



Corneal Gluing Hard and Soft

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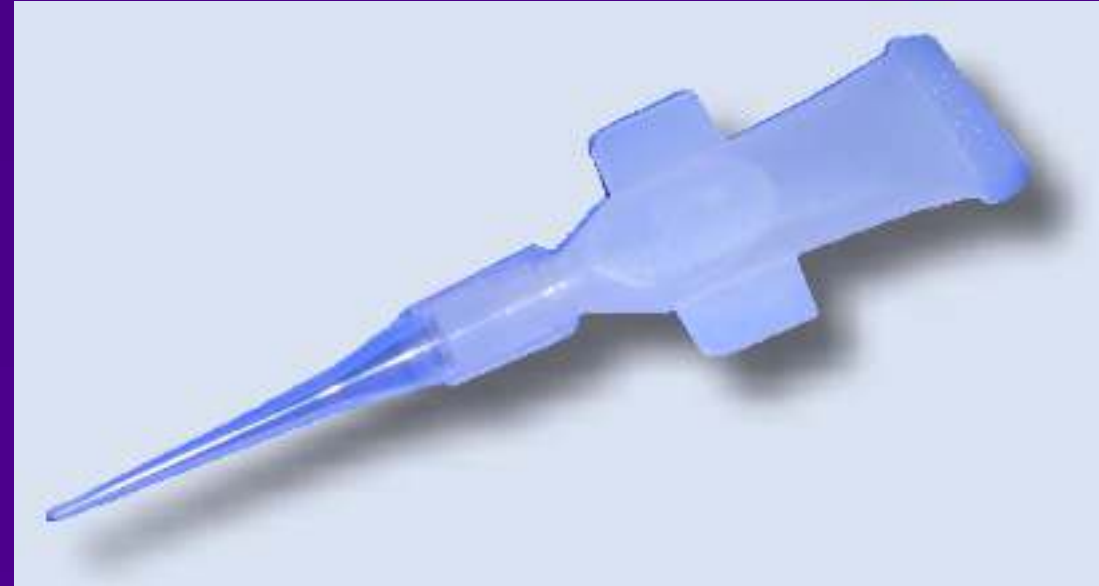


Acknowledgement

Prof. Harminder S Dua



□ Synthetic:
Cyanoacrylate-based.



□ Biological:
Fibrin glue.



Cyanoacrylate glue

Cyanoacrylates

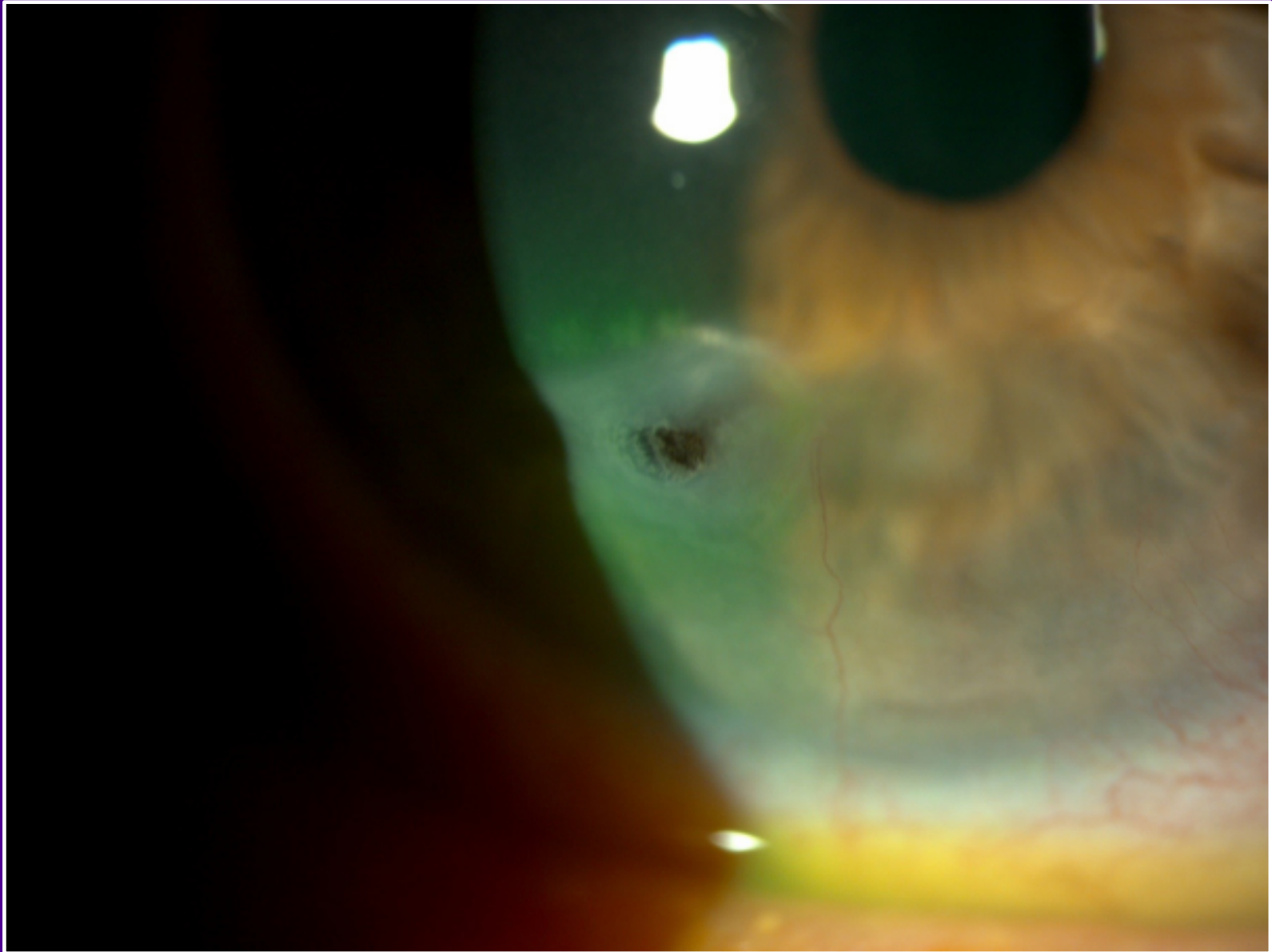


- Harden by polymerization, through contact with living tissue (water).
- Prevent collagenase production that leads to stromal melting.
- Have bacteriostatic activity against Gram-positive organisms.
- Not biocompatible. Has to be removed (not absorbable).

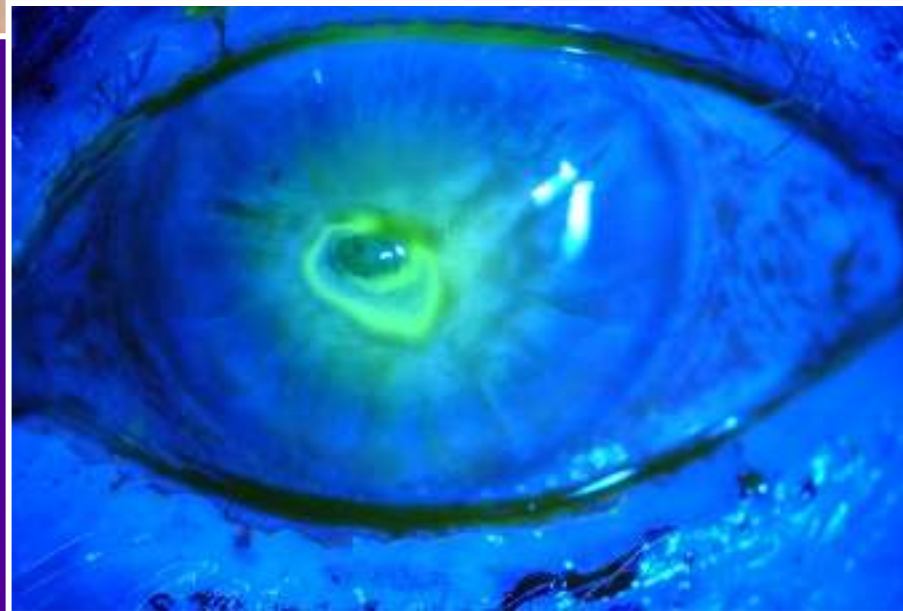
Indications for cyanoacrylate gluing

- Corneal perforations and descemetoceles (less than 3 mm)
- Corneal melts and wound leaks

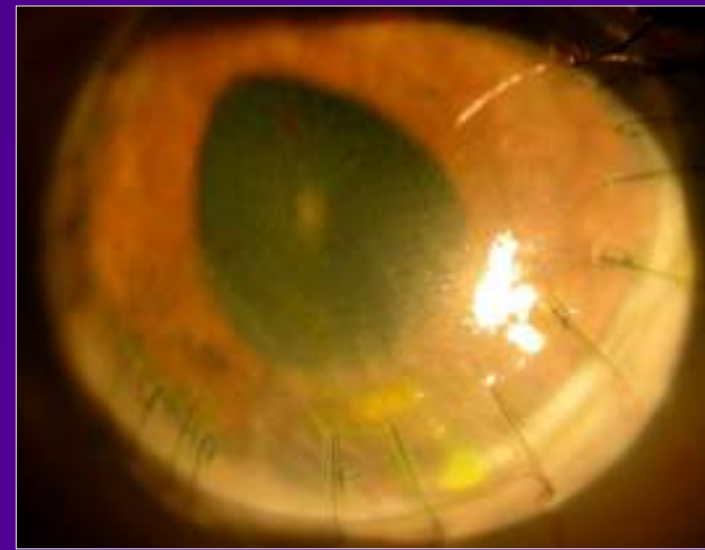
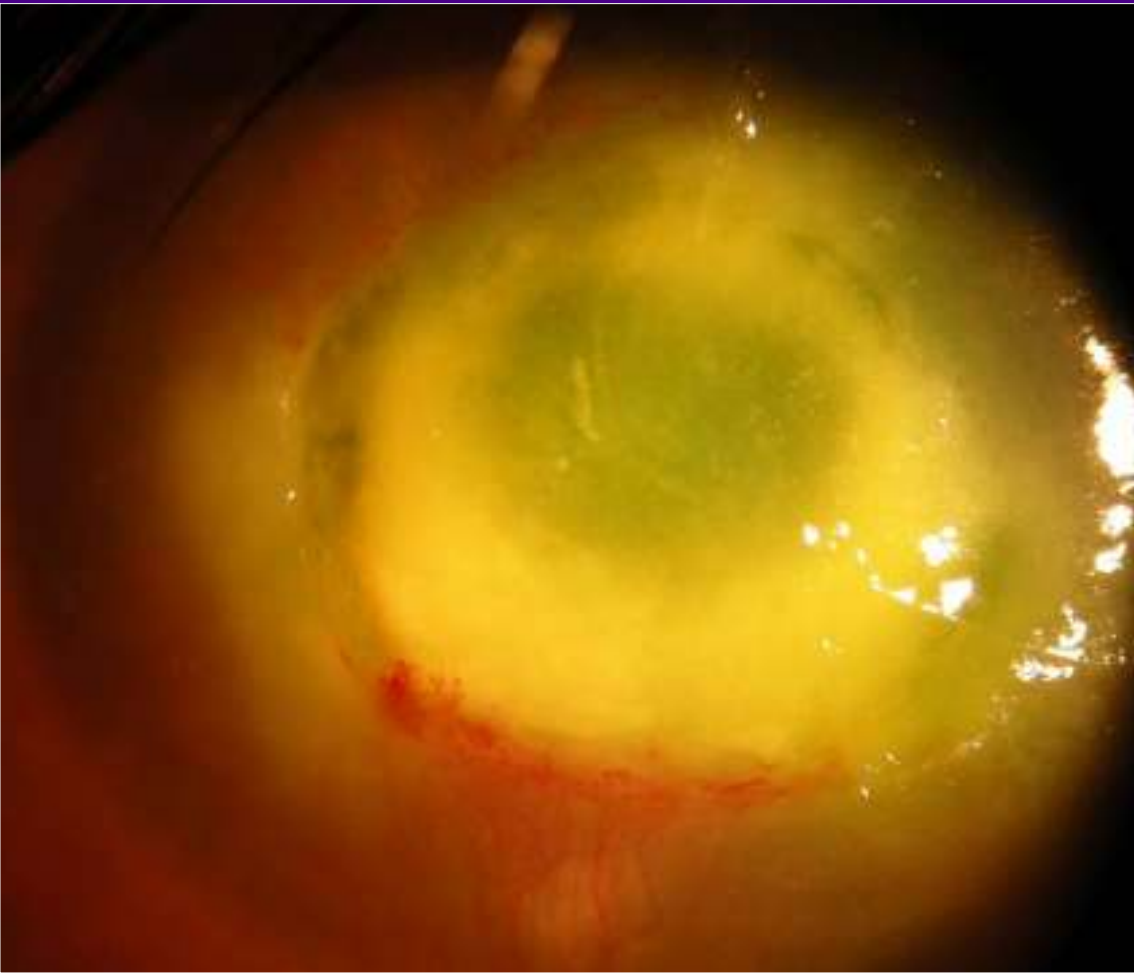
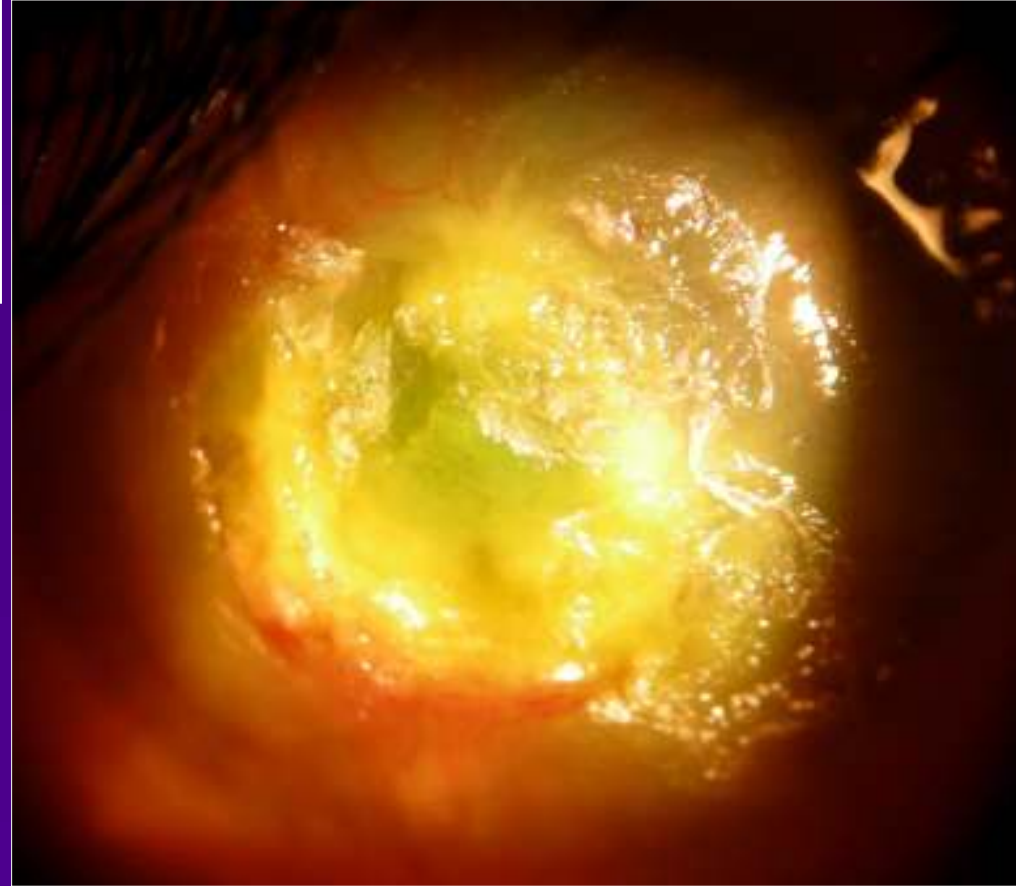
Corneal Perforations

