





Hypotony after Glaucoma Filtering Surgery

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Definetion of hypotony

- Hypotony is an uncommon but **potentially vision-threatening event** defined as either:
 - An intraocular pressure (IOP) that is 3 standard deviations below normal (<6.5 mm Hg)
 - or an IOP low enough to cause visual impairment.
- **Manifests** in the form of: hypotony maculopathy, corneal edema, astigmatism, choroidal effusion, and/or accelerated cataract formation.



Do you need to treat all cases of hypotony??

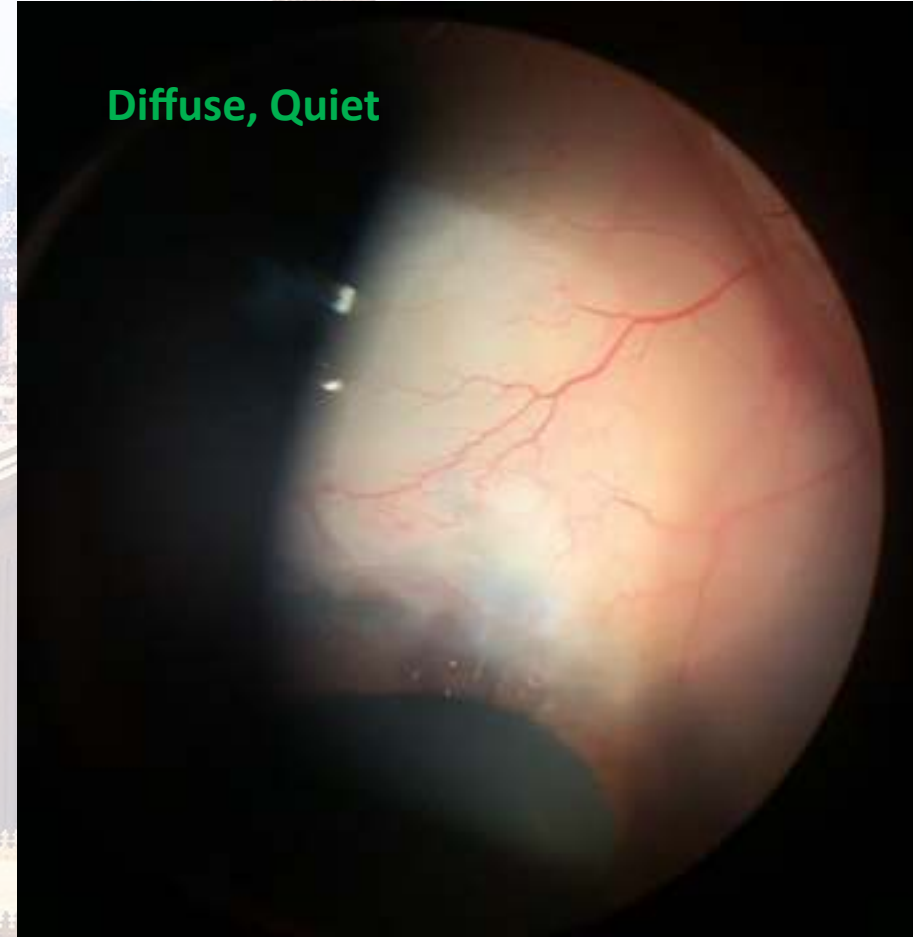
- Treatment is typically reserved for patients with visual impairment
- Treatment is often not required for those with asymptomatic “statistical” hypotony.

Successful Filtering Bleb: Characteristics

ELEVATED



Diffuse, Quiet





Successful Filtering Bleb: Characteristics

Prof. Mohamed Mahdy

Diffuse Microcystic Bleb



Failing Bleb: Classification

High IOP

☐ Low Localized Bleb

- 1-Subconjunctival Fibrosis (External)
- 2-Obstruction of the sclerectomy site (internally)

☐ High Domed Bleb

- 1-Encapsulated Bleb.
- 2-Tenon's cyst.

Low IOP

☐ Low Bleb: Due to leakage

☐ Elevated Bleb:

- 1- Diffuse Bleb
- 2-Overfiltration
- 3-Hypotony (IOP<6 mmHg)



Causes of Hypotony

Decreased Aq. Production

- Inflammation
- Cilioretinal Detachment
- Inadvertent use of Aq Suppressant
- Ciliary shut down

