



**DR KHALED A. KHALIFA**  
**MD, FRCS**  
**EGYPT**



**EXPERTS EYE**  
C E N T E R

# **Phacoemulsification strategy in hard rock cataract**

# Financial disclosure

- Alcon speaker.
- BVI speaker.
- VSY speaker.

# Surgical challenges

Dense nucleus

Small pupil

poor visibility



low red reflex

Shallow AC.

High energy



# Risks and ocular hazards

Intraoperative

A

**Zonular stress or dehiscence**

B

**Posterior capsular rupture  
(PCR)**

C

**Corneal endothelial trauma**

D

**Thermal injury at incision site**

E

**Intraocular pressure spikes  
due to fluid mismanagement**

# Risks and ocular hazards

Postoperative

A

**Cystoid macular edema**

B

**Corneal edema/bullous  
keratopathy**

C

**Posterior capsular  
opacification (PCO)**

D

**Delayed visual recovery**

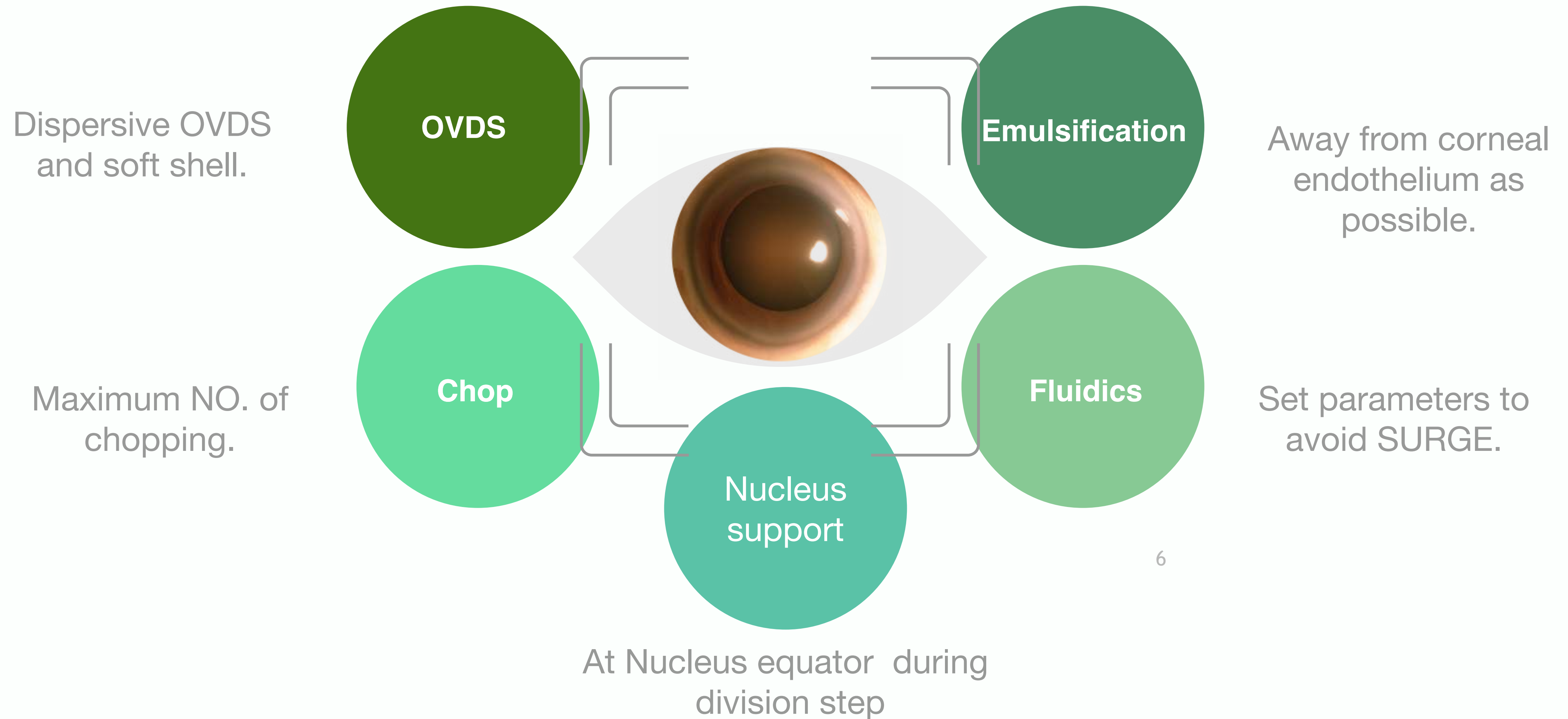
E

**Wound leakage and or high  
astigmatism**

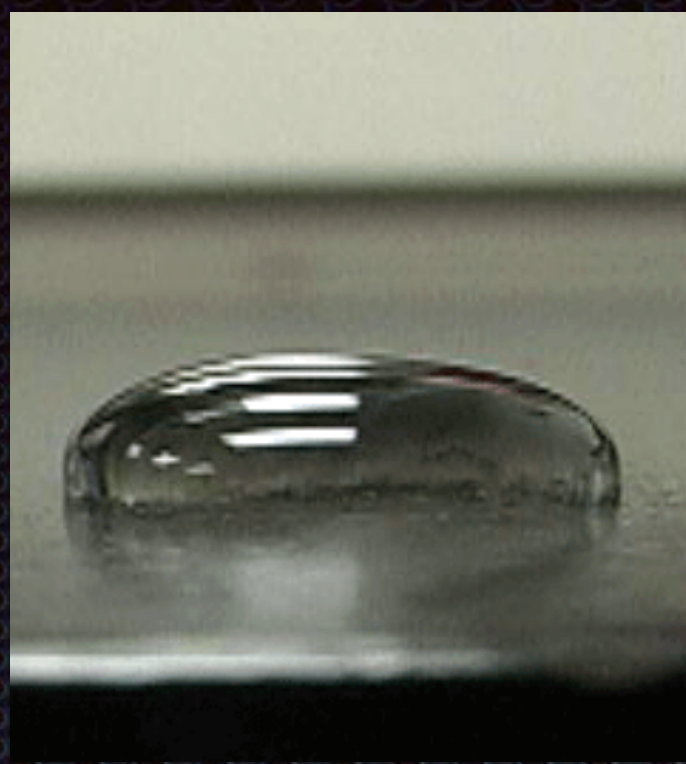


# Surgical strategy

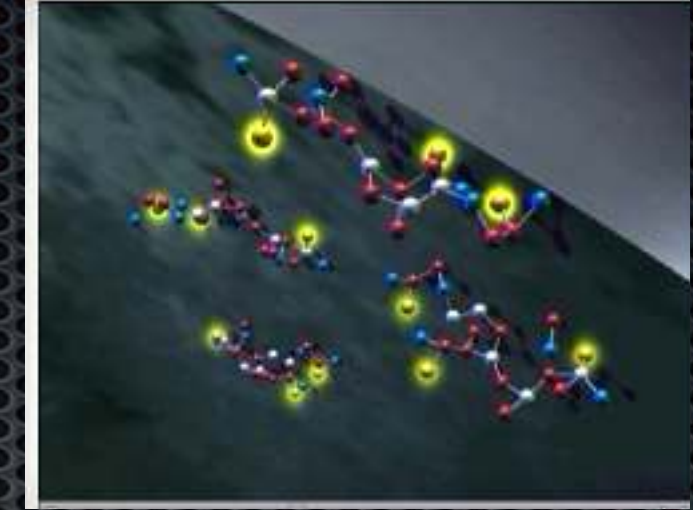
Surgical strategy is tricky as we need to preserve corneal endothelium, avoiding too much energy, PCR, to prevent too much fluctuation of AC with no surge.







**Adhesive** (dispersive)



🌿 How well the  
Viscoelastic  
Solution  
adheres or  
sticks to  
ocular tissue,  
e.g. cornea



**viscoate**

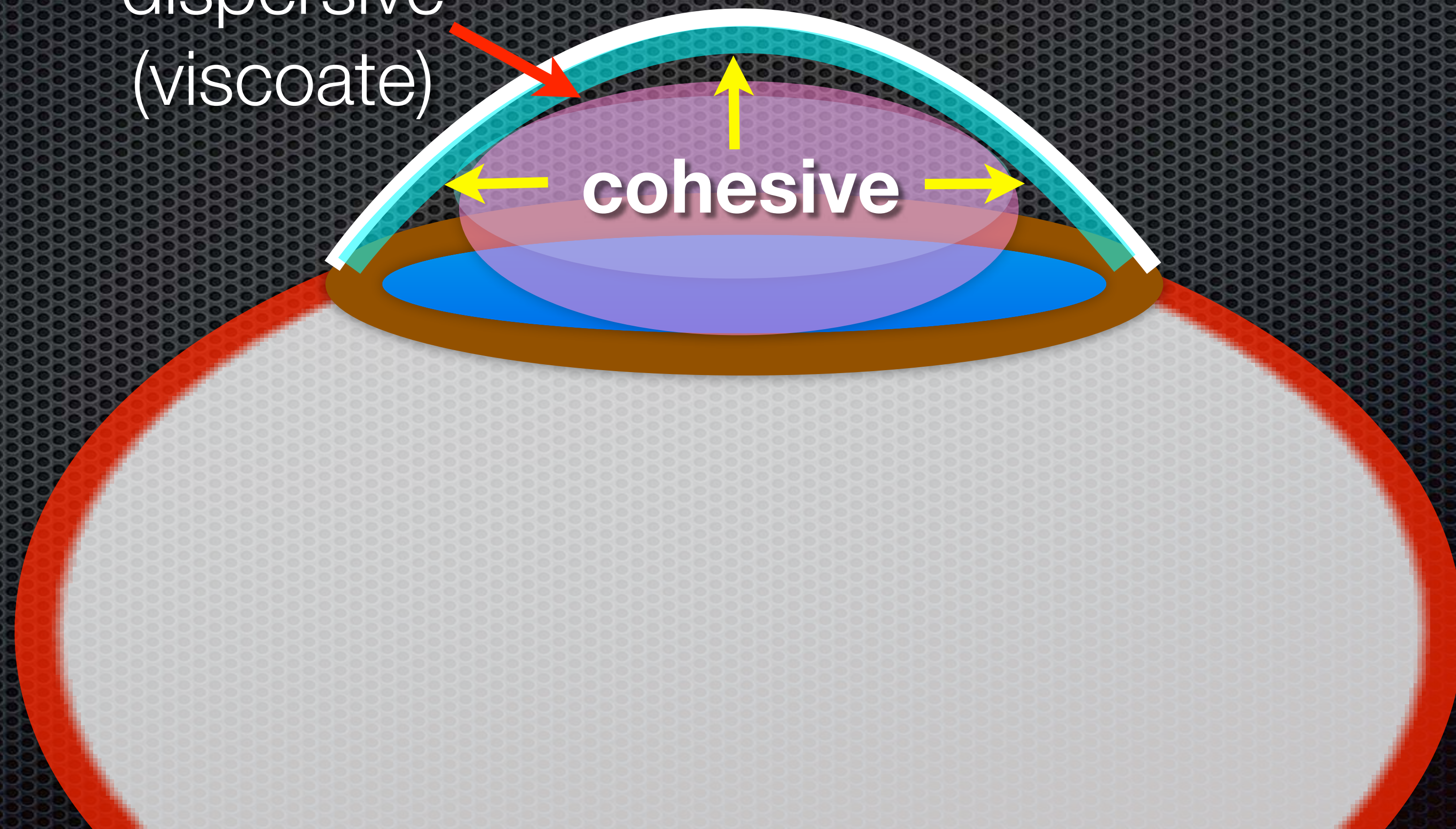




# Soft shell

dispersive  
(viscoelastic)

