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# Scleral Lens Troubleshooting

Dr. Andrew Biondo

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## WELCOME!



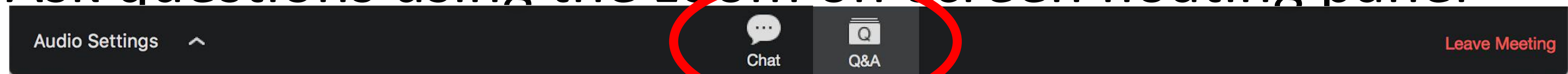
Host: Dr. Stephanie Woo

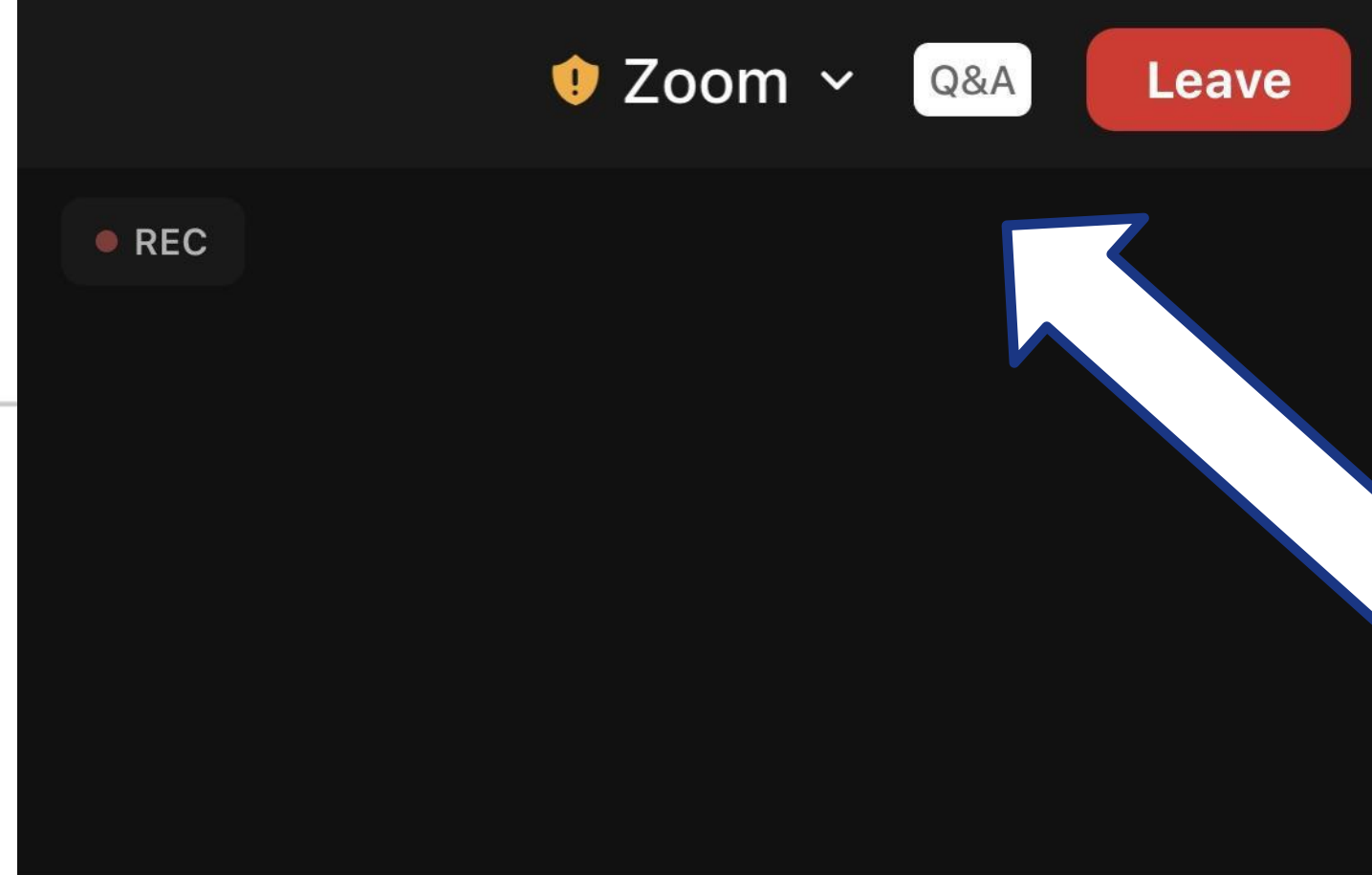


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This event is supported with an unrestricted educational grant from Bausch and Lomb.

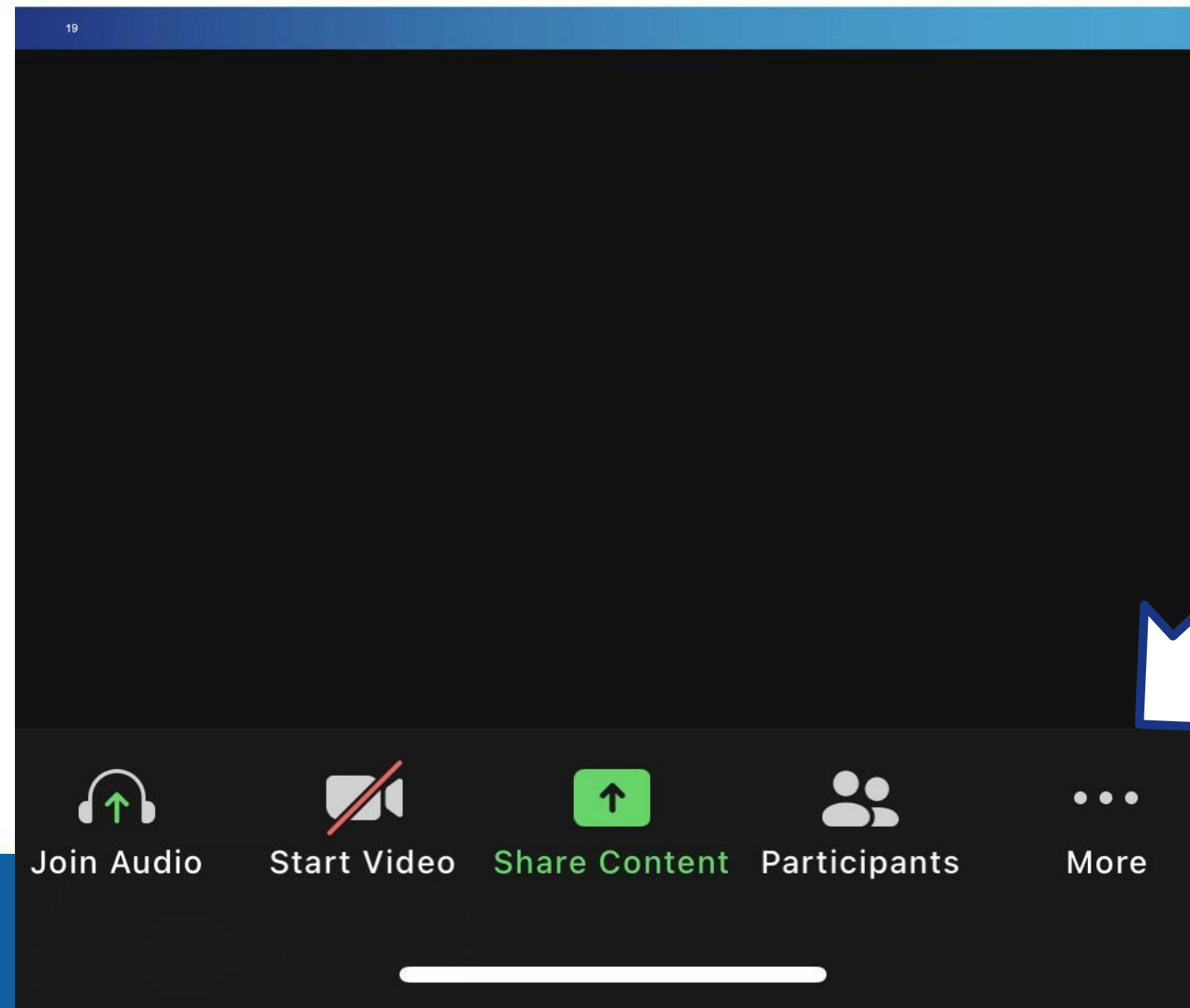
- For a 1-hour webinar attendees must be online for a minimum of 50 minutes
- For a COPE certificate, please fill out the survey link in the chat. Also, the survey link will appear when the webinar ends.
- CE certificates will be delivered by email and sent to ARBO with OE tracker numbers
- **CE certificates will be emailed within 4 weeks**
- Ask questions using the zoom on-screen floating panel





### Opportunity to Partner

Optometrists are at the frontline to recommend treatment for cataract and glaucoma patients.



# Speaker Bio – Dr. Andrew Biondo

Dr. Andrew Biondo owns Kirkwood Eye Associates in St. Louis, a specialty contact lens practice with the objective of delivering an exceptional experience for his patients and community. The practice focuses on scleral lenses for irregular corners and dry eye. They also have a large myopia control practice that utilizes orthokeratology, atropine therapy and other specialty contact lenses. Dr. Biondo serves as a consultant to the specialty contact lens industry and speaks internationally on specialty contact lenses and practice management. He is a fellow of the Scleral Lens Education Society and a past president of the St. Louis Optometric Society.



# Financial Disclosures

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- Xcel Contacts, honorarium

## SCLERAL LENS TROUBLESHOOTING



**Andrew J. Biondo, OD, FSLS**



# Troubleshooting

## **“My lenses are uncomfortable”**

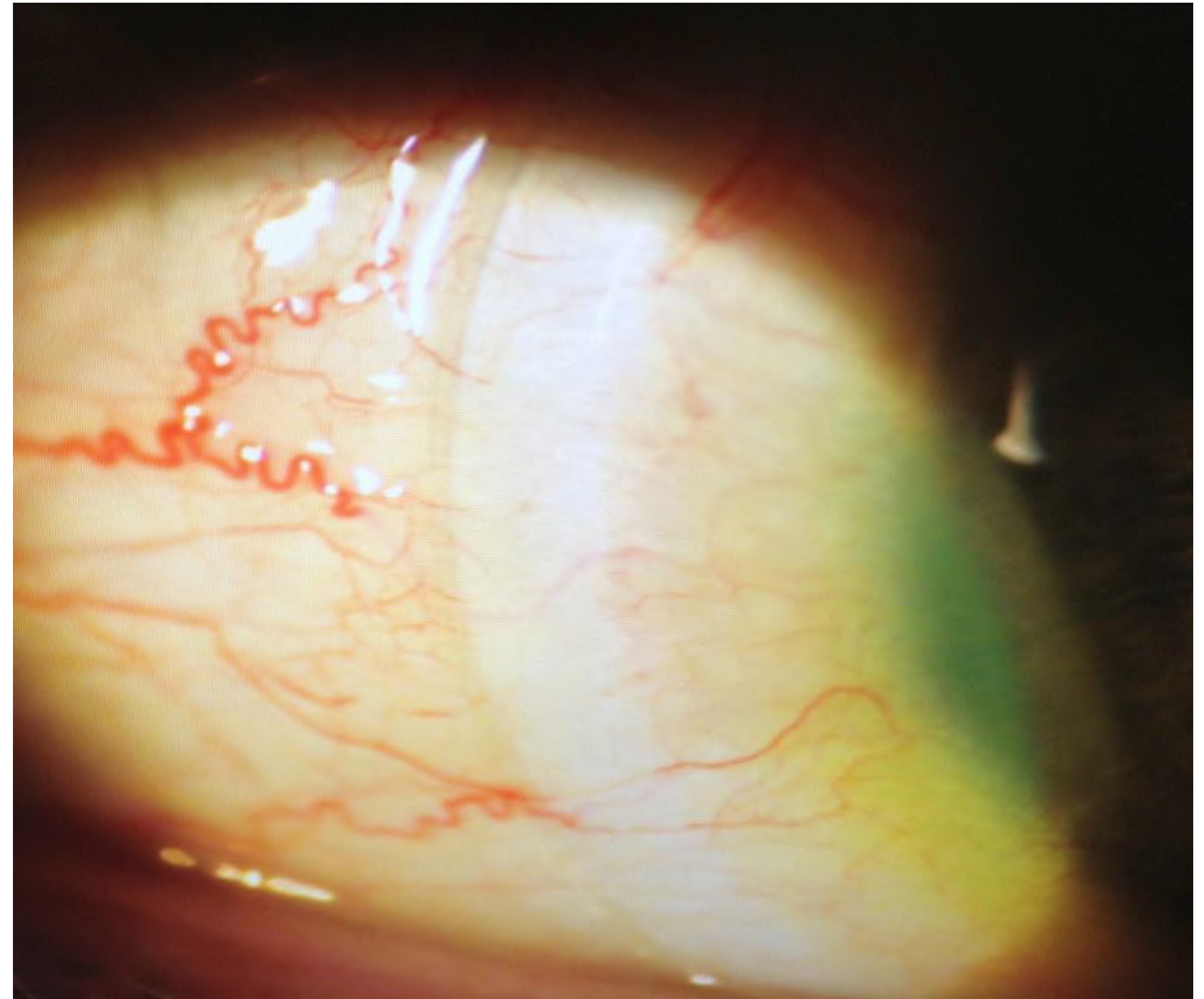
On insertion?