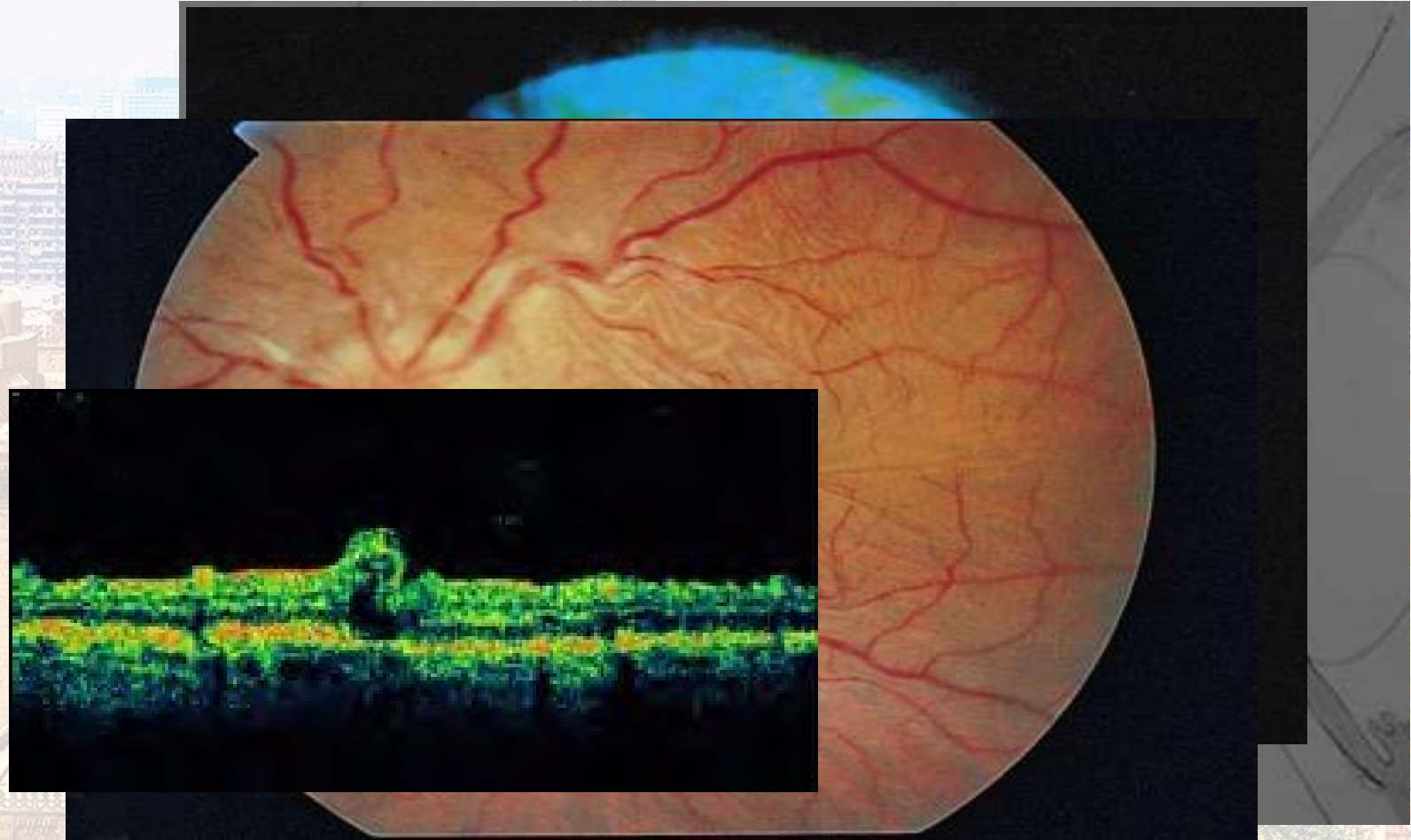
Increased Aq outflow

- Excessive filtration (**with full thickness, use of Antimetabolites**)
- Bleb Leakage
- Loose flap sutures
- Cyclodialysis cleft
- Choroidal detachment
- Traumatized bleb

Clinical findings during bleb assessment:

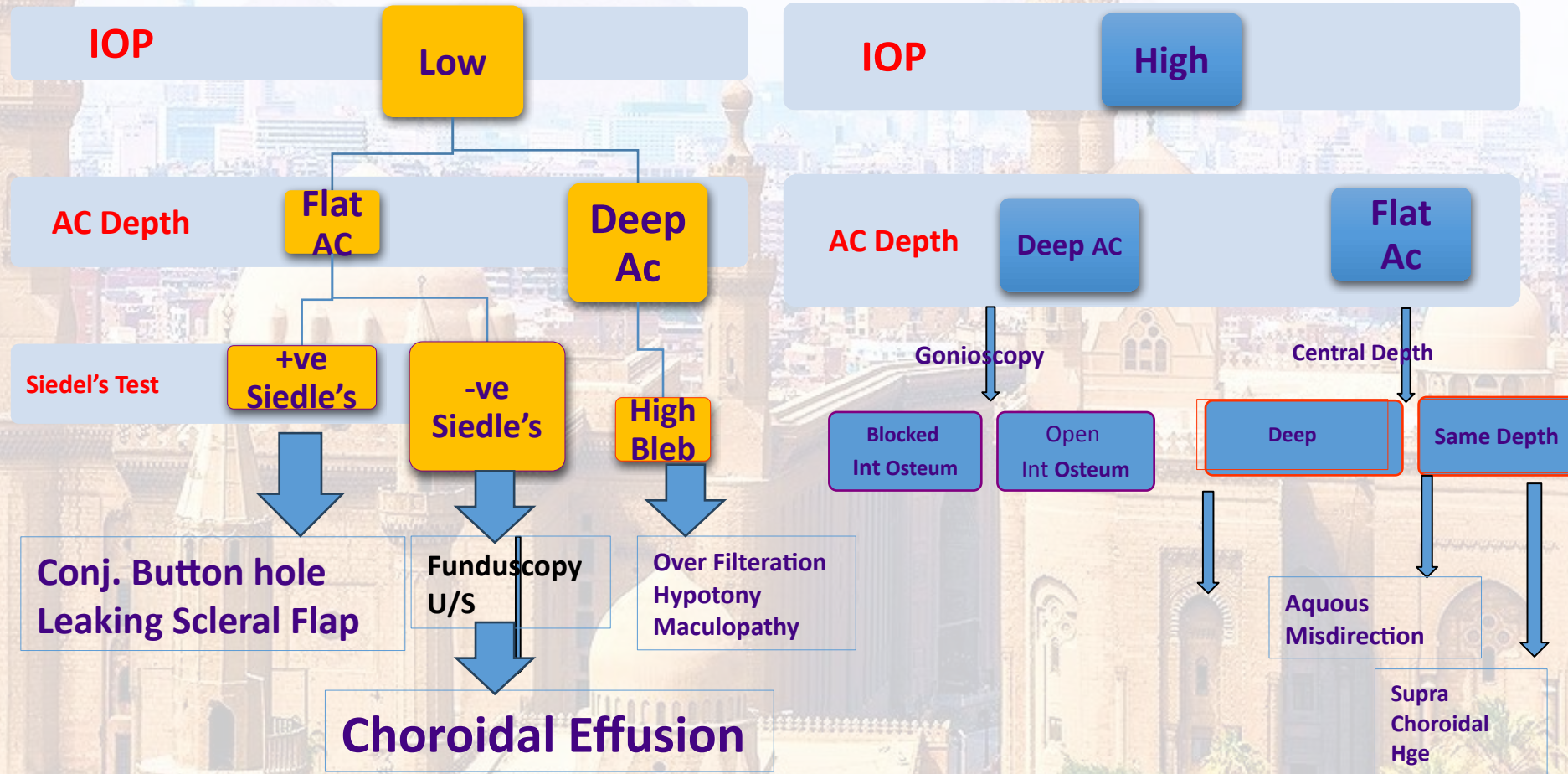
(Depends on the mechanism responsible for hypotony)

- AC Depth
- Bleb Height
- Conjunctival buttonholing
- Leakage
- Fundus Exam.