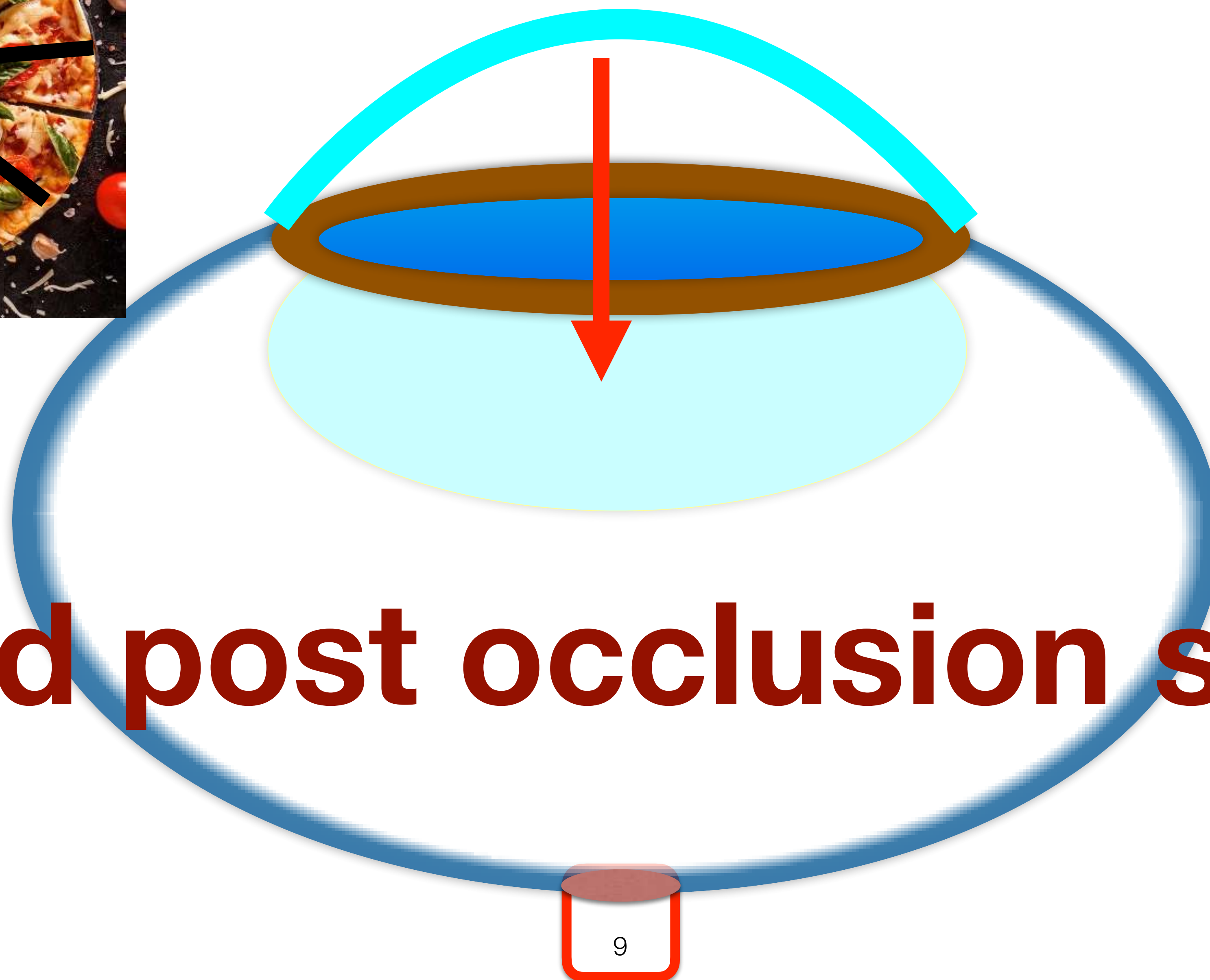
cohesive





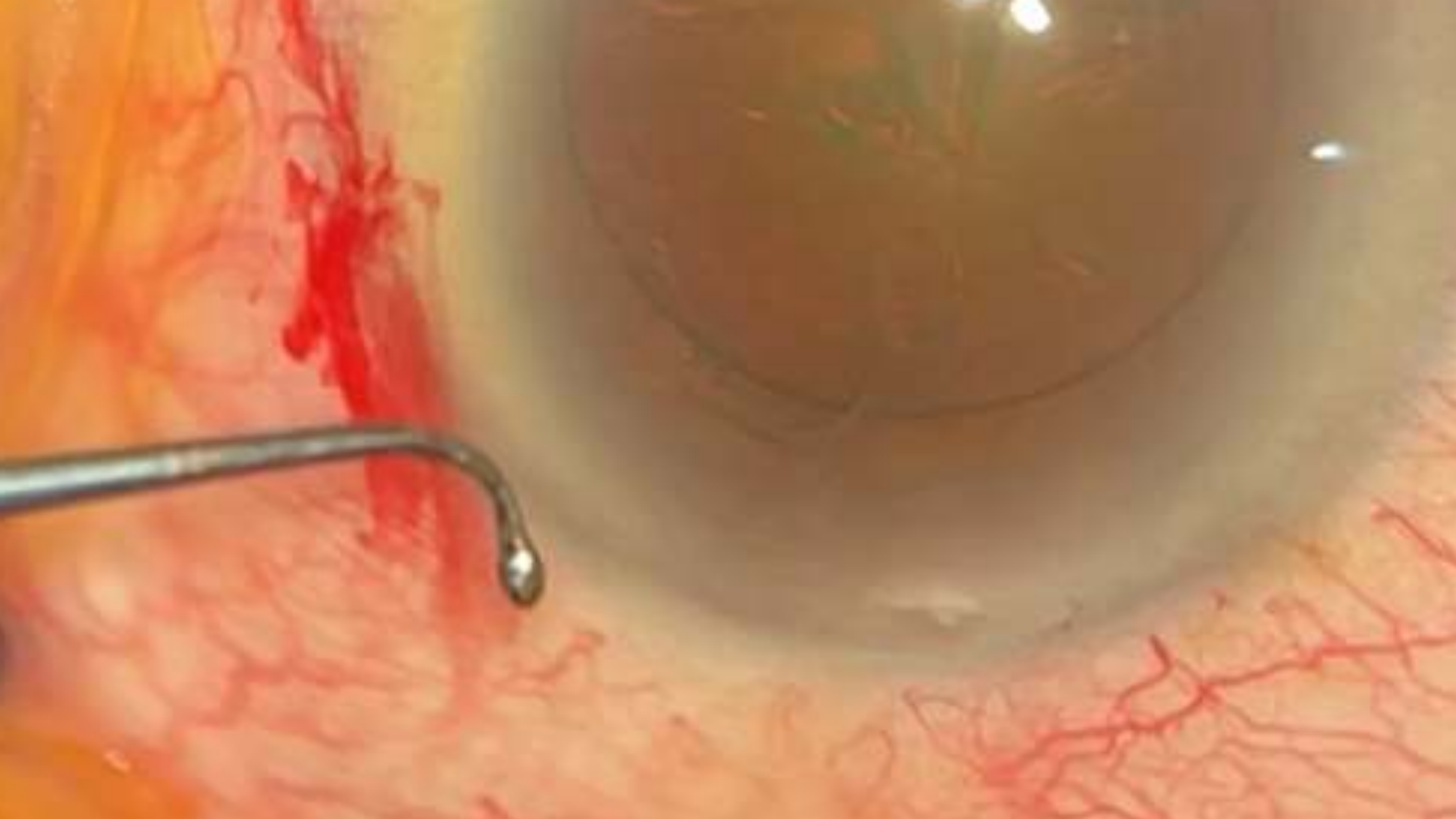


# The Golden Pearl !!!



## Avoid post occlusion surge







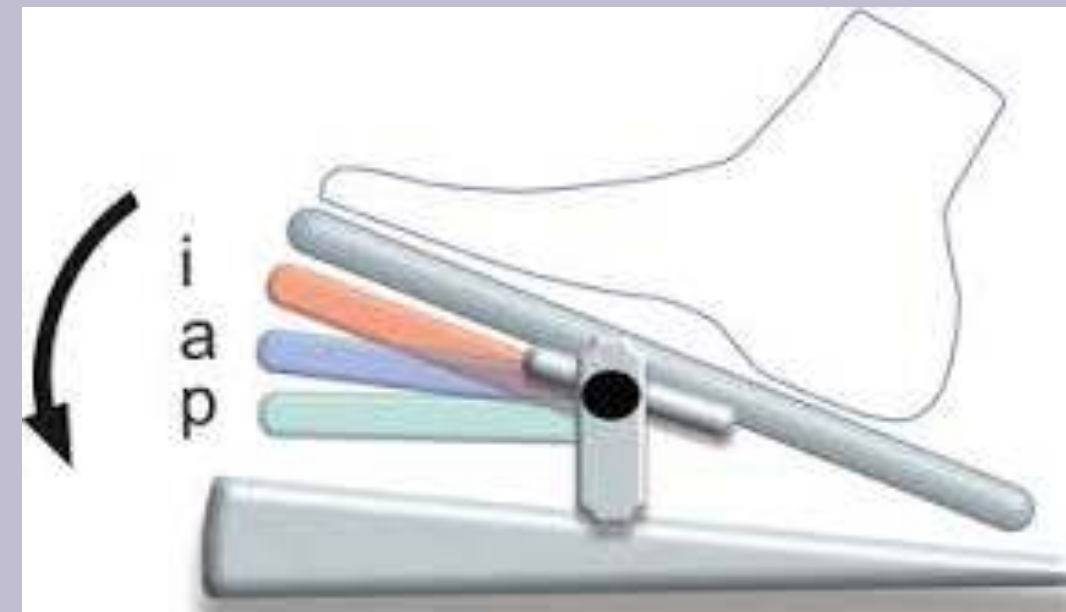
