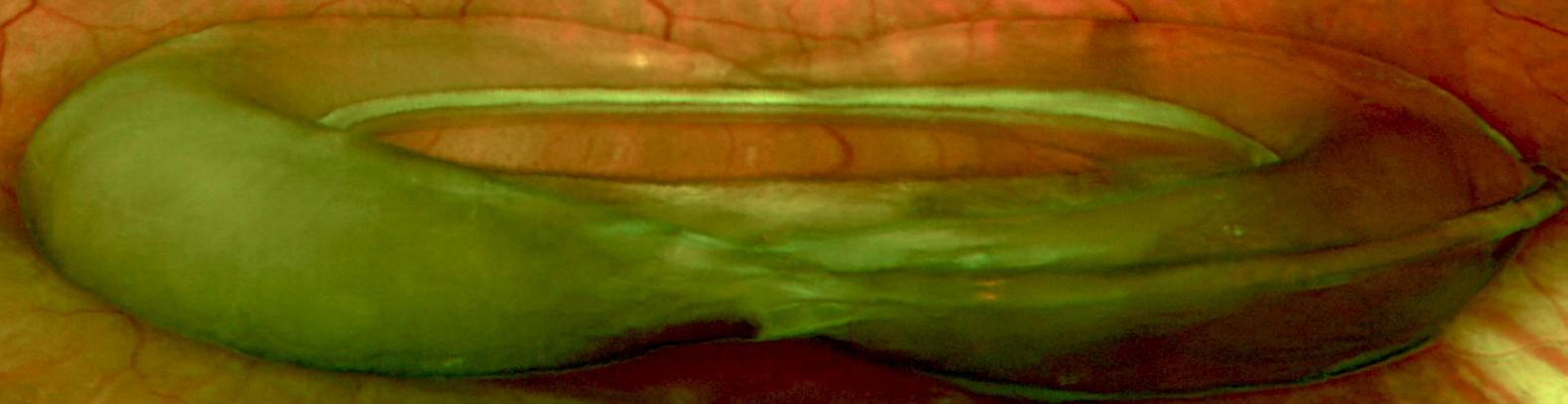


# Dealing with IOL troubles

Carlos Mateo MD  
IMO-Barcelona



Reported incidence varies **from** 0.05% to 3%

Contradictory reports about **if** the rates are increasing or not

Risk Factors :

Pseudoexfoliation

Previous V-R surgery

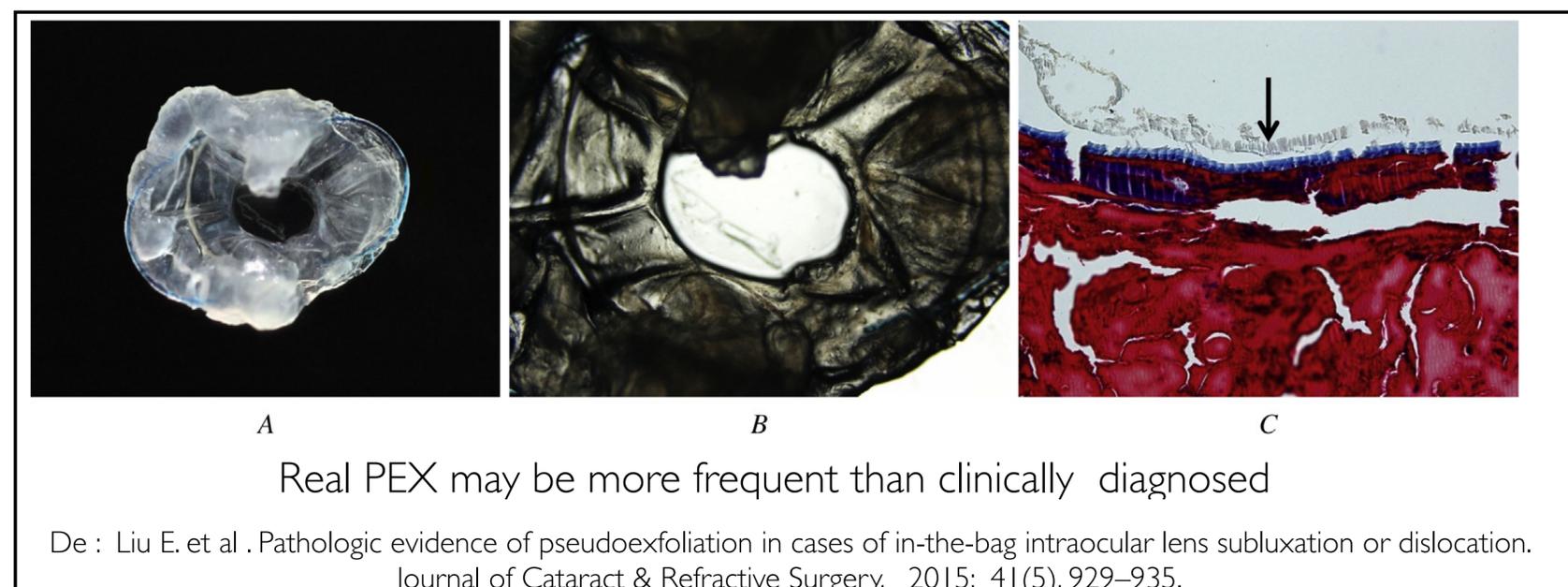
Myopia

Secondary Implantation

Glaucoma

Zonular dehiscence during cataract procedure

Trauma



G. Jakobsson, et al "Late dislocation of in-the-bag and out-of-the bag intraocular lenses: ocular and surgical characteristics and time to lens repositioning," Journal of Cataract & Refractive Surgery, 2010 ;36, ;10, 1637–1644

W.J. Stark, D.M.Worthen, J.T. Holladay et al., The FDA report on intraocular lenses, Ophthalmology, 1983 ; 90, 4, pp. 311–317

W.J. Stark Jr., A. E. Maumenee, and M. Datiles, "Intraocular lenses: complications and visual results," Transactions of the American Ophthalmological Society, 1983;81: 280–309

R. P. Kratz, T. R. Mazzocco, B. Davidson, and D. M. Colvard, "The Shearing intraocular lens: a report of 1,000 cases," American Intra-Ocular Implant Society Journal, 1981; 7: 1, 55–57,

# IOL troubles

## Dislocated IOL's

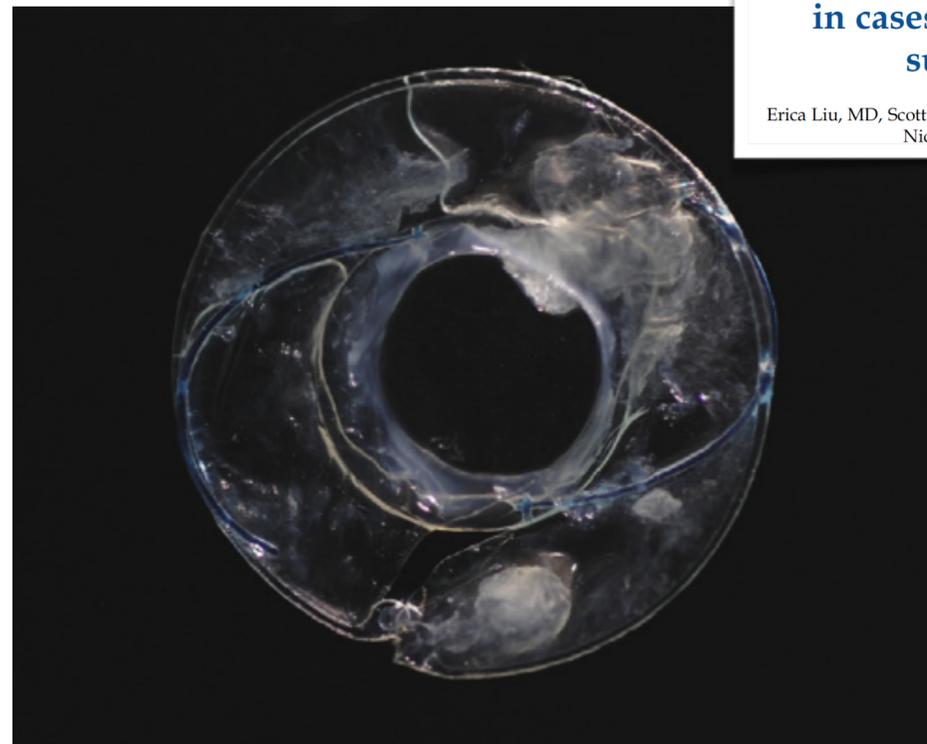
Not related to any particular IOL type

Reported in rigid/foldable, acrylic/silicone, 1 piece/3 pieces different IOL designs

Mean time between cataract surgery and IOL luxation very variable ( It has been reported as 5.56 years in some series (PXF))

### Pathologic evidence of pseudoexfoliation in cases of in-the-bag intraocular lens subluxation or dislocation

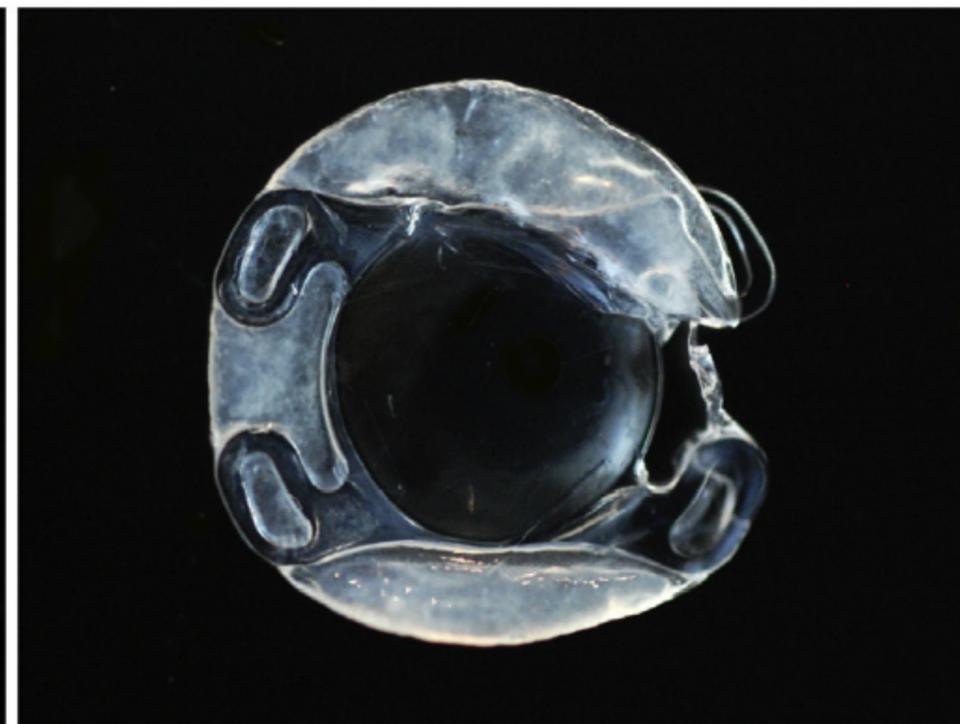
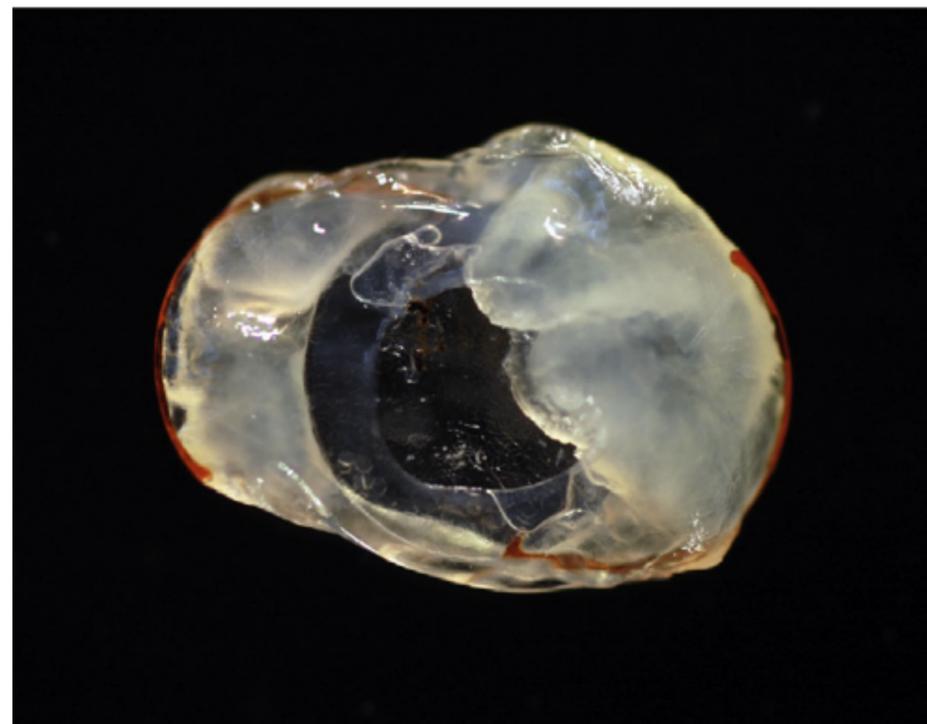
*J Cataract Refract Surg 2015; 41:929-935*  
Erica Liu, MD, Scott Cole, MD, MS, Liliana Werner, MD, PhD, Fritz Hengerer, MD, PhD, Nick Mamalis, MD, Thomas Kohnen, MD, PhD, FEBO



