

Surgical Techniques to Protect the Ocular Surface and Improve Cataract & Refractive Outcomes:

Preparing the Ocular Surface
for
Cataract & Refractive Surgery

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Have done research, consulting, or speaking for:

Allergan, Avedro, ESI, Humanoptics, Johnson & Johnson, OSD, Shire, Sightpath, TLCV

Some of the information may represent off-label uses of approved drugs or devices



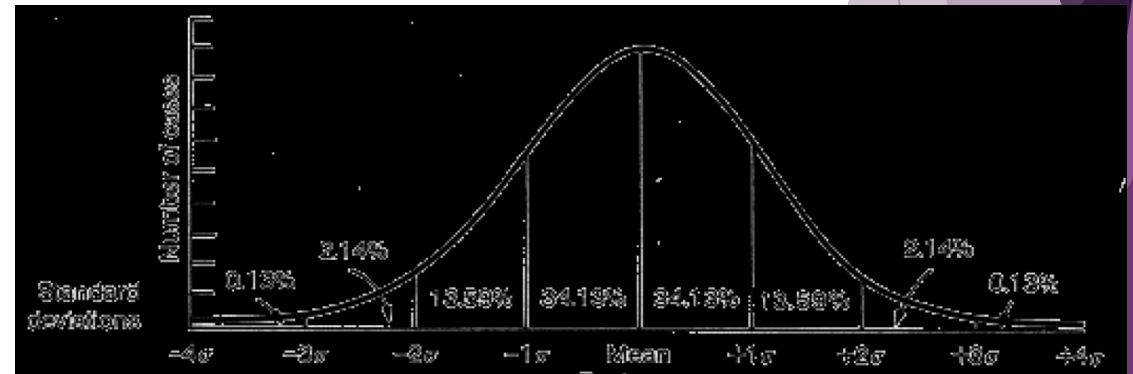
Ocular Surface

- ▶ Common to have dry eye and meibomian gland dysfunction in the patient in the cataract age group
 - ▶ Decide if it is the lesser finding, or the major issue
- ▶ Identify the patient expectations
 - ▶ Best done preoperatively
 - ▶ Predict the potential problem
 - ▶ You are a genius
 - ▶ Work to fix a problem postop
 - ▶ Why didn't you tell me doc?

Pre-Operative Care and Counseling

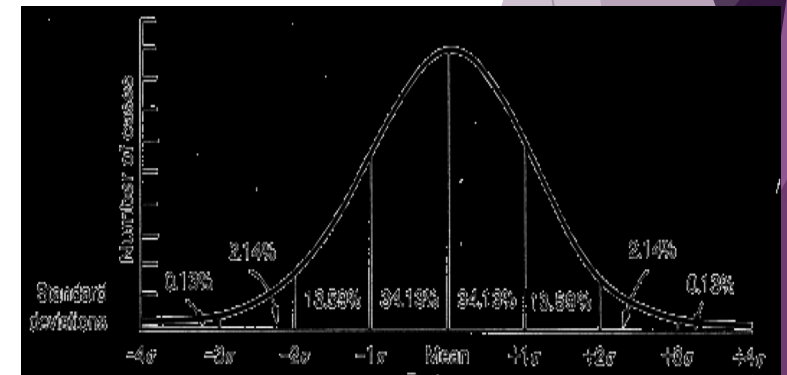
▶ LASIK

- ▶ So, Doc, I'm a perfect candidate for cataract surgery?
- ▶ NO
 - ▶ No one is perfect
- ▶ So, Doc, You think I'll
 - ▶ do well with refractive surgery?
 - ▶ Most of the time, people do well



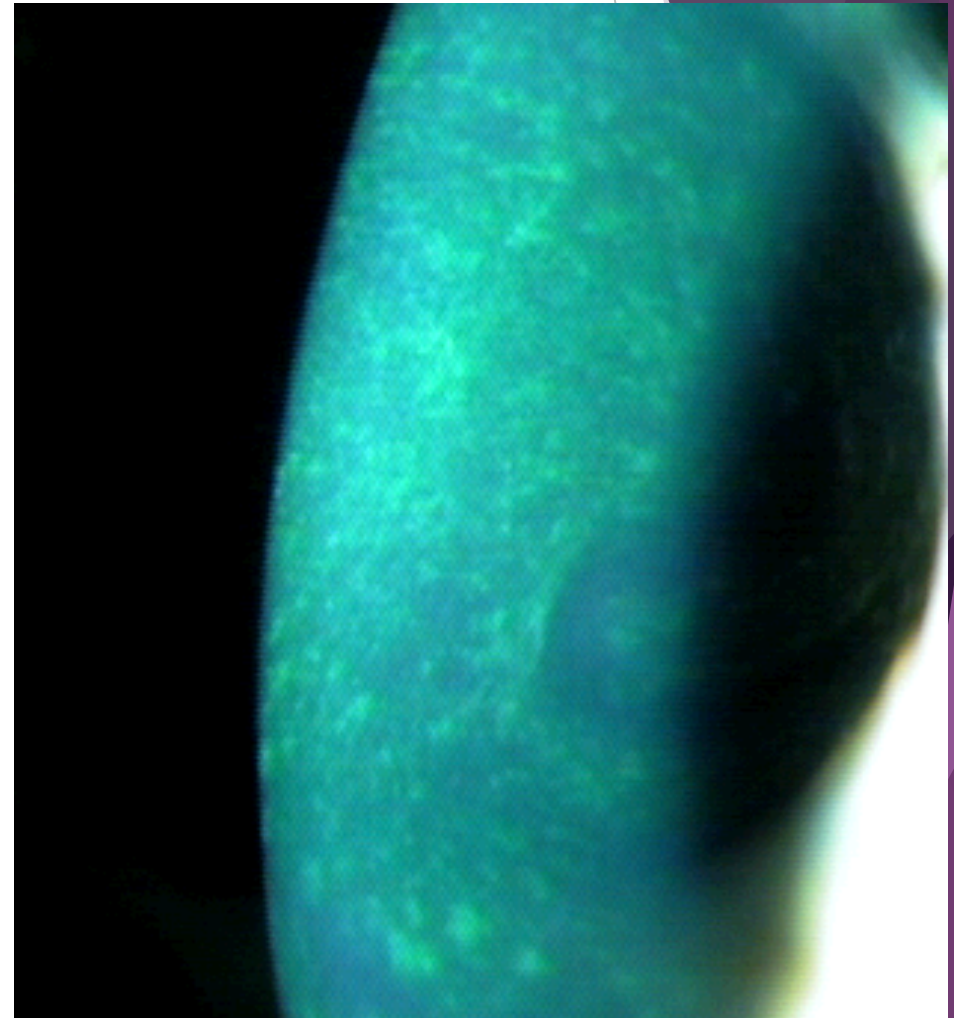
Pre-Operative Care and Counseling

- ▶ Cataract Surgery
 - ▶ I just want to see better after my cataract surgery!!!
 - ▶ What are your goals for your vision after cataract surgery
 - ▶ So, Doc, You think I'll
 - ▶ See perfect at all distances after my cataract surgery like my next door neighbor?
 - ▶ Most of the time, people do well, yet you may still need glasses for some activities, and there are some tradeoffs with the new IOLs