# Chopping(multislice horizontal chops)

Perfection of the chop is the key for success in hard cataract



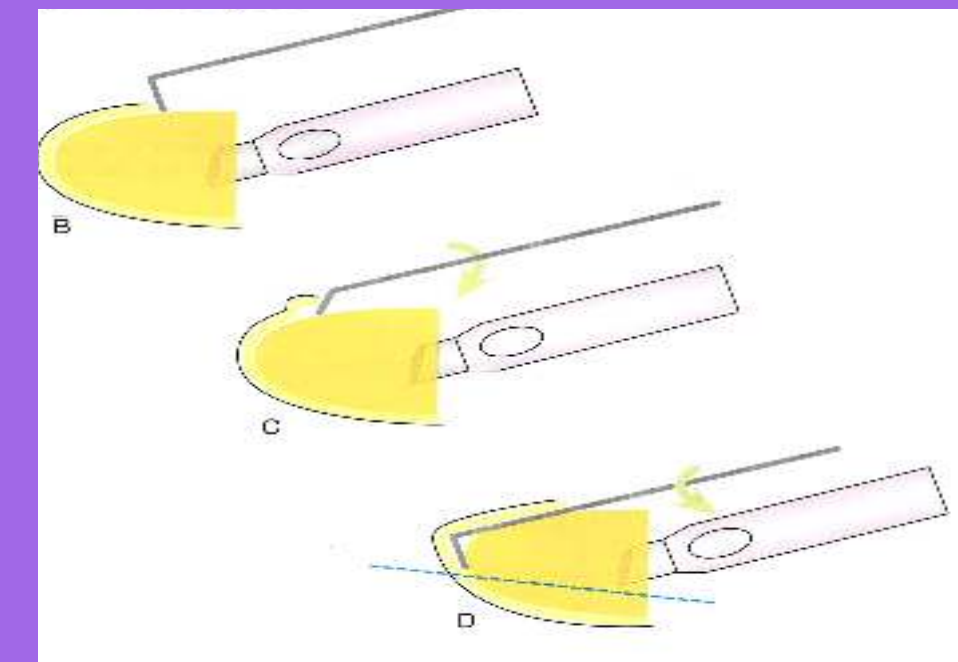
## Chop

As many as possible chops using a horizontal chopper.