As the day progresses?

## **“My Vision is Blurry”**

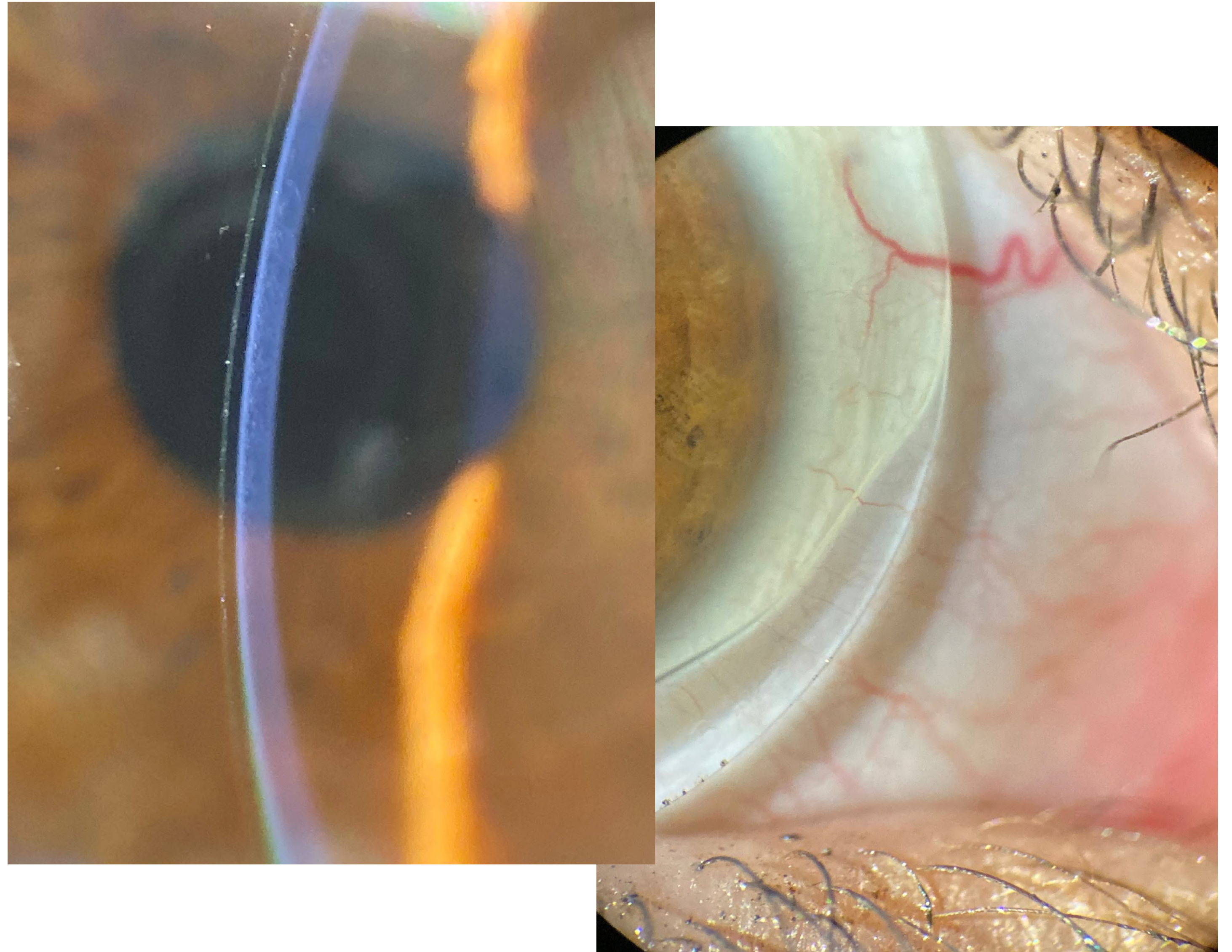
On insertion?

As the day progresses?



# “It’s Uncomfortable”

- Comfort issues
  - On insertion:
    - Corneal touch
    - Edge lift
    - Sectoral impingement



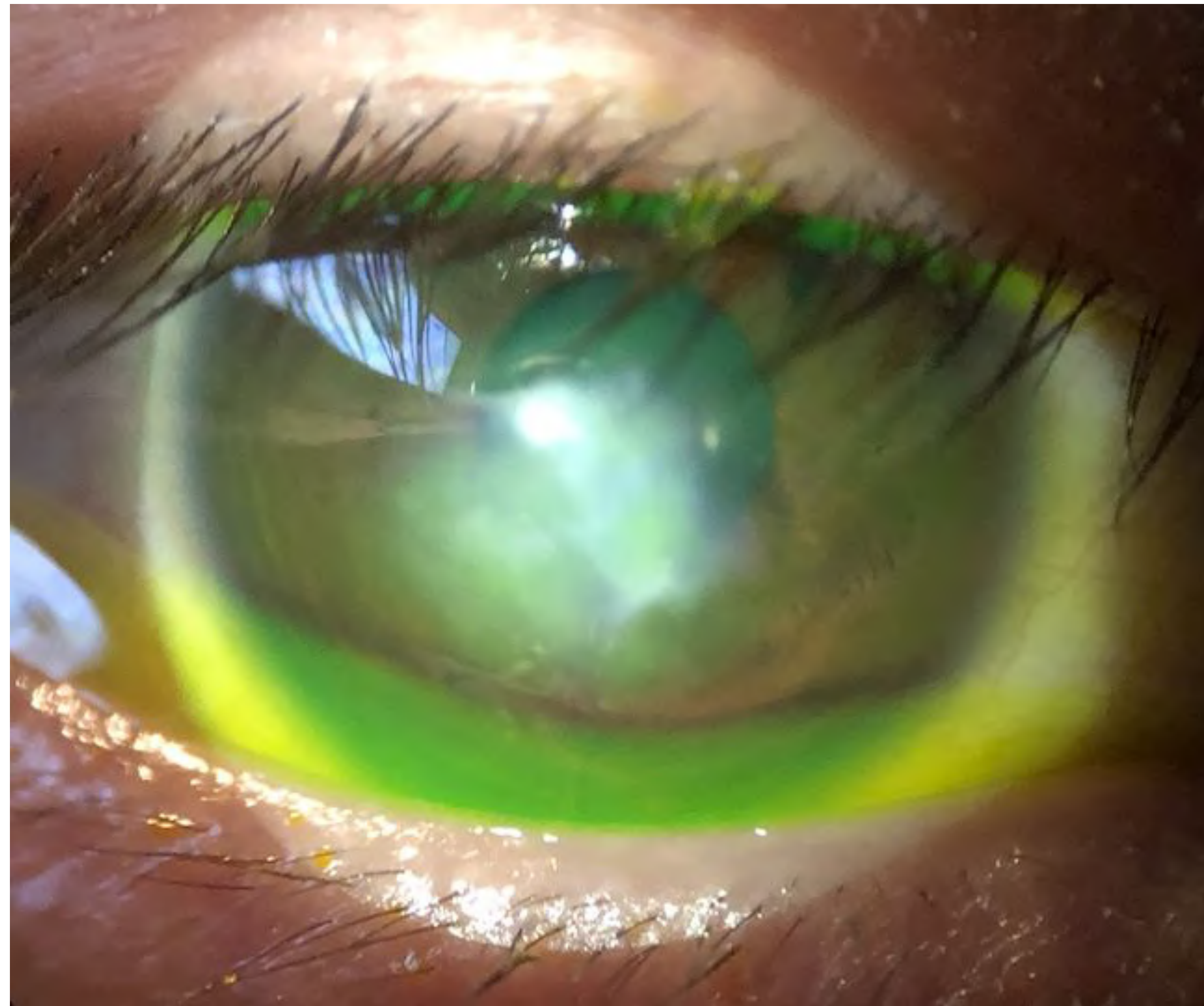
# “It’s Uncomfortable”

- Comfort issues
  - Worsens throughout day:
    - Tight edge
    - Excessive vault
    - Excessive settling (touch)



# “My Vision Is Blurry”

- Air bubble
- Residual cyl
- Flexure
- Surface wetting
- Mid Day Fogging
- Corneal edema



# Air Bubbles

- Large bubbles quickly identified
- Small peripheral bubbles can cause issues
  - New wearers
  - Discomfort every day? Same eye every time?
  - Have pt wear lenses in on a “bad day”
- Review I&R
- Fill lens completely
- “push” all the way onto eye



Photo: Greg DeNaeyer, OD

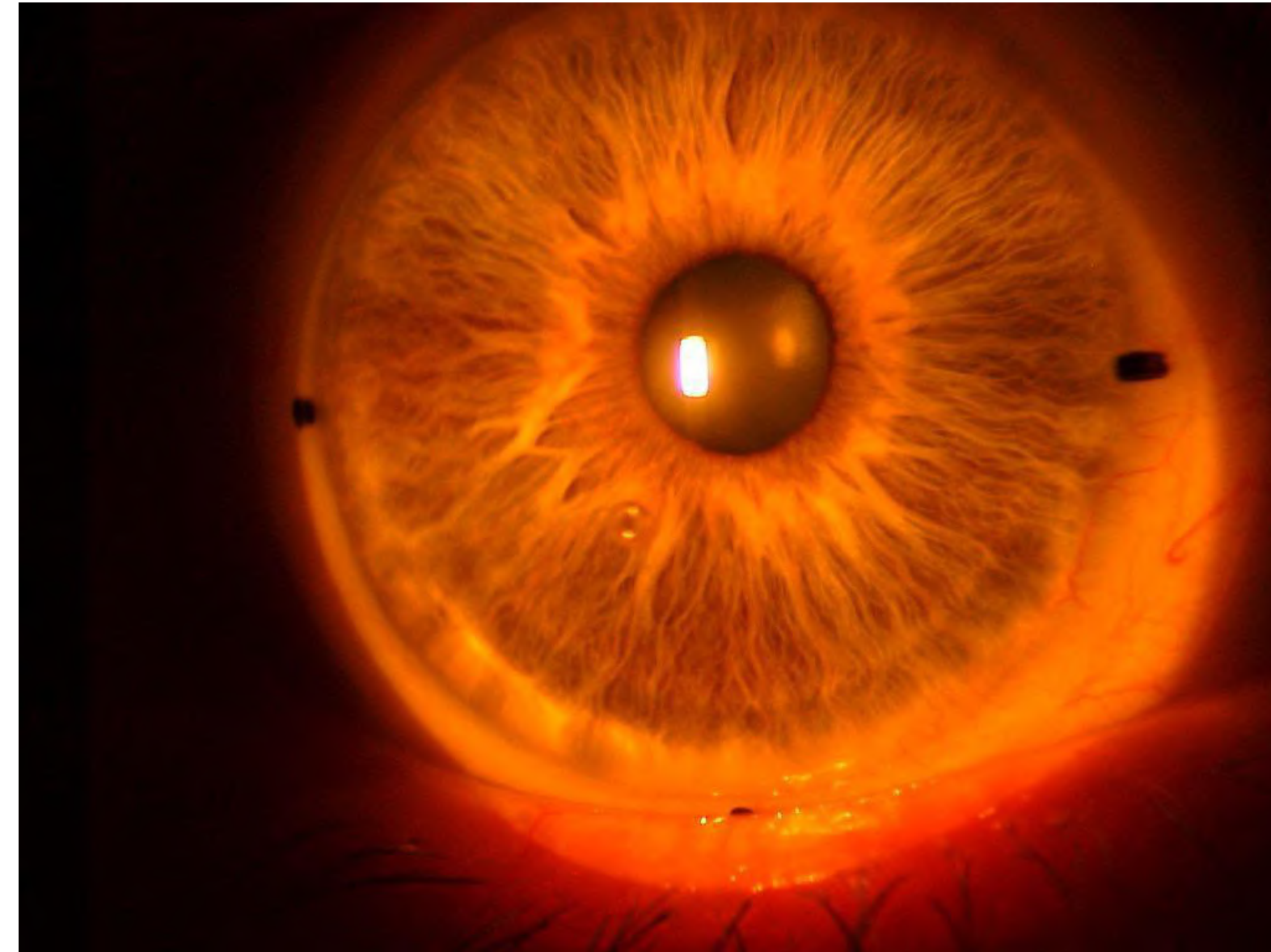
# Flexure

- Over .75D excessive
  - over K's to Dx
  - Astigmatic Symptoms
  - Residual Cyl
- MOVE TO TORIC HAPTIC

