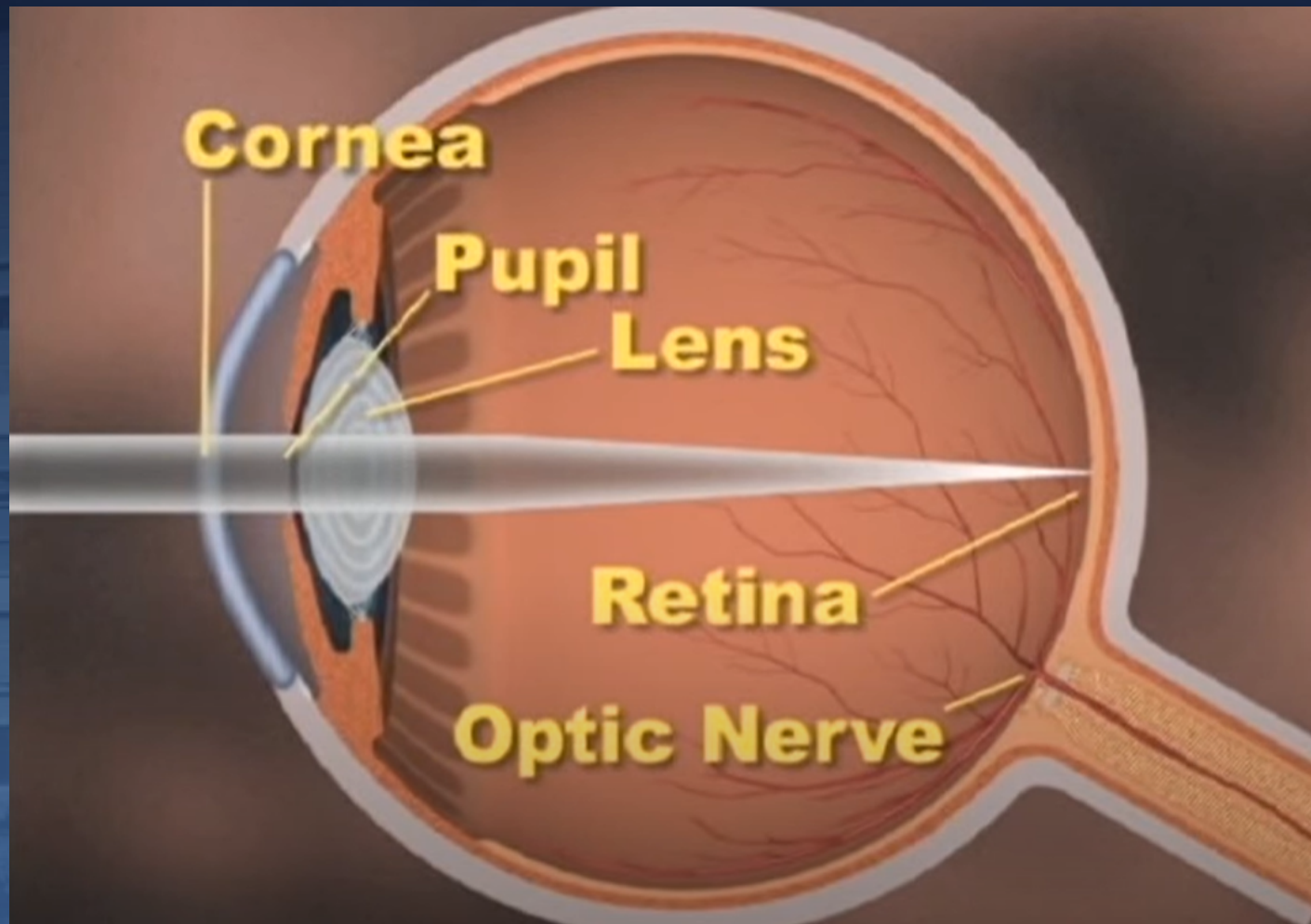


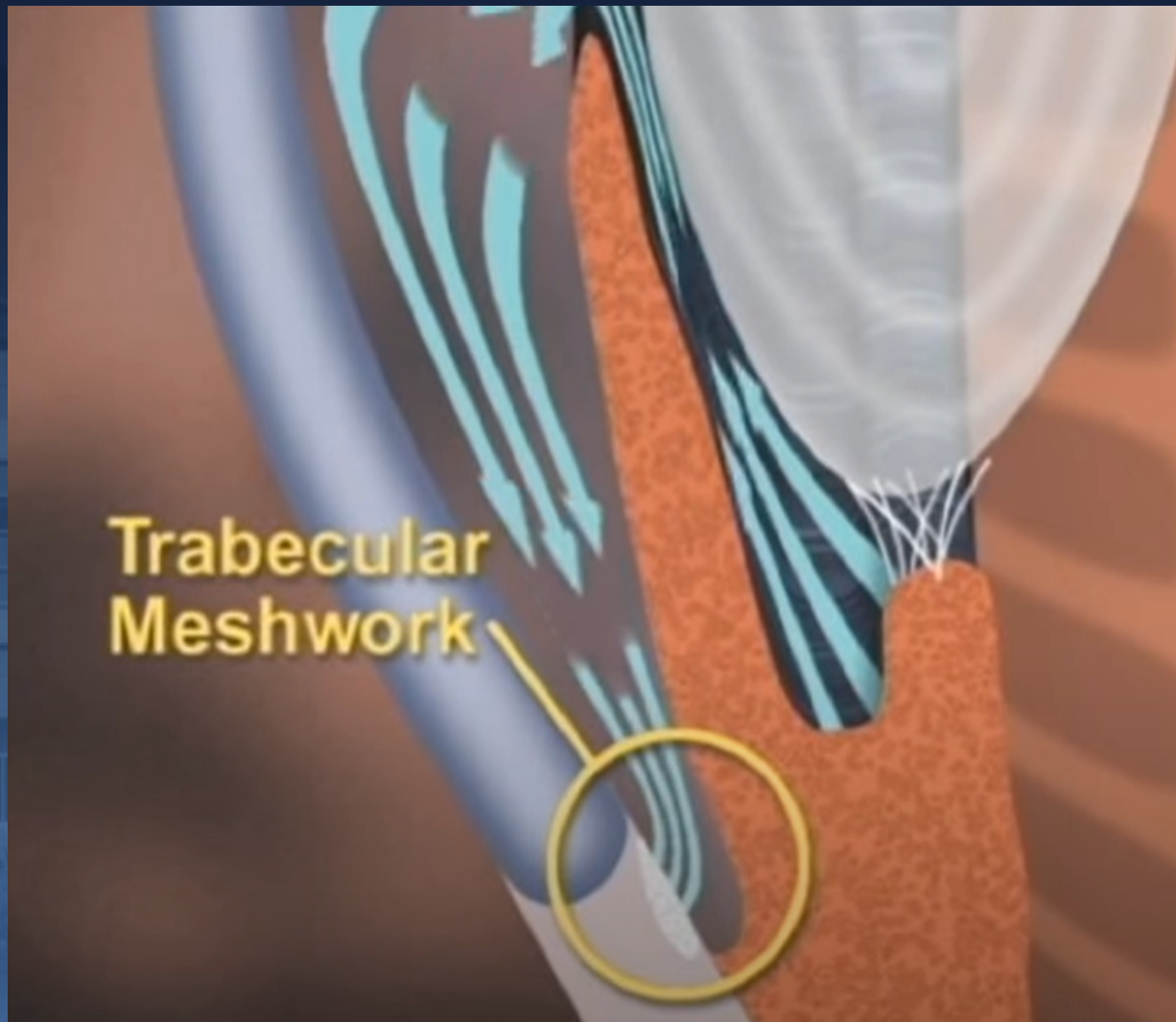
# **Glaucoma 101**

Ang Li, MD  
Cole Eye Institute

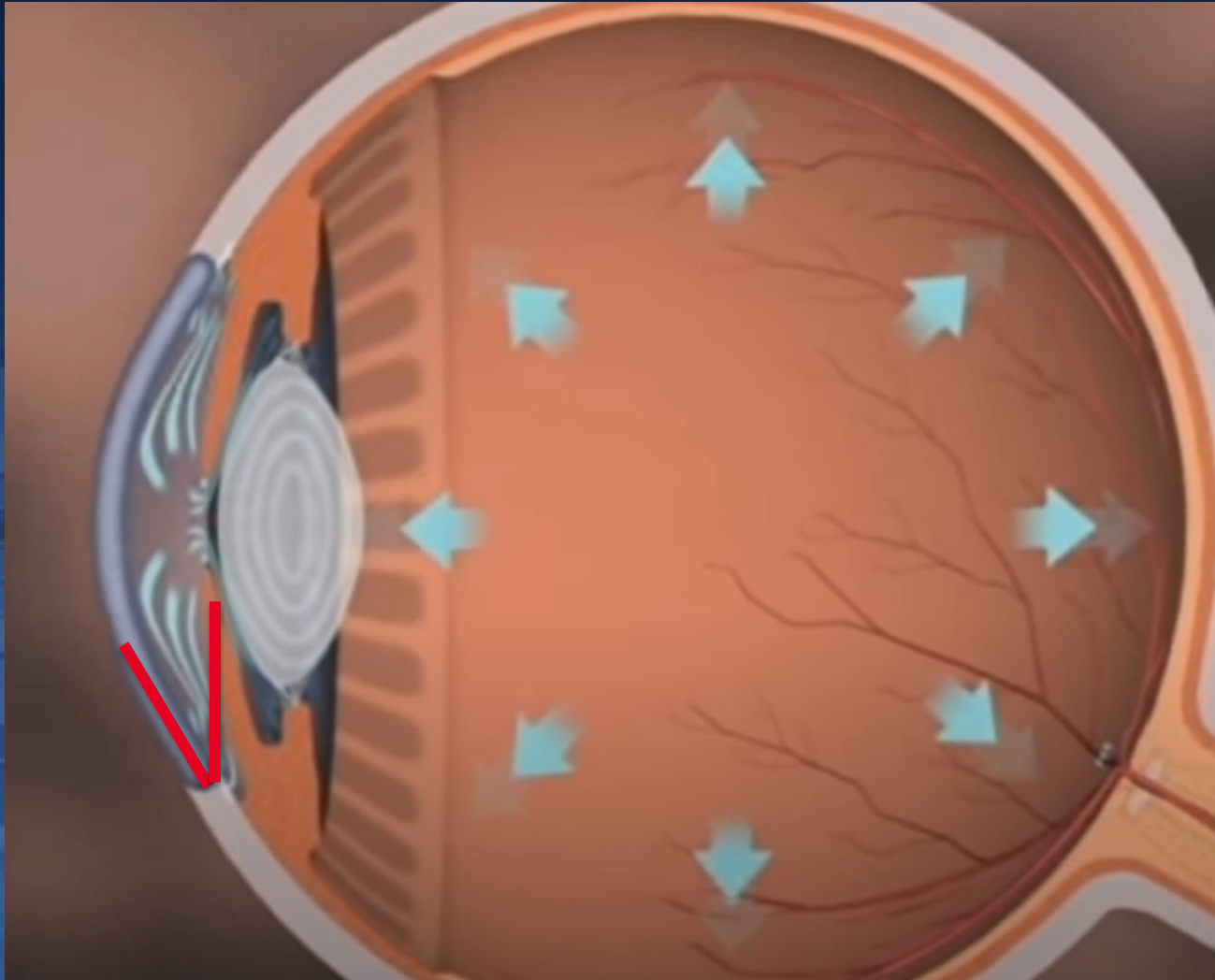
# Glaucoma = optic nerve damage



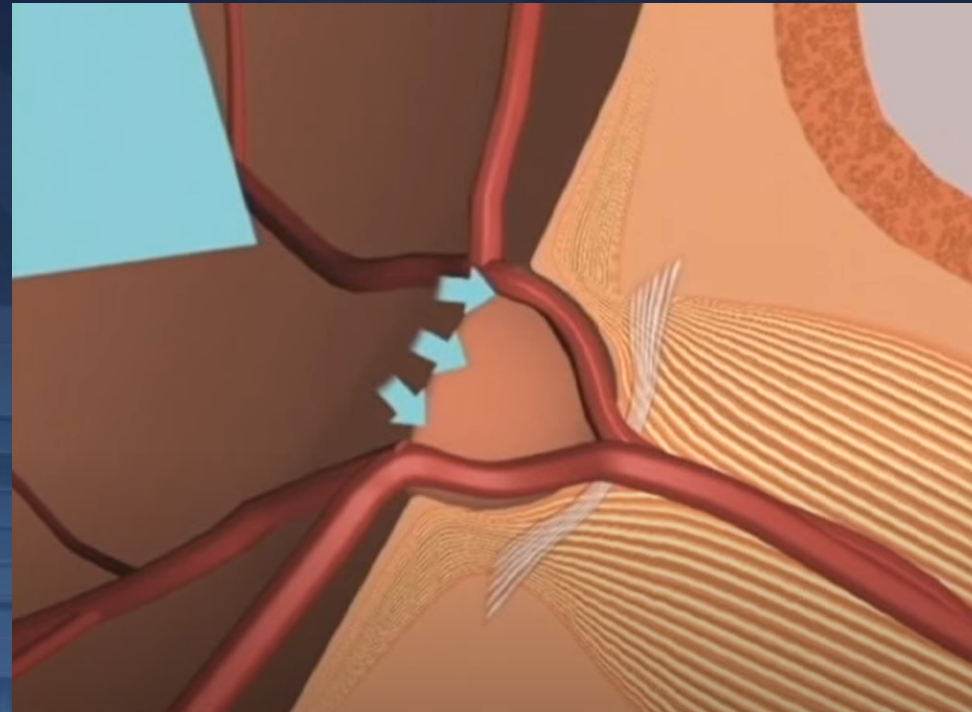
