White Intumescent Cataract , Tips and tricks

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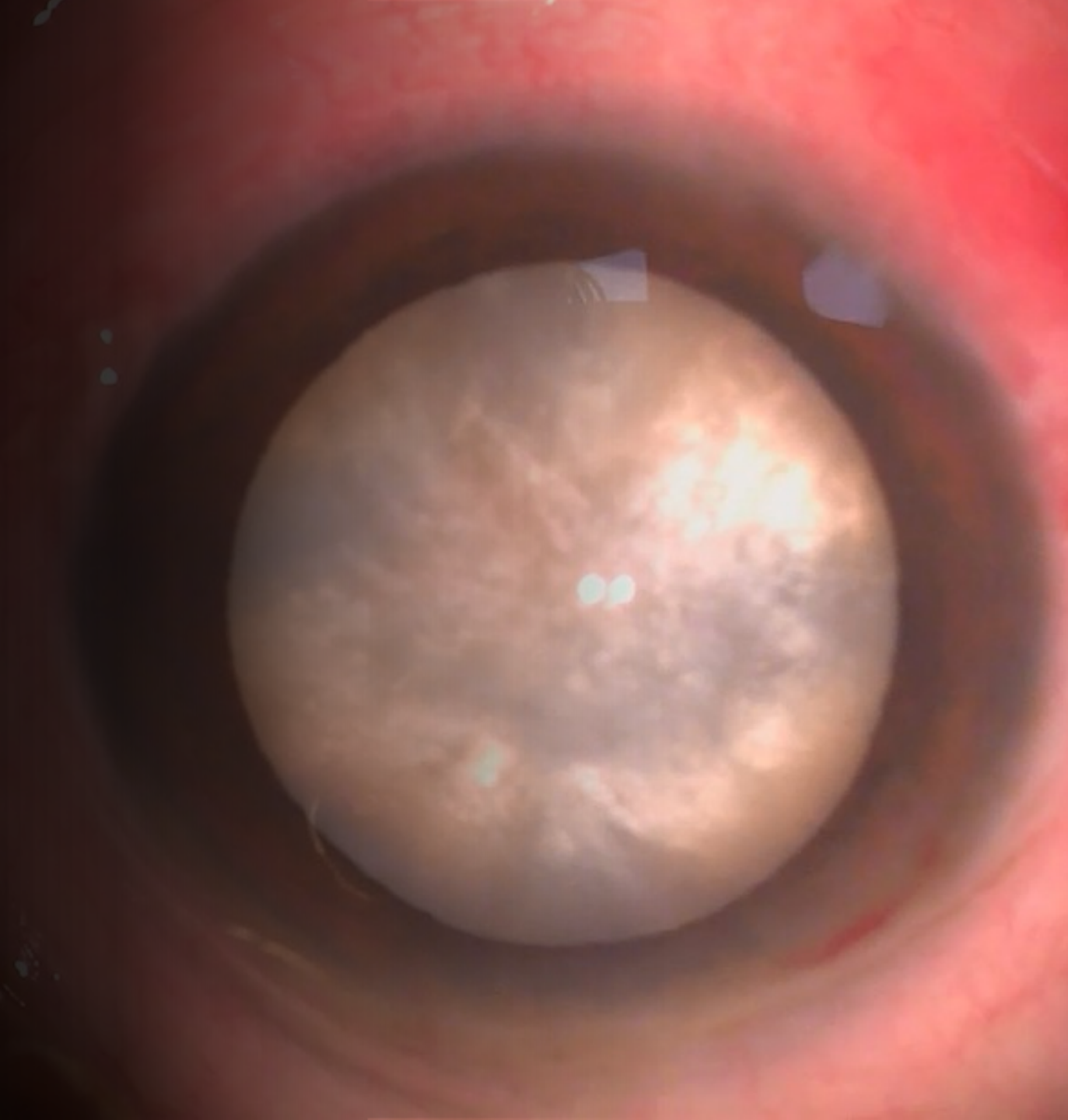


Introduction

- White cataracts represent a heterogeneous group of advanced cataracts with varying clinical and surgical features.
- In practice, most white cataracts do not fall strictly into a single category but rather exist along a spectrum between two main types: dense white cataracts and soft white (intumescent) cataracts.
- Understanding the differences between these two extremes helps the surgeon anticipate intraoperative challenges and adapt surgical techniques.

