

Scleral Lenses: Managing Common Fitting Issues & Complications

Dr. Caitlin Morrison, OD, FAAO, FSLs

Owner: In Focus: Specialty Contact Lens & Vision Solutions
Scottsdale, Arizona



Specialty Contact Lens & Vision **SOLUTIONS**

E
F P
T O Z
L P E D
P E C F D
E D F C Z P

L E F O D P C T
F D P L T C E O
P E Z O L C F T D



Scleral Lenses

Keratoconus

Dry Eye

Corneal Scarring

Sjogren's Syndrome

Stevens-Johnson
Syndrome

Corneal Transplantation

Irregular Astigmatism

Graft versus Host Disease

Radial Keratotomy



Benefits

Vision Correction

Dry Eye Treatment

Protection

Temporary Healing of Corneal
Issues



Complications

Lens Dropping

Discomfort

Painful Removal

Fogging

Conjunctival Redness

Microcystic Edema

Conjunctival Chalasis

Corneal Edema



LENS DROPPING

What Is It?

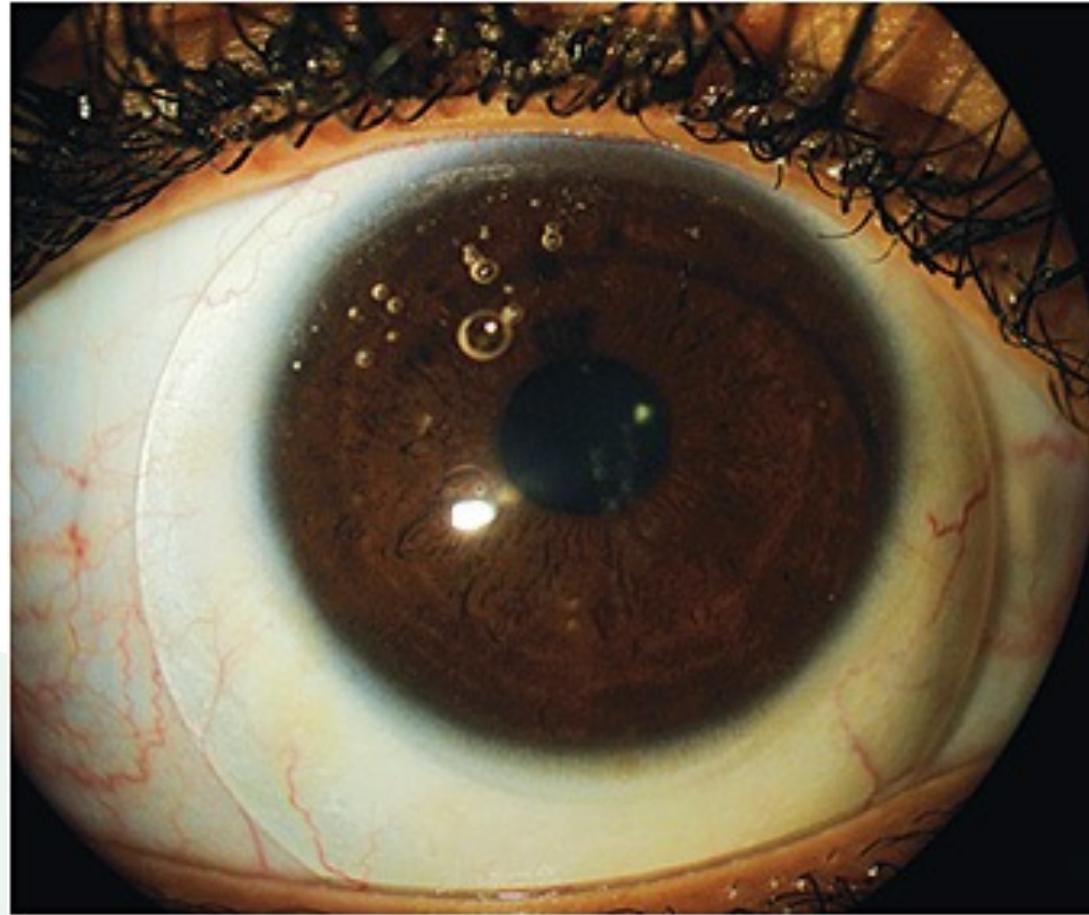
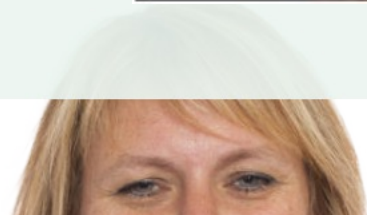


Image Source: Contact Lens Spectrum

IN FOCUS



LENS DROPPING

What Is It?

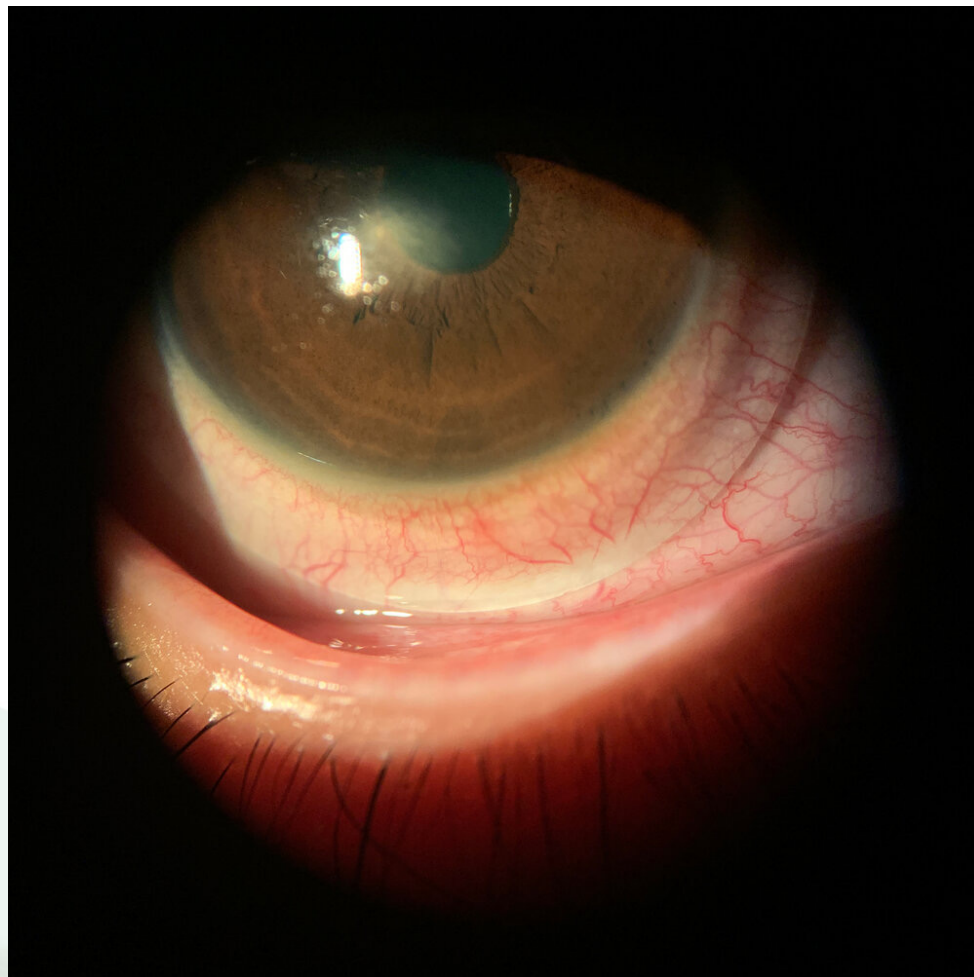
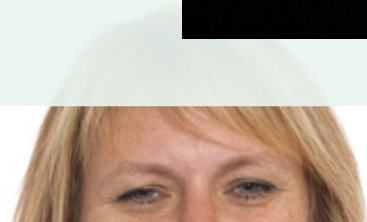


Image Source: Contact Lens Institute of Nevada

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LENS DROPPING

Why Does It Matter?

#1: Difficulty avoiding superior nasal touch

#2: Discomfort and redness inferiorly around conjunctiva

#3: Poor alignment with sclera results in greater fogging

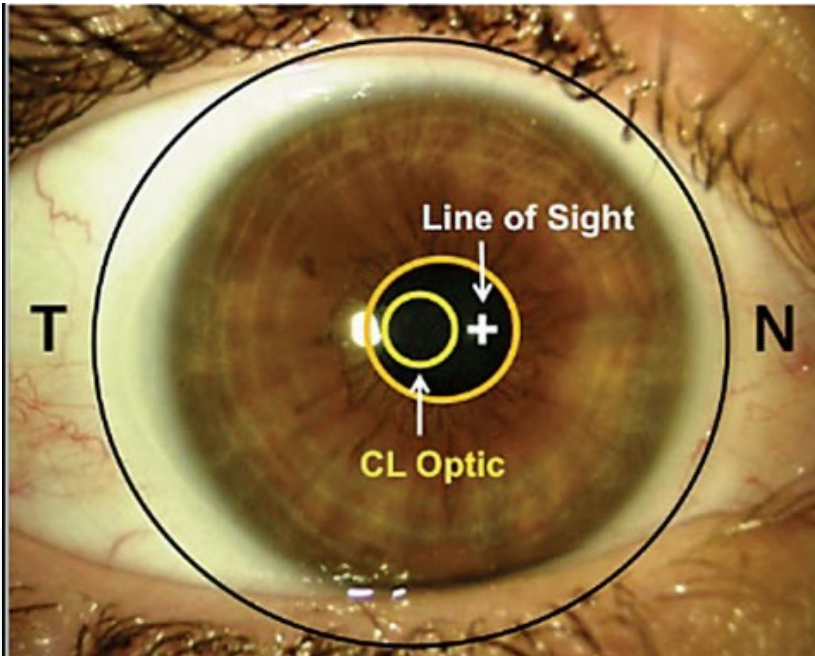


Image Source: Review of Optometry

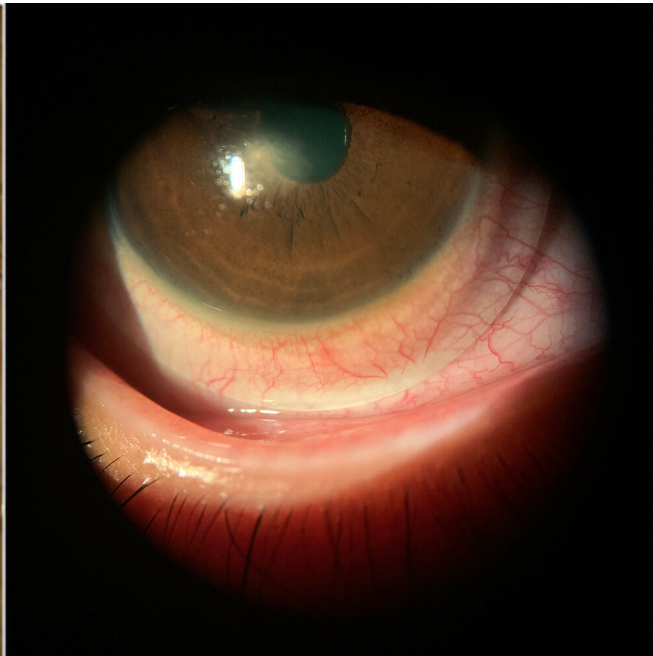


Image Source: Contact Lens Institute of Nevada

LENS DROPPING

Why Does It Happen?

