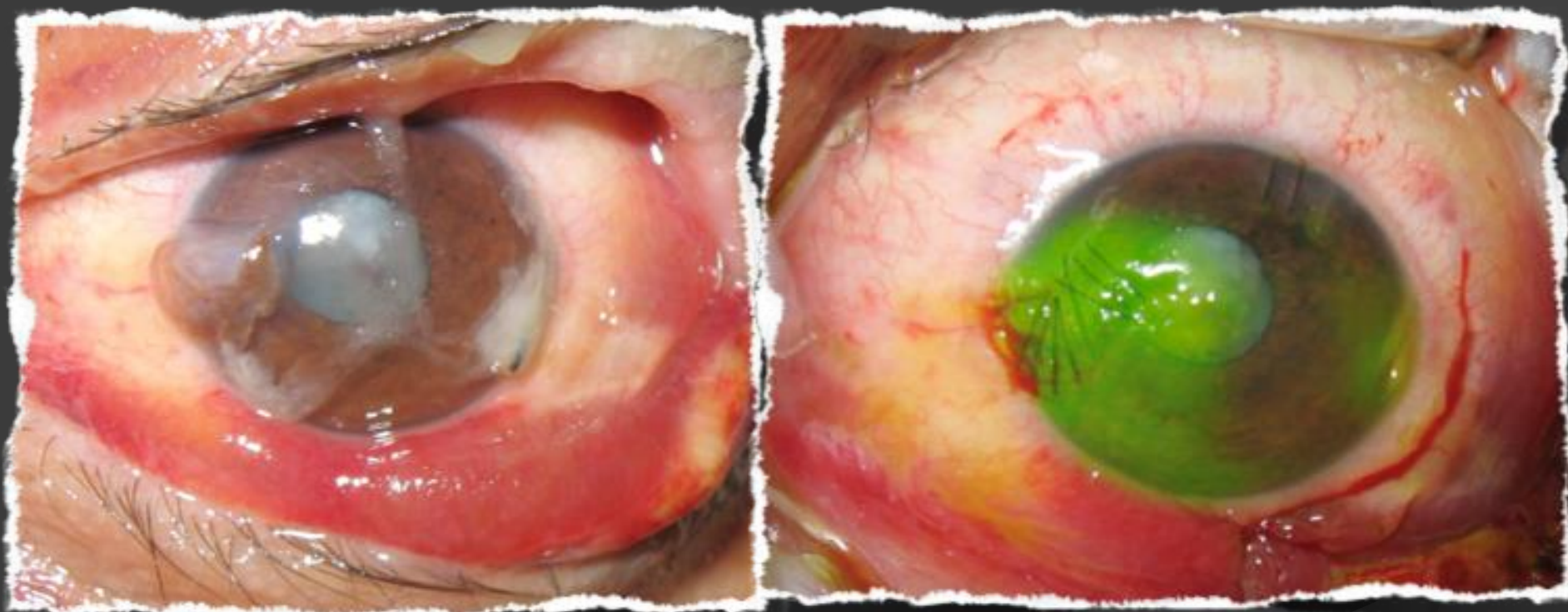
Table 2. Estimated probability of follow-up visual acuity category by the OTS Score

