

Capsulorhexis

Principles & Basic Techniques



AHMED GHONEIM,MD

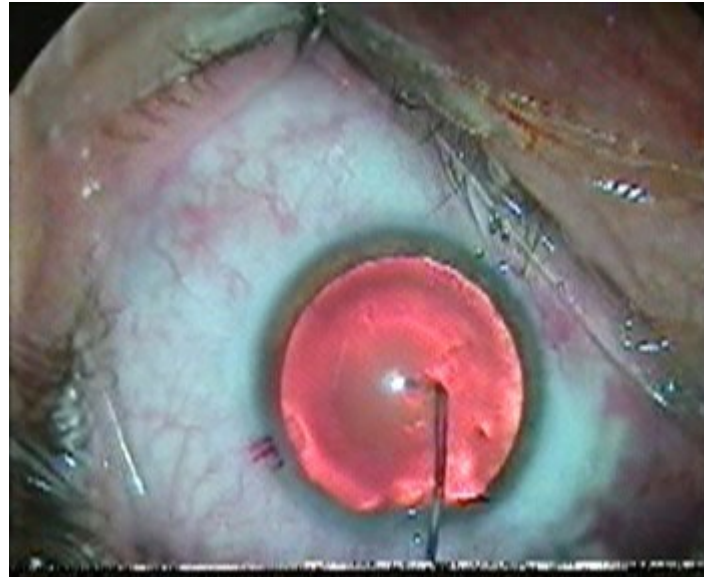
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EOS 2025 EGYPT

- The making of a continuous circular tear in the anterior capsule during cataract surgery in order to allow expression or phacoemulsification of the nucleus of the lens.



Introduction

- The capsulorhexis is the most important part of the cataract operation.



Introduction

Because the anterior capsulotomy dictates how the rest of the procedure will go”

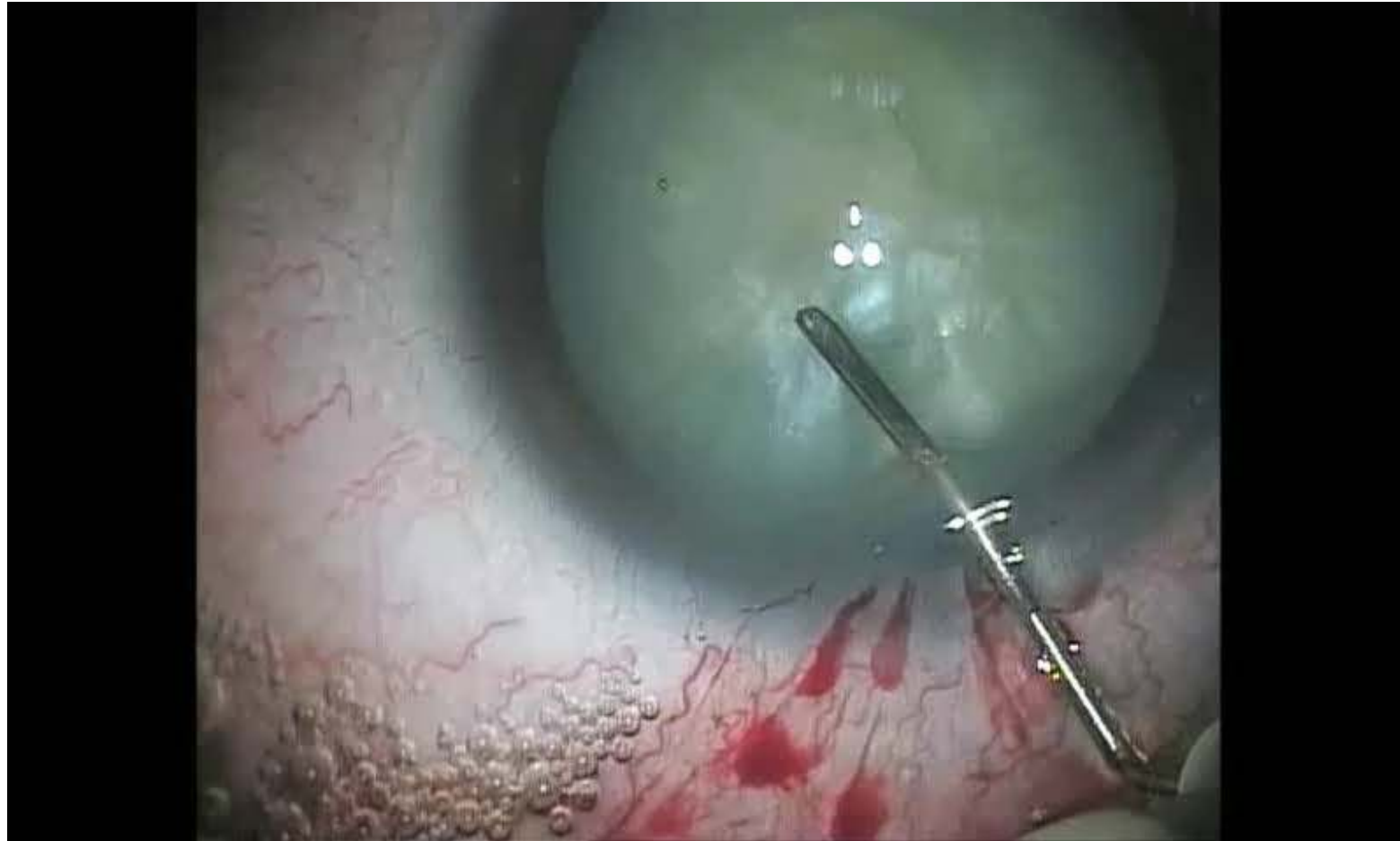


Introduction



You can relax now. The most difficult part of the procedure is over??”

Capsule Like Celluphane

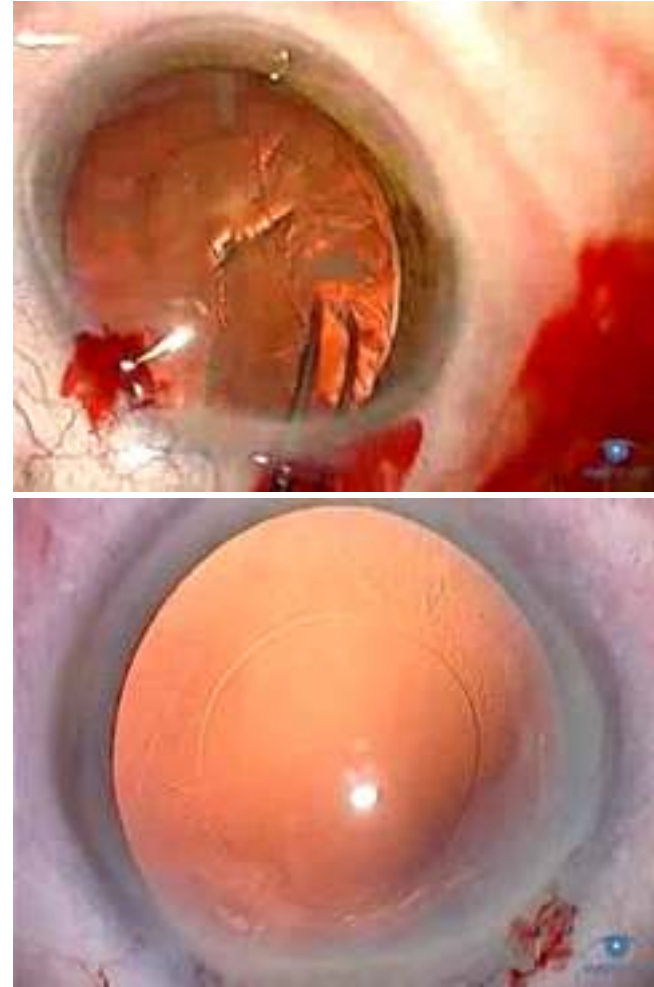


Celluphane tear easily from sharp split but extremely difficult to tear from smooth margin edge.

Ideal Rhexis opening

- Circular
- Well centered
- 5mm to 5.5mm

Smooth & continuous
to resist tearing during
manipulation of the
nucleus.



Ideal Rhexis opening

-Centralized ,regular
without flaps .



Ideal Rhexis opening

Allow permanent placement of the IOL in capsular bag.

(because the IOL's optic centers slightly nasally and superior to the geometric center of the eye, the superior and nasal edge of the rhexis is closer to the pupillary margin, and the lateral and inferior edge of the rhexis is farther away).