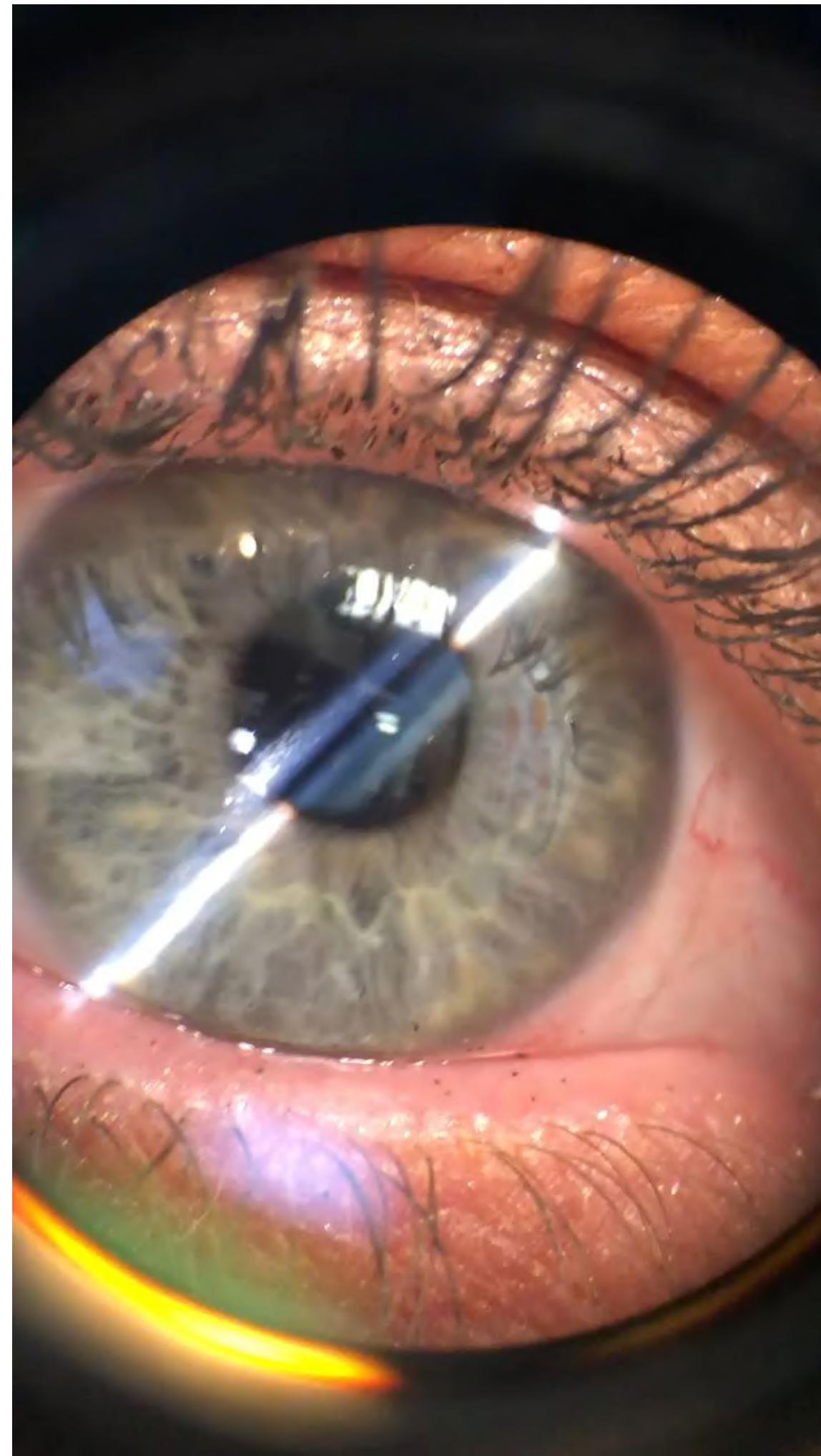


# Residual Cyl

- Lenticular
  - Crystalline Lens
  - Toric IOL
  - Tilted IOL
- Posterior Corneal
- High Regular Cyl
- FLEXURE???



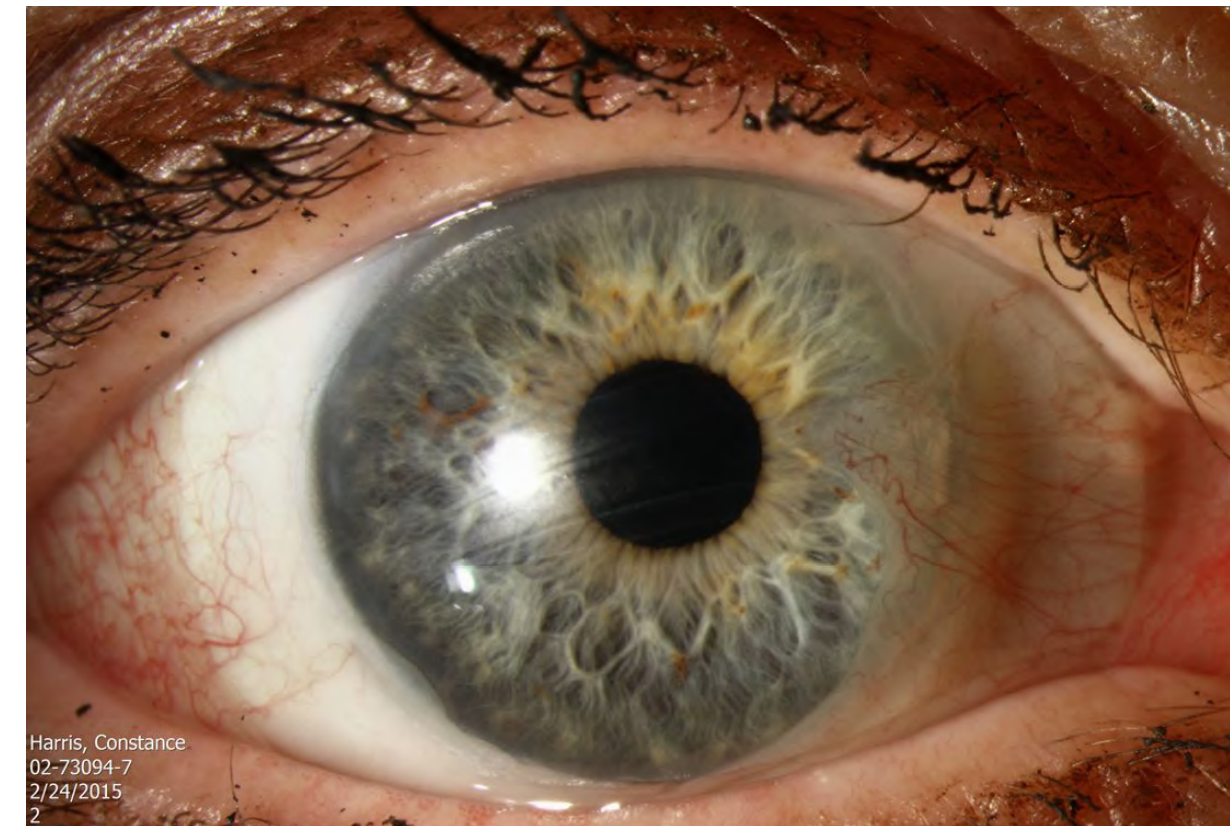
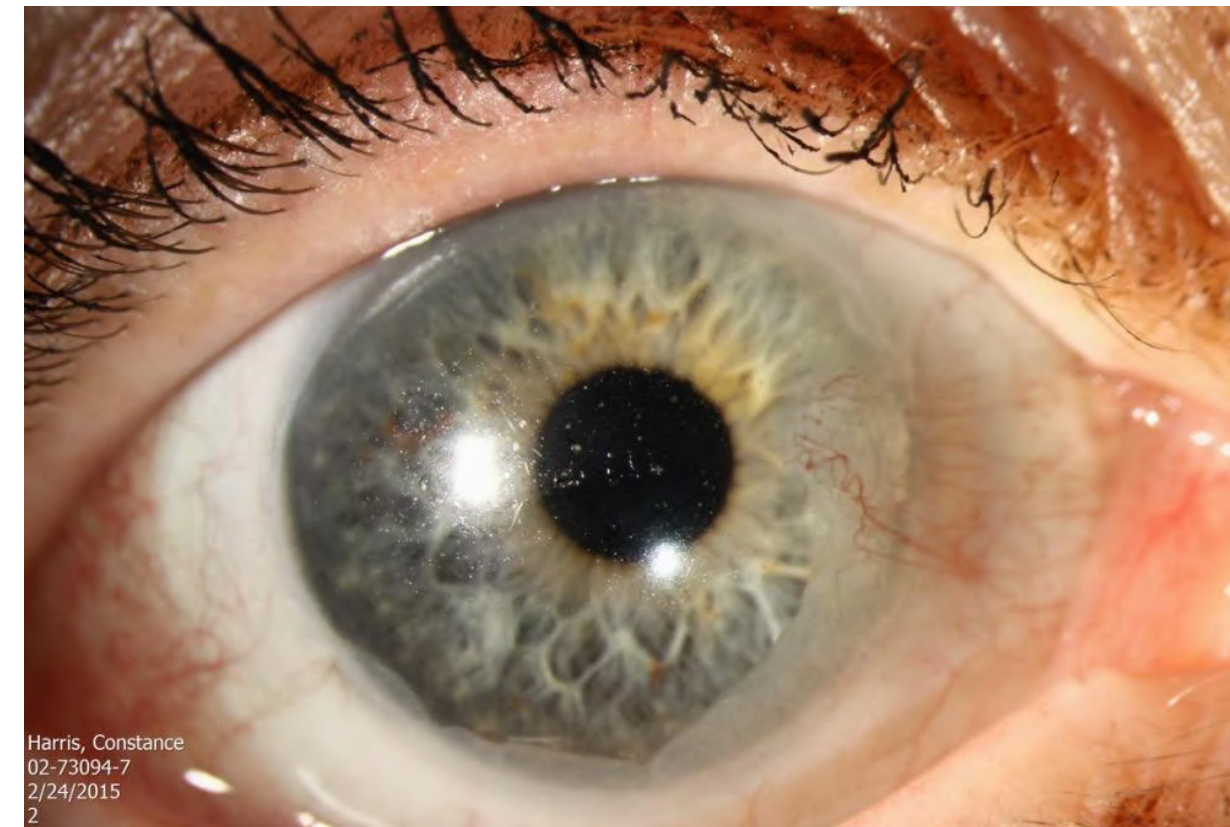
# FST for Residual Cyl