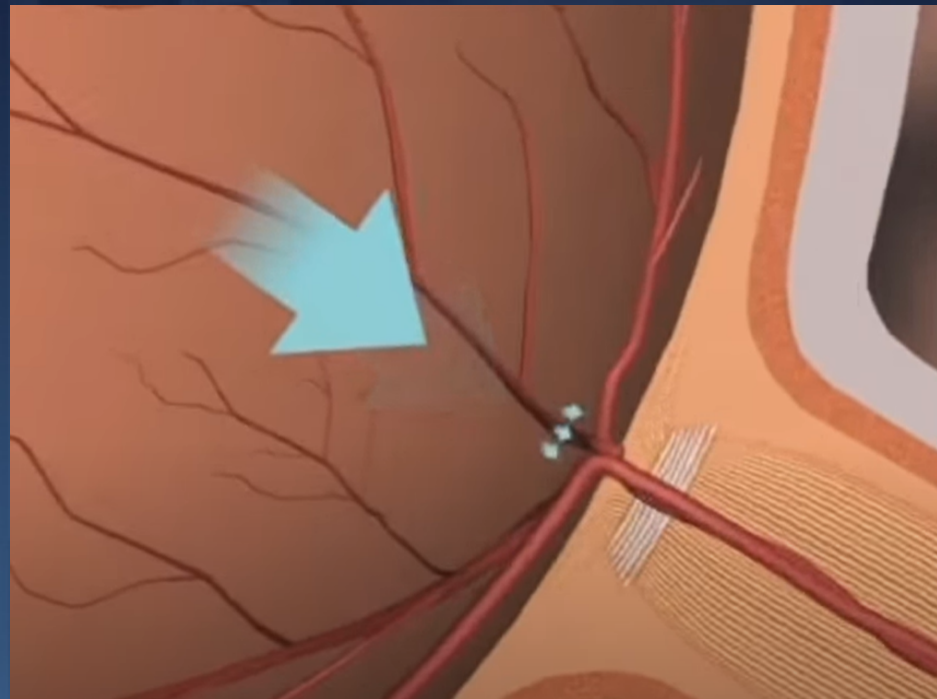
# Aqueous production and drainage



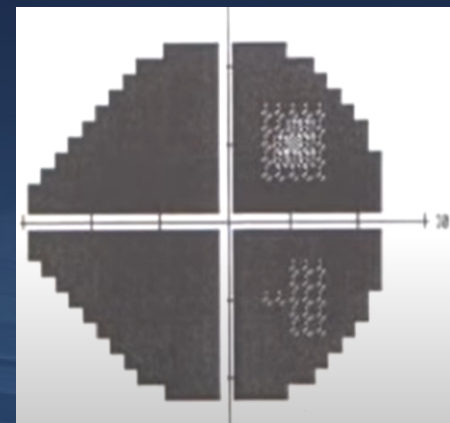
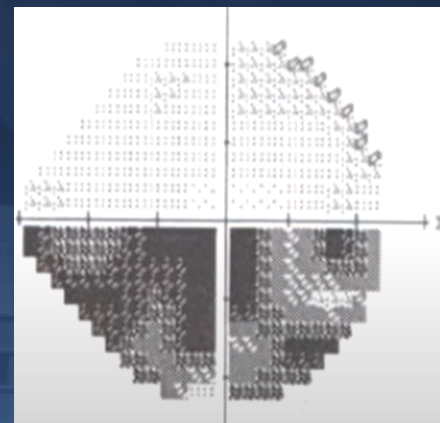
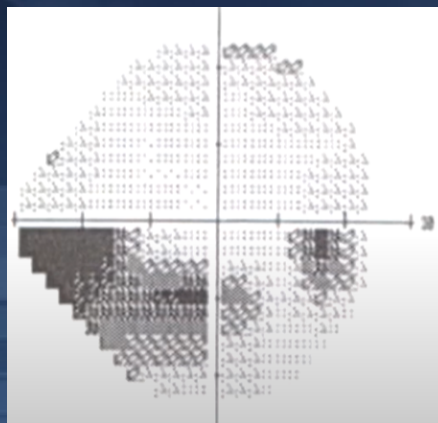
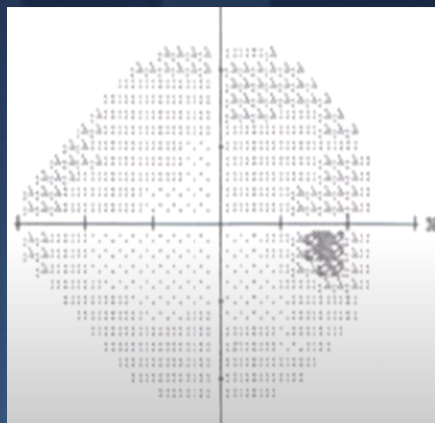
# Open angle glaucoma