Capsulorhexis Size

Is important for a number of reasons:

(1) Prevent the ant. displacement of the lens and an unexpected myopic outcome.

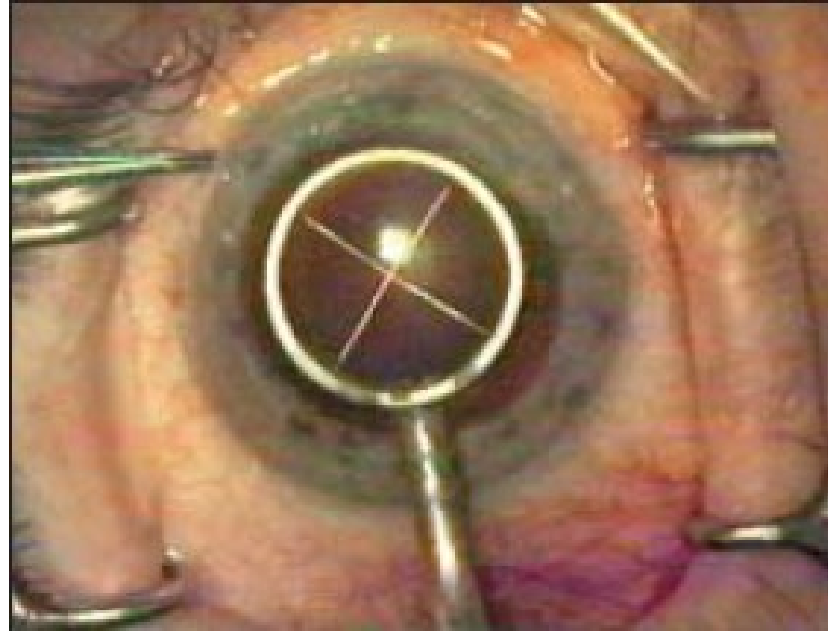
(2) Prevent PCO



Capsulorhexis Size

- (3) Allow for an easy lens exchange in the bag if the IOL power is incorrect.
- (4) Allow sufficient room for easy phaco.
- (5) Prevent phimosis.





by using a corneal diameter mark. Optical zone marker on the cornea help to gauge the size of the capsulotomy and its position.
[5.5-mm capsulotomy, use a 6.0-mm optic zone marker].

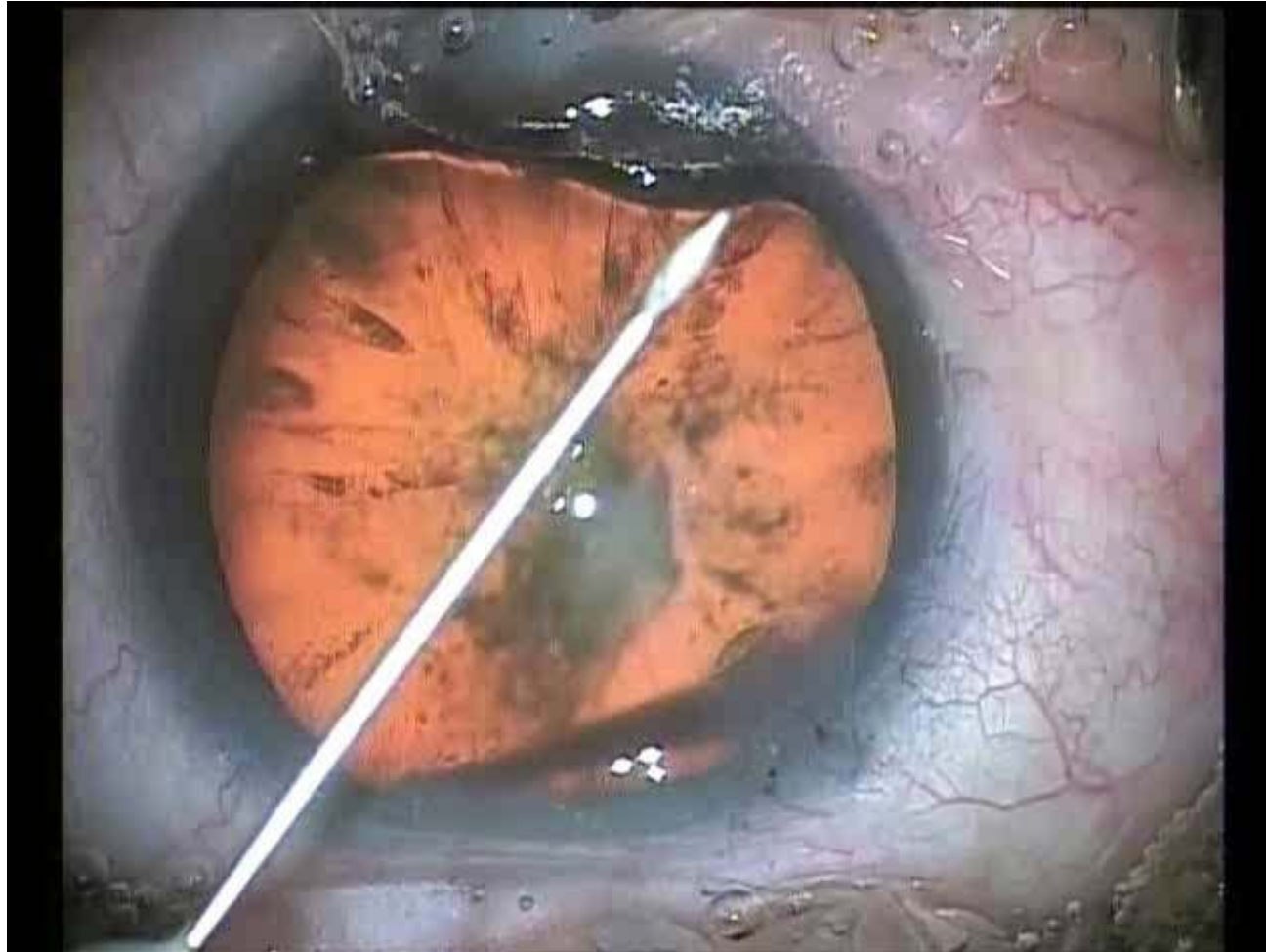
Fixate the globe with a spatula through the sideport incision to have some support of the globe during this important part of the procedure.