Ocular Surface Disease and Eye Surgery

- ▶ Identify Preoperatively
 - ▶ Lid Hygiene
 - ▶ Artificial Tears
 - ▶ Restasis/Xiidra
 - ▶ Doxycycline
 - ▶ Nizoral Shampoo
 - ▶ Plugs only after Xiidra/Restasis
 - ▶ Anti-allergics



85 year old Male

- ▶ 85 year old
- ▶ Problems driving
- ▶ Wants to return to driving soon
- ▶ 20/200 vision
- ▶ 1+ PEK
- ▶ 20/100 cataract OU

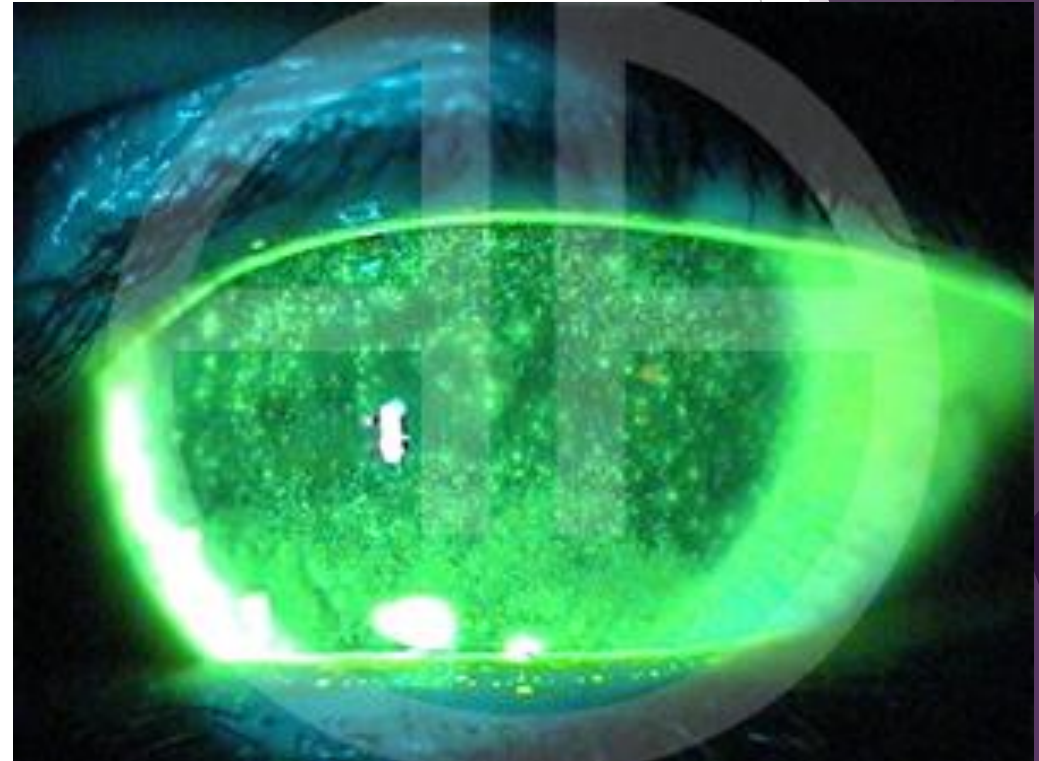


85 year old Male

- ▶ Management
 - ▶ Educate patient
 - ▶ Artificial tears
 - ▶ Lid Hygiene
 - ▶ Omega Supplementation
 - ▶ Ointment at night
 - ▶ Schedule cataract surgery
 - ▶ Complete management of dry eye postoperatively if needed

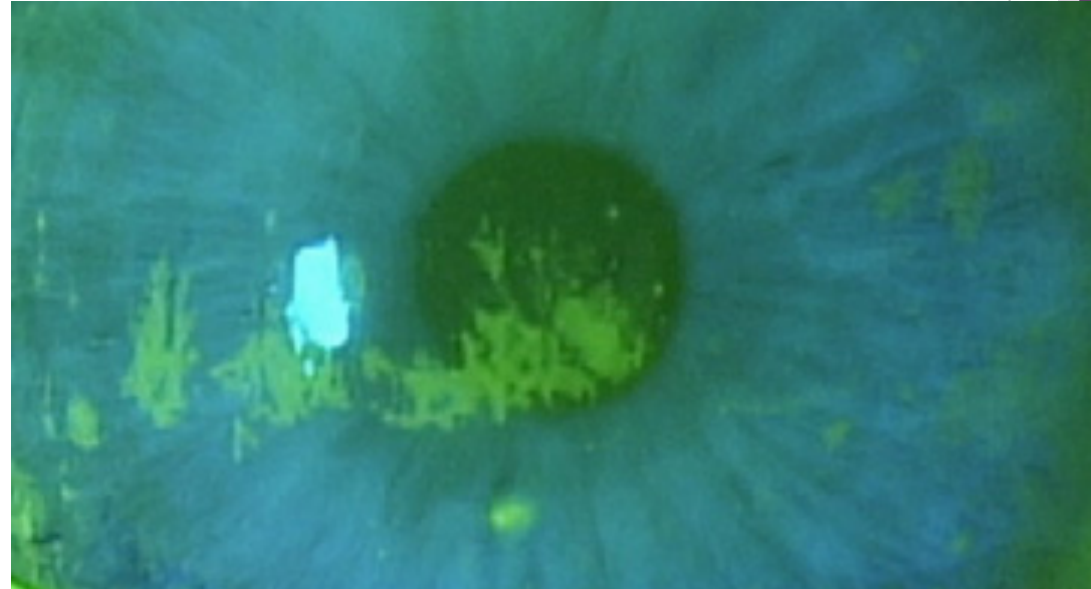
Ocular Surface

- ▶ 60 year old female
- ▶ Presents for cataract eval
- ▶ Blur after reading 5 minutes
- ▶ 20/100 vision
- ▶ 3+ PEK
- ▶ 20/25 cataract