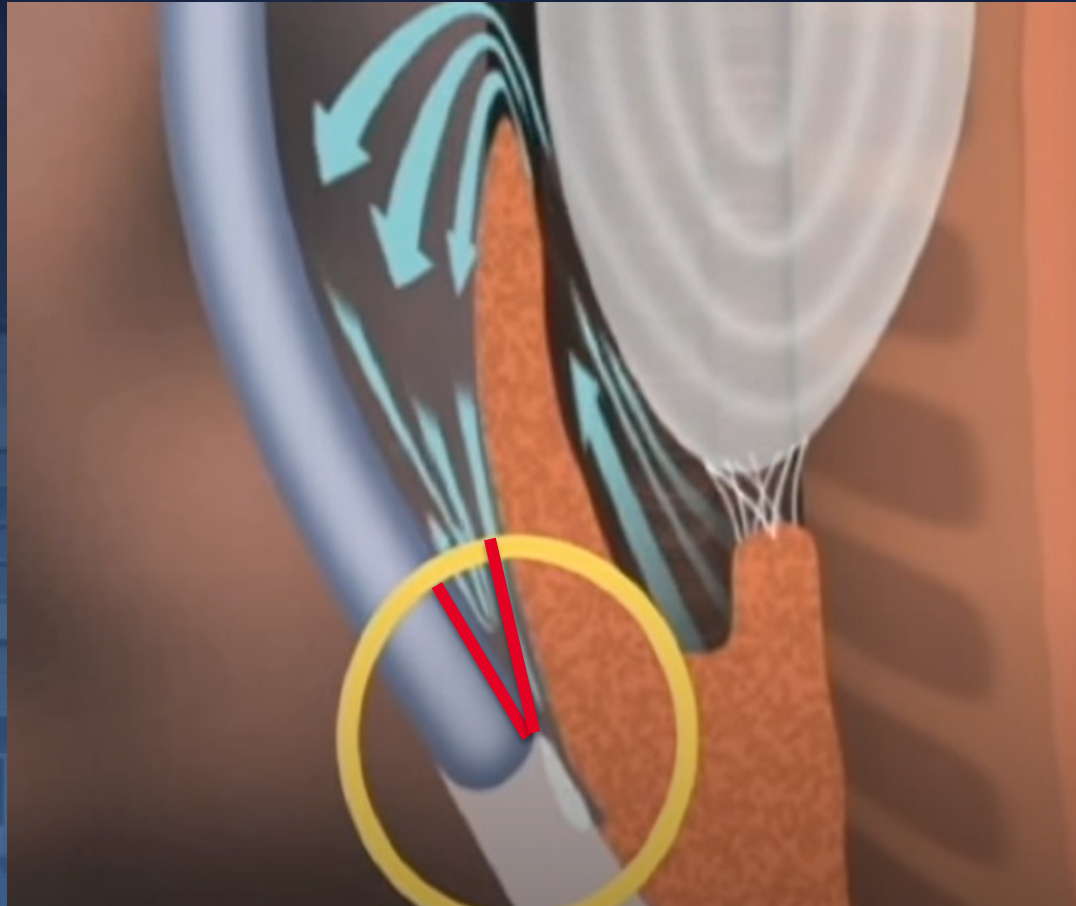
# Open angle glaucoma



# Mild to severe glaucoma



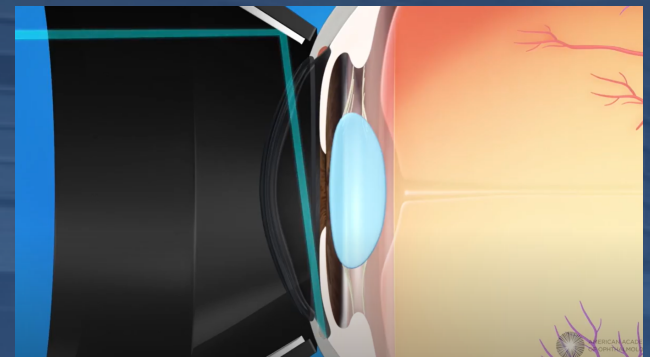
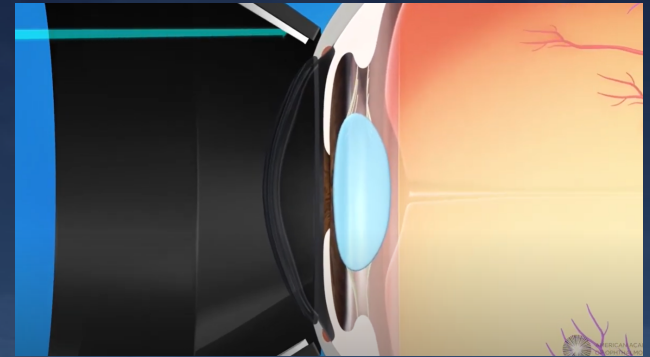
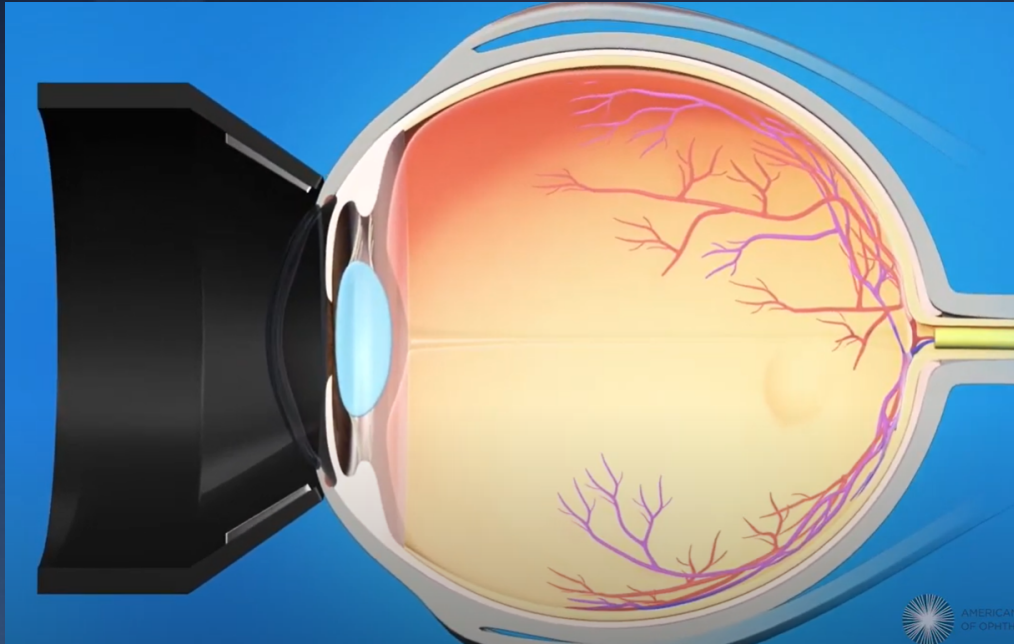
# Angle closure glaucoma



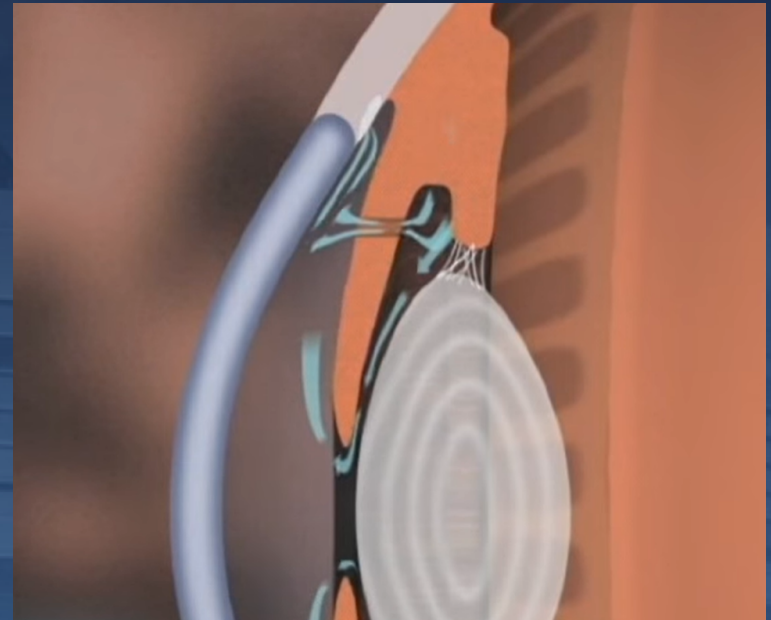
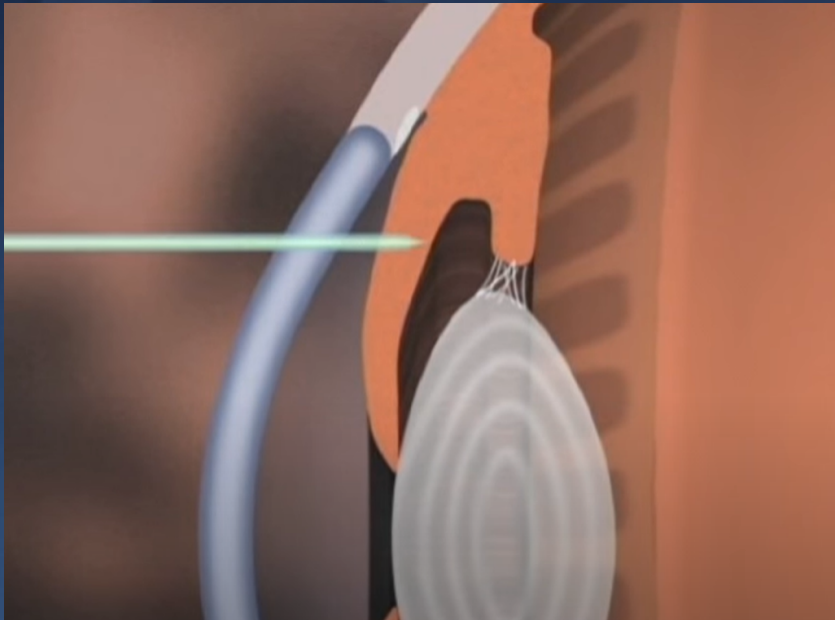
# **Glaucoma treatment**

- **Eye drops**
  - Latanoprost, timolol, dorzolamide, brimonidine, cosopt, simbrinza
- **Oral medicines**
  - Diamox (acetazolamide), neptazane (methazolamide)
- **Laser**
  - Open angle: selective laser trabeculoplasty (office)
  - Closed angle: laser iridotomy (office)
  - Cyclophotocoagulation (OR)
- **Surgery**
  - Traditional (tube, trabeculectomy)
  - Minimally invasive (angle based)

