On behalf of Vision Expo, we sincerely thank you for being with us this year.

Vision Expo Has Gone Green!

We have eliminated all paper session evaluation forms. Please be sure to complete your electronic session evaluations online when you login to request your CE Letter for each course you attended! Your feedback is important to us as our Conference Advisory Board considers content and speakers for future meetings to provide you with the best education possible.

VISION EXPO

Financial Interest Disclosure

September 15th, 2022


Michael Gzik FCLSA,ABO/NCLE

Biomicroscope Usage in a Contact Lens Practice

Slit Lamp Illuminations

- Indirect
- Parallel Piped
- Diffused
- Optic Section
- Retro Direct
- Retro Indirect

- Sclerotic Scatter
- Conical Beam
- Specular Reflection

Slit Lamp (Biomicroscope)

THE BIOMICROSCOPE (SLIT lamp)

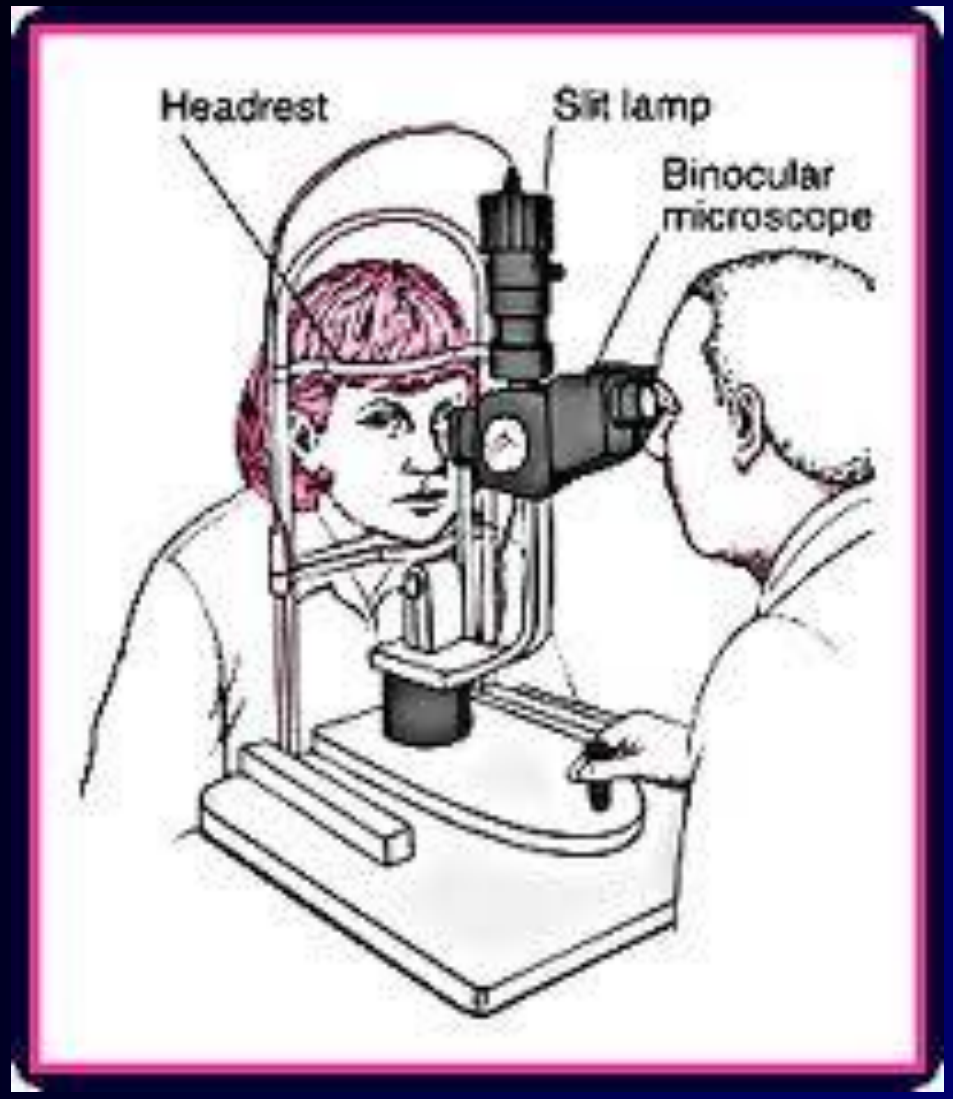
Cont...

Parts of mechanical system :

FOCUS THE OCULARS

FOCUS THE EYEPIECE TO YOUR EYE

Slit Lamp Exam

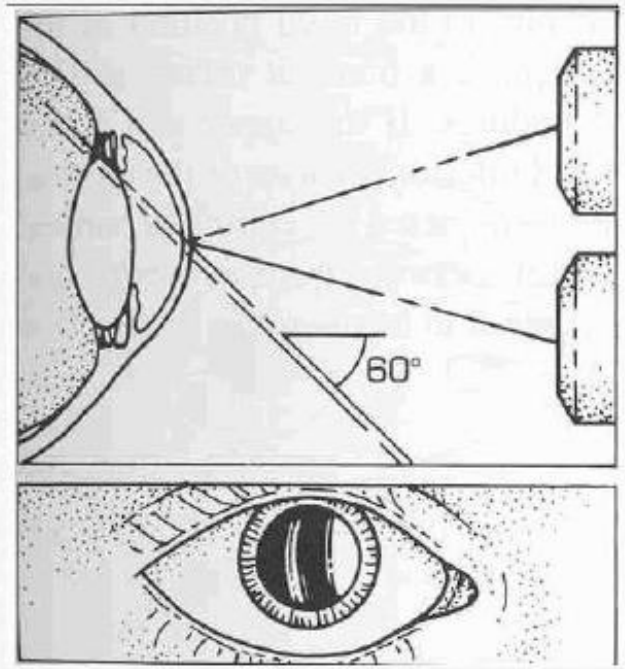


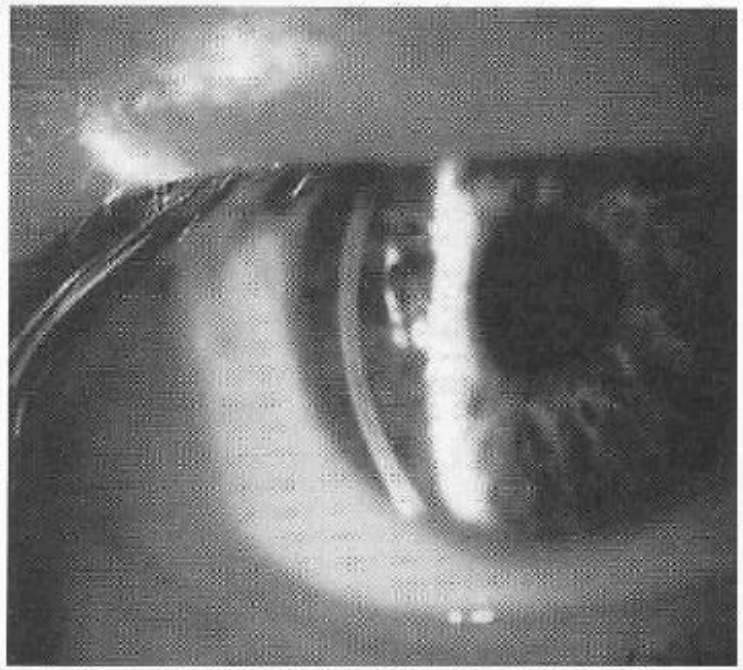
INDIRECT

- Set up: 60 degree angle….. Decreasing as you scan nasally
- Keep light temporally
- Oculars: Straight on
- Light Beam: white, 2 – 3 mm width, Full Length
- Observing bright band…. Right and left and at the light

Indirect Illumination

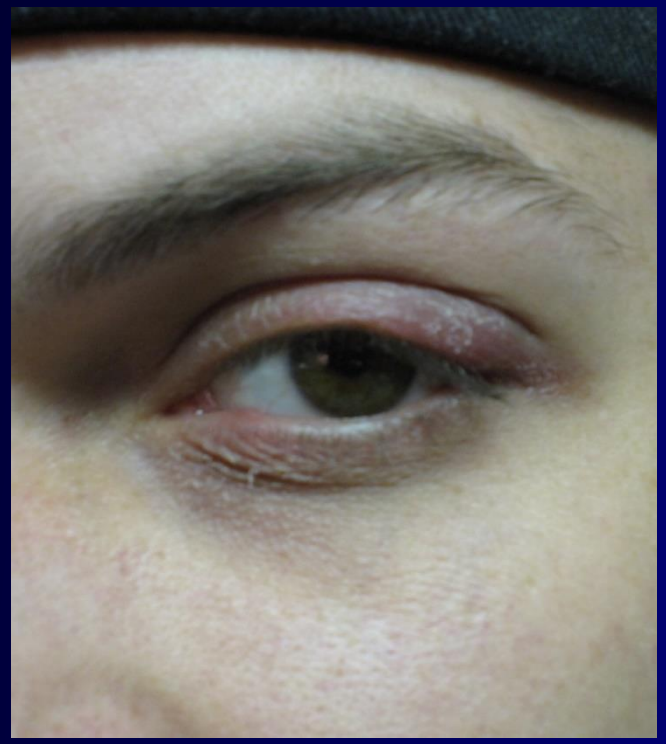
Beam

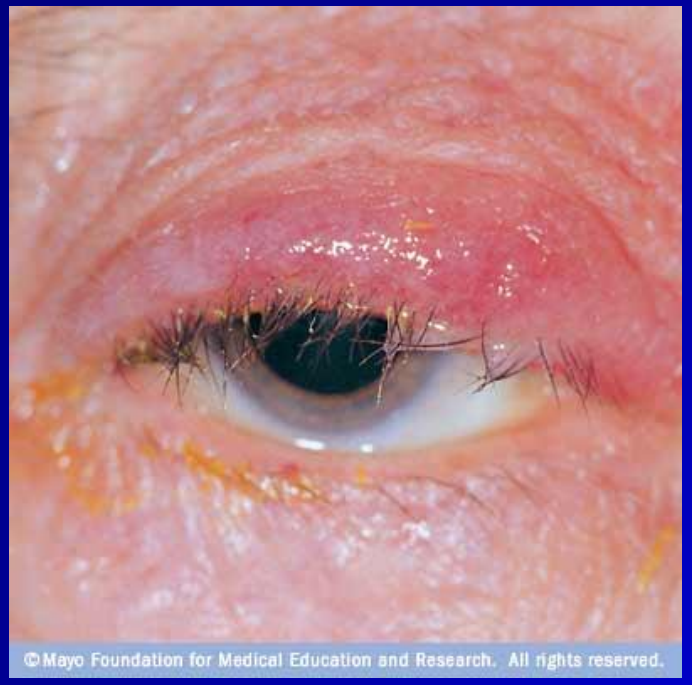




Indirect Illumination

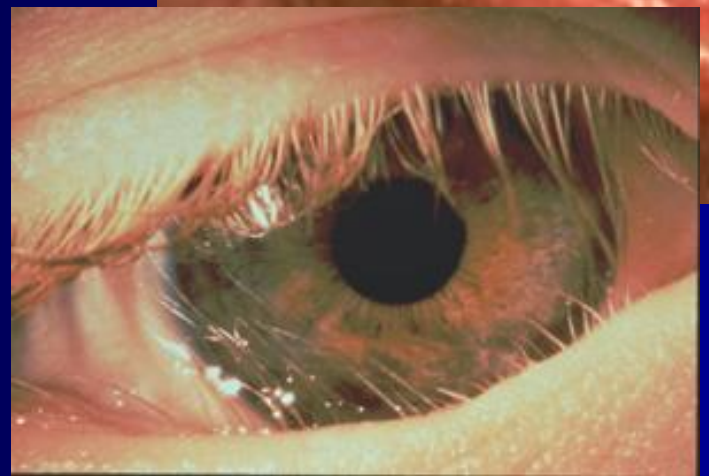
- Looking at Lids and Lashes for
  - Blepharitis