A



B



IOL troubles

Dislocated IOL's

Factors to consider for treatment

Age of the patient

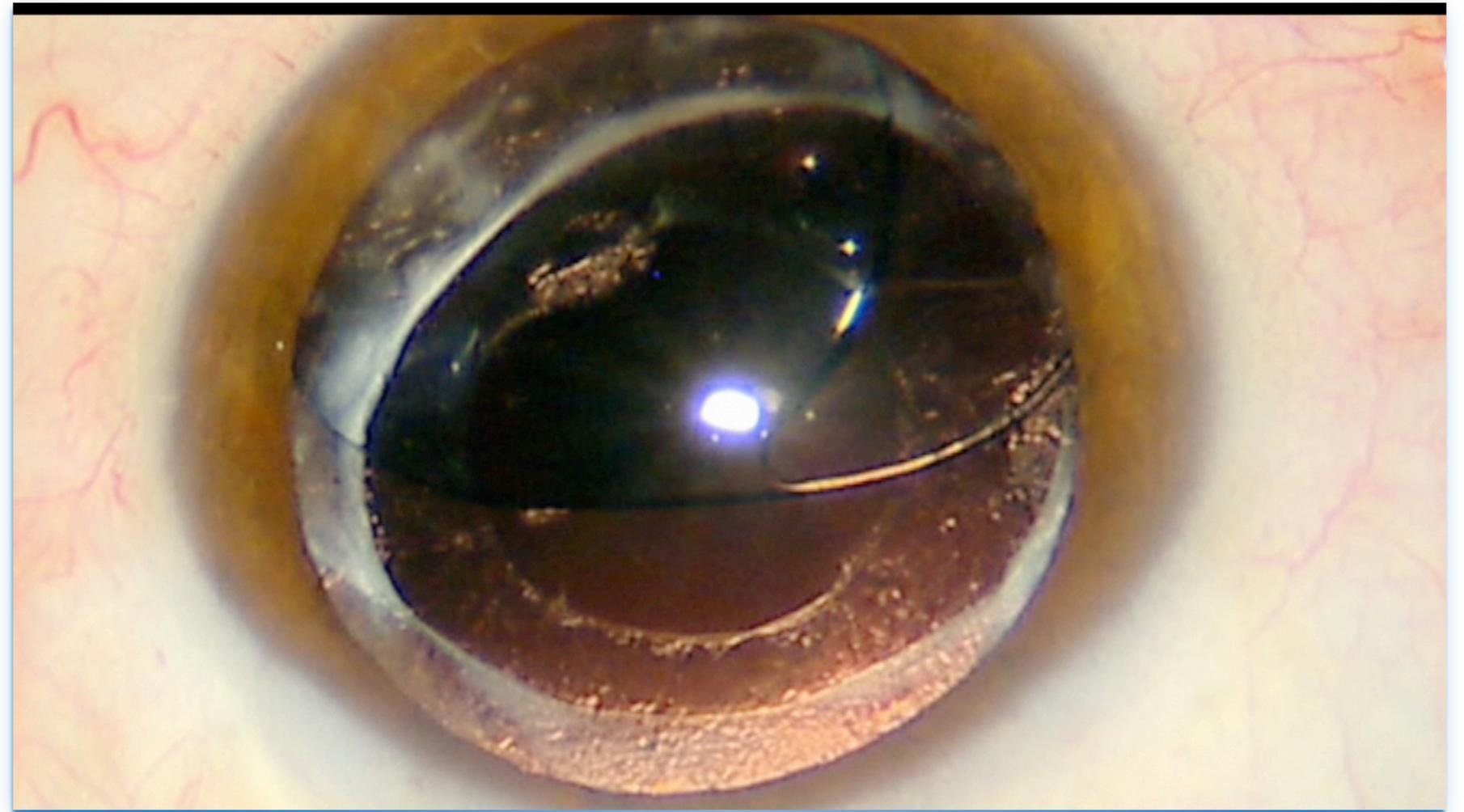
Corneal status

Type of IOL

In/out of the Bag

Degree of capsular support

Other conditions : High myopia, previous glaucoma...



# IOL's dislocation

## Rescue

Lens & Bag luxation

Lens Dislocation

Enough C support

IOL relocation

Not Enough C support

Iris sutures

Scleral Sutures

Flanged IOL( Yamane )

## Exchange

Anterior Chamber IOL

Iris sutures

Iris fixation

Artisan

Ant I. surface

Post I Surface

Sutures

Prolene/Gore-Tex

Scleral fixation

Sutureless

Scleral Tunnel

Glued haptics

Trocar tunnel

( Yamane )

Carlevale lens

IOL troubles

Dislocated IOL's

Rescued Lenses

Faster recovery

Cost - effective procedure

The eye remains closed during the procedure

No need to reopen corneal wound

No iris prolapse

Less post-op astigmatism

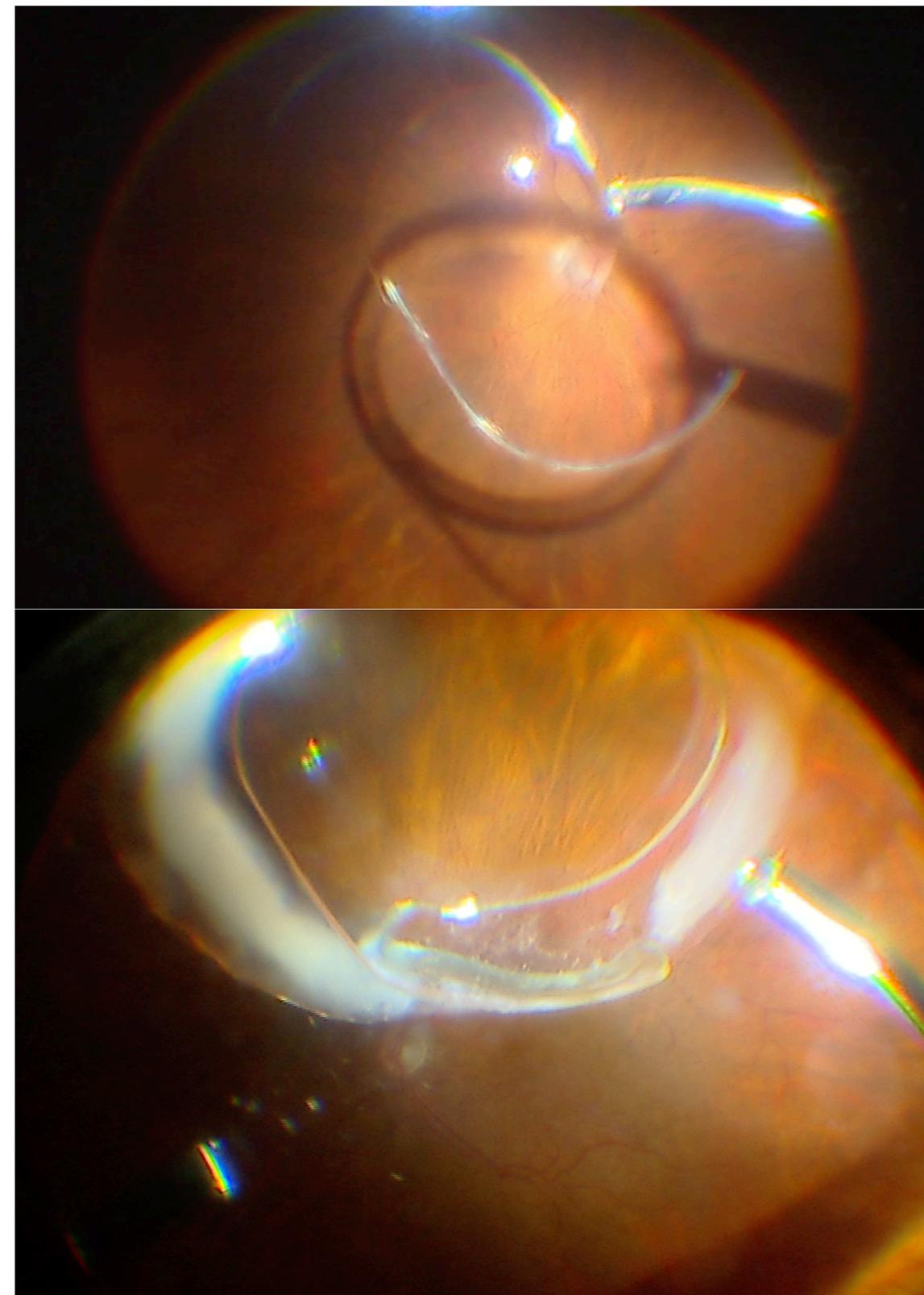
Less endothelial cells loss (\*)

Better eye stability

Less risk of hemorrhagic events (#)

\*Olav Kristianslund, MD,1,2 Marianne Råen MD, O. K., MPhil, (2017). Late In-the-Bag Intraocular Lens Dislocation A Randomized Clinical Trial Comparing Lens Repositioning and Lens Exchange. *Ophthalmology*, 124(2), 151–159

# Armonaitė, L., Löfgren, S., & Behndig, A. (2019). Iris suture fixation of out-of-the-bag dislocated three-piece intraocular lenses. *Acta Ophthalmologica*, 33, 1106–6.