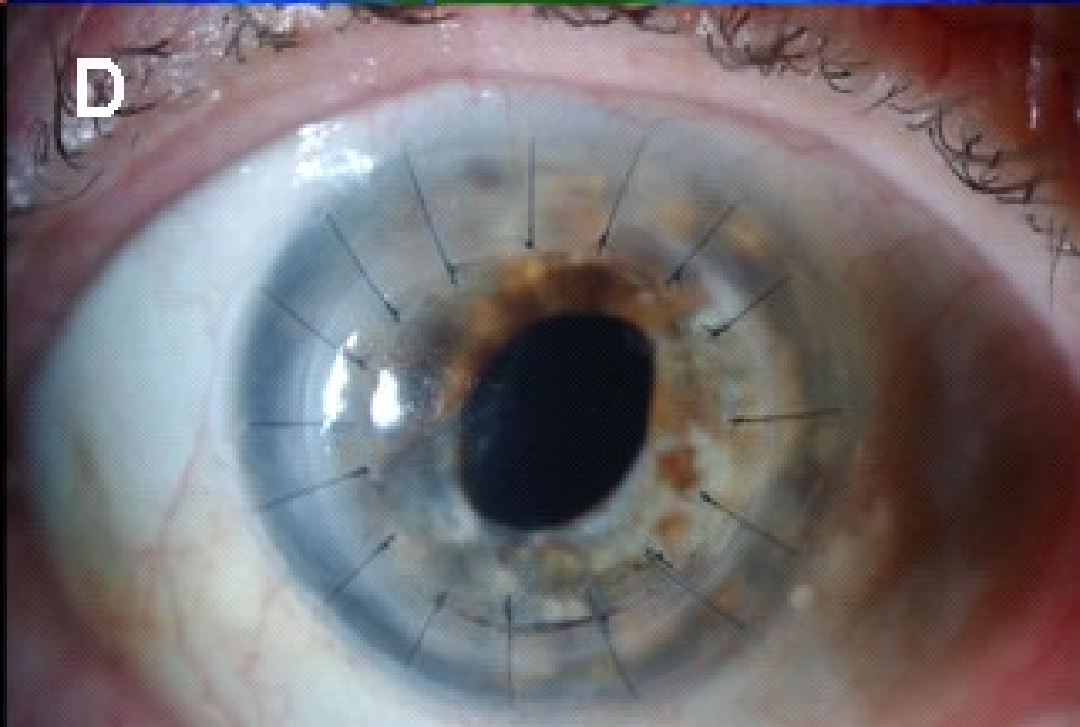
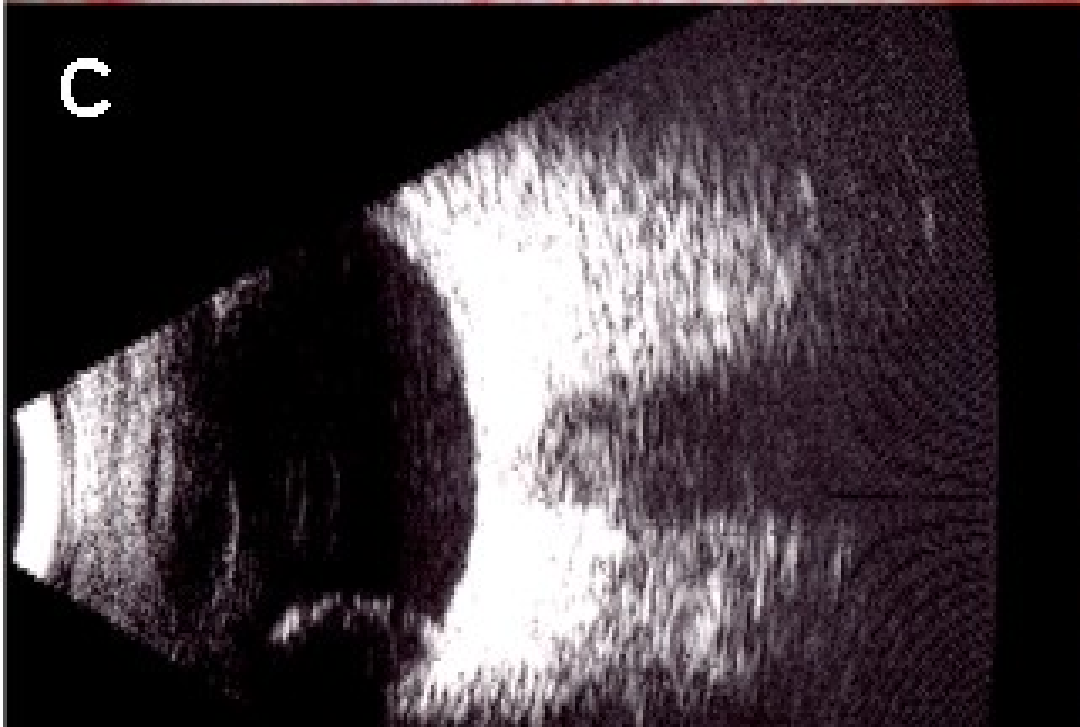
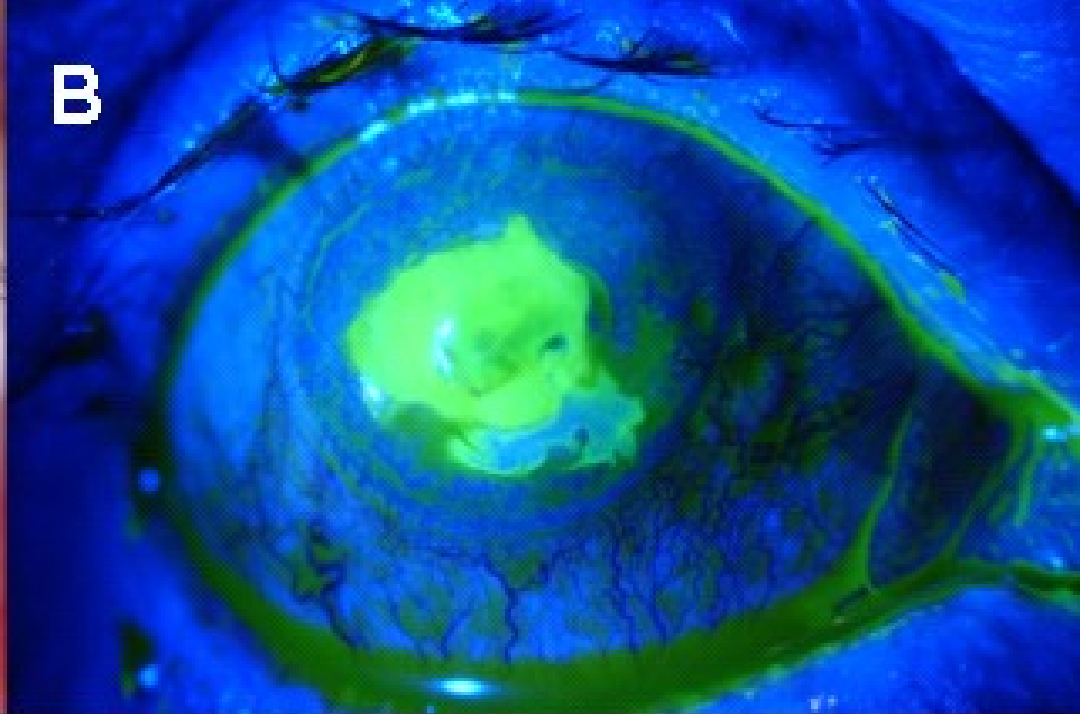