- Looking at Lids and Lashes (Continued):
- Chalazion

Ectropion

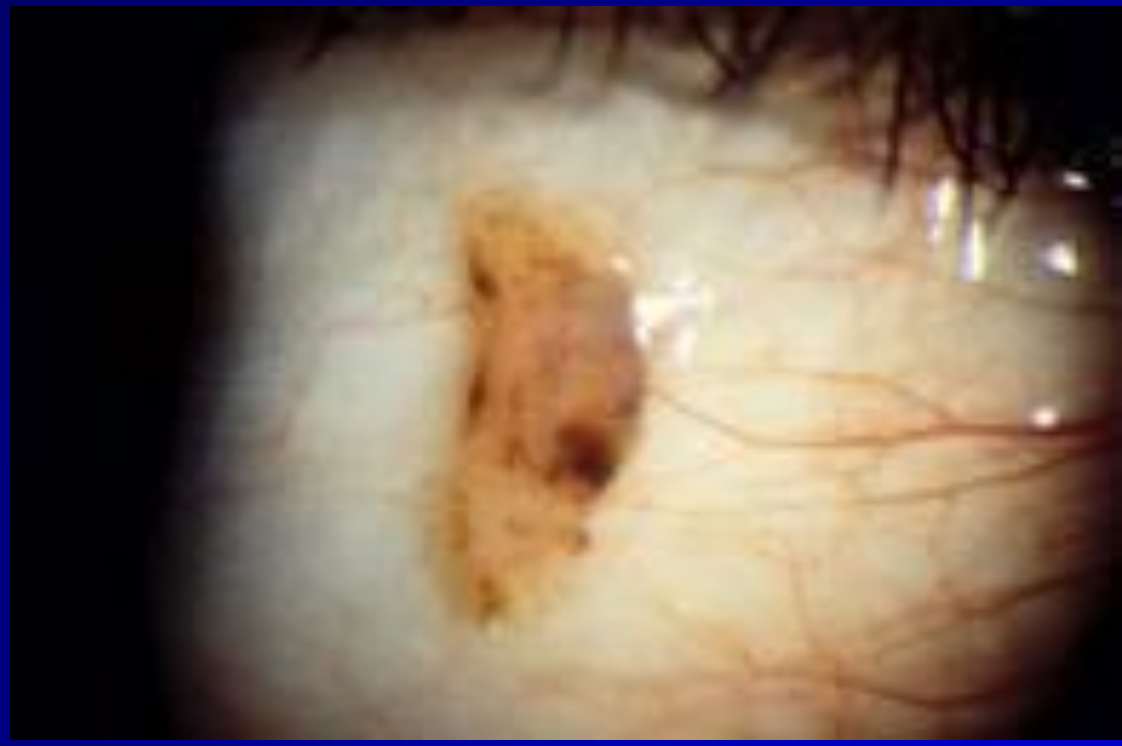


Entropion

Indirect Illumination

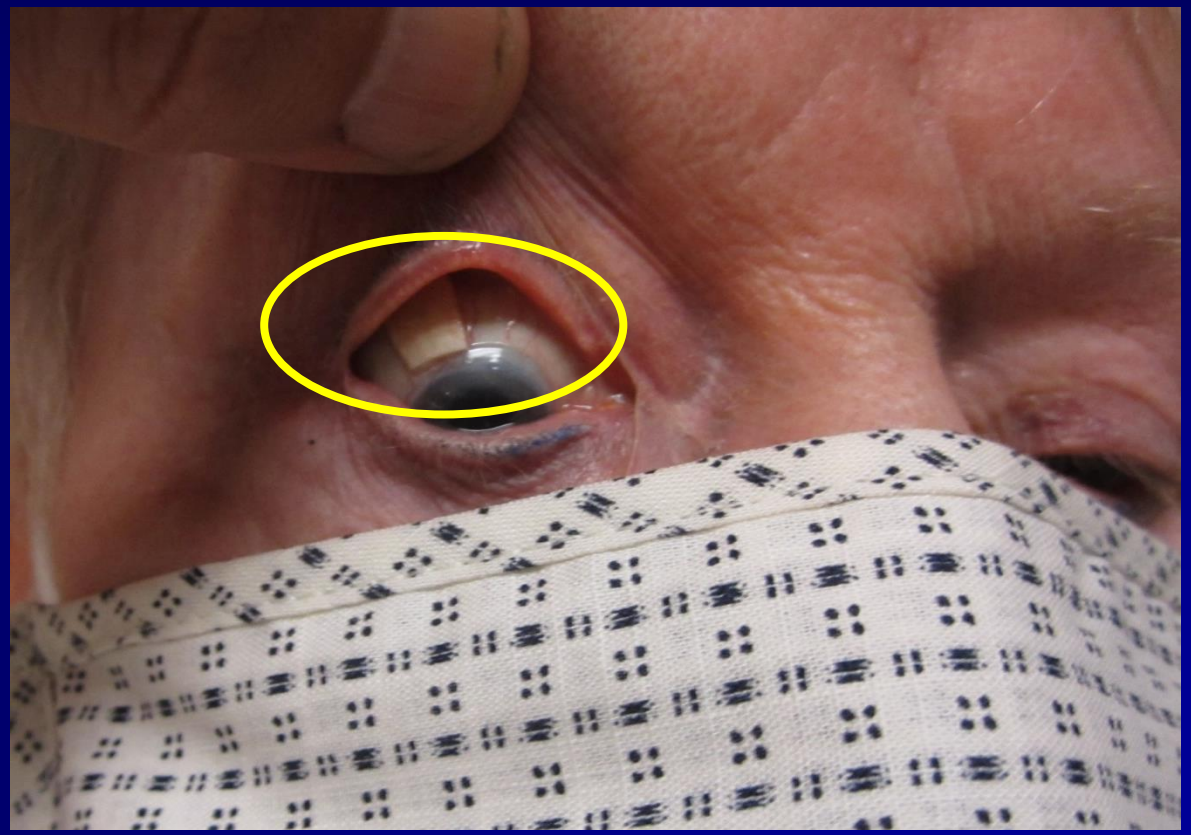
- Looking at the Sclera:
- Injection

Nevus



Camilla B.

- Phaco with IOL
- AHMED ® GLAUCOMA VALVE

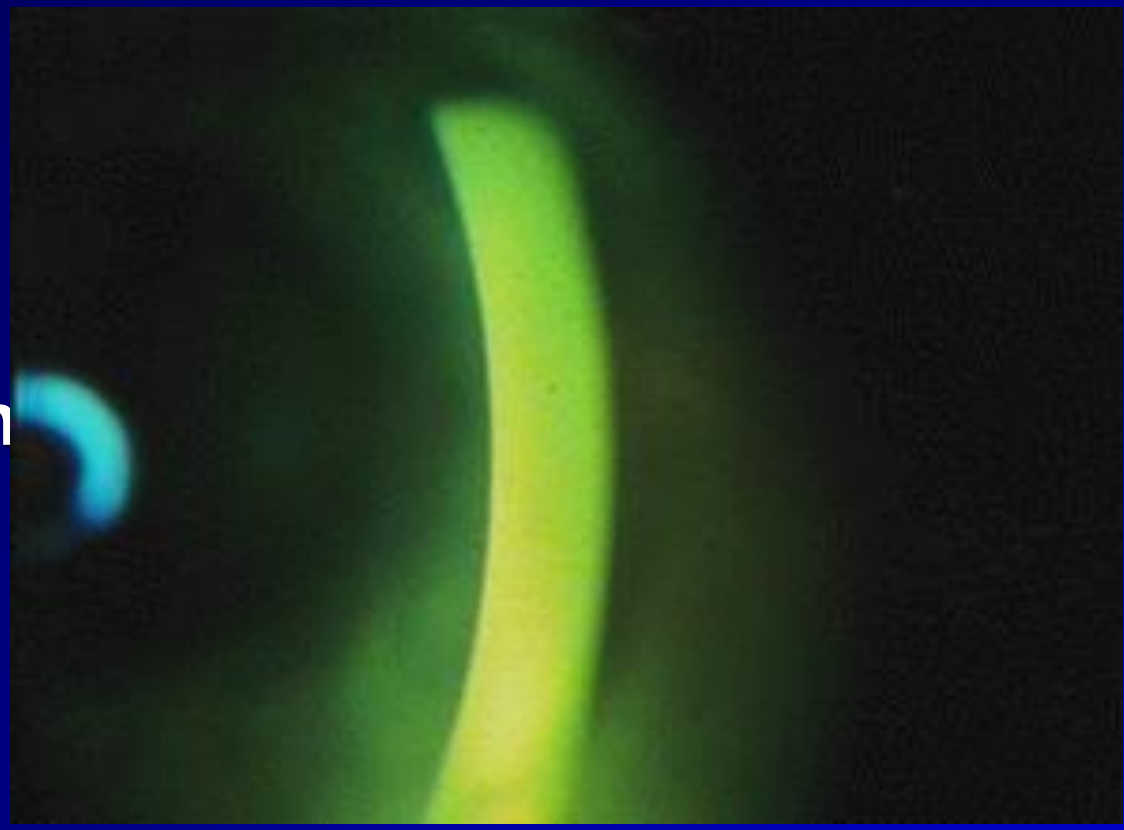


Parallel Piped

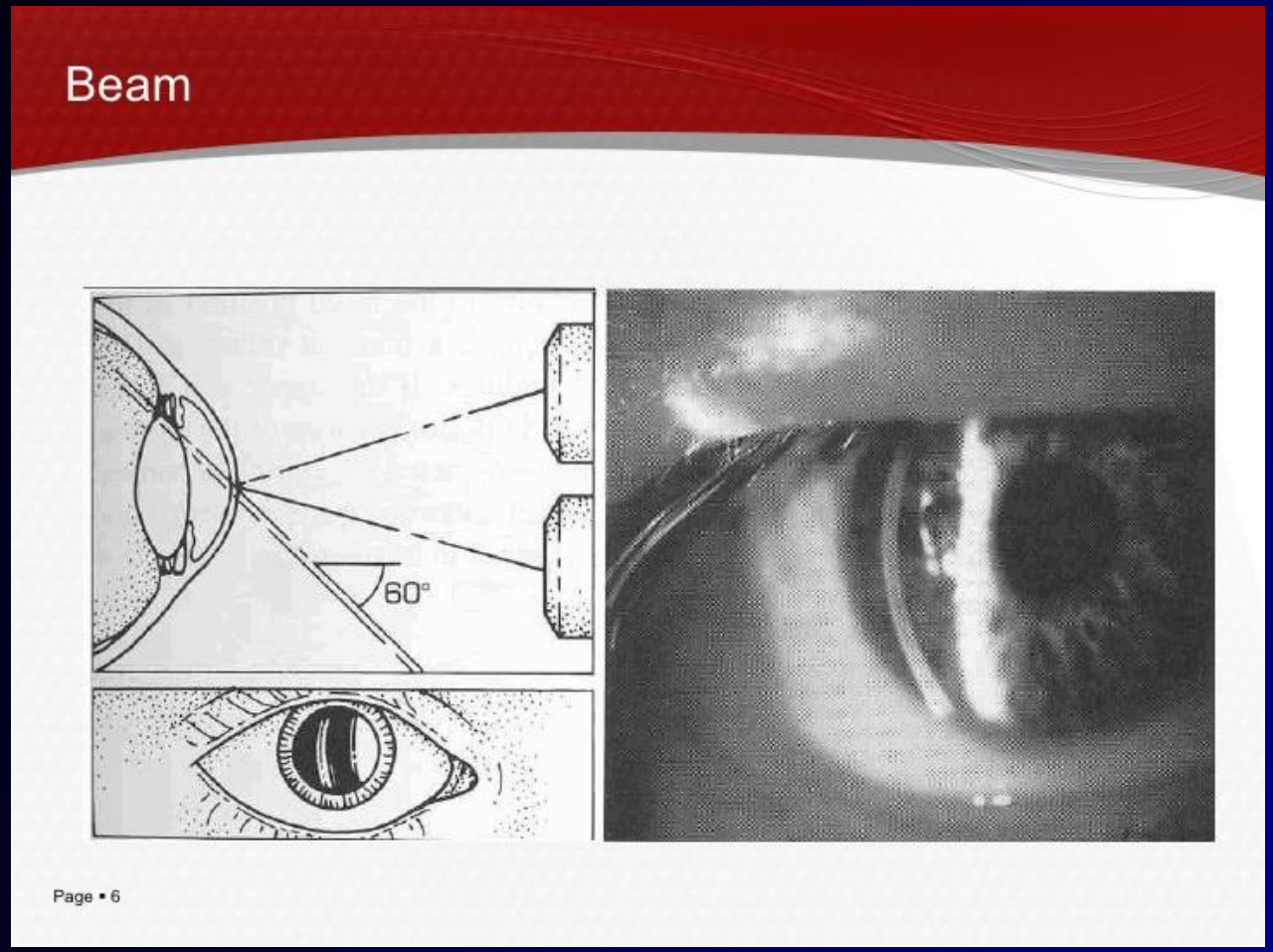
- Used to examine the cornea and the contact lens
- Work horse illumination
- 2 Parallel light band
  - Hazy band is cornea
  - Bright band shines through transparent cornea