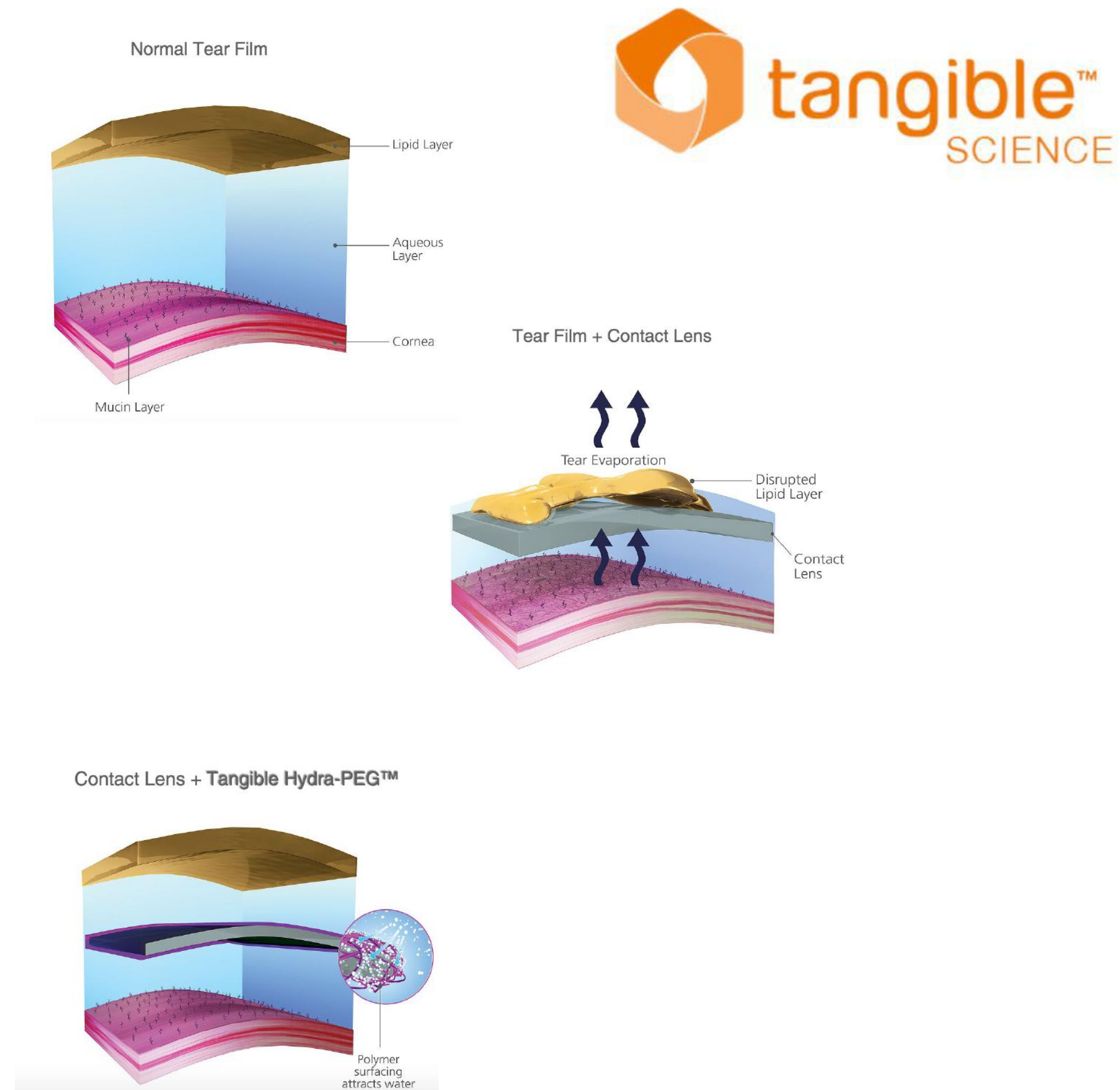
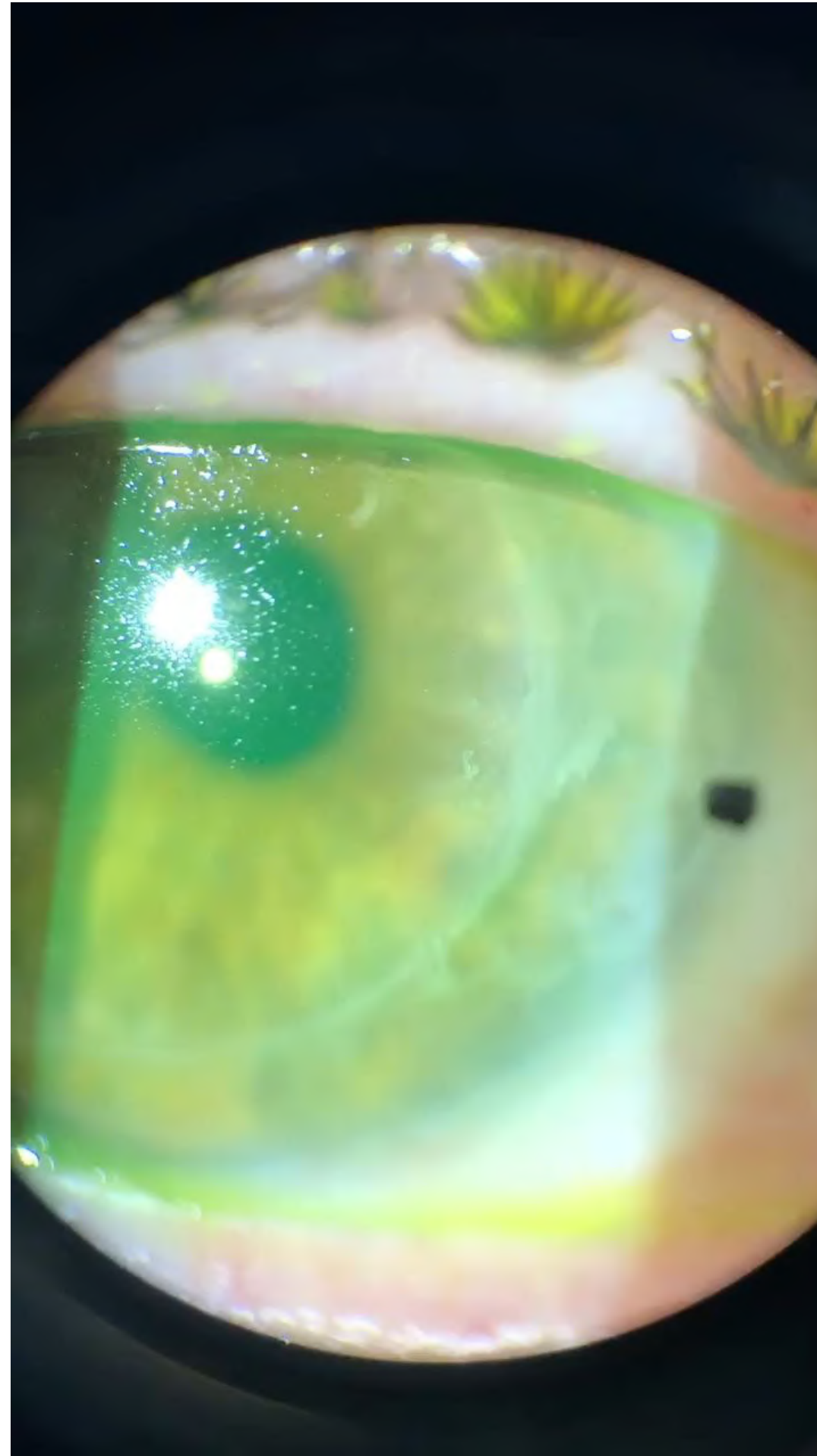


# Surface Wetting/Deposits

- Many issues
  - OSD
  - Poor material compatibility
  - Poor compliance
- Solutions:
  - Change materials
  - Change care regimen
    - Rub
  - Condition lens before insertion
  - On eye Tx with conditioner
  - On eye DMV squeegee
  - PROGENT
  - Hydra-PEG

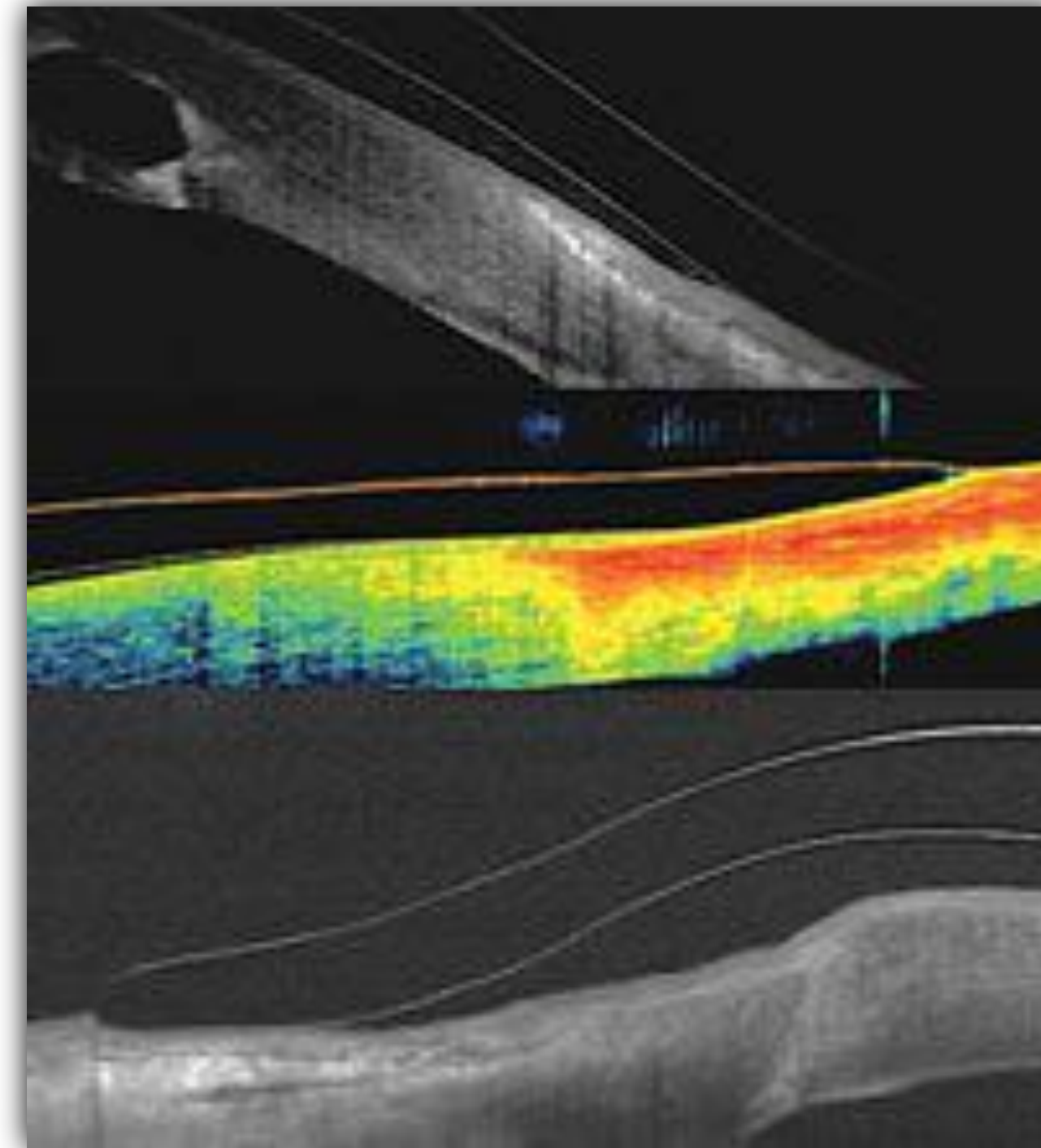


# Tangible Sciences Hydra-PEG



# Tear Layer Clouding

- Made up of mucin and lipid
  - Not consistent
- Causes:
  - Eyelid diseases
  - Poor scleral lens fit
  - Inflammatory eye disease