# Open angle: selective laser trabeculoplasty (in office)



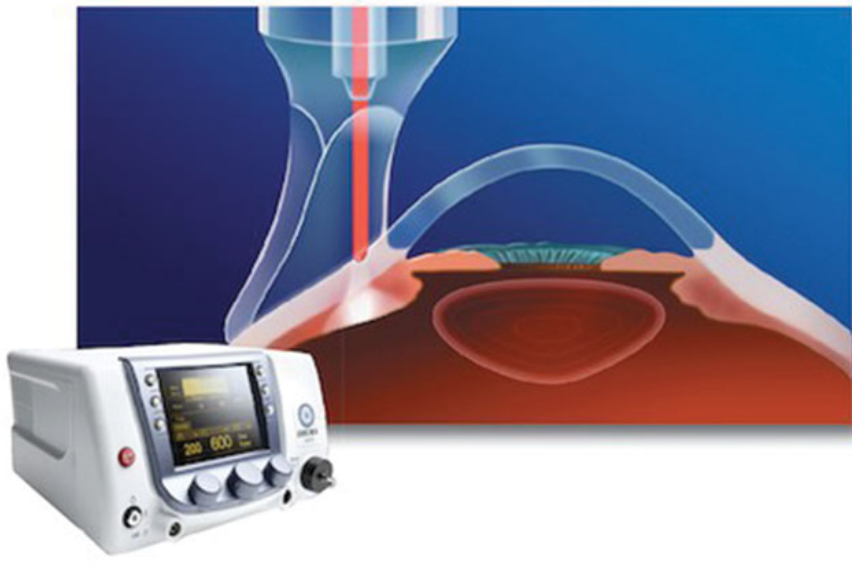
# Angle closure tx: laser iridotomy (in office)



# Ciliary body destruction laser (Transscleral Cyclophotocoagulation)



- Traditionally for blind eyes, or poor candidates for intraocular surgery
- Decrease aqueous production
- Retrobulbar anesthesia
- G-probe, micropulse
- 7-8 spots per quad
- Titrate to “pop”, then back down
- Post op steroid



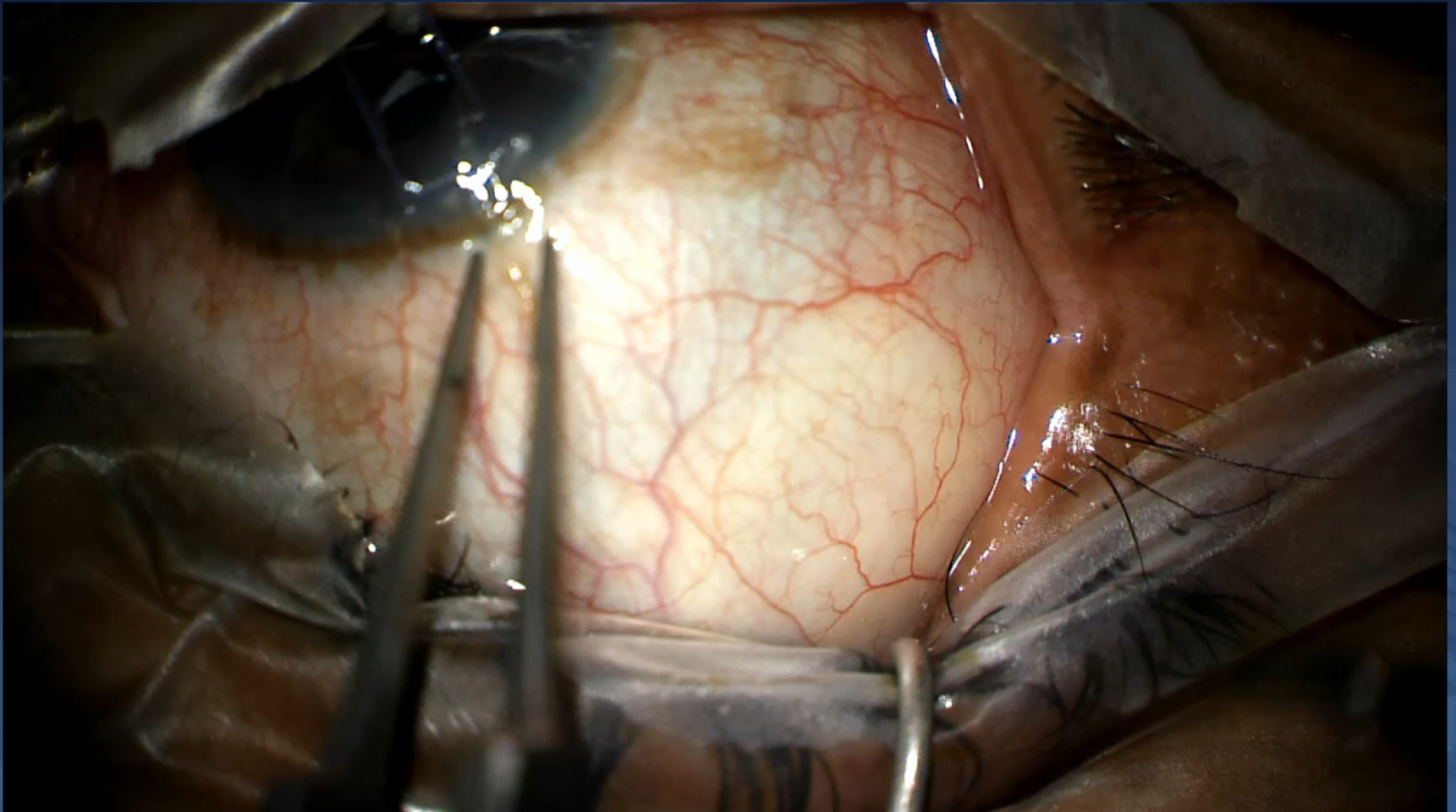
# Glaucoma tube shunt

- **Case 1**
- **55 yo male with mild glaucoma presents with recently decreased vision and eye pressure of 50 despite taking all his eye drops**
- **He has already had two SLT procedures in the past**
- **No surgery hx**
- **Need surgery that will work right away, but not necessarily a very low IOP target**

# Ahmed FP7

- Immediately lower IOP
- Doesn't not require tube tie off
- Low risk of hypotony
  - Uveitis, neovascular glaucoma

# Ahmed FP7



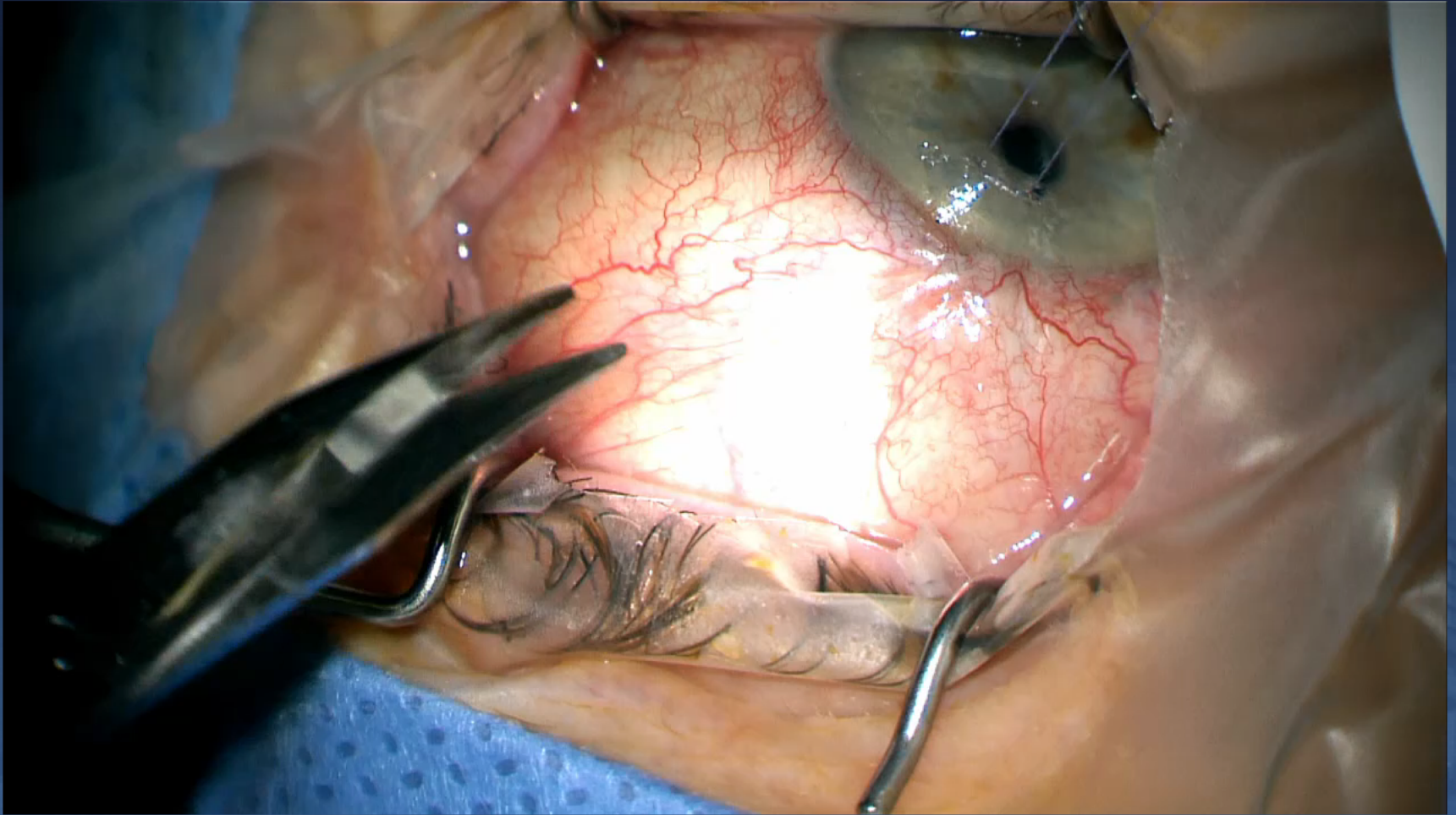
# Patch graft

- **Tutoplast sclera (most common)**
  - Strong, but white patch apparent
- **Tutoplast pericardium**
  - Thinner, lower profile
- **Half moon cornea**
  - Cosmetically favorable
  - Inferior tube coverage where there's more exposure