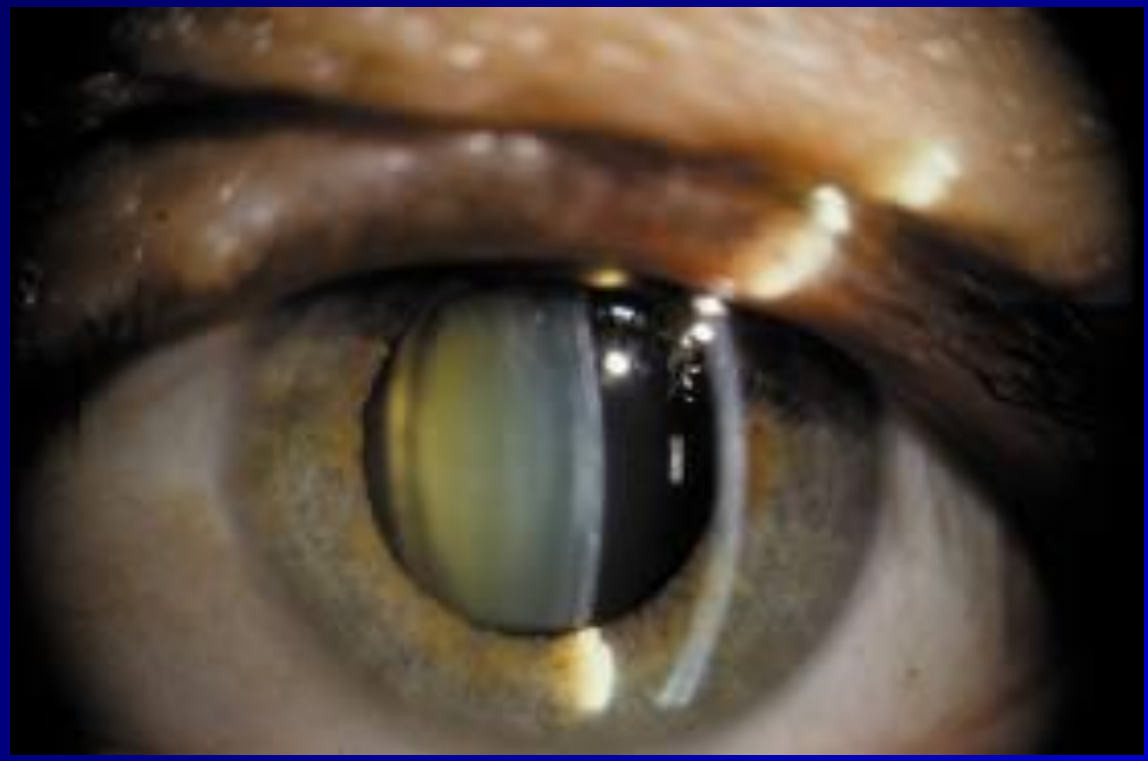
Parallel Piped

- Set up: 45 degree angle
- Oculars: Straight On
- Light Beam: 2-3 mm width with white or blue when using Flourescein
- Observing: Hazy Band
- Scan from Temporal past the Pupil and then FLIP the light source to 45 degrees nasal and RESCAN the nasal Cornea



Parallel Piped

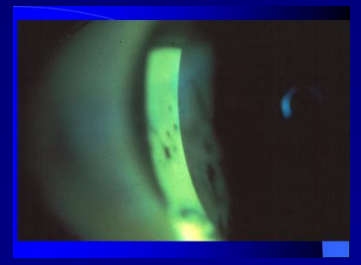




Observations:

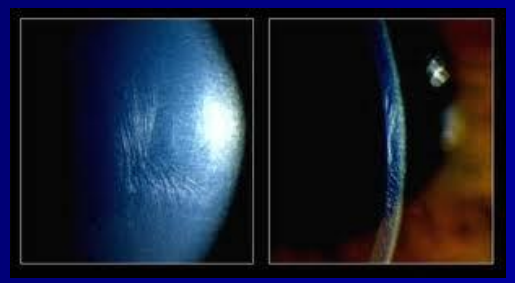
- The CORNEA:
- Staining

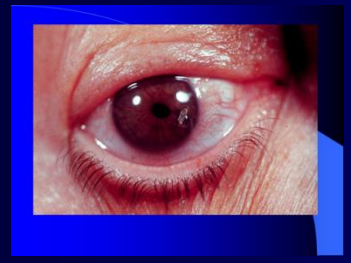
Tears



Imbedded Foreign Body

Scar Tissue

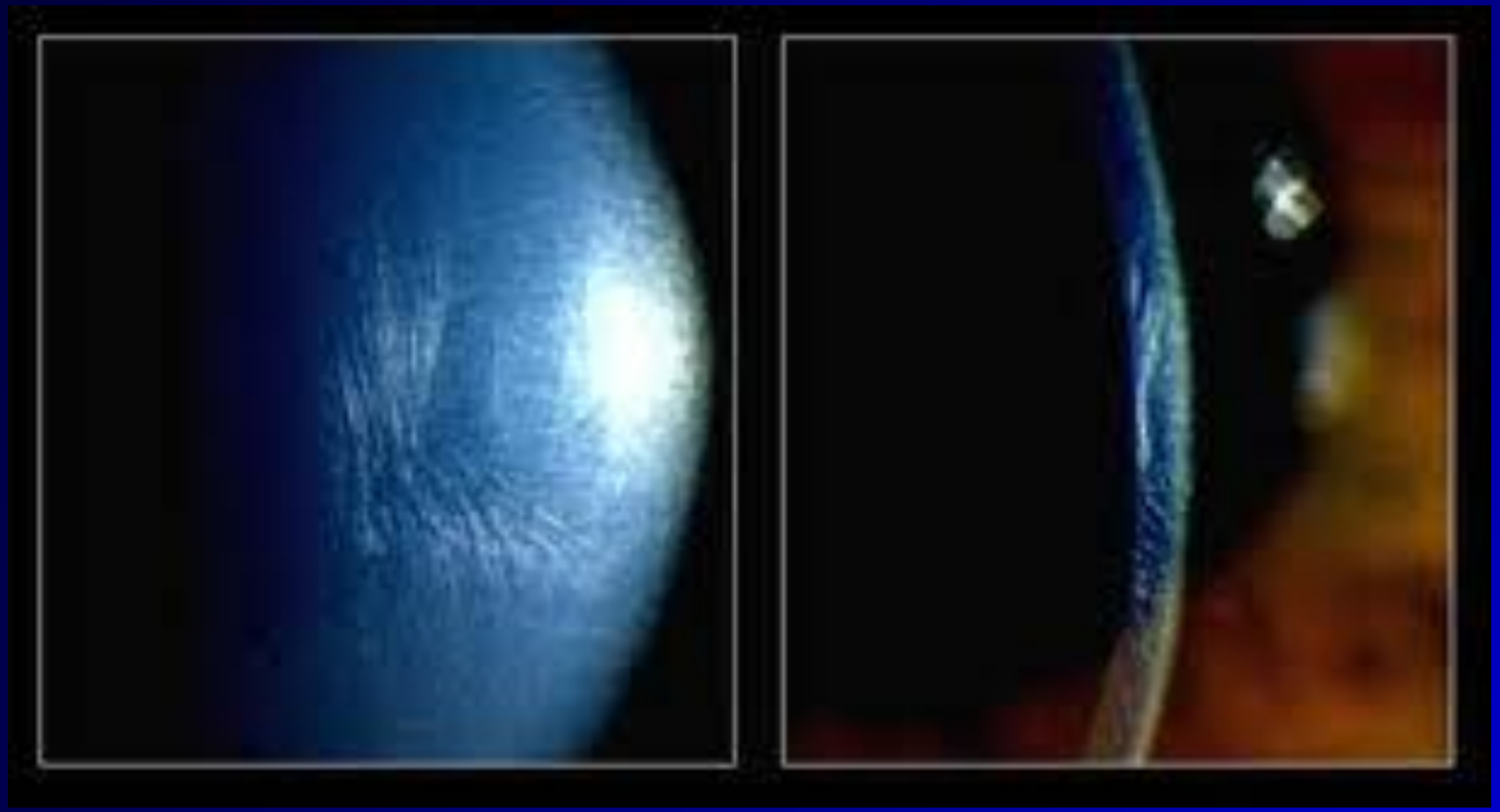




Vertical Striae

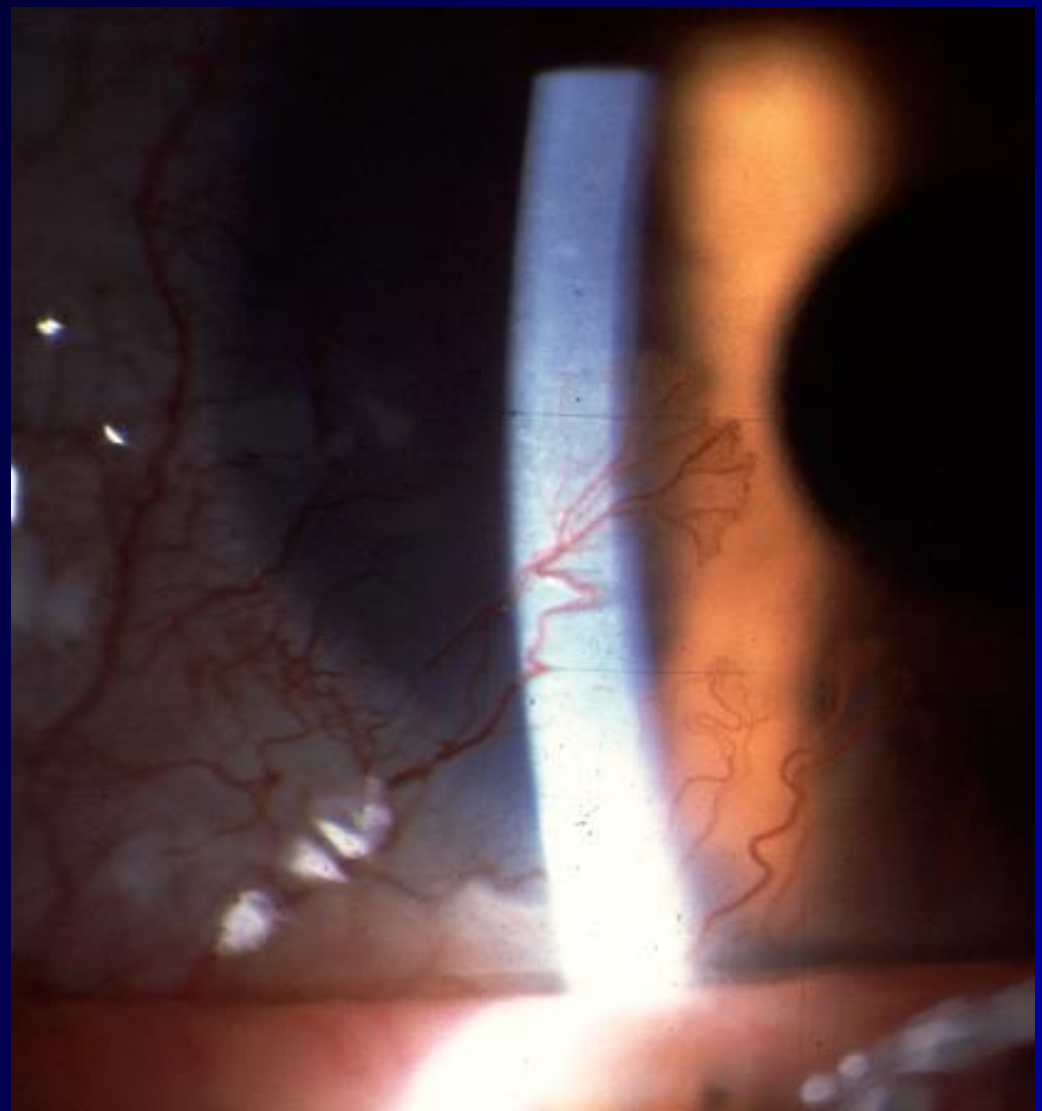
Observations:

- **The CORNEA:**

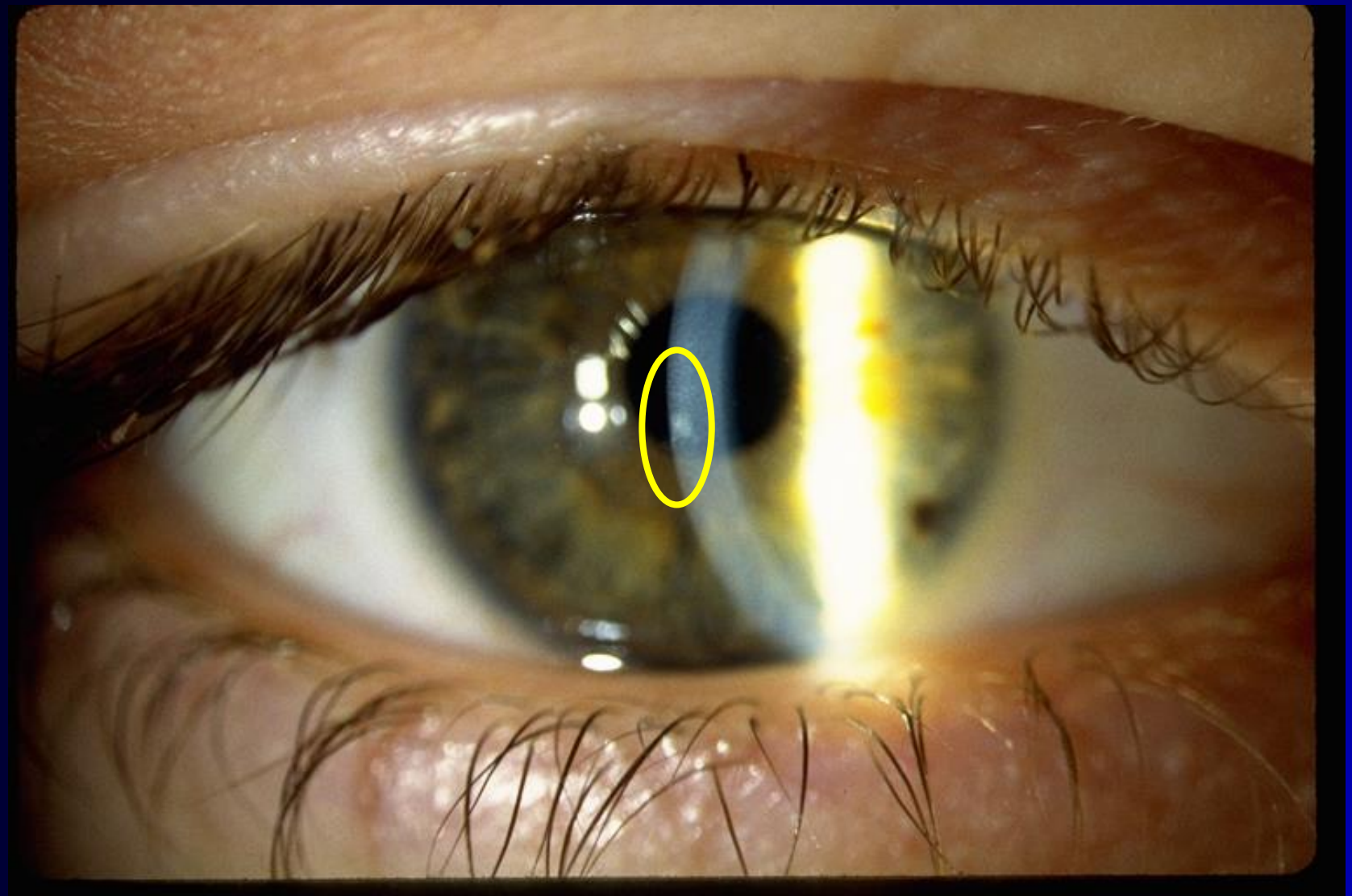


Vertical Striae

Stromal Vascularization

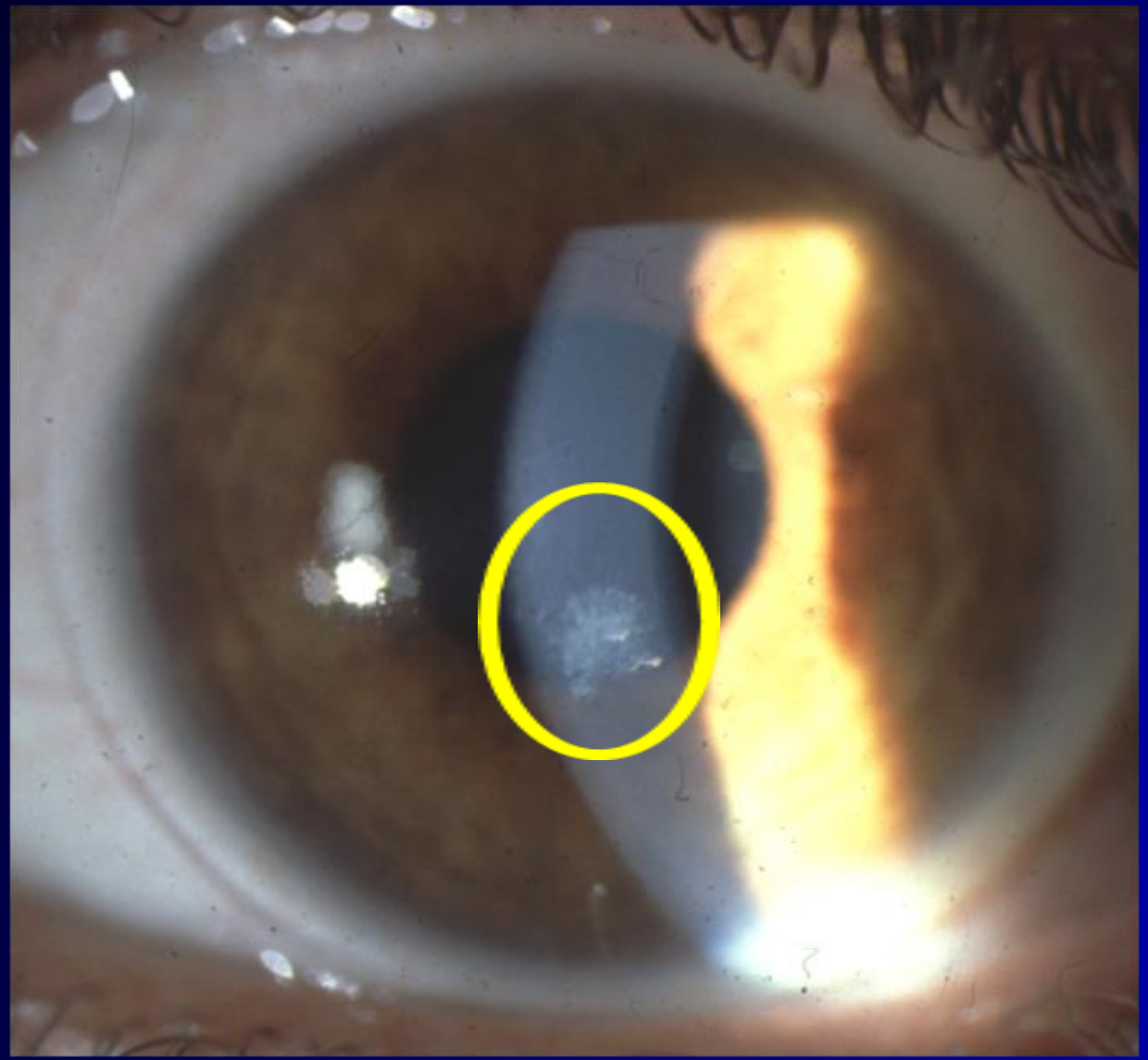


Abrasion & Infiltrate

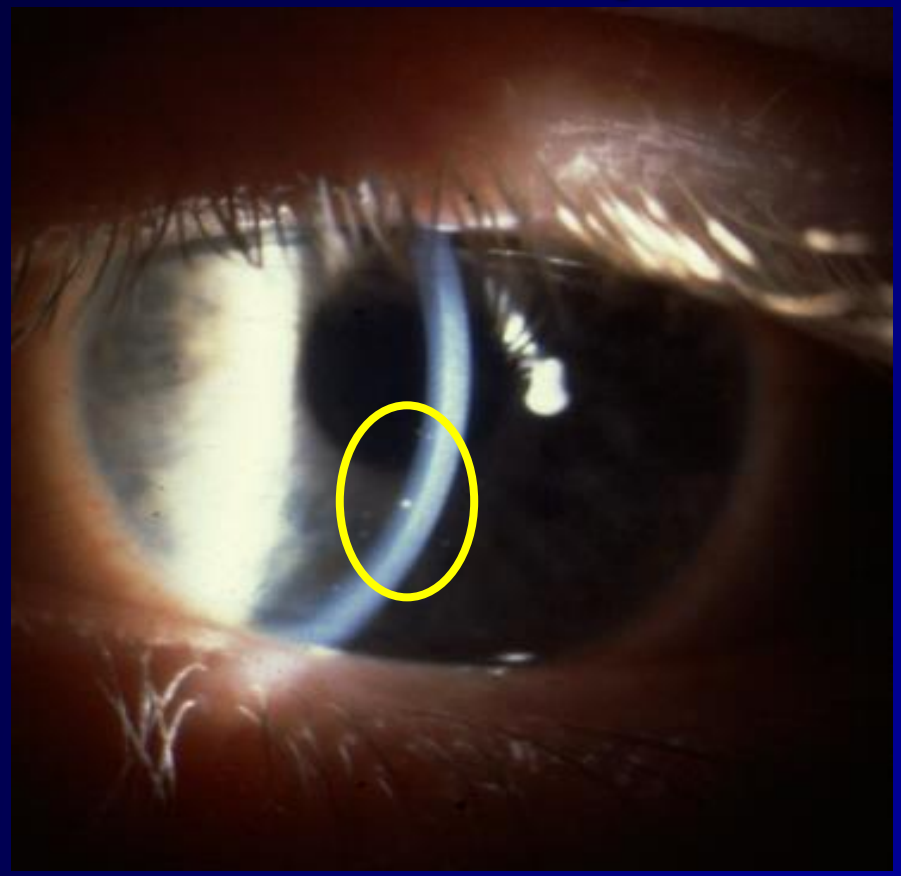


Punctum Plug

CL Abrasion



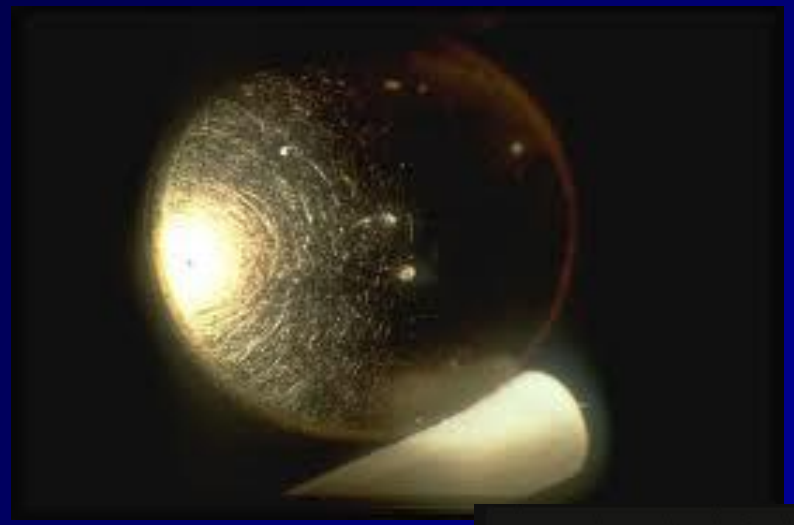
Inflammatory Related Adverse Responses



Keratitis Precipitates

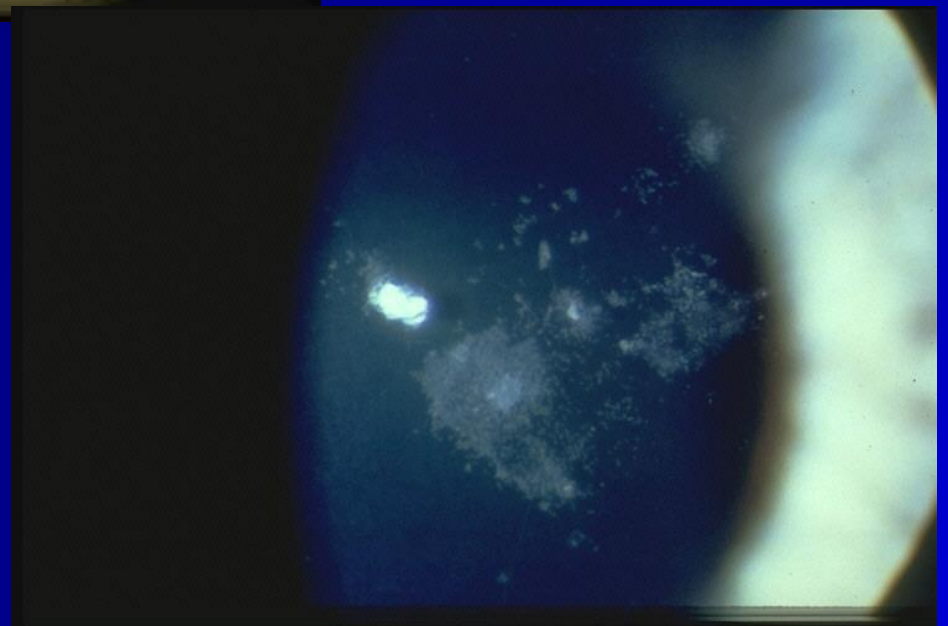
Parallel Piped Observations (Continued)

- Front Surface of the Contact Lens



- Scratches

- Lathe Marks

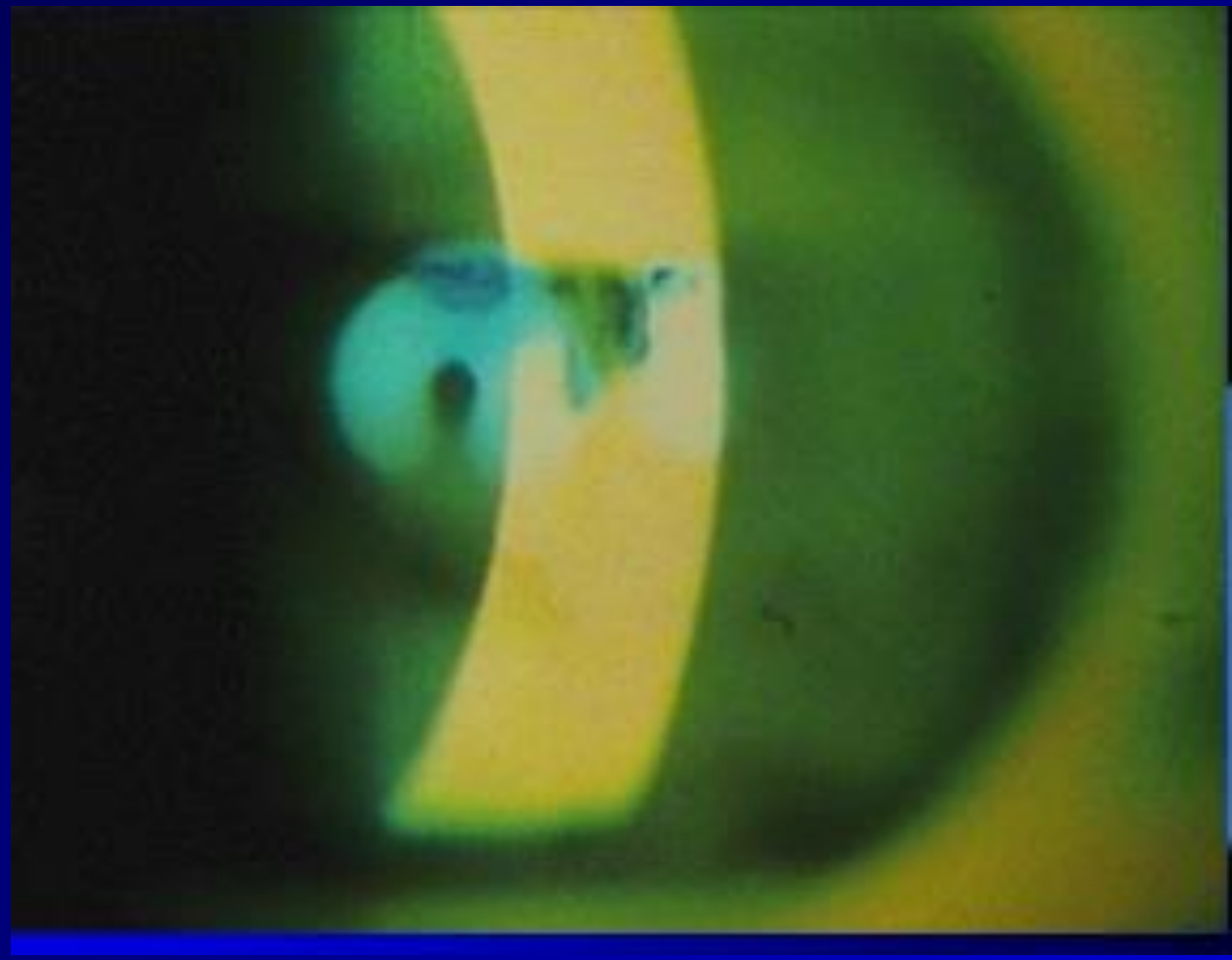


- Lens Deposits

PKP Sutures

Diffused

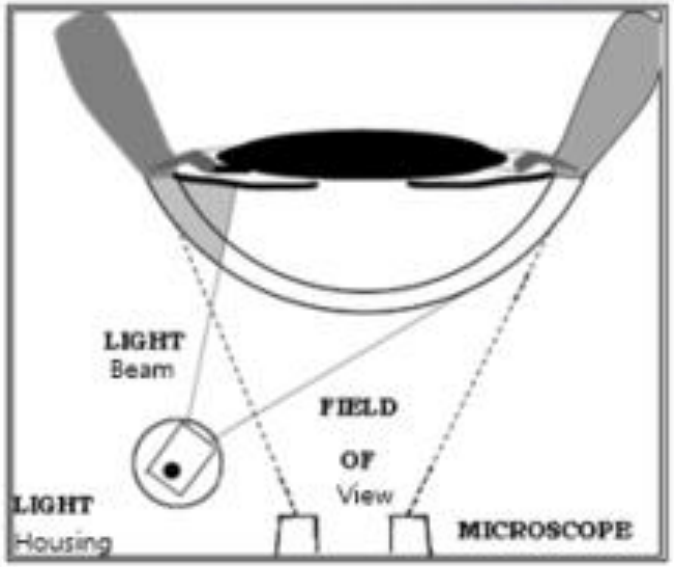
- Set Up: 45 Degree Angle
- Oculars: Straight On
- Light Beam: White light or Blue Filter…4 to 9 mm wide
- Observing the Hazy Band
- NOTE: If the light is NOT wide open….perform as a Parallel Piped…. Switching the light source from nasal to temporal.