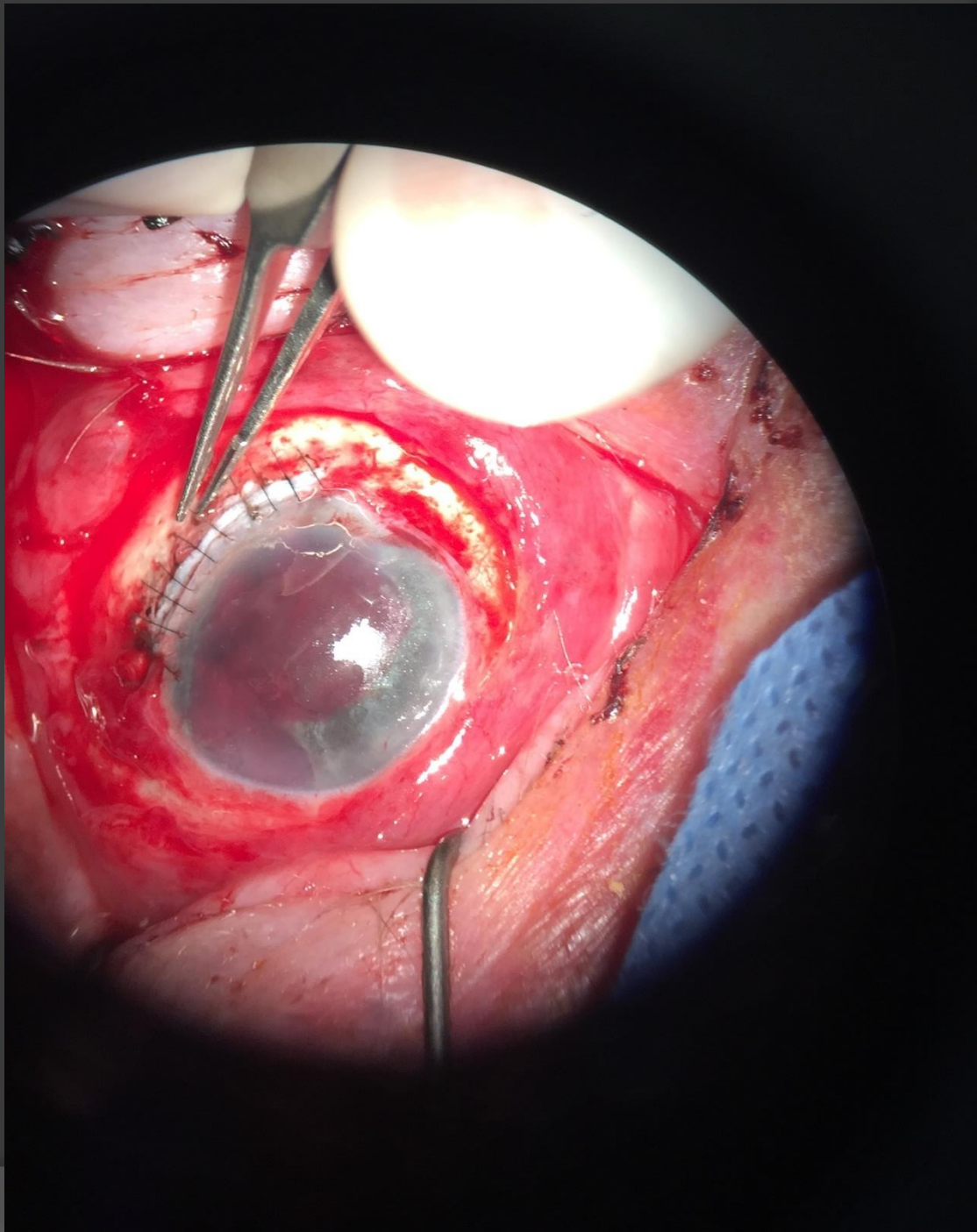
| Raw Score Sum | OTS Score | NLP | LP/HM | 1/200-19/200 | 20/200 to 20/50 | ≥20/40 |
|---------------|-----------|-----|-------|--------------|-----------------|--------|
| 0-44 | 1 | 73% | 17% | 7% | 2% | 1% |
| 45-65 | 2 | 28% | 26% | 18% | 13% | 15% |
| 66-80 | 3 | 2% | 11% | 15% | 28% | 44% |
| 81-91 | 4 | 1% | 2% | 2% | 21% | 74% |
| 92-100 | 5 | 0% | 1% | 2% | 5% | 92% |