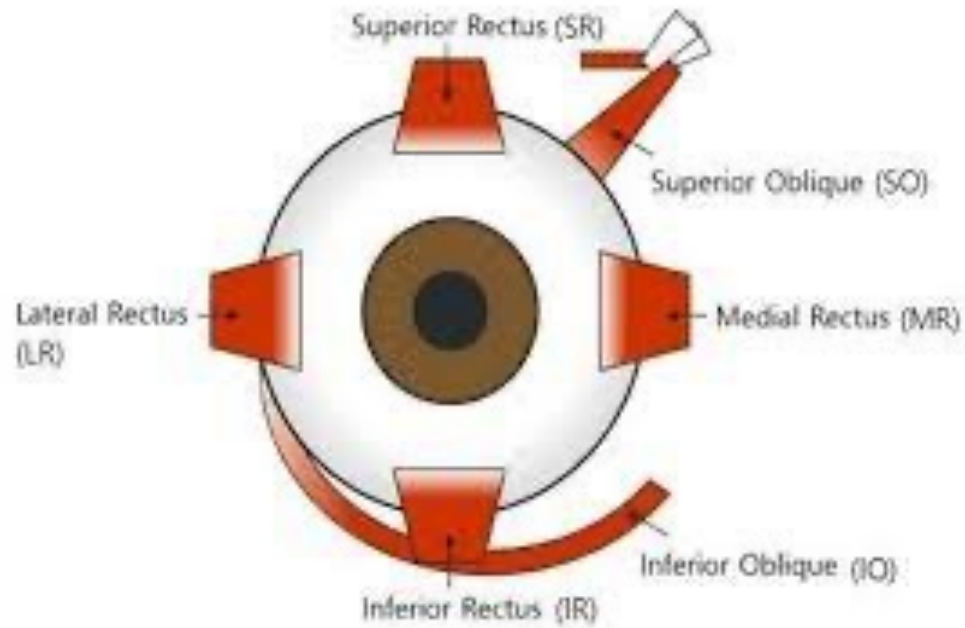


Image Source: ResearchGate.net

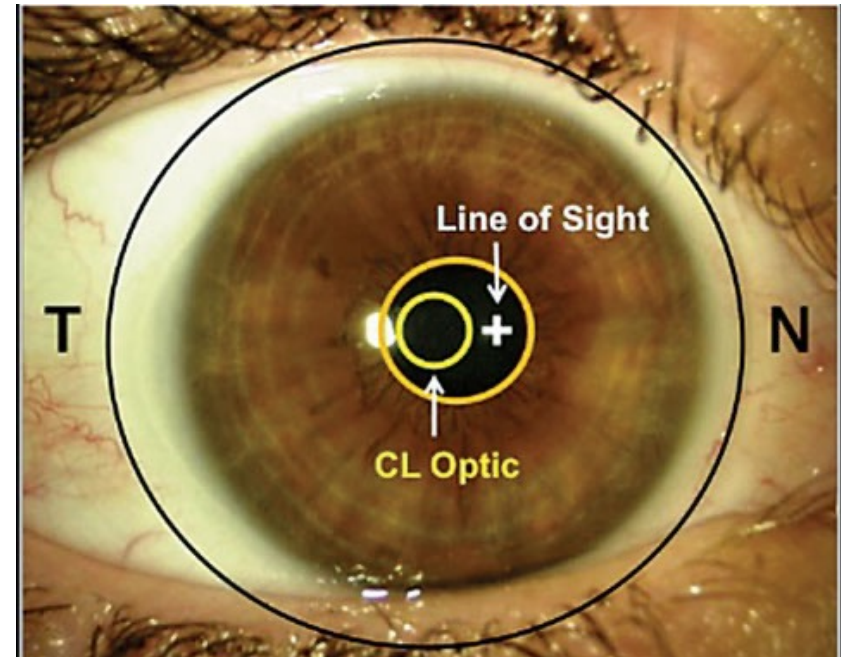
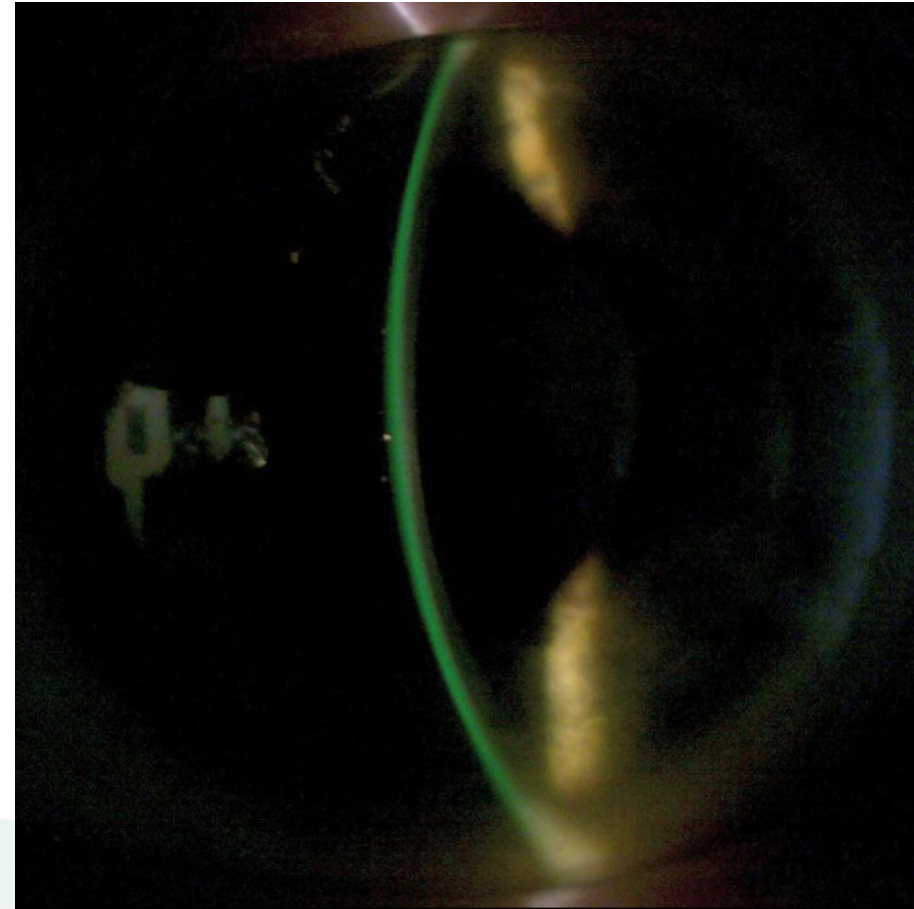
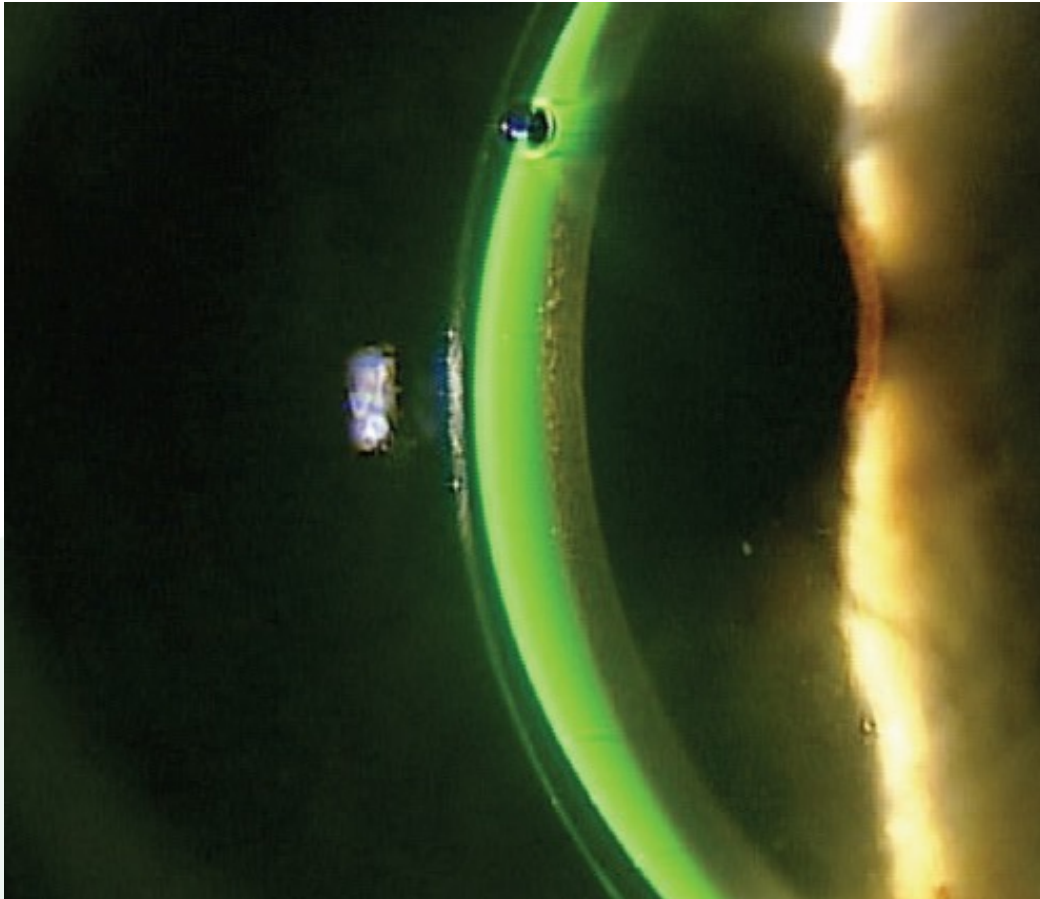


Image Source: Review of Optometry

LENS DROPPING

How Do We Fix It?

#1: Decrease weight of lens by decreasing overall clearance



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LENS DROPPING

How Do We Fix It?

#2: Align edges of scleral lens with sclera (peripheral toricity)

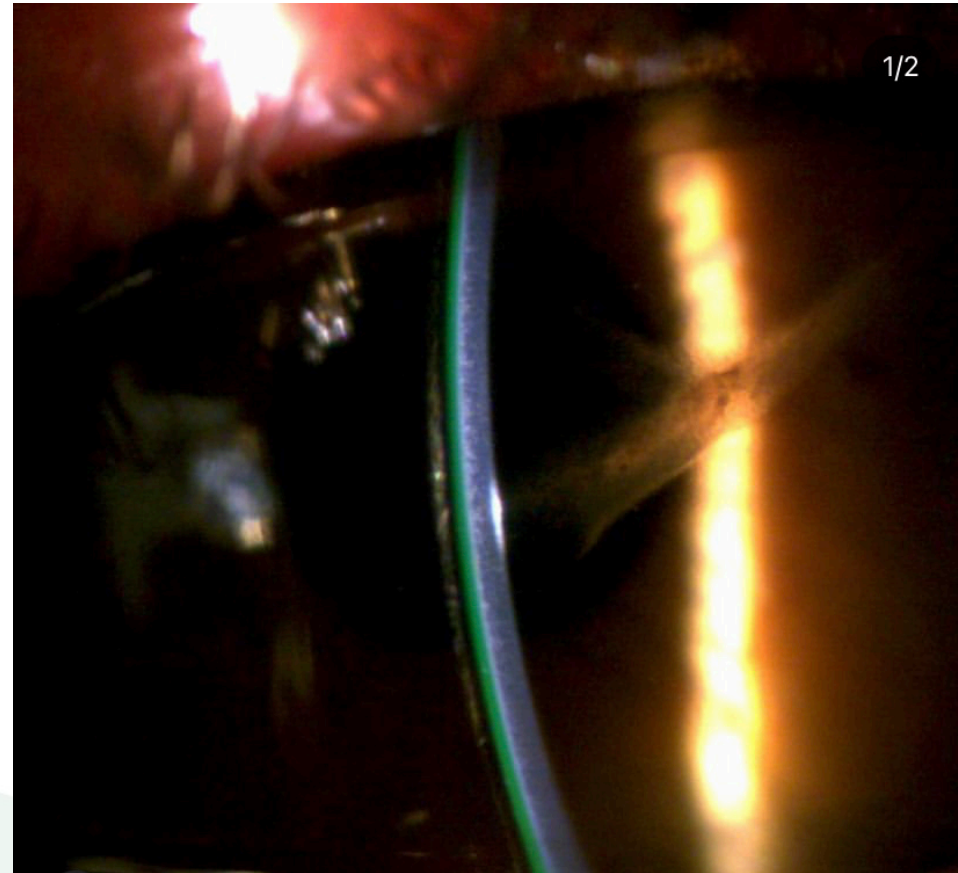
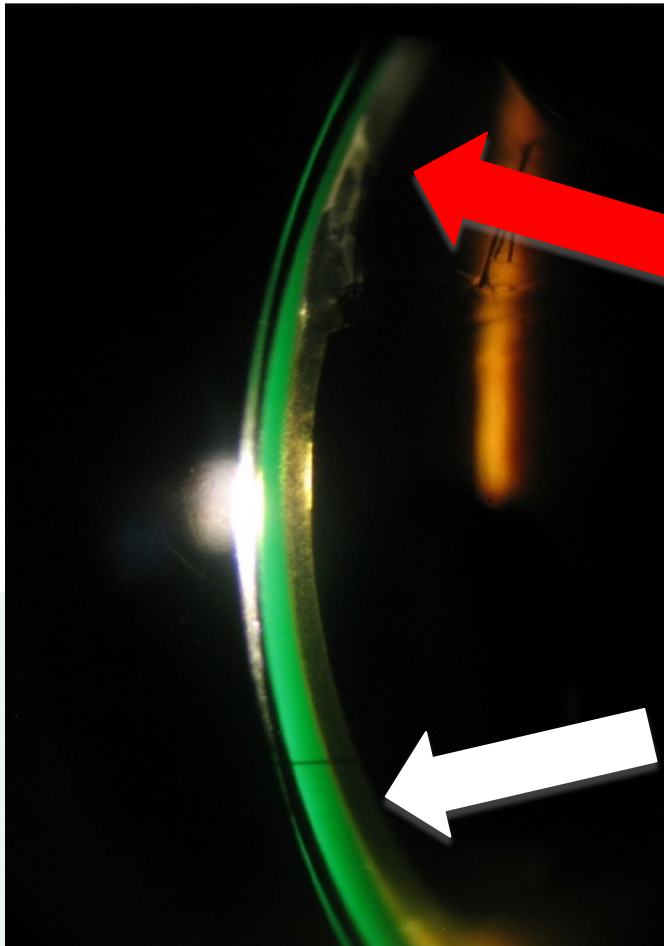