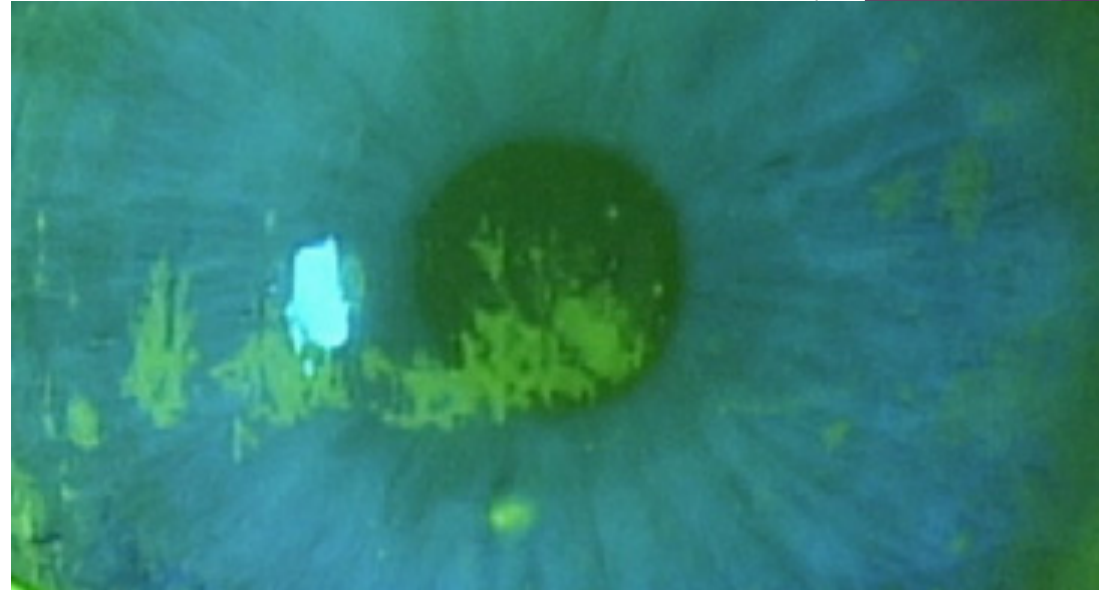
60 year old Female

- ▶ Management
 - ▶ Educate patient
 - ▶ Artificial tears
 - ▶ Lid Hygiene
 - ▶ Omega Supplementation
 - ▶ Ointment at night
 - ▶ Cyclosporine or Lifitegrast
 - ▶ Return in 4-6 weeks



60 year old Female

- ▶ Returns improved
 - ▶ Decide if needs cataract surgery
 - ▶ May need further management
 - ▶ Doxycycline
 - ▶ Intense pulsed light
 - ▶ Lipiflow
 - ▶ Other meibomian gland measures
 - ▶ Other aqueous deficiency measures
 - ▶ Punctal plugs or cautery



Intraoperative Process

▶ Cataract Surgery

▶ Minimal topical anesthetic

- ▶ Some use tetracaine in preop area and also intraoperative
- ▶ One drop of tetracaine
- ▶ Intraocular Lidocaine

▶ Aggressive coating of ocular surface during the surgery

- ▶ Goniosol to coat ocular surface
- ▶ Reapply as needed
- ▶ Minimizes the need to irrigate the ocular surface that otherwise causes toxicity