Creating the cystotome

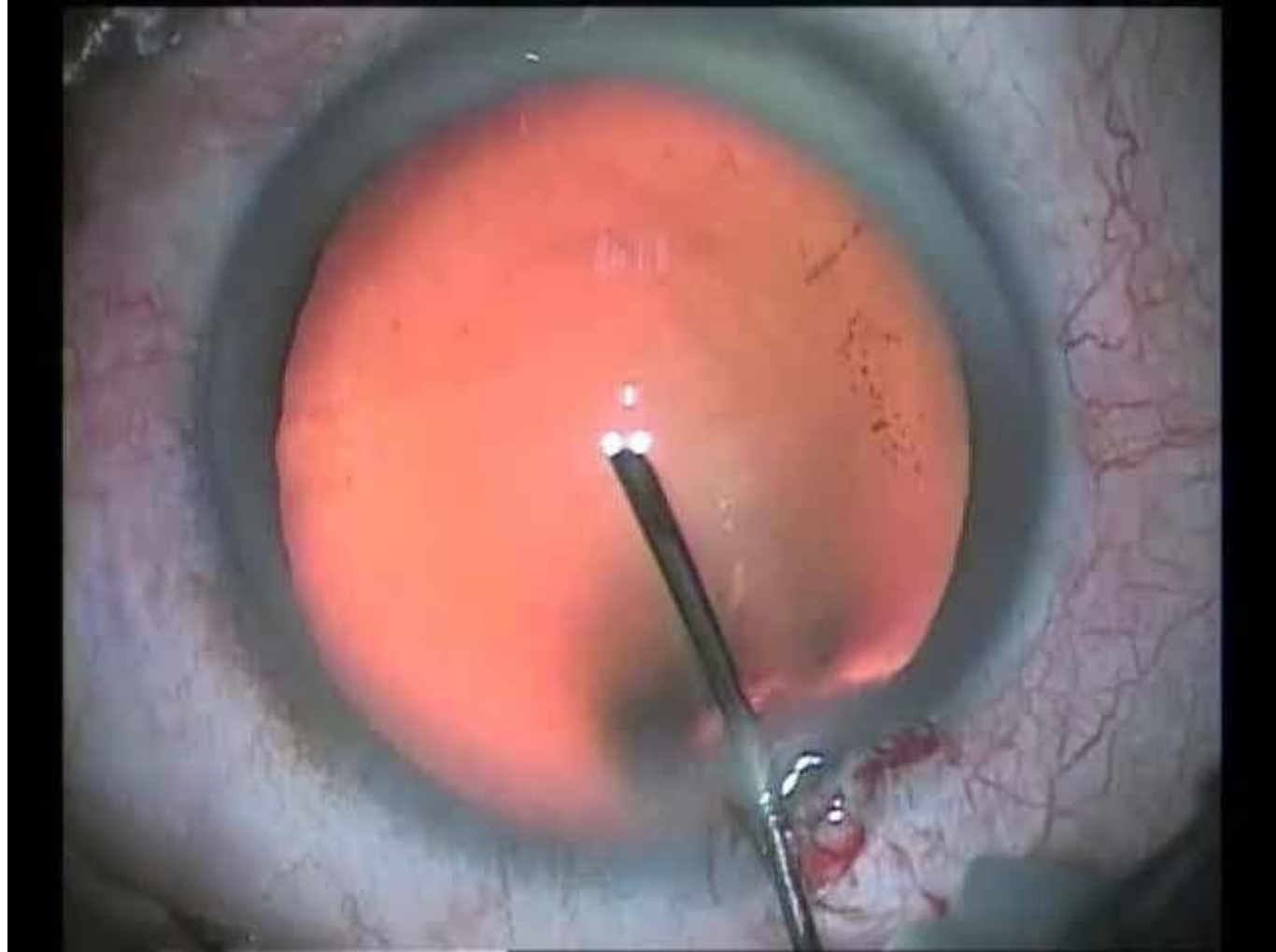


Creating the cystotome

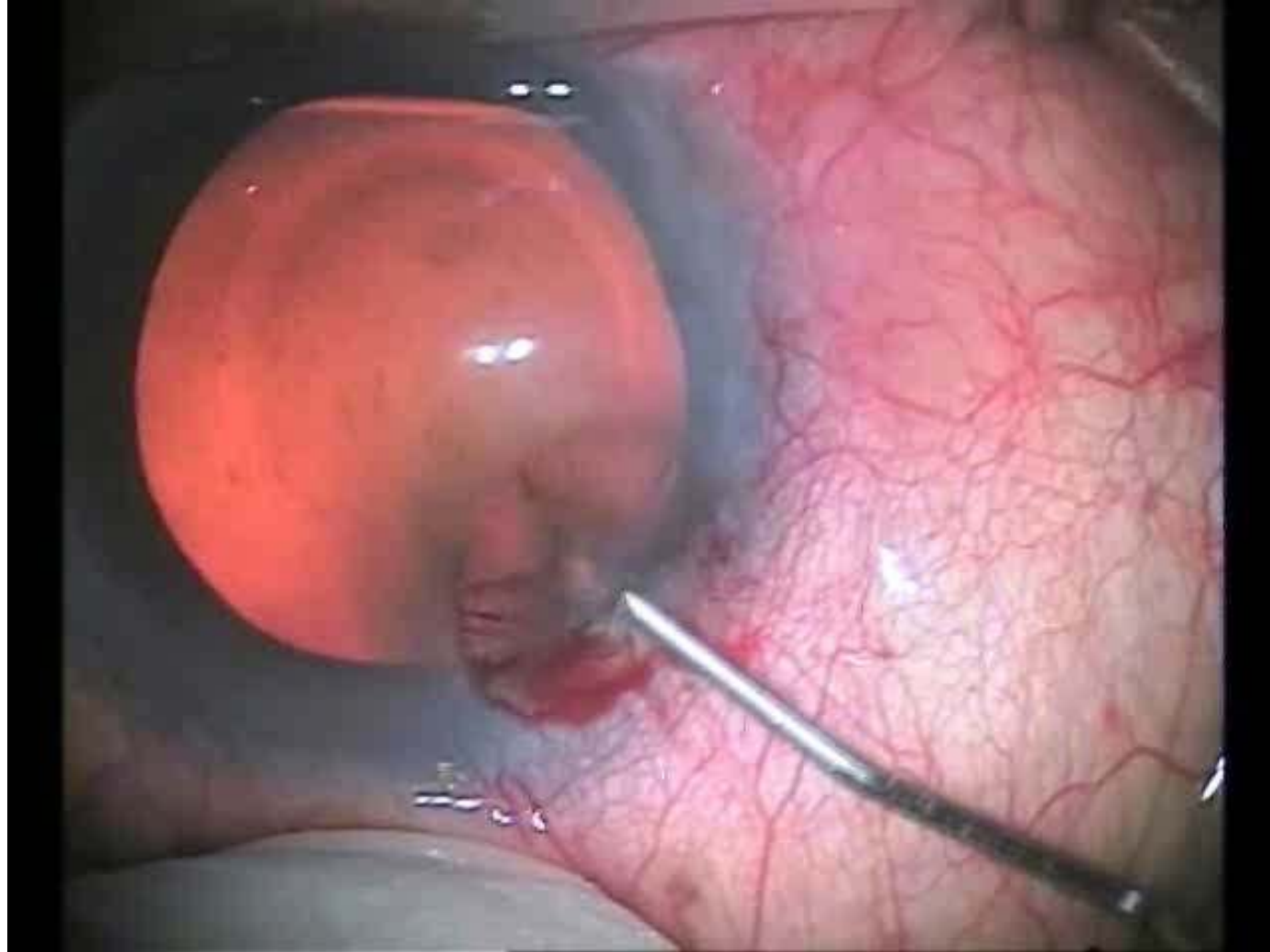


4 basic principles for CCC

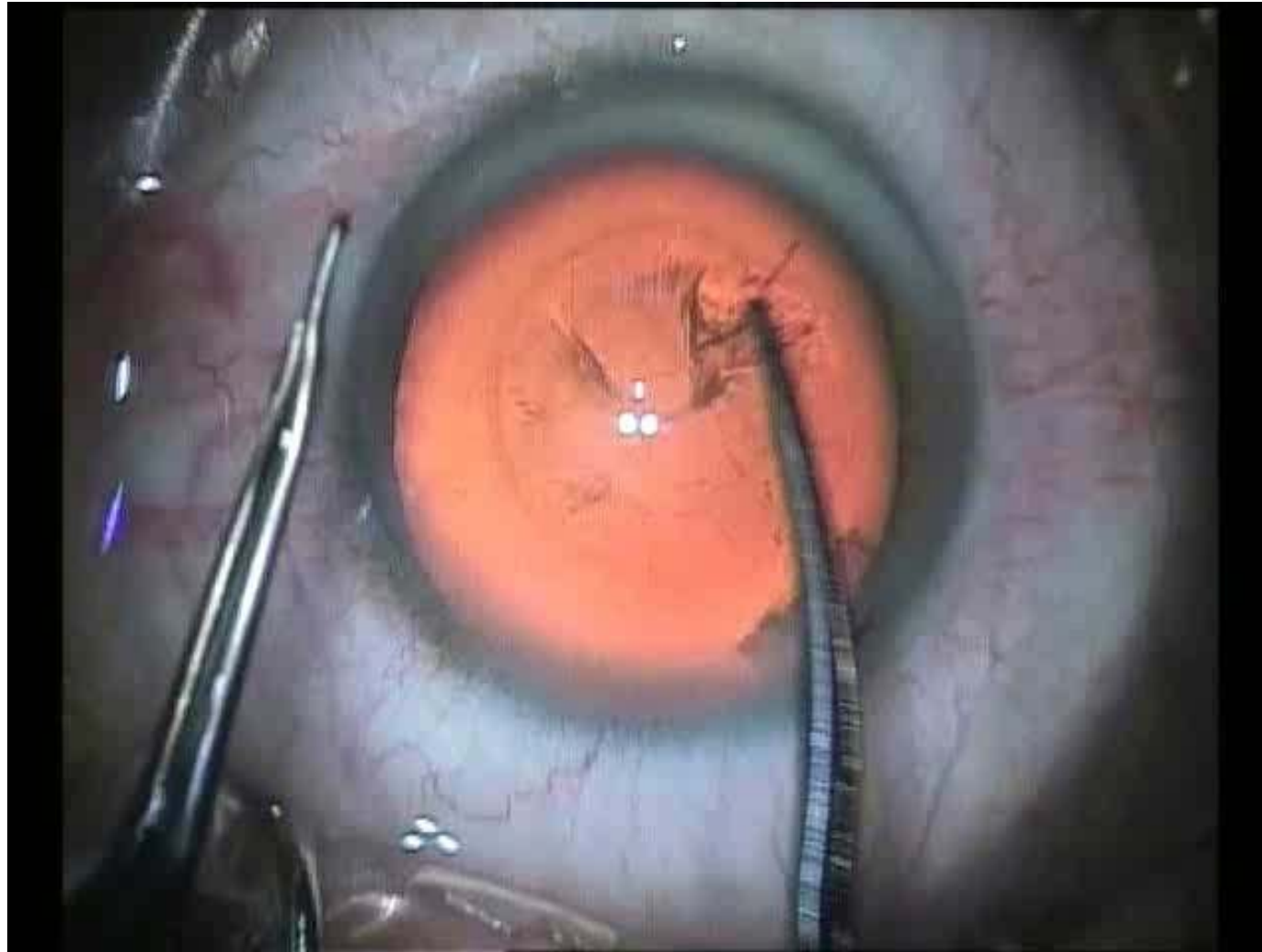
- Easy case.
- Good [frequent] filling.
- Flat flaps.
- Tiny tears.