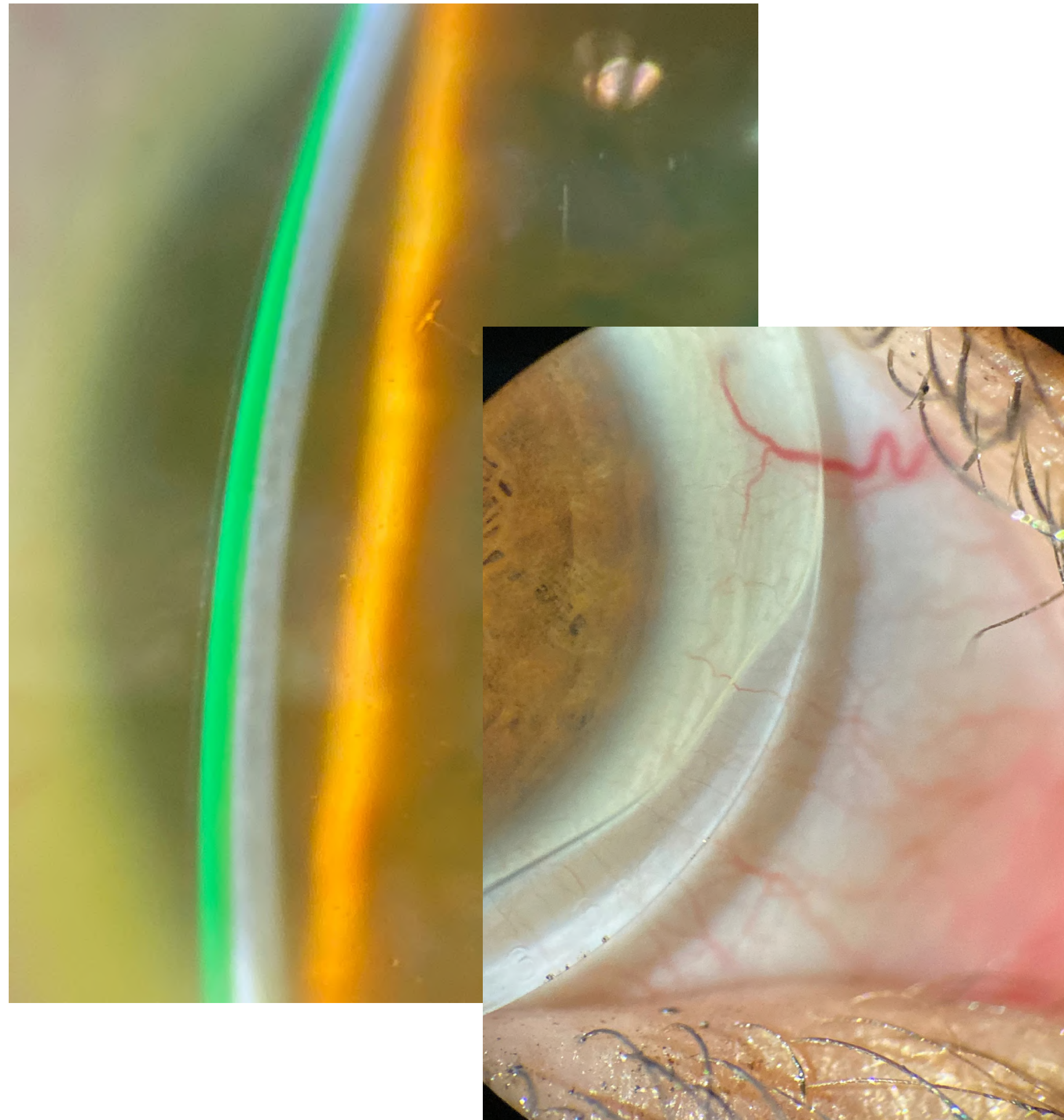
## **Critical Measurements to Improve Scleral Lens Fitting**

Gathering as much data as possible can help streamline the process and provide better outcomes.

By Jason Jedlicka, OD

# Tear Layer Clouding

- Fit Adjustments
  - Reduce Optic Zone
  - Reduce Limbal Zone
  - Align Landing Zone
    - NaFI OVER lens
- Tx DES
  - Lid Hygiene
  - MGD Tx
- Viscous filling solution (celluvisc)

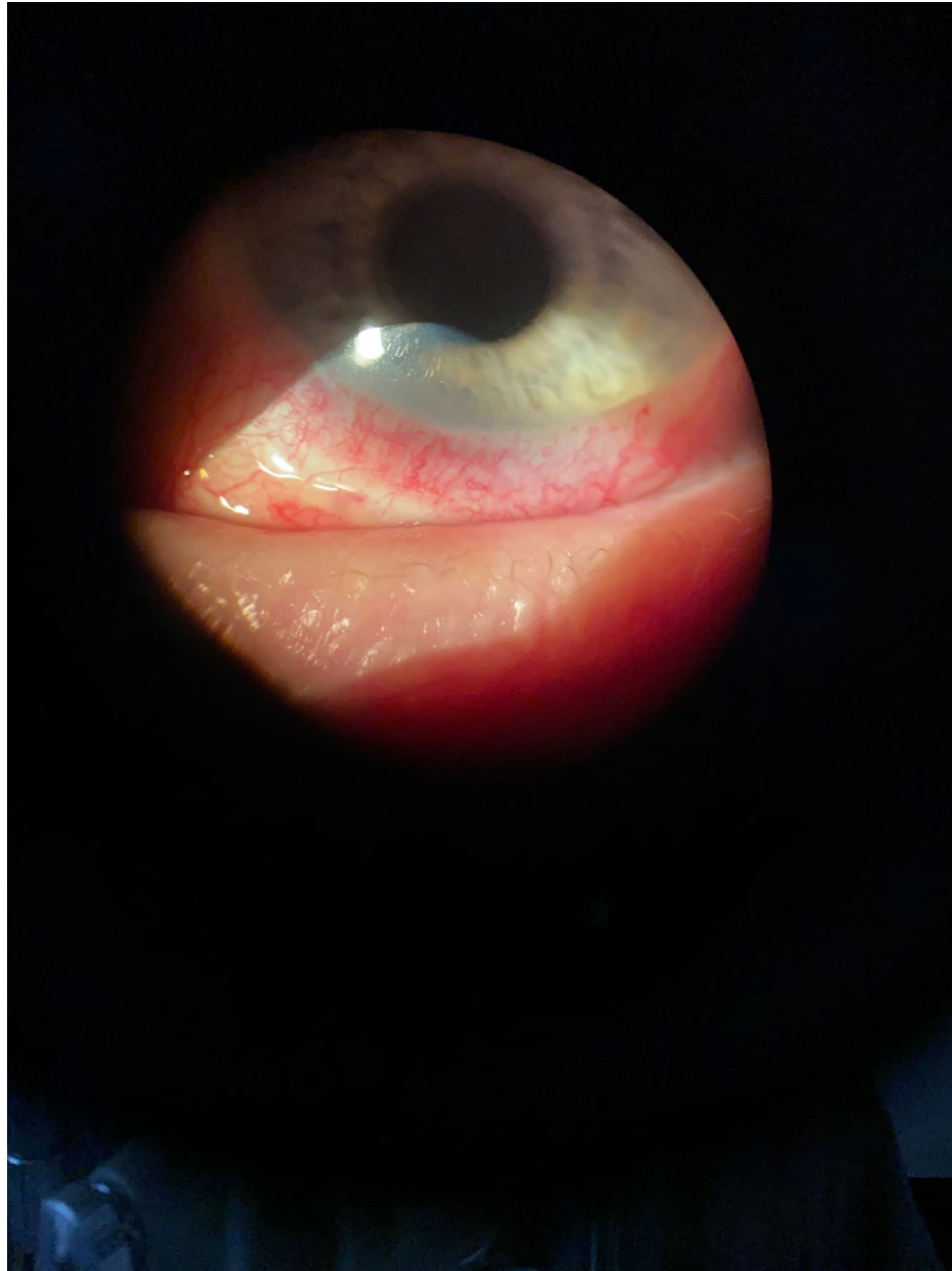


# Corneal Edema

- Tight Lens Syndrome
- Hypoxia
  - excessive central clearance
  - excessive limbal clearance
  - Inadequate Dk
- Dysfunctional endothelium



# Conjunctival Chalasis



# IOP UNDER A SCLERAL

## CONTACT LENS CASE REPORTS

### DOES SCLERAL LENS WEAR INFLUENCE IOP?

By PATRICK J. CAROLINE & MARK P. ANDRÉ March 1, 2017

- 5 patients
- IOP 8am, 10am, 4pm
- baseline vs under-lens
- 2 of 5 patients showed increased IOP
- 3-5mmHg at all readings



# IOP UNDER A SCLERAL

## CONTACT LENS CASE REPORTS

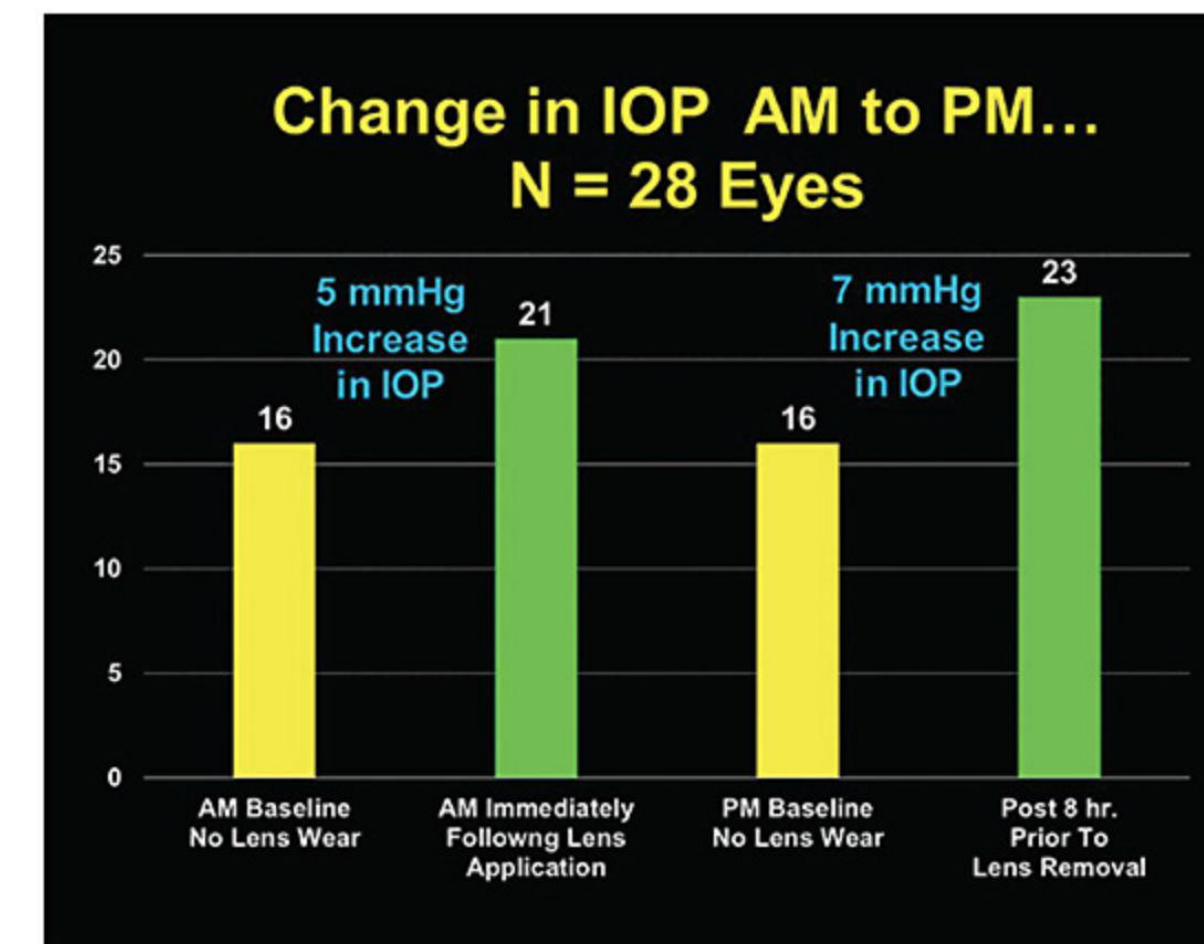
### DOES IOP INCREASE DURING SCLERAL LENS WEAR?