Image Source: ResearchGate.net

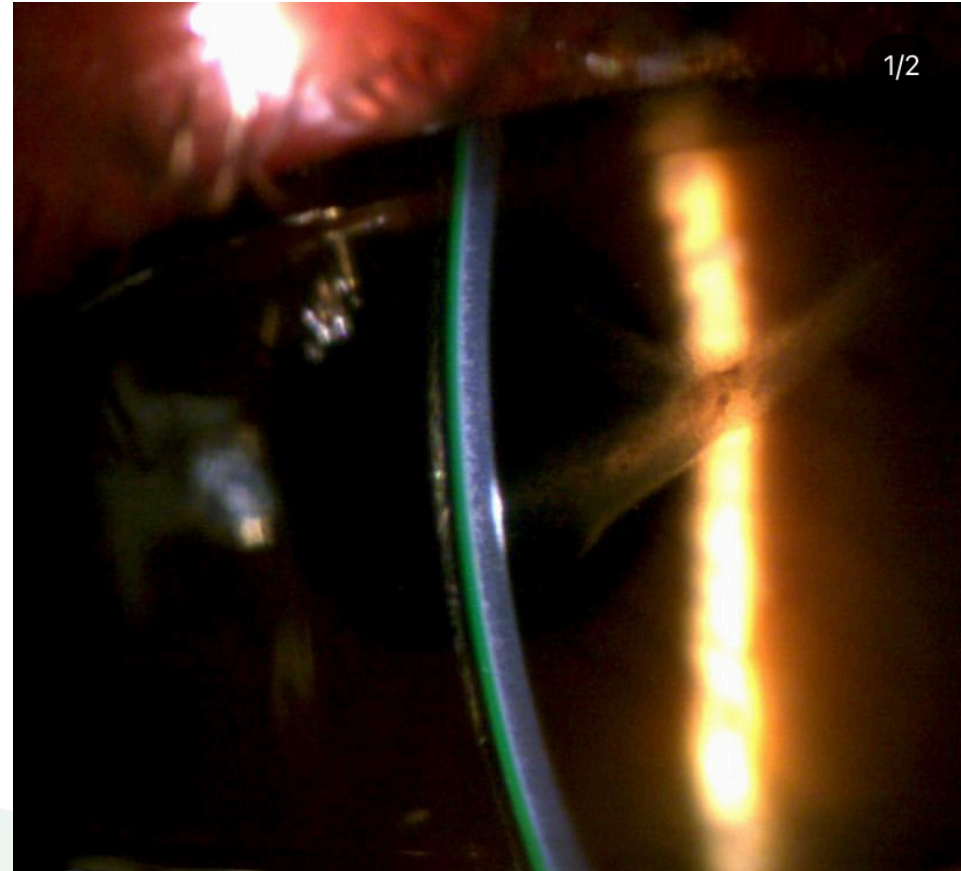
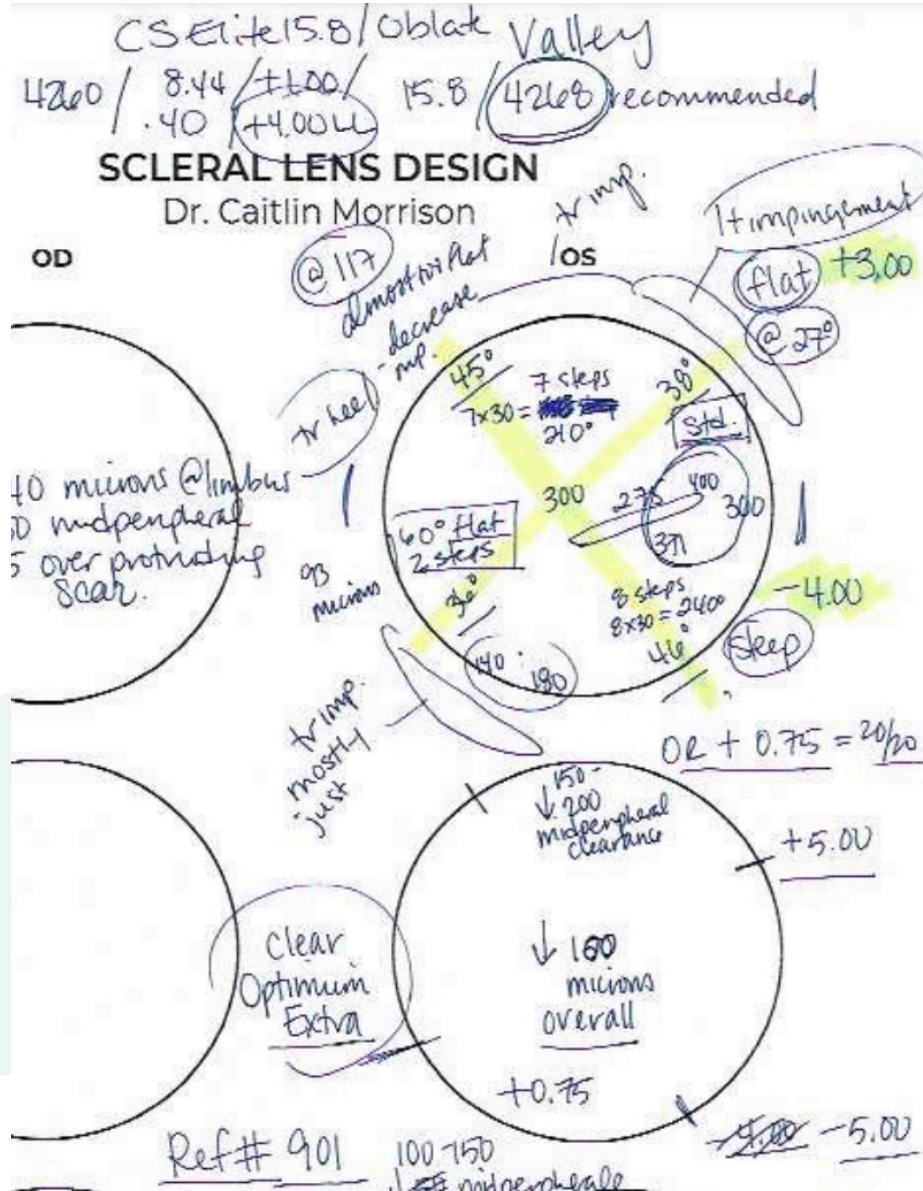
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LENS DROPPING

How Do We Fix It?

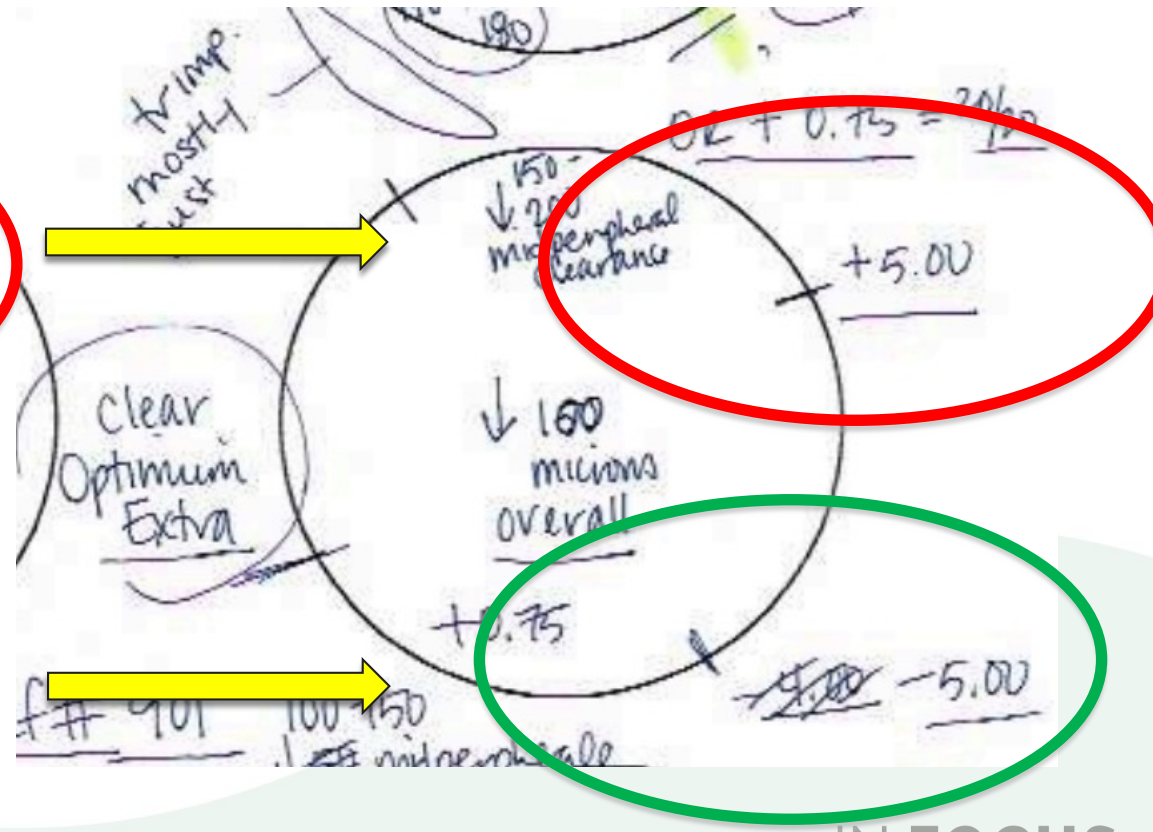
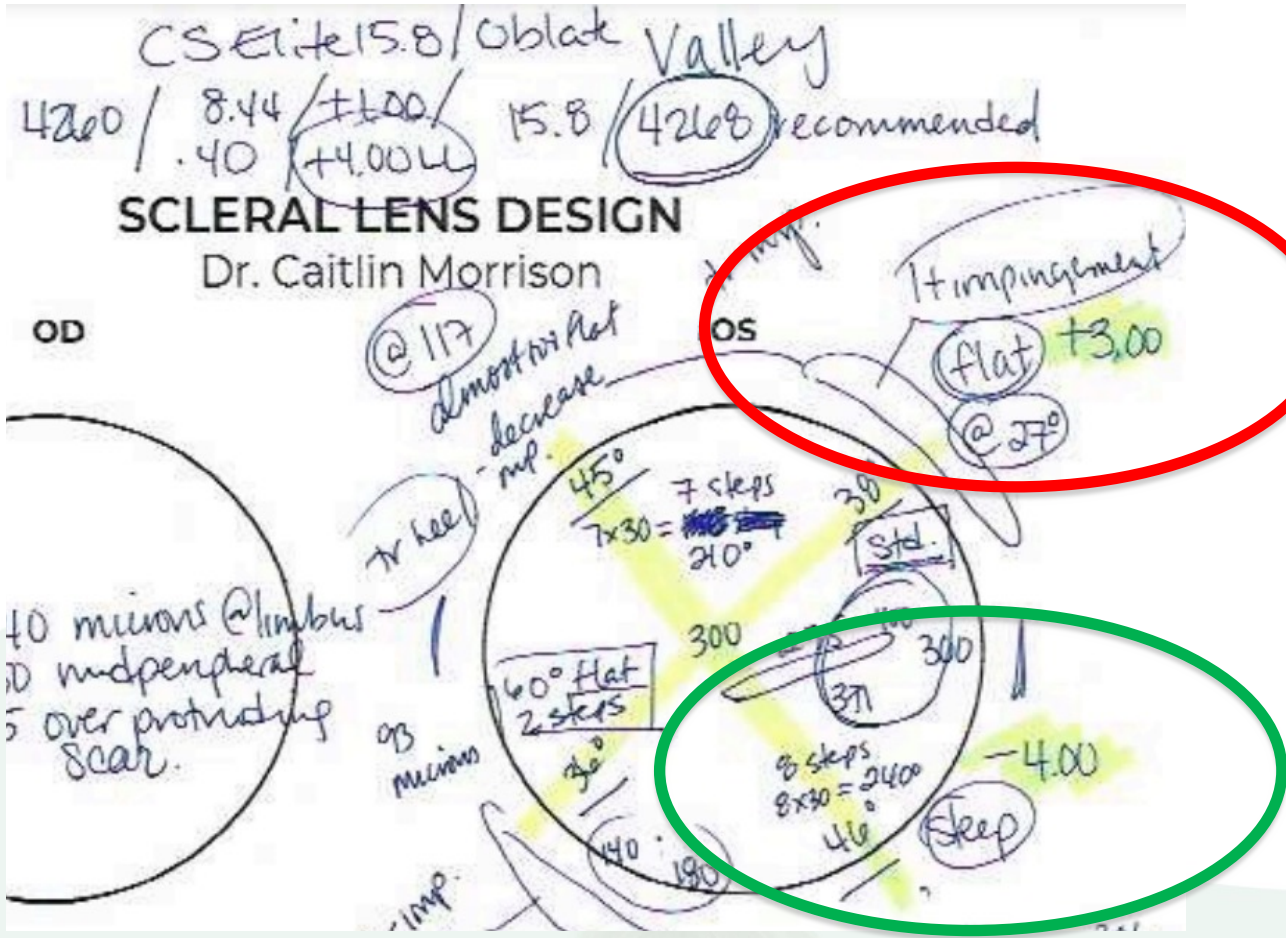
My Technique: The Documentation



LENS DROPPING

How Do We Fix It?