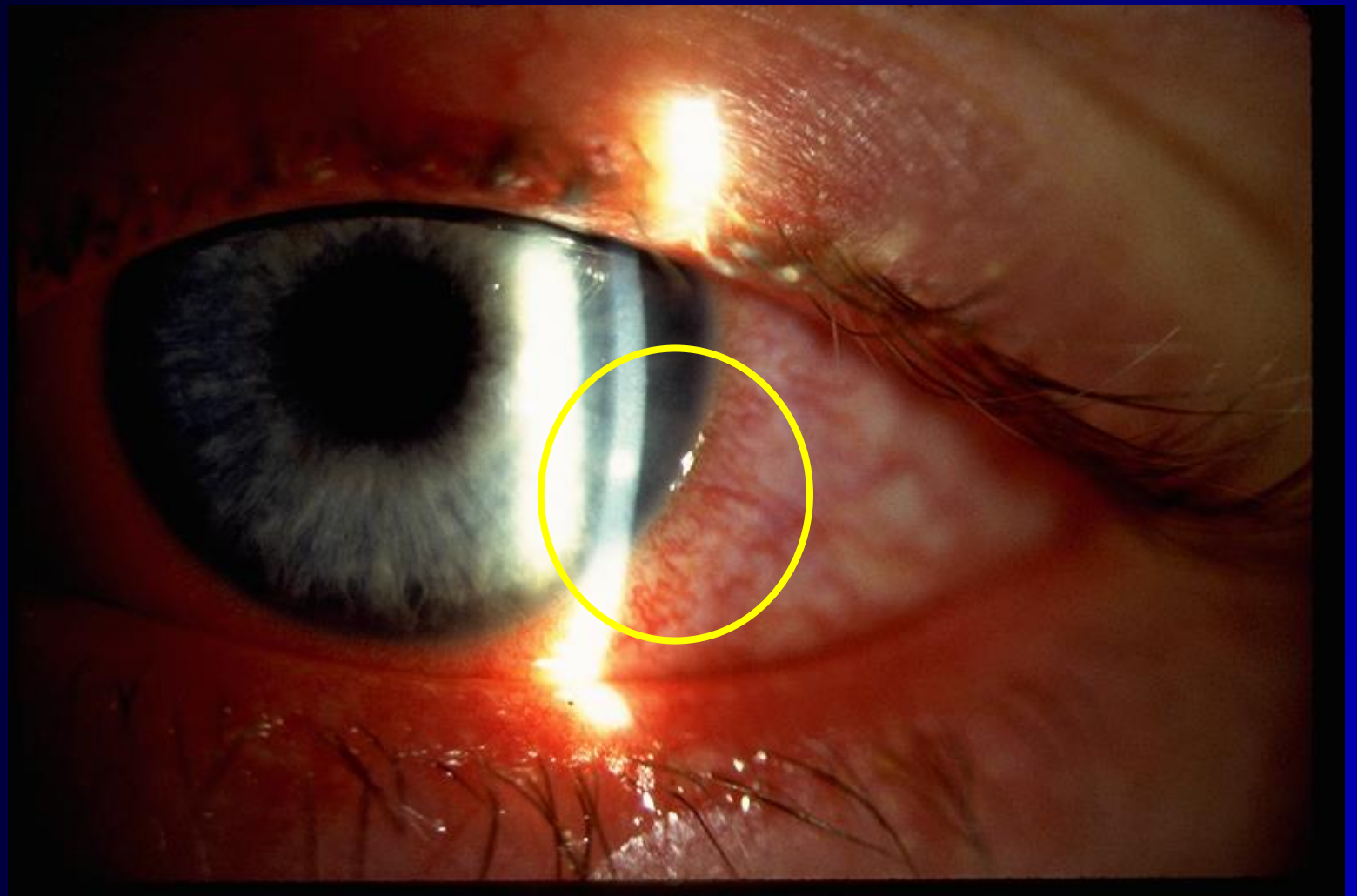
Diffuse Illumination

Diffuse illumination

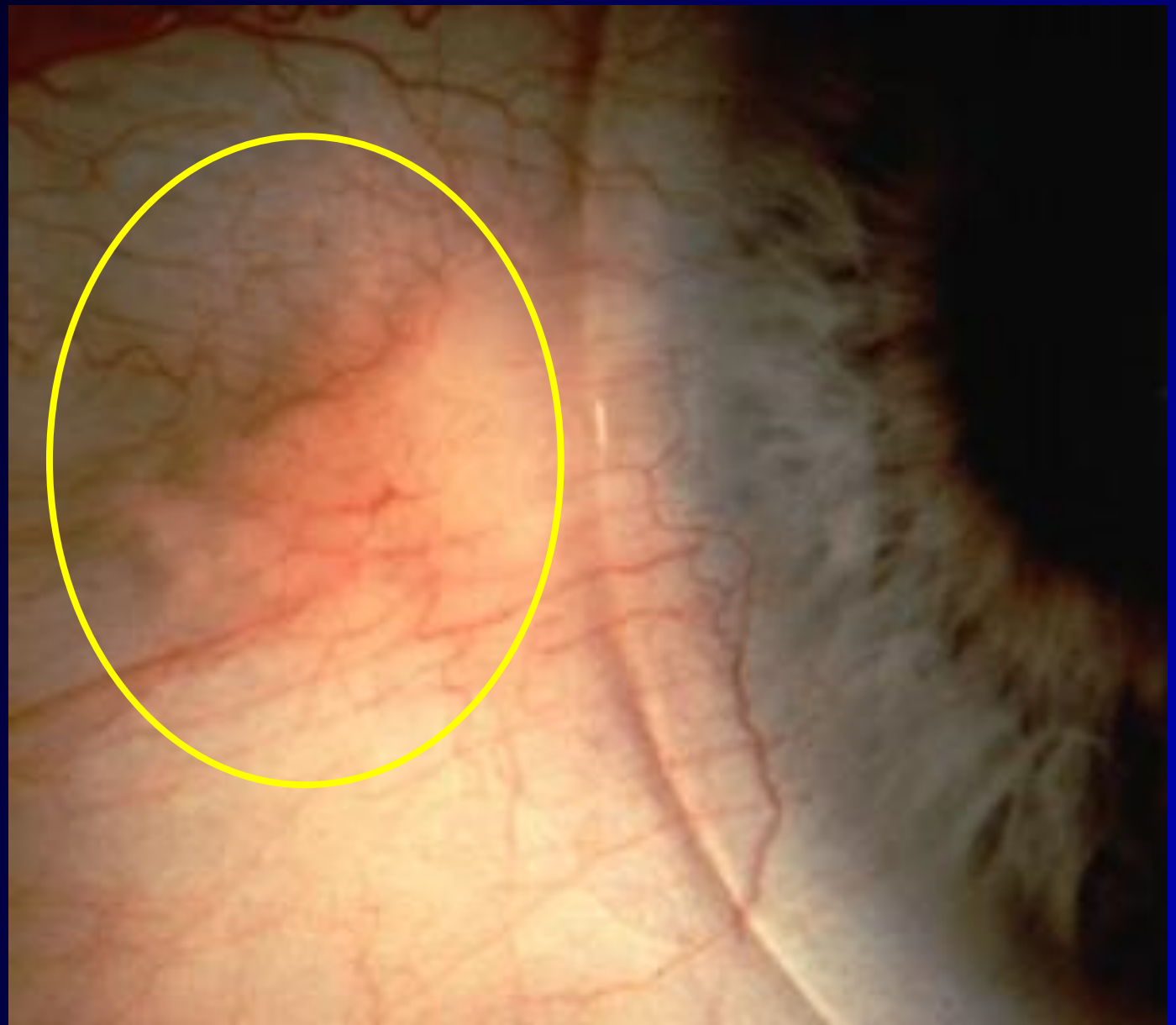
- Uses: Examine lids and lashes and conjunctiva
- Beam angle: Oblique (45-60)
- Beam height: Maximum
- Beam width: 4mm to maximum
- Magnification: Low
- Illumination: Low