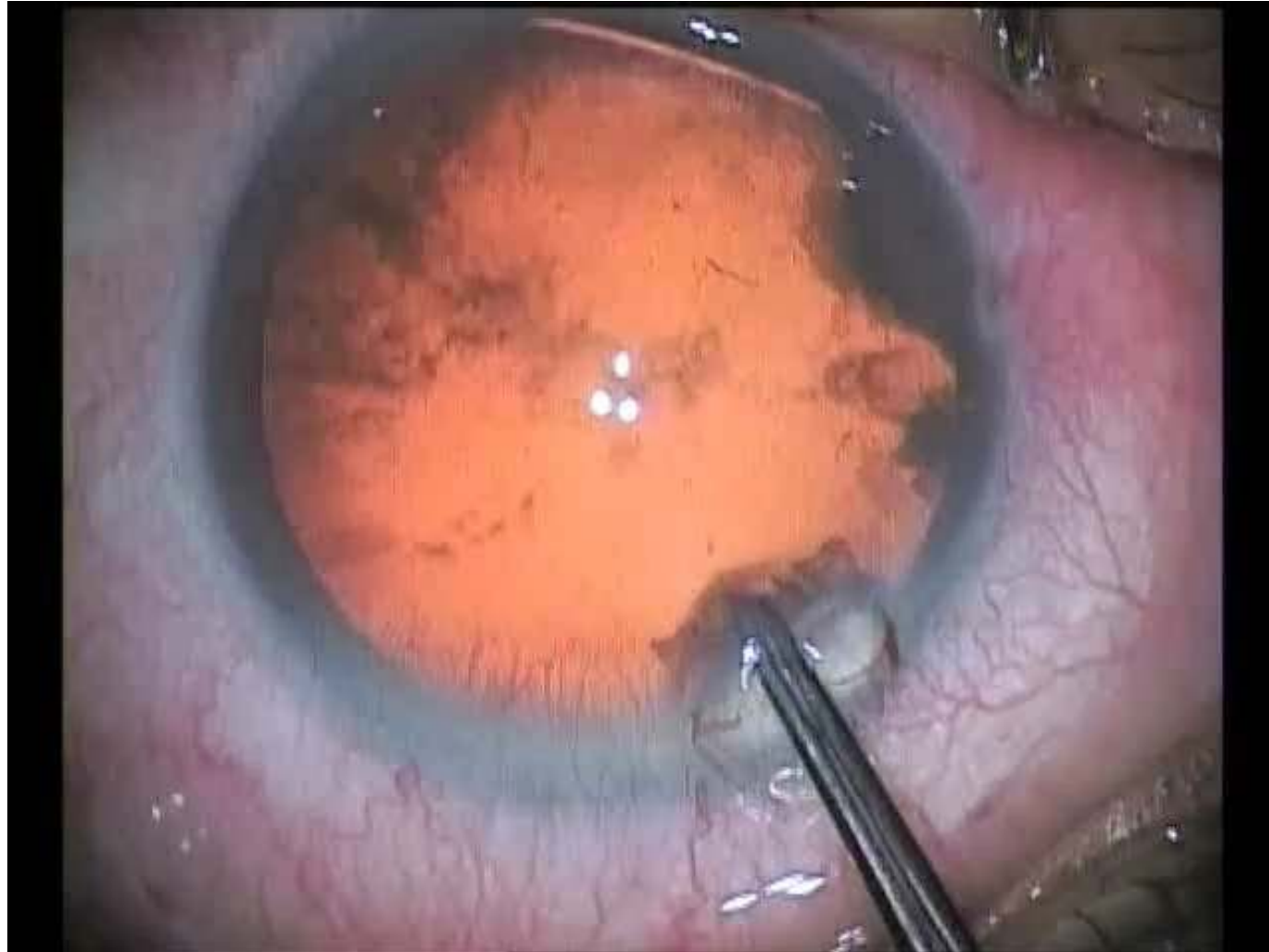
Rhexis on saline



Rhexis forceps

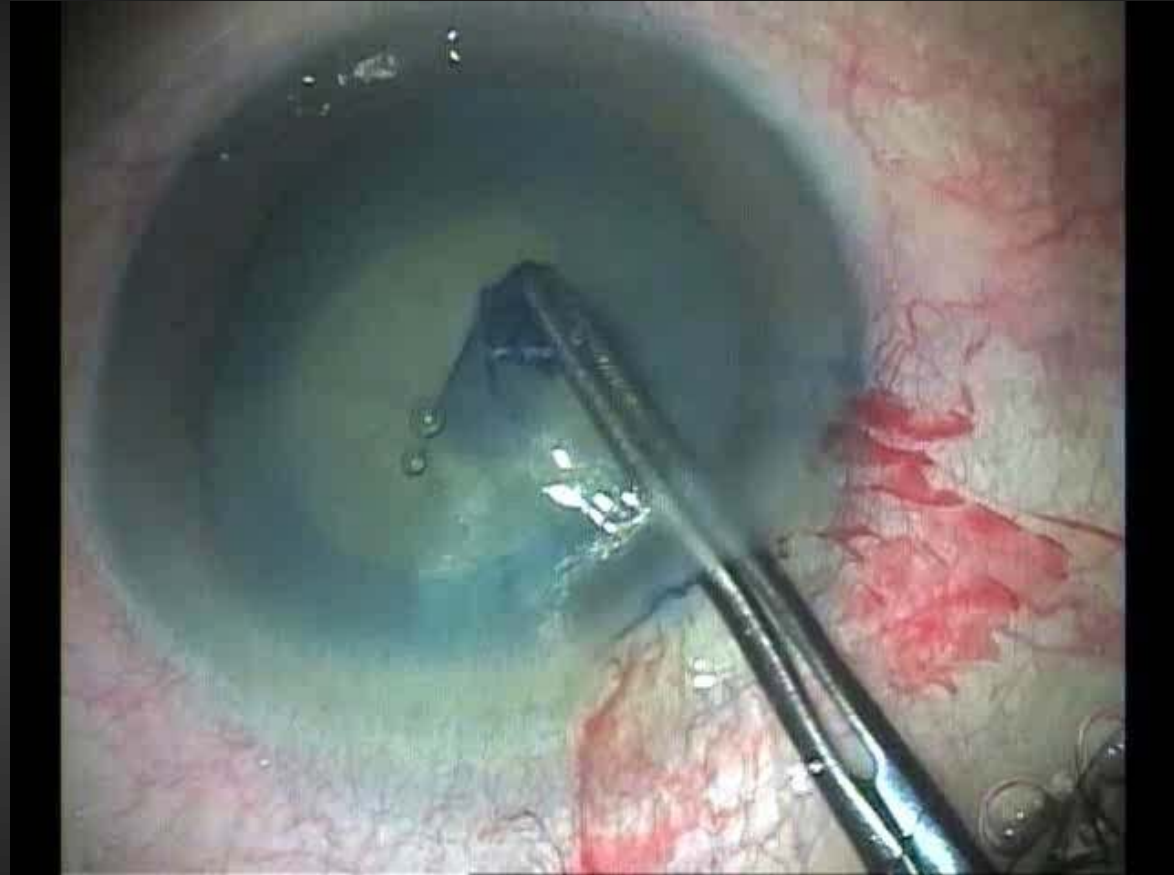


Rhexis with forceps only



If the tear begins to **radiate outward**, stop and **add viscoelastic**. direct your hand **against direction of extesion**.

there is increased vitreous pressure and a shallowing of the AC, **add VES** & look for other reasons for a shallowing of the AC such as a **tight lid speculum**.