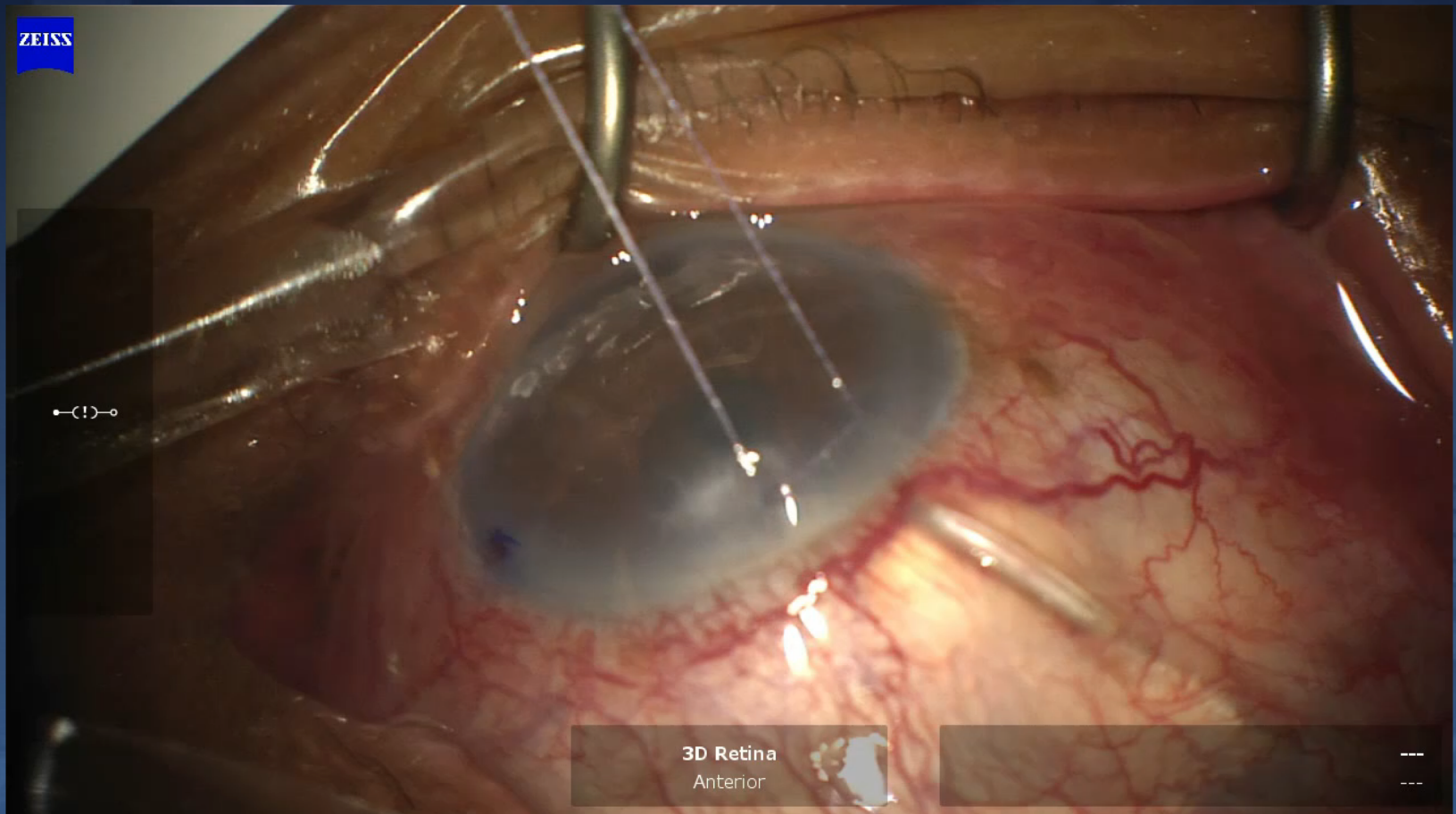
# **Glaucoma tube shunt**

- **Case 2**
- **74 yo female with previous hx of failed trabeculectomy and severe glaucoma on max topical drops, has IOP of 20 and disease progression**
- **Needs ultimately low IOP target but had prior glaucoma surgery (failed trab)**