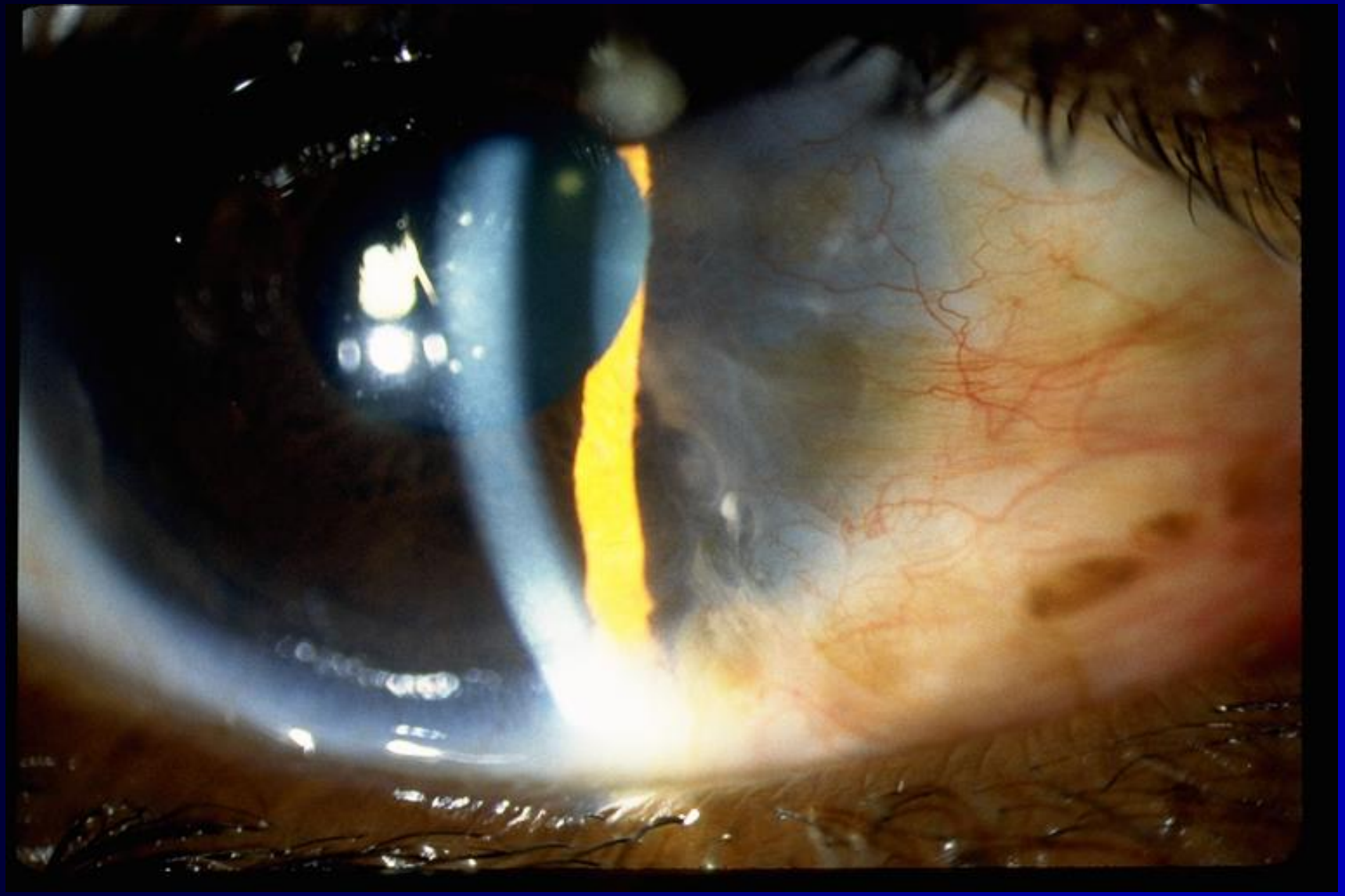
Marginal Infiltrate



Pinguecula

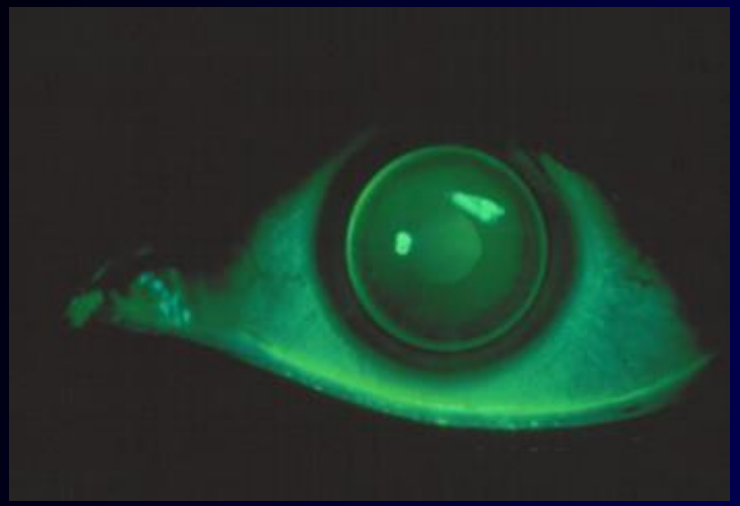


Pterygium

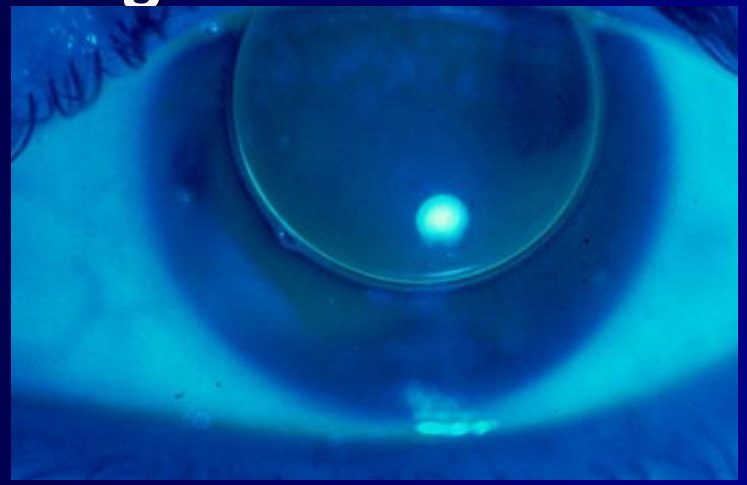


Diffused Observations

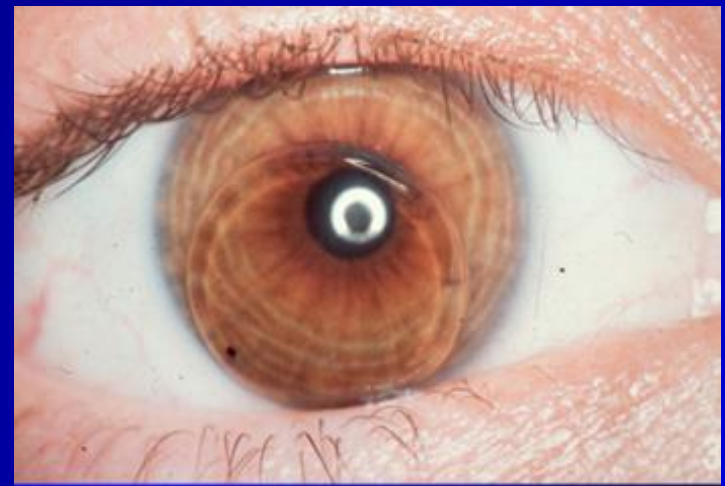
Staining



High



Low



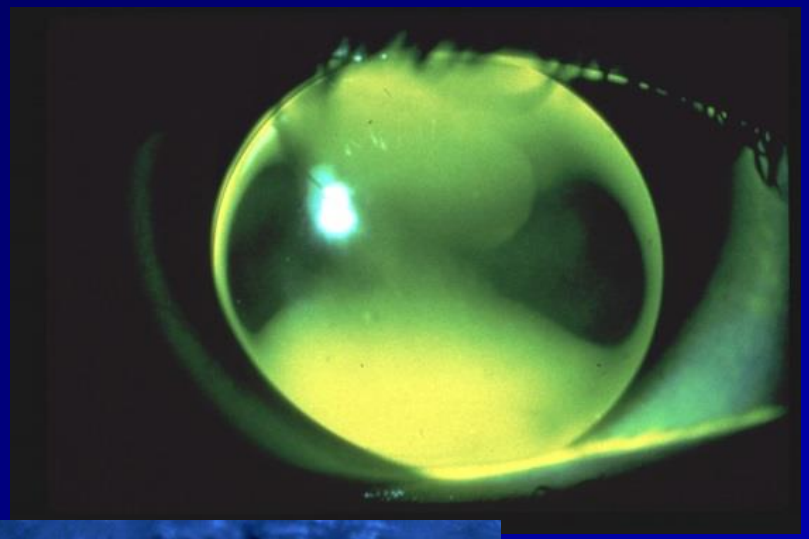