Rhexis In Special Situations

- Absent red reflex [white cataract].
- Small pupil [glaucomatous ,uveitic pts].
 - Fibrosed calcified ant. capsule [hypermature cataract]
 - The runaway rhexis

Solid ,Pearly white Vs Milky white cataract

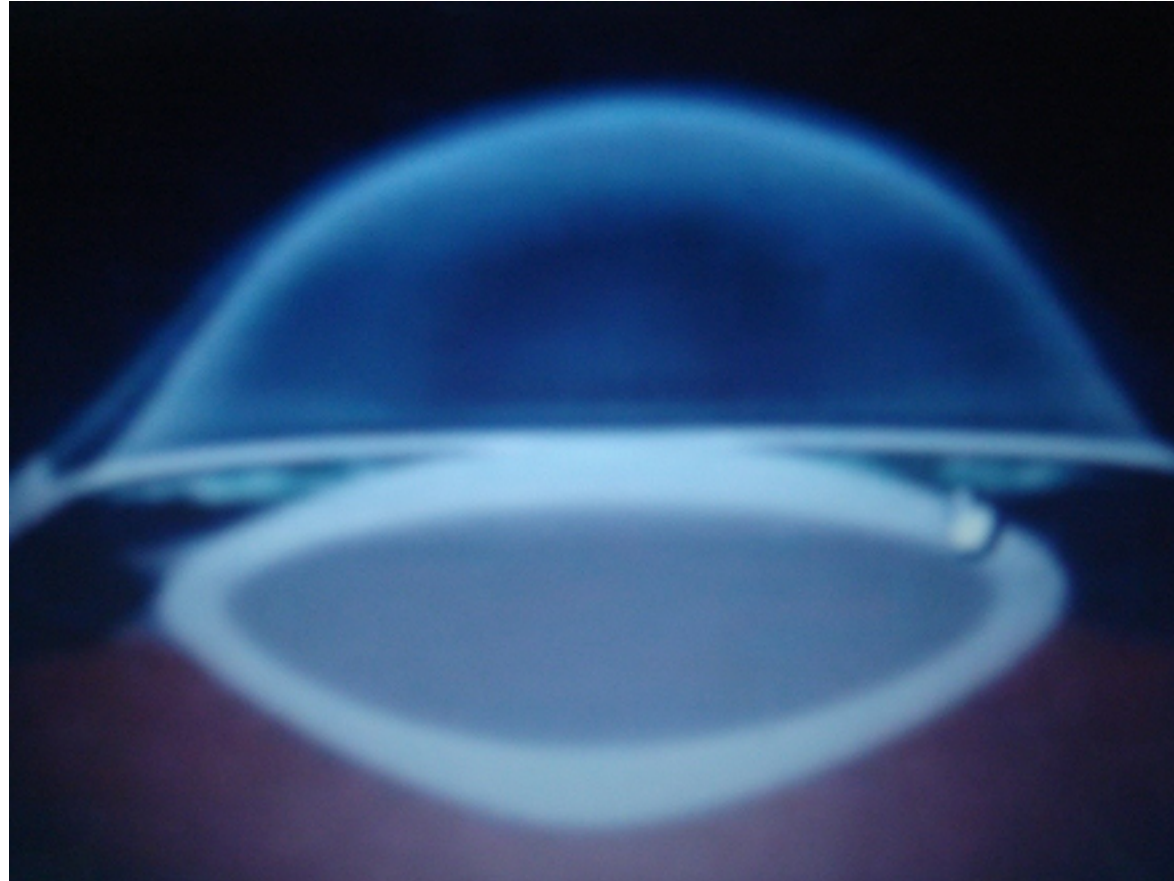
Solid white: No liquifaction no fluid.. No risk.??

Pearly white: intumescent cataract with some liquifaction..More Risky!!!

Milky white: marked liquifaction
..Morgagnian cataract

Small nucleus with free pathway

Milky white:
marked liquifaction
..Morgagnian
cataract

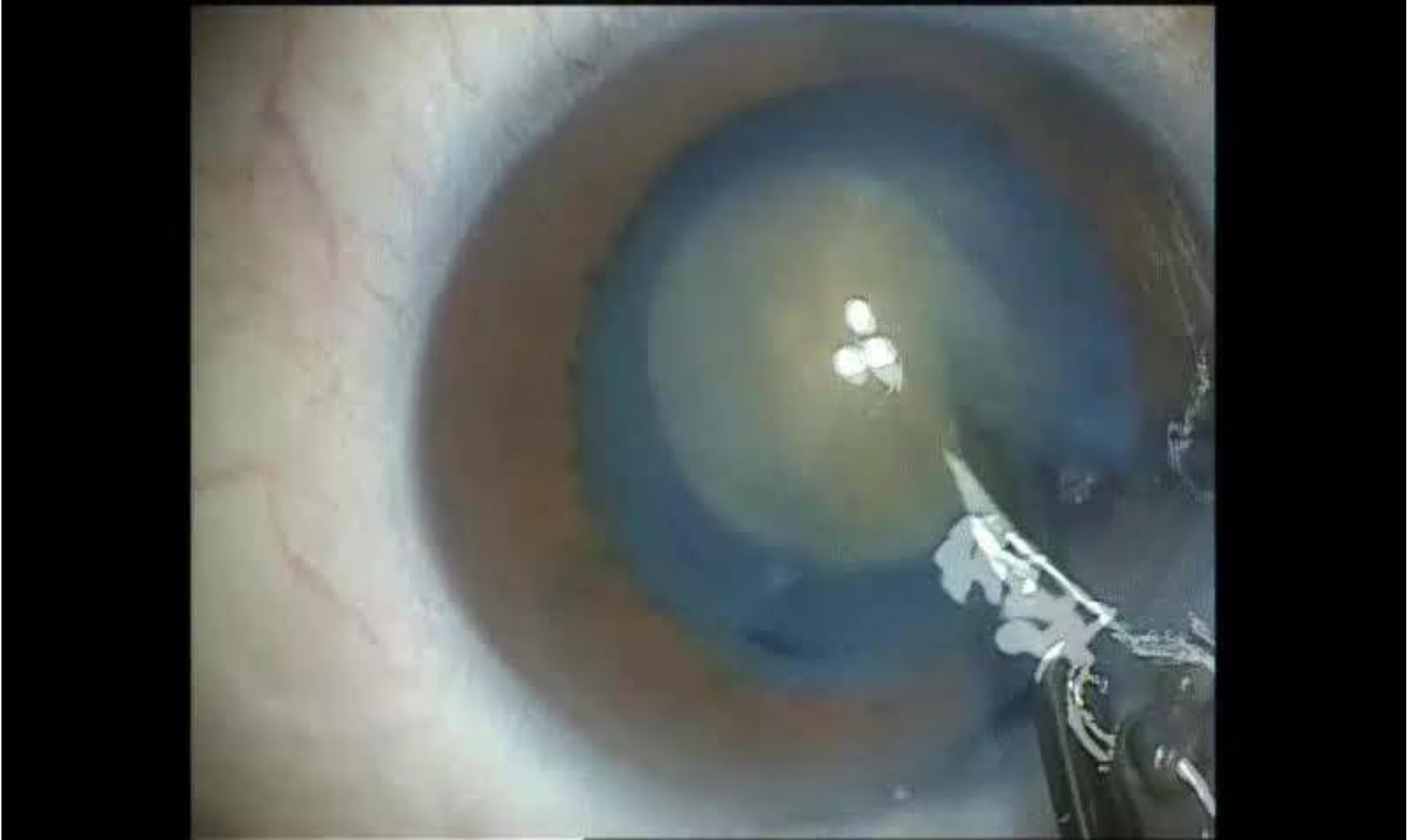


Milky white:
marked
liquifaction ..
Morgagnian
cataract.less
or no risk..