Corneal Perforations

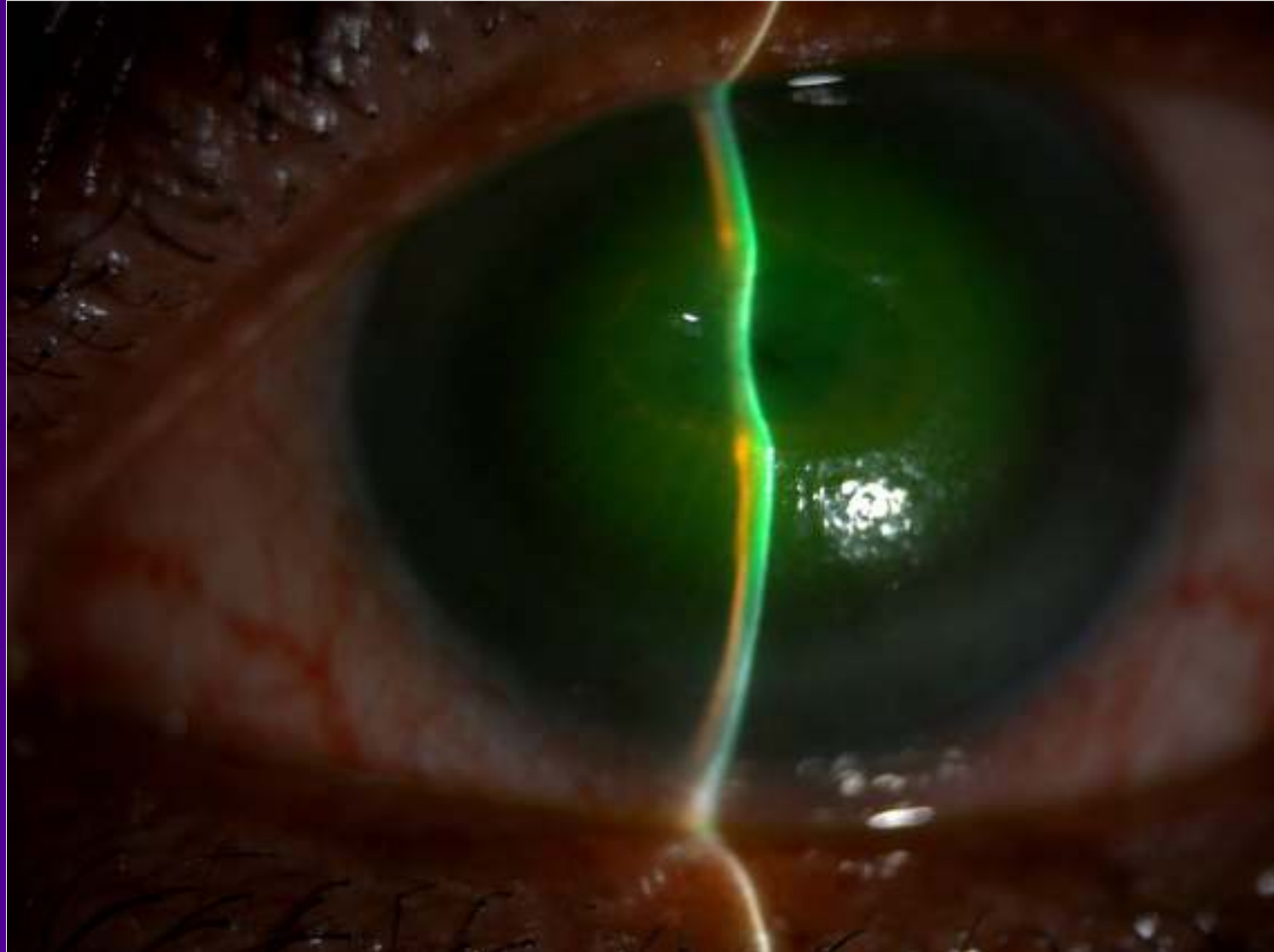


Sealing melts before PKP

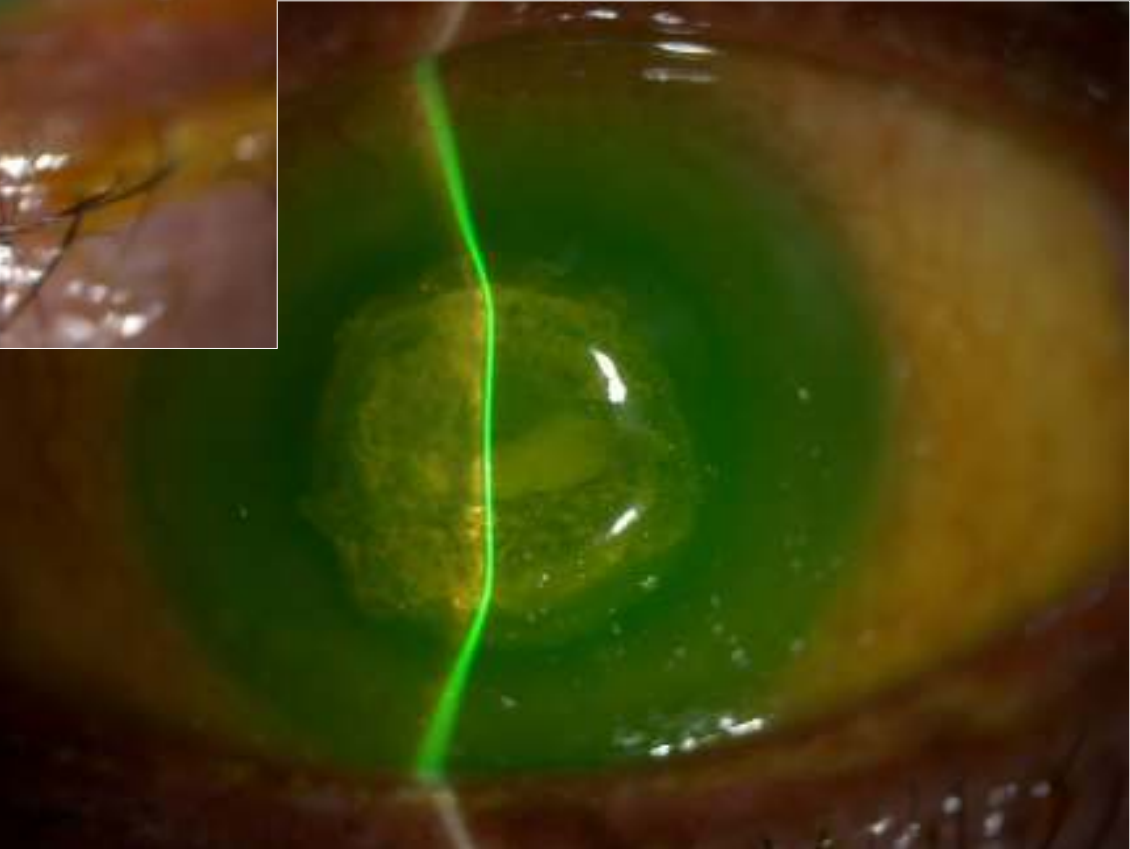




Post cataract central melt and perforation in a patient with RA

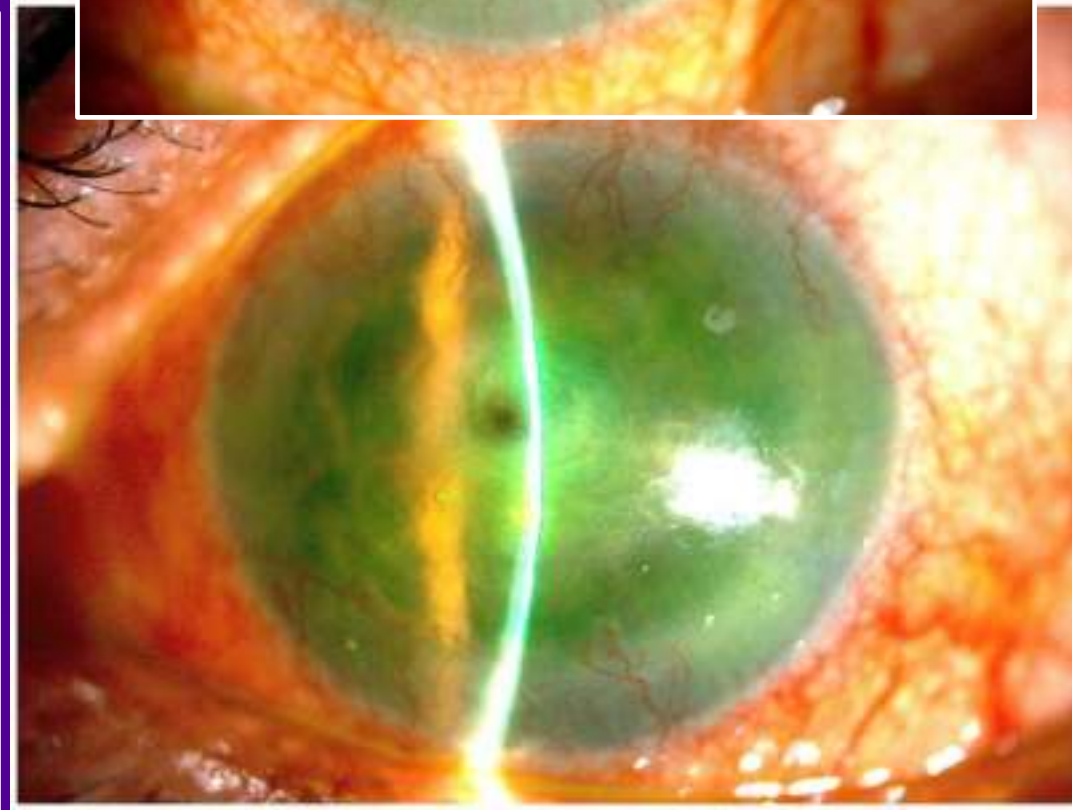
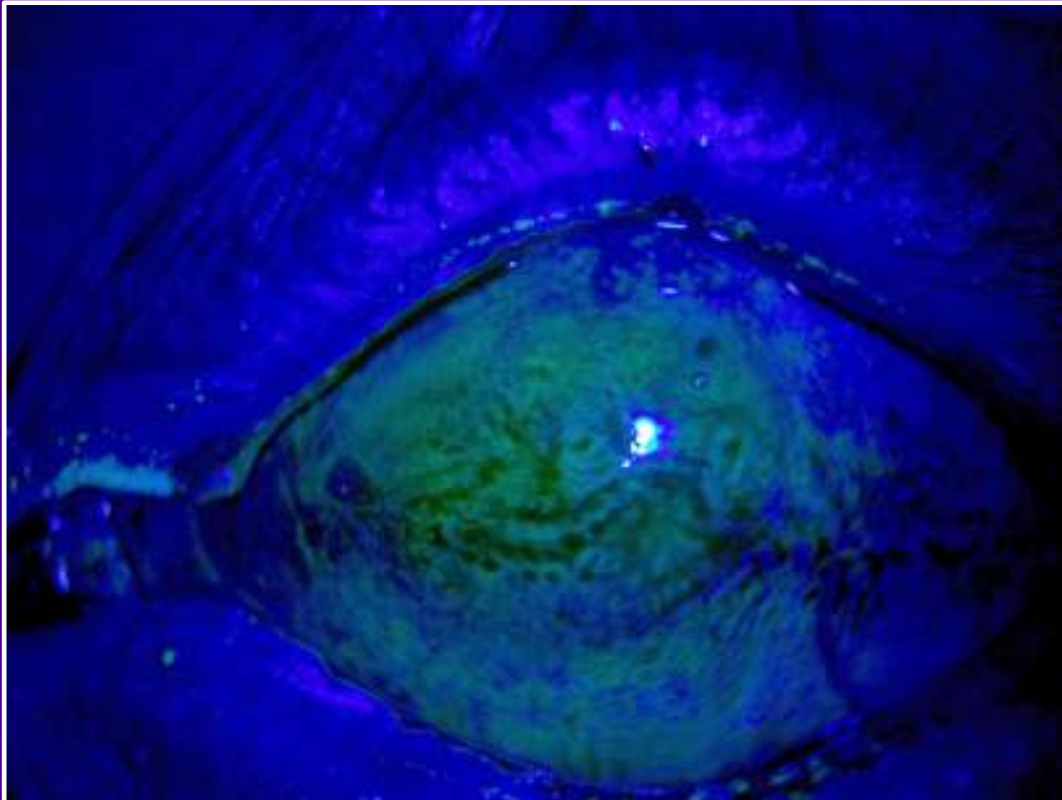


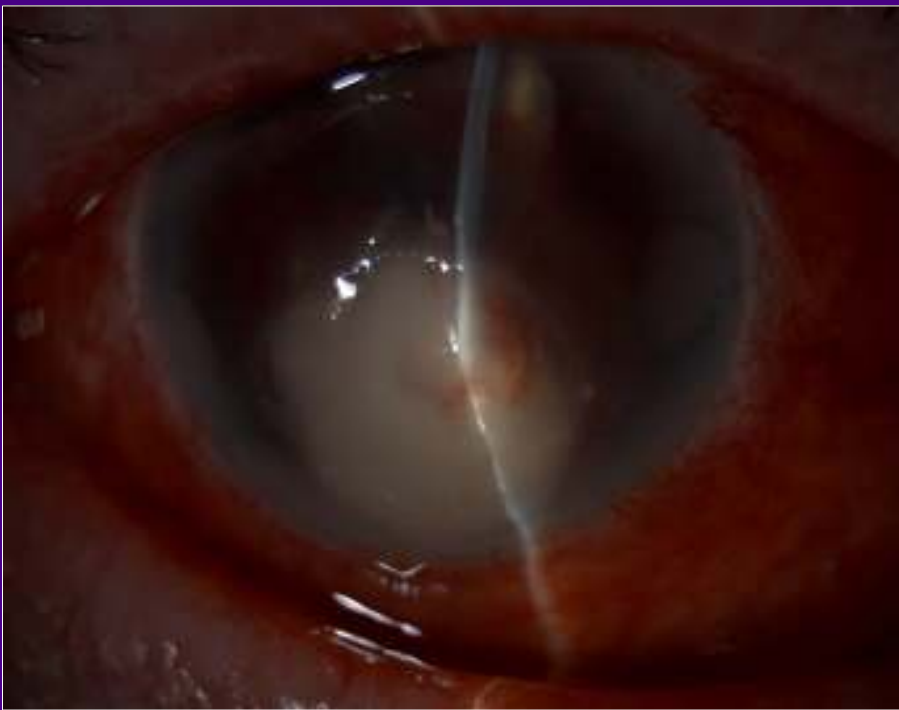






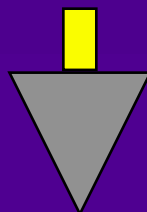
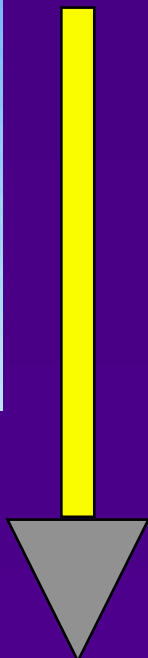
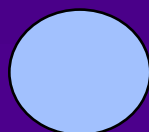
1 month post- gluing



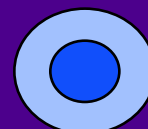
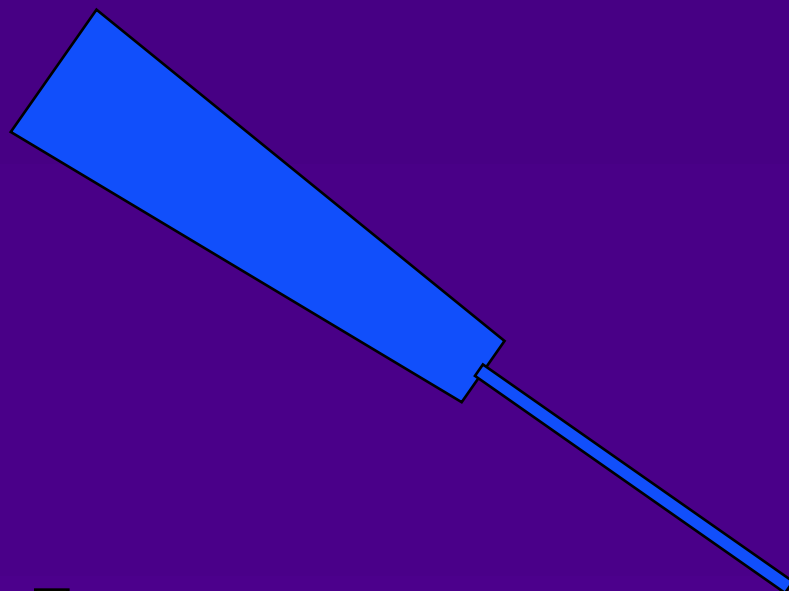
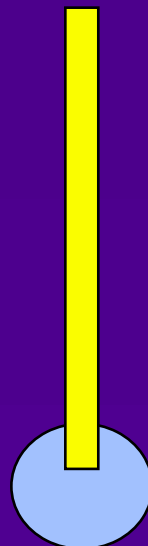


What do we need?