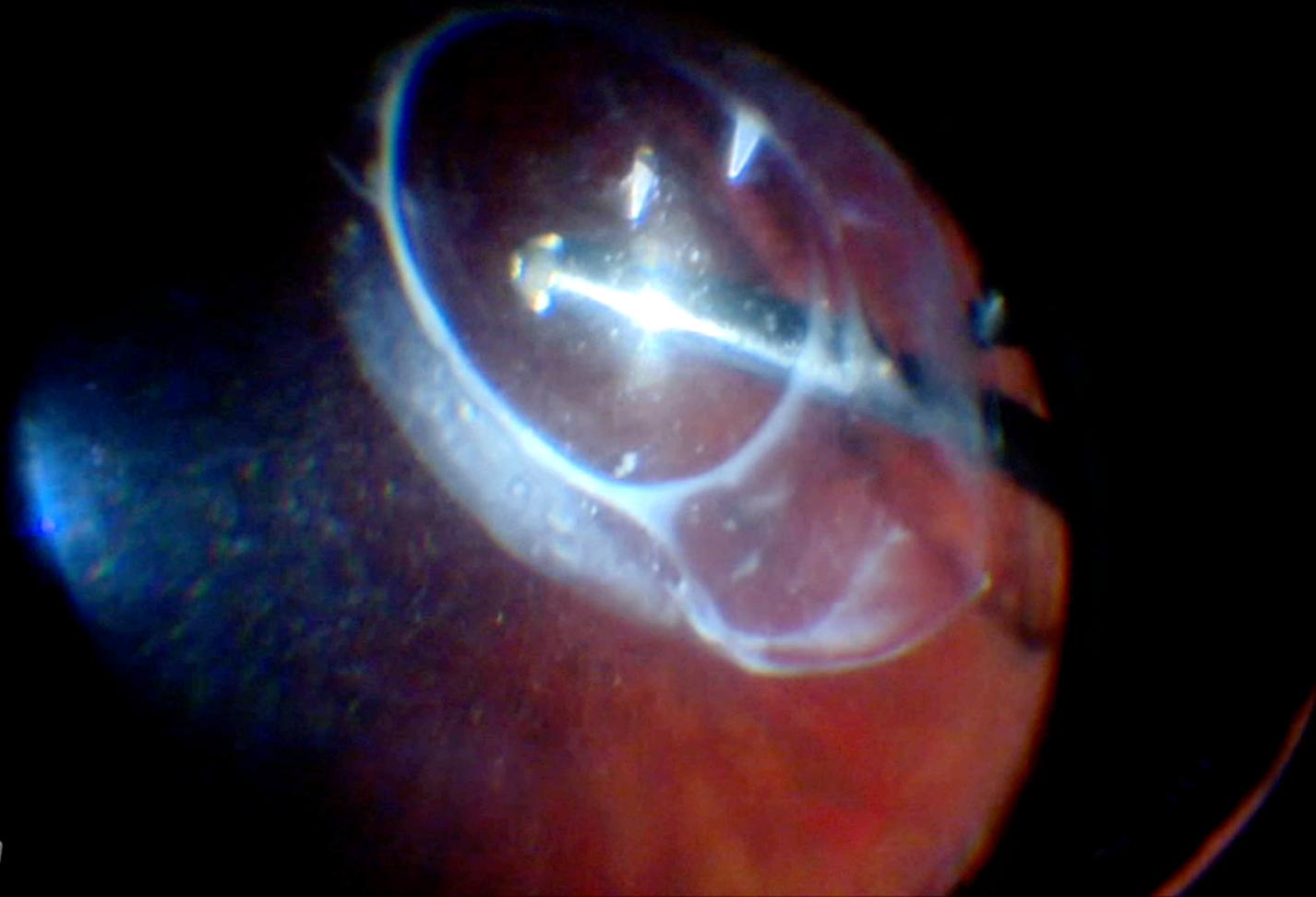


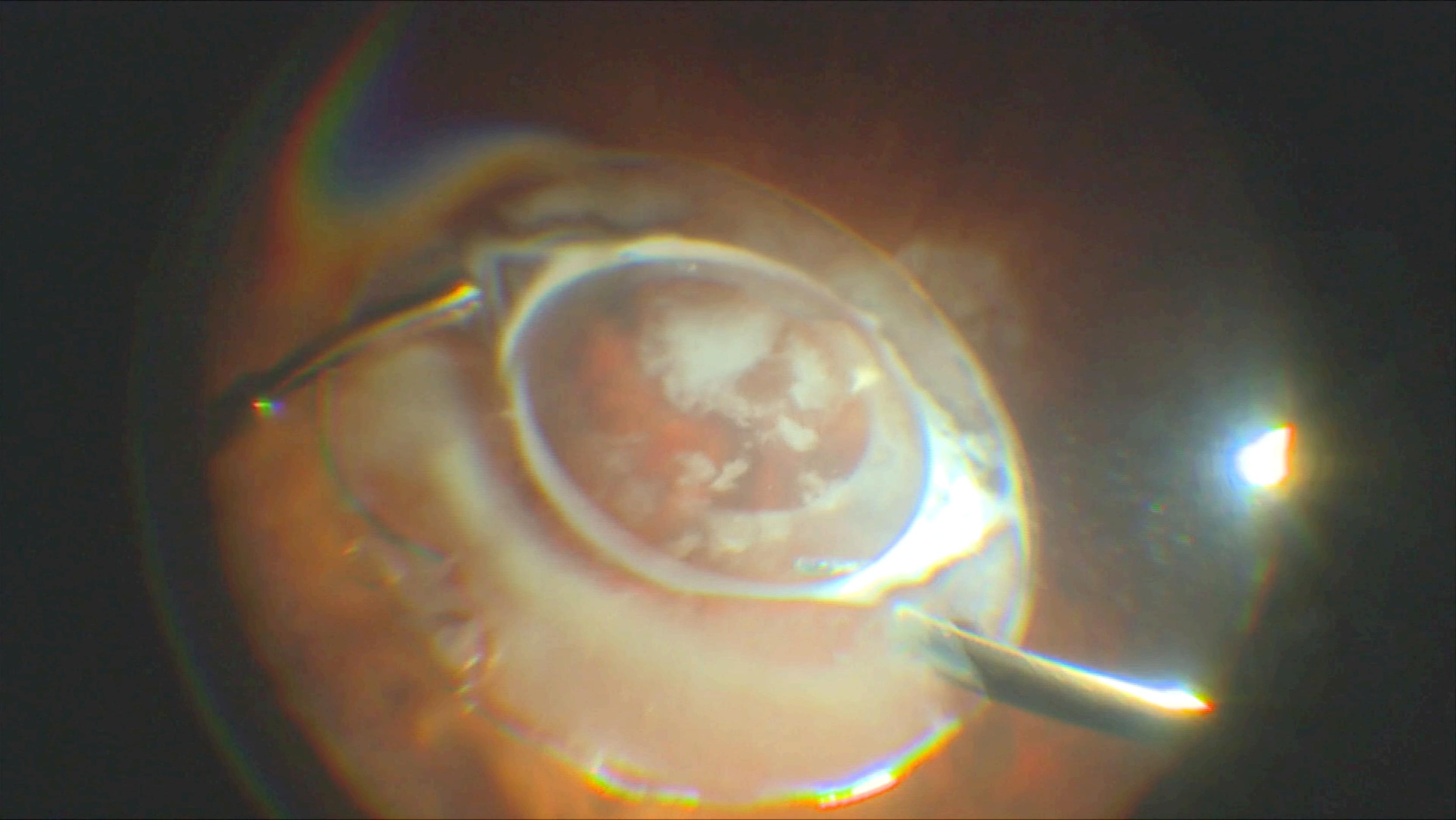


# Rescued Lenses

..But not all lenses are good for “rescue”..

“Disc type” “No Haptics” IOL’s  
Silicon material IOL’s  
Hydrophilic IOL’s (??)

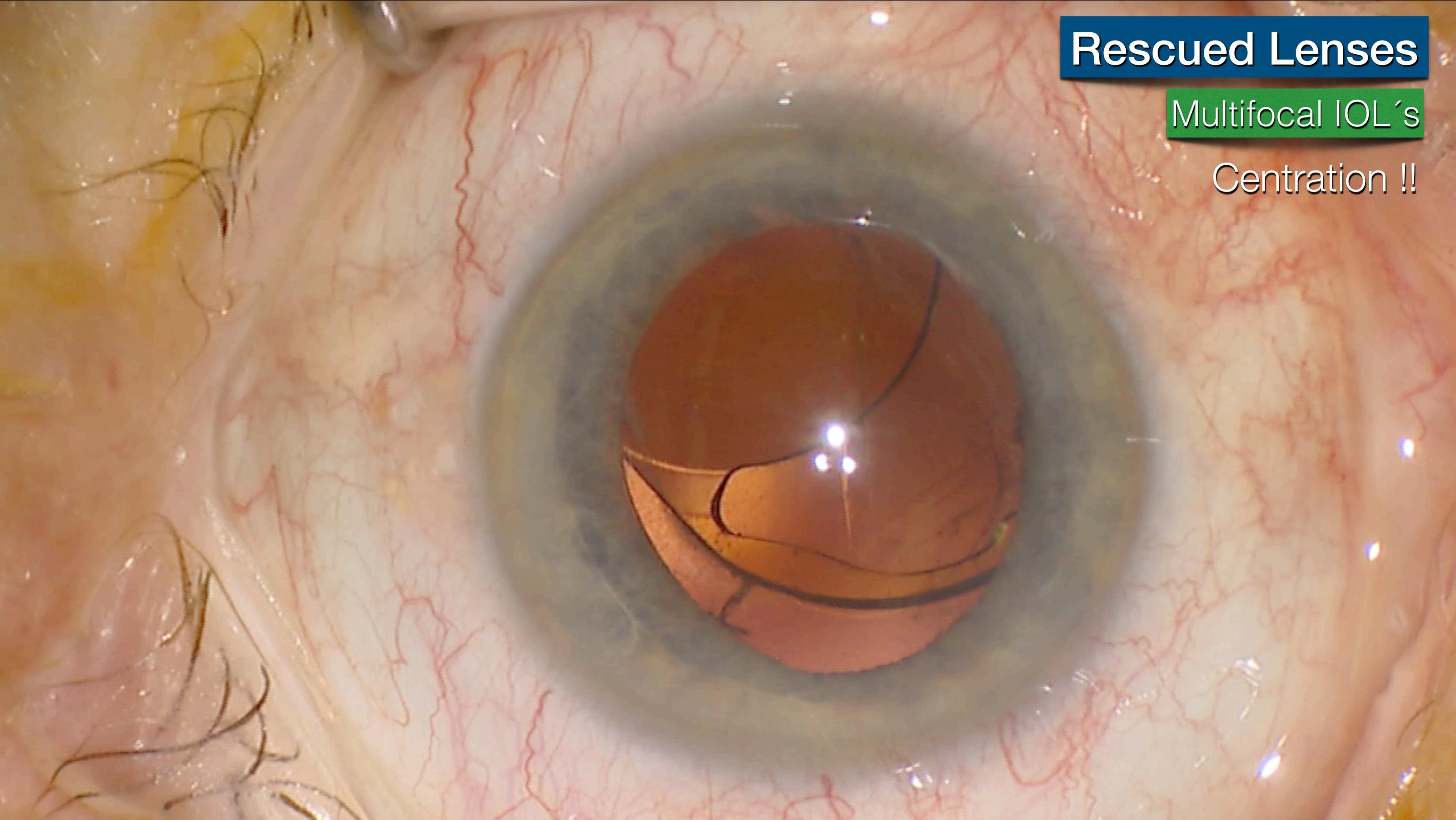




# Rescued Lenses

Multifocal IOL's

Centration !!

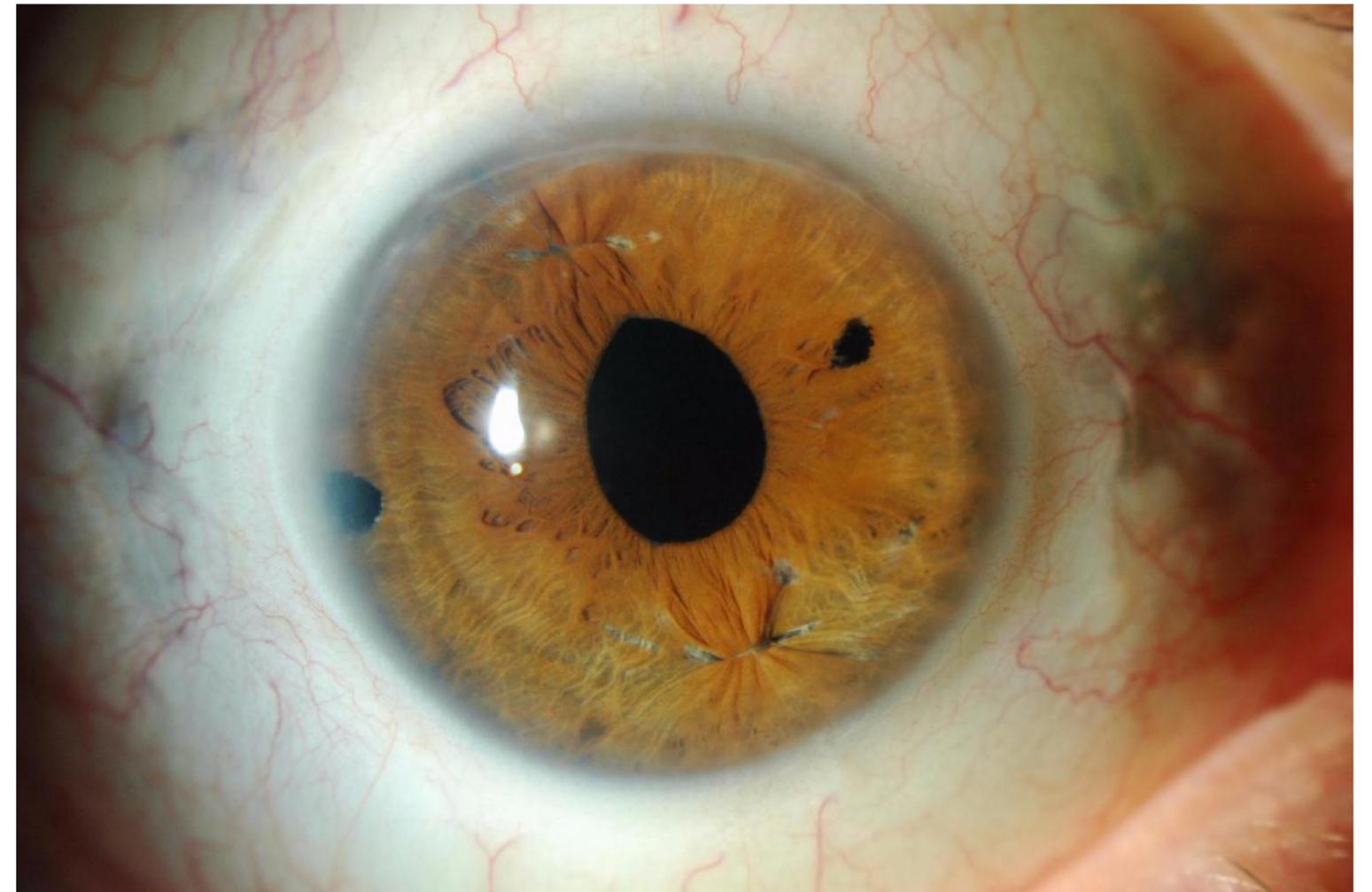
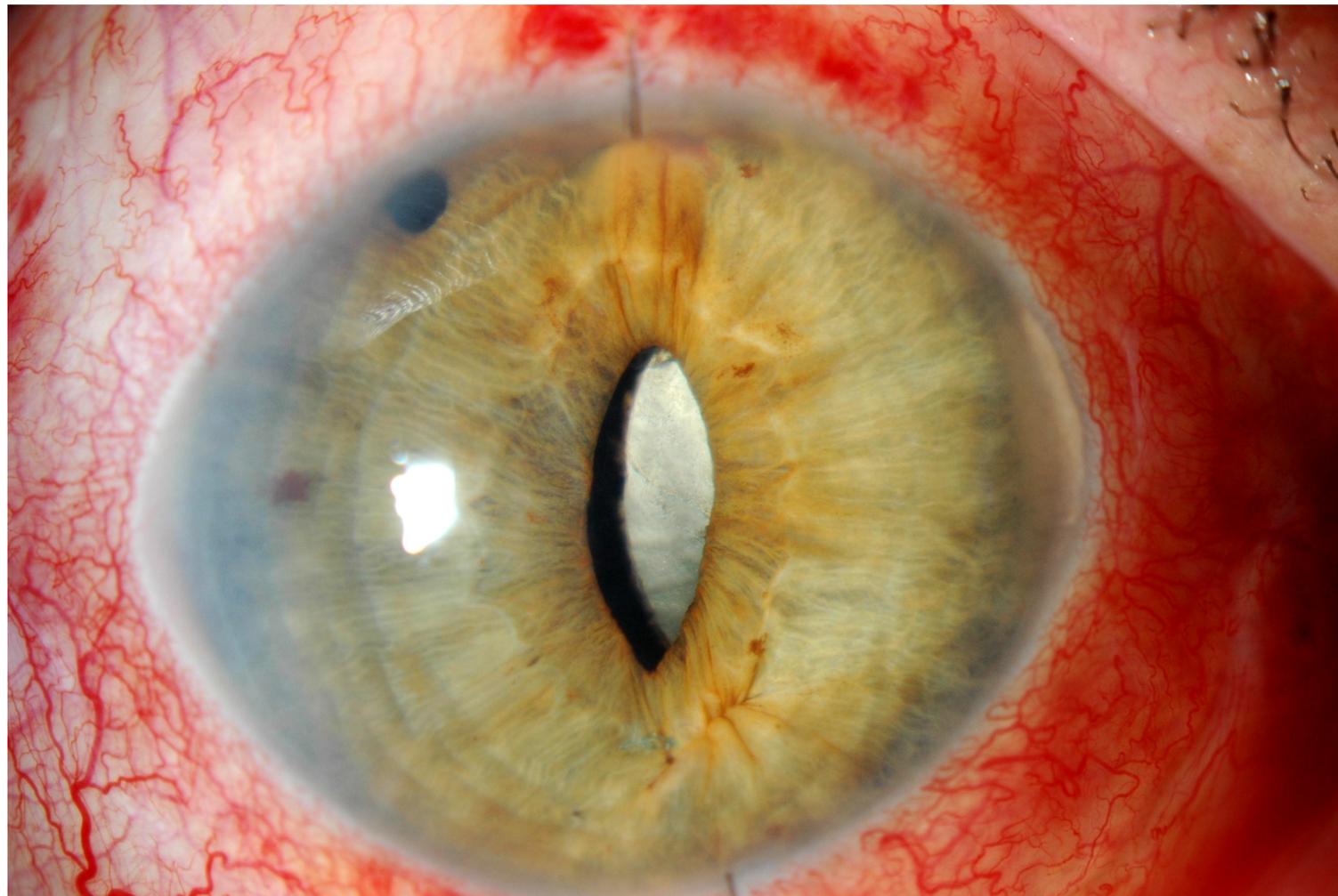


# Iris suture Technique

# Rescued Lenses

## Complications & Drawbacks

Pupil ovalization / distortion (“Cat pupil”)



# Iris suture Technique

# Rescued Lenses

## Complications & Drawbacks

Pupil ovalization / distortion (“Cat pupil”)