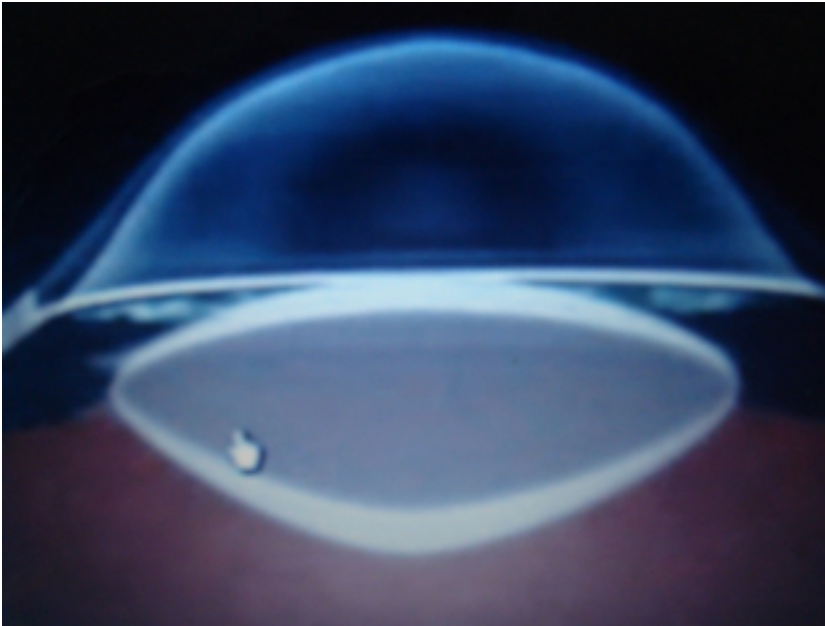


Video

Hydrodessionction & Rotation



Large nucleus with blocked pathway



Pearly **white:**
intumescent
cataract with some
liquifaction..More
Risky!!!

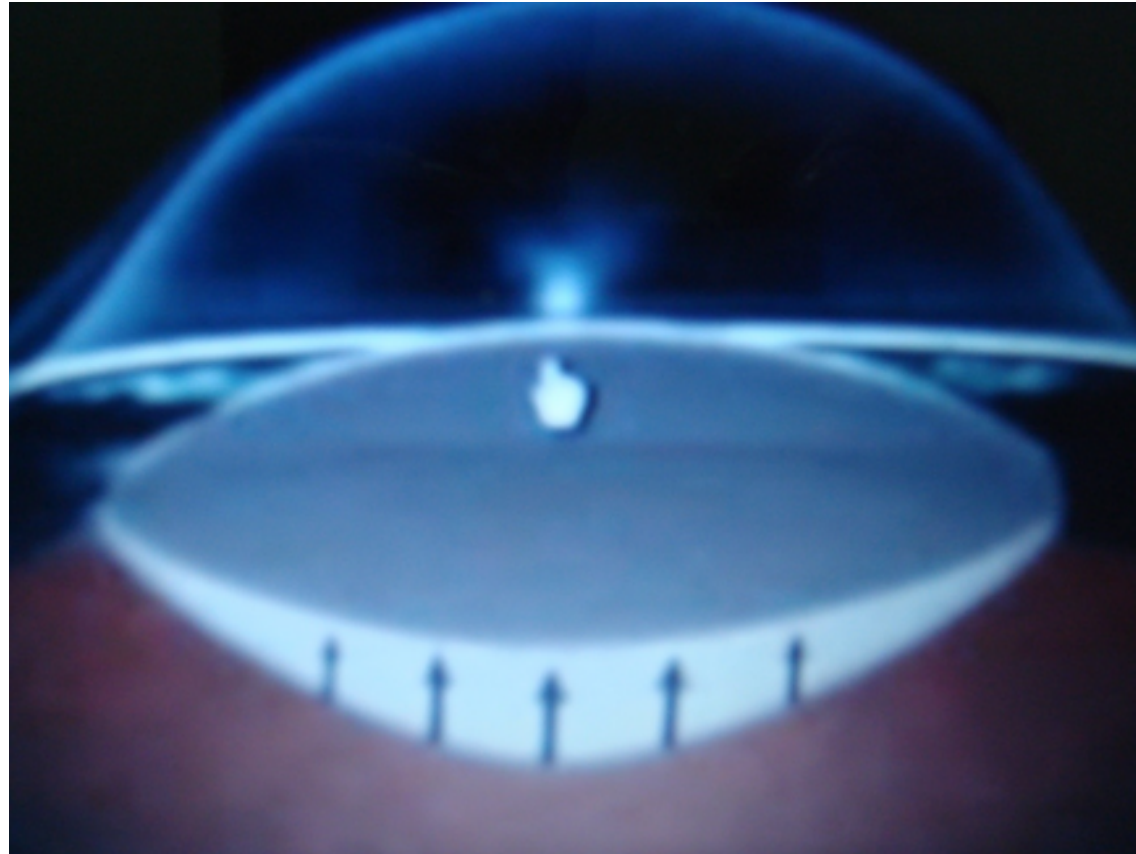


Video

Risk factors:

- Liquefied or glutinous cortical material.
- Swollen lens.
- Weak zonule.
- High vitreous pressure.

Blocked pathway pushes the nucleus



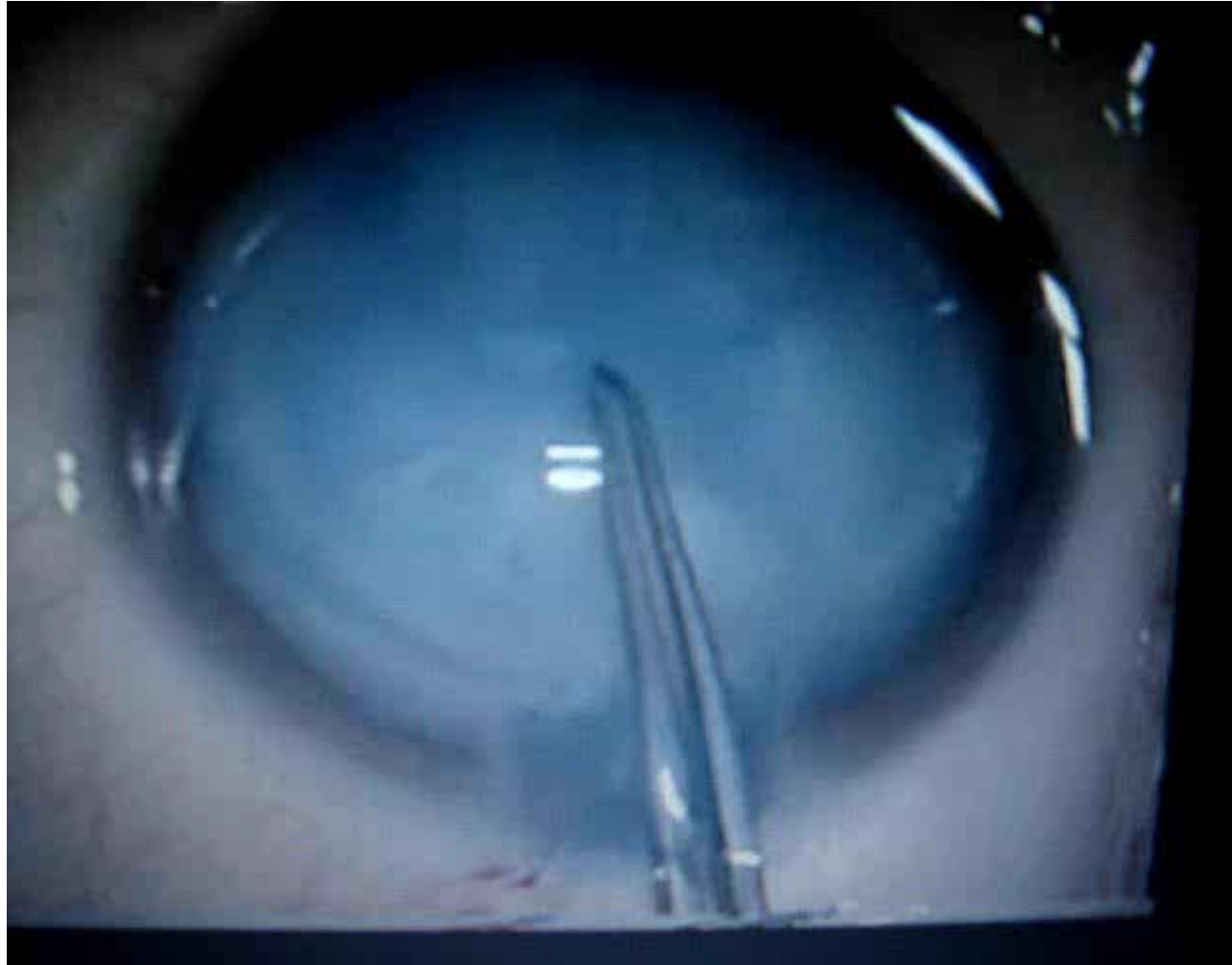
Why it happens ??