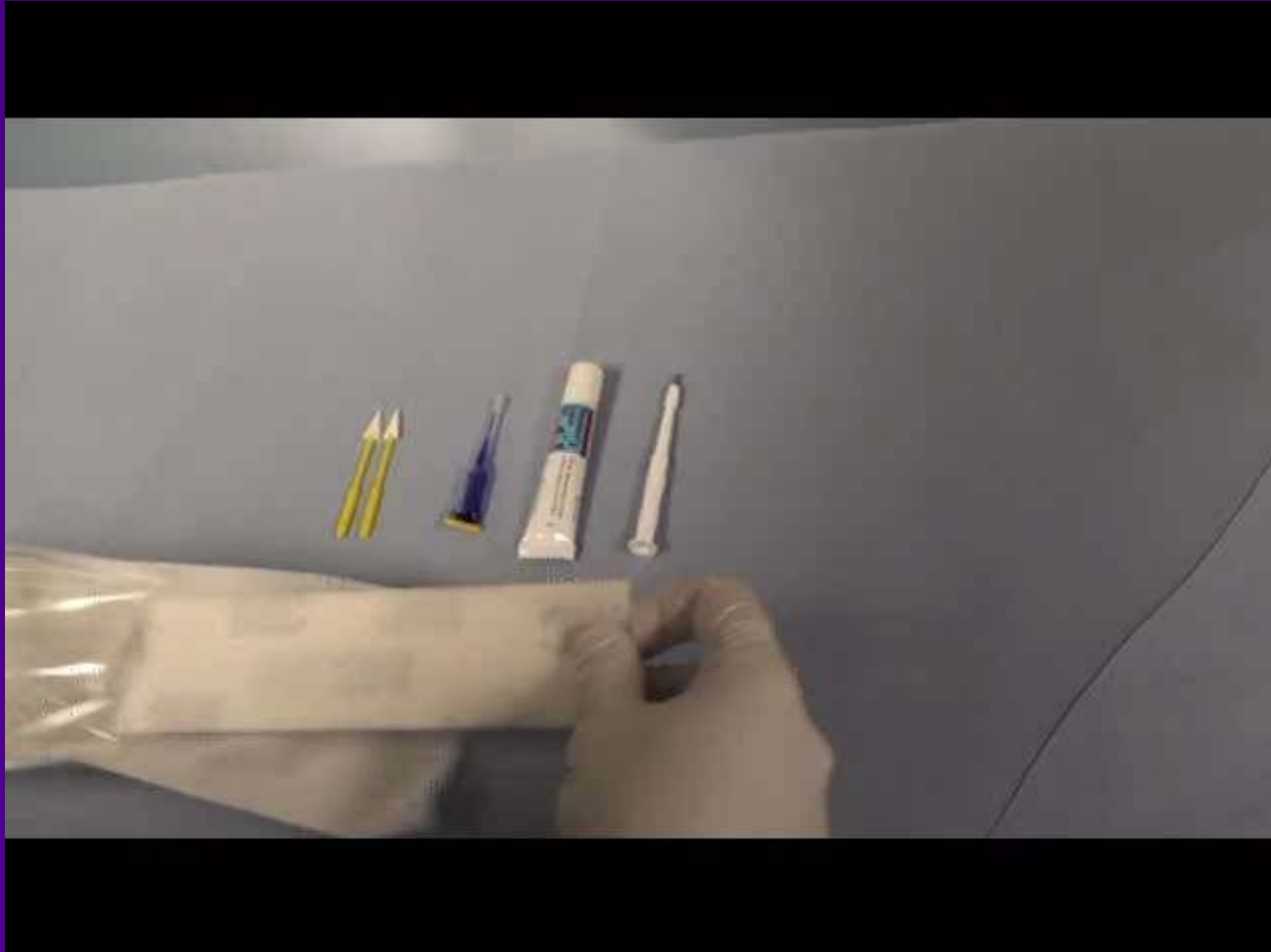


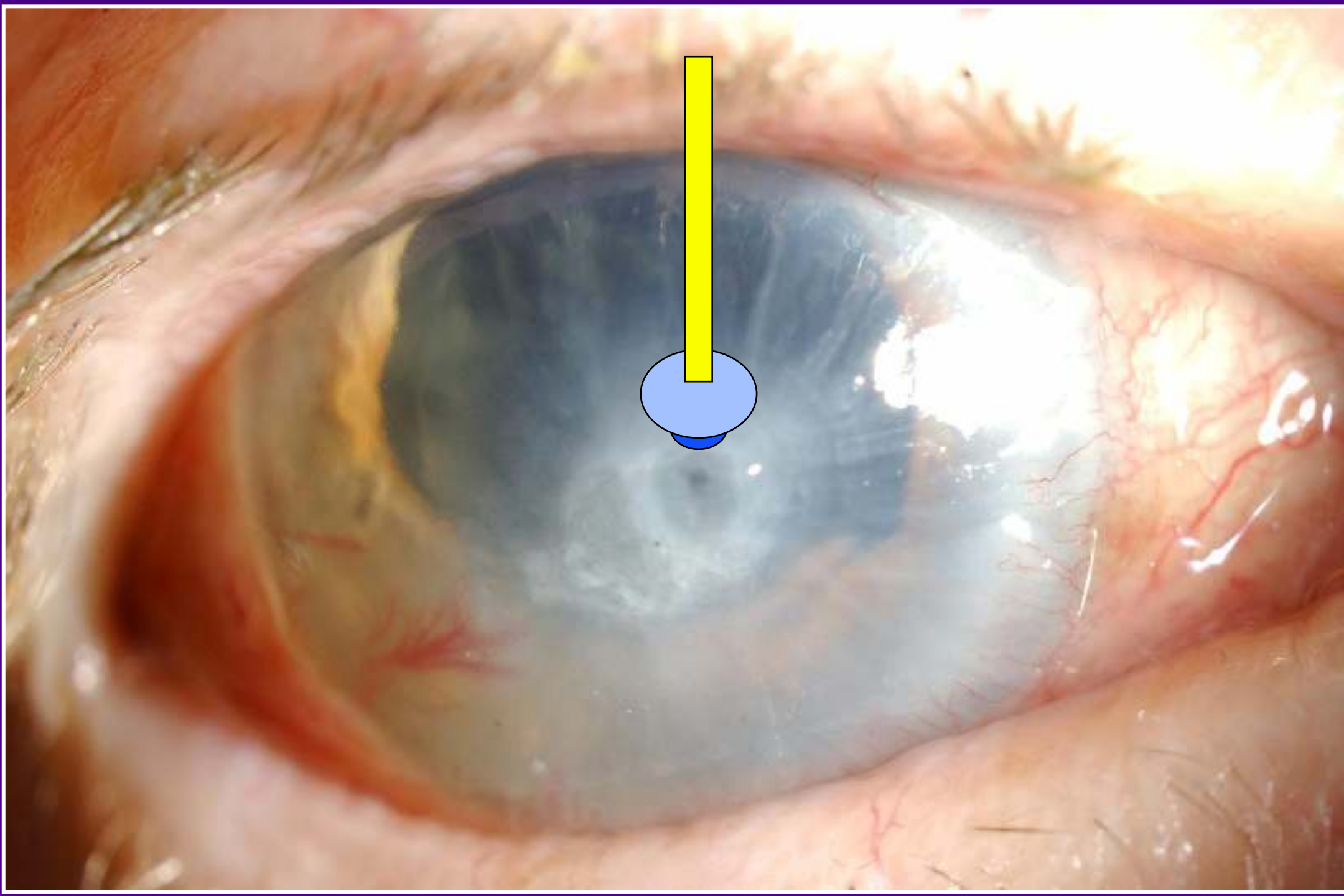
B



C

Preparing for corneal gluing





Applying the Glue

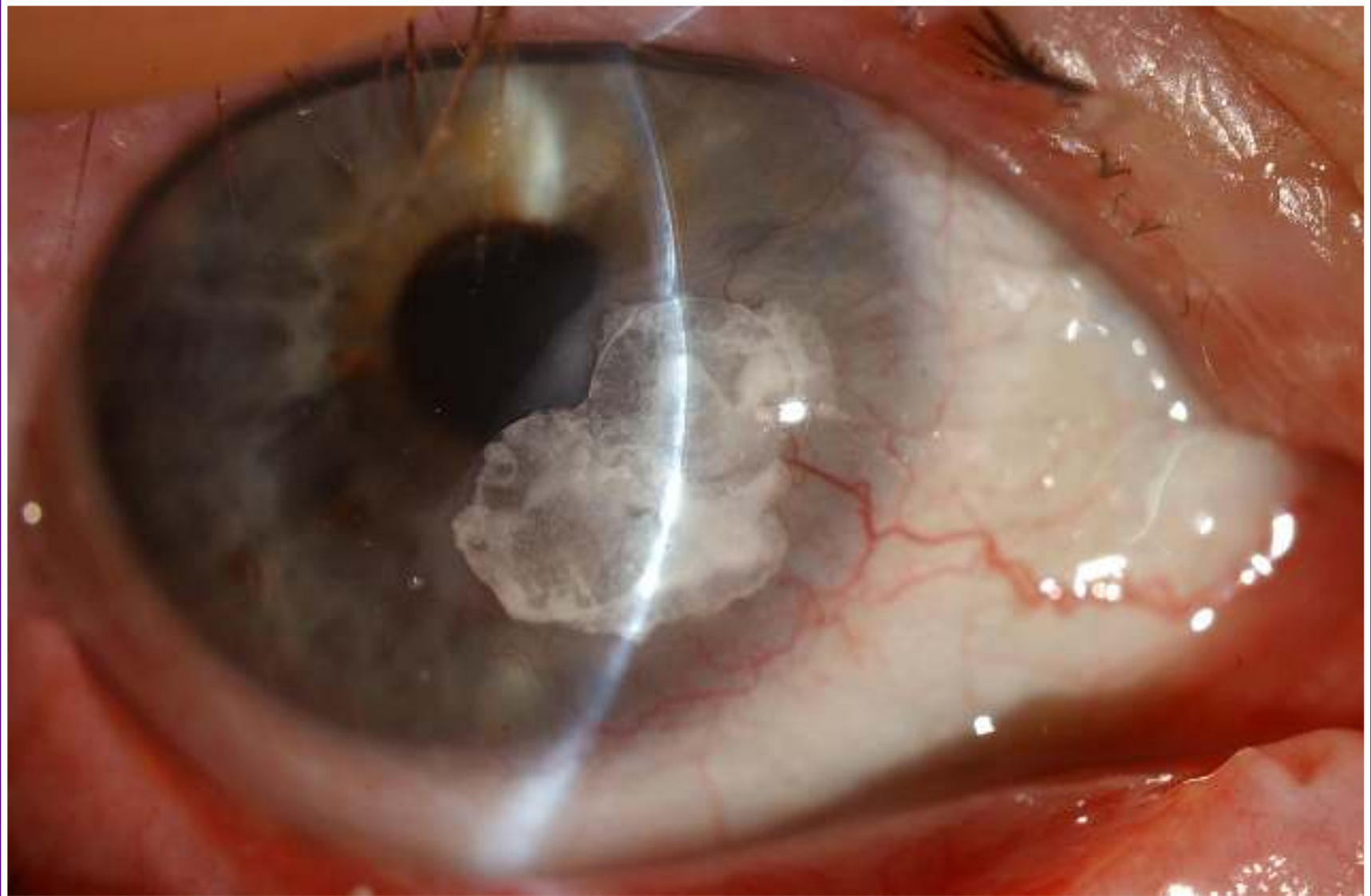


Satisfactory Glue Application

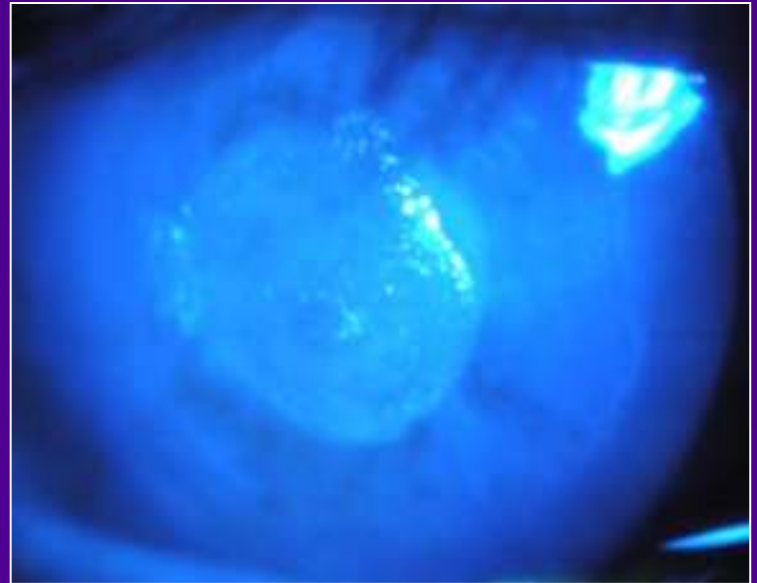
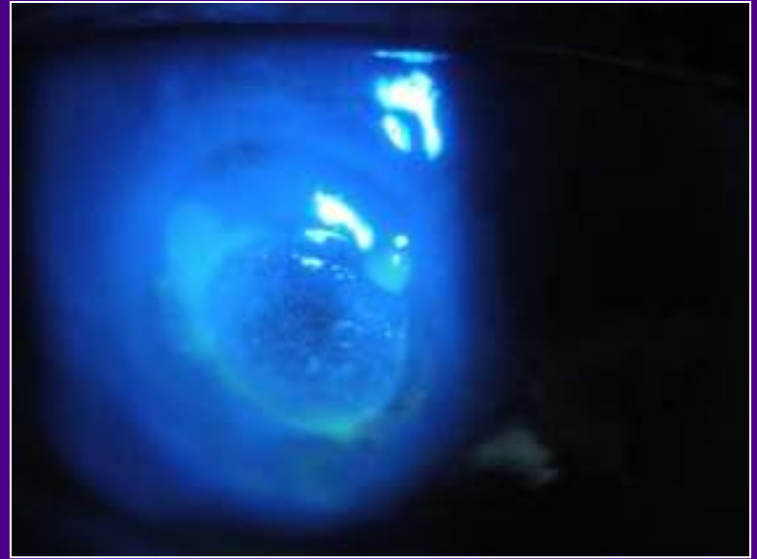
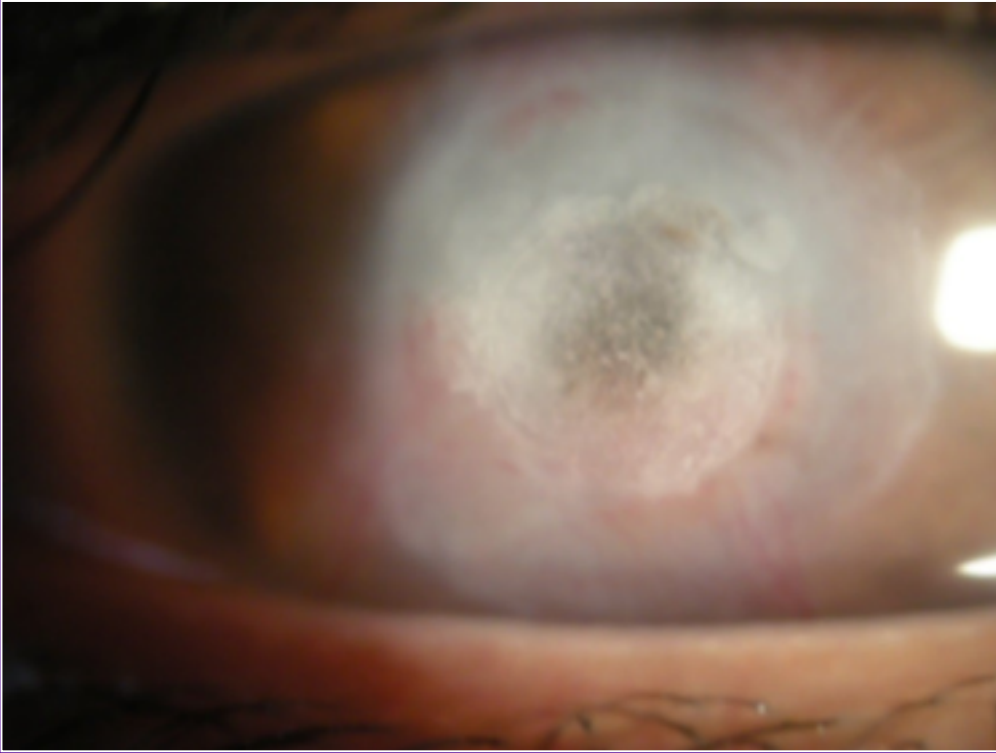


Multiple patches

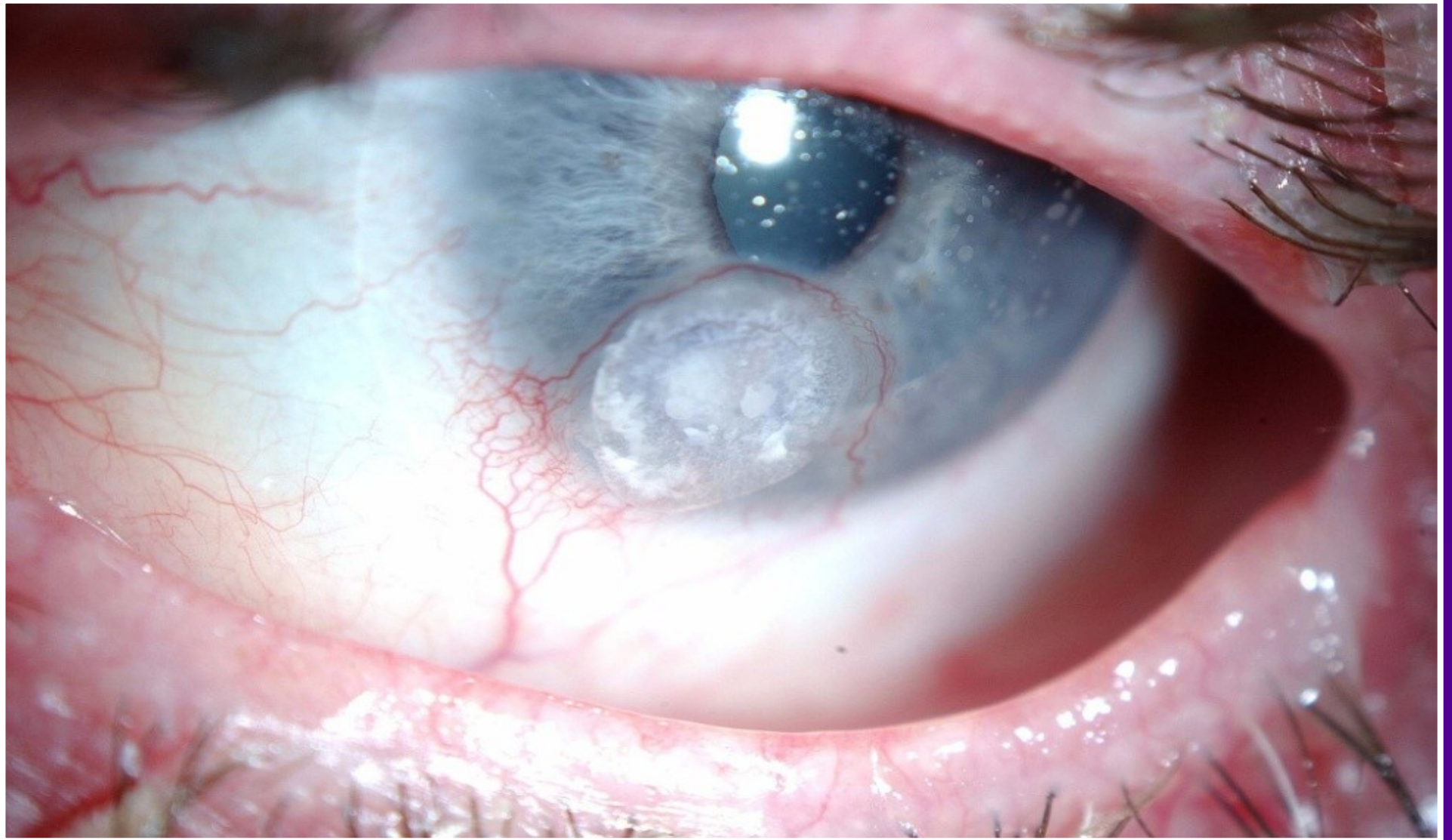
EXCESSIVE GLUE



When do you remove the Glue?



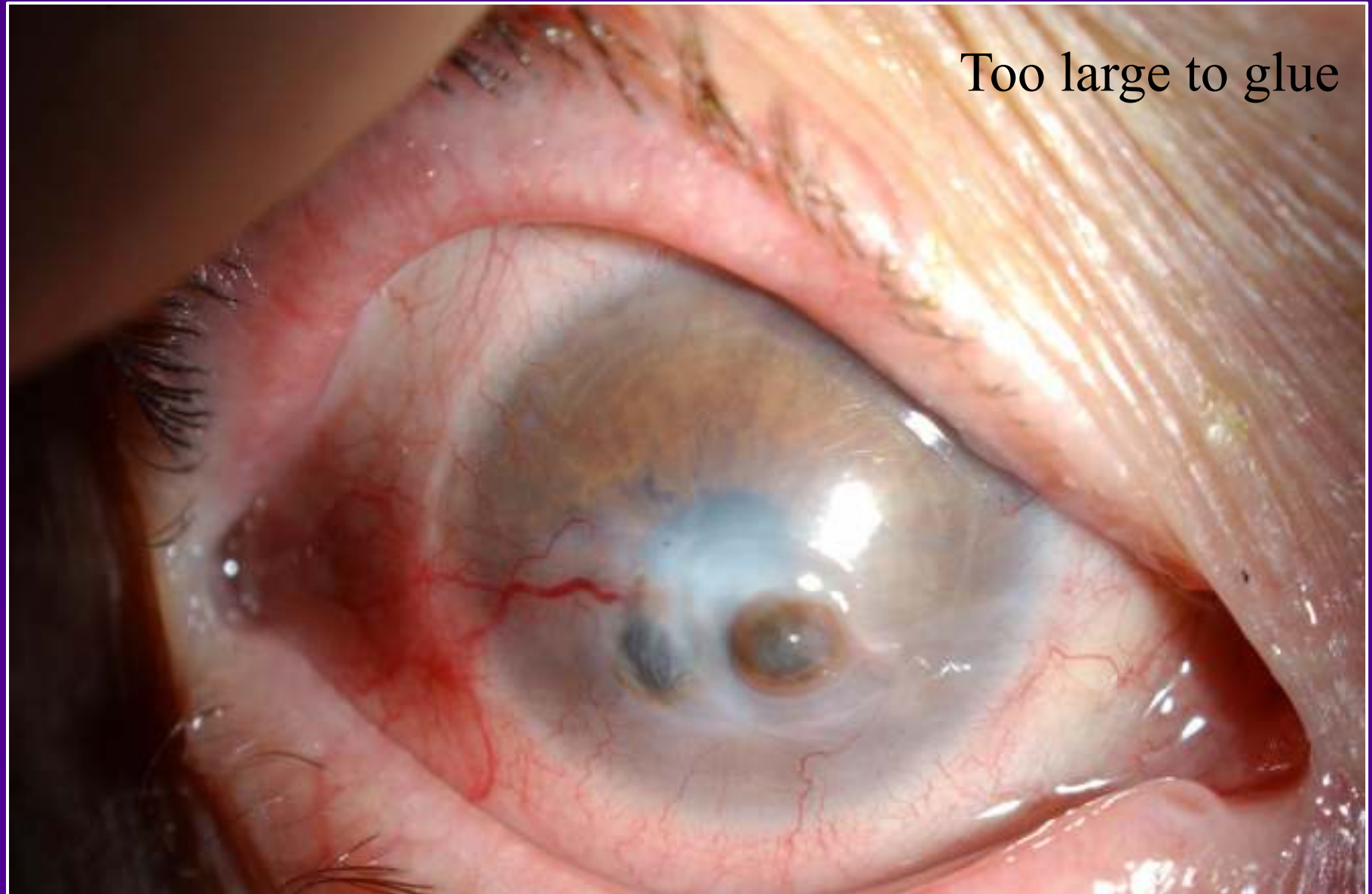
When do you remove the Glue?