My Technique; The Design



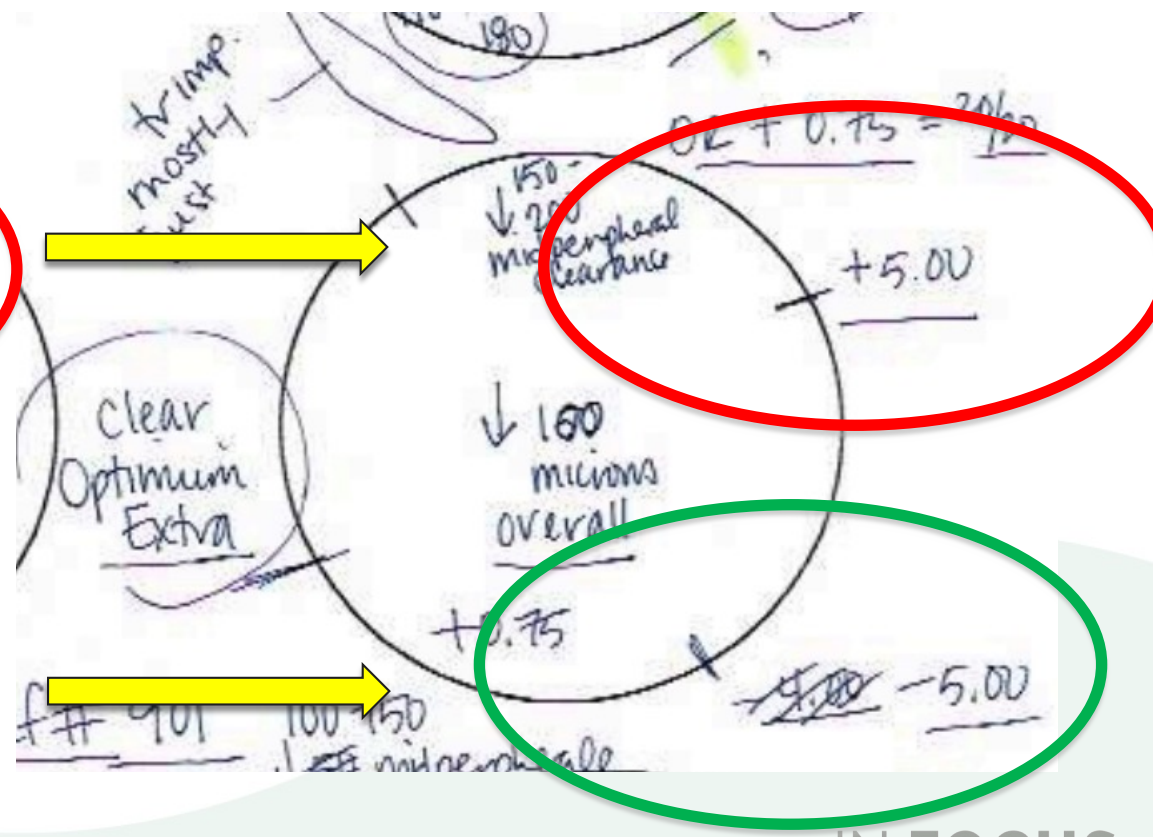
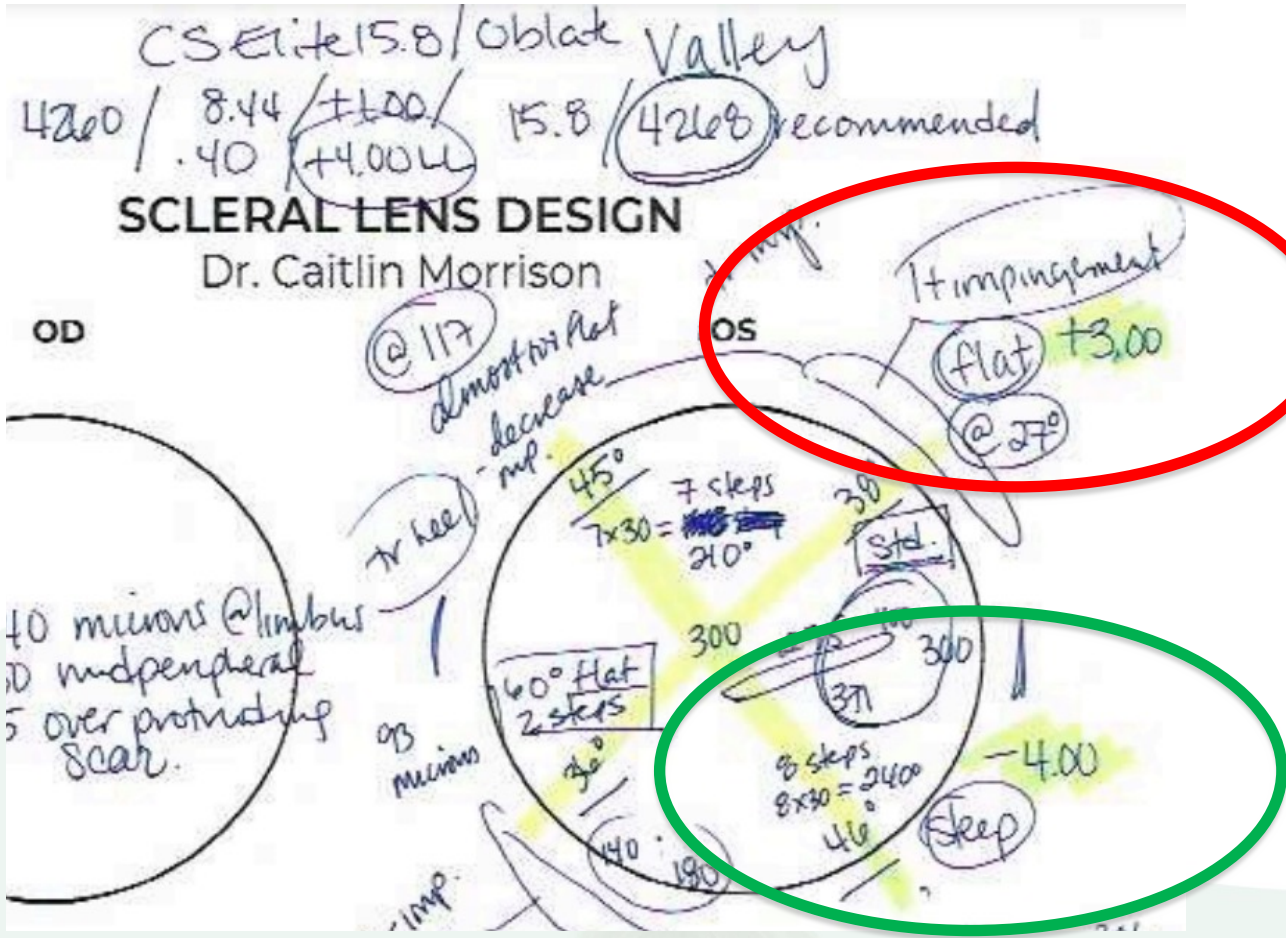
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LENS DROPPING

How Do We Fix It?

What is MEANINGFUL change to peripheral curvature?



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LENS DROPPING

How Do We Fix It?

My Technique; Slit Lamp Observation

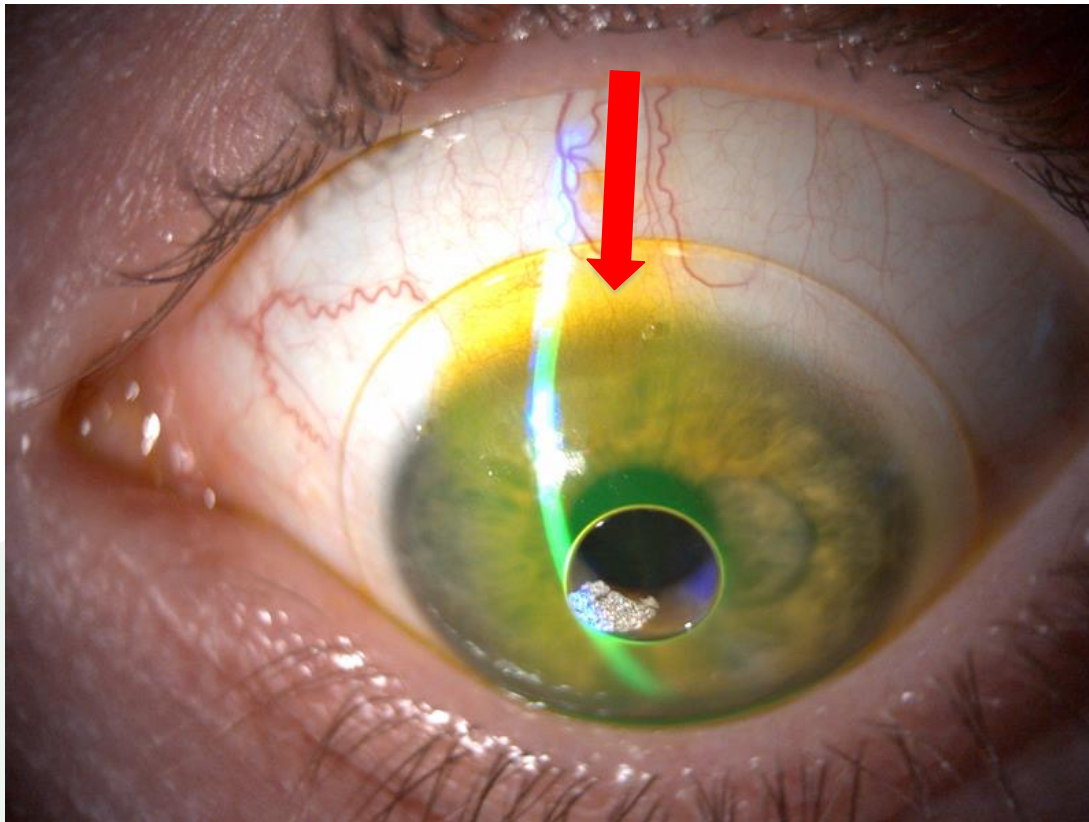
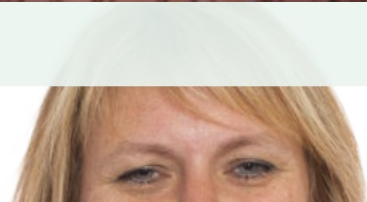