Dense White Cataract

- Typically seen in older patients.
- On slit-lamp examination, the lens shows a yellow to brown central discoloration.
- The anterior capsule appears flat, with no fluid inside the capsular bag.
- After staining the capsule with trypan blue, capsulorrhexis is usually straightforward, with a low risk of radial tears.

• The main surgical challenge is the very dense nucleus, which requires higher ultrasonic phaco energy.
• Increases the risk of corneal endothelial damage and phaco wound burn.
• Risk reduction strategies include re-coating the corneal endothelium with a dispersive viscoelastic during phaco.
• Using ultrasound power modulation techniques.

Soft White (Intumescent) Cataract

- More common in younger patients.
- The capsular bag contains a milky white liquefied cortex.
- These cataracts are intumescent, meaning the lens is swollen and under high intracapsular pressure.

In routine cataracts:

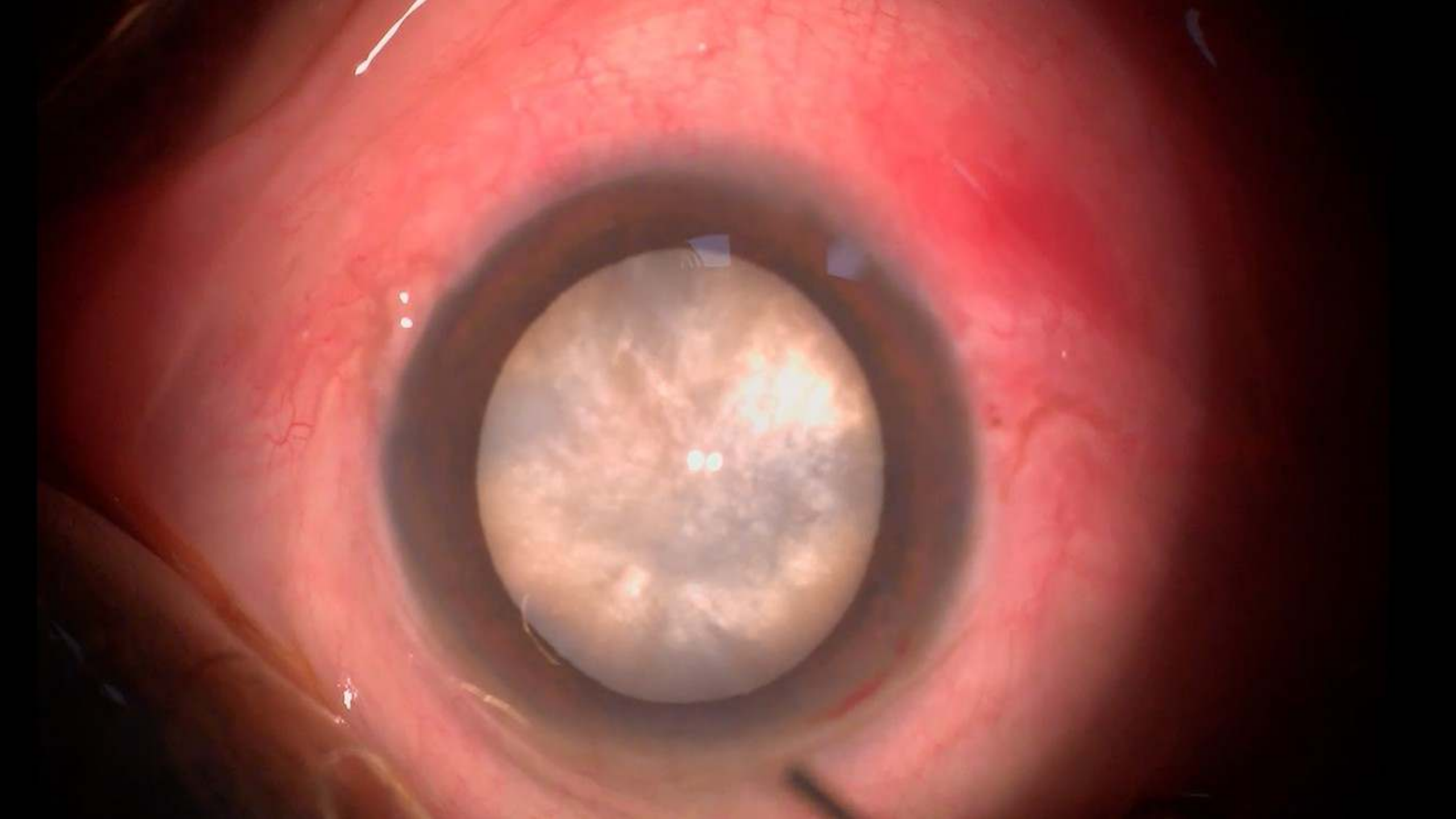
- The lens material is solid.
- Intracapsular pressure is lower than anterior chamber pressure, making capsulorrhexis easy.