Cystoid macular Edema (4% ) (different tech´s may induce ME)

Uveitis - Glaucoma - Hyphema syndrome (UGH) (\* 6.5%)

Glaucoma (\*2.2%) (Pigment dispersion (\* 6.5%))

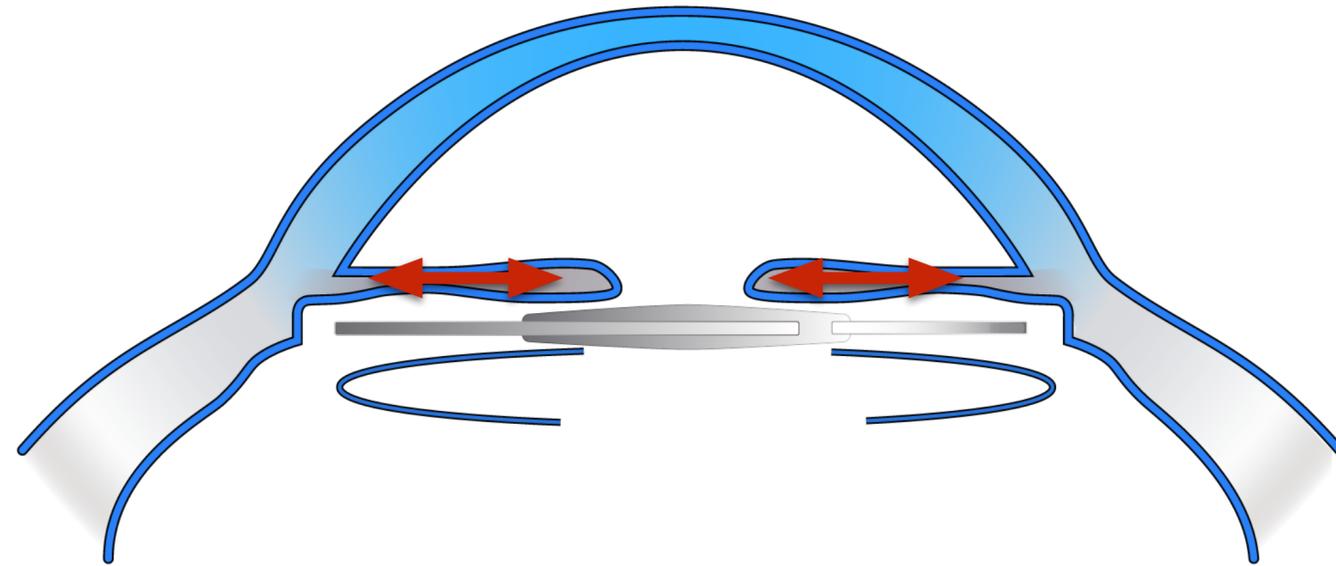
\* Condon, G. P., Masket, S., Kranemann, C., Crandall, A. S., & Ahmed, I. I. K. (2007). Small-Incision Iris Fixation of Foldable Intraocular Lenses in the Absence of Capsule Support. *Ophthalmology*, 114(7), 1311–1318.

# Iris sutured lenses

## Glaucoma ??

**Pigment dispersion with elevated intraocular pressure after AcrySof intraocular lens implantation in the ciliary sulcus** J Cat Refract Surg 2001

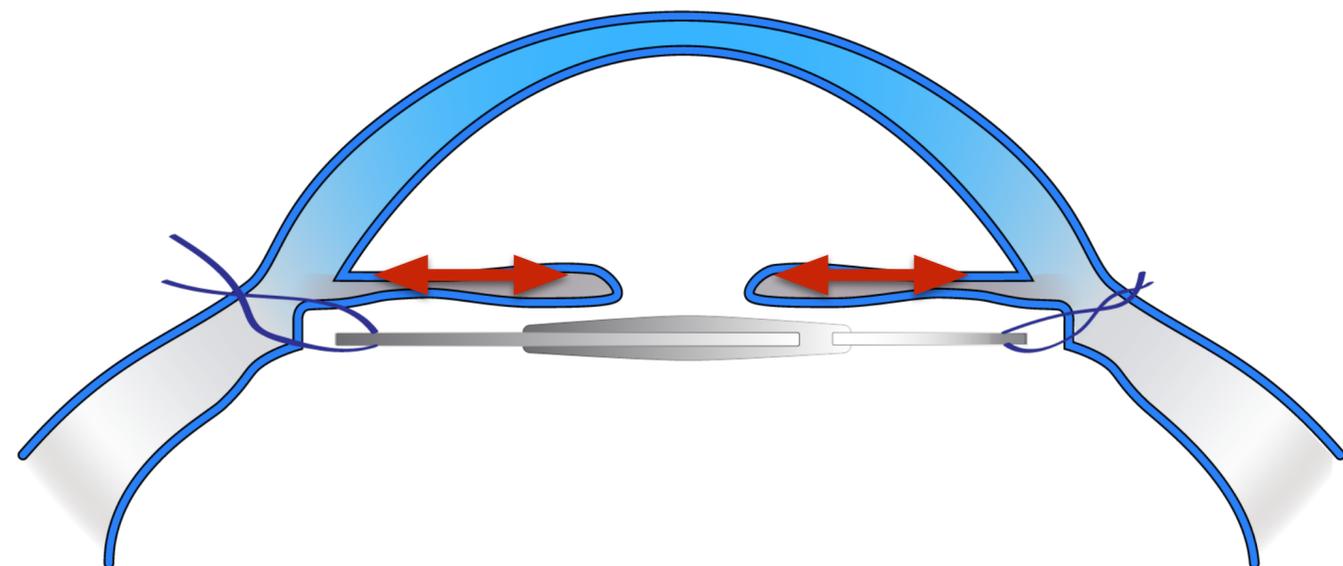
Richard Wintle, MSc, Michael Austin, FRCOphth



“AcrySof IOL with sharp square edge in sulcus may induce chafing effect on the posterior iris pigment and promote iris dispersion and glaucoma....”

**Pigment dispersion syndrome and pigmentary glaucoma after secondary sulcus transscleral fixation of single-piece foldable posterior chamber intraocular lenses in Chinese aphakic patients**

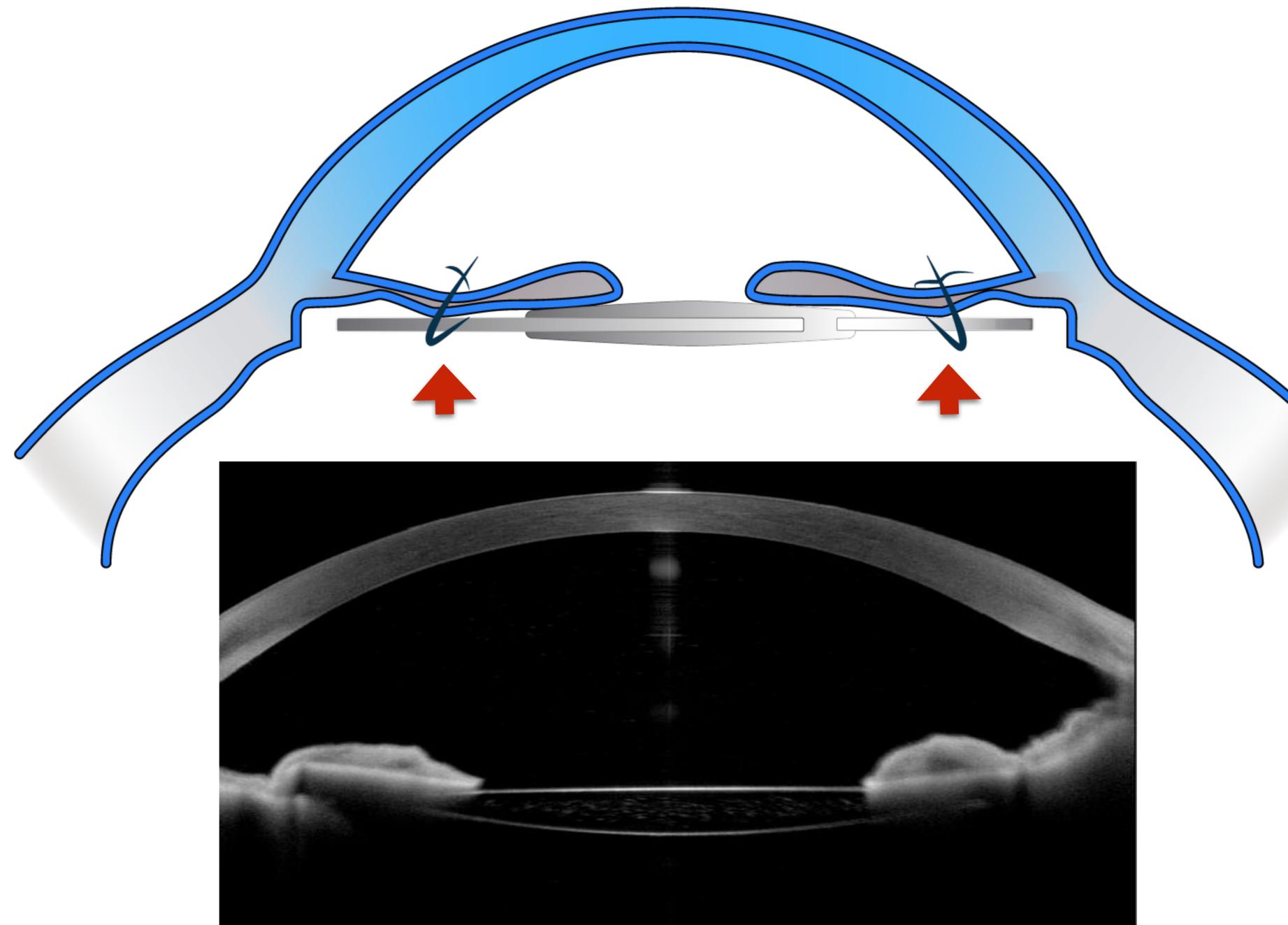
Nianting Tong, PhD, MD, Fuling Liu, PhD, MD, Ting Zhang, MD, Liangyu Wang, MD, Zhanyu Zhou, PhD, MD, Huimin Gong, PhD, MD, Fuxiang Yuan, MD  
J Cat Refract Surg 20017



# Iris sutured lenses

## Glaucoma ??

Some degree of pigment dispersion during procedure



But ... IOL firmly sutured to the iris might reduce sweeping to the post iris surface compared to IOL floating in the PC

Condon, G. P. (2003). Simplified small-incision peripheral iris fixation of an AcrySof intraocular lens in the absence of capsule support. *Journal of Cataract & Refractive Surgery*, 29 | 663–1667.

# Iris suture Technique

# Rescued Lenses

## Complications & Drawbacks

Pupil ovalization / distorsion (“Cat pupil”)

Chronic iritis / cystoid macular Edema

Uveitis - Glaucoma - Hyphema syndrome (UGH)

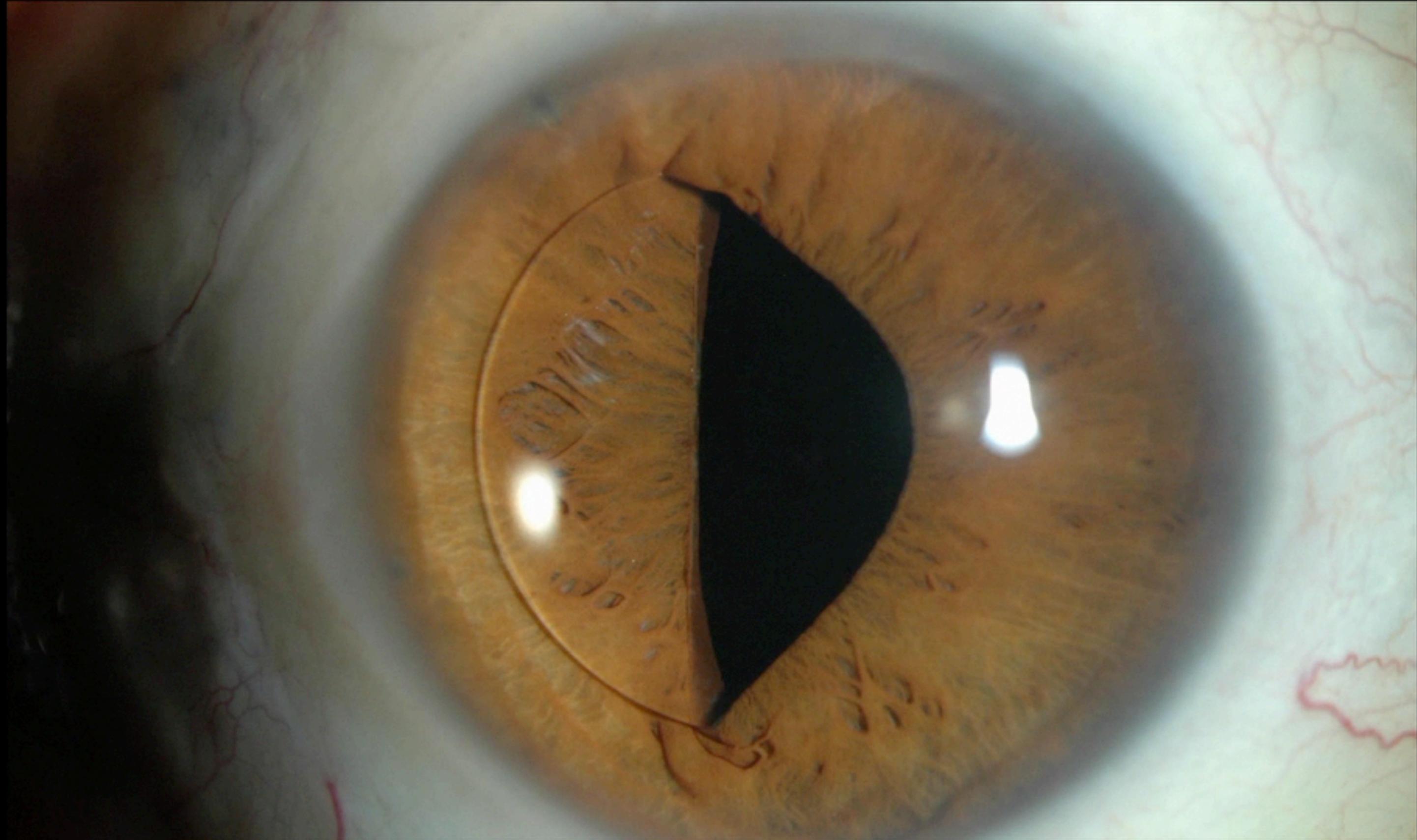
Glaucoma (Pigment dispersion)