Video

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The Runaway Rhexis [Argentine flag sign]



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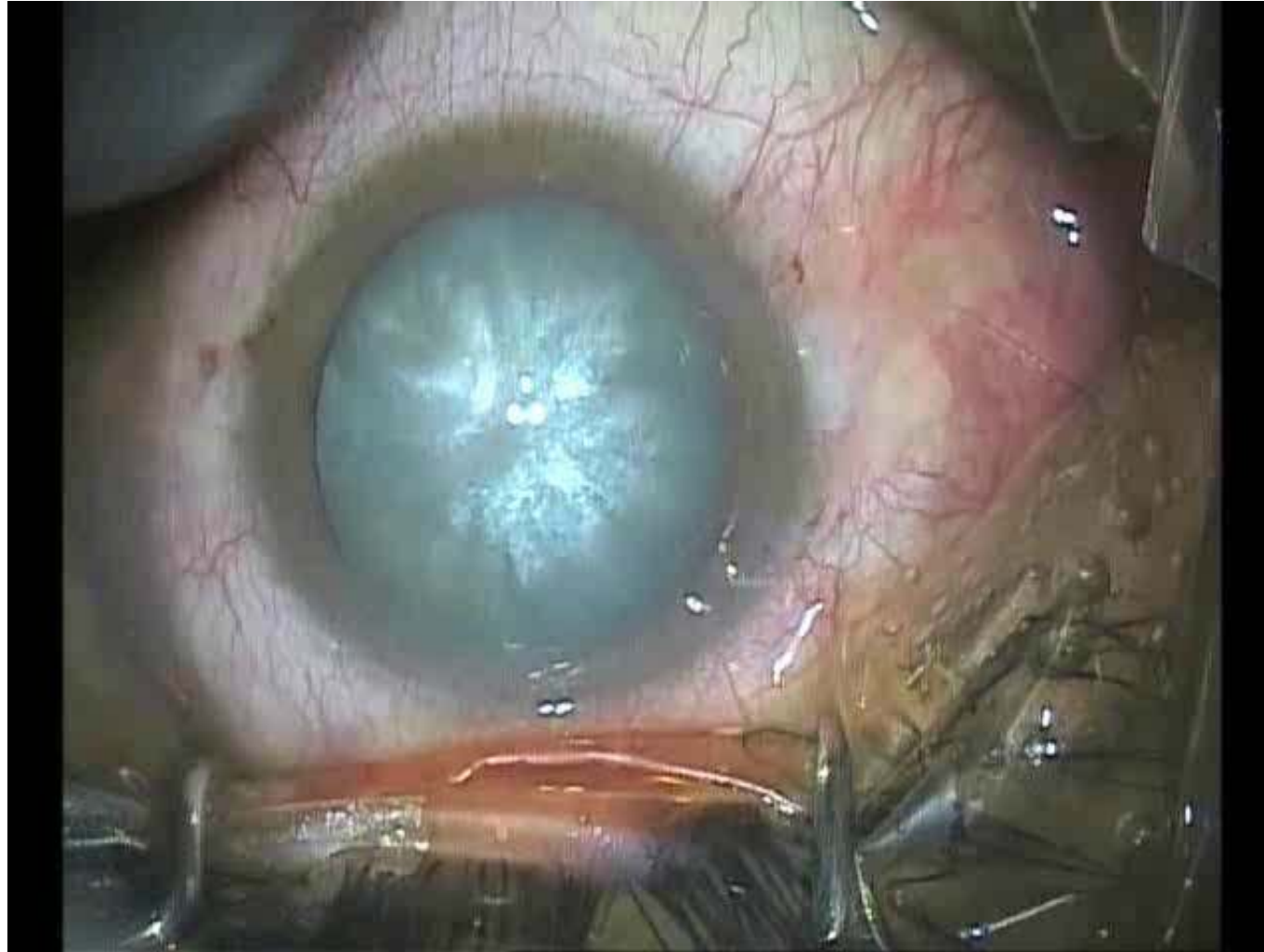
The Runaway Rhexis [Argentine flag sign]