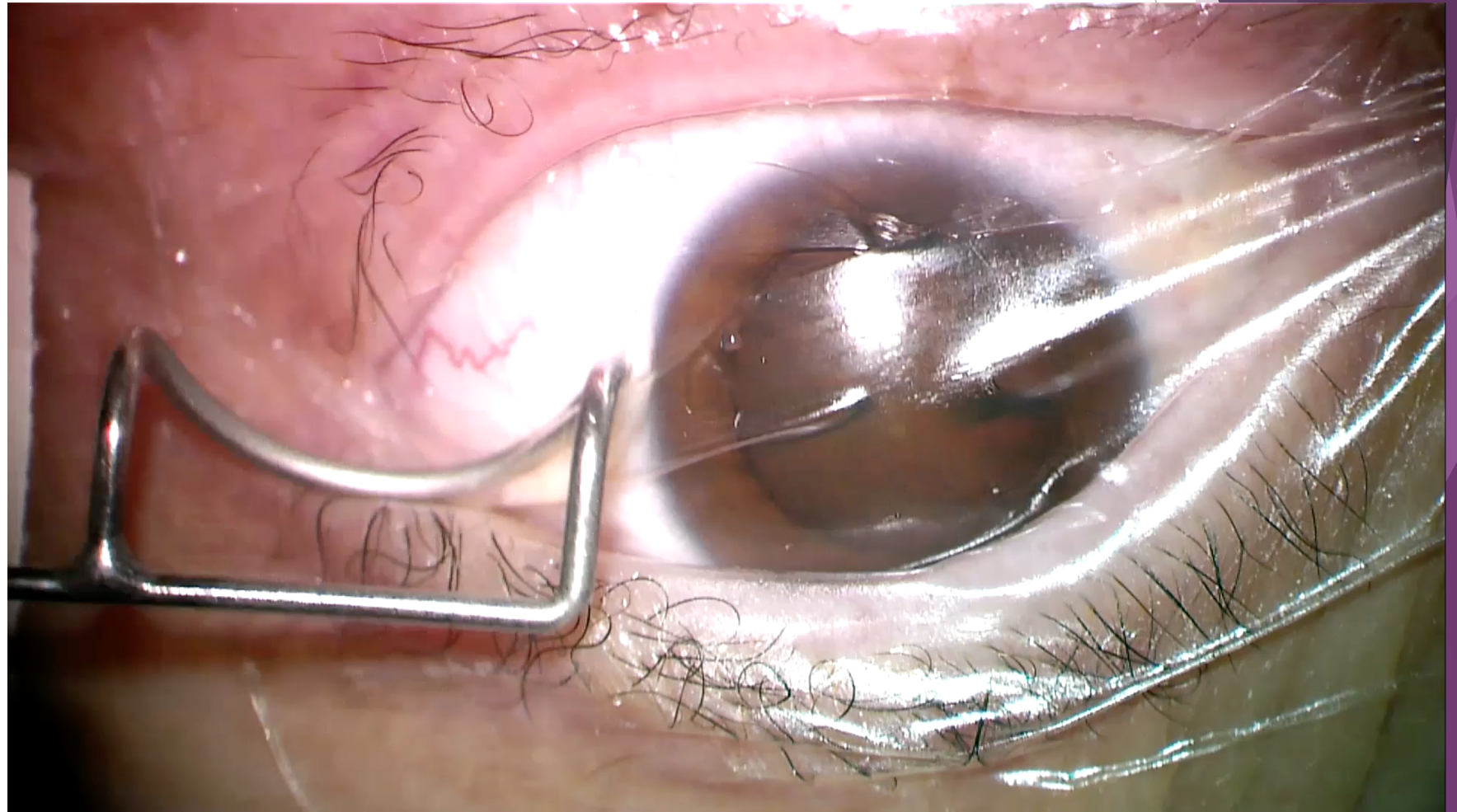
Protect Ocular Surface

- ▶ Careful taping of lids



Protect Ocular Surface

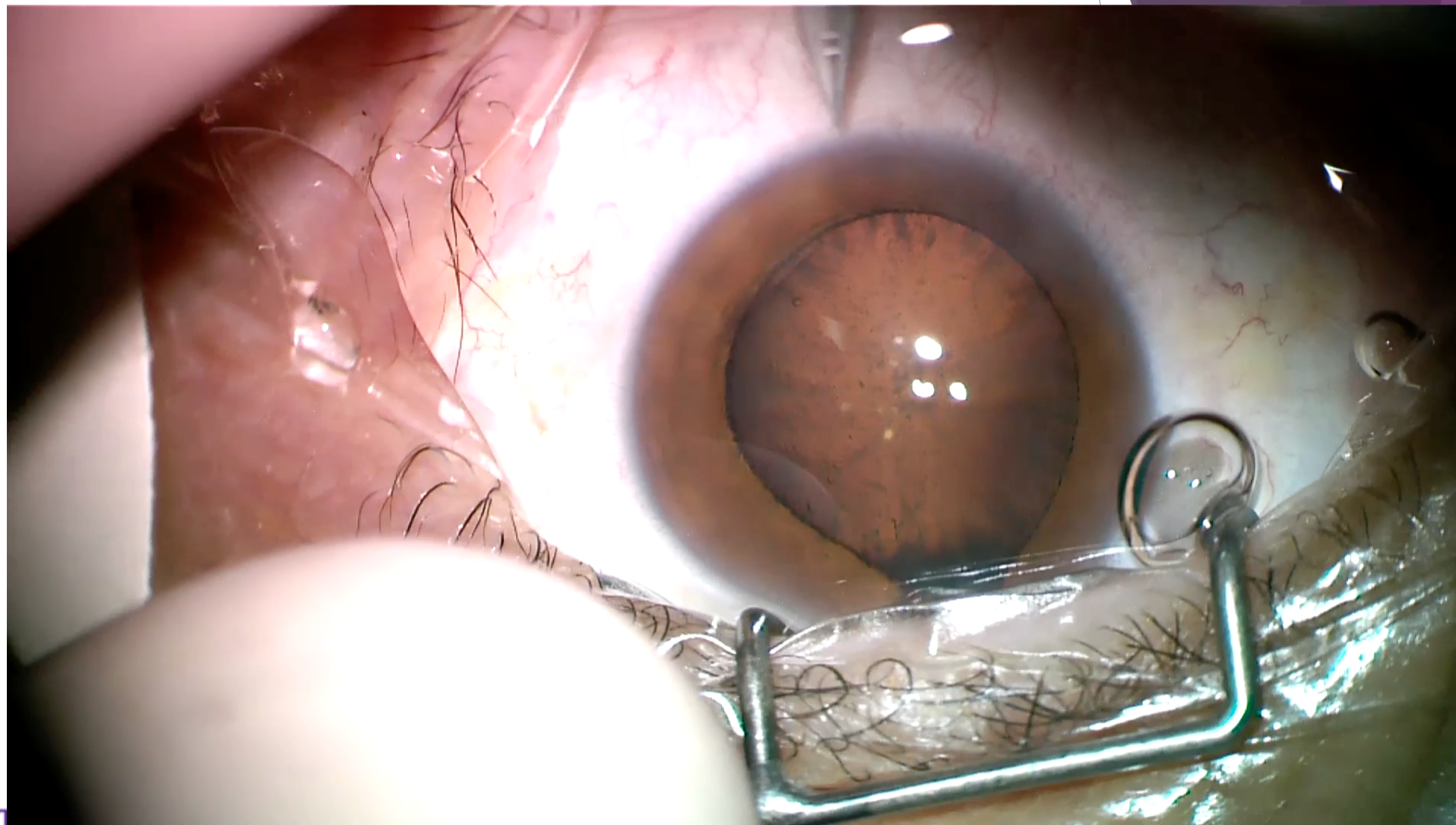
- ▶ Careful Lid Speculum Insertion



Add Goniosol to Protect Surface

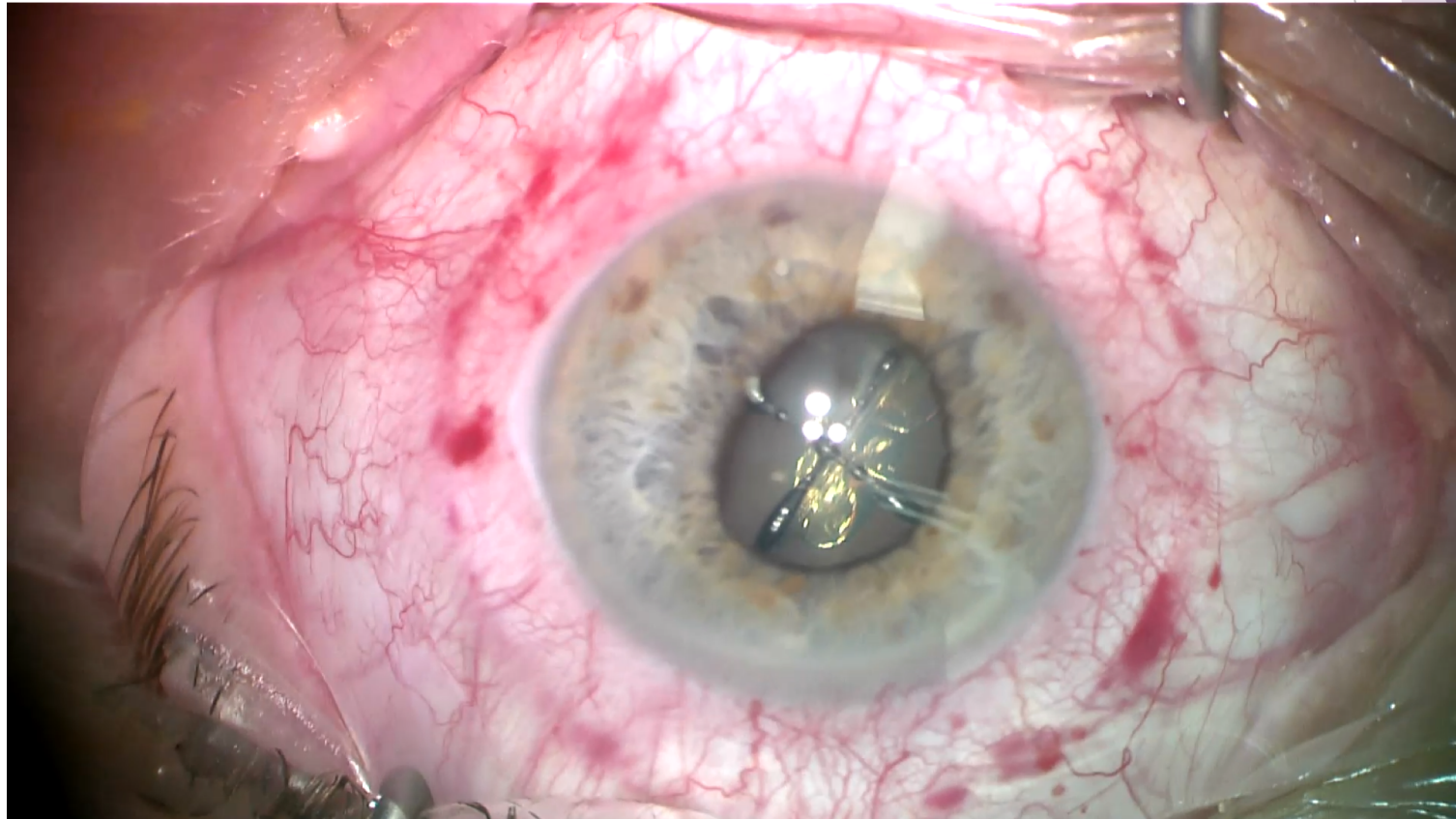