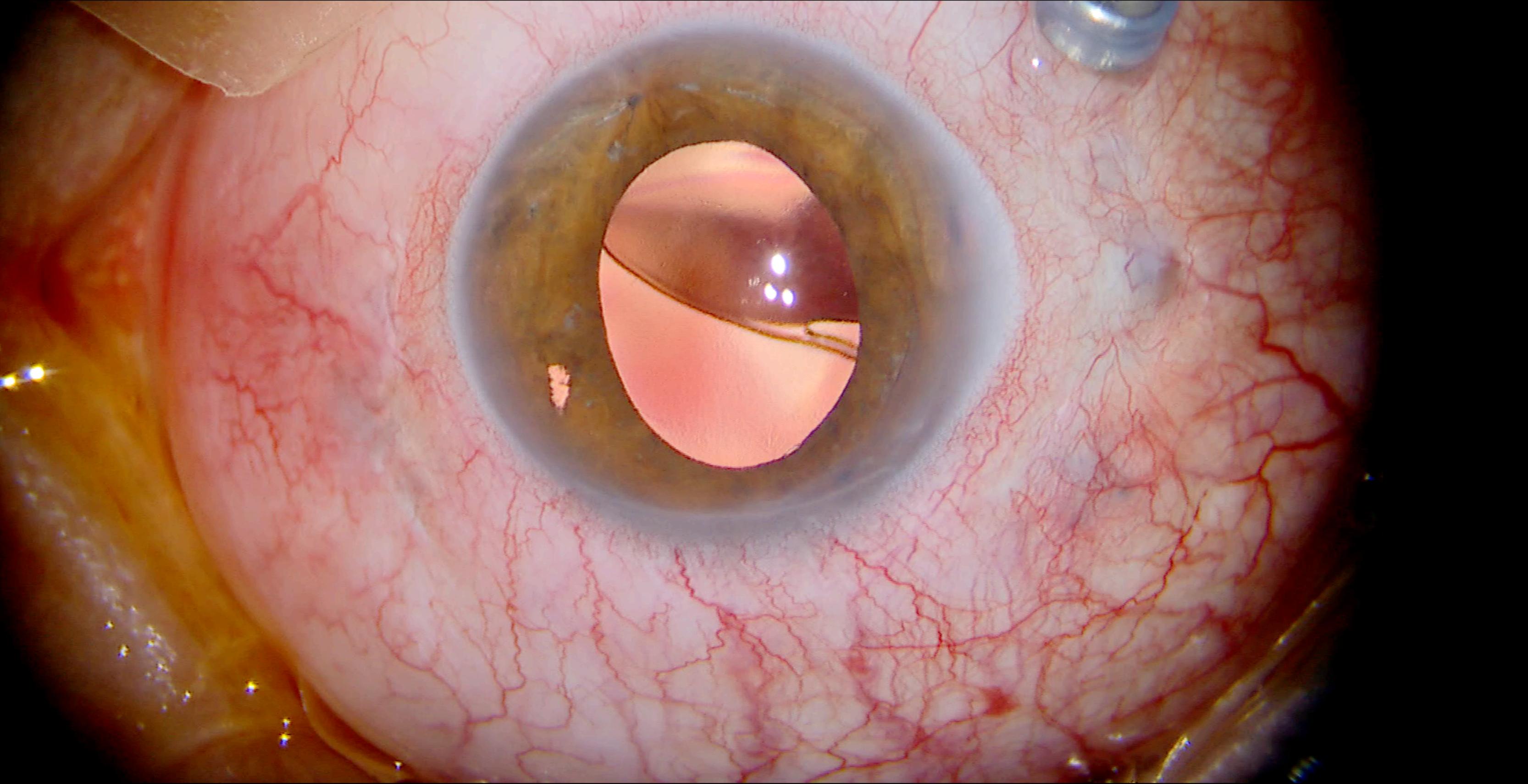
Around -1Dpt myopic shift

May be difficult in patients with corneal edema / senile ring

Re- subluxation ( Prolene haptics 3 pieces lenses)(\*4.3%)

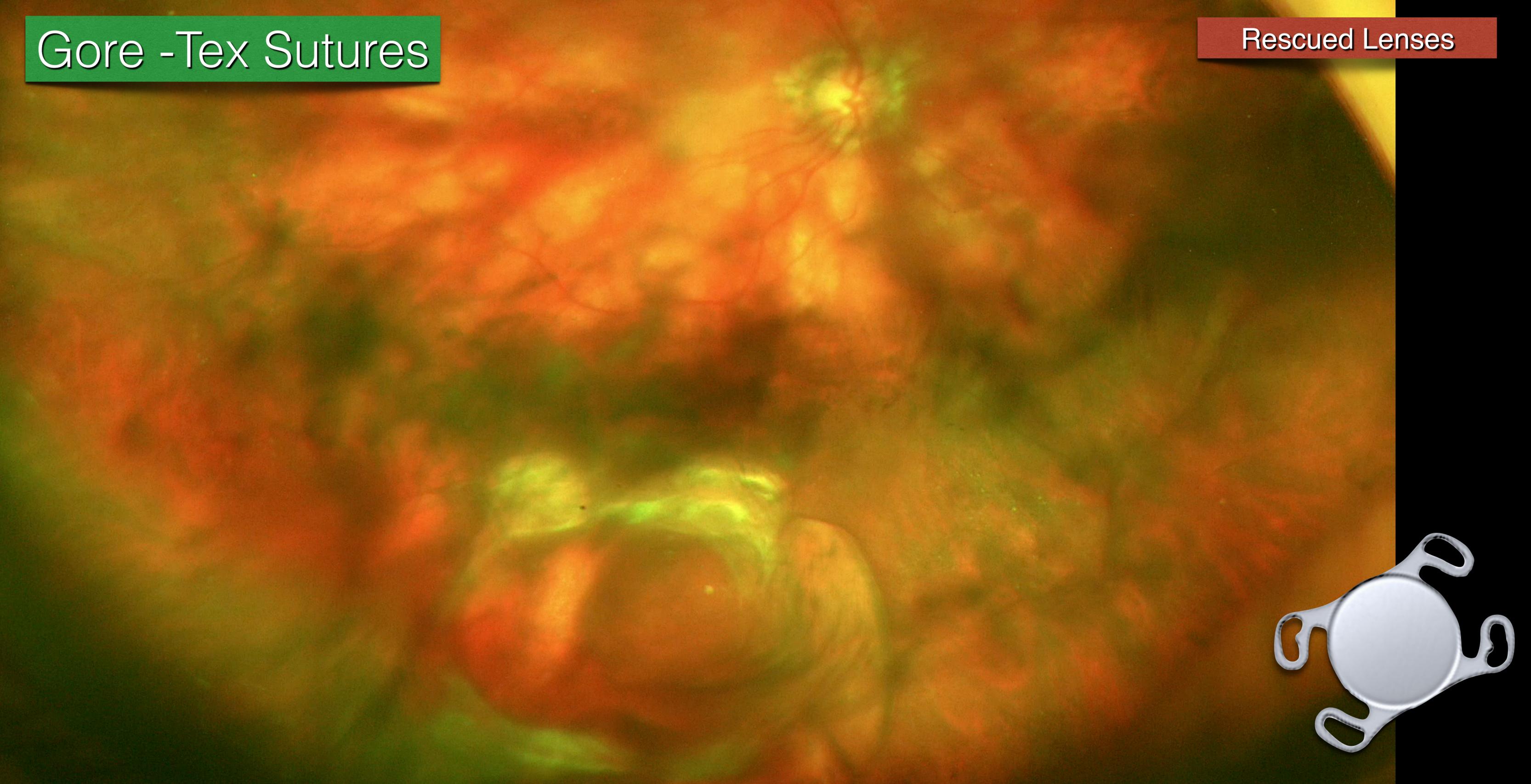
\* Condon, G. P., Masket, S., Kranemann, C., Crandall, A. S., & Ahmed, I. I. K. (2007). Small-Incision Iris Fixation of Foldable Intraocular Lenses in the Absence of Capsule Support. *Ophthalmology*, 114(7), 1311–1318.





# Gore -Tex Sutures

Rescued Lenses



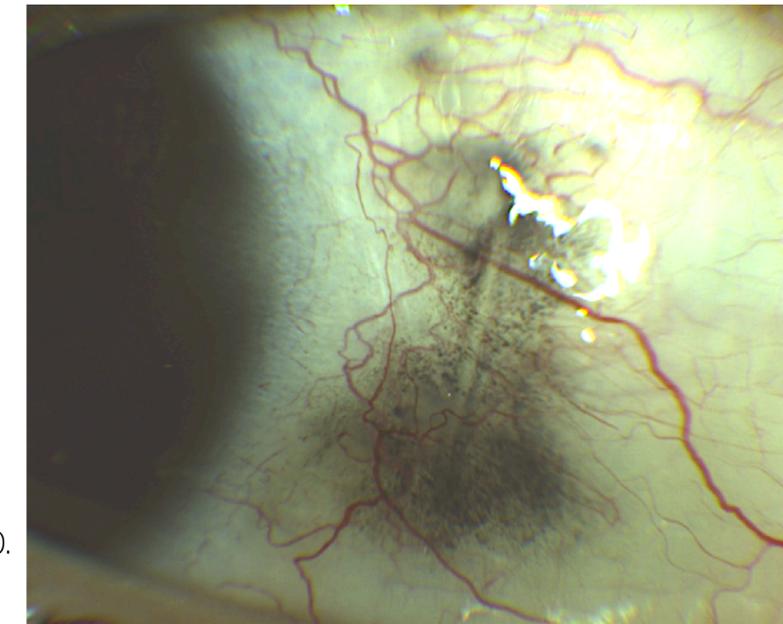
# Gore -Tex (polytetrafluoroethylene)Sutures

## Advantages

- Very resilient suture ( compared to Prolene®.. more rigid and breakable)
- High tensile strength
- High visibility (white color)
- Minimal inflammatory response
- No reports of Gore-TEX degradation in the ophthalmic or non-ophthalmic surgery

## Disdvantages

- Off label
- Thickness( Knot may be difficult to be buried)
- Pigmentary reaction



Khan MA, Gerstenblith AT, Dollin ML, et al. Scleral fixation of posterior chamber intraocular lenses using gore-tex suture with concurrent 23-gauge pars plana vitrectomy. Retina 2014; 34:1477–1480.

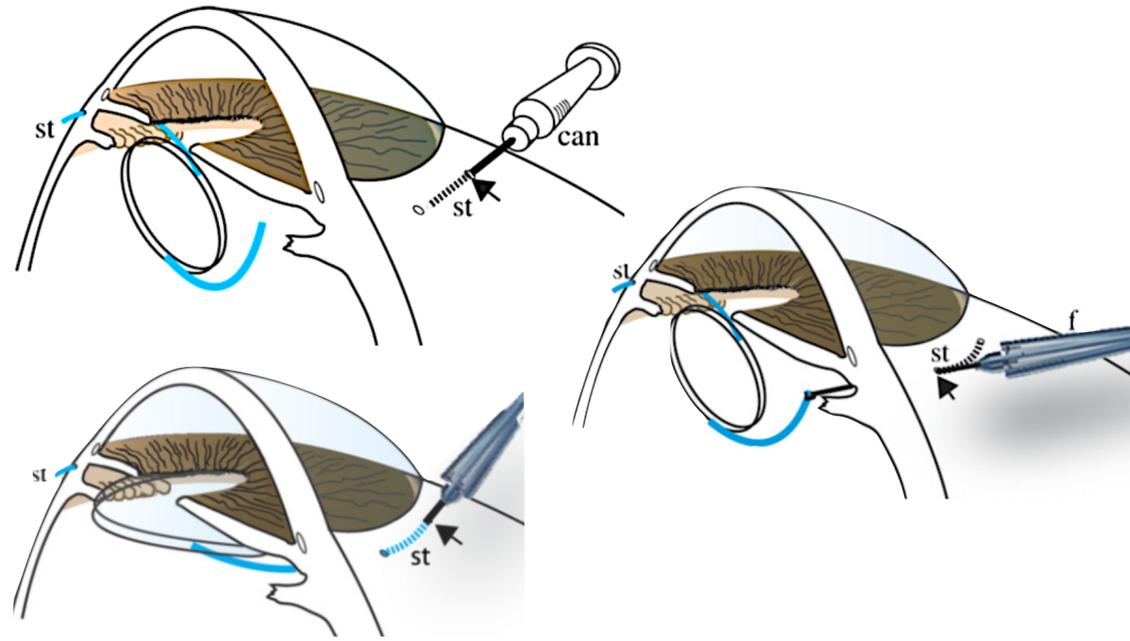
Khan MA et al COMBINED PARS PLANA VITRECTOMY AND SCLERAL FIXATION OF AN INTRAOCULAR LENS USING GORE-TEX SUTURE .RETINA 0:1–8, 2017

\* Chen X,et al Pigmentary Reaction around Gore-Tex Suture in a Scleral-Fixated Intraocular Lens .Ophthalmology 2018:841