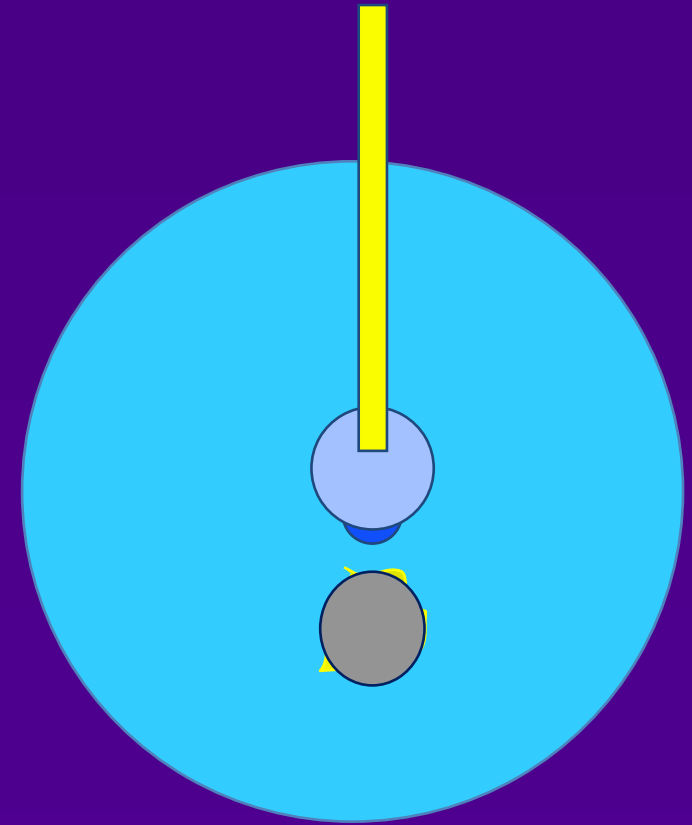
Gluing in the presence of Iris Prolapse

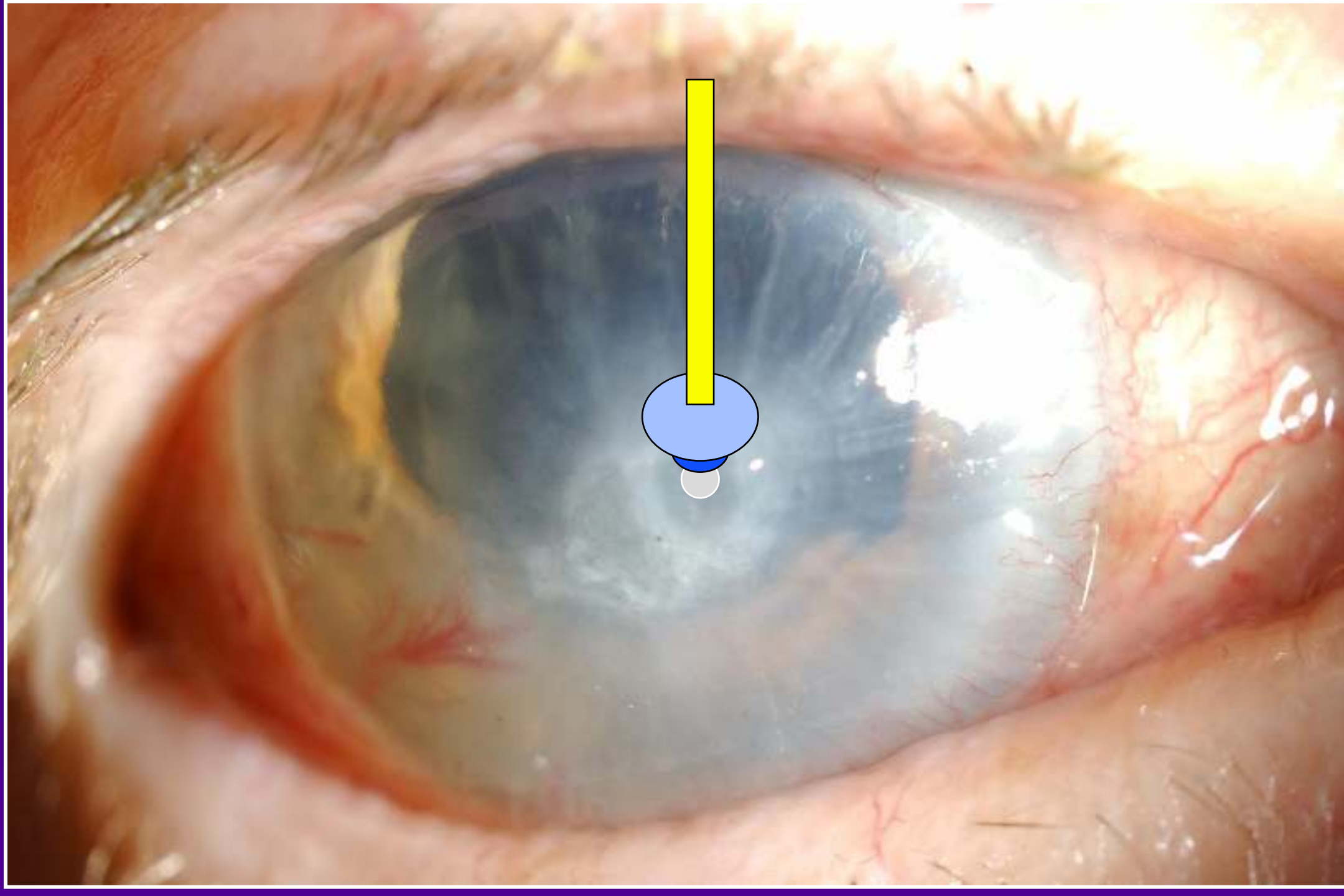


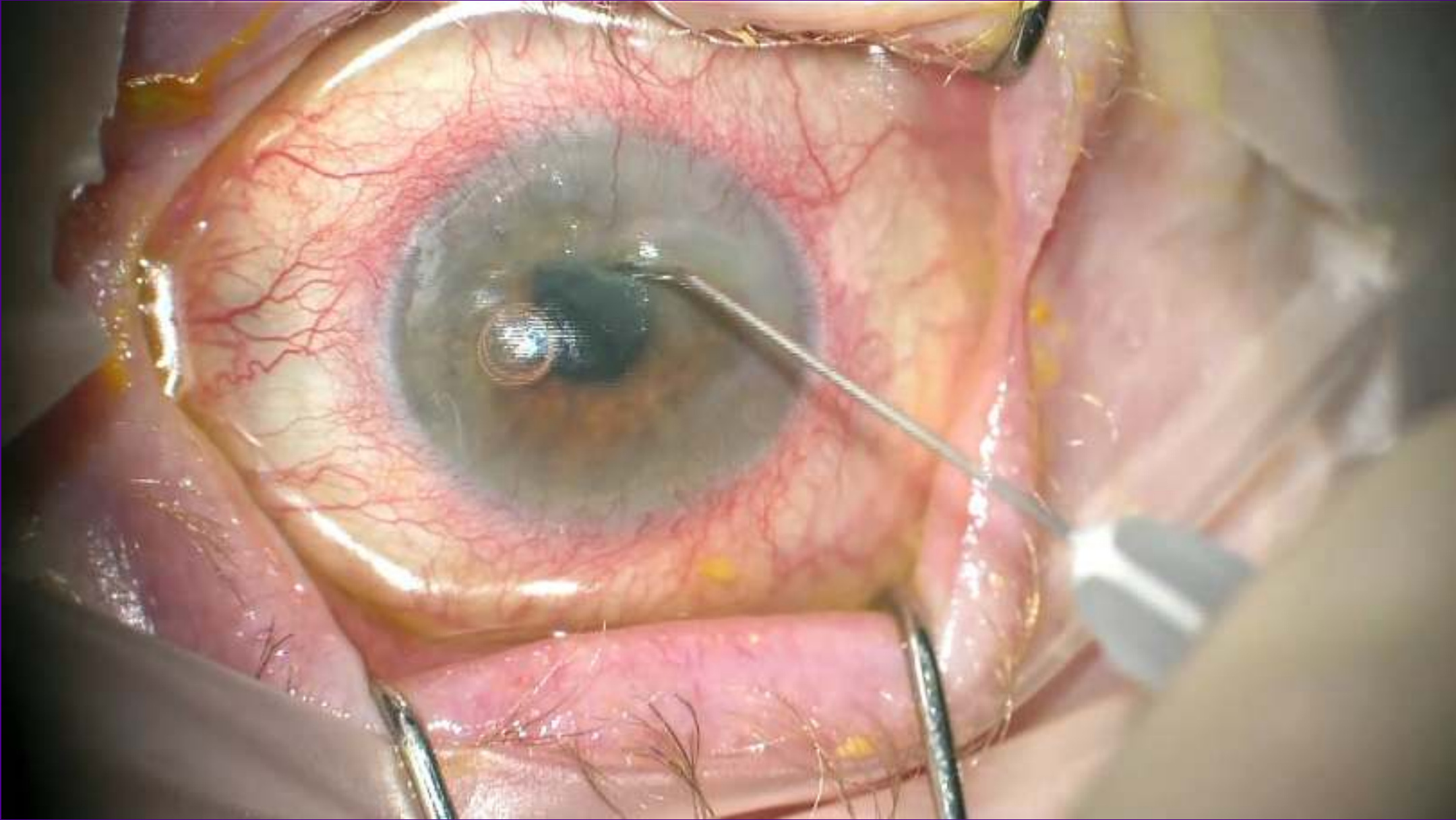
Gluing in the presence of Iris Prolapse

Double Drape technique:

In the presence of an iris prolapse, place a smaller disc without glue on the prolapsed iris knuckle and then a larger disc with glue on top of it. The glue thus does not make contact with the iris.

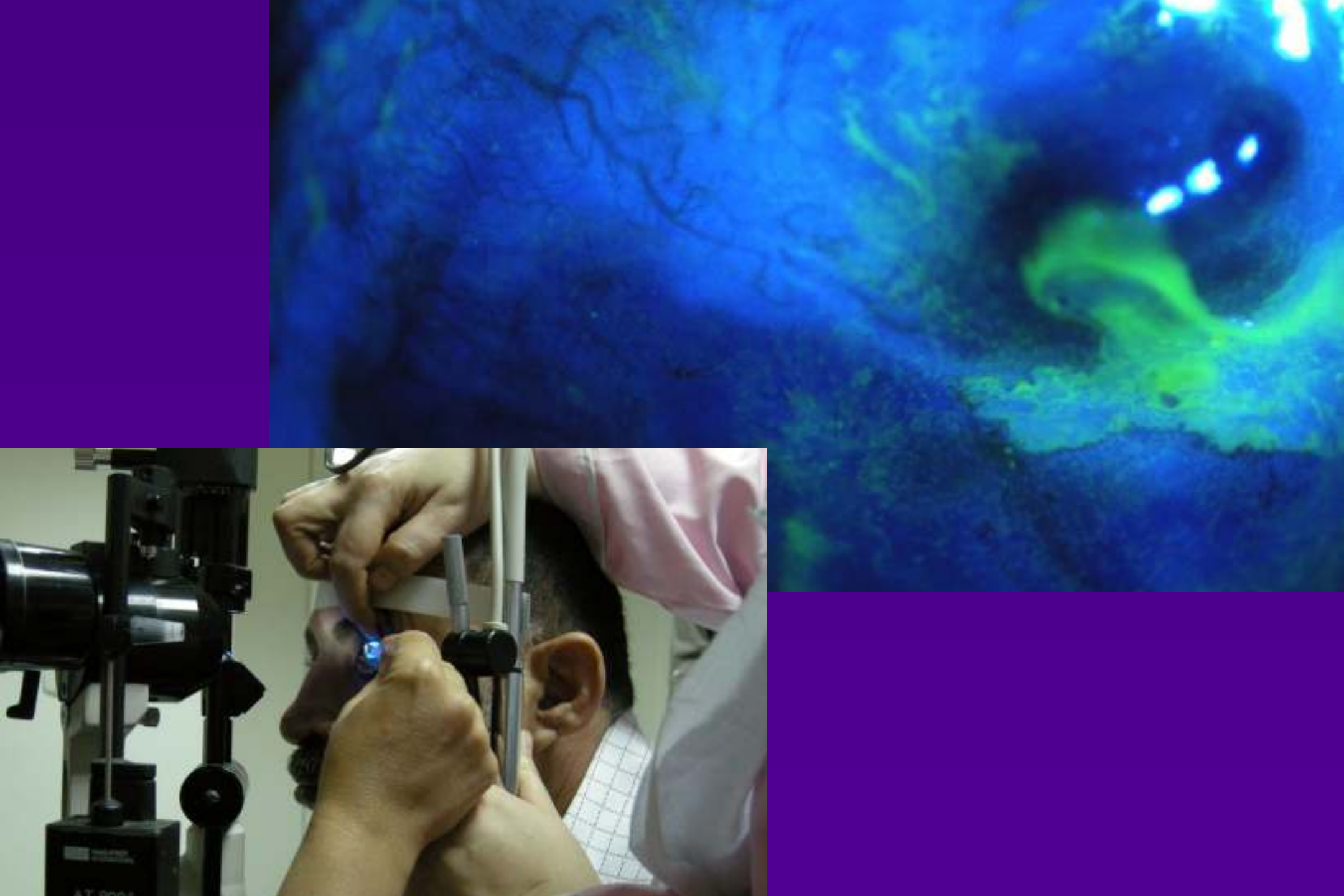






Gluing at the Slit Lamp









Fibrin glue

Tissue Glue, Tisseel

Tisseel Powder
(Fibrinogen, XIII
Fibronectin)