## Fluidics

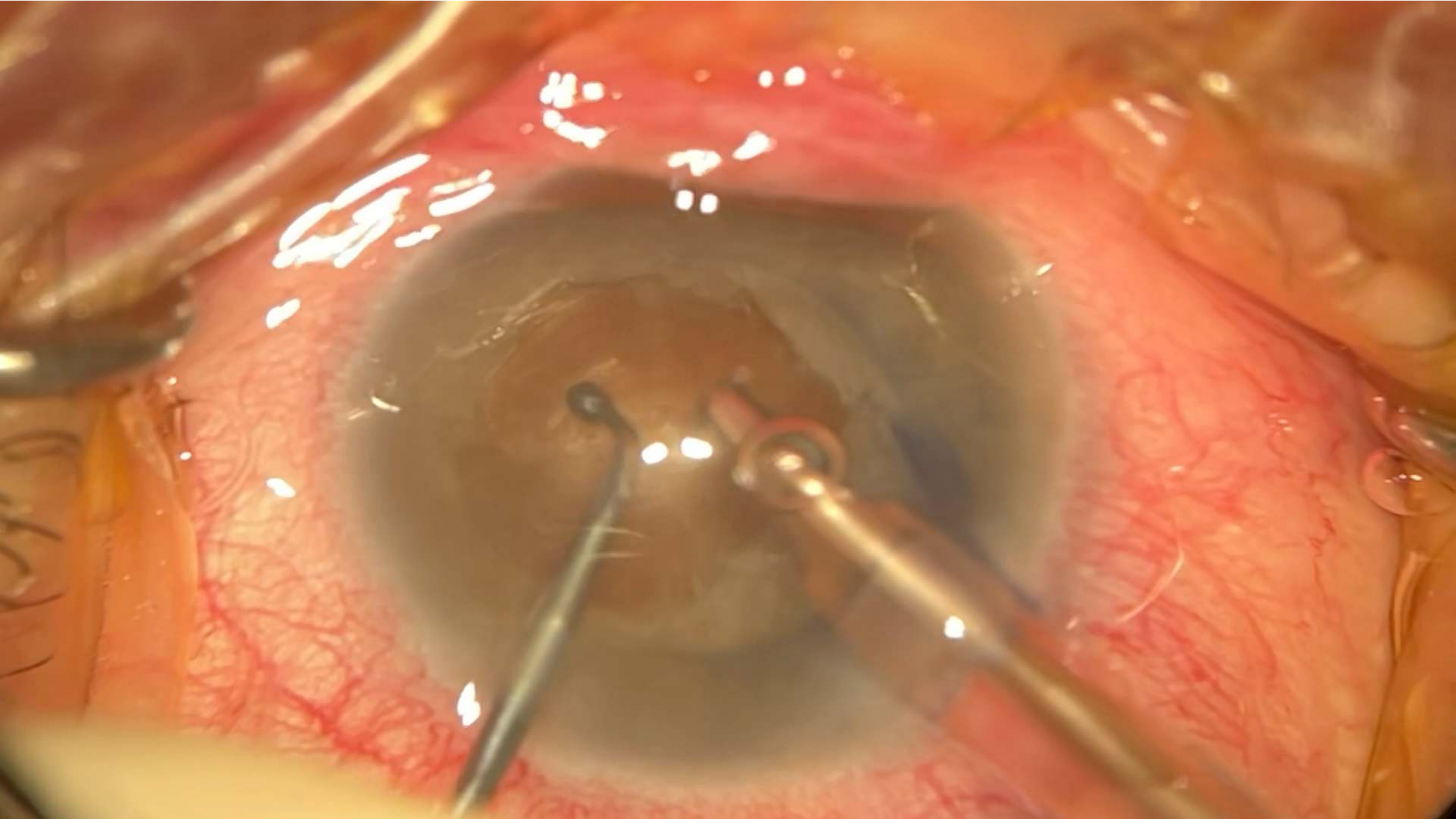
All fluidics parameters are fixed as well as US (same foot switch press).



## Chopper

Keeping the chopper inside the bag most of the time.







