AGENDA:

3:00 – 3:09 PM – Introduction, Richard Davidson, M.D.
3:10 – 3:17 PM – Alan Crandall, M.D., Cataract with complete zonular laxity
3:26 – 3:33 PM – Carlos Buznego, M.D., Using cataract density grading to customize fragmentation patterns
3:34 – 3:41 PM – Michael Taravella, M.D., Cataract with loose zonules
3:42 – 3:49 PM – Sonia Yoo, M.D., Dense cataract with small pupil and cataract with zonular dialysis.
3:50 – 3:57 PM – George O. Waring IV, M.D., Management of cataract and dysfunctional lenses in patients with narrow angles and fuchs dystrophy using the femtosecond laser
3:58 – 4:05 PM – Keith Walter, M.D., Using pneumo-dissection to your advantage with prolapsing lenses into the anterior chamber
4:22 – 4:29 PM – Beeran Meghpara, M.D., Traumatic cataract with zonular loss
4:29 – 4:30 PM – Conclusion and Q & A
The Use of a Femtosecond Laser for Complex Cataract Procedures

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Introduction

We are finally using a laser!!!
Introduction
- Femtosecond laser assisted cataract surgery is changing the way we approach the procedure
- More than 350 lasers
- 27 countries
- More than 500 MDs
- There have been more than 100,000 procedures performed
- The technology is not going away

Benefits
- More accurate effective lens position
- Lower phaco times
  - Less endothelial cell loss
- More precise astigmatism correction

Complex Cataracts
- Posterior Polar Cataracts
- Post-Penetrating Keratoplasty
- White Cataracts
- Fuchs Endothelial Dystrophy
- Small Pupils
- Traumatic Cataracts
- Pseudoxfoliation
- Morgagnian Cataracts
- Weill-Marchesani
Posterior Polar Cataract

Post-Penetrating Keratoplasty

- Make sure all sutures are removed
- Wound stable
- Refraction stable
- No evidence of inflammation or rejection
- I prefer arcuate incisions instead of toric intraocular lenses
White Cataracts

- Pose a number of challenges during surgery
  - Capsulorrhexis is difficult
  - The nucleus is dense
  - Risk of complications is higher
- There are techniques and devices that can be used to create a safer surgery and better outcome for our patients

Argentinian Flag Sign

White Cataract - Manual
Other Complex Conditions

- Fuchs Endothelial Dystrophy
- Less phaco time
- Studies underway evaluating endothelial cell loss
- Small Pupils / Pseudoexfoliation
- Zonular laxity
- Smaller pupils
  - Malyugin ring insertion may be possible on some lasers
  - Ability to adjust capsulorrhexis size on the fly
- Traumatic Cataracts

Conclusions

- Femtosecond laser-assisted cataract surgery is here to stay
- It is an excellent modality for routine cataracts
- It is equally impressive with “complex” cataracts
- The technology will continue to evolve in the years to come
Femtosecond LASER ASSIST: PXE and Loose Zonules

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The author has no financial interest in the material presented

Clinical History

• 70 year old male with history of pseudoexfoliation
• Obvious phacodenisis on slit lamp exam
• Plan: Femtosecond laser incisions, capsulotomy, and nucleus division followed by phacoemulsification

Factors predisposing to zonular weakness

• Systemic problems
  – Marfan's syndrome
  – Pseudoexfoliation syndrome
• Trauma

Strategies to Address Zonular dehiscence

• Low stress capsulotomy
  – Minimize tangential and centripetal forces if possible
• Low flow phacoemulsification
  – Try to decrease turbulence
• Minimize force used to crack/divide nucleus
• Judicious use of CTR/support rings

Surgical Pearls

• Femtosecond laser allows for capsulotomy and nuclear quadrant division to be performed with minimal zonular stress
• Iris hooks are used to support the capsule throughout the procedure
• Placement of CTR stabilizes bag and may prevent late dislocation
• Lens support relies on sulcus haptic position and optic capture
Conclusions

• The femtosecond laser may have utility in complex cataract cases

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