By PATRICK J. CAROLINE & MARK P. ANDRÉ September 1, 2019

- n = 28
- 8hrs apart
- 14.6mm - 15.2mm
- atm outside > atm inside = suction = increased IOP



Figure 2. The Diaton instrument allows measurement of IOP during scleral lens wear.





# IOP UNDER A SCLERAL

Cont Lens Anterior Eye. 2019 Feb;42(1):104-110. doi: 10.1016/j.clae.2018.07.004. Epub 2018 Jul 24.

## **Intra-ocular pressure variation associated with the wear of scleral lenses of different diameters.**

Michaud L<sup>1</sup>, Samaha D<sup>2</sup>, Giasson CJ<sup>3</sup>.

- n = 21
- 15.8 on one eye
- 18.0 on fellow eye
- 5mHg IOP increase with BOTH diameters

# IOP UNDER A SCLERAL

[Optom Vis Sci](#). 2020 Sep; 97(9): 711–719.

PMCID: PMC7547891

Published online 2020 Sep 16. doi: [10.1097/OPX.0000000000001574](https://doi.org/10.1097/OPX.0000000000001574)

PMID: [32941336](https://pubmed.ncbi.nlm.nih.gov/32941336/)


## Comparison of Pneumatometry and Transpalpebral Tonometry Measurements of Intraocular Pressure during Scleral Lens Wear

[Jennifer Swingle Fogt](#), OD, MS, FAAO,<sup>1,\*</sup> [Cherie B. Nau](#), OD, FAAO,<sup>2</sup> [Muriel Schornack](#), OD, FAAO,<sup>2</sup>  
[Ellen Shorter](#), OD, FAAO,<sup>3</sup> [Amy Nau](#), OD, FAAO,<sup>4</sup> and [Jennifer S. Harthan](#), OD, FAAO<sup>5</sup>

- IOP before, during and after SL wear
  - 15.2 and 18mm lens
- Used transpalpebral and pneumatometry
  - transpalpebral showed higher IOP
  - pneumatometry showed stable IOP

# IOP UNDER A SCLERAL

## IOP and Optic Nerve Head Morphology during Scleral Lens Wear

Walker, Maria K. OD, MS, FAAO<sup>1,\*</sup>; Pardon, Laura P. OD, MS, FAAO<sup>1</sup>; Redfern, Rachel OD, PhD, FAAO<sup>1</sup>; Patel, Nimesh OD, PhD, FAAO<sup>1</sup> [Author Information](#) 

Optometry and Vision Science: September 2020 - Volume 97 - Issue 9 - p 661-668

doi: 10.1097/OPX.0000000000001567

- Showed inconsistency in transpalpebral measurements
- Showed stable ONH OCT findings in SL eye vs control eye

# Scleral shapes

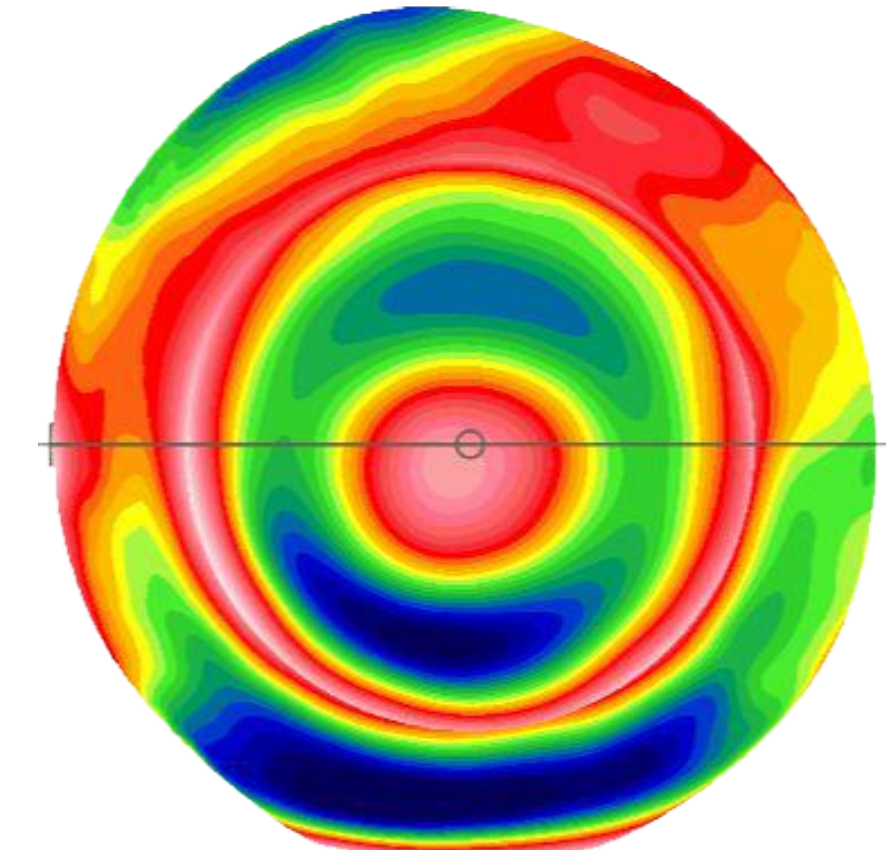
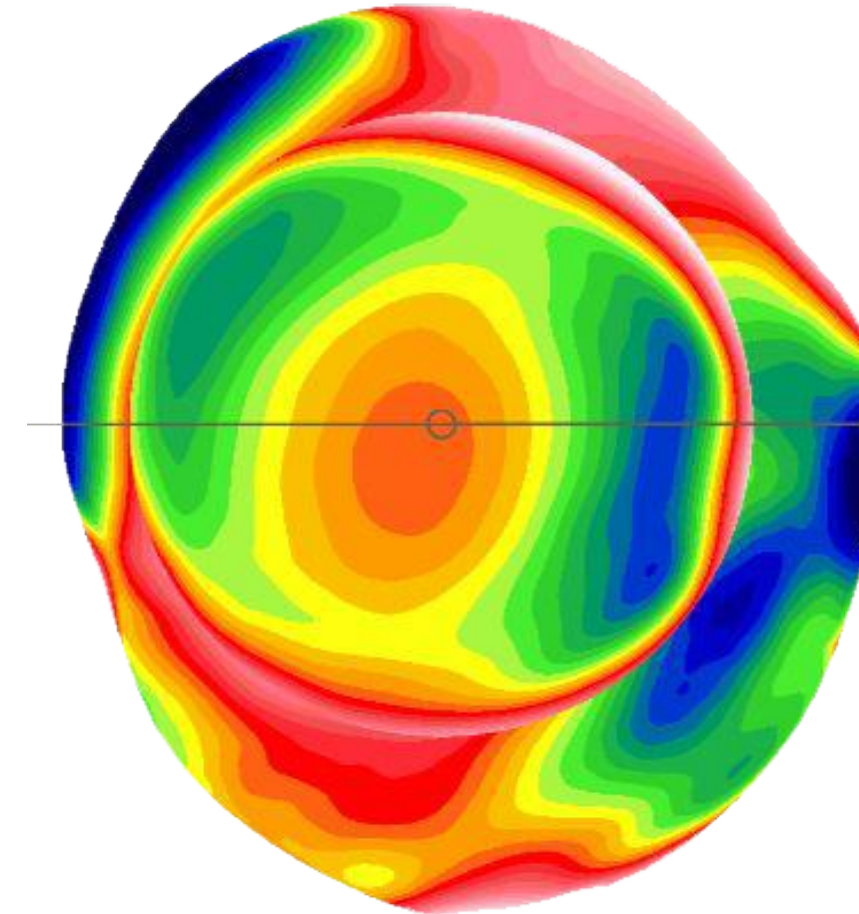
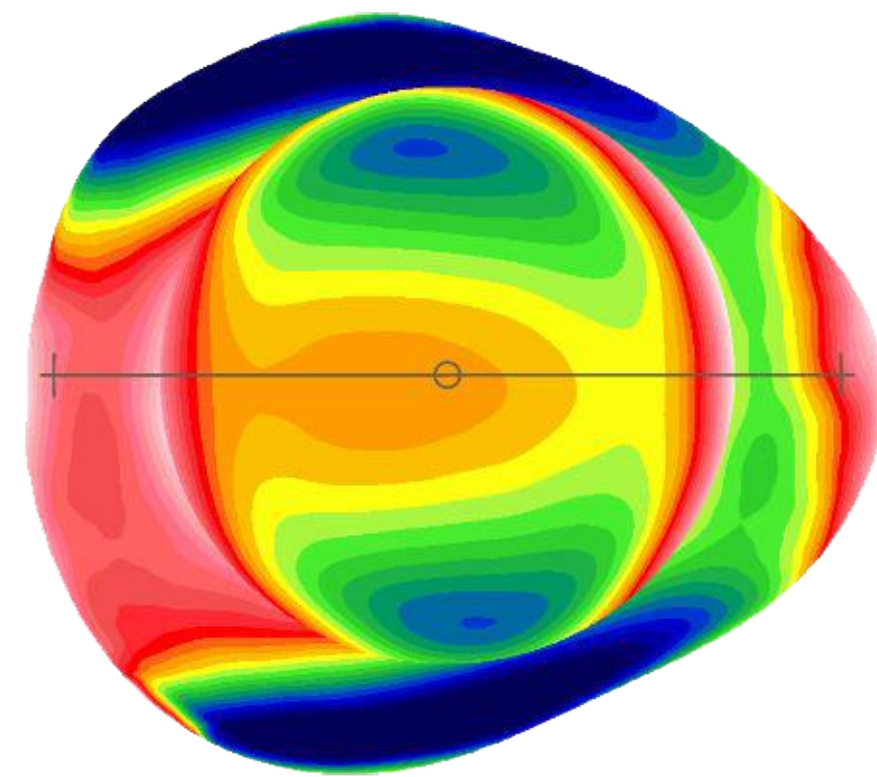
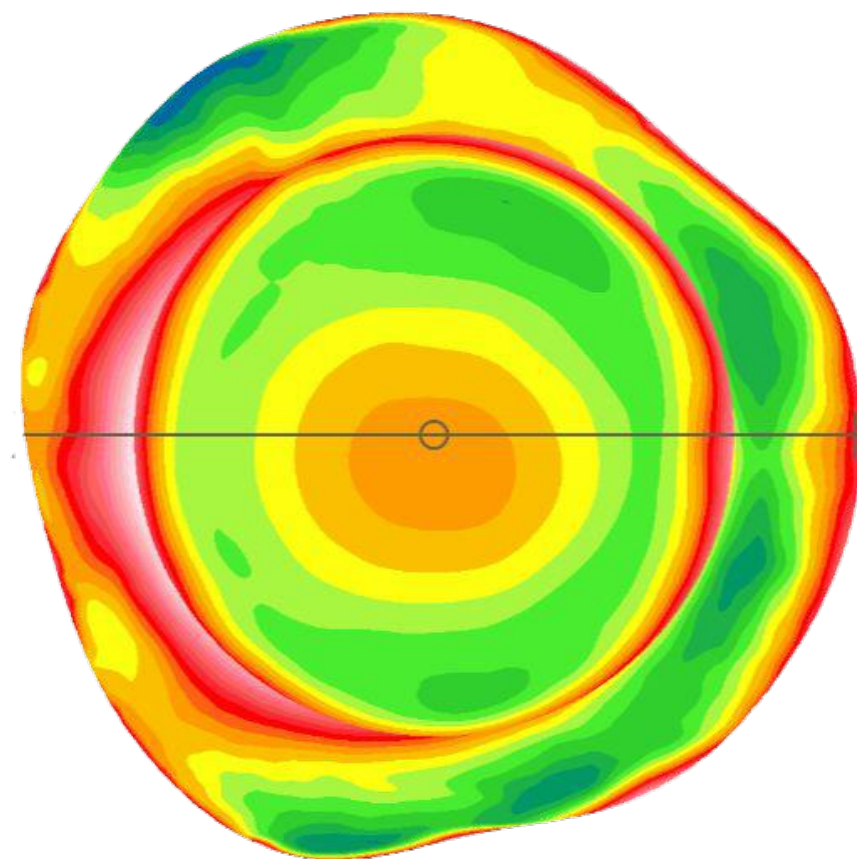