Bleb Exam Flow Chart





Management of Overfiltration

Observation

- **Indicated in** overfiltration with formed AC with elevated bleb **(AC Grade I)**

1-Restriction of activity (Bed rest)

2-Avoidance of: weight lifting, constipation, vigorous coughing, sneezing & blowing the nose)

Immediate Intervention

- **Indicated in: Flat AC with lenticulocorneal touch** **(AC Grade III)**

1-External tamponade (not successful)

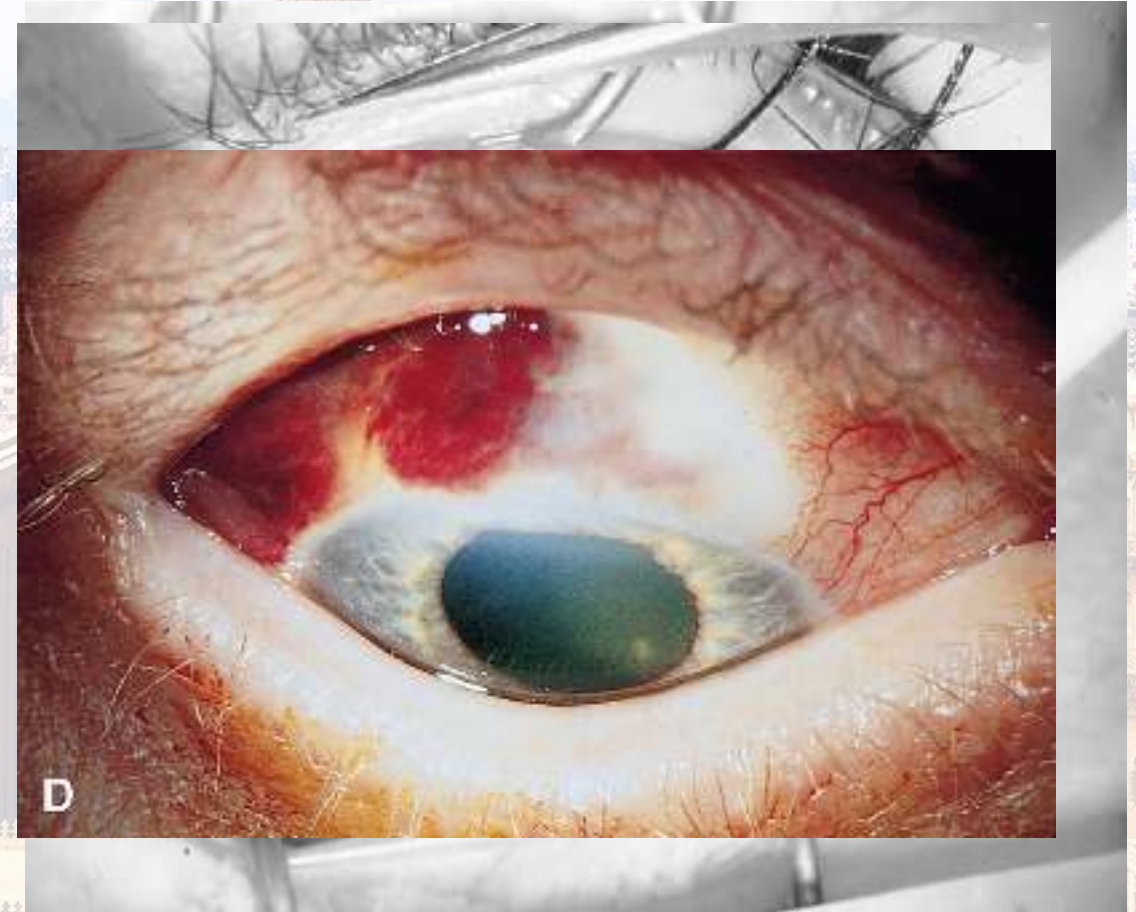
2-Immediate reformation of the AC with:

Air, BSS, Visco-elastics & SF6.

3-Sclerotomy with drainage of suprachoroidal effusion might be necessary.