# Sutureless intrascleral posterior chamber intraocular lens fixation

Scharioth G.B. Gabor, MD, Mitrofanis M. Pavlidis, MD

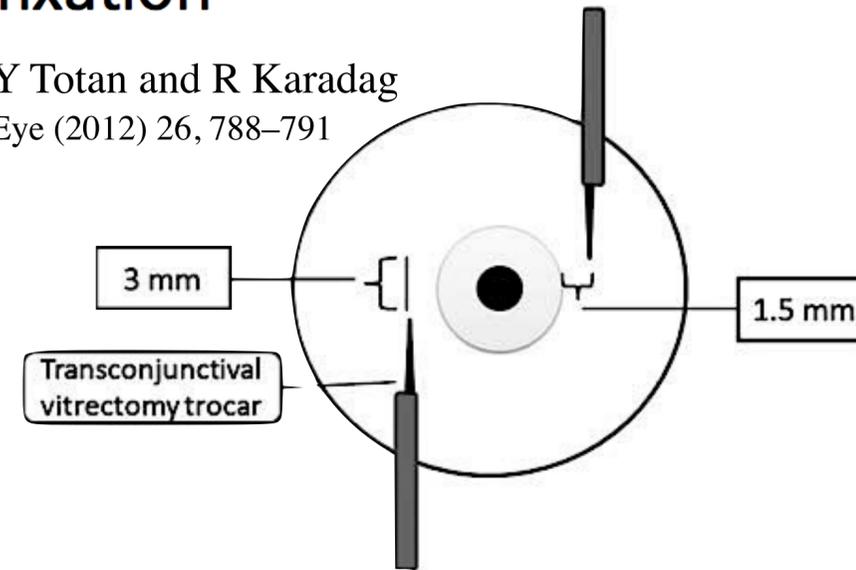
J Cataract Refract Surg 2007; 33:1851-1854



# Trocar-assisted sutureless intrascleral posterior chamber foldable intra-ocular lens fixation

Y Totan and R Karadag

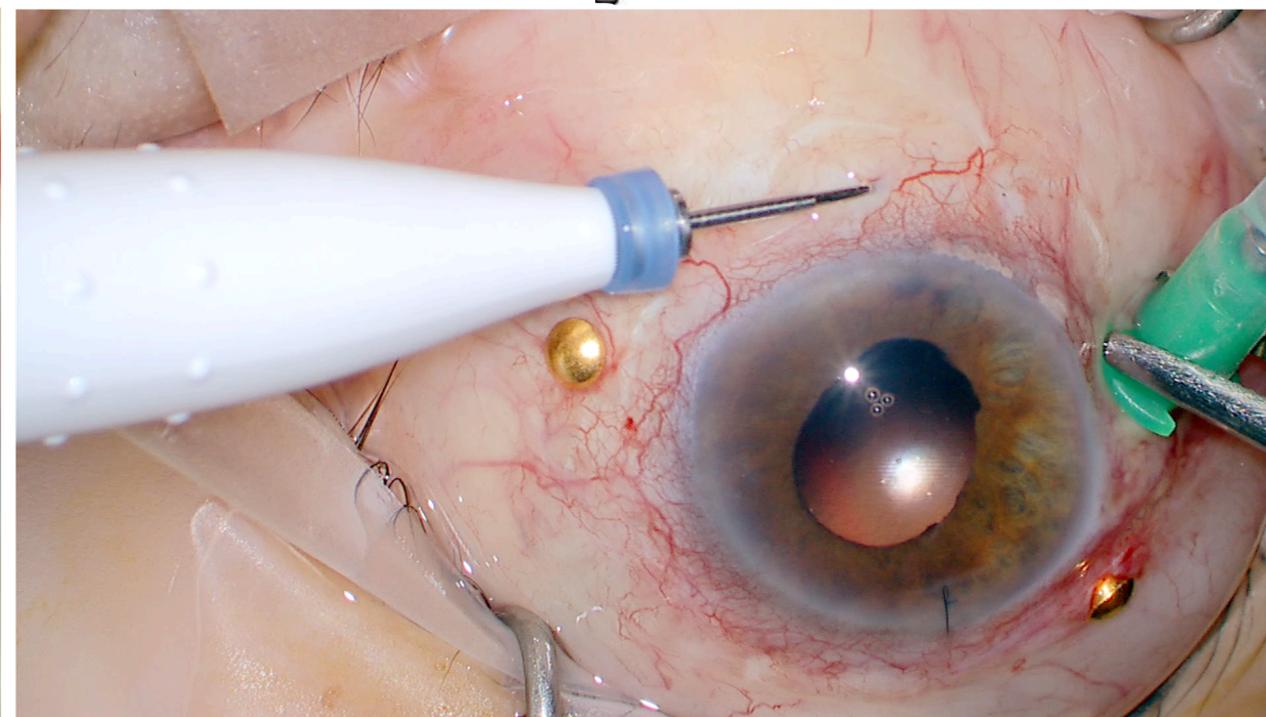
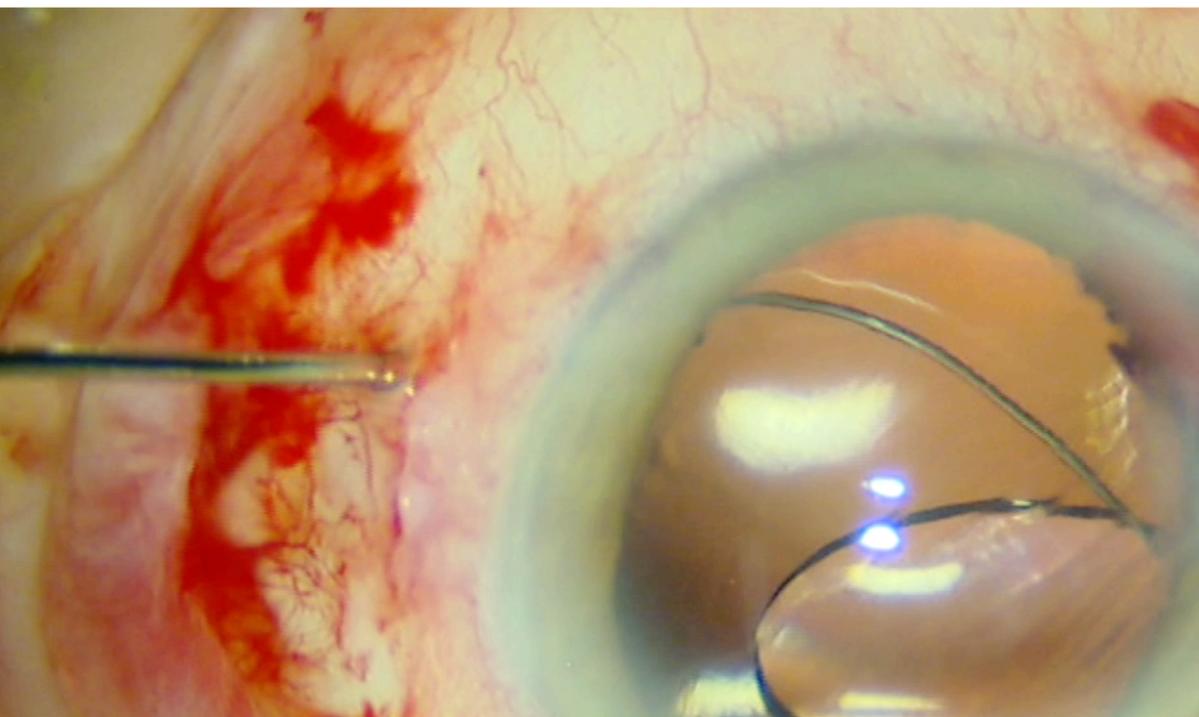
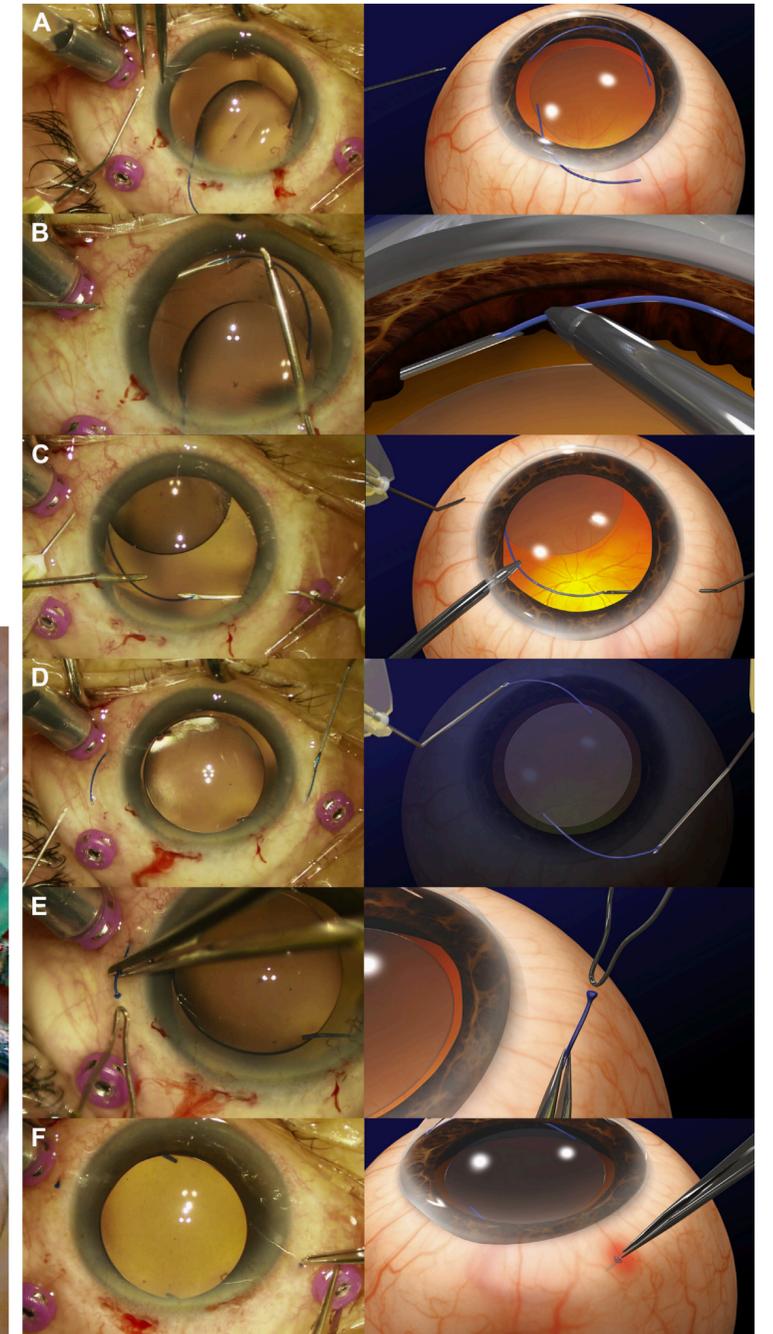
Eye (2012) 26, 788-791



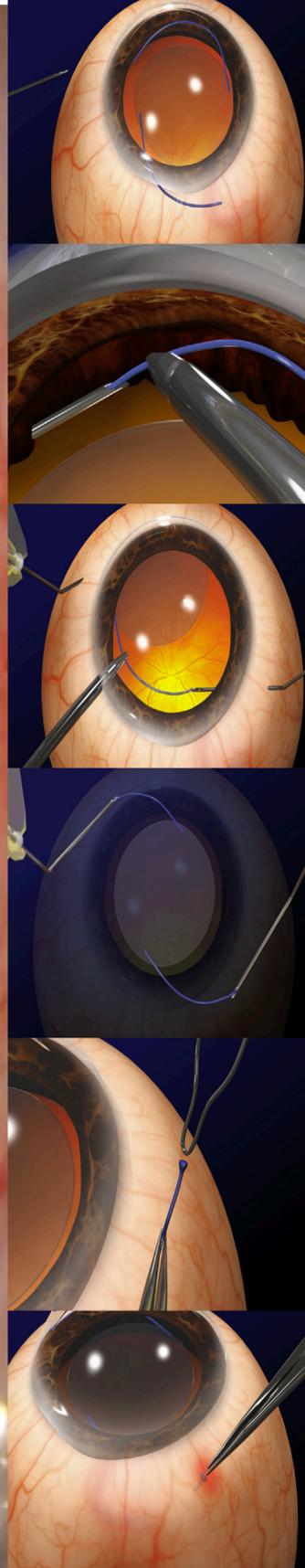
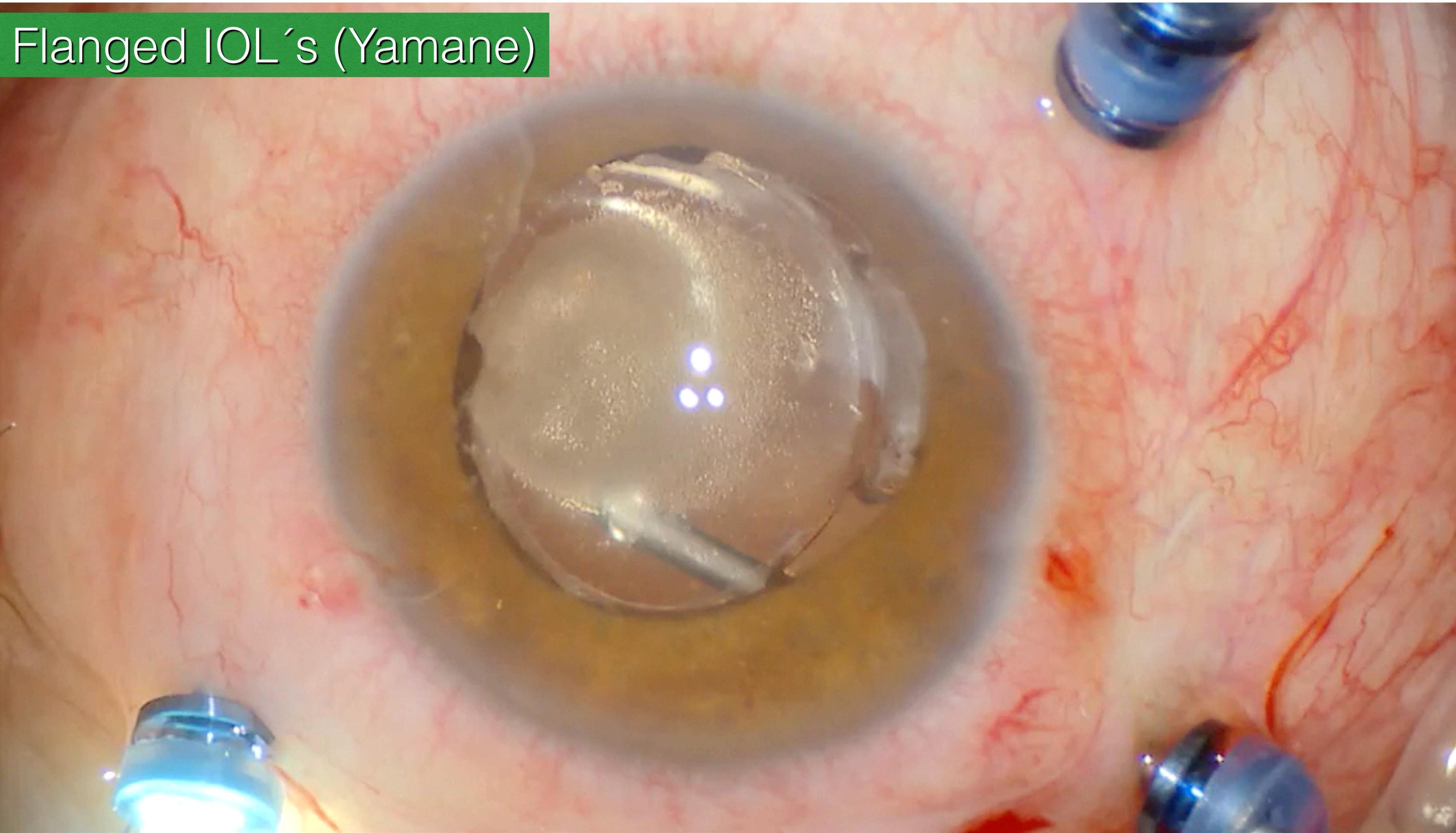
# Flanged Intrascleral Intraocular Lens Fixation with Double-Needle Technique