Spherical

Toricity with the rule

Oblique toricity

Irregular



# Scleral profile map

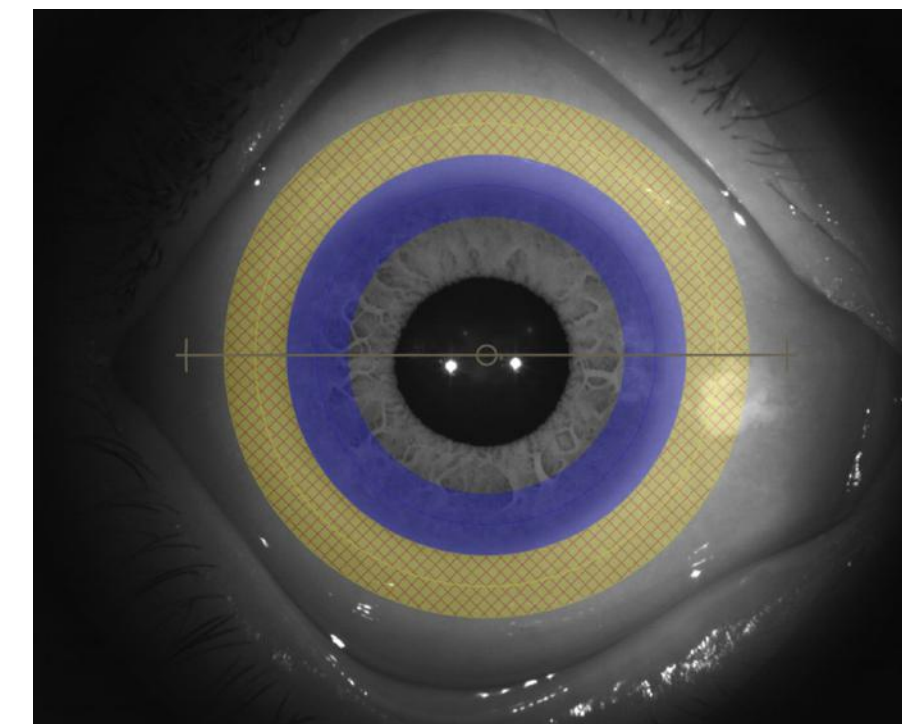
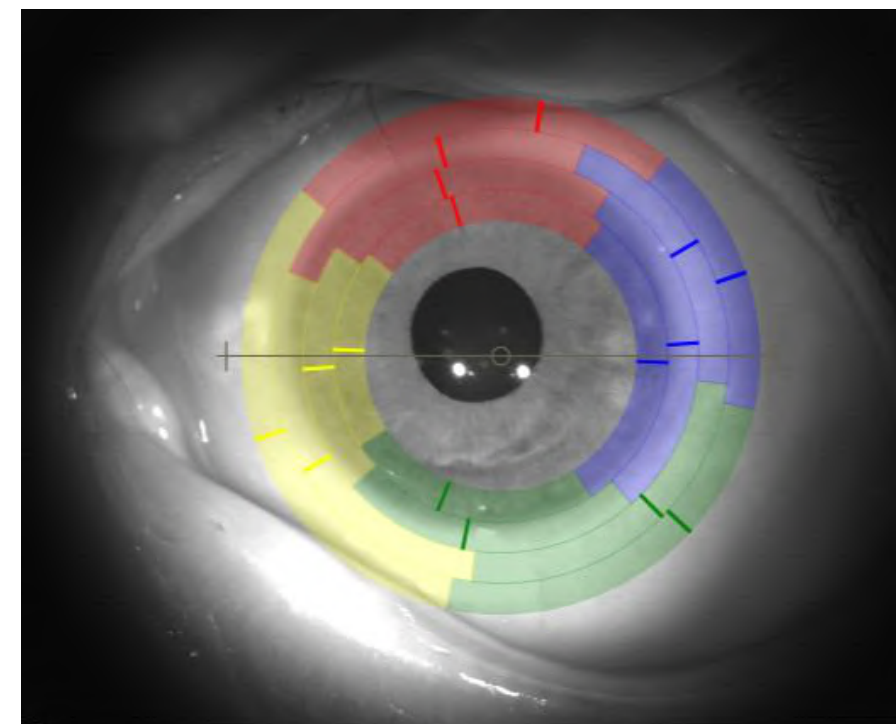
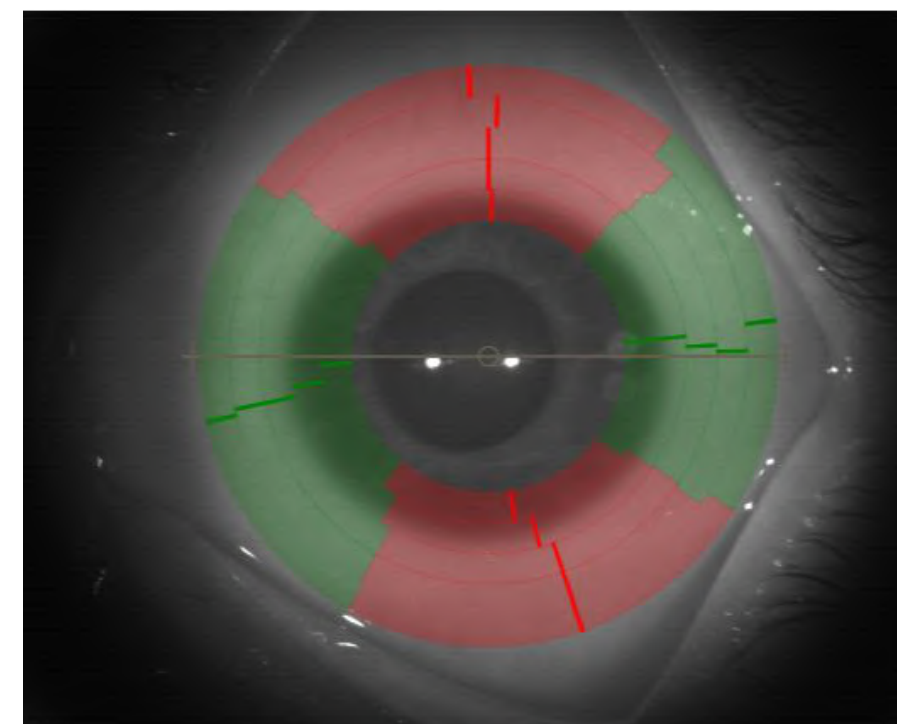
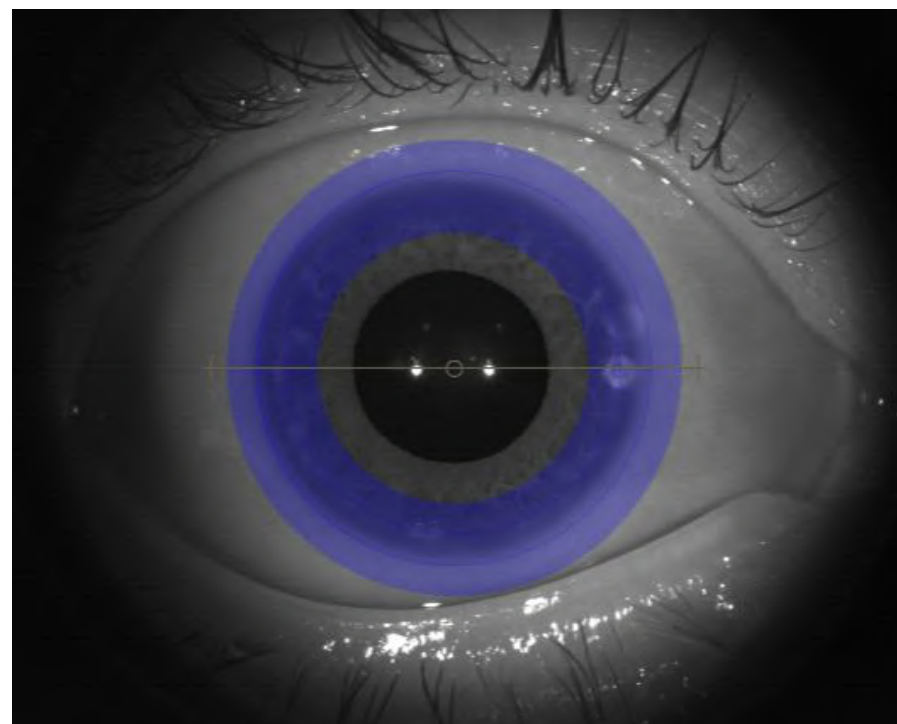
- Fast determination of the shape .
- Distinguish between the 4 core scleral profiles.
- Avoid digging into the numbers
- but the numbers are there and easily conveyed to the lab.
- *More evidence that the ever-improving Eaglet software will make your specialty fitting faster and easier*
- *for you, your patients and the bottom line*