In white intumescent cataracts:

- Liquefaction of the cortex raises intracapsular pressure.

Case Presentation

- 51-year-old male
- Visual acuity: counting fingers at 50 cm
- No systemic comorbidities
- Intraocular pressure: 28 mmHg
- Anterior segment: white cataract
- Posterior segment: no detected pathology



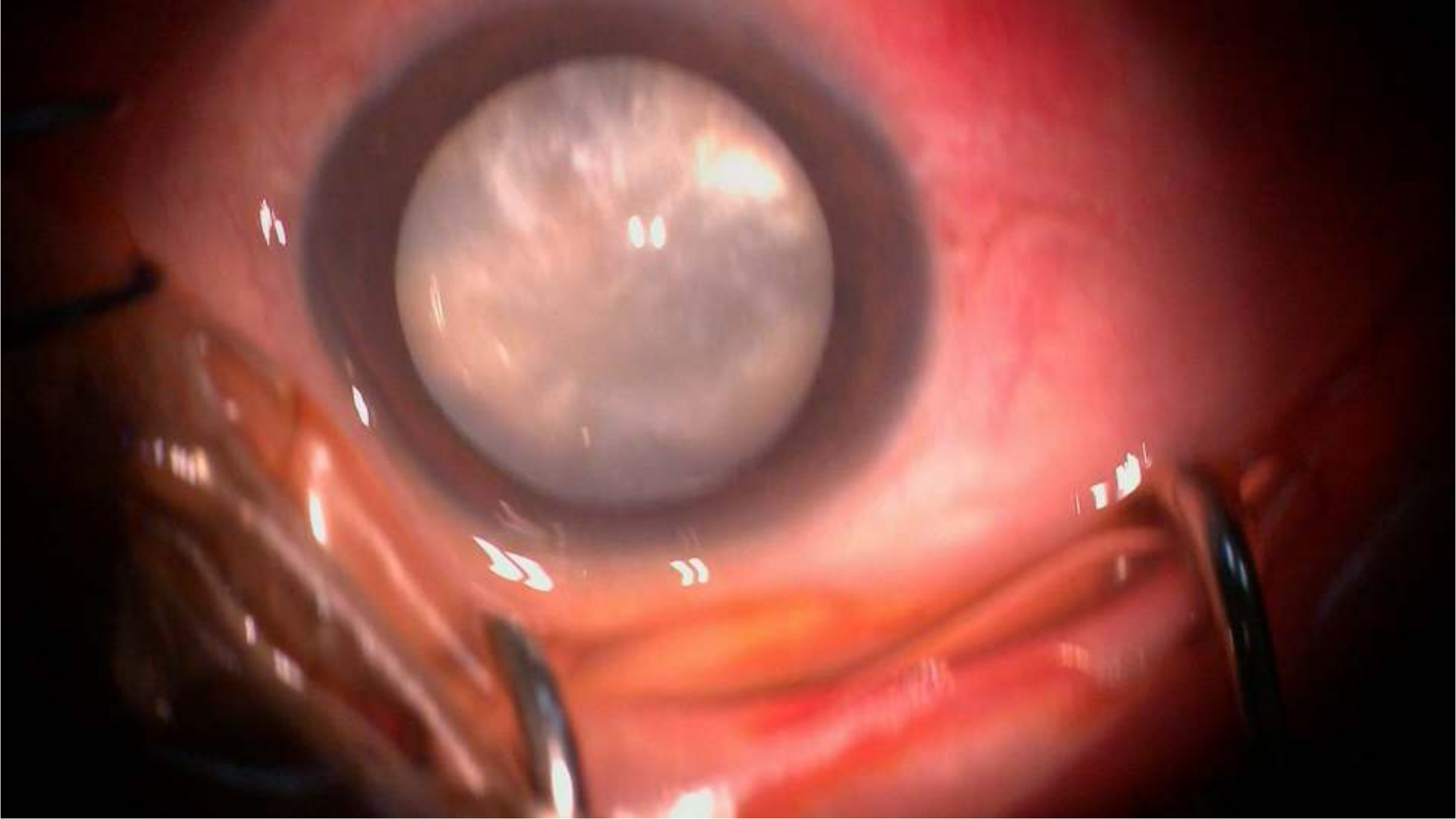
Needle decompression and capsulorrhexis

• After staining the anterior capsule with trypan blue, a fine needle was used to decompress the capsular bag by aspirating the liquefied cortical material, allowing gradual reduction of the elevated intracapsular pressure.

• Once the anterior chamber was stabilized with viscoelastic, a controlled continuous curvilinear capsulorrhexis was initiated.

• The capsular flap was carefully grasped at its edge and advanced in a clockwise direction, maintaining constant centration and edge control.

• This technique allowed progressive enlargement of the capsulorrhexis and facilitated the creation of a sufficiently large and well-centered rhexis while minimizing the risk of radial extension.