OS | OD



355:48:32



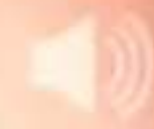
HDR



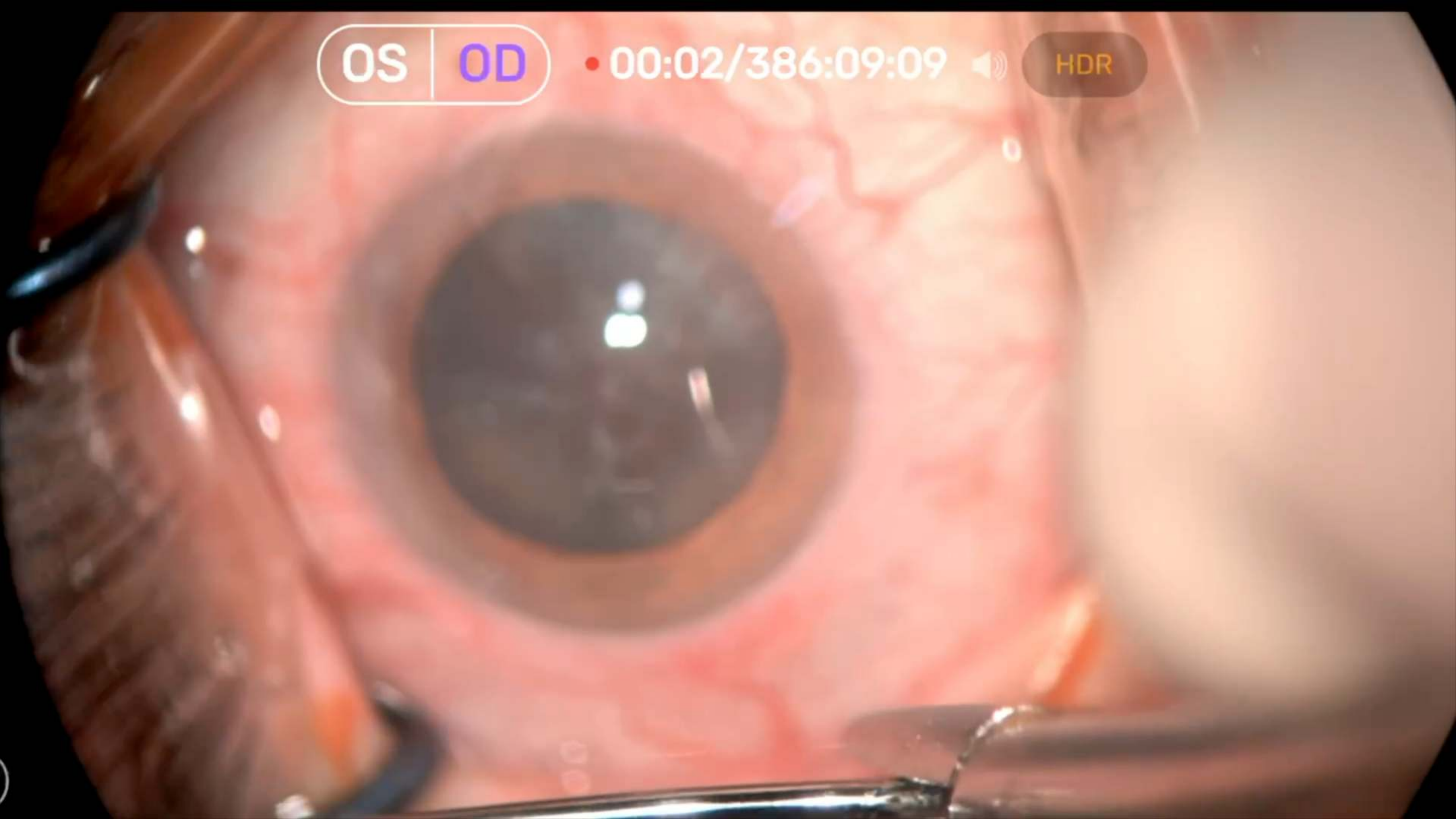


OS | OD

• 00:02/386:09:09



HDR



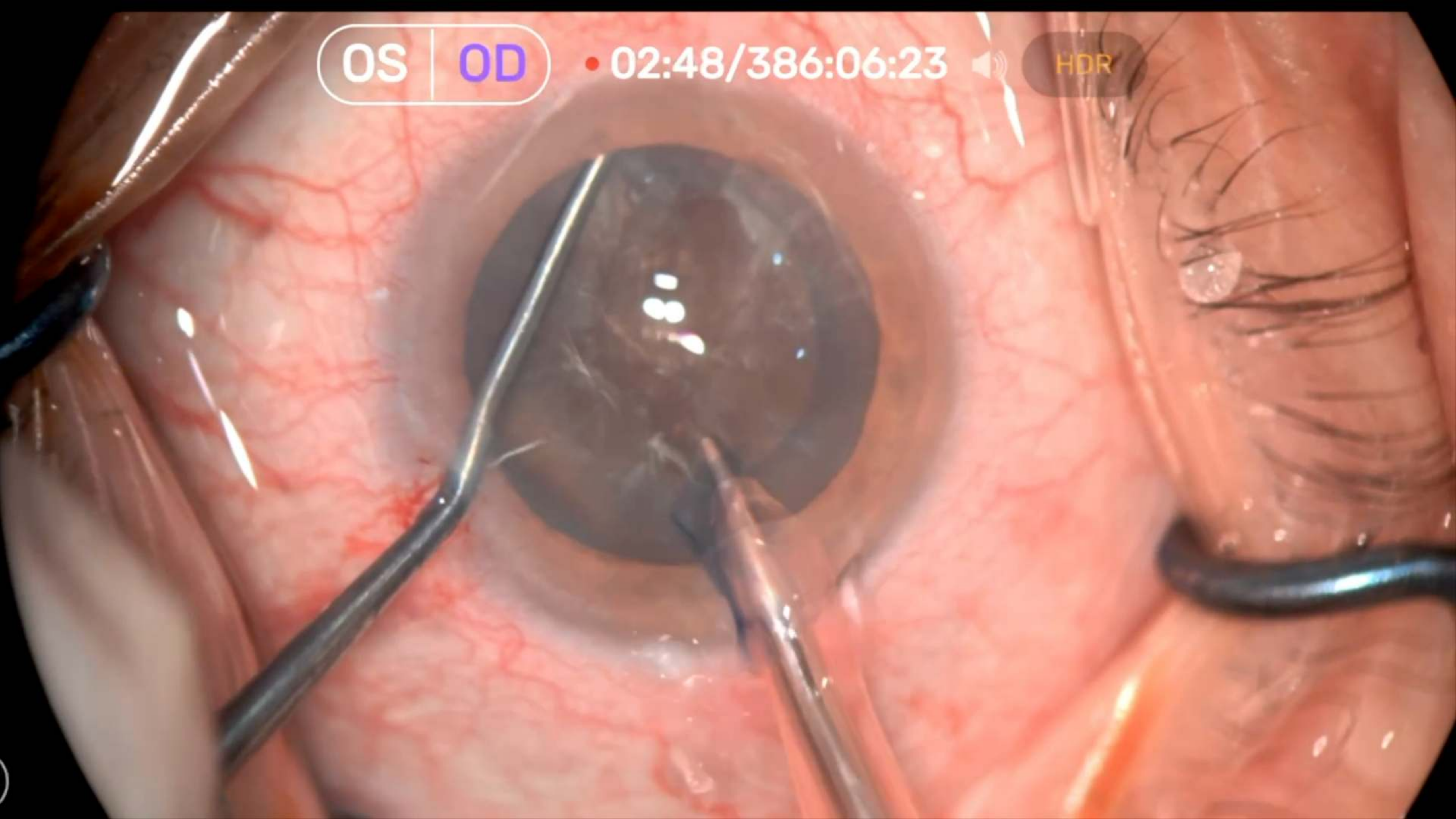


OS

OD

• 02:48/386:06:23

HDR



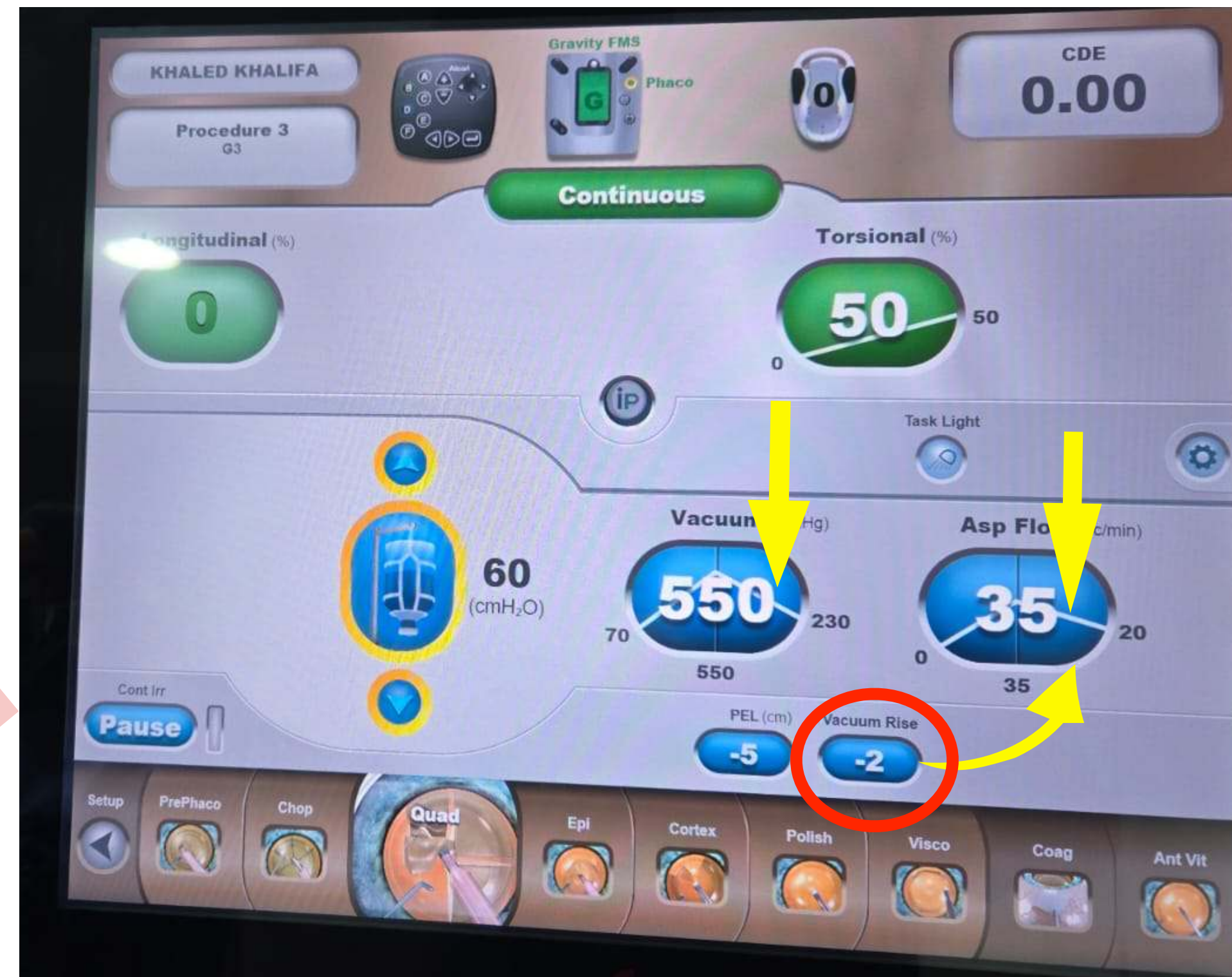


# Emulsification<sub>(no occlusion)</sub>

Torsional US can work efficiently without strong occlusion.

Reducing the level of vacuum (mmhg) in aspiration line, no strong occlusion.  
- Direct and indirect.

Descending vacuum in foot position 3.



Descending FR in foot position 3.  
OR

-ve vacuum rise—— more drop of FR—— before occlusion —— lesss vacuum building.



# Emulsification

**no occlusion**

## Tip

- 01** Bevel down (aspiration port).

## Parts

- 02** Target the connected fragments first.

## Where

- 03** Inside the bag emulsification.

## US

- 04** Tailor torsional ultrasound amplitude according to repulsion.