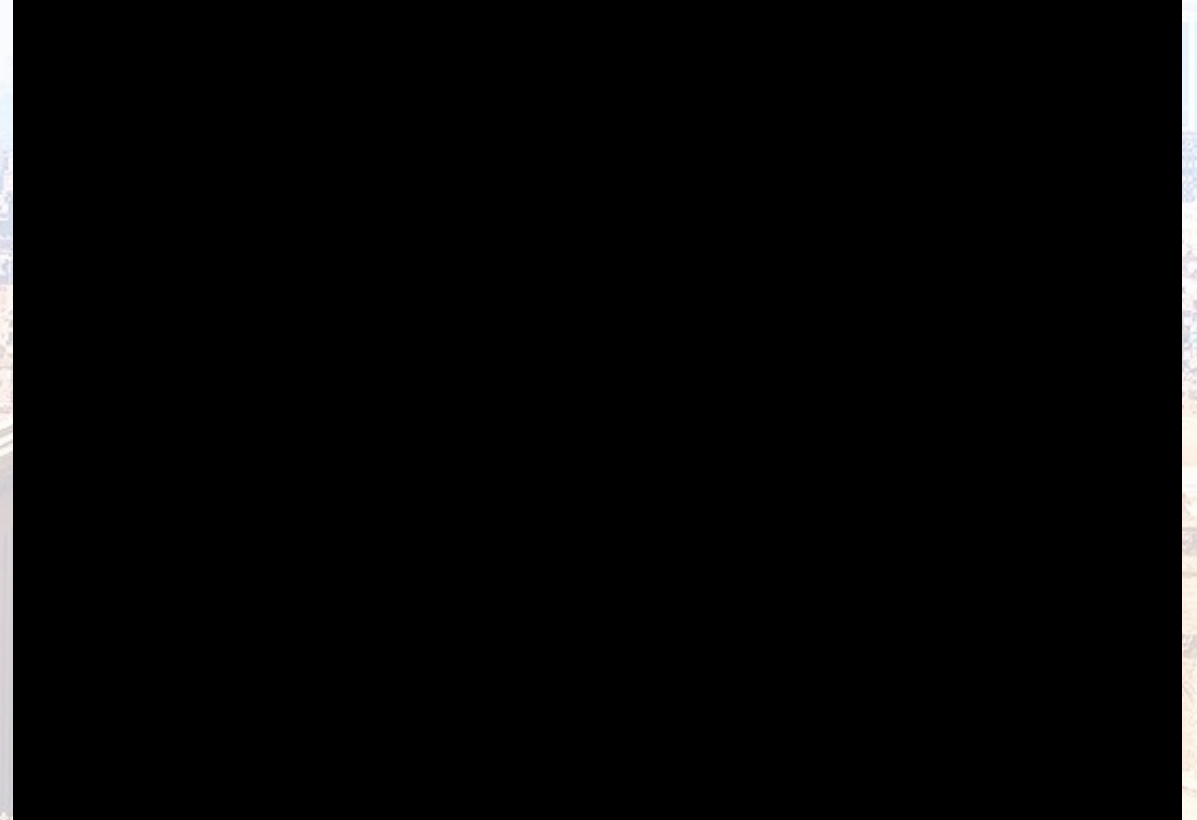
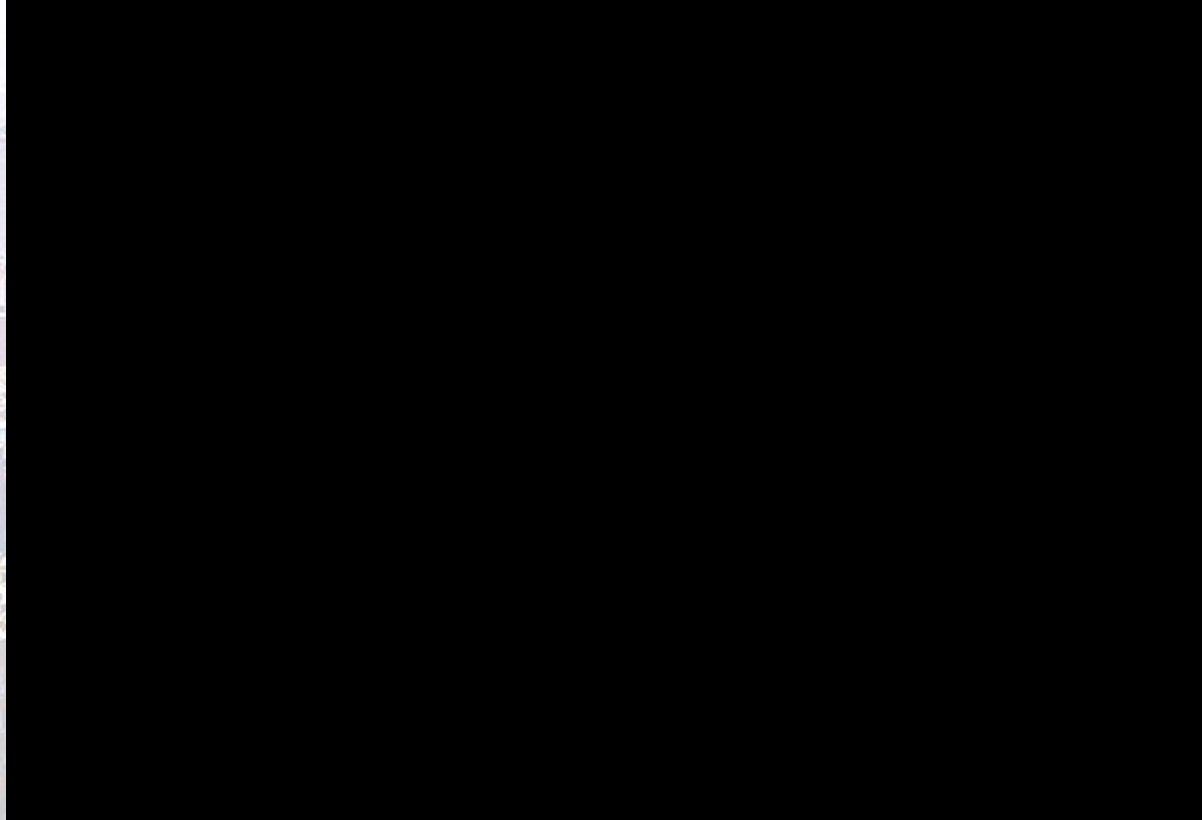
Overfiltration: Management of persistent Hypotony

- Bandage Contact lens (**17-20 mm**, 5 days)
- Simmons Shell
- Cryo application (**2-5 applications, 10-20 Seconds Duration**)
- Argon Laser (**Methylene blue** or **Rose bengal. Spot 200-500 μ m, Dur.0.2 sec. P=300-500 mW.** Shrinkage of the conj is the endpoint)
- **Autologous blood injection** (0.1-0.2 ML, center of the bleb).
- Compression sutures

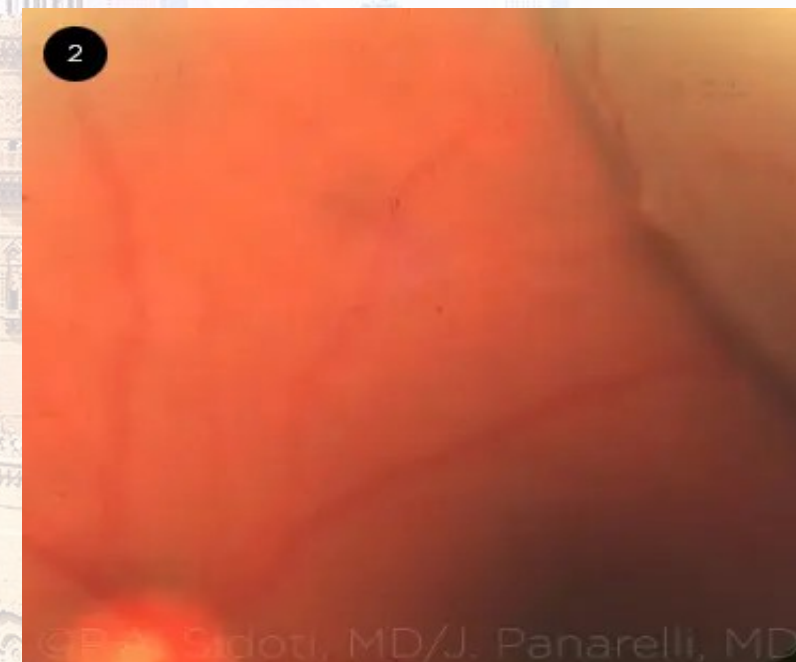
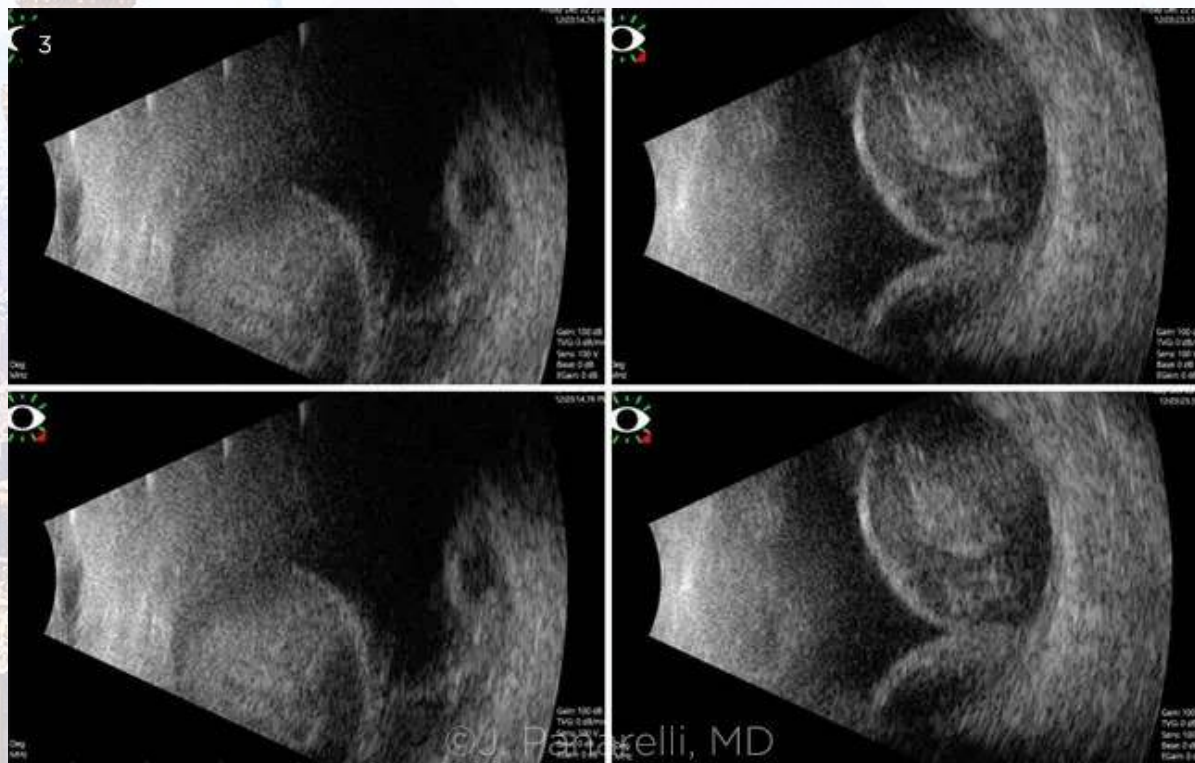