Minimal Touch Incisions



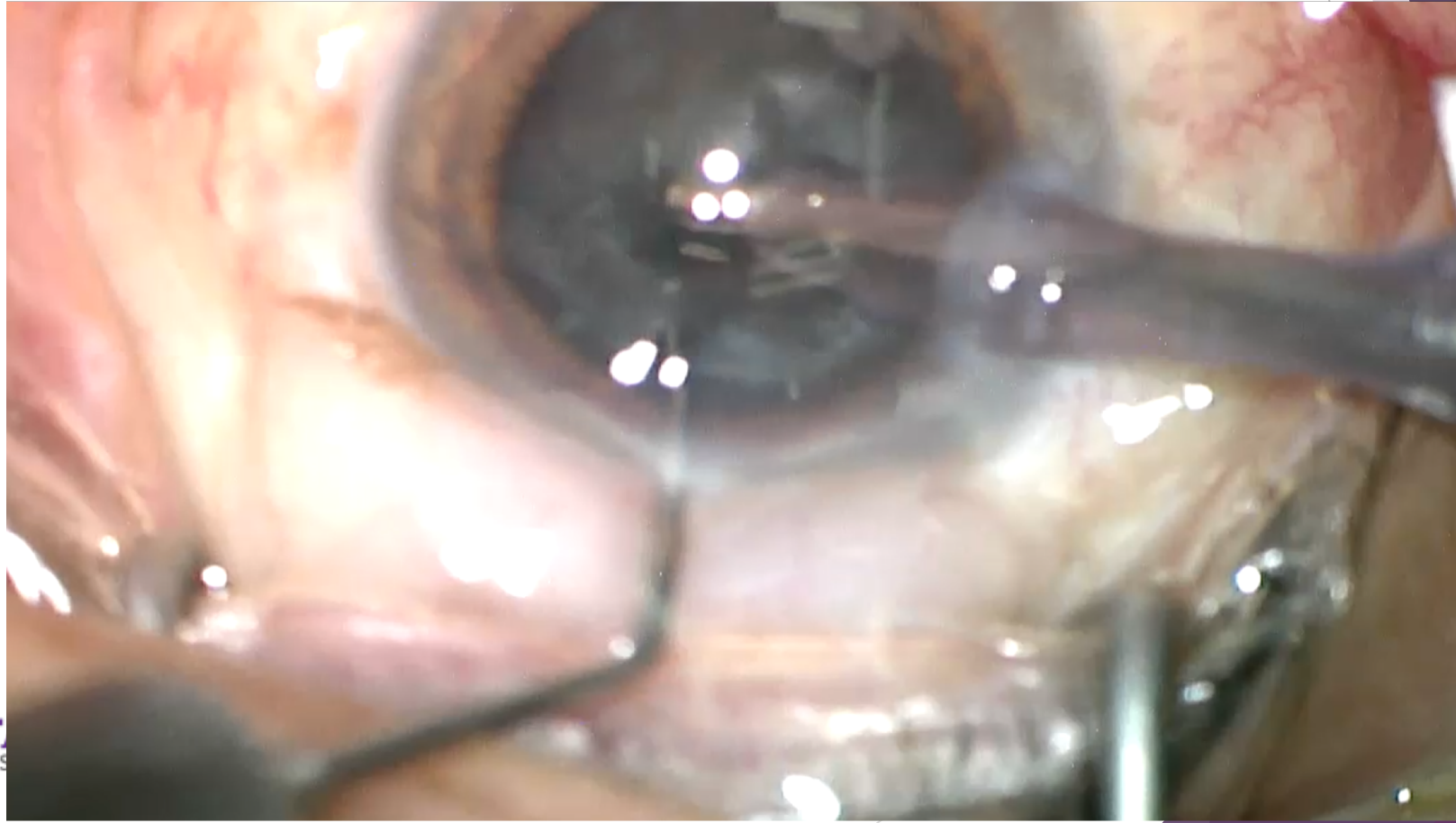
Avoid Conjunctival Expansion

- ▶ Can lead to increased conjunctivochalasis symptoms postop



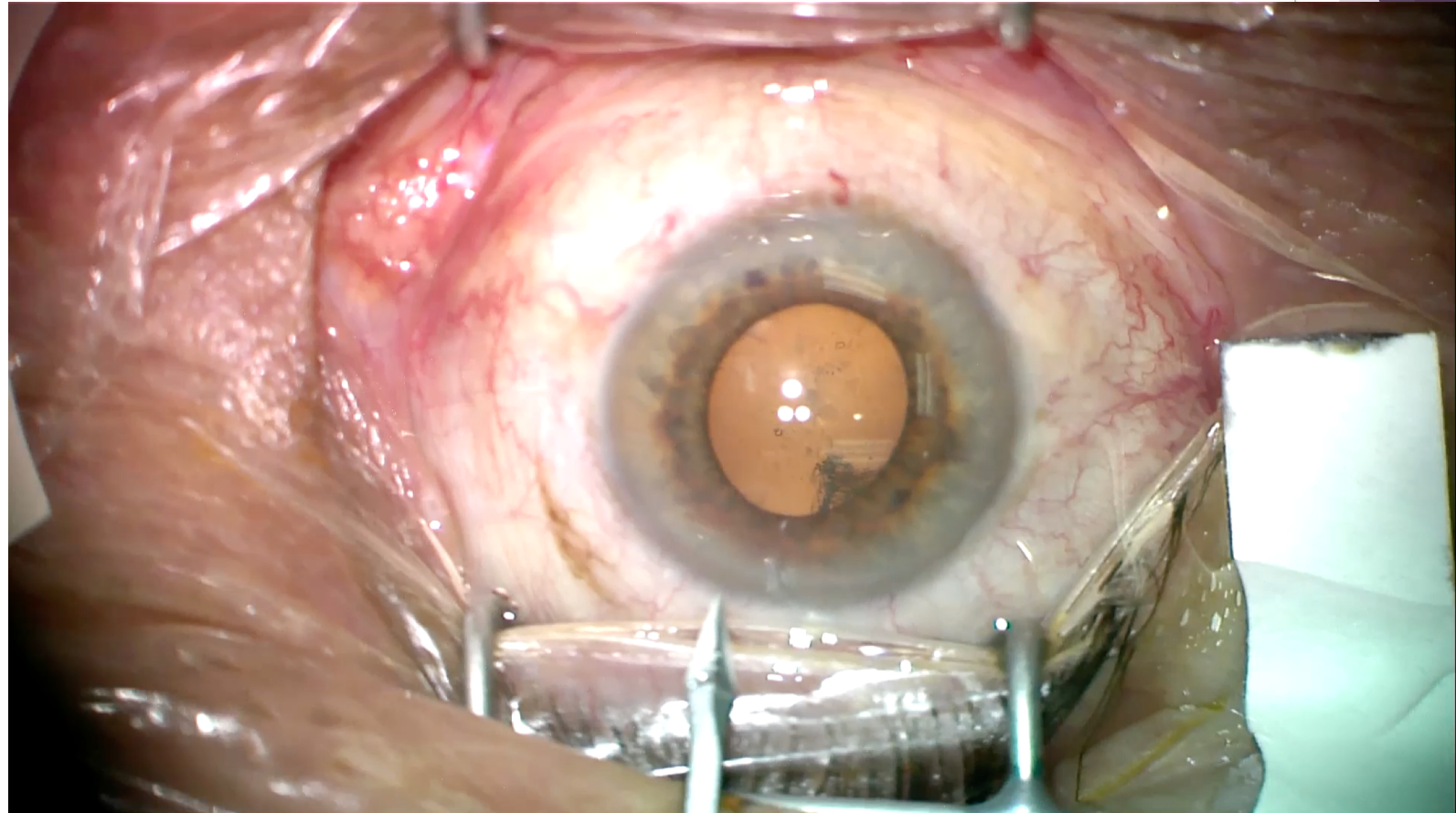
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Postoperative Regimens