Aprotinin

Tisseel Solution

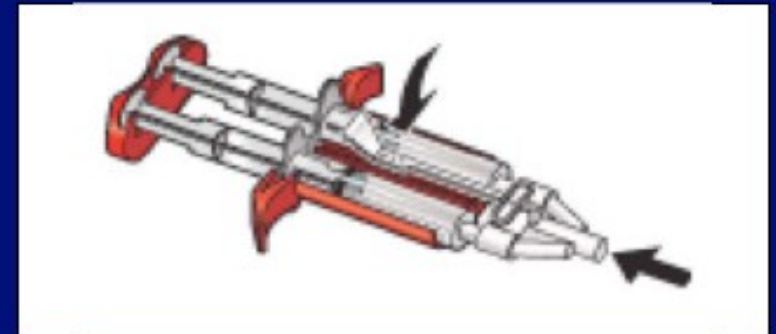
Thrombin Powder

Calcium Chloride

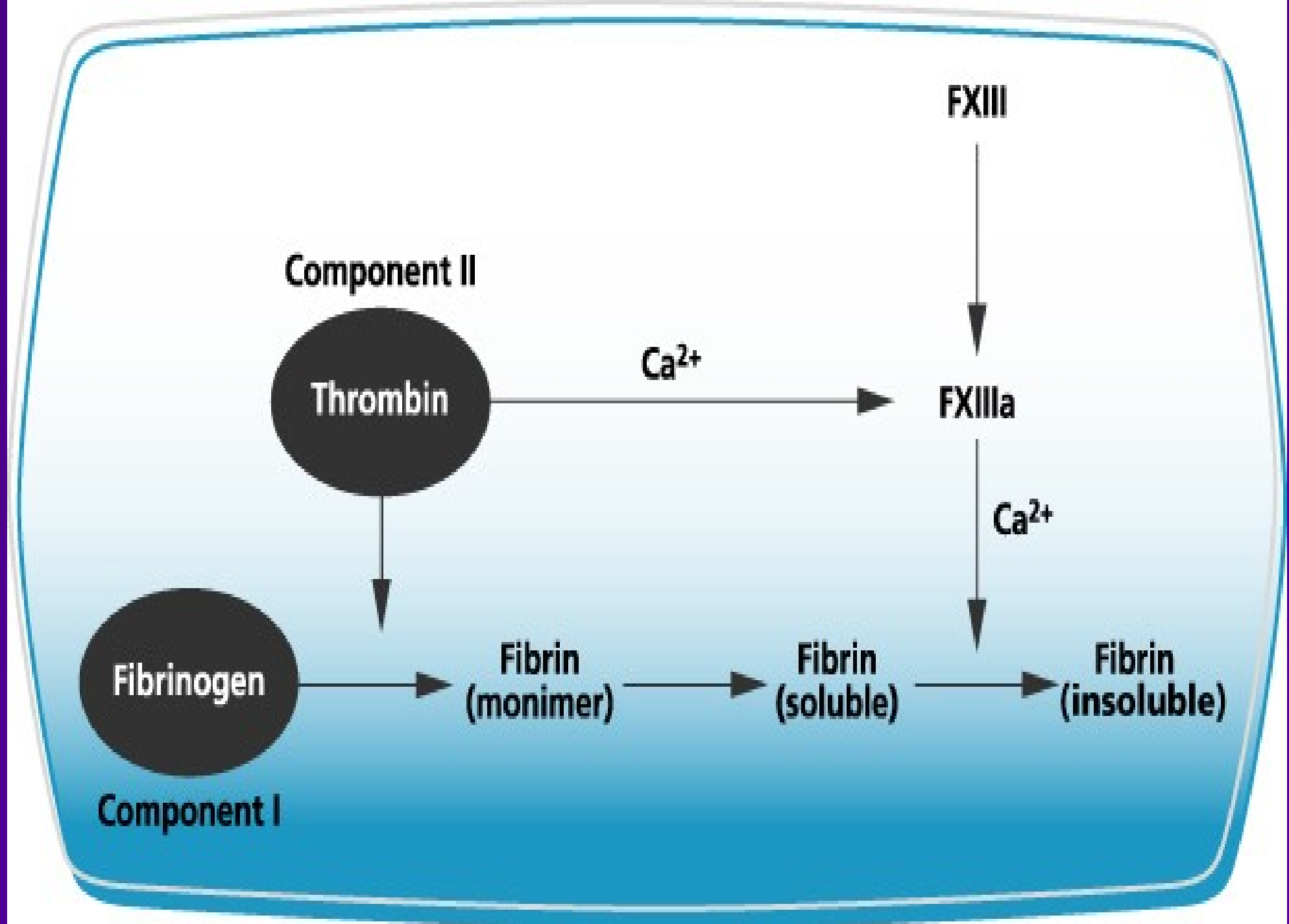
Thrombin Solution



- 20 minutes prep time



- Good for 4 hours



The coagulum

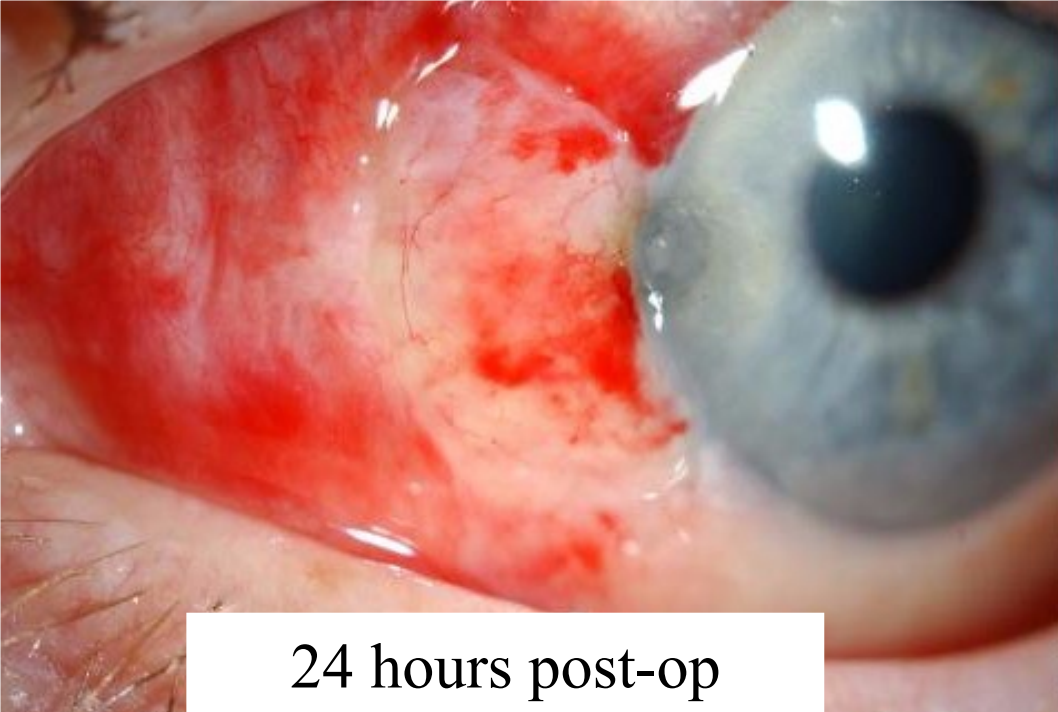


- Appearance of Honey
- Hemostasis and tensile strength of a Fibrin clot

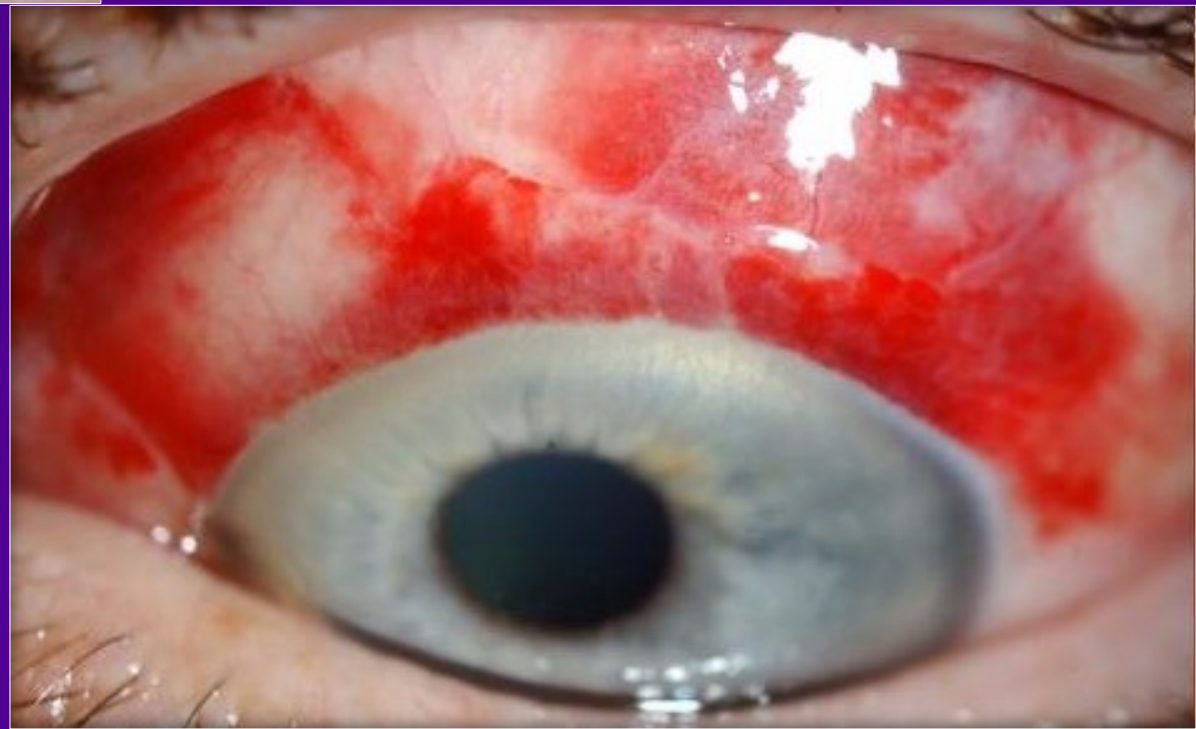
- Setting starts in 1 min
- Solidification in 3-5 min
- 70% strength in 10 min
- Full strength in 2 hours
- Reabsorbed in 10-14 days

Use of Fibrin Glue





24 hours post-op

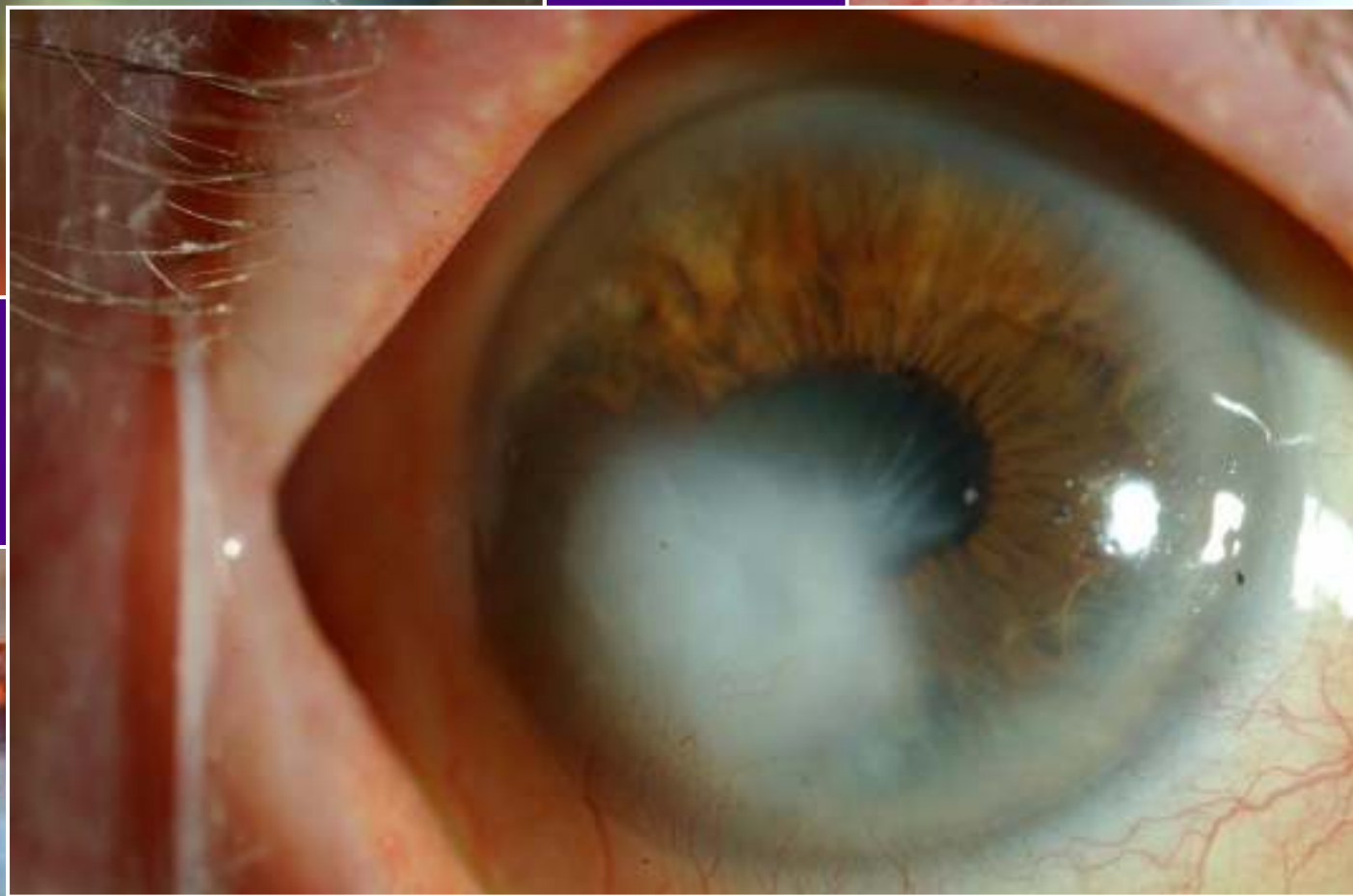
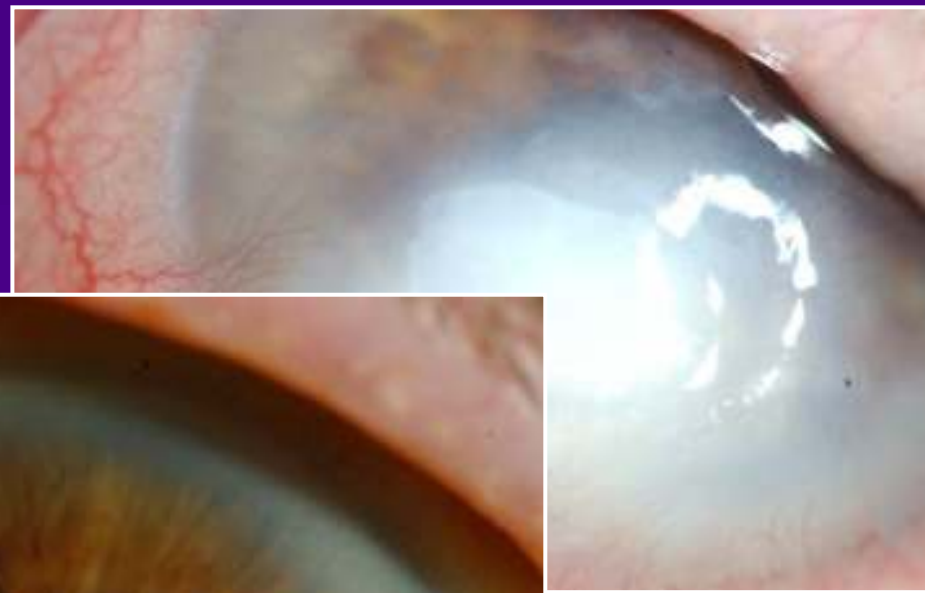