Ophthalmology 2017;124:1136-1142

Shin Yamane, MD, Shimpei Sato, MD, Maiko Maruyama-Inoue,

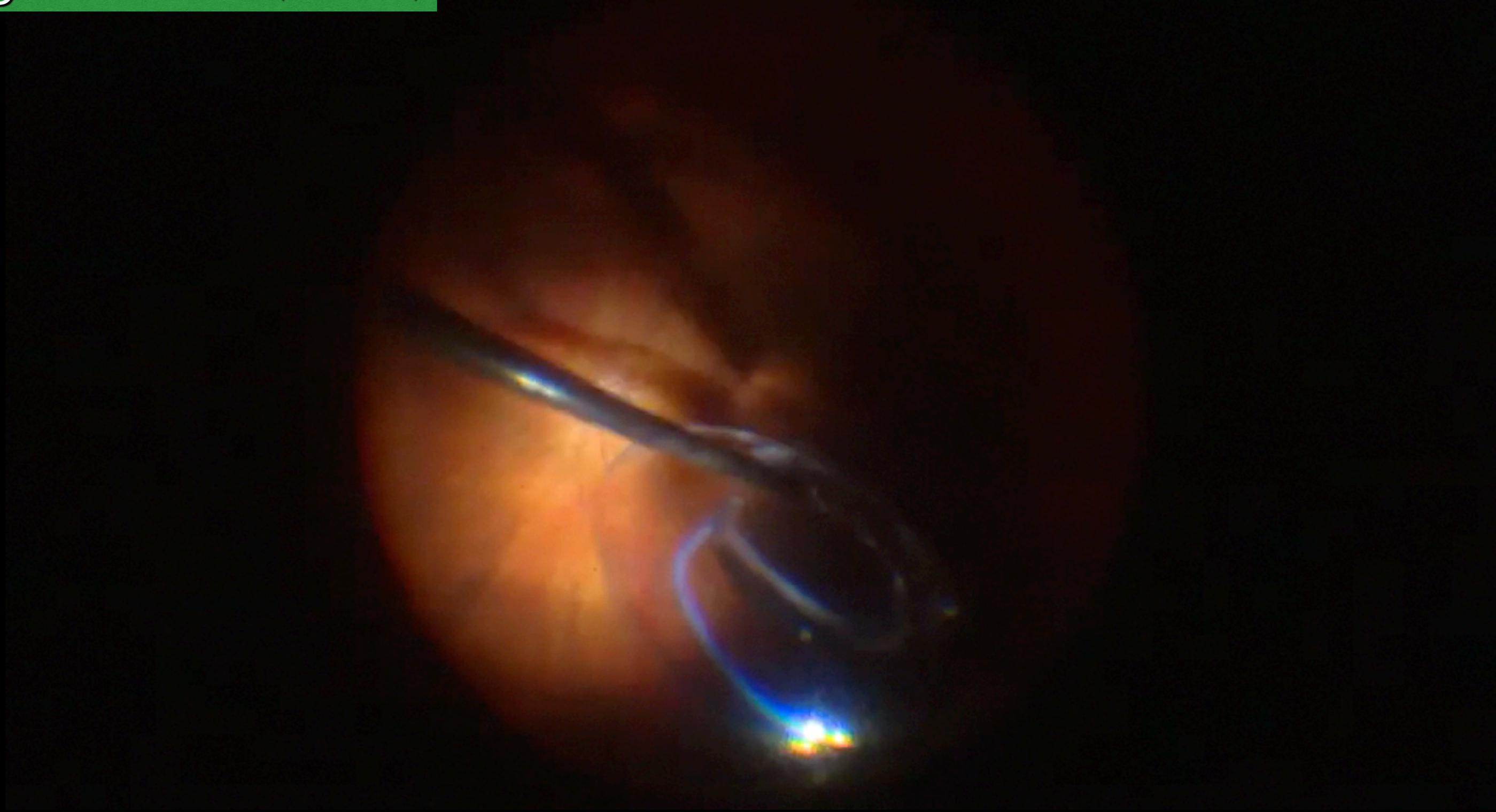


# Flanged IOL's (Yamane)



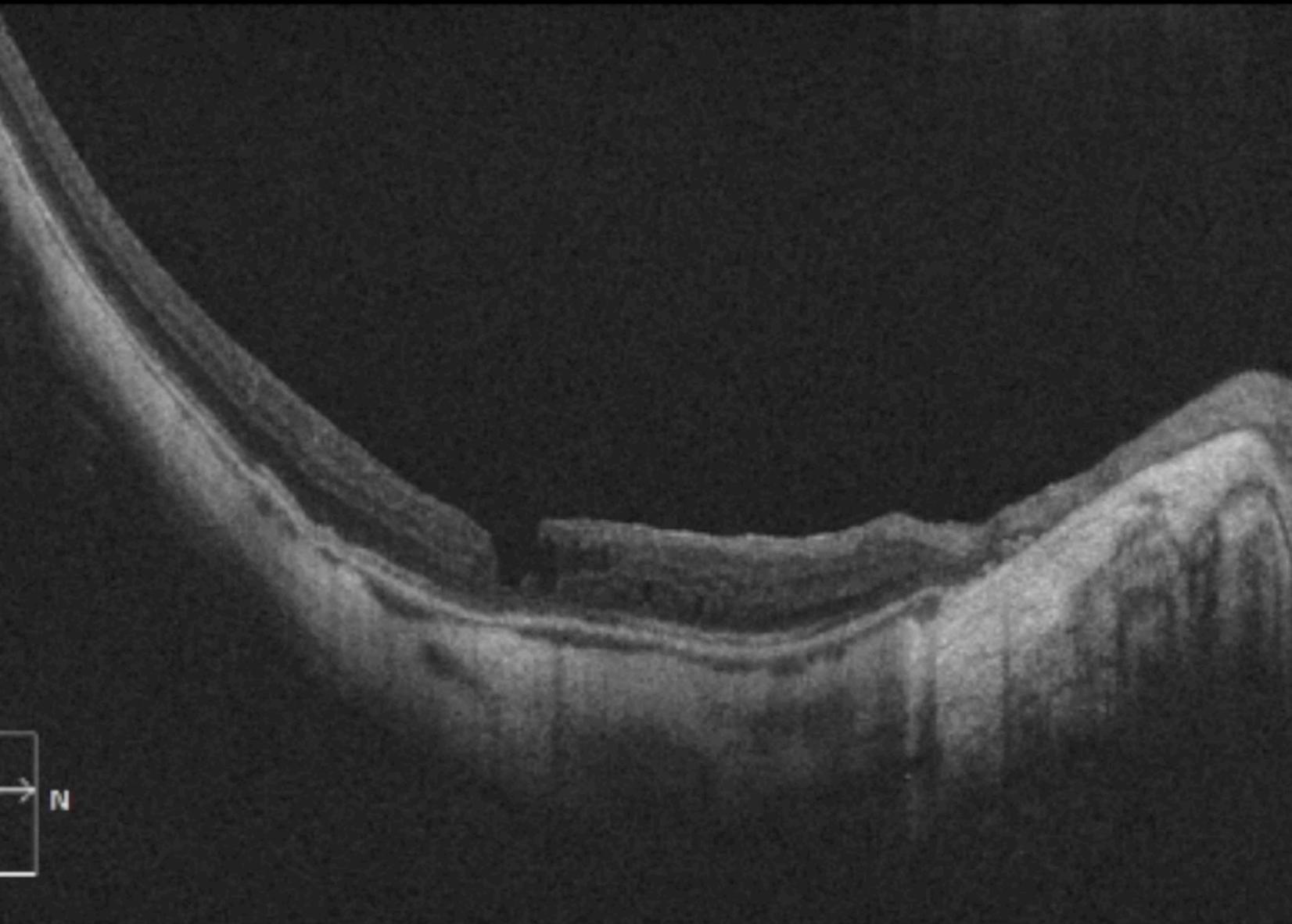
# Flanged IOL's (Yamane)

# Rescued Lenses



# IOL troubles & V-R surgery

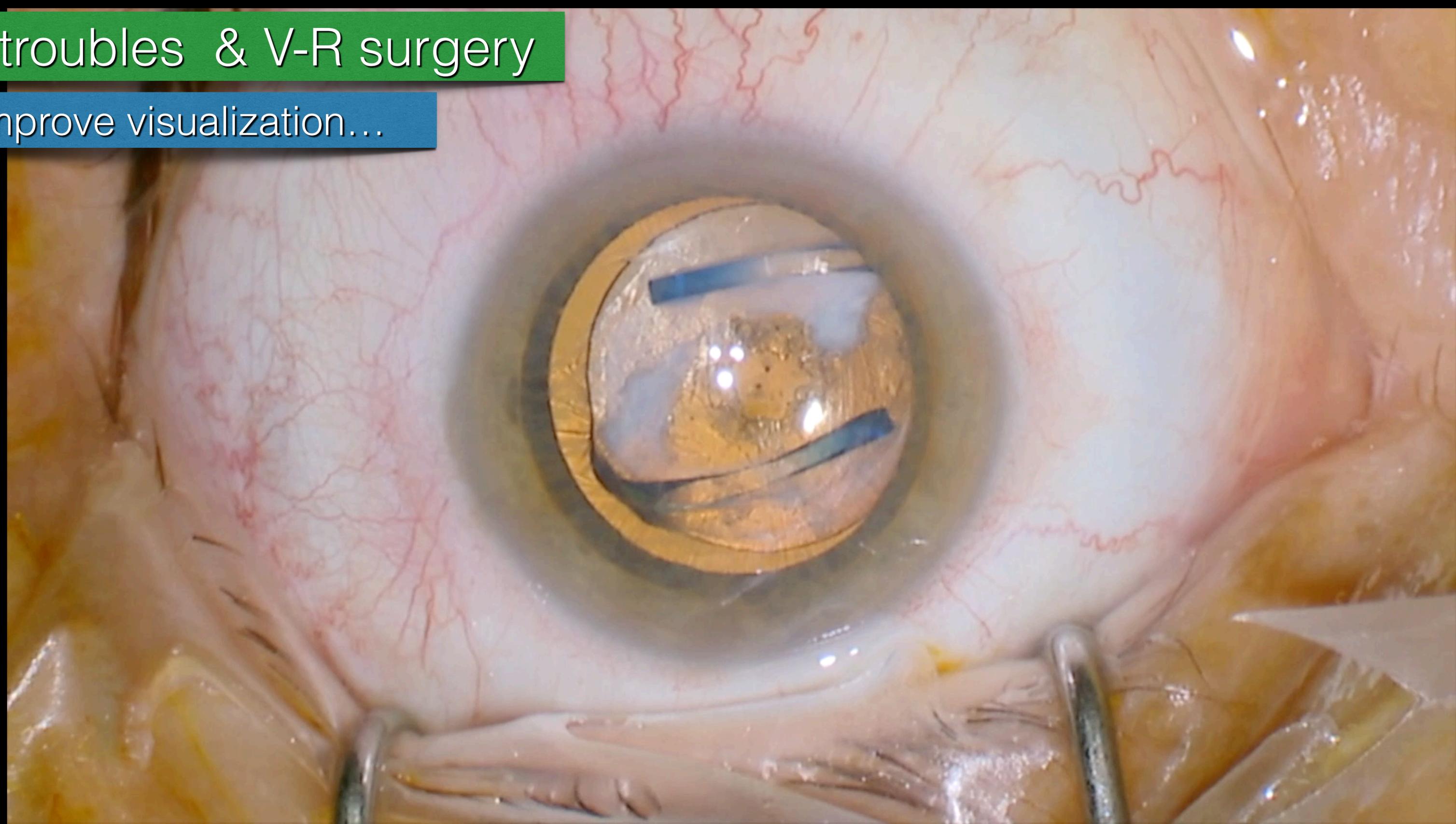
Poor visualization...Multifocal IOL's





# IOI troubles & V-R surgery

To improve visualization...