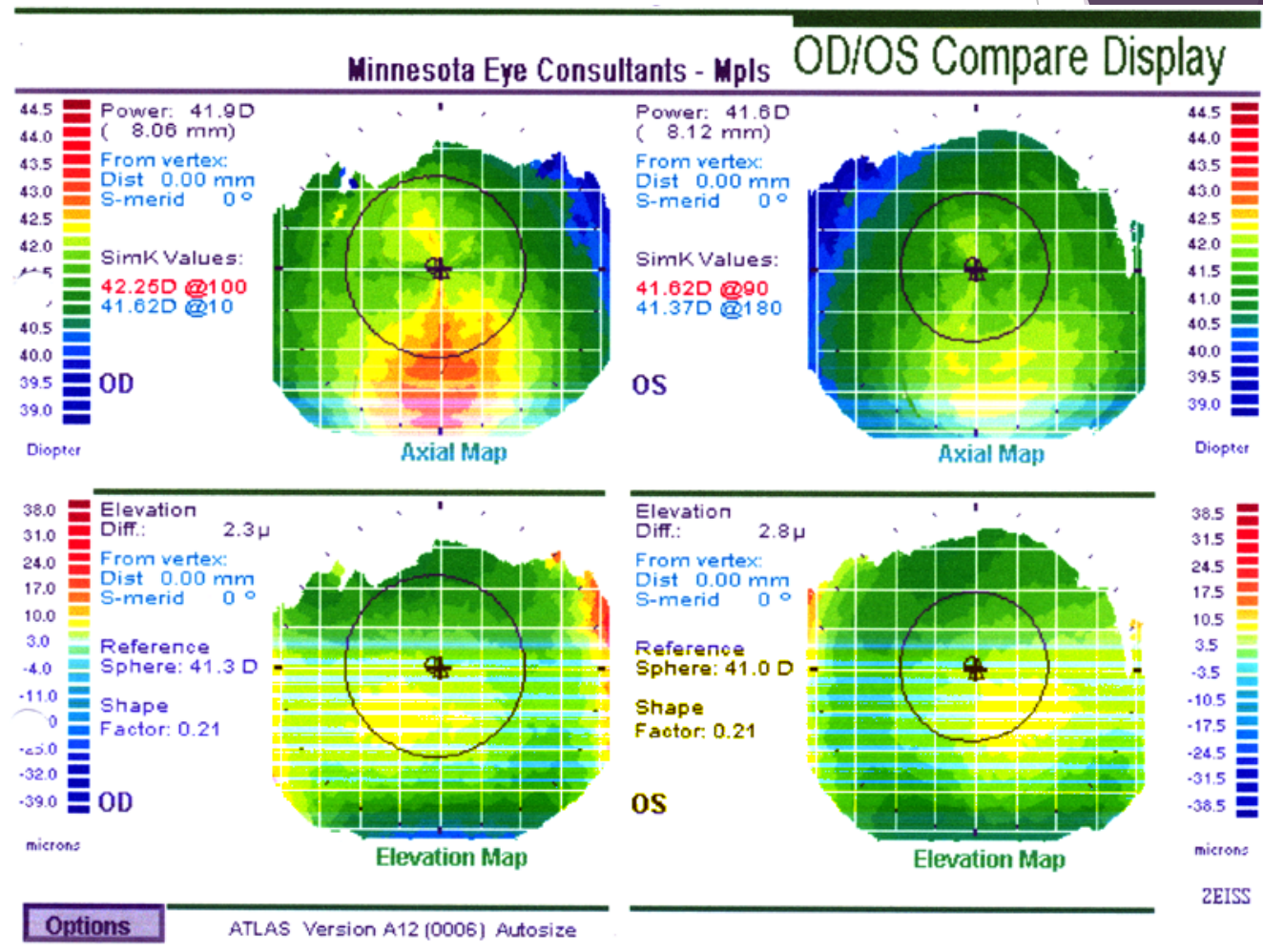
- ▶ Frequent Artificial Tears
- ▶ In severe cases
 - ▶ Non-preserved antibiotics
 - ▶ Non-preserved steroids
 - ▶ Non-preserved/minimal NSAID
- ▶ In very severe cases
 - ▶ Consider Punctal Occlusion
 - ▶ Consider Temporary Tarsorrhaphy at time of cataract surgery