Compression suture with Autologous blood injection (0.1- 0.2 ML, center of the bleb).



Choroidal effusion





Management of Choroidal effusion

- **Conservative treatment** targeted toward the specific etiology of hypotony.
- This approach includes treatments such as **cycloplegic drops, steroid**
- **Surgical drainage is indicated.** Choroidal effusion drainage is approached by quadrant and can be repeated if recurrent
- **Persistent or large effusions** are accompanied by **symptomatic vision loss or a flat anterior chamber,**



Cyclodialysis cleft

- **Pathophysiology**

- A cyclodialysis cleft occurs when **the ciliary body is detached from the scleral spur**, creating an abnormal pathway between the anterior chamber and suprachoroidal space.

- it can iatrogenically during any **intraocular surgery that involves manipulation of the anterior chamber and angle structures**. Minimally invasive angle procedures are much implicated
- goniotomy with the Kahook Dual Blade or Trabectome, gonioscopy-assisted transluminal trabeculotomy, and insertion of an iStent or Hydrus Microstent which are at higher risk of cyclodialysis cleft than other surgeries



Management of cyclodialysis cleft

- **Cycloplegics** can be used as a first step in conservative treatment of small cyclodialysis clefts to relax the ciliary body, allowing the detached muscle fibers to realign with the scleral spur.
- **argon laser transscleral cyclophotocoagulation, or cryotherapy** to promote inflammation at the detachment site, inducing adhesion to seal the cleft.
- This treatment **can be repeated** multiple times and has shown good success for **smaller clefts (less than 3 clock-hours)**.
- **Direct cyclopexy** can be employed for large clefts (3 to 6 clock-hours) or those that failed to close with the preceding measures (**full-thickness scleral flap to access the ciliary body and using mattress sutures to attach it directly to the undersurface of the sclera**)