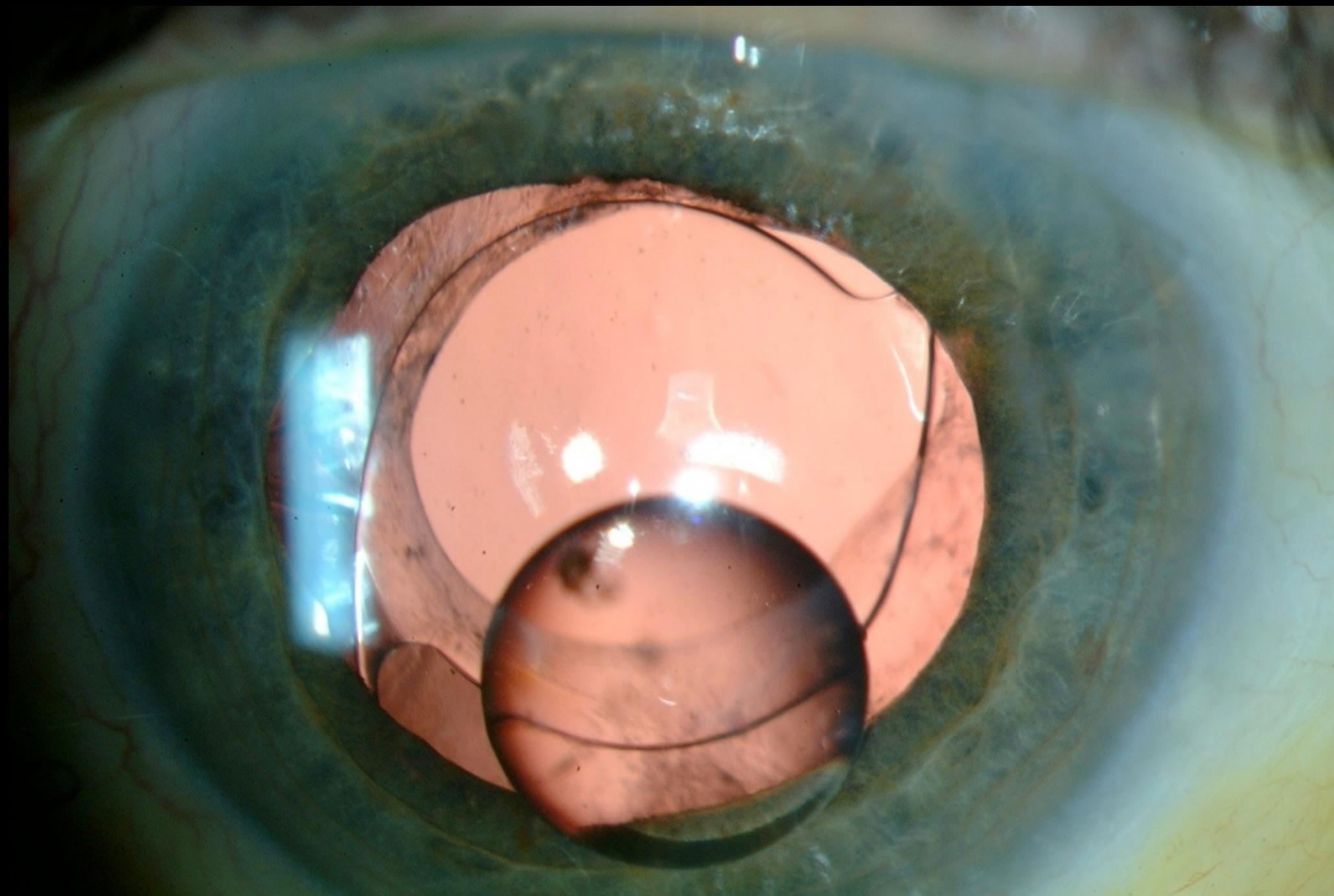


Iris sutured lenses

&

V-R surgery

To improve visualization...

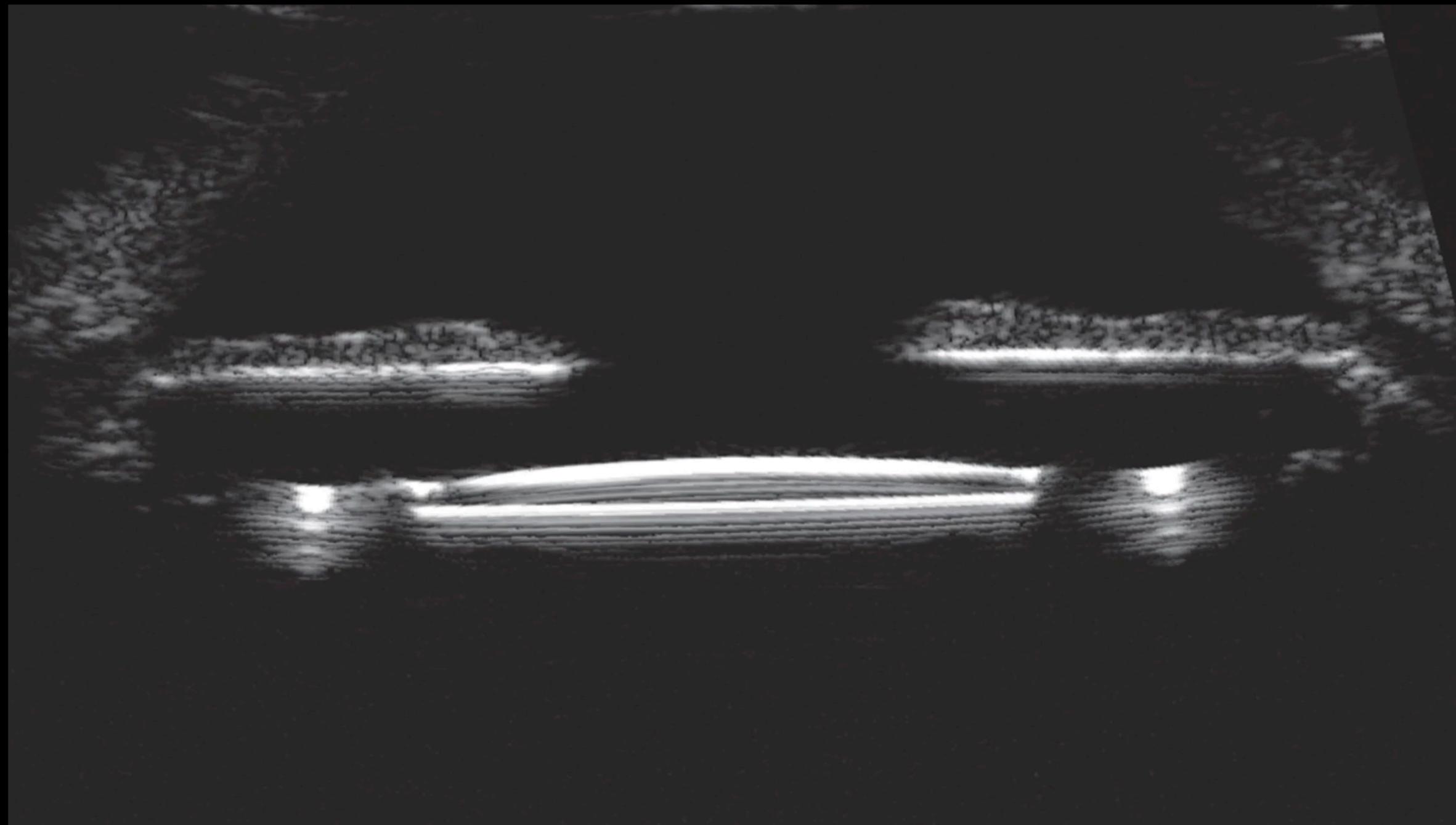


Iris sutured lenses

&

V-R surgery

To close the “gap” ...



# Summary

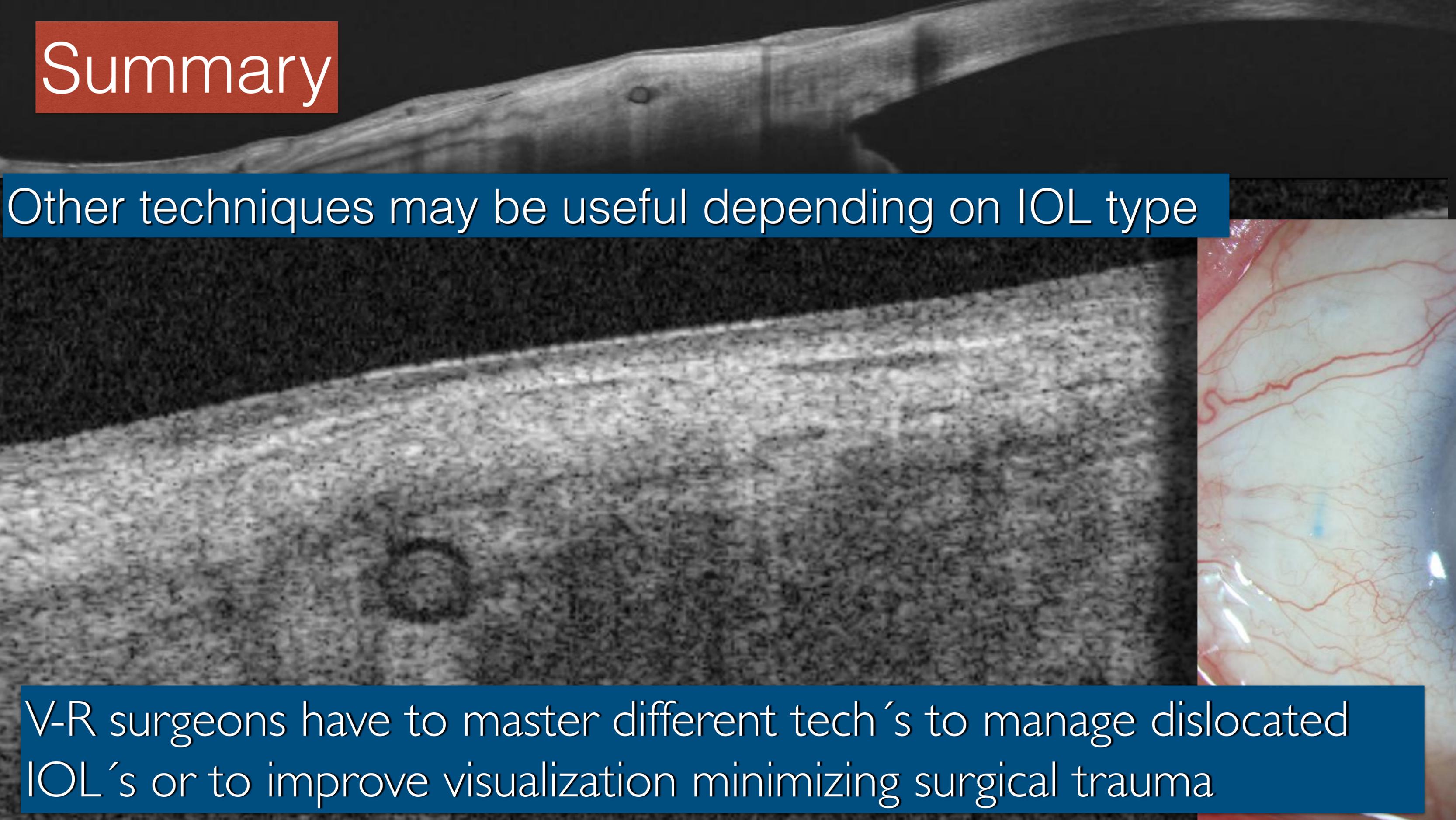
Rescued lenses have some advantages compared to lens replacement

Iris sutured lenses are a good option to avoid lens exchange in luxated IOL's

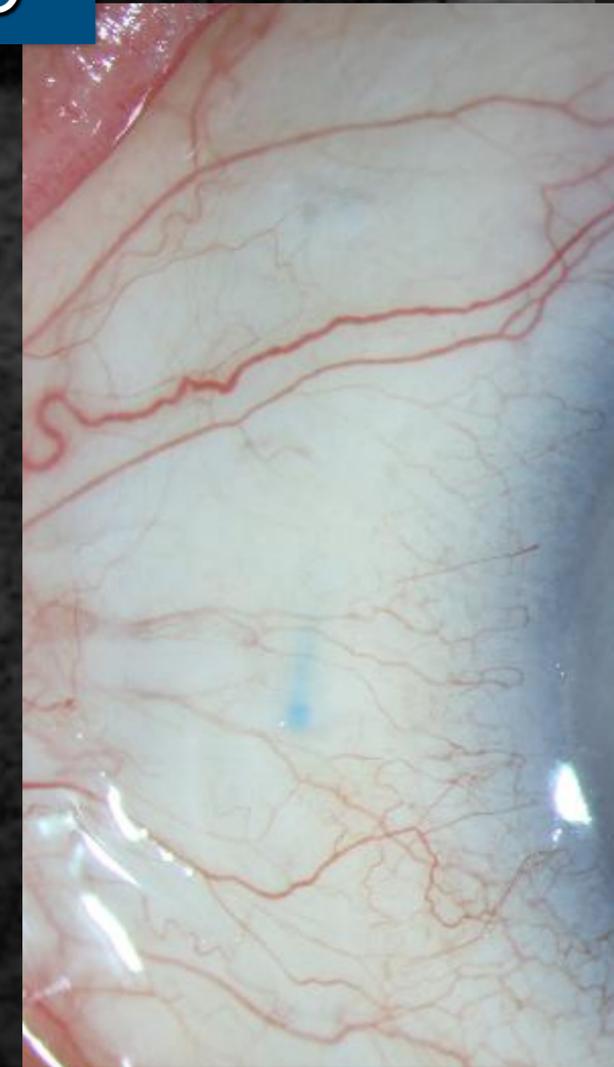
Simple and fast surgical technique

Similar ratio of complications compared to other techniques

# Summary

The background of the slide is a composite image. The top portion shows a close-up of a surgical instrument, likely a phacoemulsification handpiece, with a small circular opening. Below this, the main area is a grayscale fundus photograph of an eye. A distinct, dark, circular shadow is visible in the lower-left quadrant of the fundus, indicating a dislocated intraocular lens (IOL). The overall scene is dimly lit, typical of an operating room.

Other techniques may be useful depending on IOL type



V-R surgeons have to master different tech's to manage dislocated IOL's or to improve visualization minimizing surgical trauma