Considerations in LASIK Population

- ▶ Preop Screening for Dry Eye
 - ▶ Contact Lens intolerance is one of best clues
 - ▶ Ocular surface examination
 - ▶ Don't be afraid to use stains (Lissamine Green Strips are best)
 - ▶ Look carefully at the topography and wavefront
 - ▶ Much of abnormal topography or wavefront is ocular surface disease

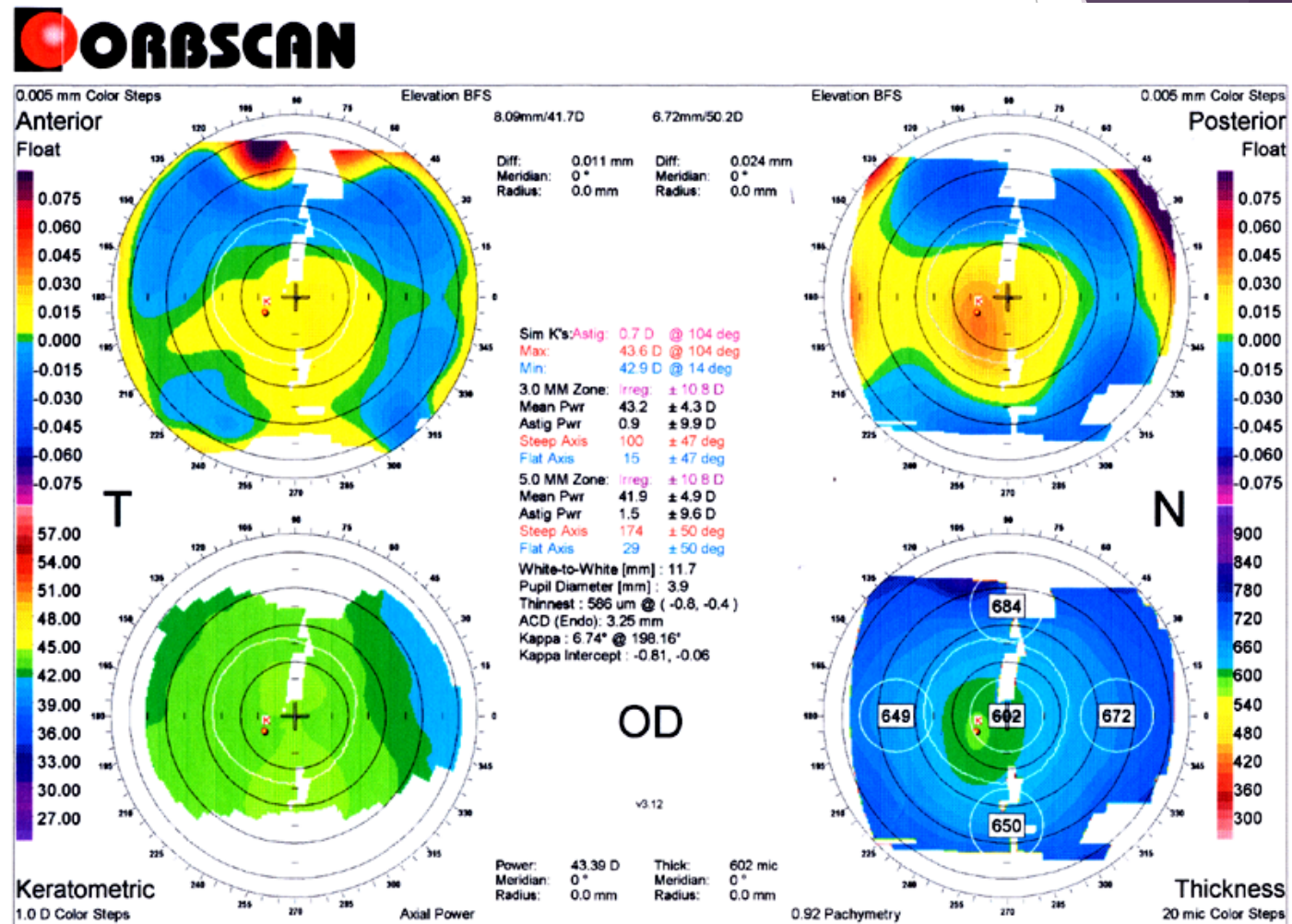
Interested in Refractive Surgery

- ▶ Contact Lens
- ▶ Intolerant
- ▶ 28 years old
- ▶ Female
- ▶ Decreased TBUT
- ▶ Schirmer's 15 mm
- ▶ Pach 590