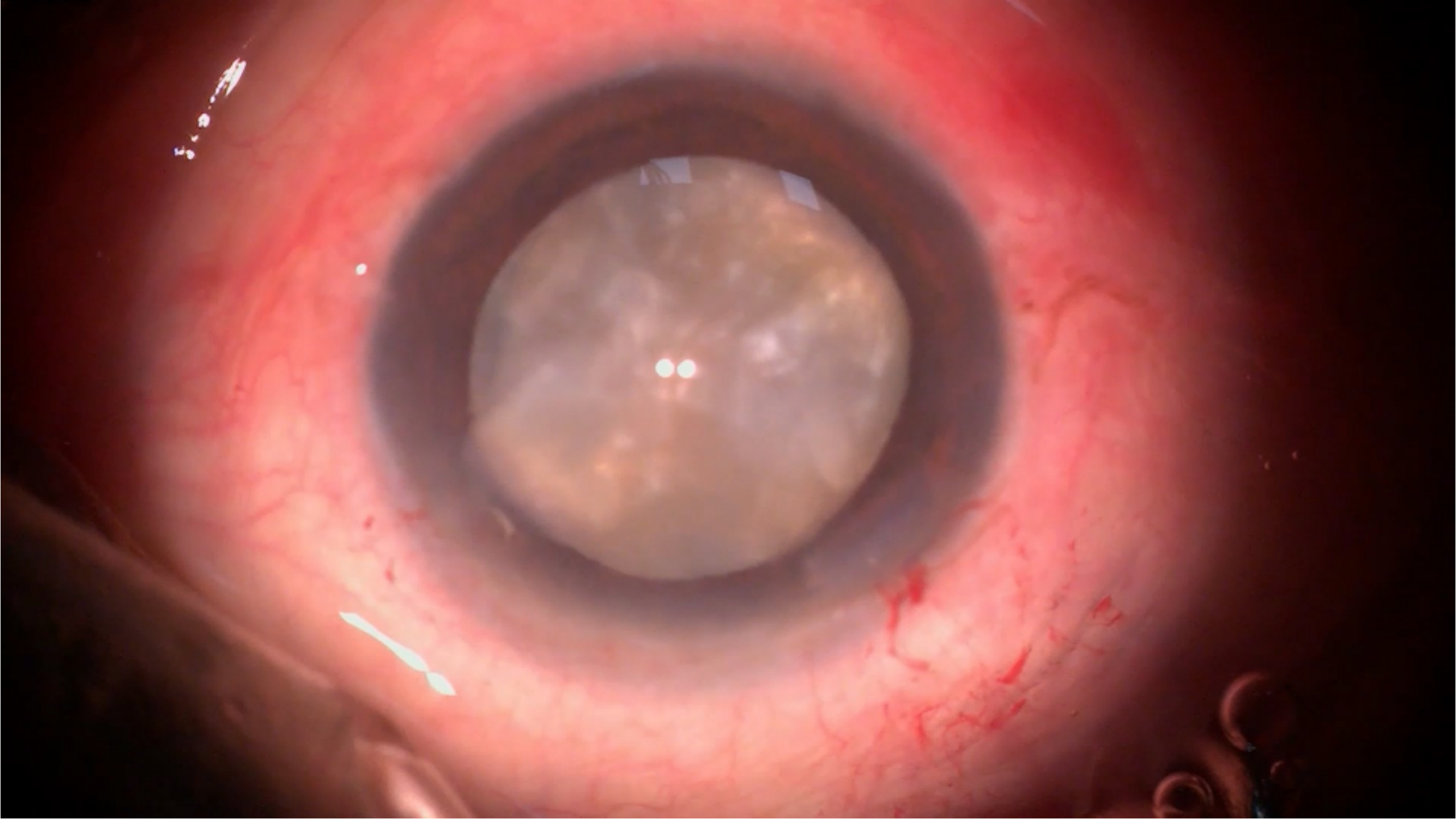


Phaco station

- Phacoemulsification was performed in linear phaco mode using a phaco-chop technique with a second instrument and chopper to mechanically fragment the cataract nucleus.

- Phaco power was set at 35%, with an aspiration flow rate of 35 mL/min and a vacuum level of 350 mmHg.