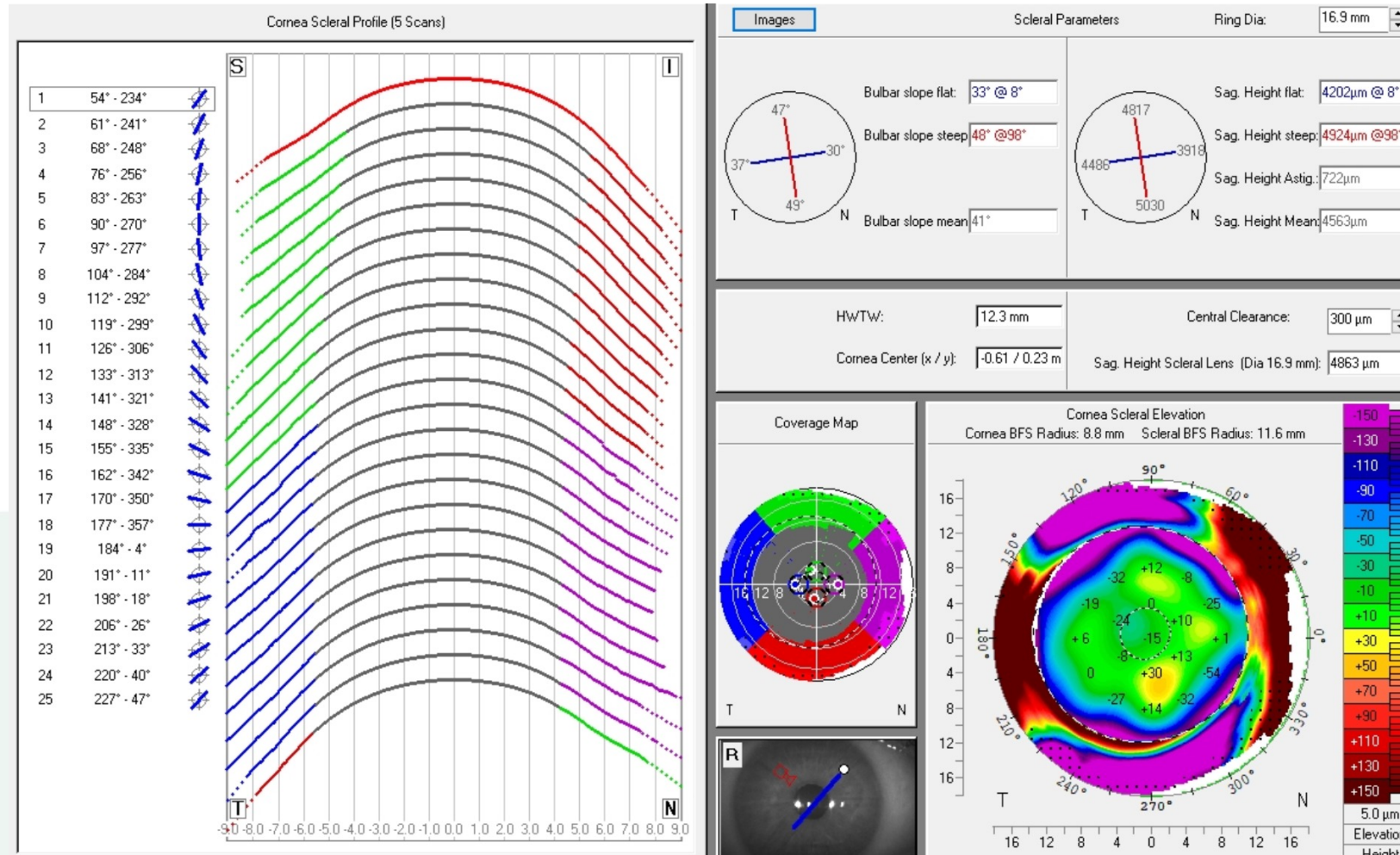
Image Source: Optician Net

Image Source: Ferris



LENS DROPPING

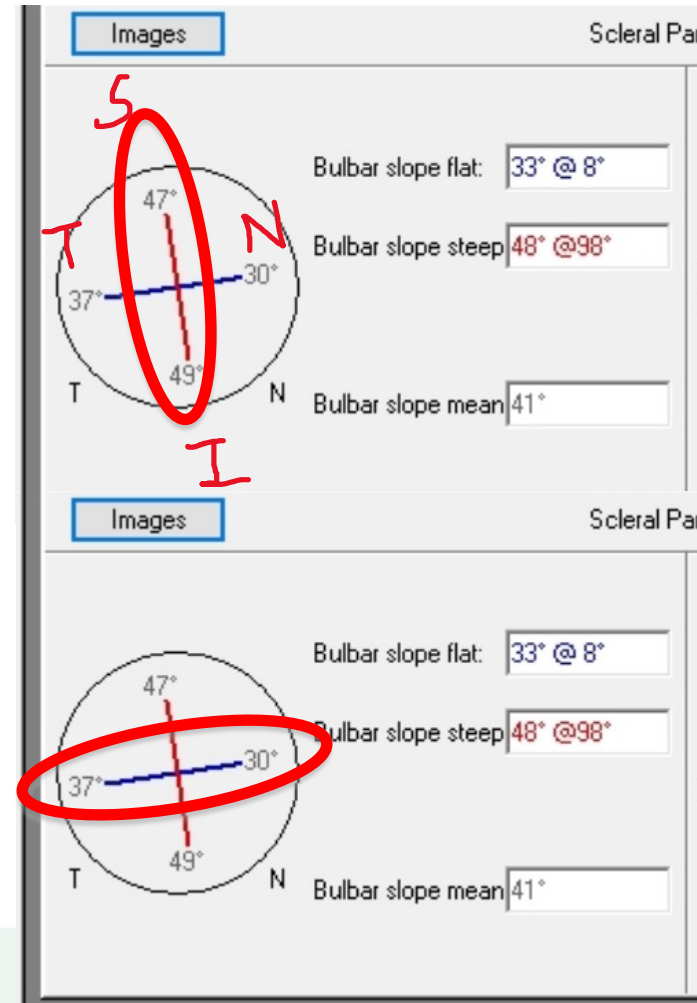
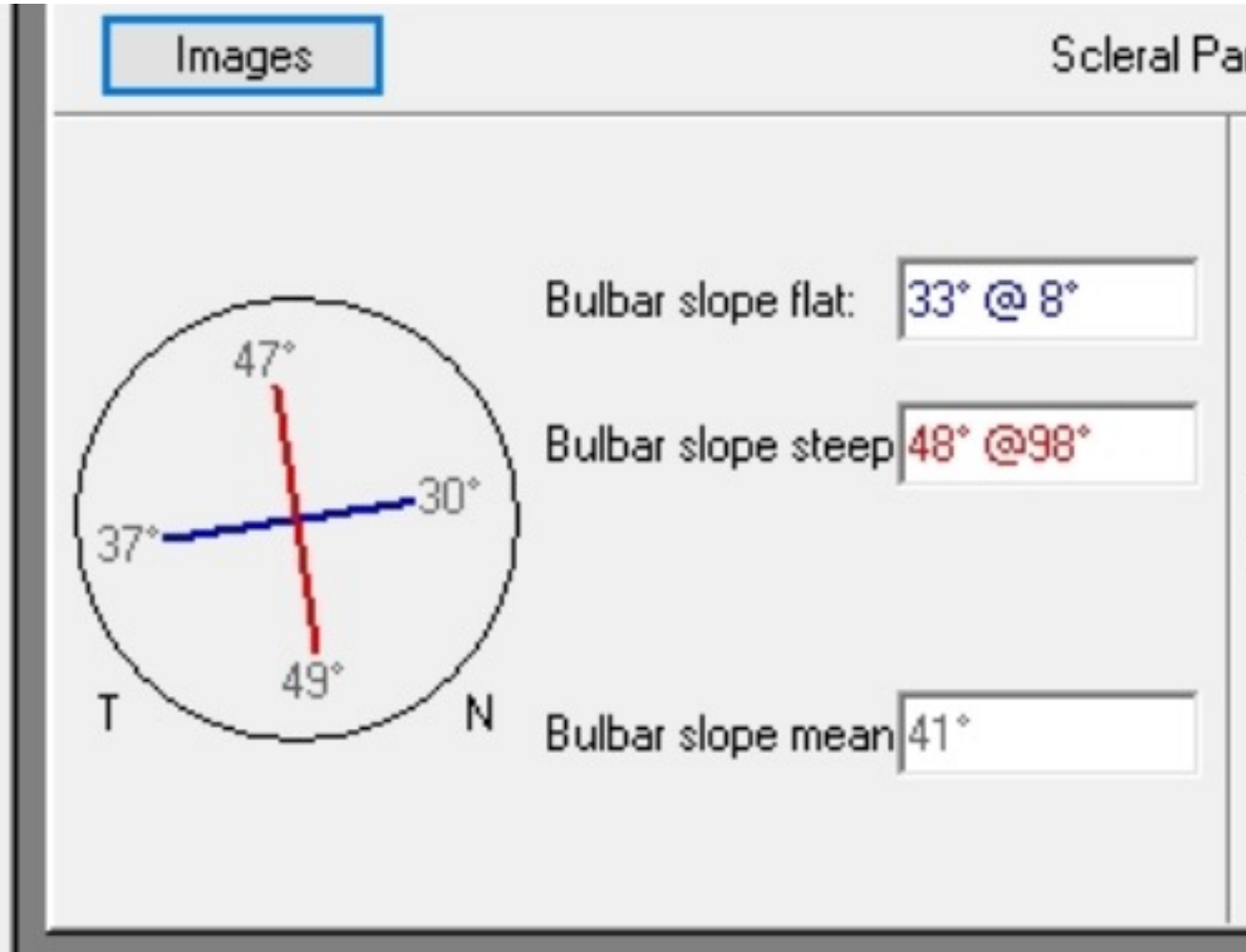
Using Technology
Pentacam Cornea Scleral Profiler (CSP)



LENS DROPPING

Using Technology

Pentacam CSP



Scale:
12 Flat – 0 – Steep 10
Each 1 Step = 30
microns

QUADRANT SPECIFIC

Nasal: Flat 12
Superior Steep 10
Temporal: Flat 9
Inferior: Steep 10

OR:

TORIC IN FOCUS

Flat 10 x Steep 10

600 microns
difference

LENS DROPPING

Using Technology
Scan-Based Scleral Lenses



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LENS DROPPING

Using Technology
Mold-Based Scleral Lenses



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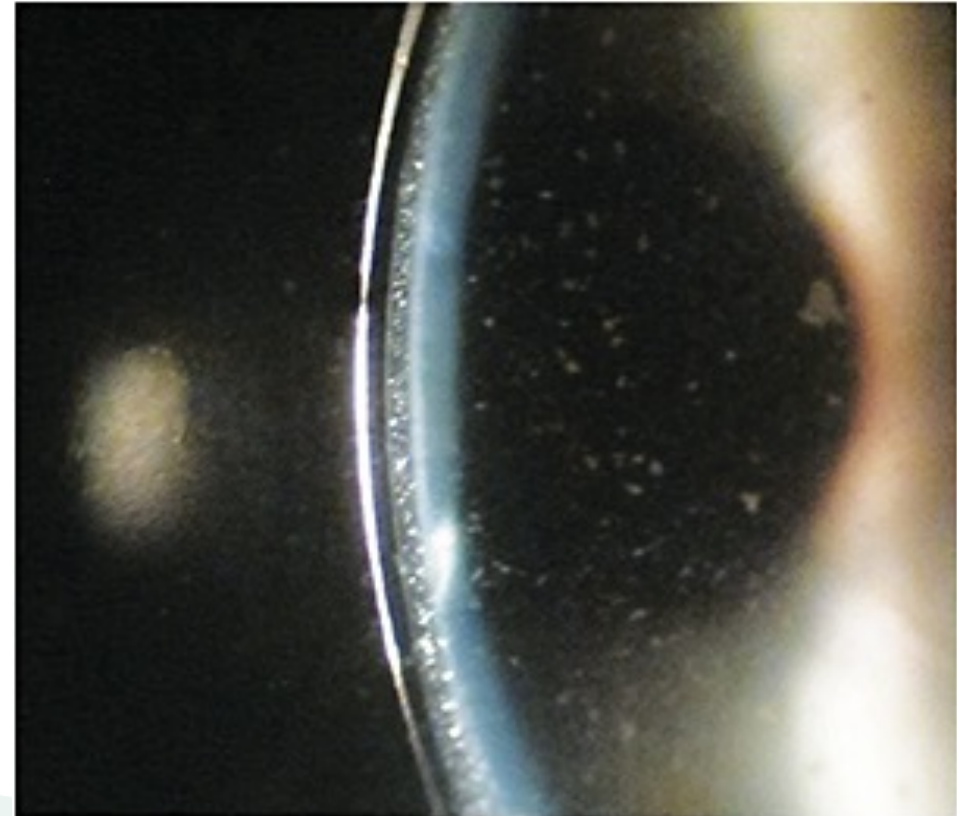
FOGGING

What Is It?

Components in tear composition

- Leukocytes (mainly neutrophils)¹
- Lipids²
- Proteins
- Cell fragments (epithelium?)