Spheric

Toric

Quad

Custom



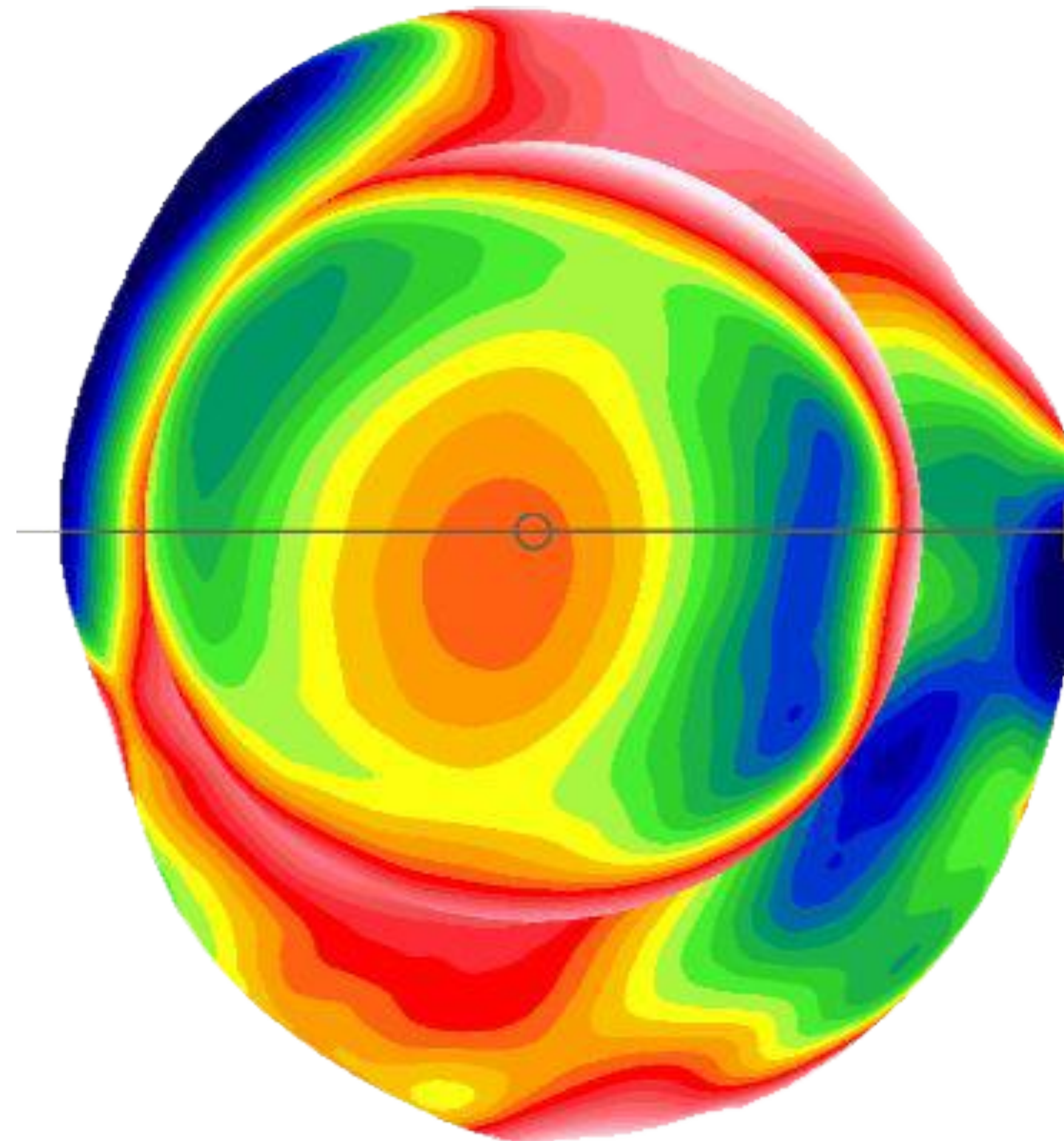
# Xcel Atlantis Quad

64 years old male

Dry eye

Oblique toricity

Rx: S-3 = C-3x70



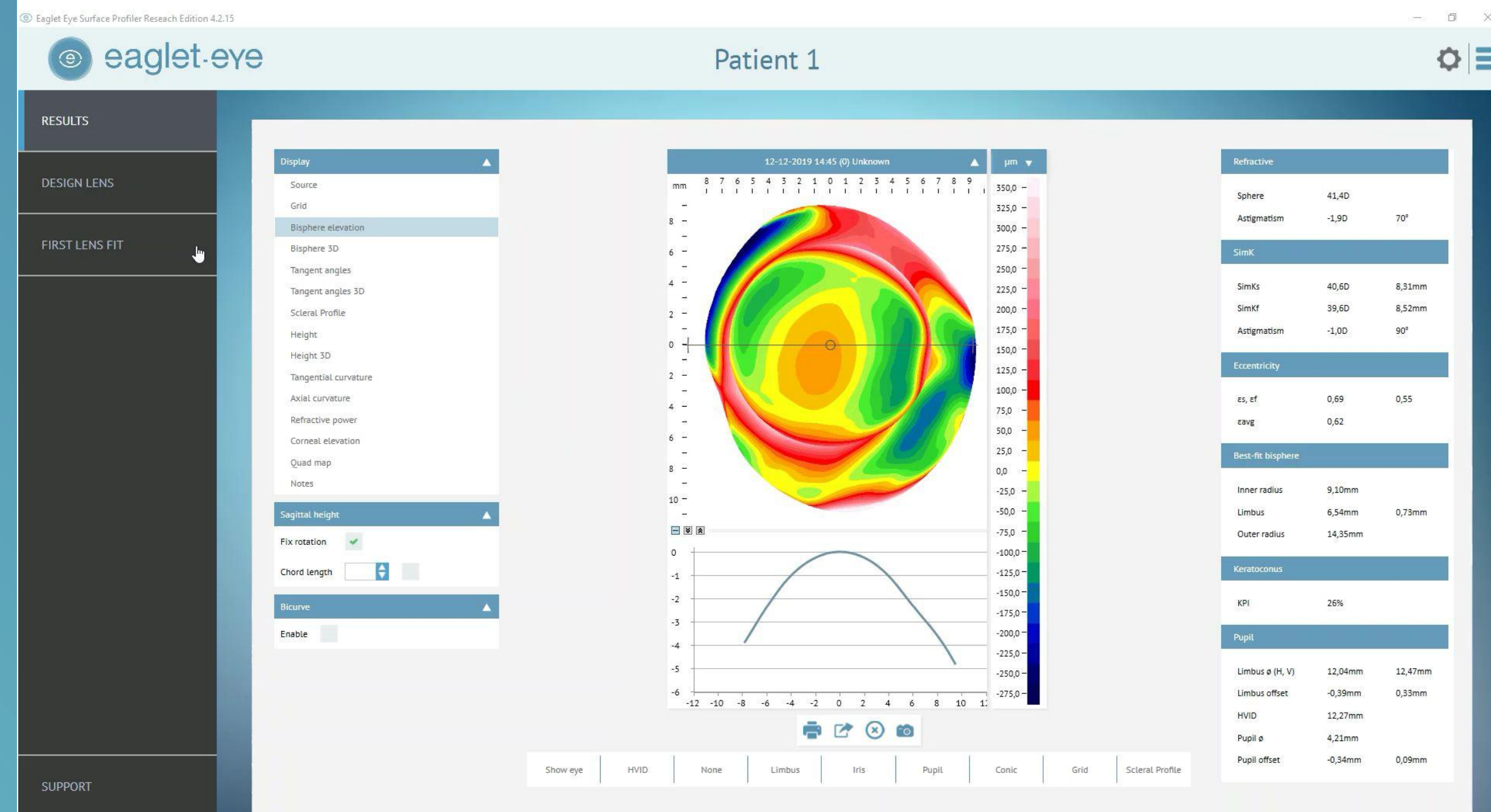
# Xcel Atlantis Quad

64 years old male

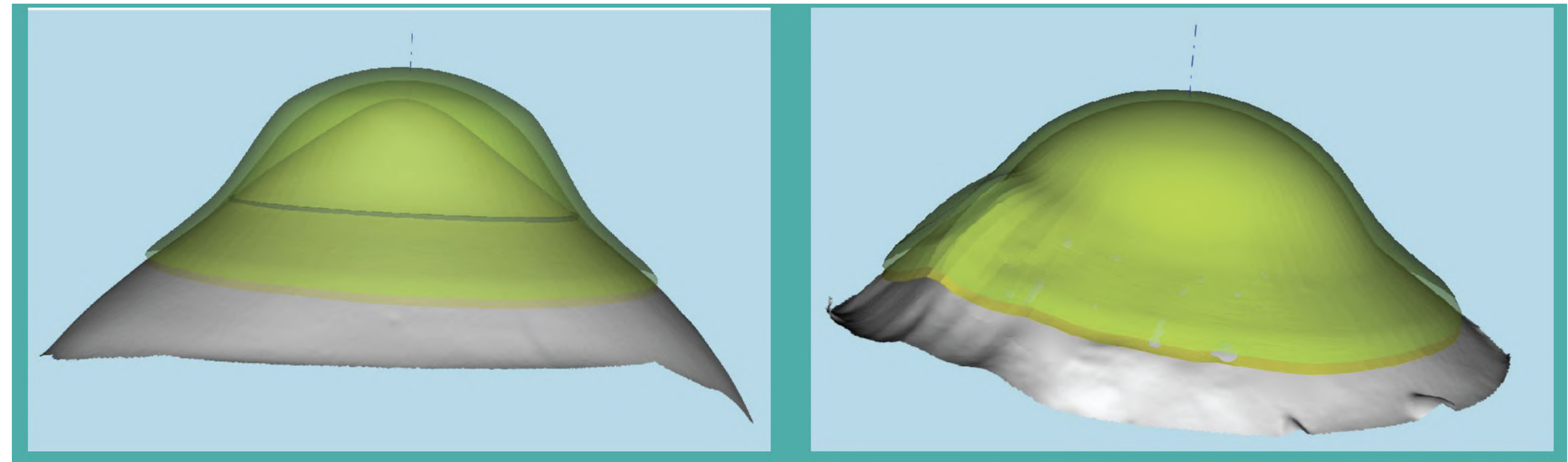
Dry eye

Oblique toricity

Rx: S-3 = C-3x70



# Impression Based Designs





# ABERRATION CONTROL

[Optom Vis Sci](#). Author manuscript; available in PMC 2016 May 18.

PMCID: PMC4871146

Published in final edited form as:

NIHMSID: NIHMS448113

[Optom Vis Sci](#). 2013 Apr; 90(4): 314–323.

PMID: [23478630](#)

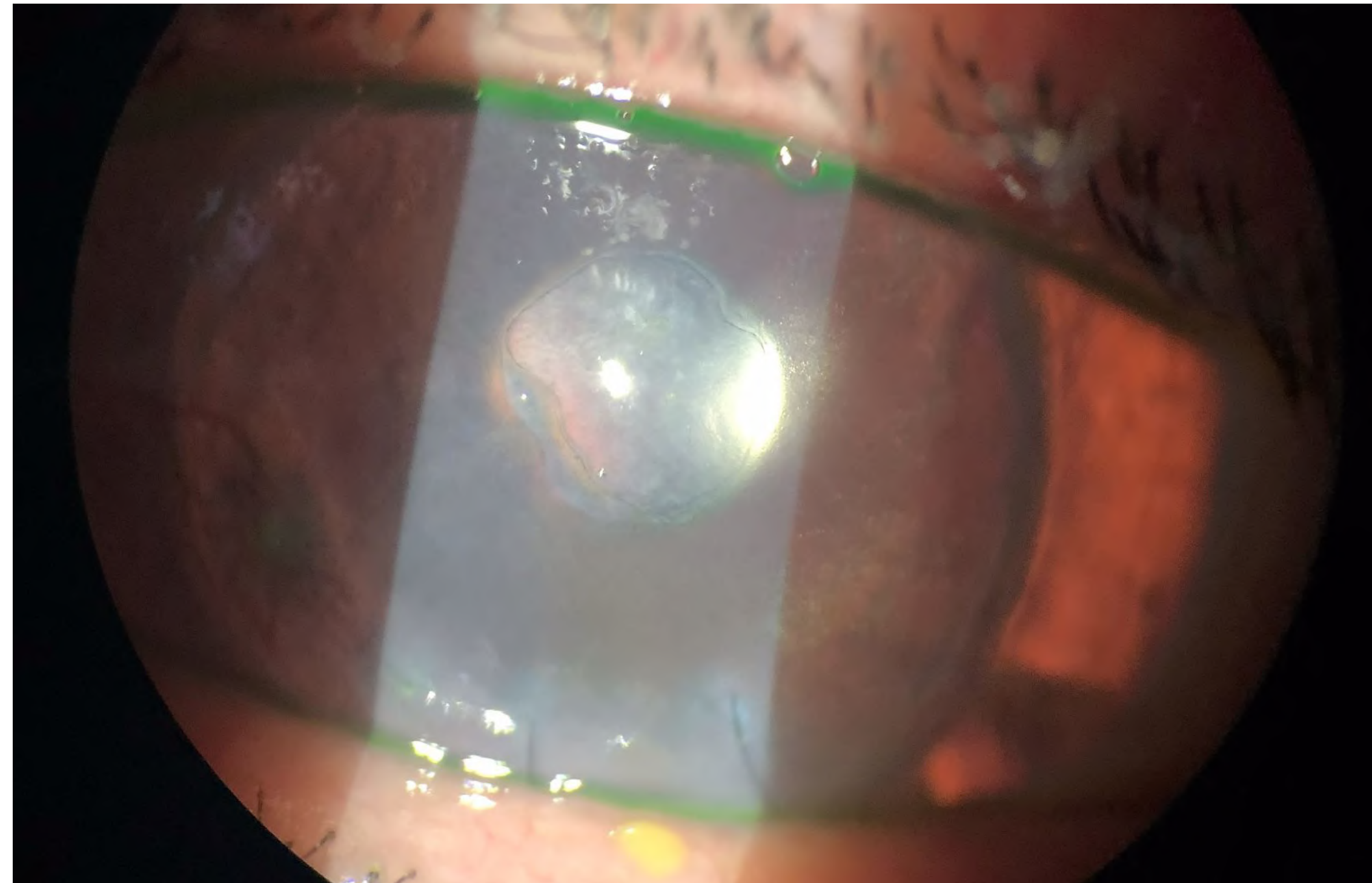
doi: [10.1097/OPX.0b013e318288d19c](#)

## Wavefront-Guided Scleral Lens Prosthetic Device for Keratoconus

[Ramkumar Sabesan](#), PhD, [Lynette Johns](#), OD, FAAO, [Olga Tomashevskaya](#), [Deborah S. Jacobs](#), MD, [Perry Rosenthal](#), MD, and [Geunyoung Yoon](#), PhD

- HOA's a large issue with irregular K's
- Nearly 2 lines of vision improvement with correction
- Also improves subjective vision
  - Glare, Haloes, Ghosting

# CASE REPORT -





**Thank you! Please join us for our next COPE event**

*Speaker*  
**Dr. Paul Karpecki**

**OCULAR NUTRITION,  
HEALTH, AND WINE**

**Oct, 26<sup>th</sup>**  
5:30pm PST

Date: October 26, 2021

Time: 5:30 PM PST

Speaker: Dr. Paul Karpecki

Topic: Ocular Health, Nutrition, and Wine

COPE: Two hour live CE

**Visit [WooU.org](http://WooU.org) for a full list of upcoming CE events!**



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