Repair-Corneal laceration



Repair-Corneal laceration

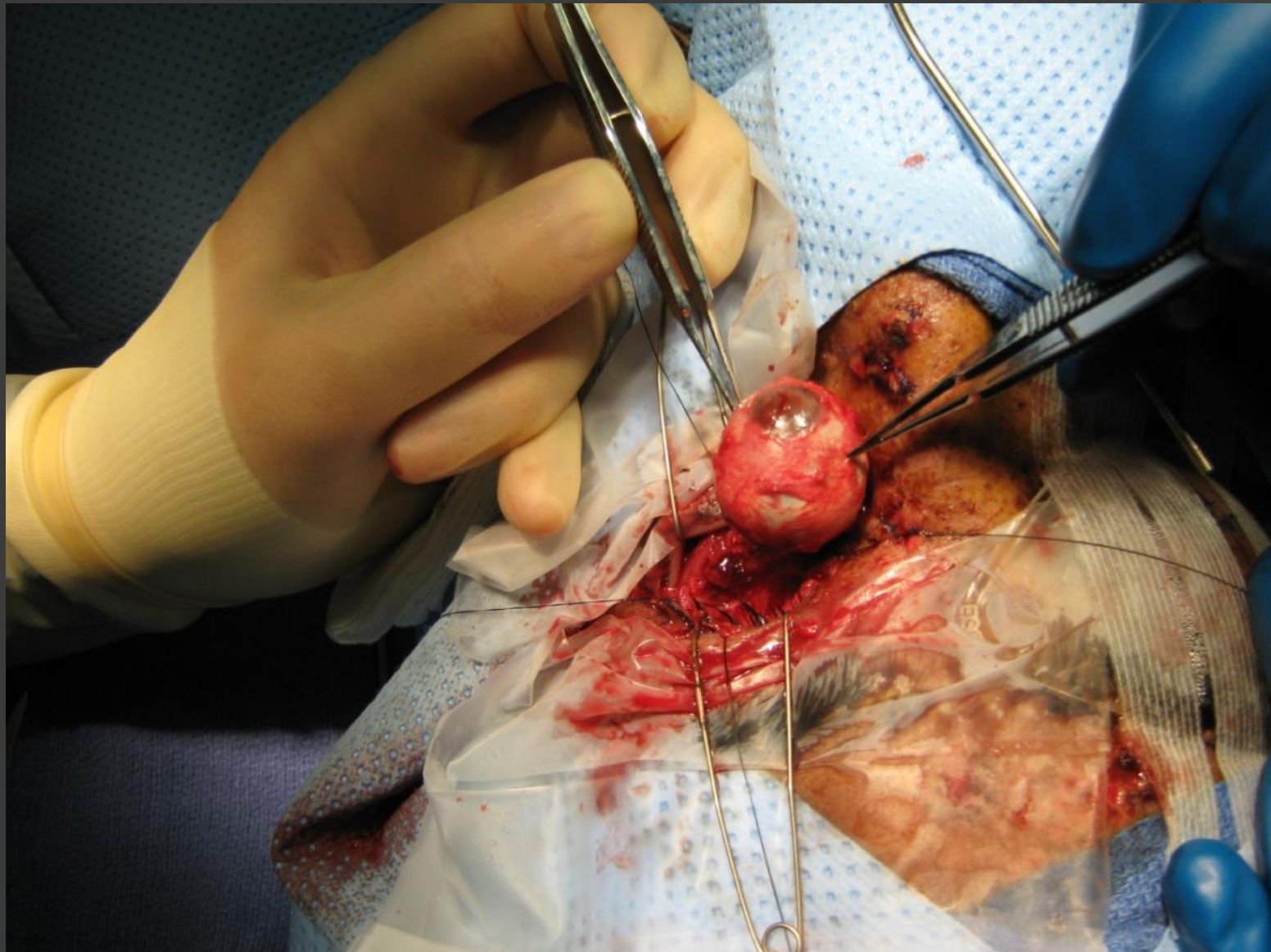




Enucleation/Evisceration

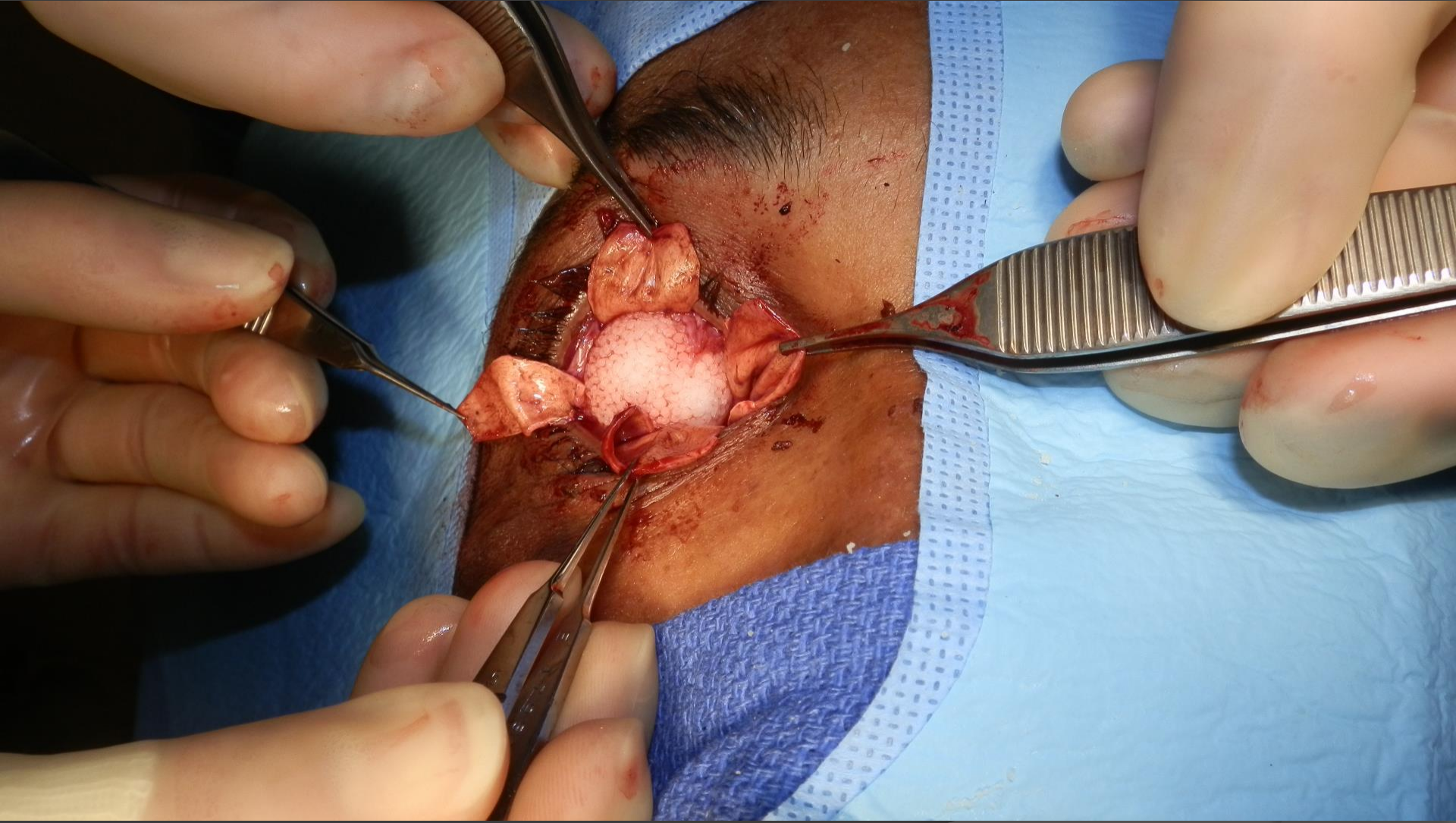
- ⦿ Enucleation
 - Remove entire globe
- ⦿ Evisceration
 - Remove cornea and ocular contents (uvea, retina, lens, vitreous)
 - Leave scleral shell