Allergies, Dry Eye, Radial Keratotomy



IN FOCUS

FOGGING

Why Does It
Happen?

Too much clearance

Lens too tight

Lens too loose

Edges not aligned

Ocular surface disease



FOGGING

How Do We Fix It?

Align scleral lens haptics*

Decrease central clearance

Treat underlying surface issues

Solution changes

- Nutrifill
- Higher viscosity



FOGGING

Align scleral lens haptics*

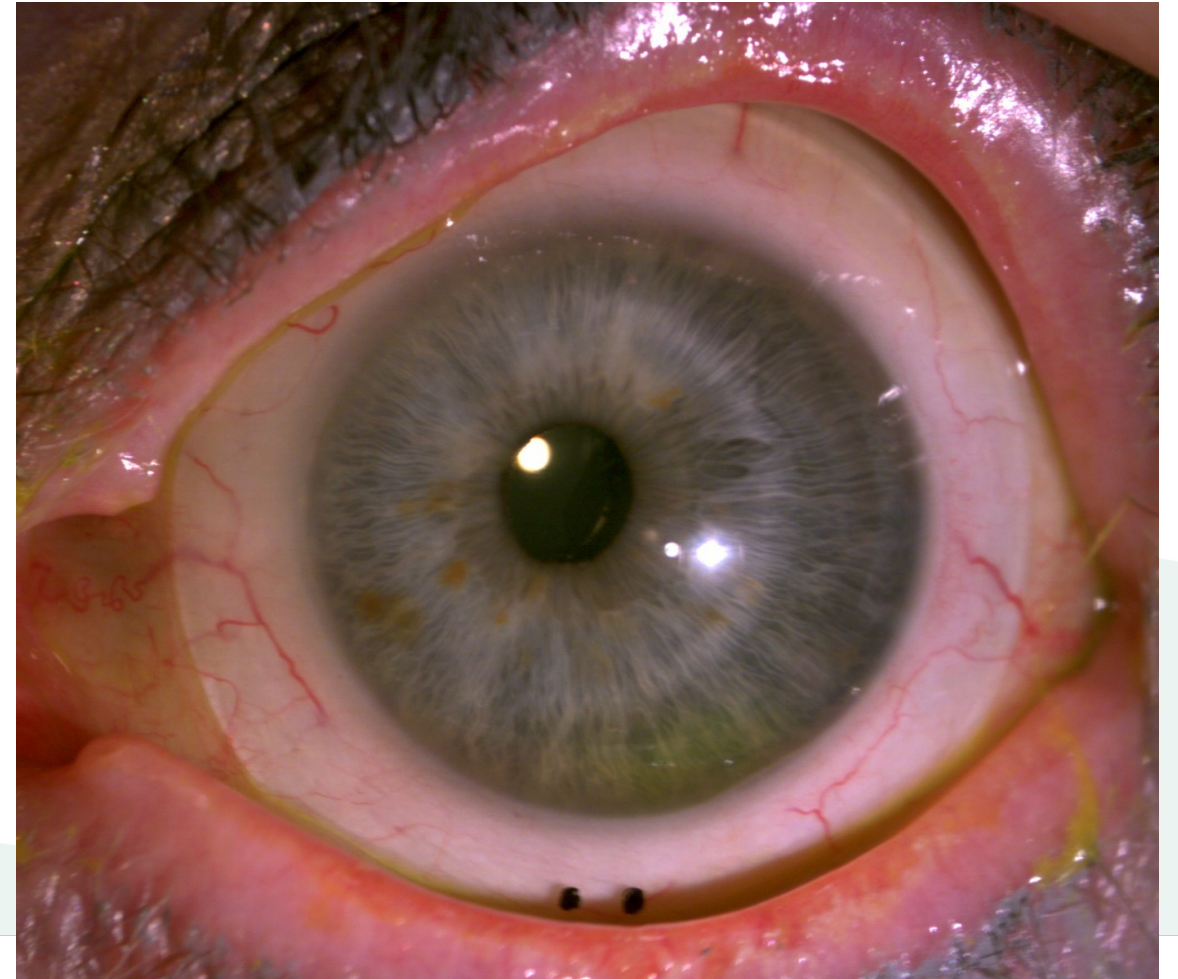
Decrease central clearance

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How Do We Fix It?



FOGGING

Align scleral lens haptics*

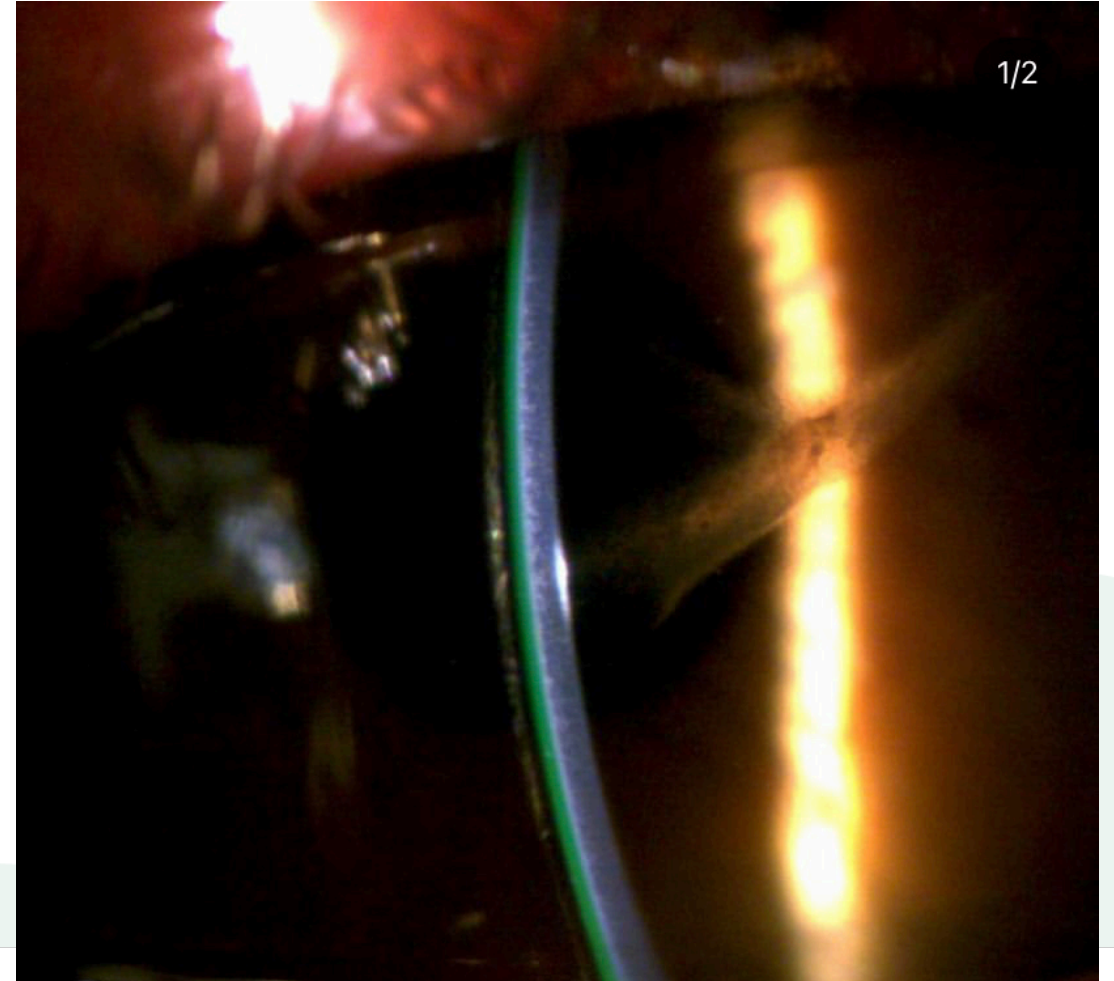
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How Do We Fix It?



FOGGING

Align scleral lens haptics*

Decrease central clearance

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- Higher viscosity

How Do We Fix It?

Dry Eye Protocol

Medicated Eye Drops

Patient Expectations



FOGGING

How Do We Fix It?

Align scleral lens haptics*
Decrease central clearance
Treat underlying surface issues

Solution changes

- Nutrifill
- Higher viscosity



CONJUNCTIVAL REDNESS



Image Source: Ferris

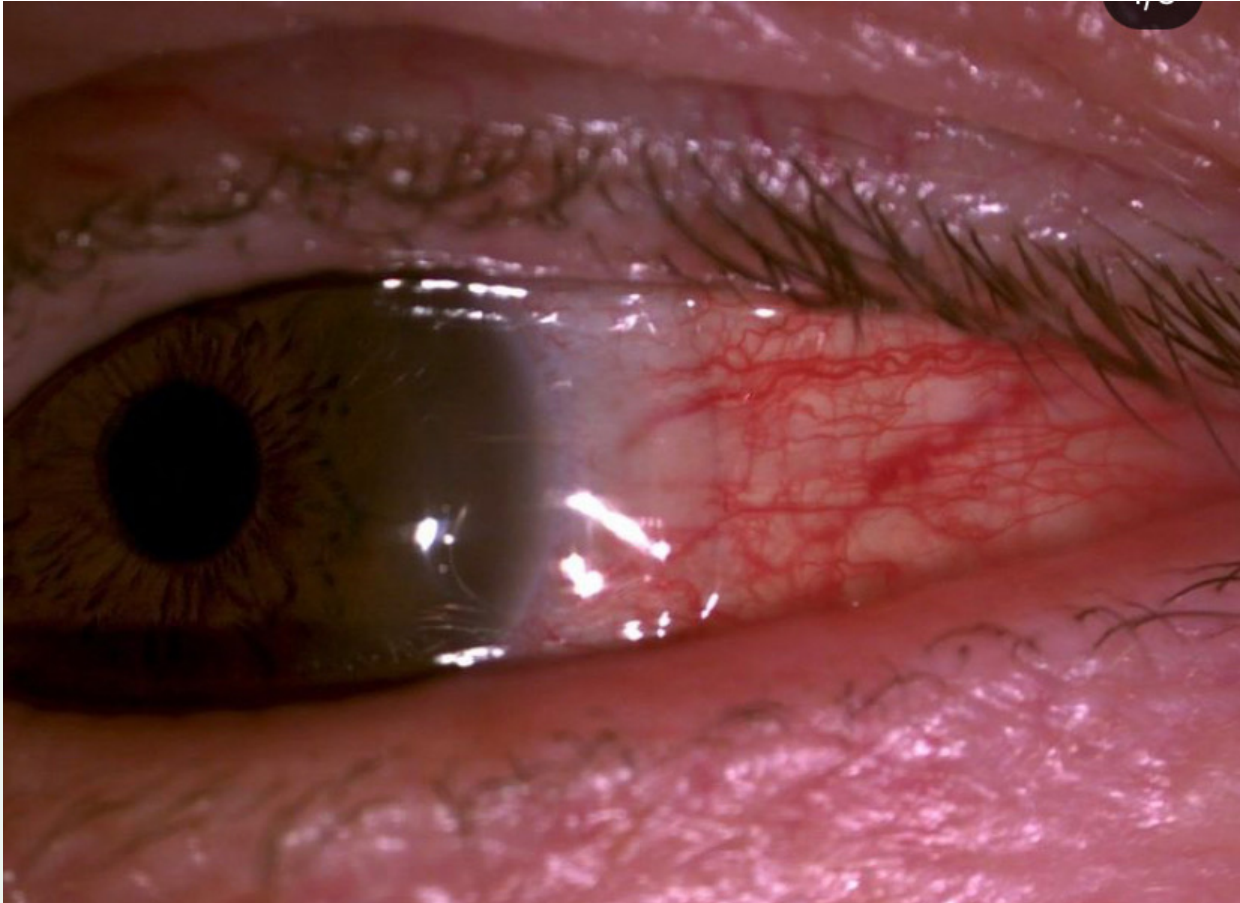
Impingement of blood vessels

Scleral lens is too tight and digging into the conjunctiva.