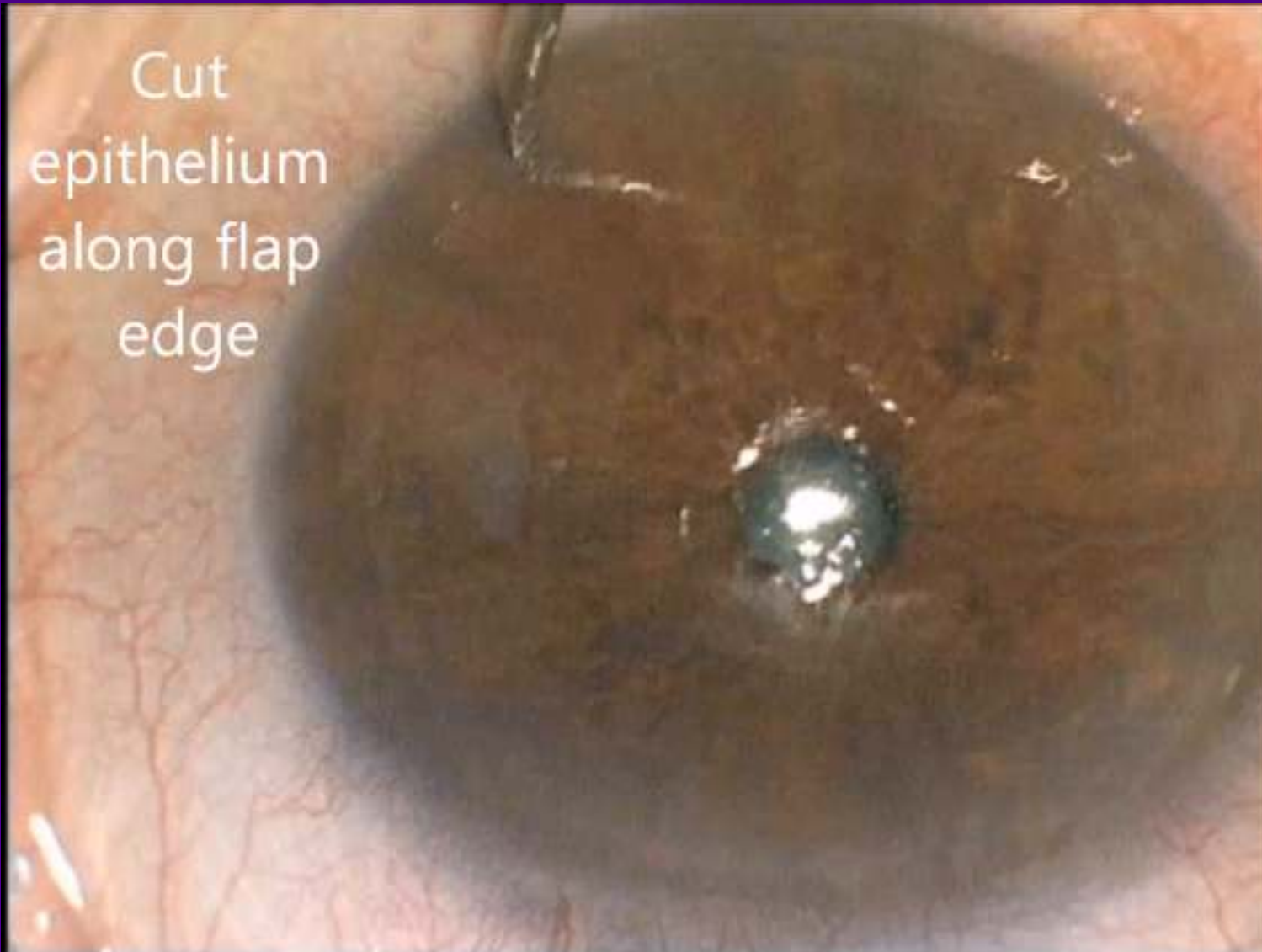
Amniotic membrane
to cover perforations

Suture
Glue
Suture + Glue



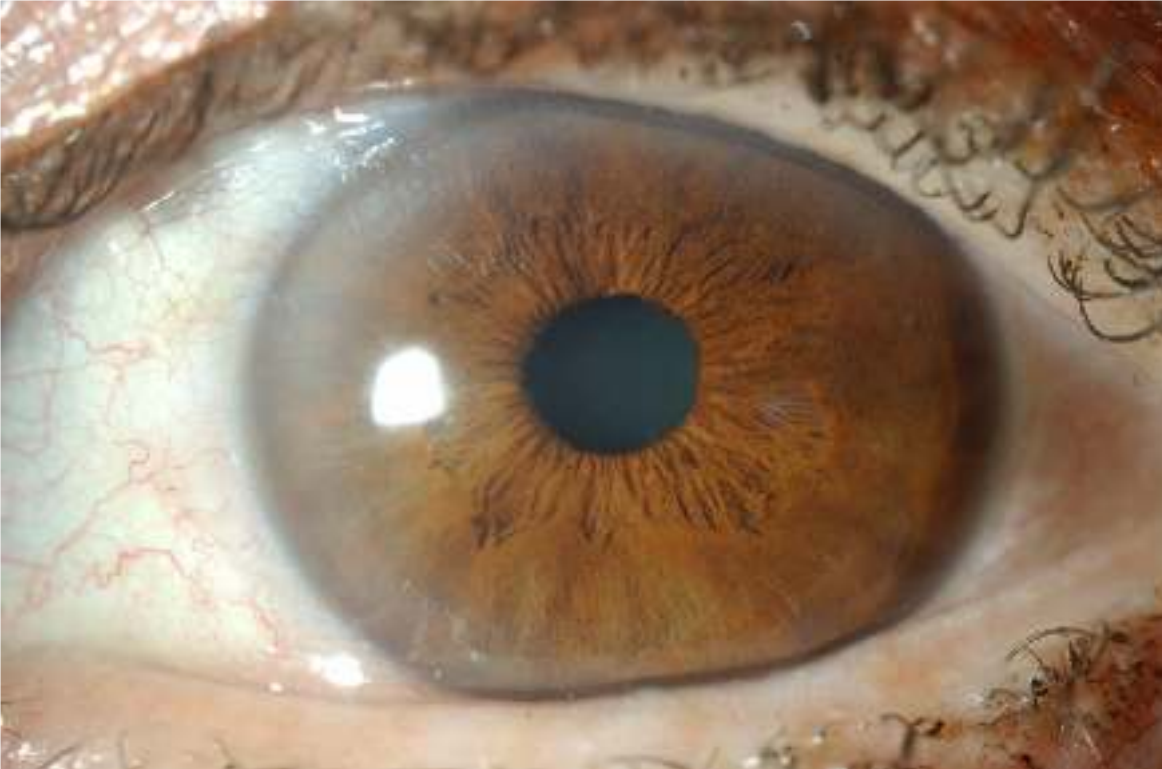


Management of epithelial ingrowth post Lasik

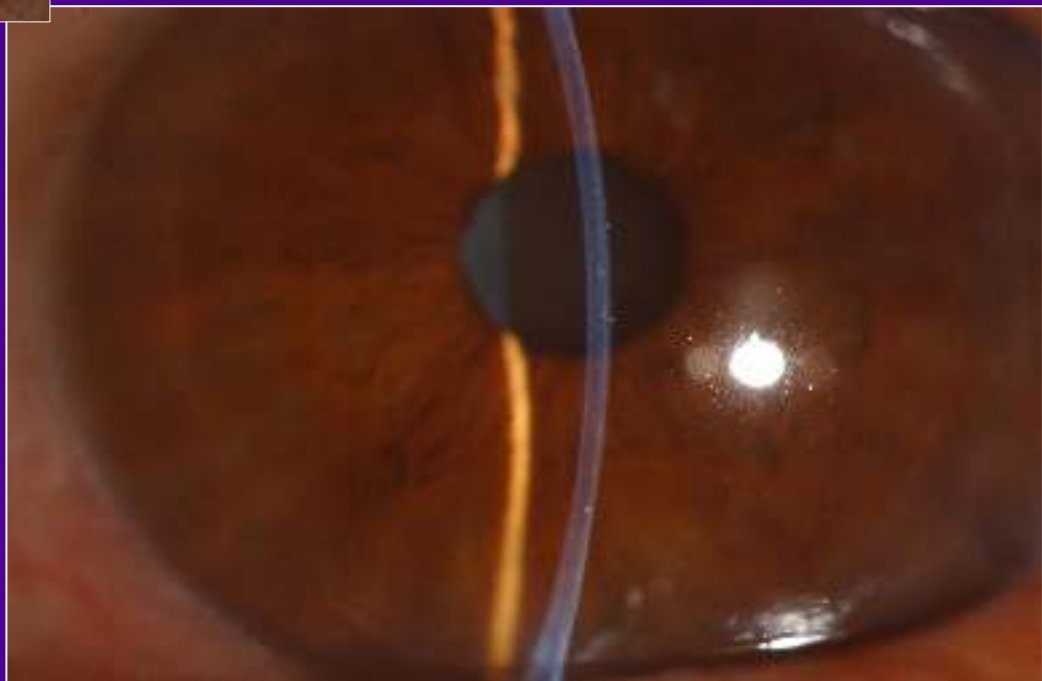


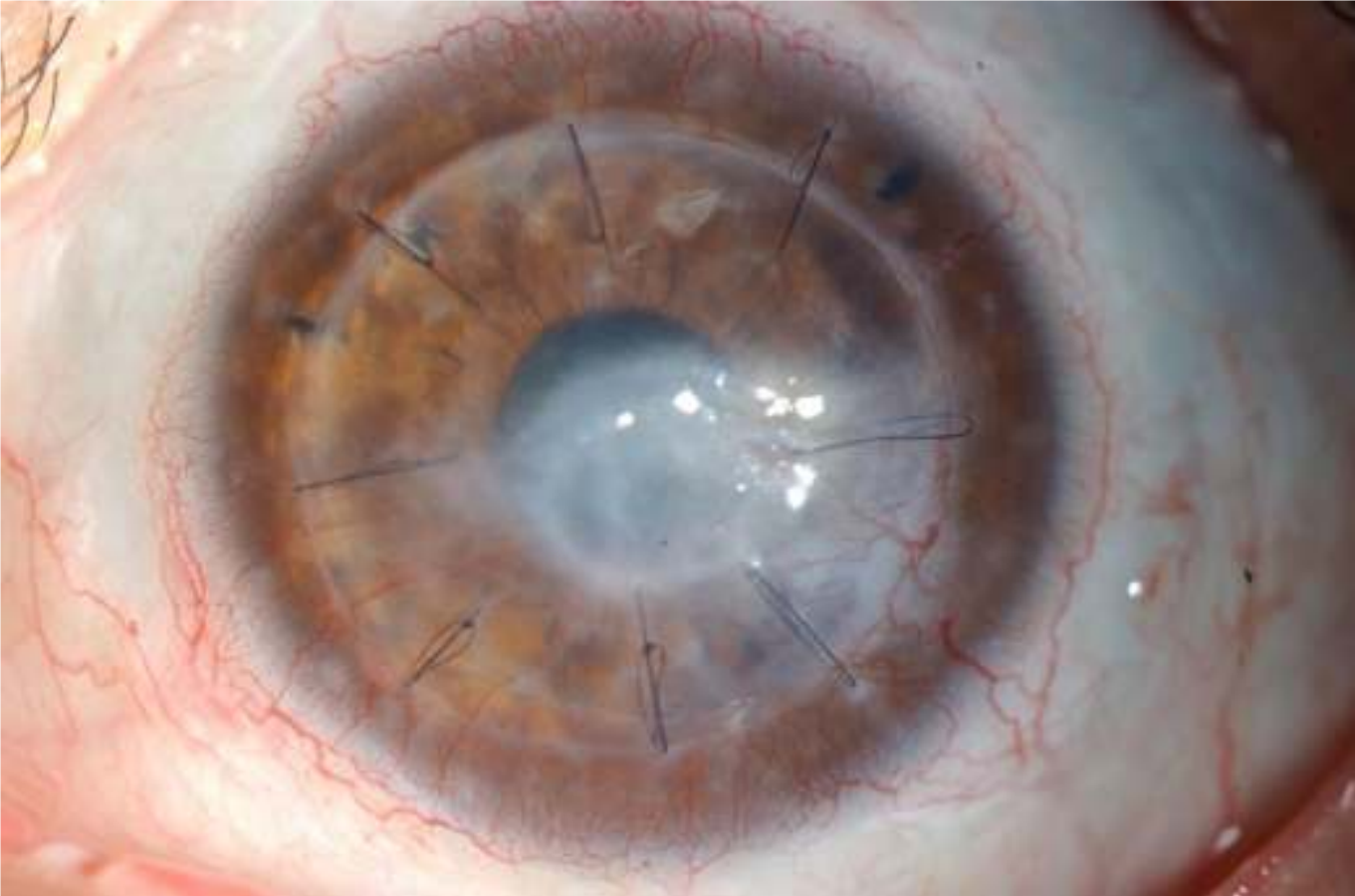
- Incisional flap lift
- Mechanical scrape
- 70% alcohol x 15-30 seconds
- 0.02% MMC x 12-15 secs
- Wash
- Fibrin glue