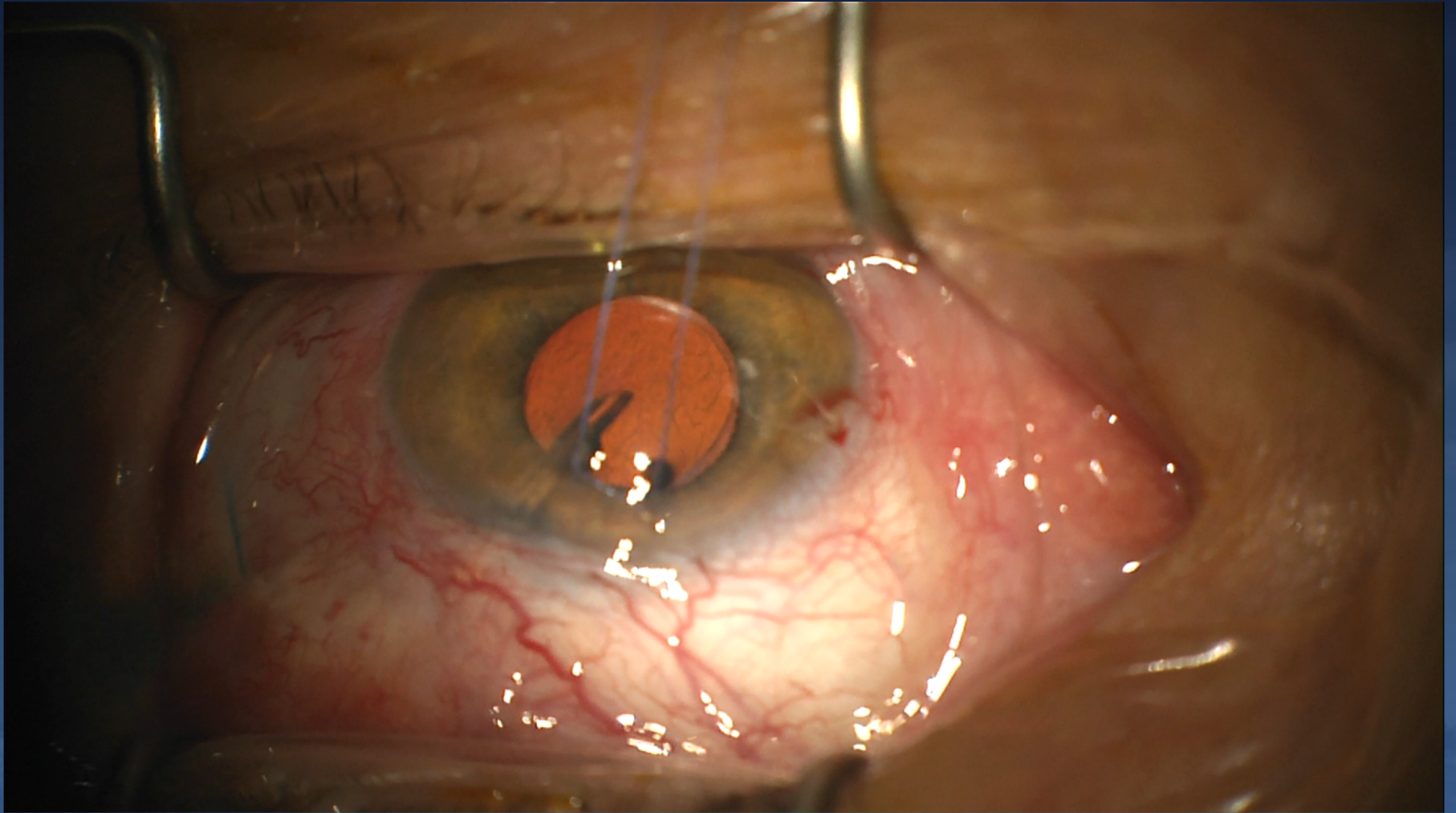
# Baerveldt 350



# Tube revision for erosion



# Tube revision for corneal decompensation



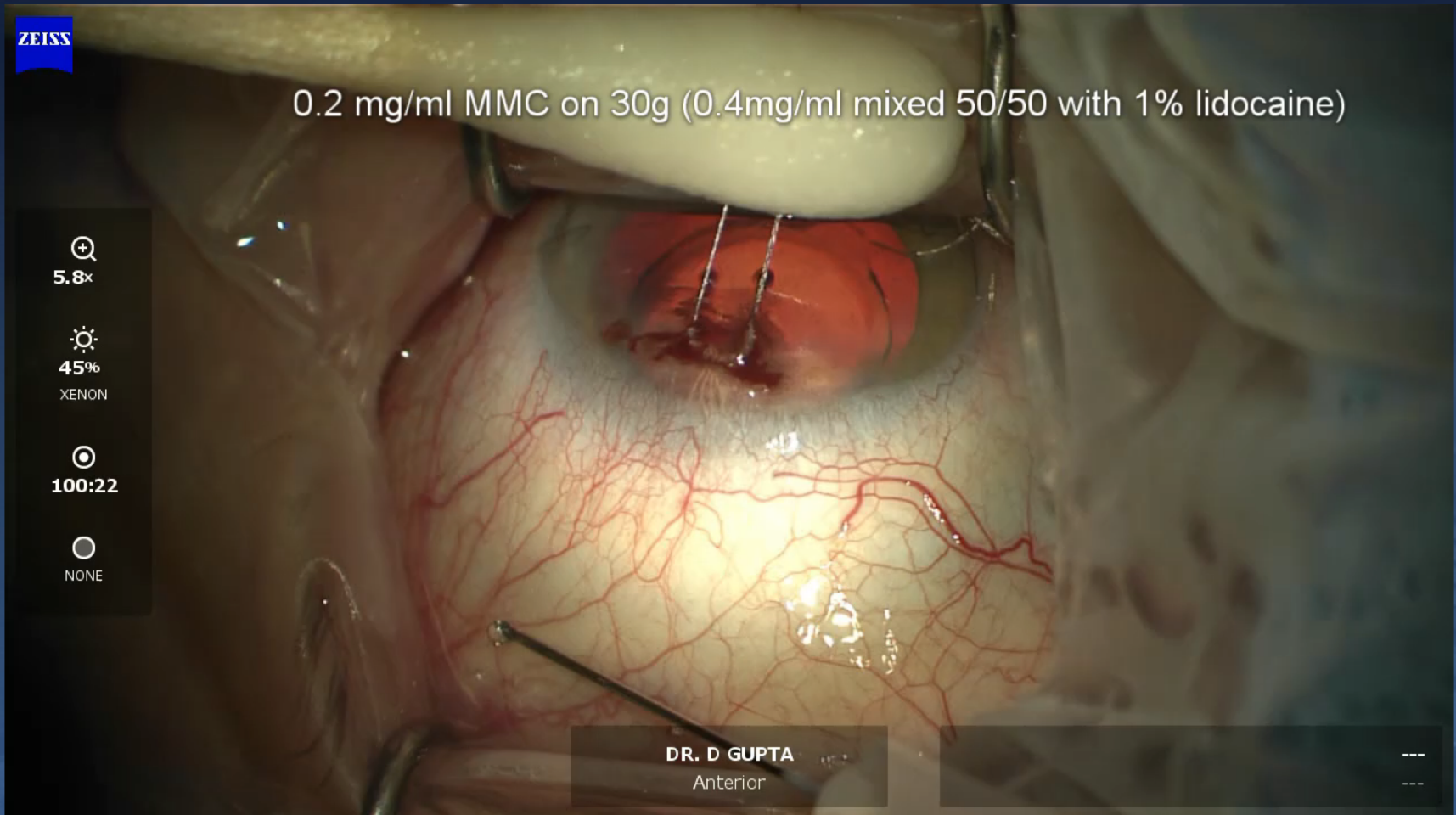
# Trabeculectomy

- **Case 3**
- **30 yo Caucasian male with early onset and rapidly progressive glaucoma threatening fixation, IOP of high 20's on max drops, SLT x 3. Surgically naive**
- **Needs low IOP target immediately, and needs to control IOP fluctuations long term**

# Trabeculectomy

- **Anti-scarring techniques**
  - Intraoperatively requires mitomycin C to inhibit scarring
  - Postoperatively requires long taper of topical steroid
- **Life long risk of hypotony, infection**
- **Poor outcomes if had previous surgery, uveitic, aphakic, neovascular glaucoma, high risk of hypotony (high myope), life style considerations (contact sport, contact lens wearer, infection risk)**

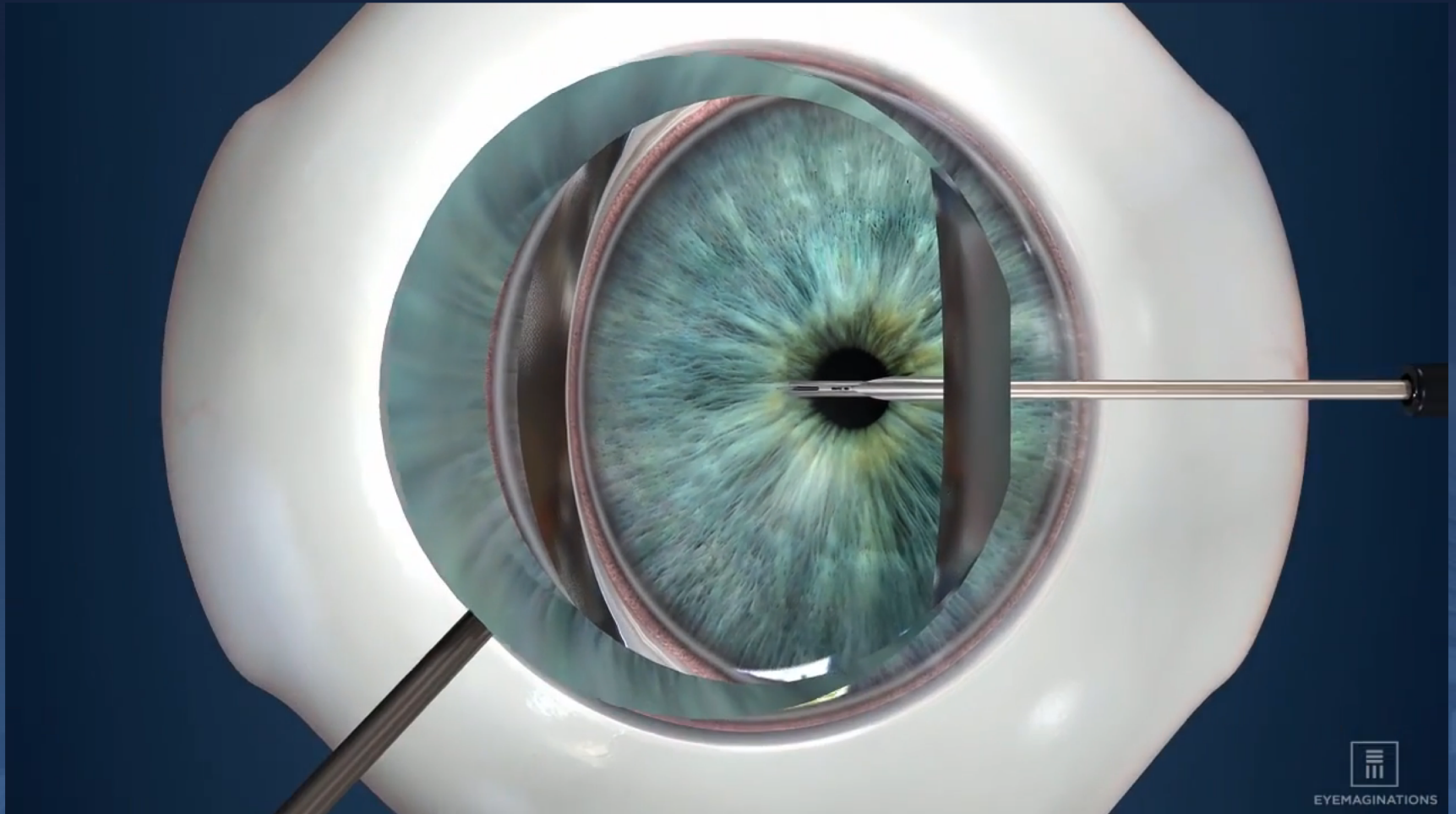
# Trabeculectomy



# Minimally invasive surgeries

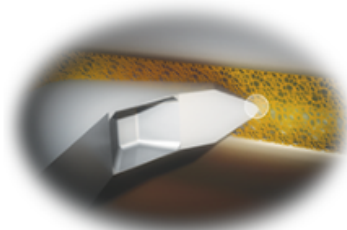
- **Case 4**
- **75 yo male with well controlled mild/moderate glaucoma, IOP 17 on 2 eye drops, and has a visually significant cataract**
- **Can benefit from an angle based procedure at the time of cataract surgery**

# iStent

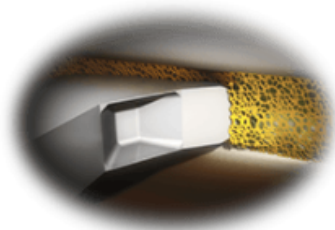


EYEMAGINATIONS

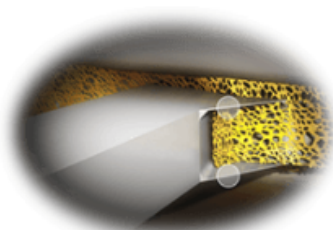
# Goniotomy – Kahook Dual Blade



**Pointed Tip:**  
Effectively penetrates diseased TM to allow for entry into canal of Schlemm.



**Proprietary Ramp:**  
Ramp facilitates lift and stretch of the TM.



**Dual Blades:**  
Dual blades create parallel incisions for clean TM excision, minimizing residual TM leaflets.



**Foot Plate:**  
Settles on the anterior wall of canal of Schlemm to prevent damage to it. It is uniquely designed to fit within the canal of Schlemm.