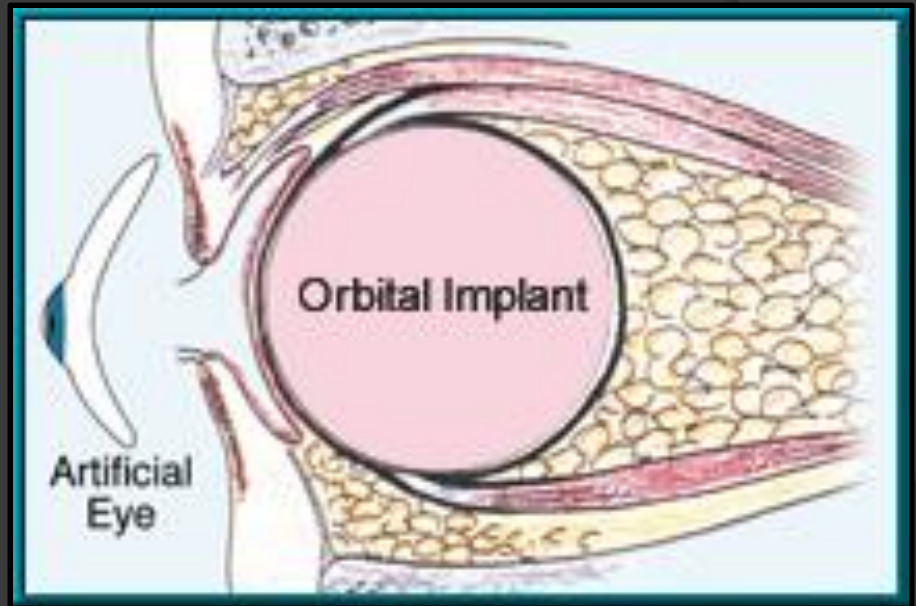
















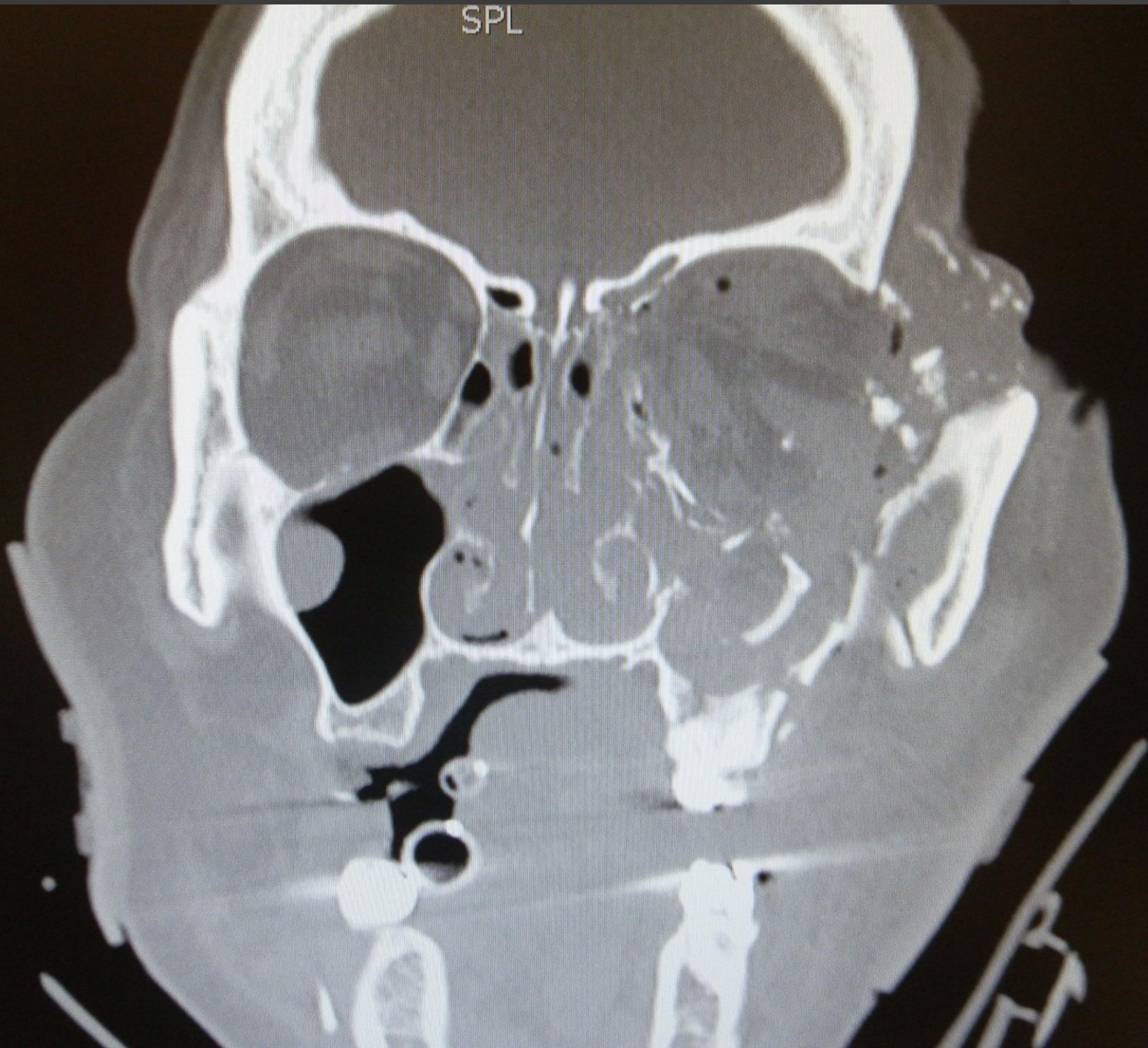
Ann Otol Rhinol Laryngol. 1984 Jan-Feb;93(1 Pt 1):2-5.