*Wilde, Messina and
Dua. JCRS 2017*

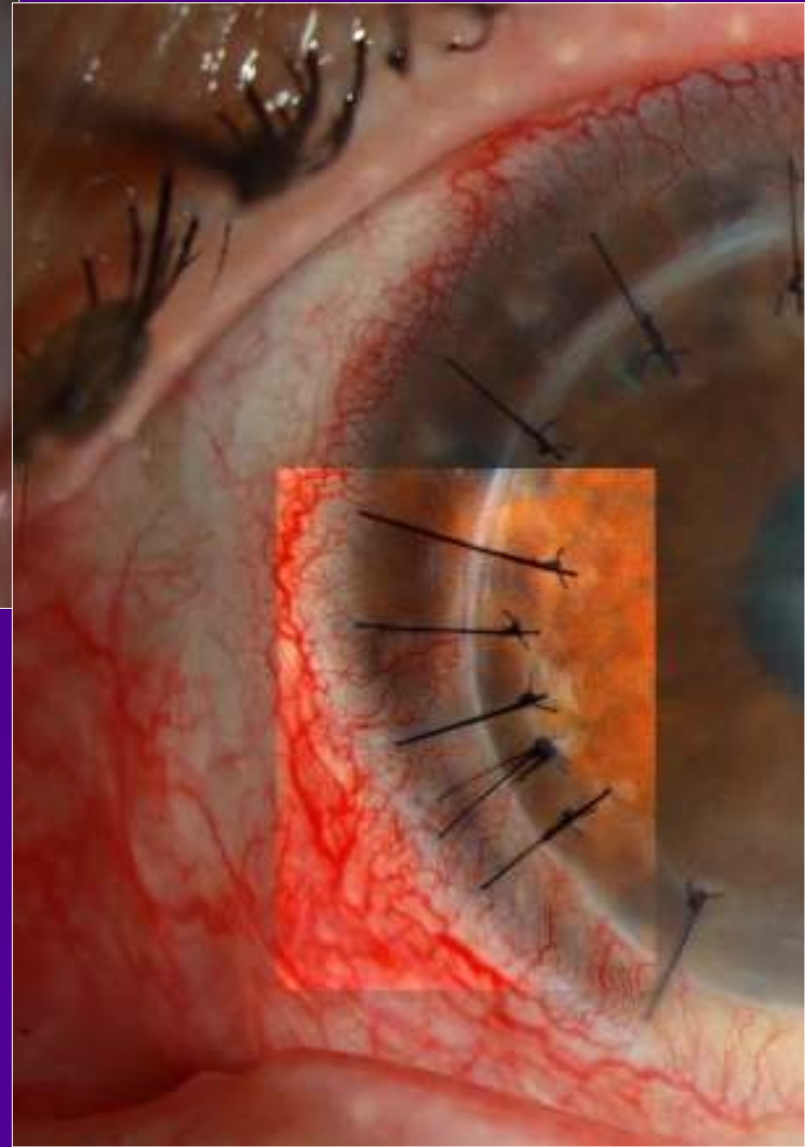


Uncorrected Vision = 6/7.5

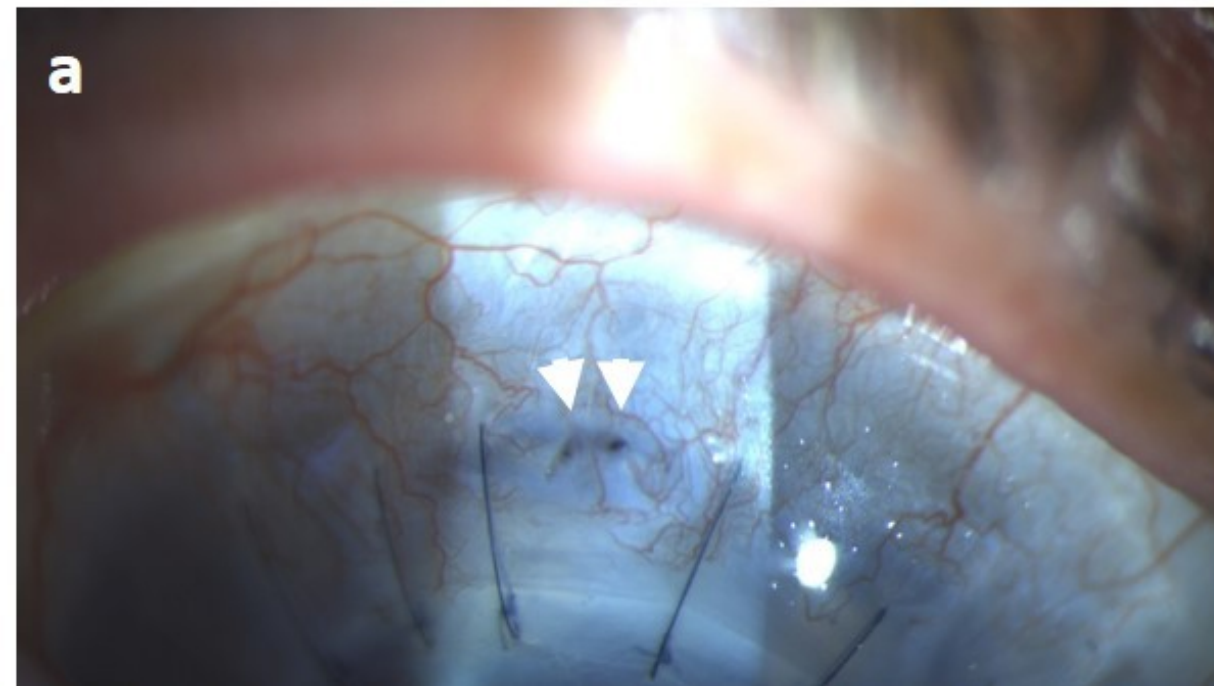




Injection of Fibrin glue in AC and
graft-host junction for persistent
leaks?



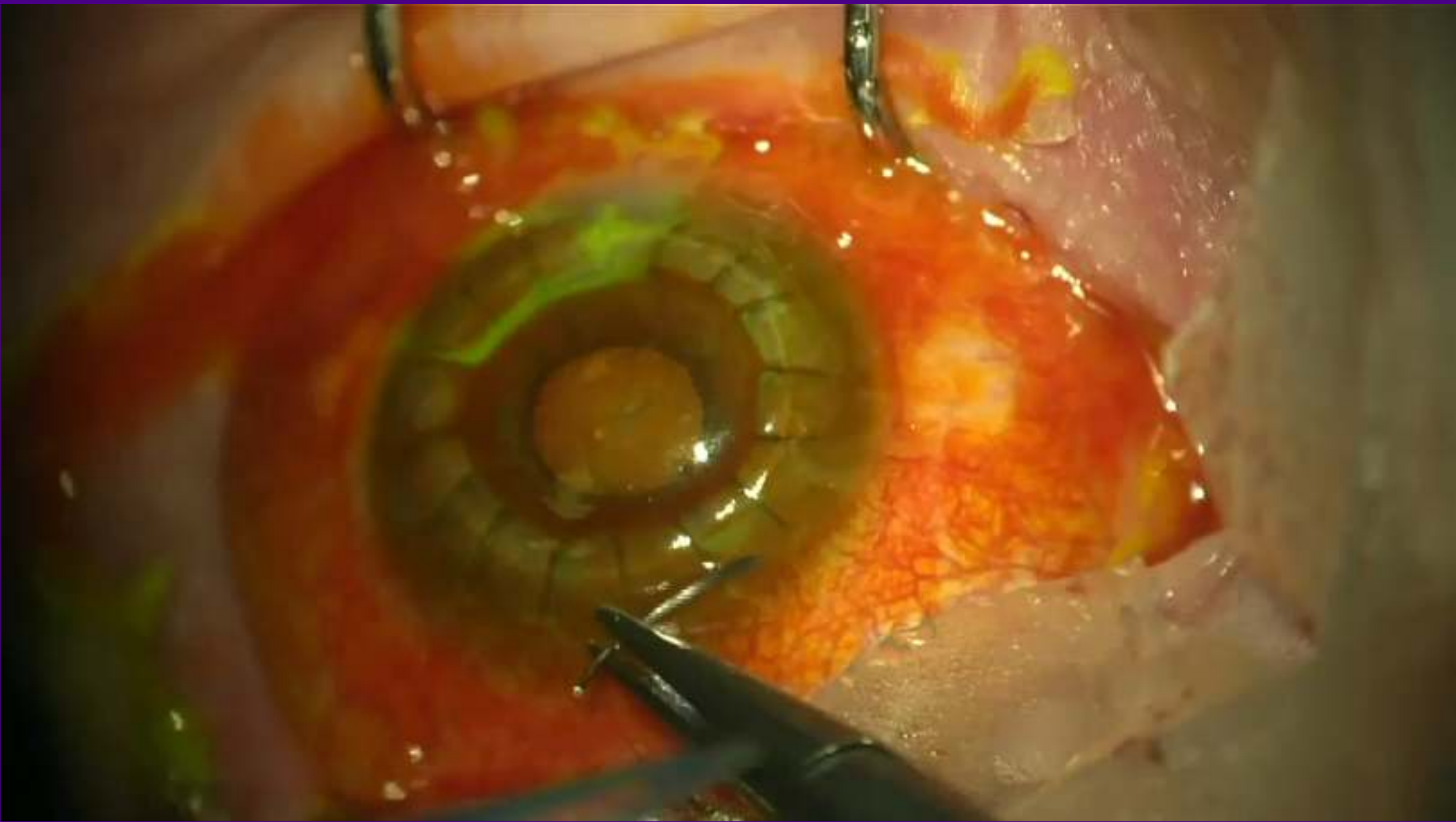
Management of suture leaks



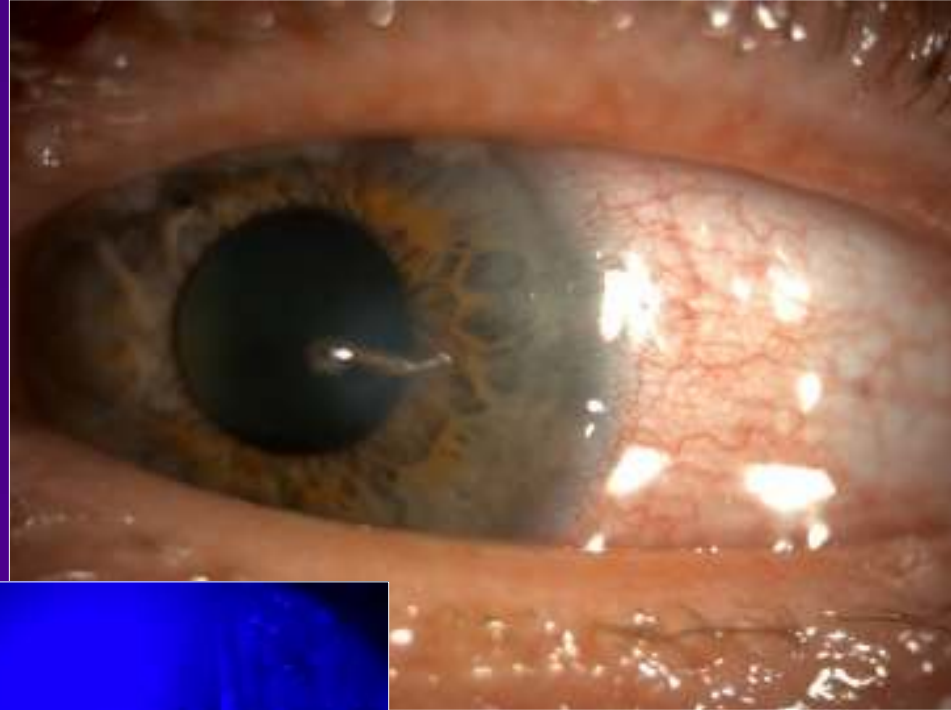
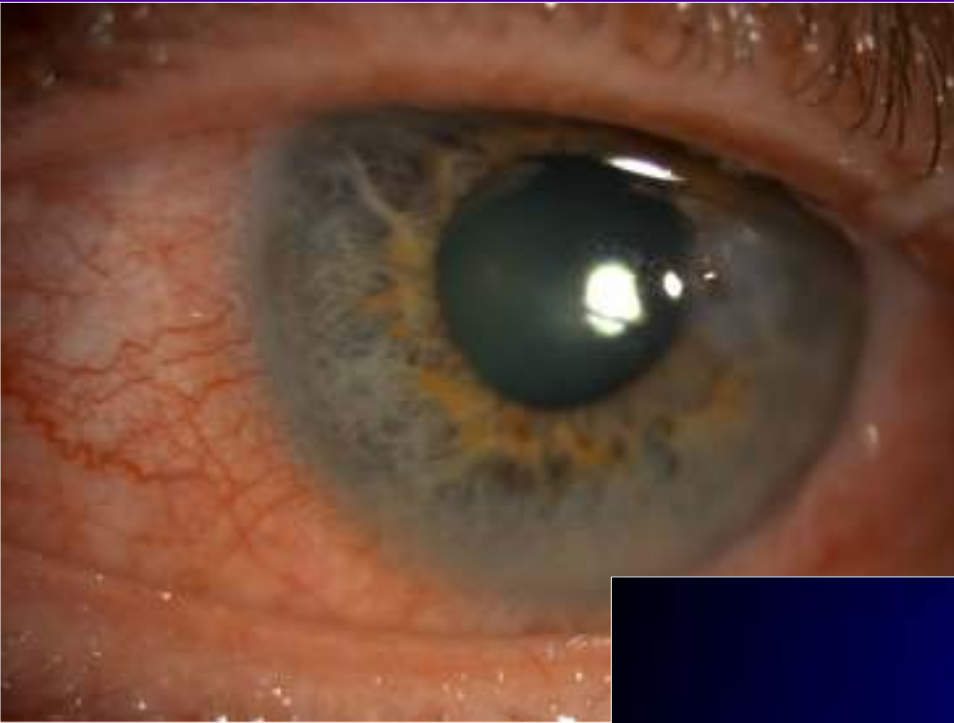
Very thin host bed in penetrating keratoplasty:
‘Holes’ sealed with fibrin glue

Dua et al. Eye. 2017

Thin Host With Leak post PKP



Management of corneal perforations

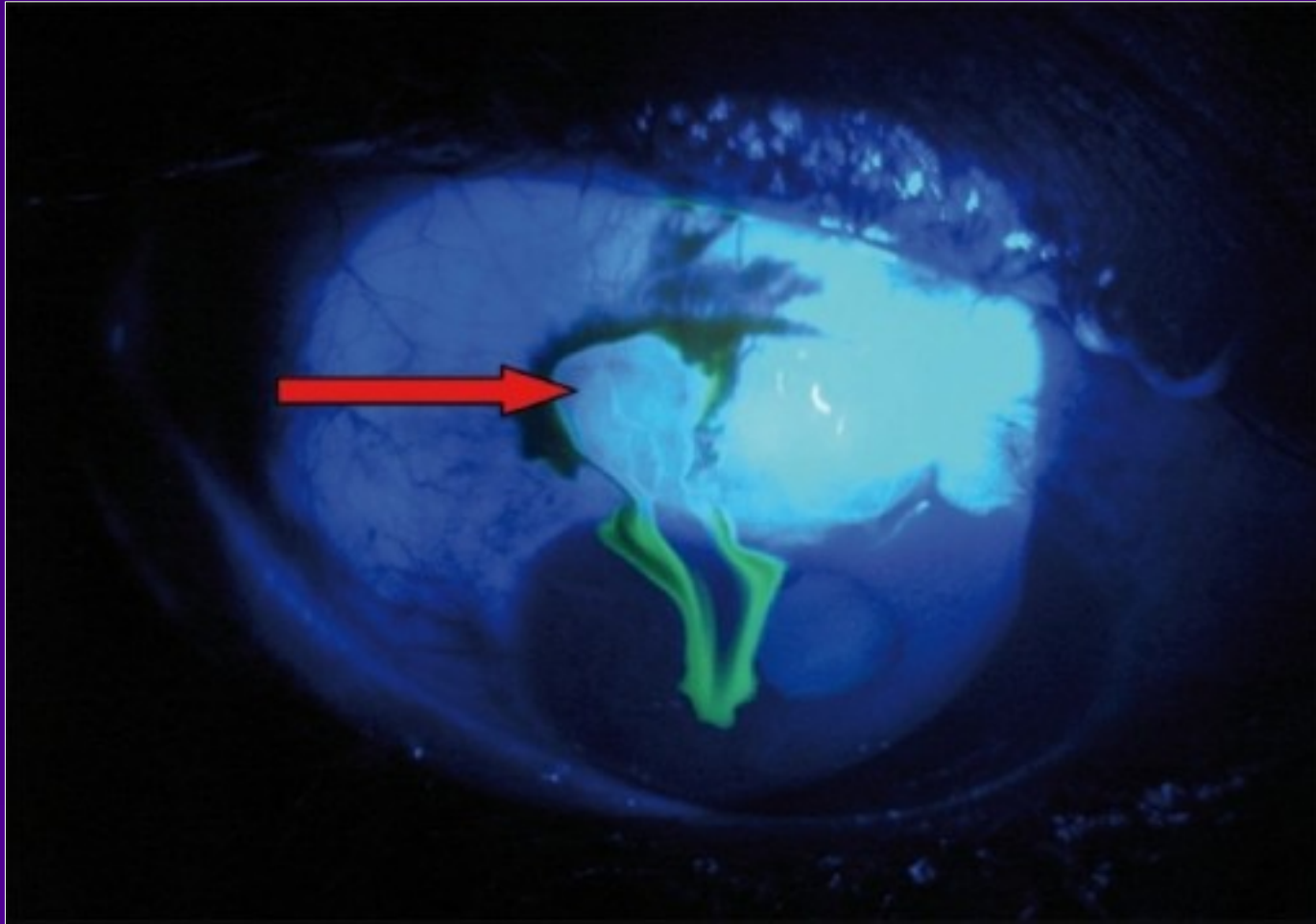


Dua et al. Eye. 2017

Post-DSEK soft eye. Sidel negative



Management of leaking glaucoma filtering blebs



Intra bleb injection of fibrin glue

Take home message

- Corneal gluing is useful for multiple indications.
- Cyanoacrylate glue:
 - Cheap, easy to store
 - Non-biodegradable
 - Irritant and causes vascularisation.

Take home message

➤ Fibrin glue:

- More expensive
- Biological and degradable
- More versatile as an alternative to sutures
- Safely introduced in the anterior chamber and intrastromal