Tear Break Up Time

Negative Staining

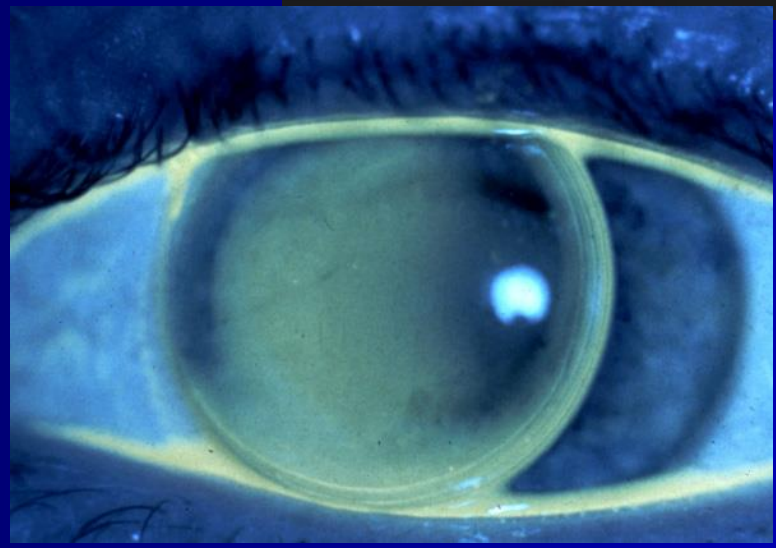
Diffused Observations

- RGP Fit

With the rule Astigmatism

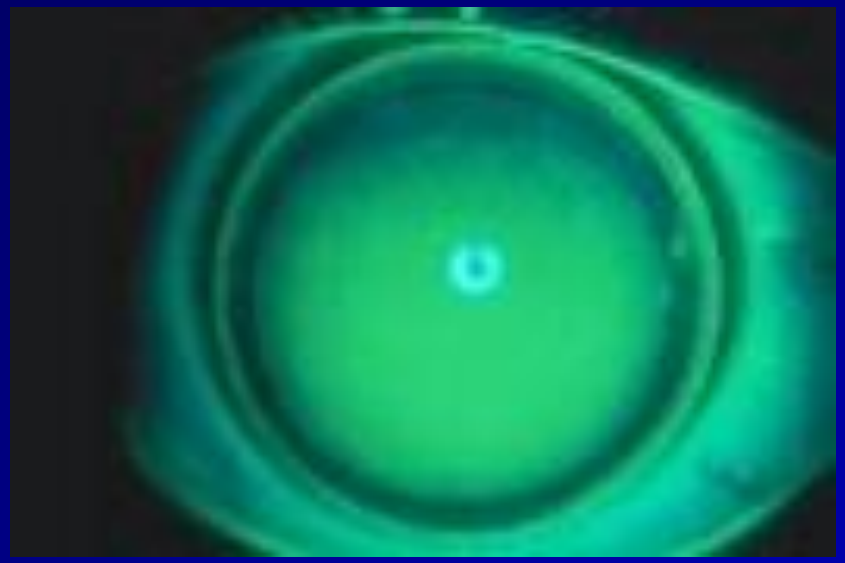


Against the Rule

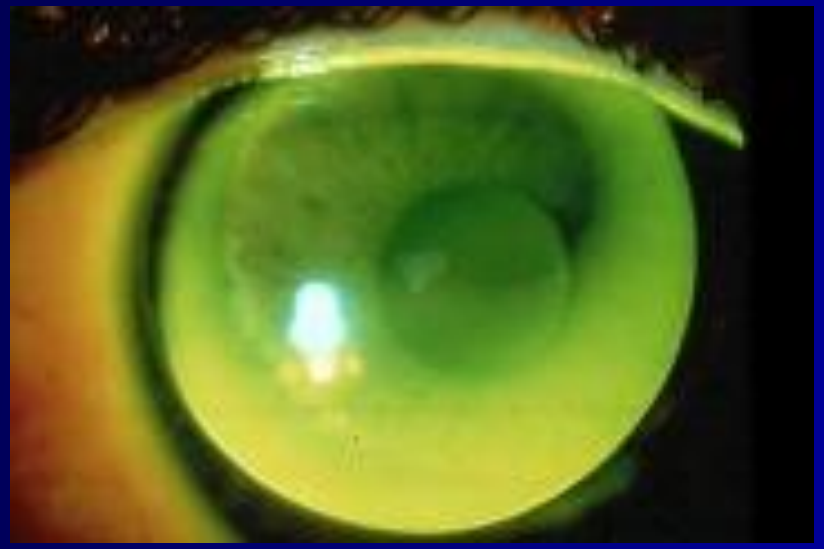


Diffused Observations

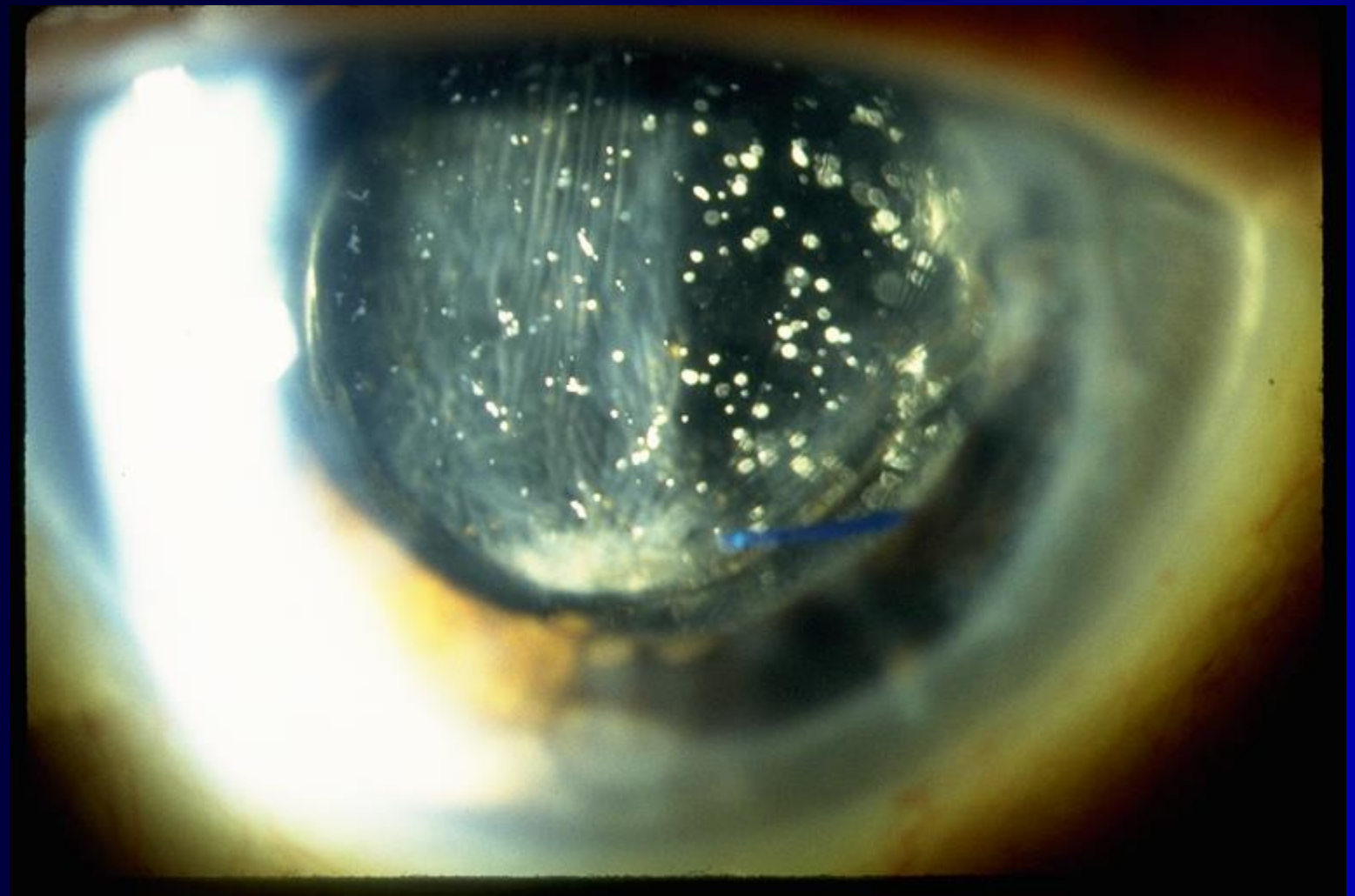