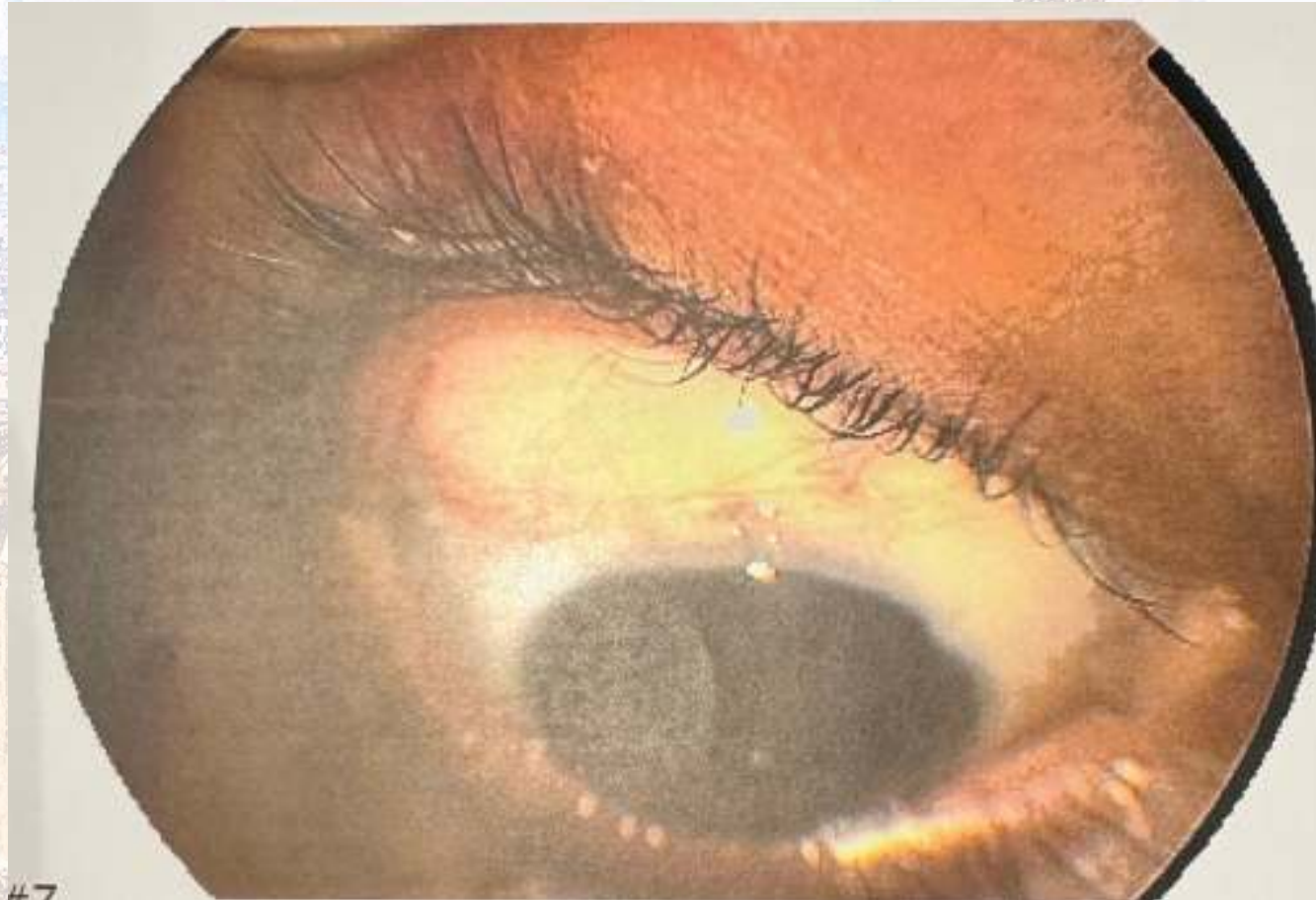


Delayed Post Operative hypotony maculopathy

- Trabeculectomy for 8 months
- The patient is suffering of Vitelligo
- During regular F/U blurred vision was noted
- Hypotony IOP 6 mmHg
- Bleb exam revealed high diffuse bleb
- OCT done
- VF



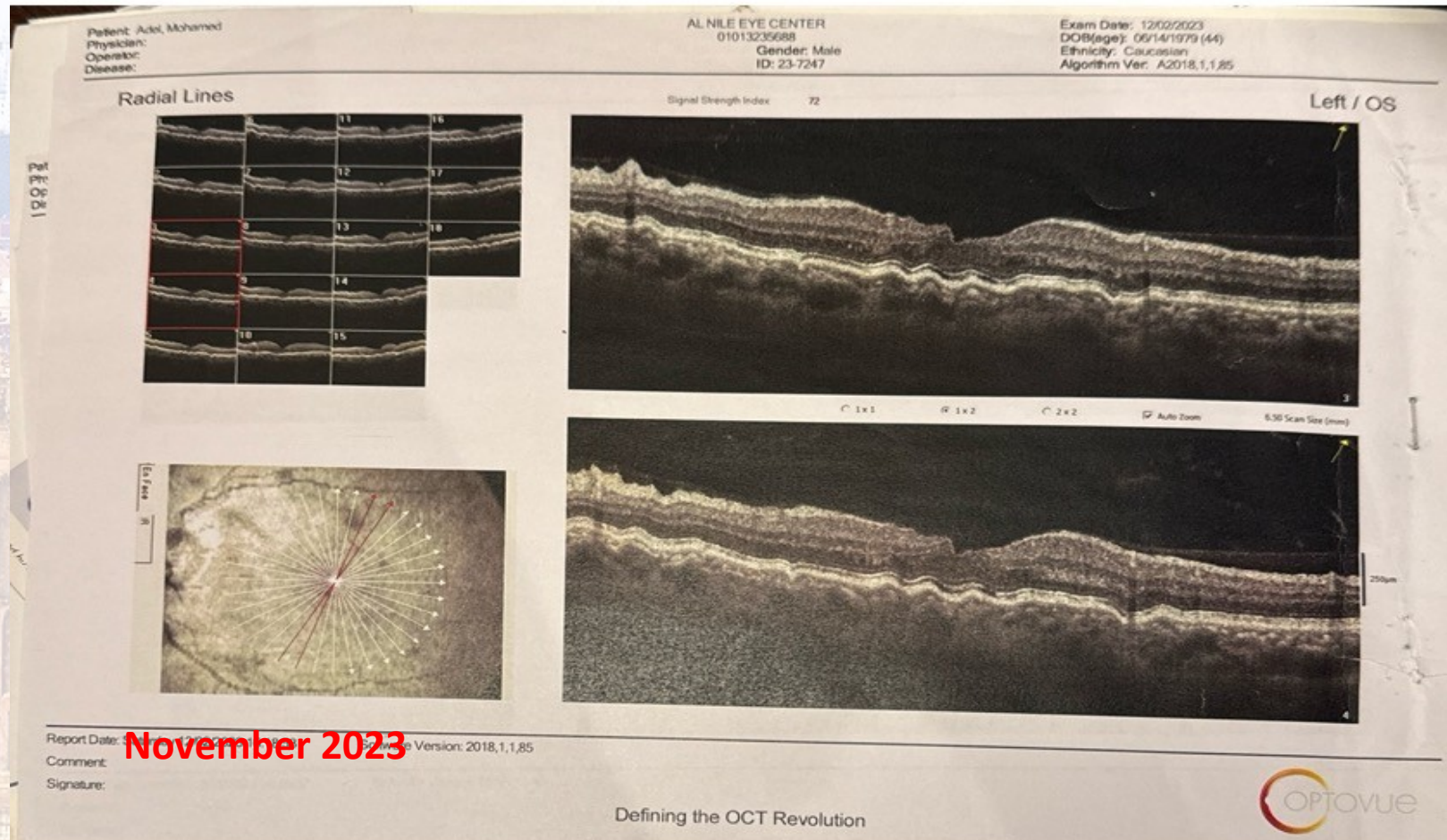
Delayed Post Operative hypotony maculopathy