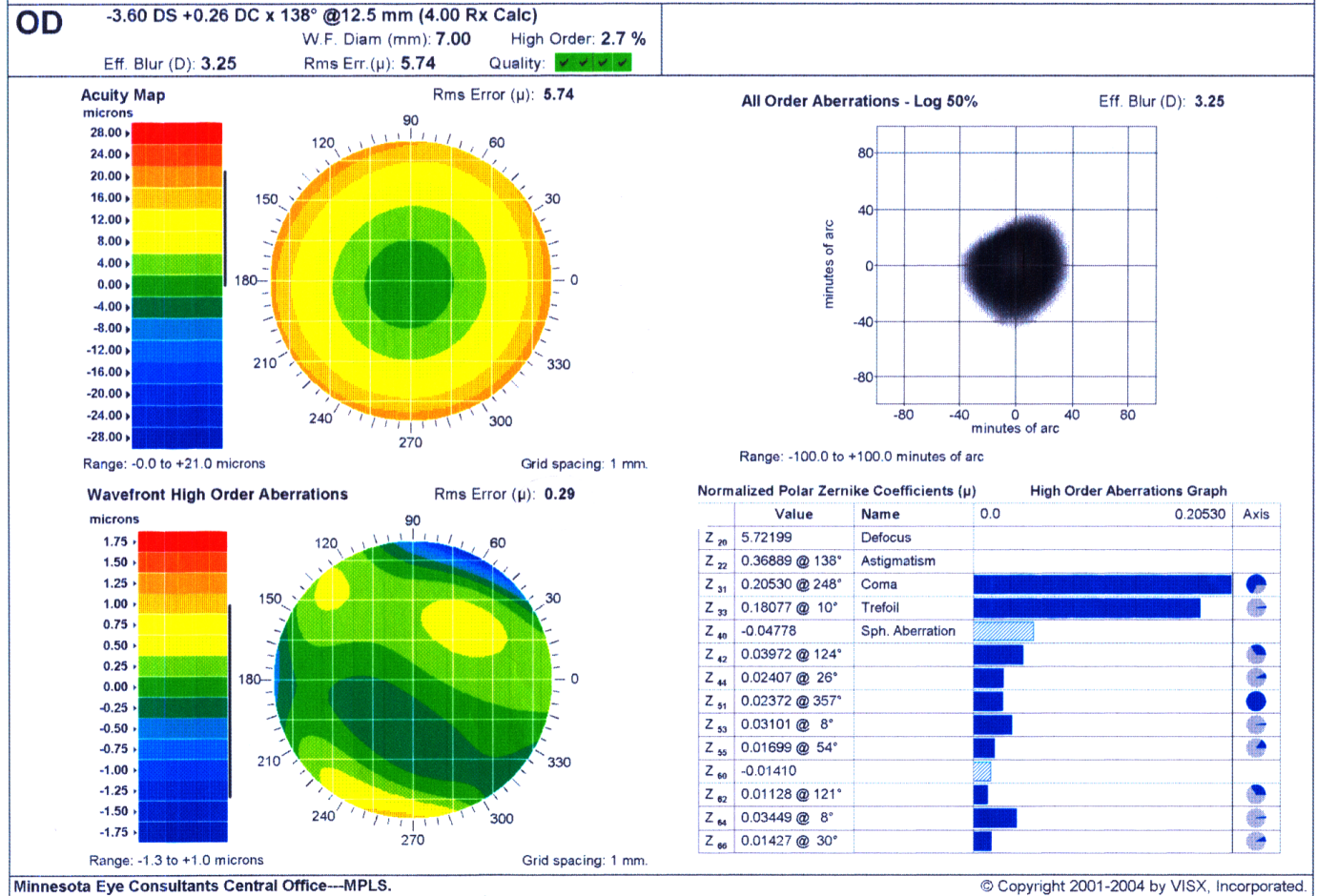
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Interested in Refractive Surgery

- ▶ Coma 0.21 microns
- ▶ -3.60 + 0.26 x 138
- ▶ 0.29 microns HOA

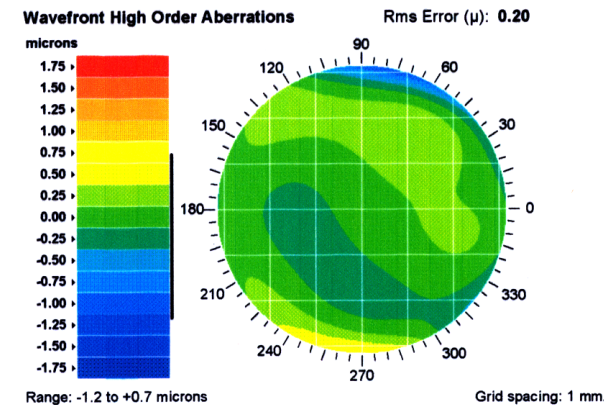
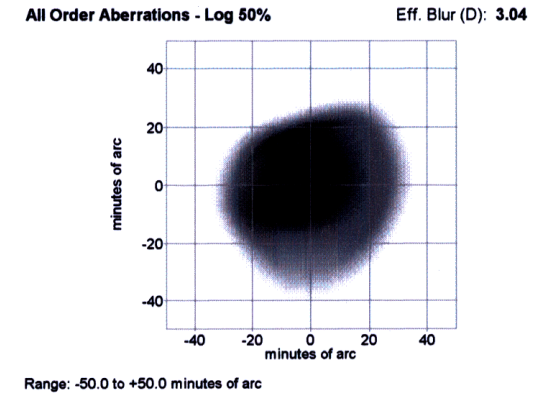
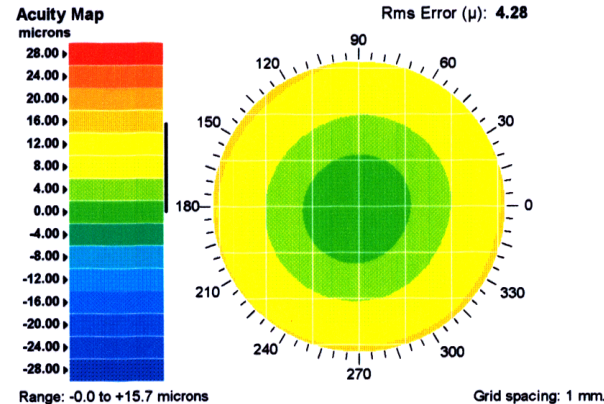


After Restasis, Artificial Tears and Lid Hygiene for 2 months

- ▶ Coma 0.15 microns
- ▶ (change of 0.06)
- ▶ -3.44 + 0.35 x 144
- ▶ (change of
- ▶ 0.16 sphere
- ▶ 0.09 cyl
- ▶ 6 degrees axis)
- ▶ 0.20 microns HOA
- ▶ (change of 0.09)



OD -3.44 DS +0.35 DC x 144° @12.5 mm (4.00 Rx Calc)
 W.F. Diam (mm): 6.25 High Order: 5.0 %
 Eff. Blur (D): 3.04 Rms Err. (μ): 4.28 Quality: ✓✓✓✓



Normalized Polar Zernike Coefficients (μ) **High Order Aberrations Graph**

	Value	Name	0.0	0.15438	Axis
Z ₂₀	4.26439	Defocus			
Z ₂₂	0.32704 @ 143°	Astigmatism			
Z ₃₁	0.15438 @ 234°	Coma			
Z ₃₃	0.08889 @ 11°	Trefoil			
Z ₄₀	-0.03187	Sph. Aberration			
Z ₄₂	0.01011 @ 138°				
Z ₄₄	0.01594 @ 41°				
Z ₅₁	0.04052 @ 276°				
Z ₅₃	0.05055 @ 23°				
Z ₅₅	0.03884 @ 52°				
Z ₆₀	-0.02313				
Z ₆₂	0.01282 @ 126°				
Z ₆₄	0.01939 @ 12°				
Z ₆₆	0.01256 @ 47°				

Summary

- ▶ Frequent Concomitant Dry eye with Desire for Surgery
 - ▶ Cataract Patient population
 - ▶ Refractive Surgery Population
 - ▶ Identification preoperatively
 - ▶ Education preoperatively
 - ▶ Identification of concomitant issues
 - ▶ Careful Intraoperative Management
 - ▶ Careful postoperative Management

- ▶ Good Review: Chuang, et al. Preoperative Optimization of Ocular Surface Disease Before Cataract Surgery. J Cataract Refract Surg 2017;43:1596-1607.