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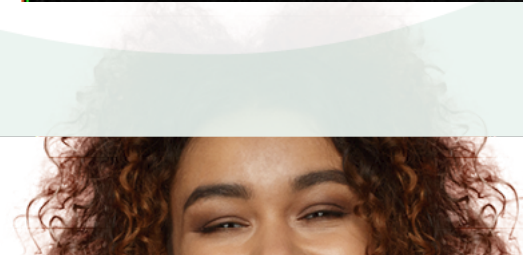
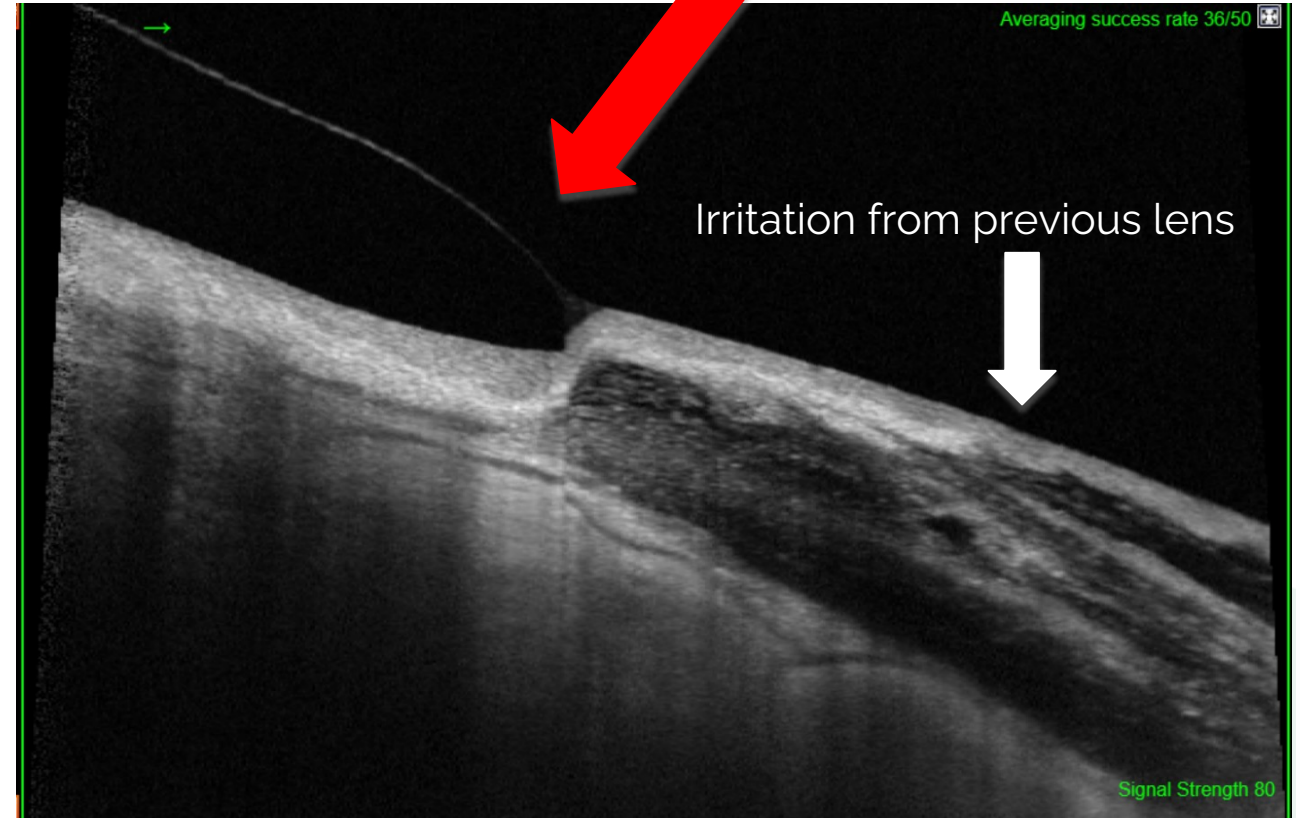
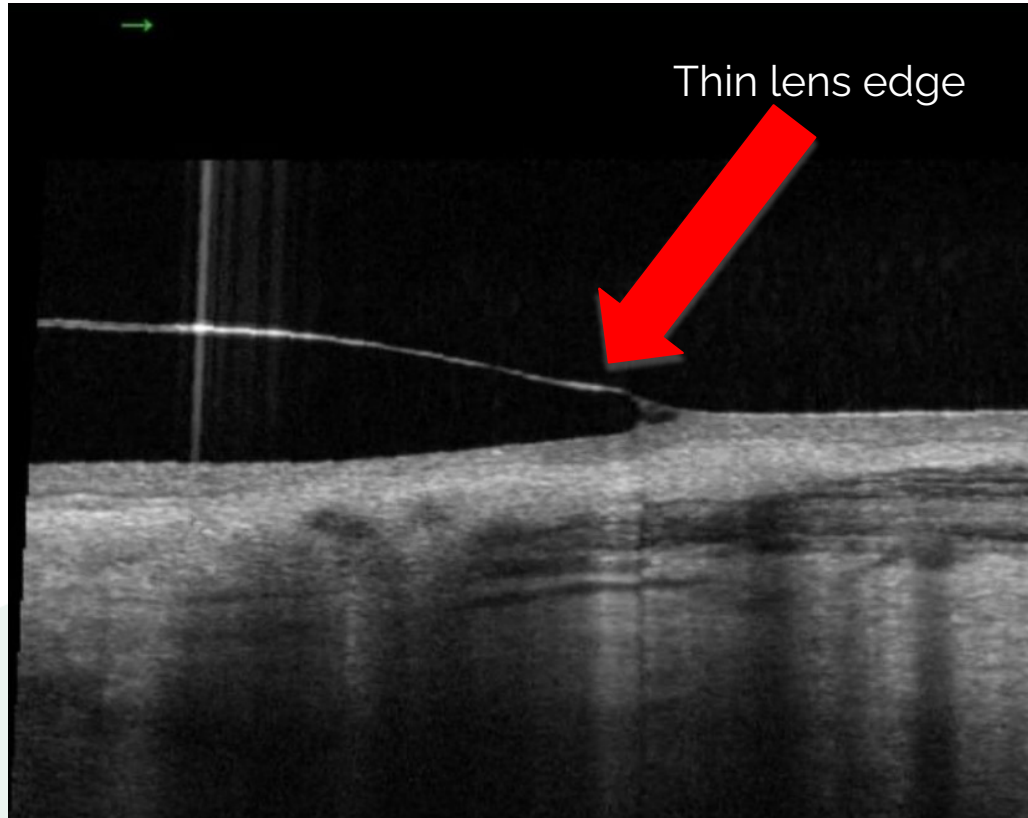
CONJUNCTIVAL REDNESS



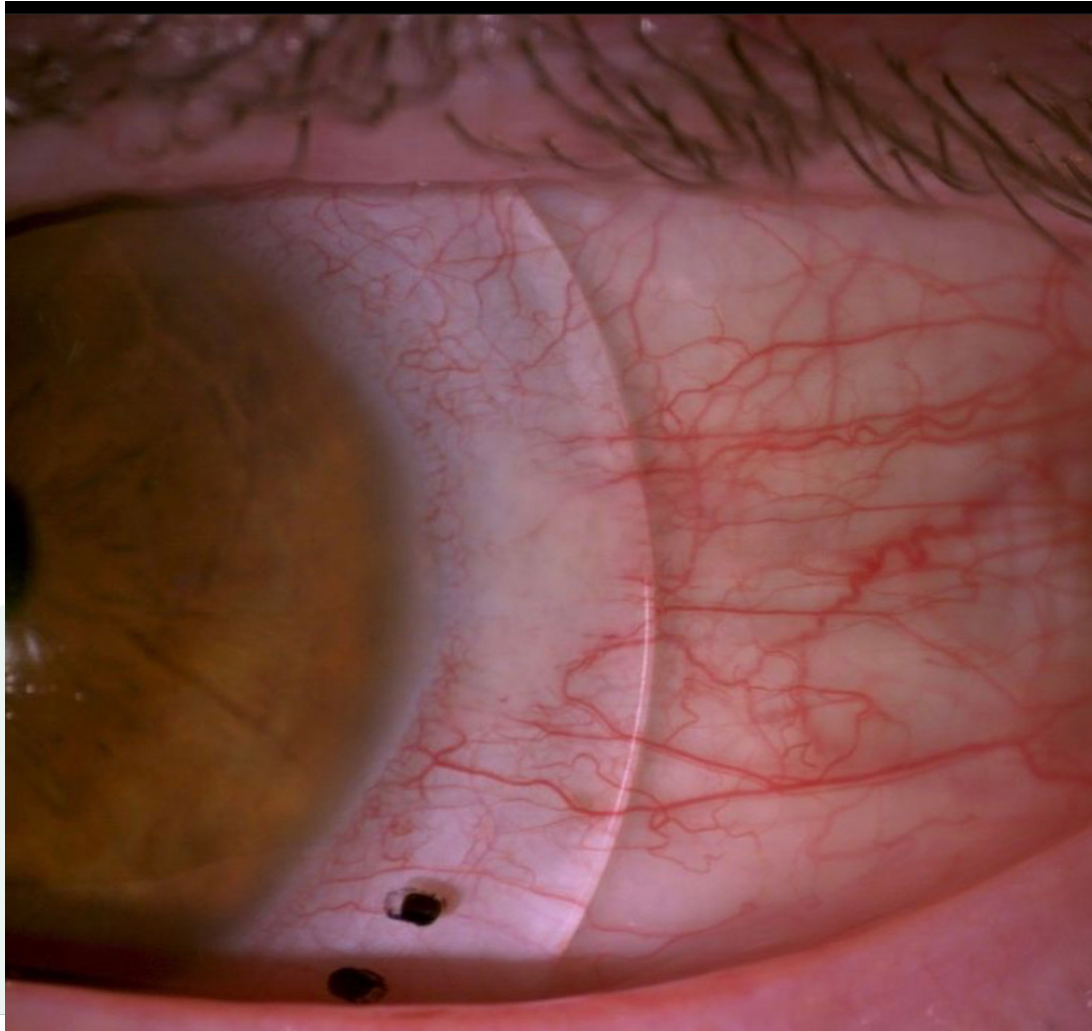
Irritation from Lens Edge

Scleral lens edge profile is irritating the conjunctiva.