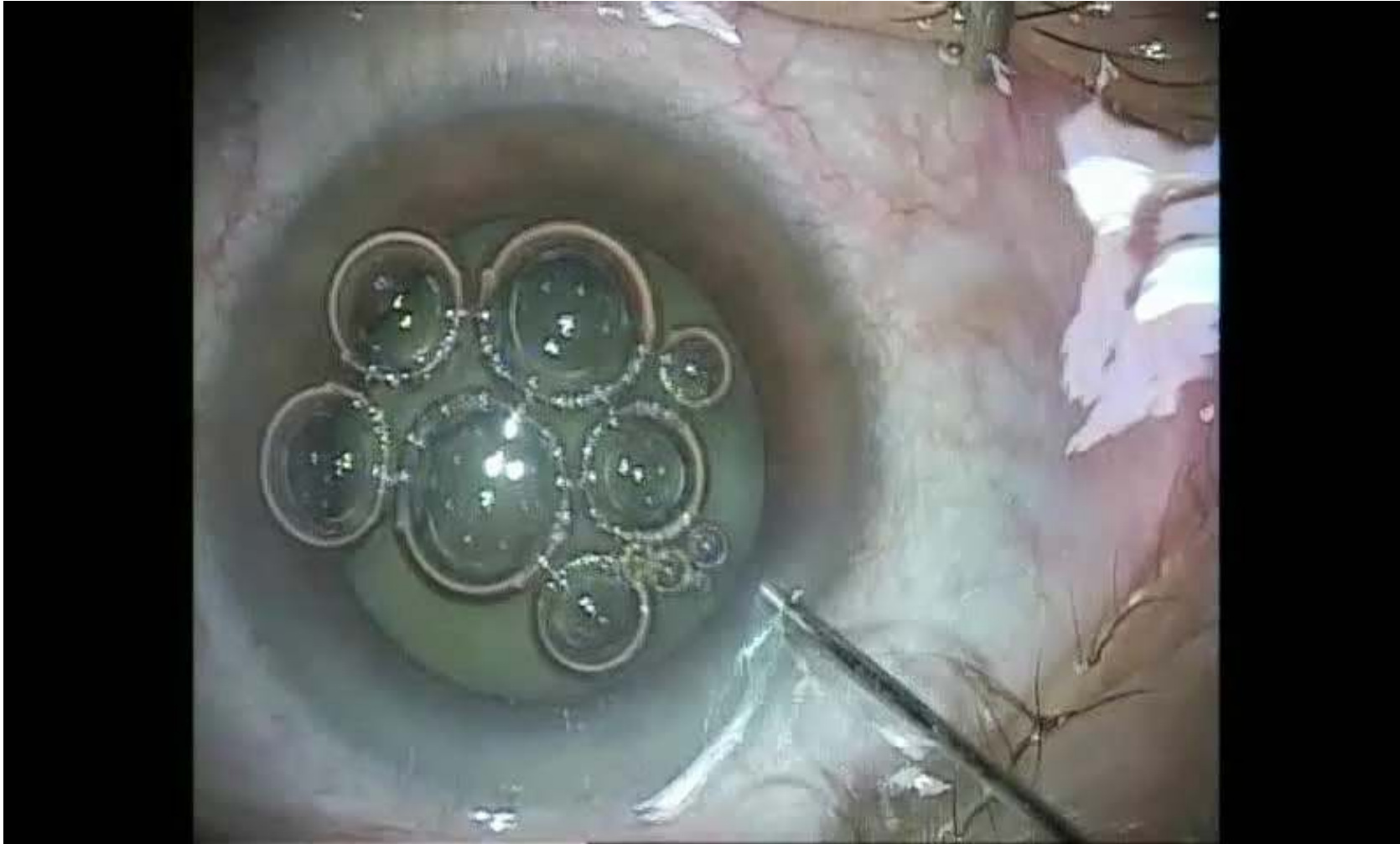
Hold Rhexis forceps opened for a while



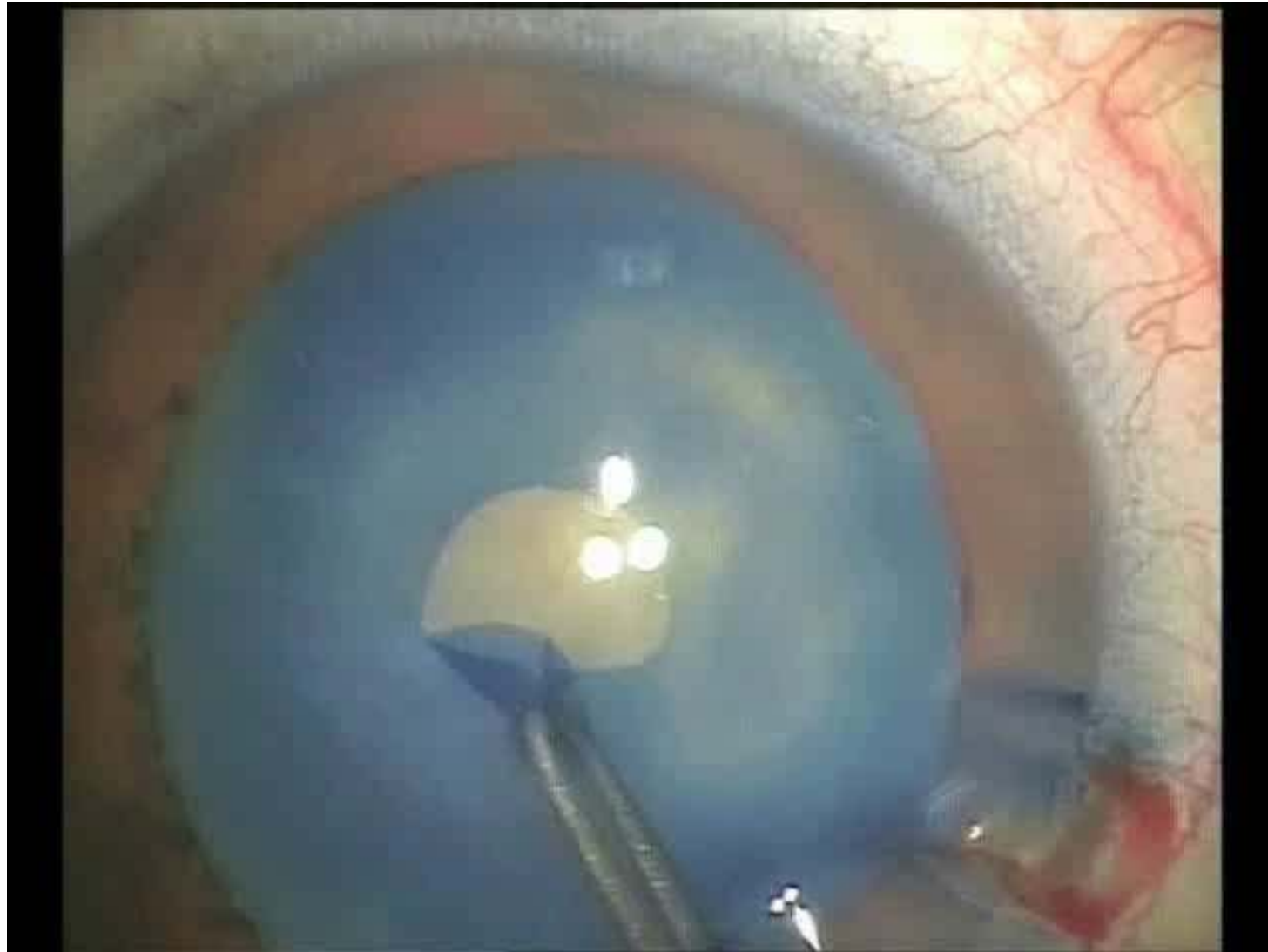
Absent Red reflex [mature white cat.]



Spiral Rhexis



2 steps Spiral Rhexis



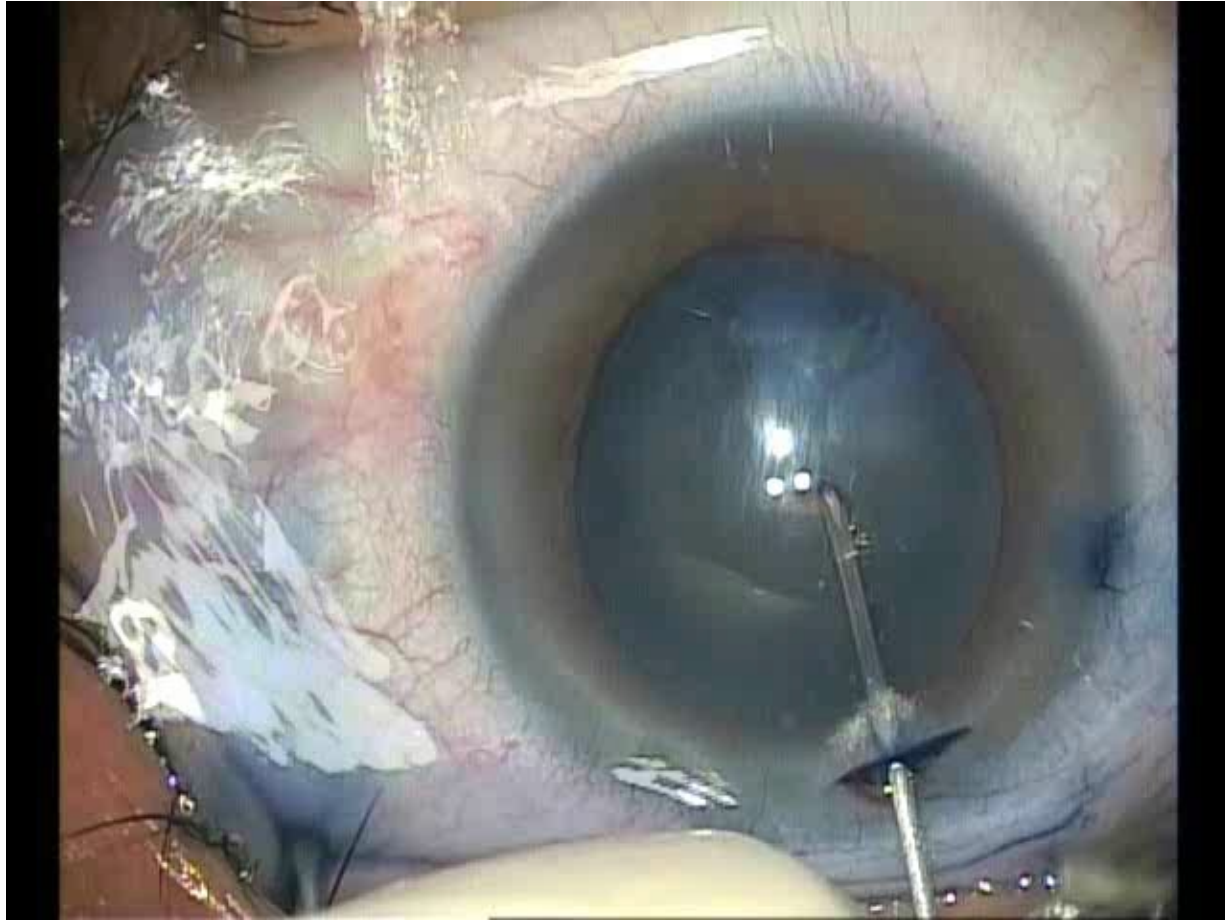
3 steps Spiral Rhexis



Calcified ant. Capsule_[hypermature cat.]



The Runaway Rhexis [Late Argentine flag sign]



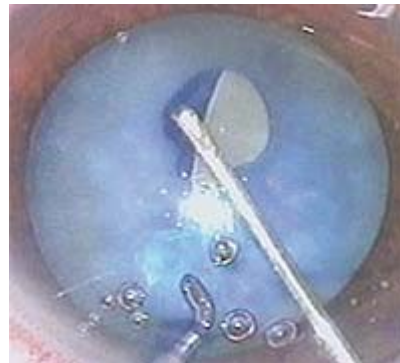
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The Runaway Rhexis [Argentine flag sign]



Conclusion

No matter what new instrumentation or surgical techniques become popular, the anterior Rhexis will continue to be an important part of cataract and lens-based refractive procedures.





Thank You