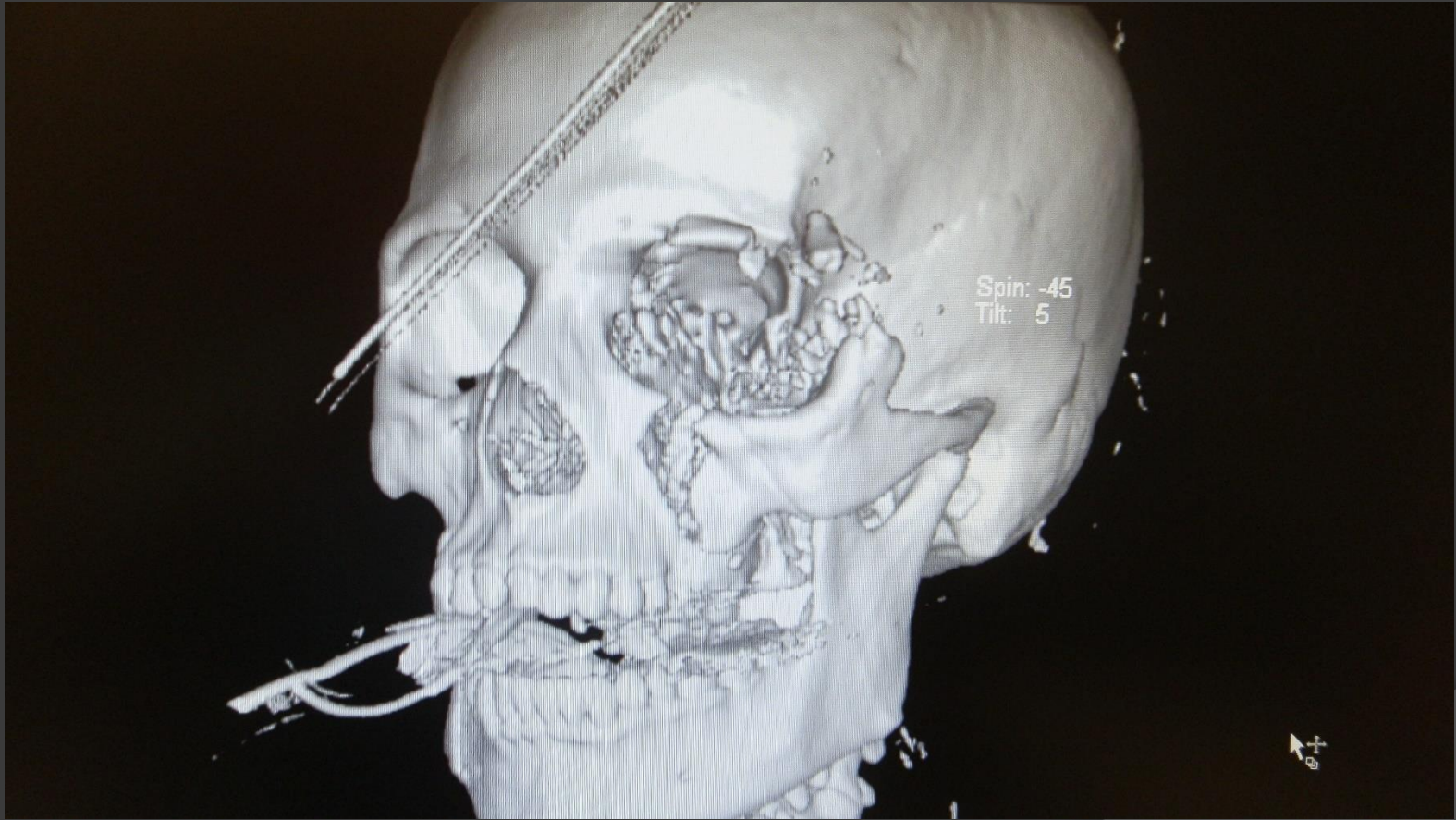
Blindness and LeFort III fractures.