CONJUNCTIVAL REDNESS



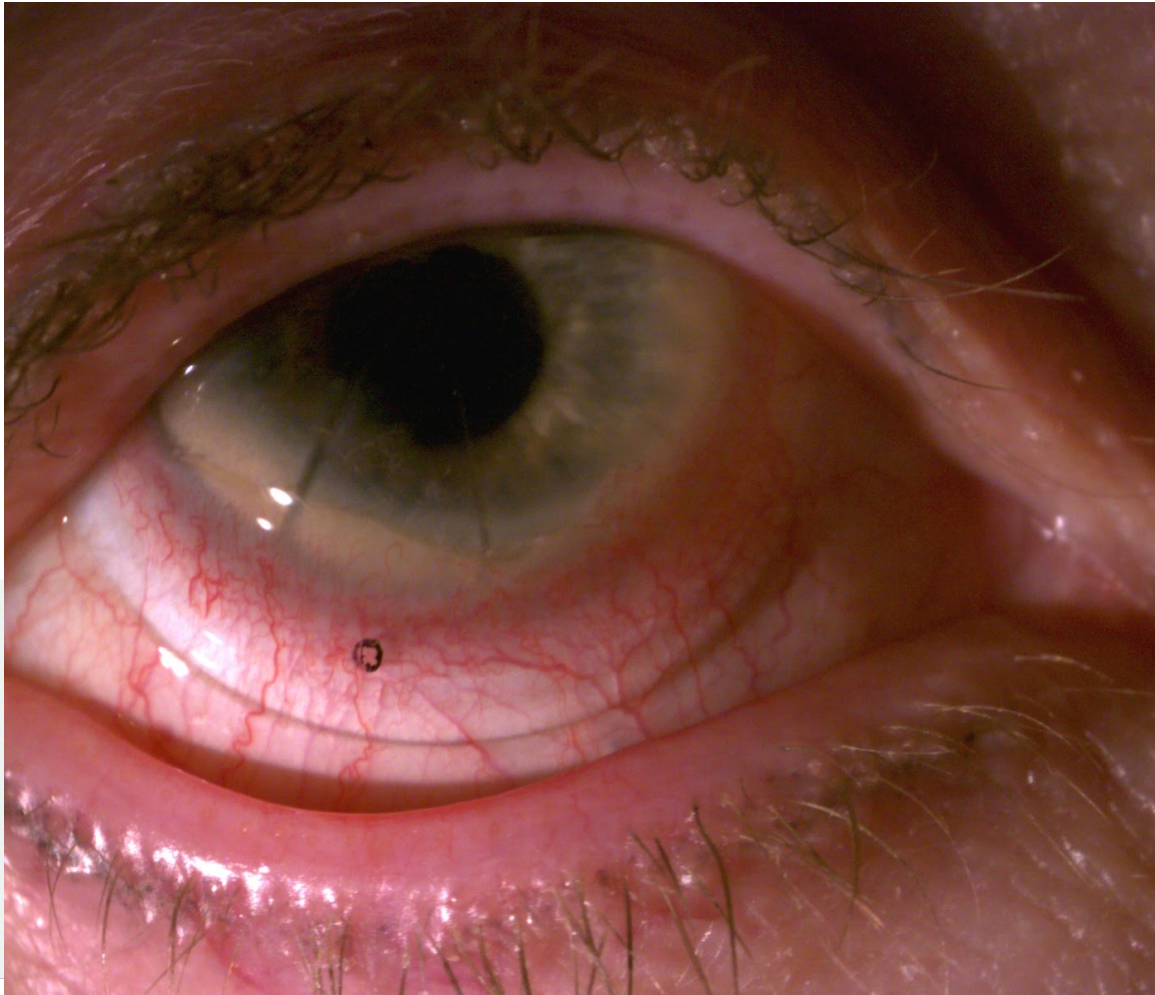
CONJUNCTIVAL REDNESS



Irritation from Lens Edge

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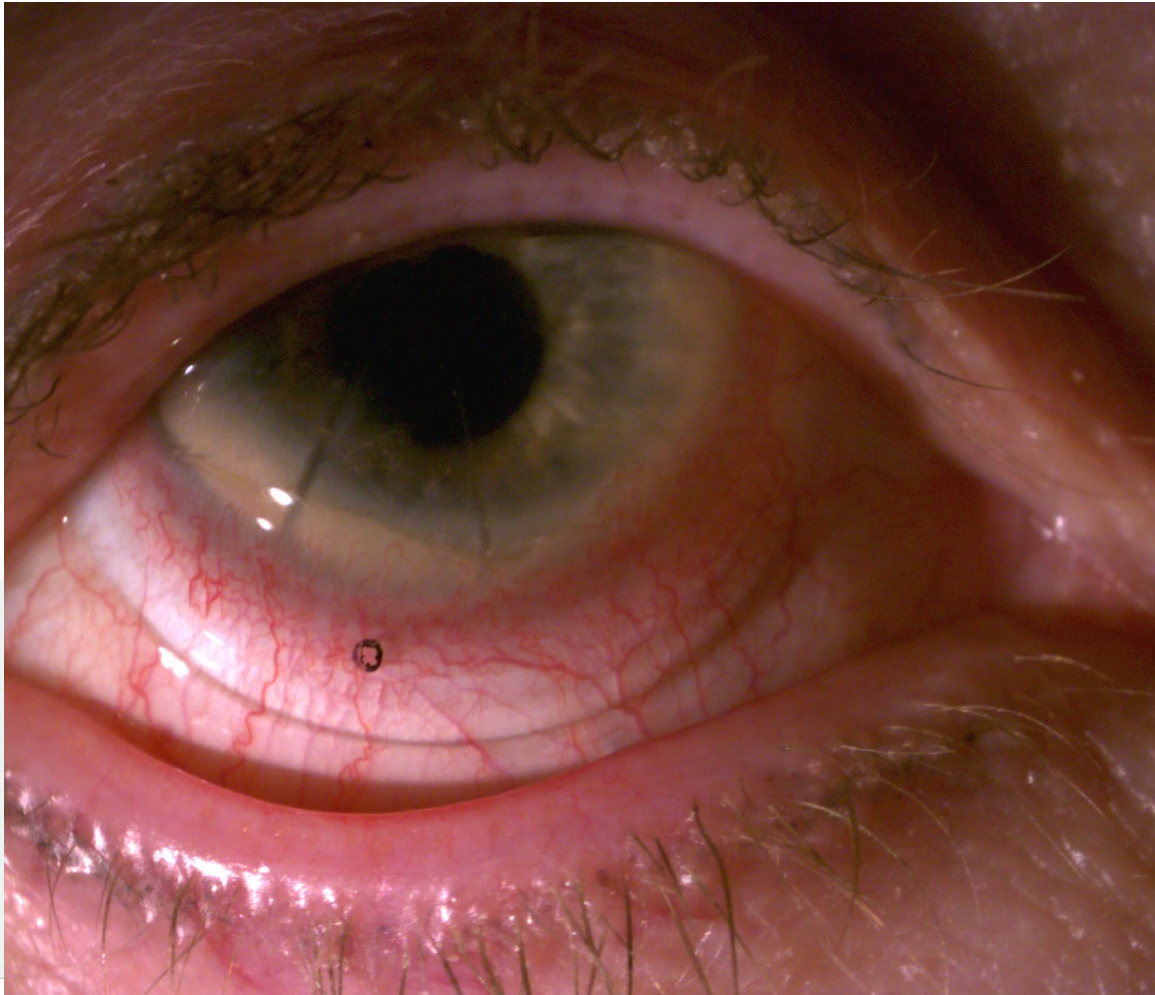
CONJUNCTIVAL REDNESS



Conjunctival Congestion & Limbal Redness

- Suction forces
- Conjunctival chalasis

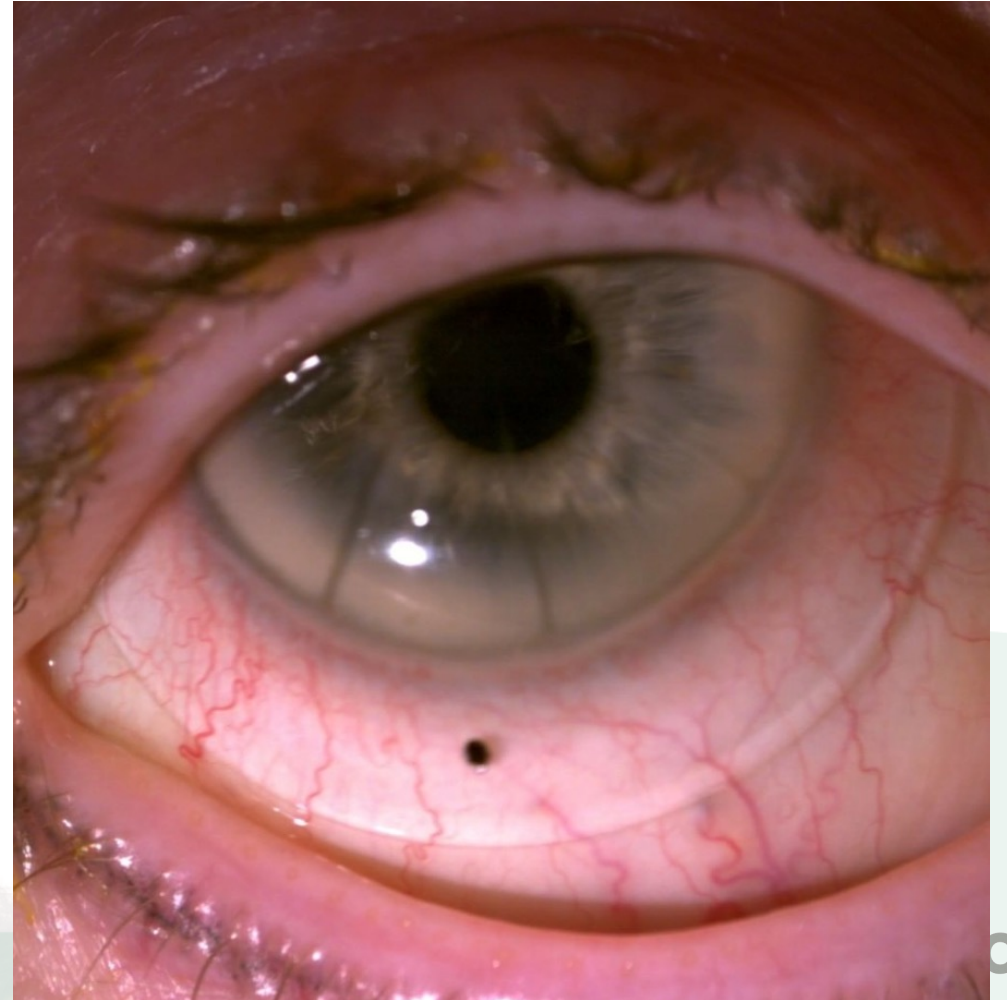
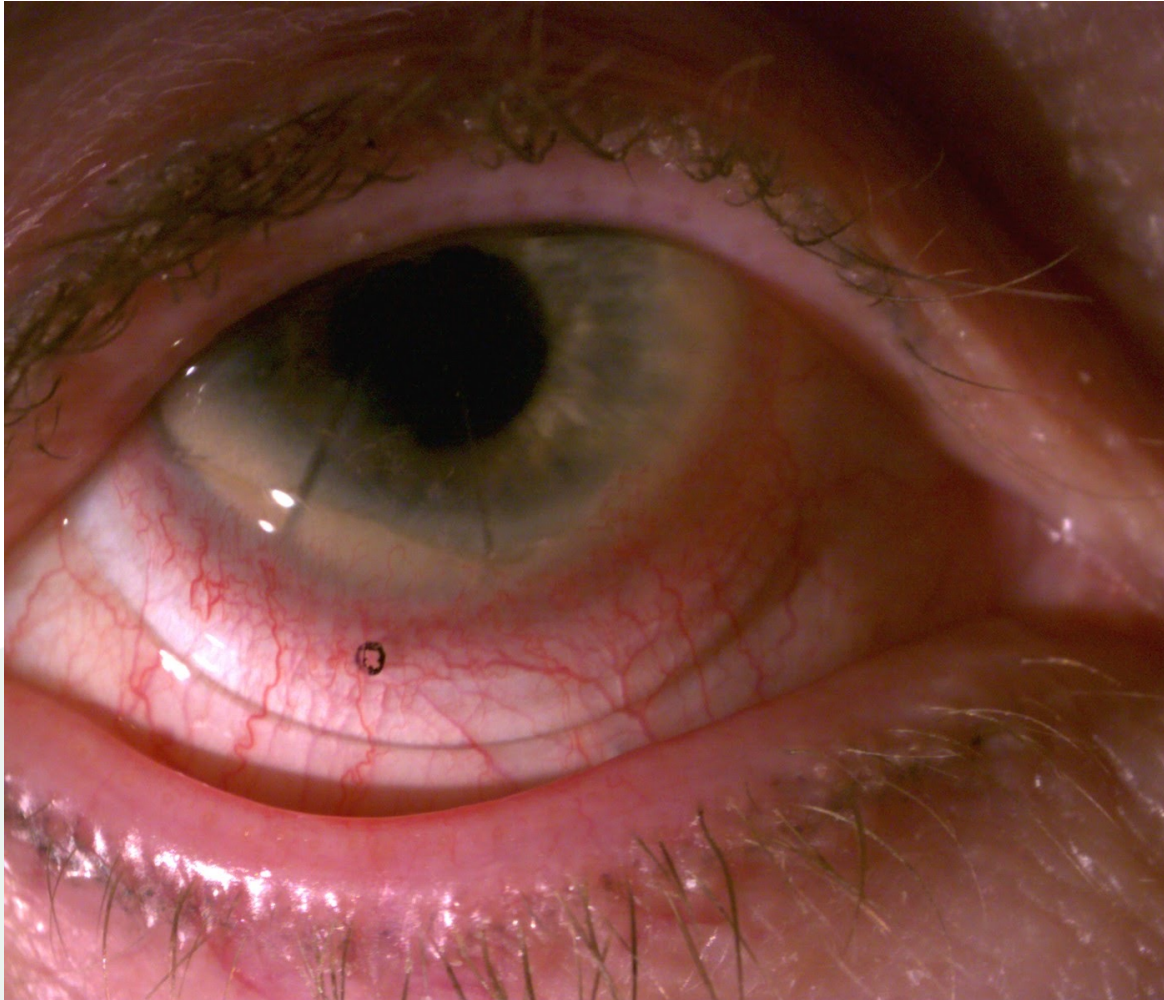
CONJUNCTIVAL REDNESS



Conjunctival Congestion & Limbal Redness

- Adjust overall clearance
- Decrease limbal clearance
- Fenestrations
- Increase diameter

CONJUNCTIVAL REDNESS



CUS



Citations

- 1.) Postnikoff C, Pucker A, Laurent J et al. Identification of Leukocytes Associated With Midday Fogging in the Post-Lens Tear Film of Scleral Contact Lens Wearers. Invest Ophthalmol Vis Sci. 2019 Jan 2;60(1):226-233)
- 2.) Skidmore K. Tear Exchange and Midday Fogging. Thesis 2017. College of Optometry. University of Houston.

Thank You!

Questions?

Dr. Caitlin Morrison, OD, FAAO, FSLs

7301 E. 2nd St., Suite 110 • Scottsdale, AZ 85251

Tel. 480-420-4243 • Fax. 480-454-8746

office@youreyesinfocus.com

www.youreyesinfocus.com