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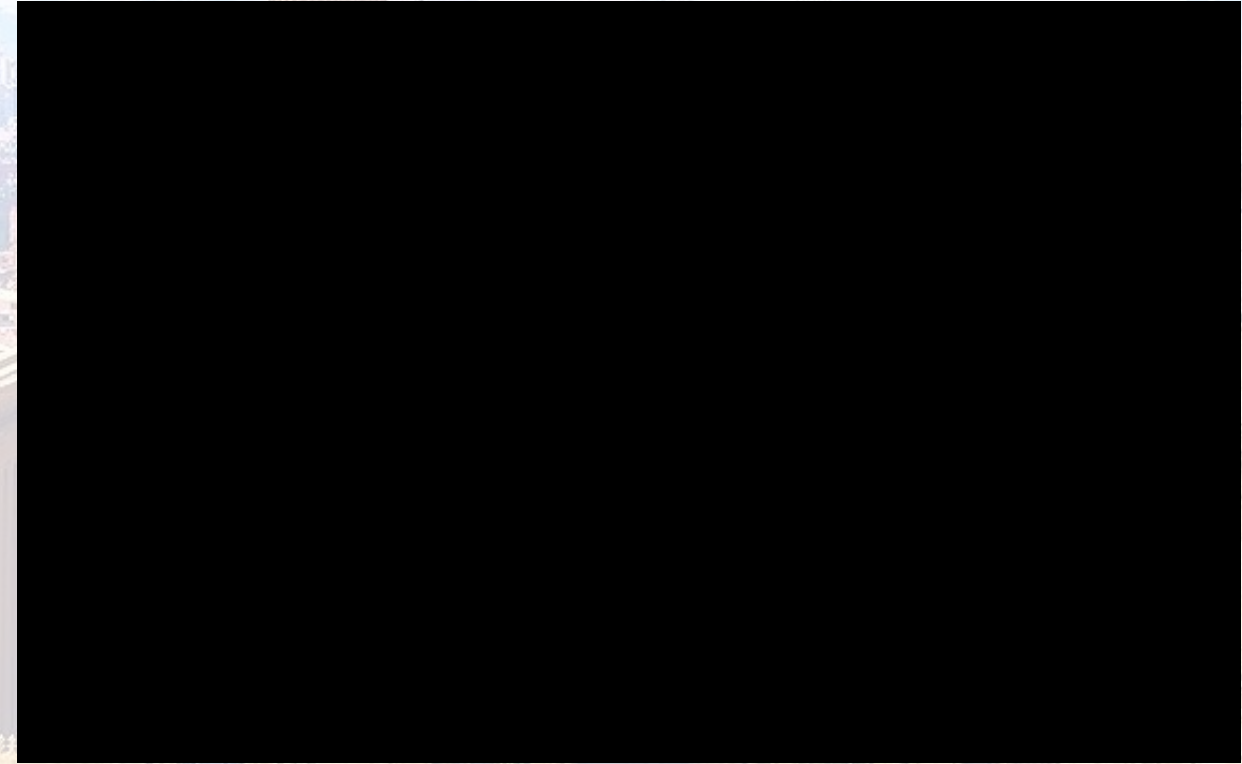
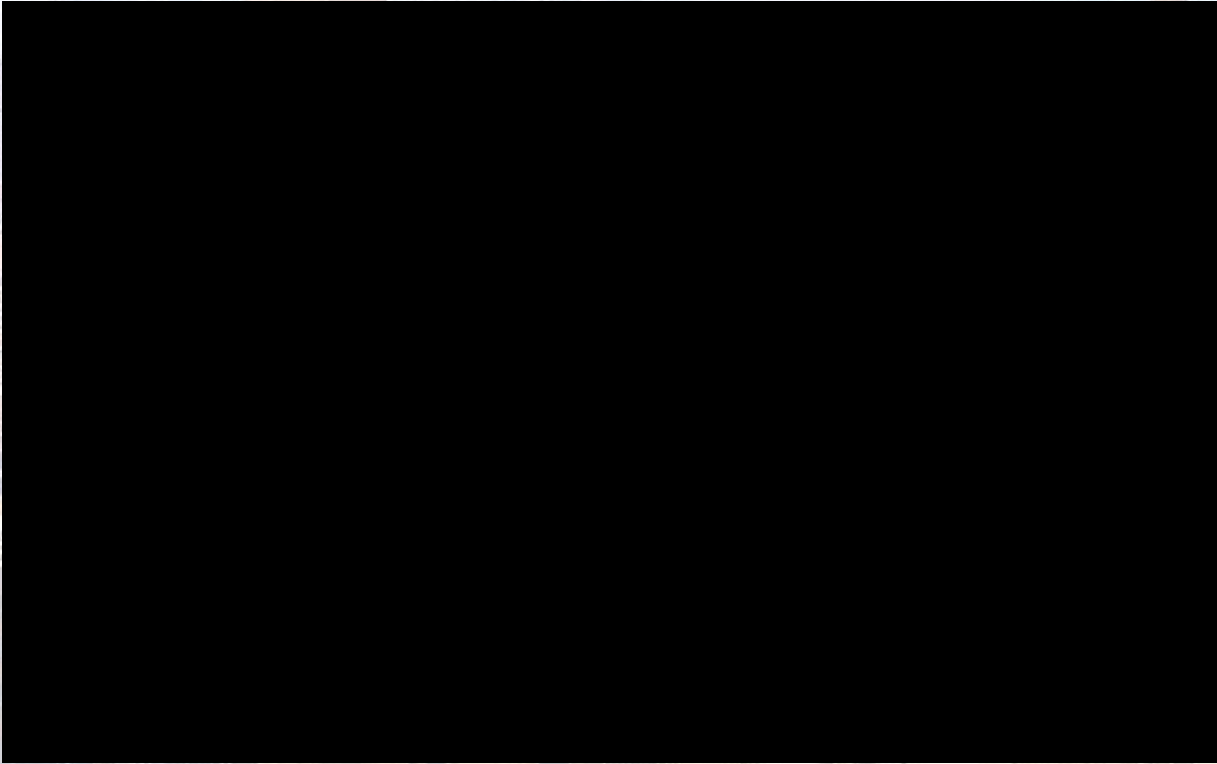