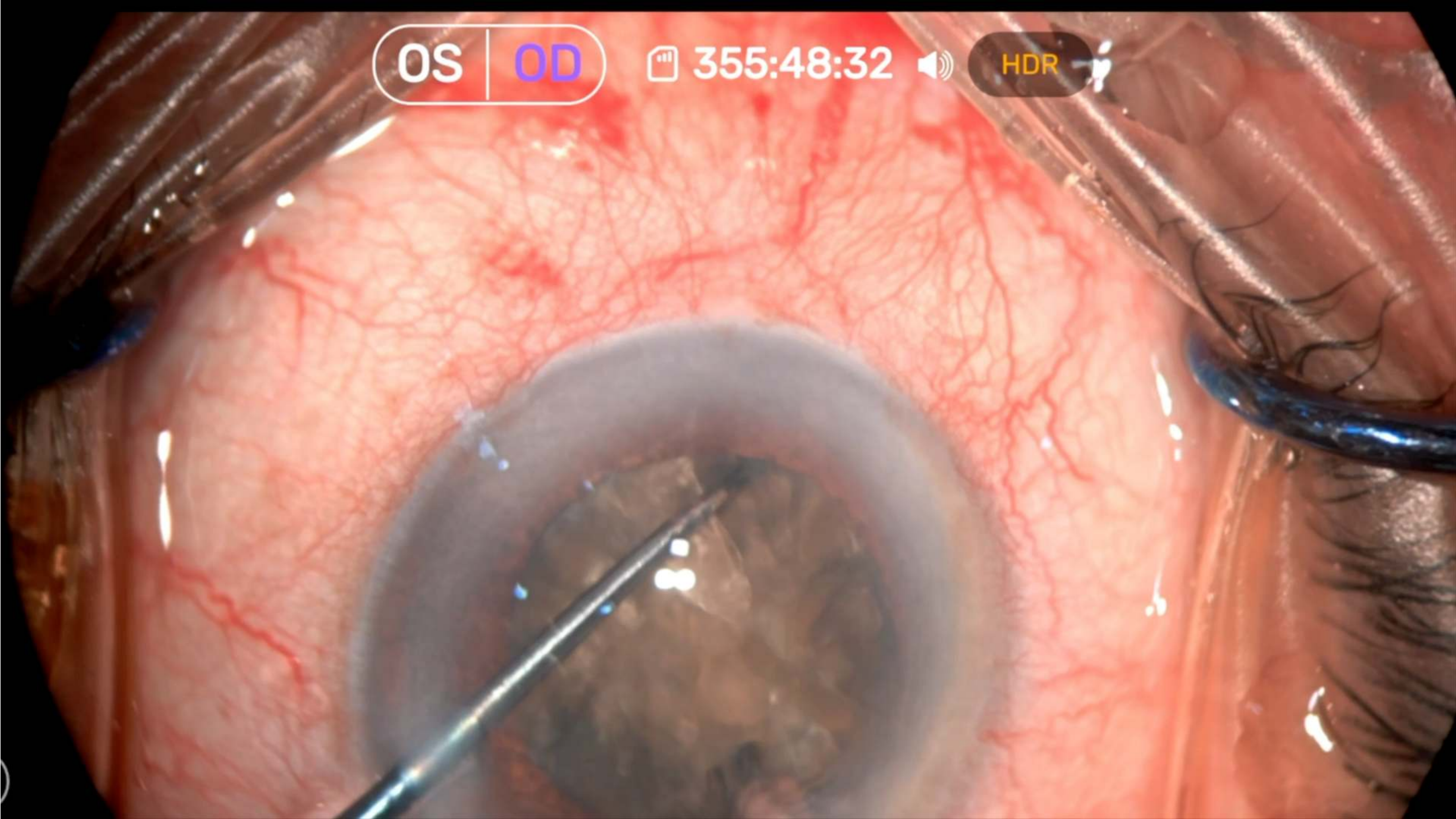
OS | OD



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HDR



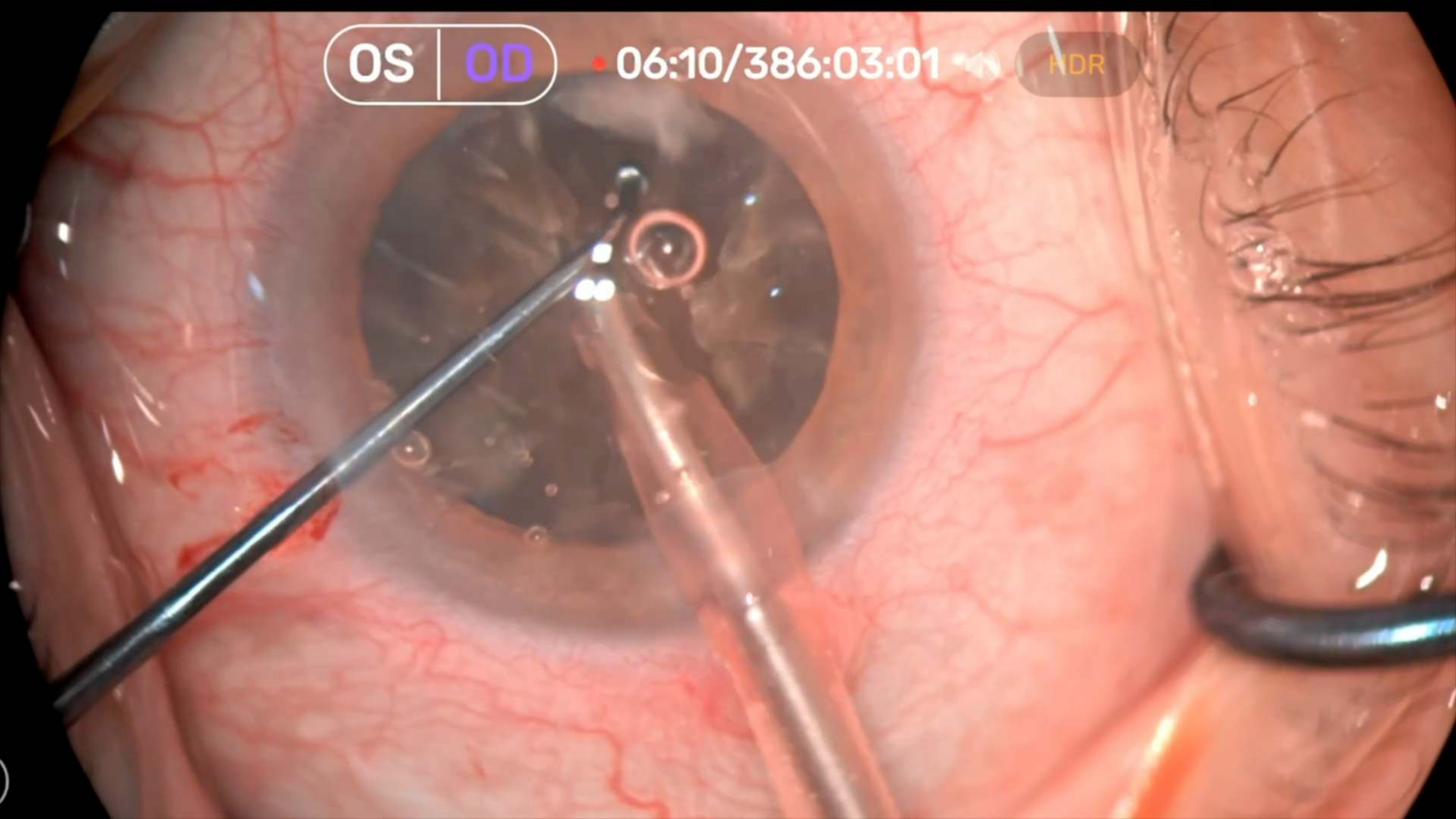


OS

OD

• 06:10/386:03:01

HDR





*Thank you*