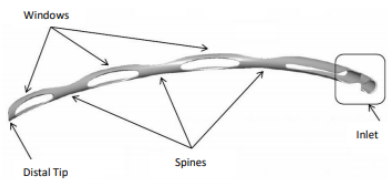
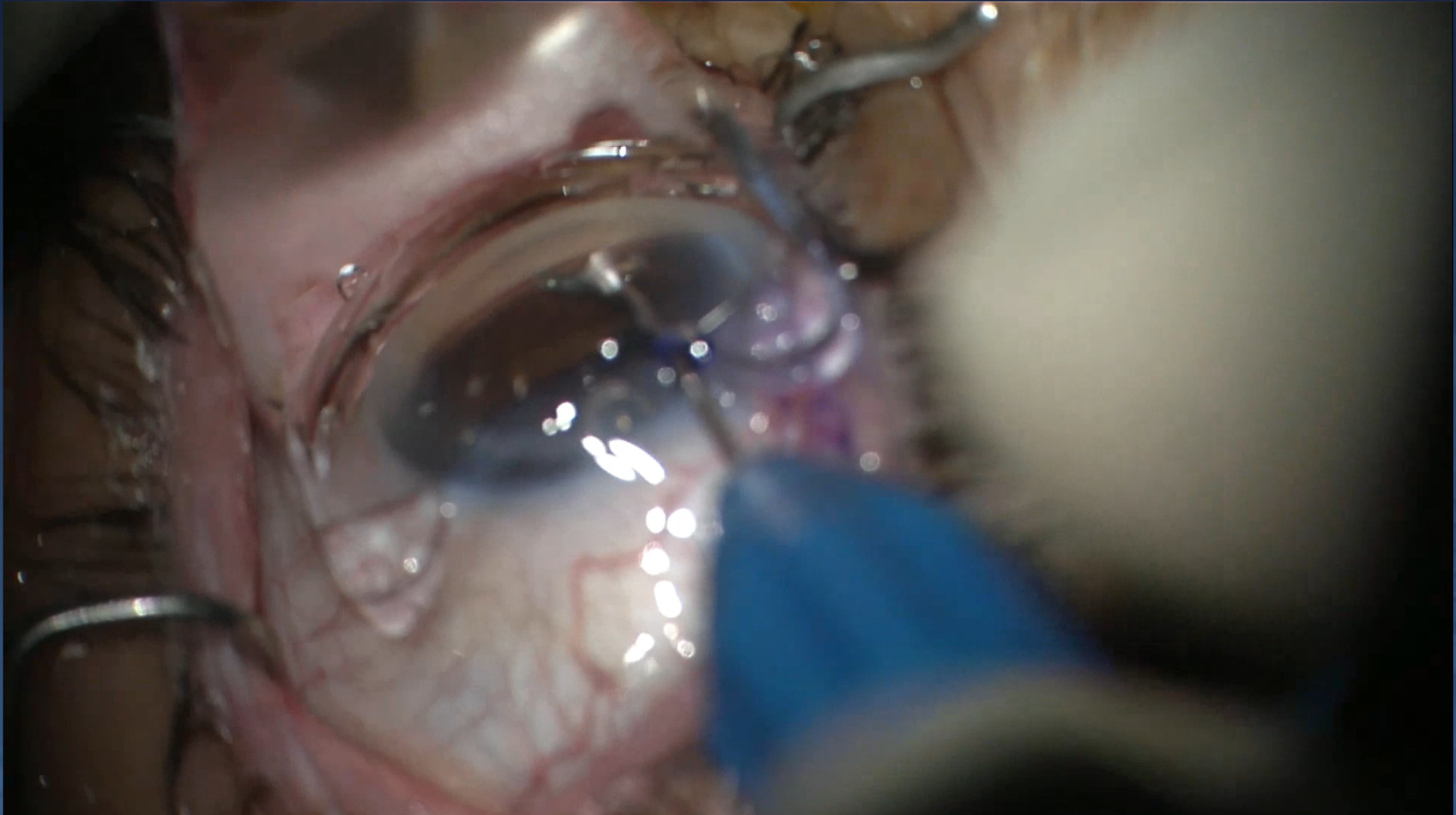


Figure 1: Hydrus Microstent Implant

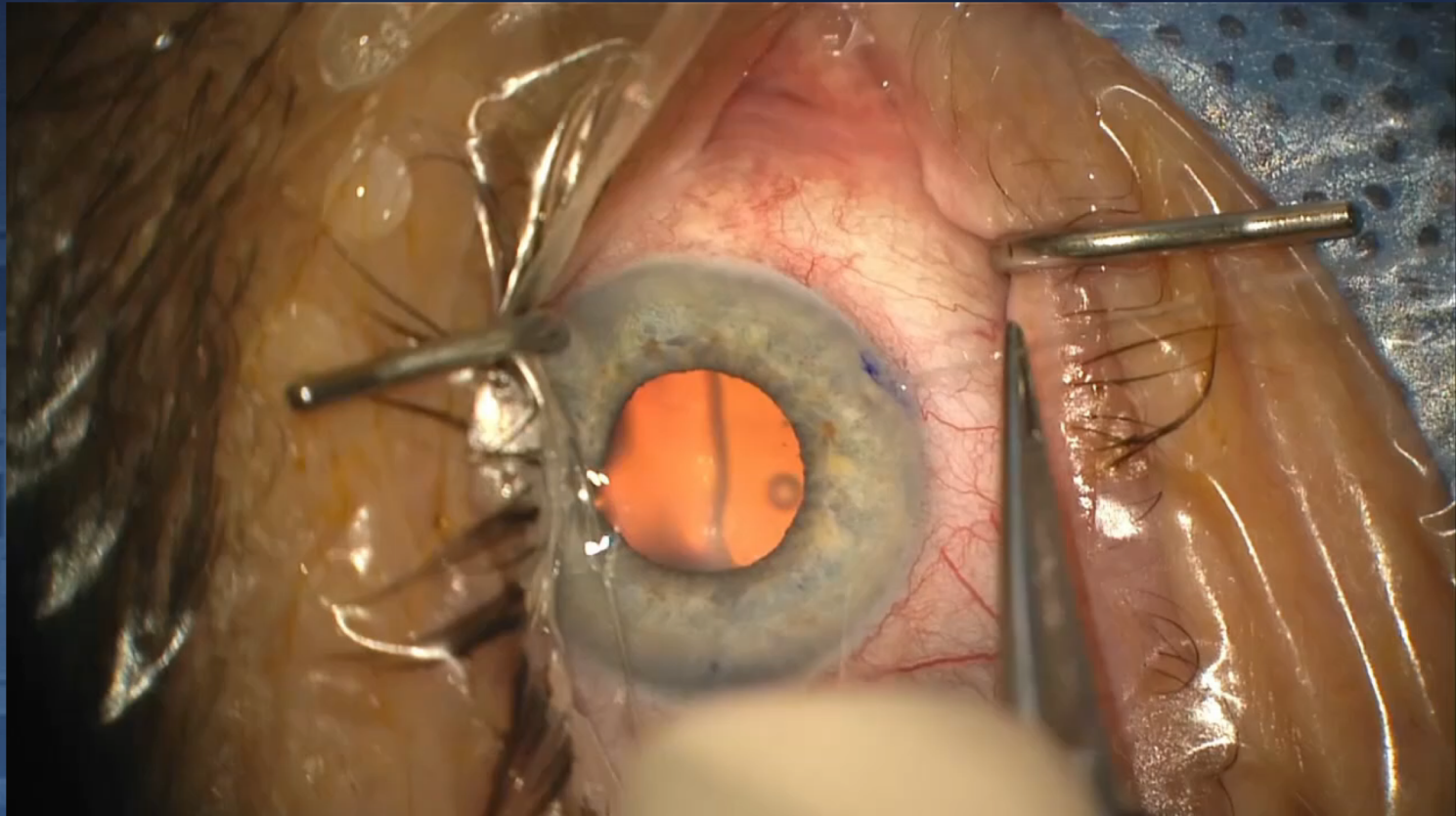
# Hydrus microstent



# Minimally invasive surgeries

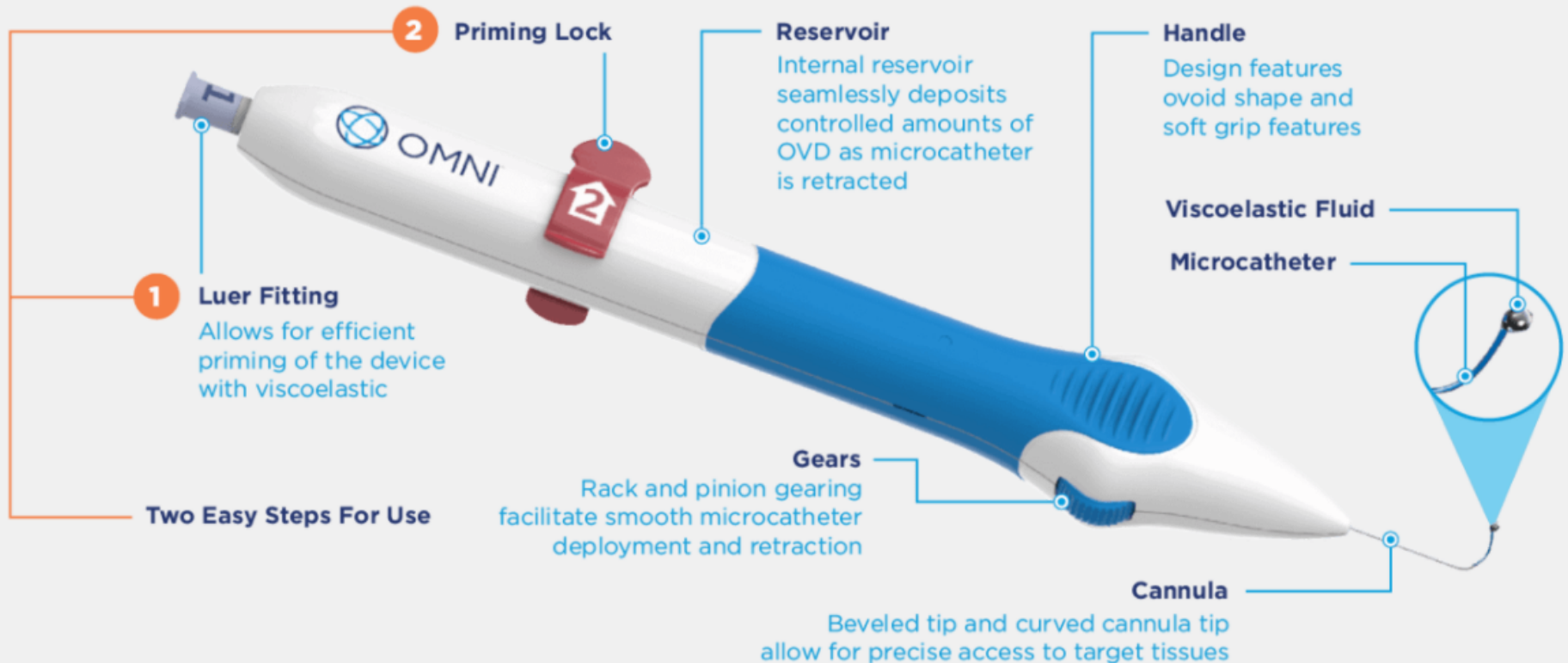
- **Case 5**
- **47 yo female with moderate stage secondary open angle glaucoma due to steroid response, depending on chronic topical steroid use to control uveitis. IOP 24 on max drops**
- **Needs larger angle based procedure**