Delayed Post Operative hypotony maculopathy



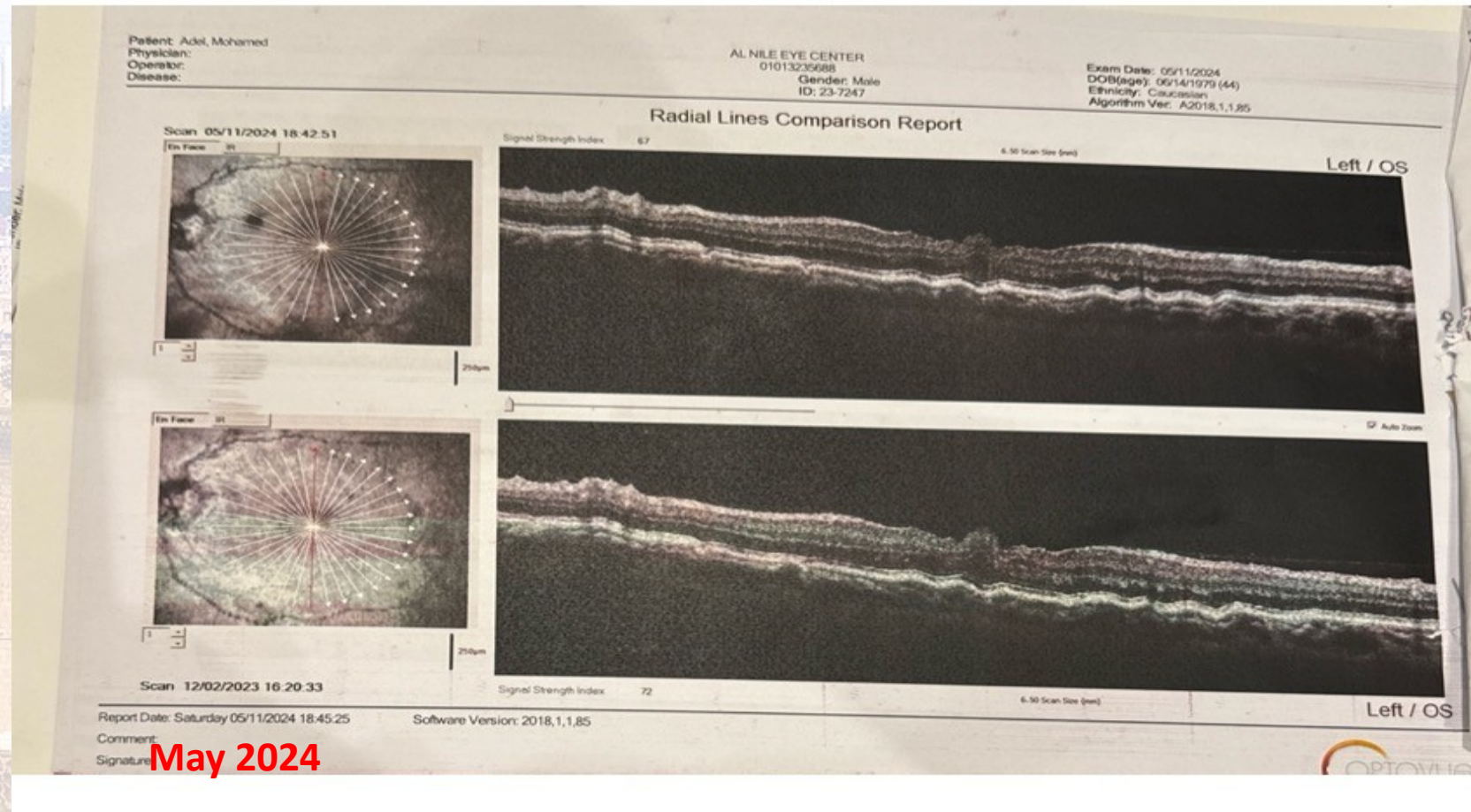


Delayed Post Operative hypotony maculopathy



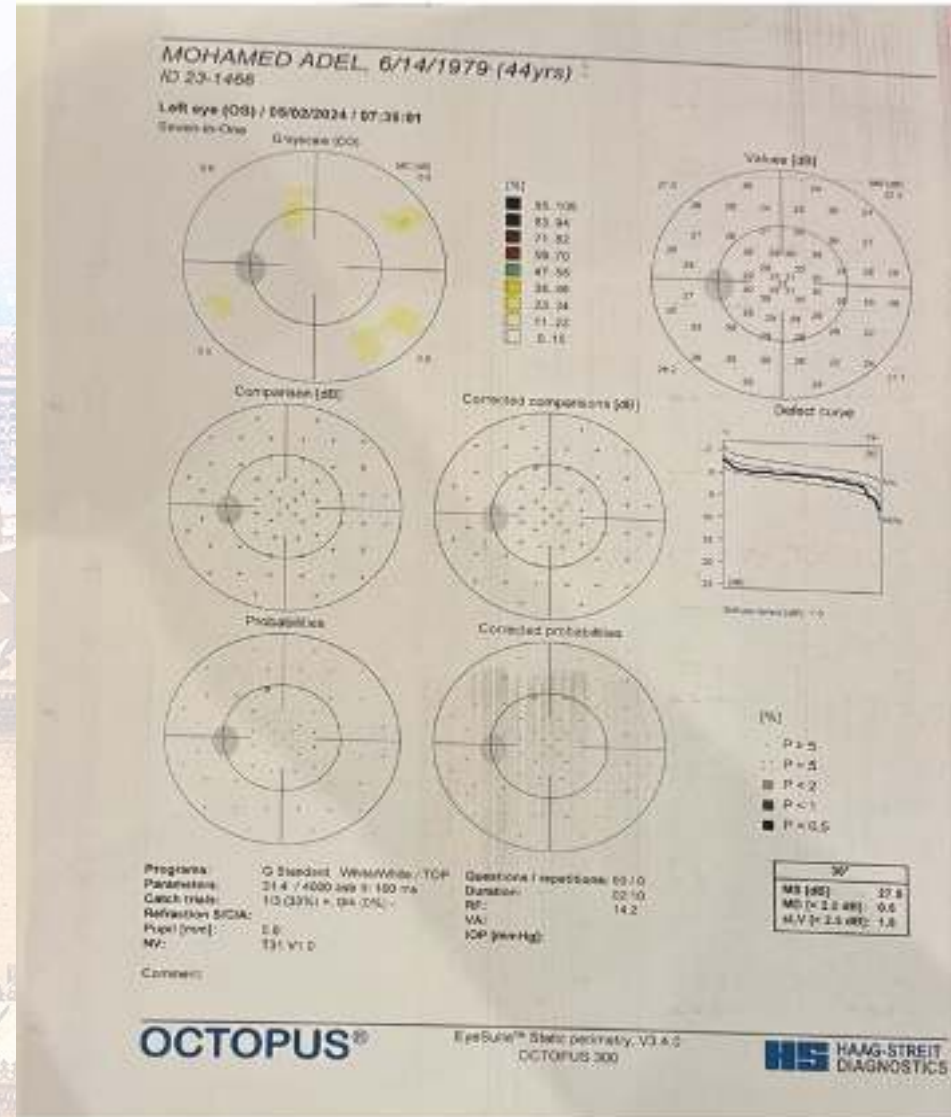


Delayed Post Operative hypotony maculopathy





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Thank You

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