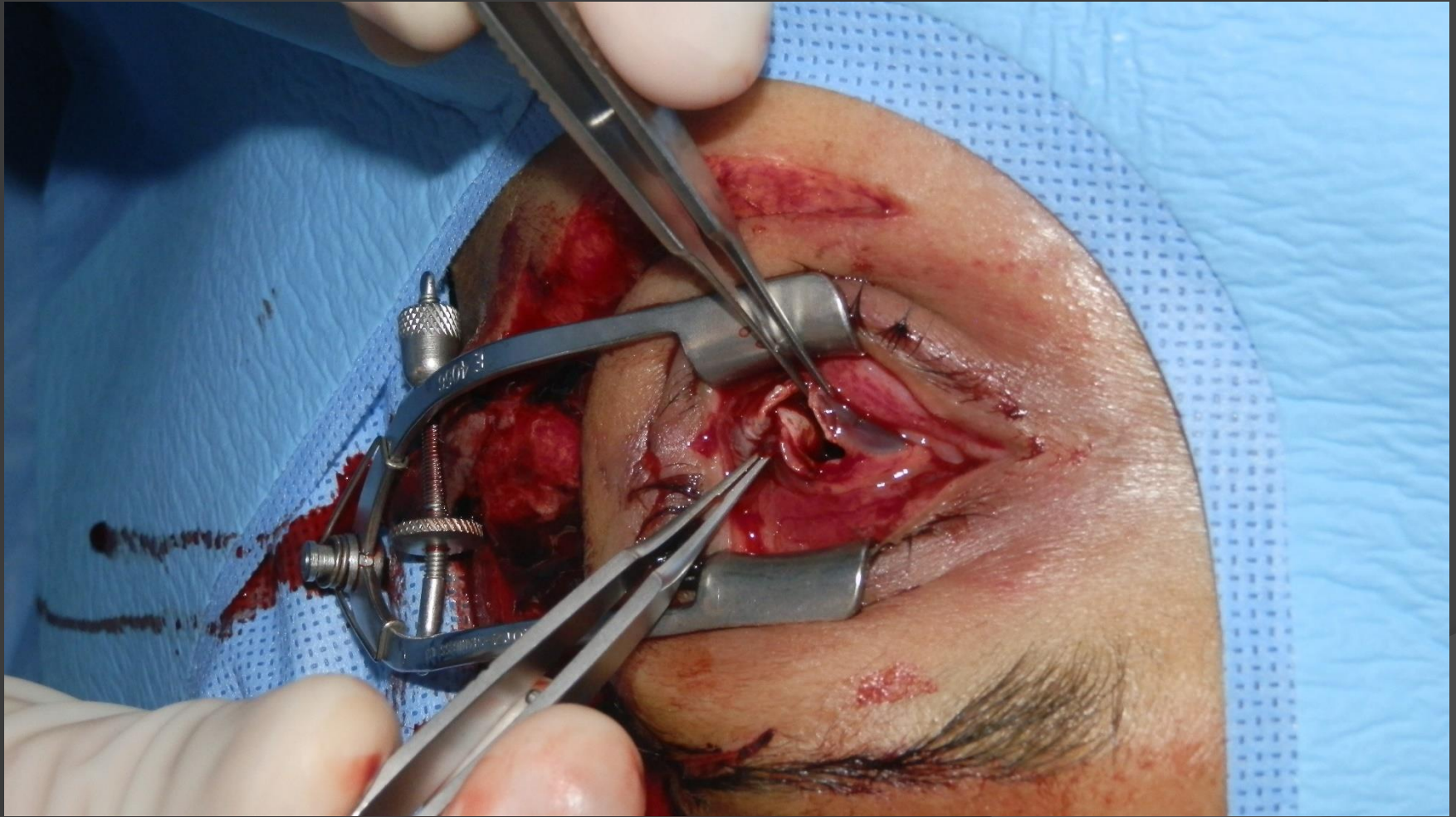
Weymuller EA Jr.

- Survey- Treatment of Lefort III in setting of vision loss in 1 eye
 - Majority of Ophthalmologists would not operate acutely
 - Otolaryngologists were split
 - All of the plastic surgeons would operate

SPL







Facial Fractures with Concomitant Open Globe Injury: Mechanisms and Fracture Patterns Associated with Blindness

Elbert E. Vaca, B.S.
Gerhard S. Mundinger, M.D.
Joseph A. Kelamis, M.D.
Amir H. Dorafshar, M.D.
Michael D. Christie, M.D.

Background: Treatment of facial fractures in the setting of open-globe injuries poses a management dilemma because of the often disparate treatment priorities of multidisciplinary trauma teams and the lack of prognostic data regarding visual outcomes.

Patients in the University of Maryland Shock Trauma Registry sustained facial fractures with concomitant open-globe injuries from January of 2008 to August of 2010 were identified. Odds ratios were calculated to identify demographic and clinical variables associated with blindness, and multivariate

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Questions?