# Gonioscopy assisted transluminal trabeculotomy



# OMNI

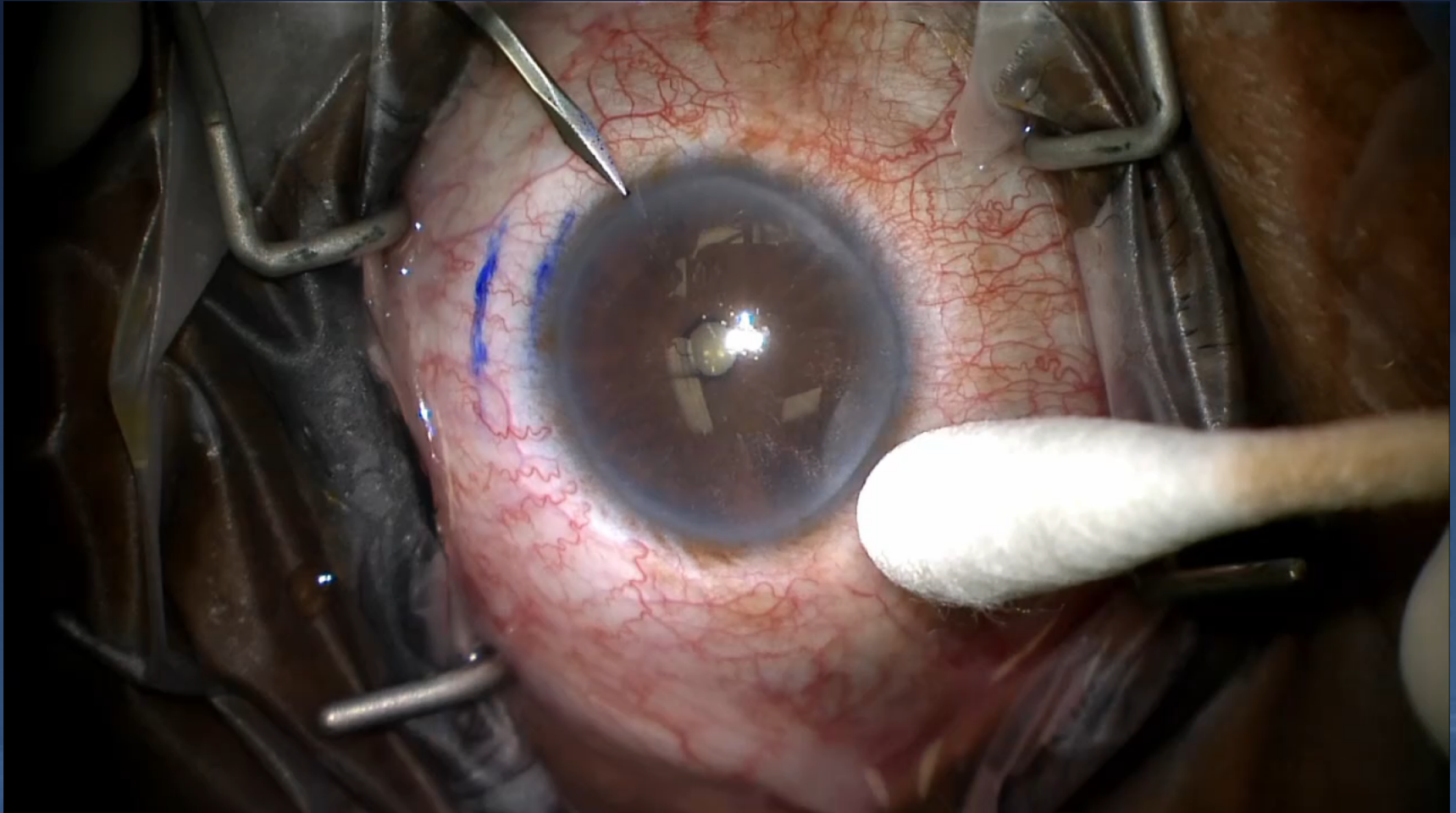
The OMNI® Surgical System is a single intelligently designed implant-free device that combines two implant-free options and effectively targets resistance in the conventional outflow pathway, with or without cataract surgery.



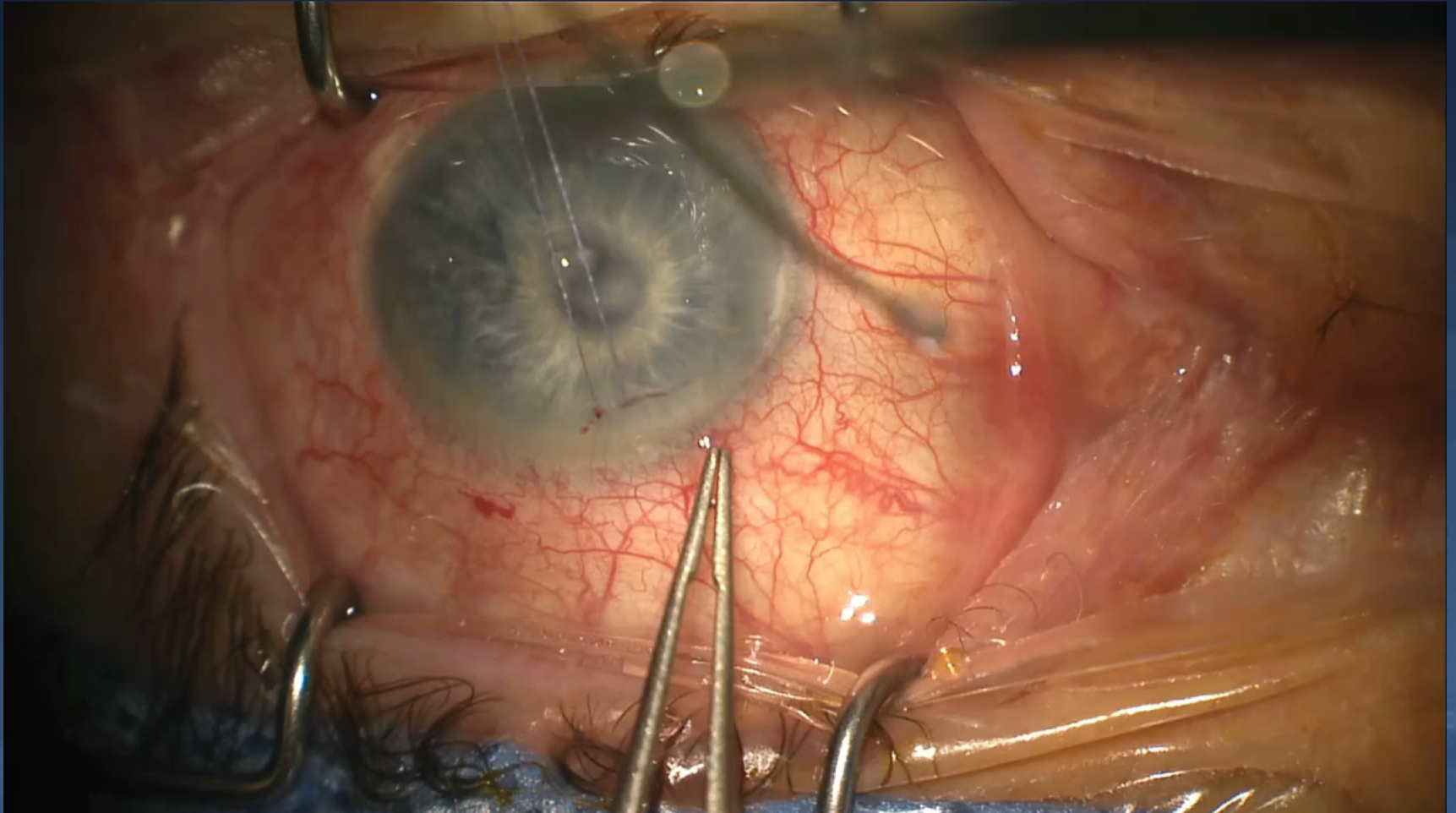
# Minimally invasive surgeries

- Case 6
- 52 yo female actress with severe stage and progressive glaucoma on max drops. SLT x 2.
- Needs great IOP lowering but cosmesis is important

# Xen implant ab interno



# Xen implant ab externo





"We're hopeful the built up pressure will subside, but right now he's still in a glaucoma."