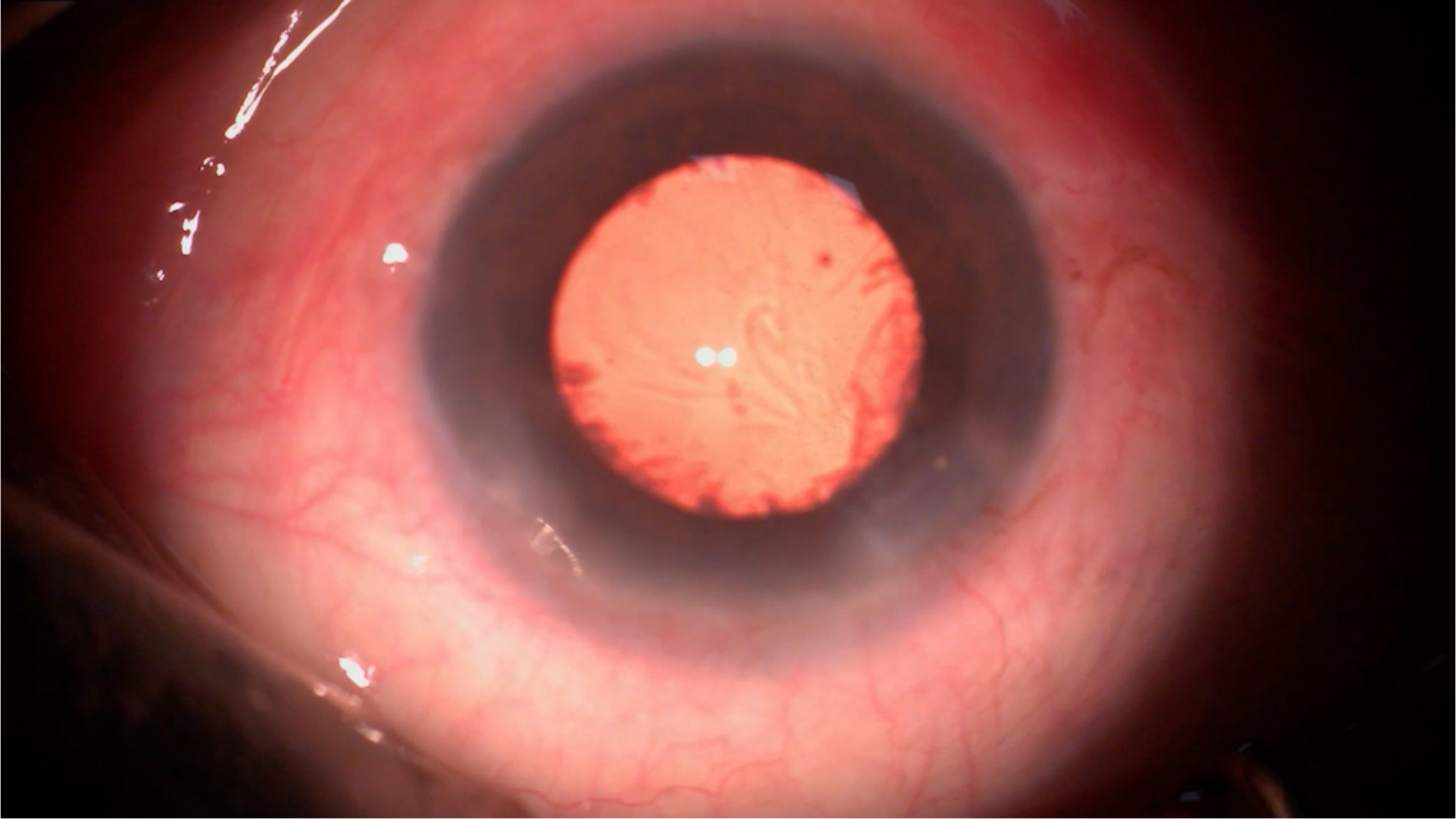
- This approach allowed effective nuclear fragmentation while maintaining good chamber stability and minimizing ultrasonic energy exposure to the corneal endothelium.



Cortex aspiration and IOL implantation

- Following nuclear removal, cortical aspiration was completed to clear residual lens material.
- The posterior chamber intraocular lens was then implanted into the capsular bag under continuous irrigation, without the use of viscoelastic OVD.
- This technique maintained anterior chamber stability while avoiding retained viscoelastic.
- Final wound closure was achieved with stromal hydration, ensuring secure wound sealing and a well-formed anterior chamber at the end of the procedure.

- Implanting the intraocular lens under continuous irrigation rather than with viscoelastic offers several advantages.
- Continuous irrigation maintains a stable and well-formed anterior chamber while allowing controlled IOL delivery into the capsular bag.
- Avoiding viscoelastic eliminates the risk of retained OVD, which is a known cause of early postoperative intraocular pressure spikes particularly relevant in eyes with pre-existing elevated IOP or intumescent cataracts.
- This technique also reduces surgical time, minimizes the need for additional aspiration, and ensures a cleaner capsular bag at the conclusion of surgery.
- Overall, irrigation-assisted IOL implantation can contribute to improved immediate postoperative pressure control and faster visual recovery.



Take-Home Messages

- White cataracts represent a spectrum, ranging from dense to intumescent types.
- Proper identification of cataract type is essential for safe surgical planning.
- Needle decompression and controlled capsulorrhexis reduce the risk of radial tears in intumescent cataracts.
- Mechanical nuclear fragmentation with optimized phaco settings minimizes endothelial and thermal damage.
- IOL implantation under irrigation, without OVD, helps maintain chamber stability and reduces early postoperative IOP spikes.

Thank You