- RGP Fit
  - Steep Lens



  - Flat Lens

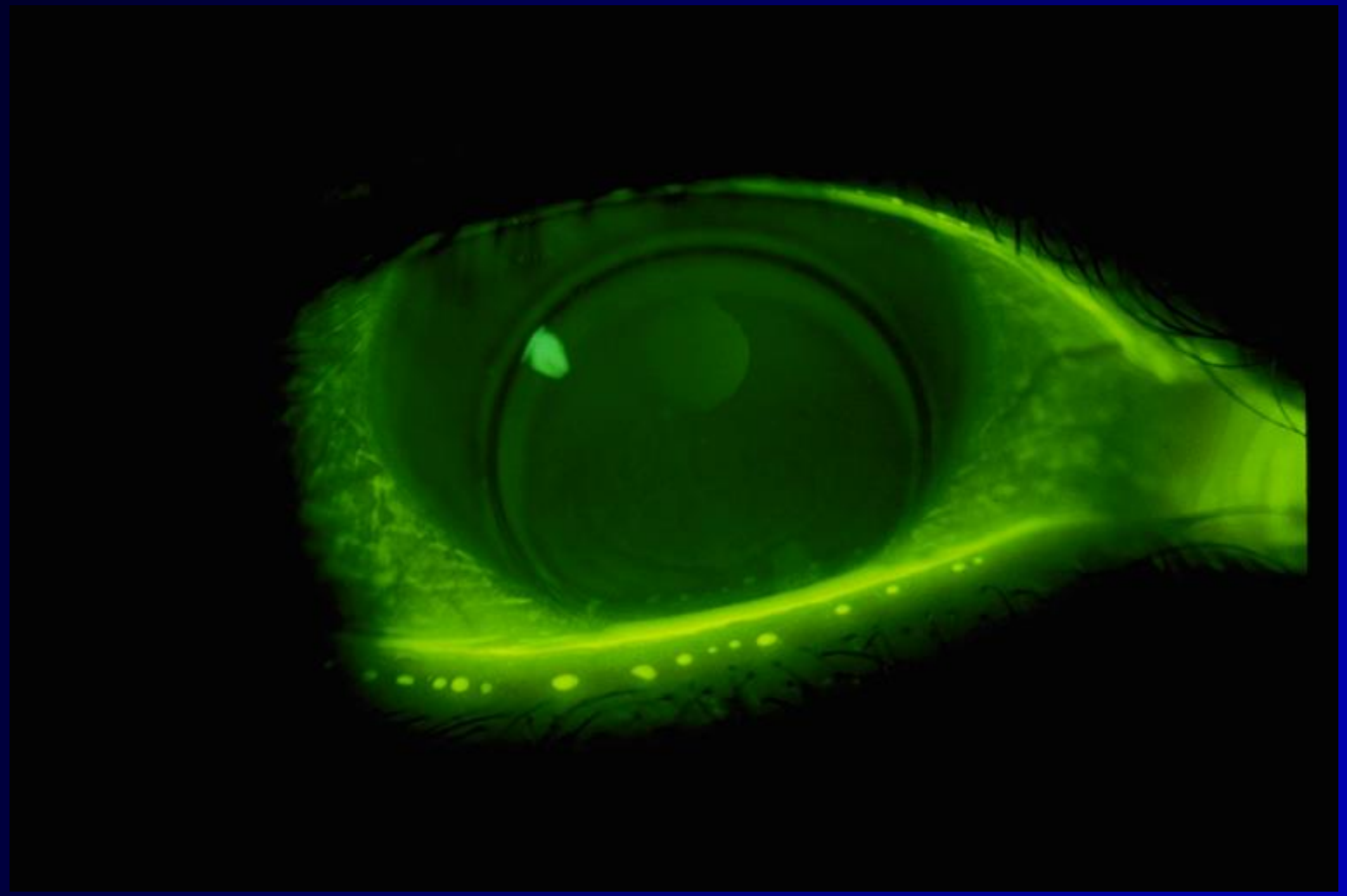


Asteroid Hyalosis

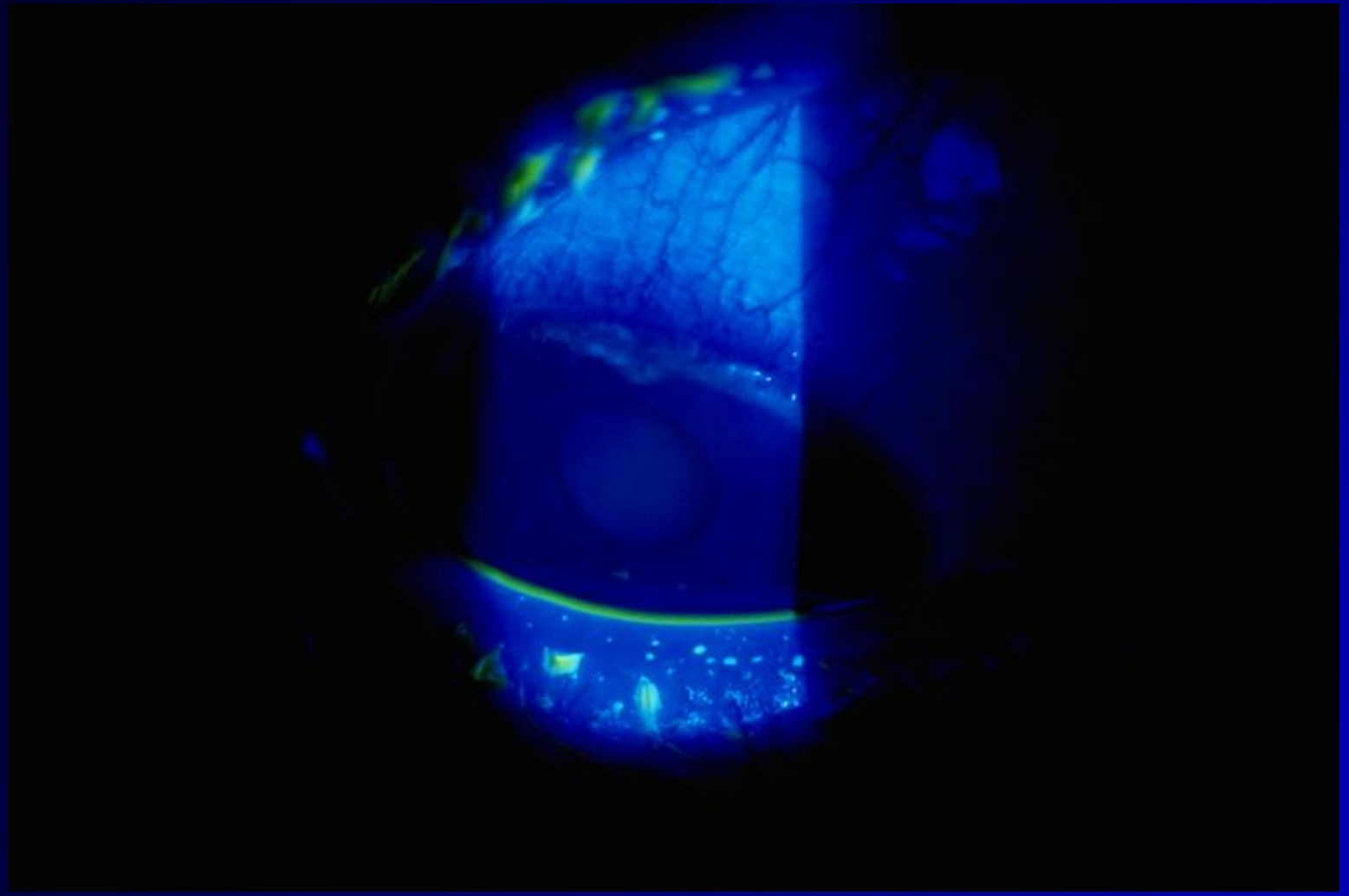


Band Keratopathy

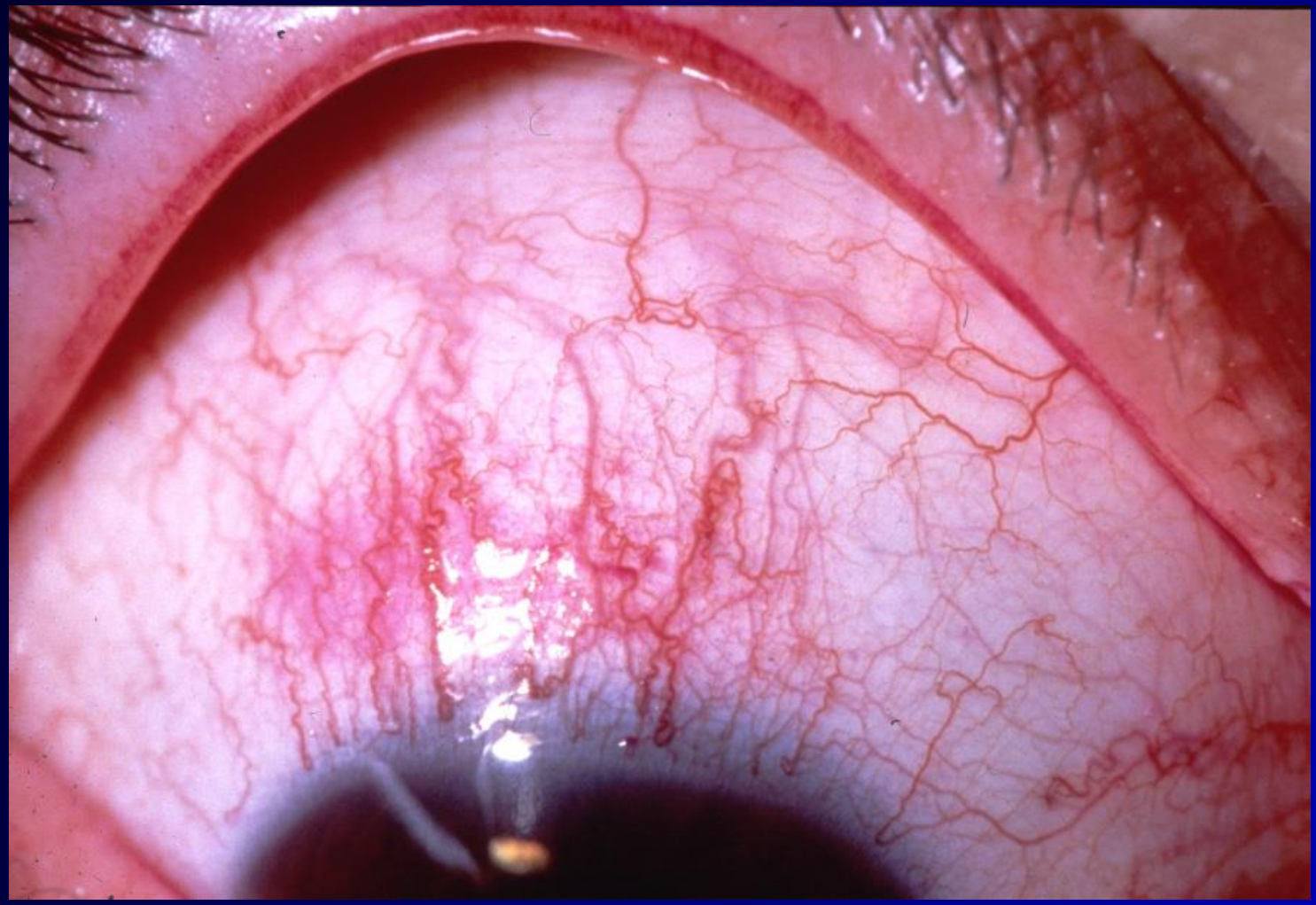
RGP SOS



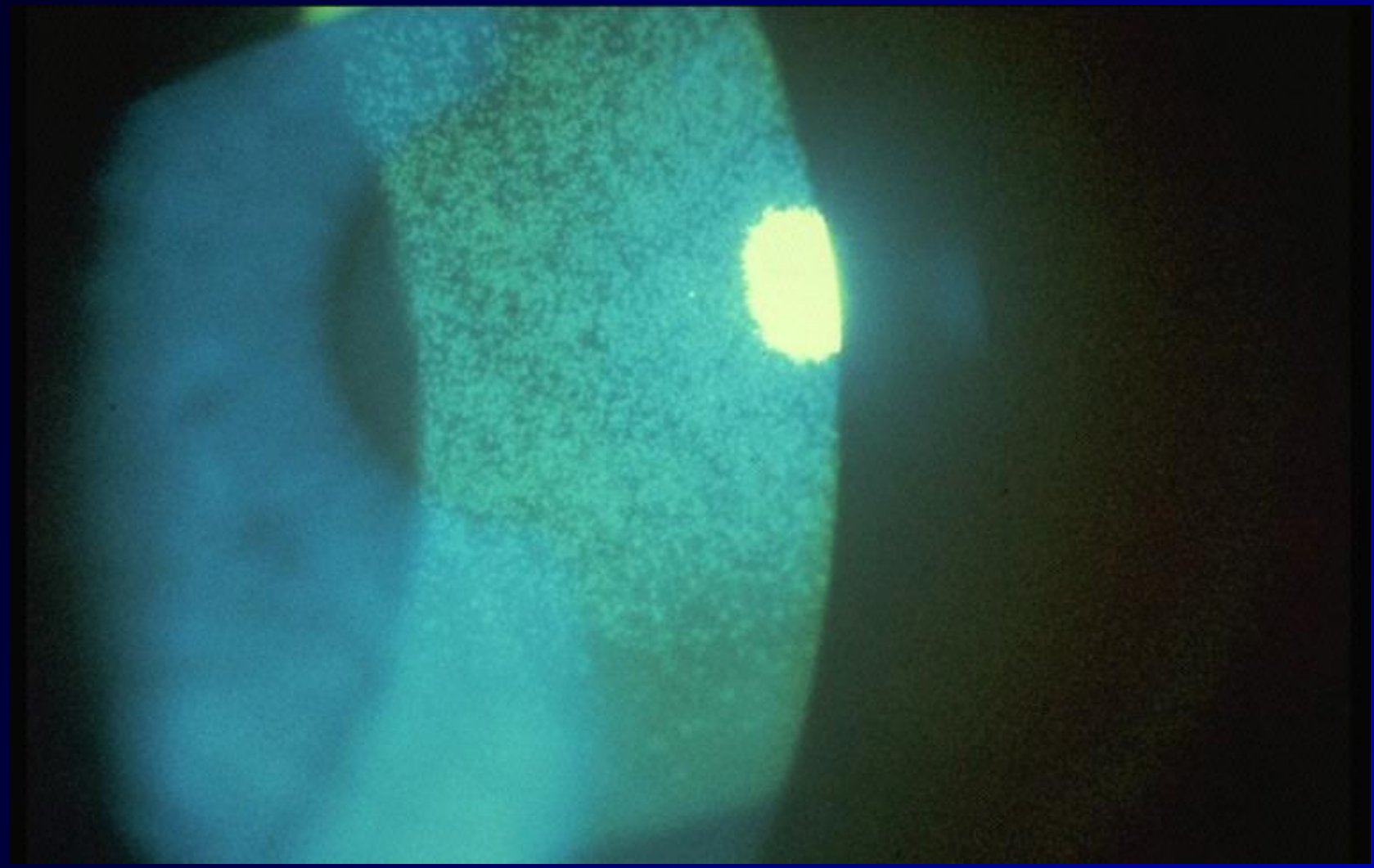
Superior Limbic Keratoconjunctivitis (SLK)



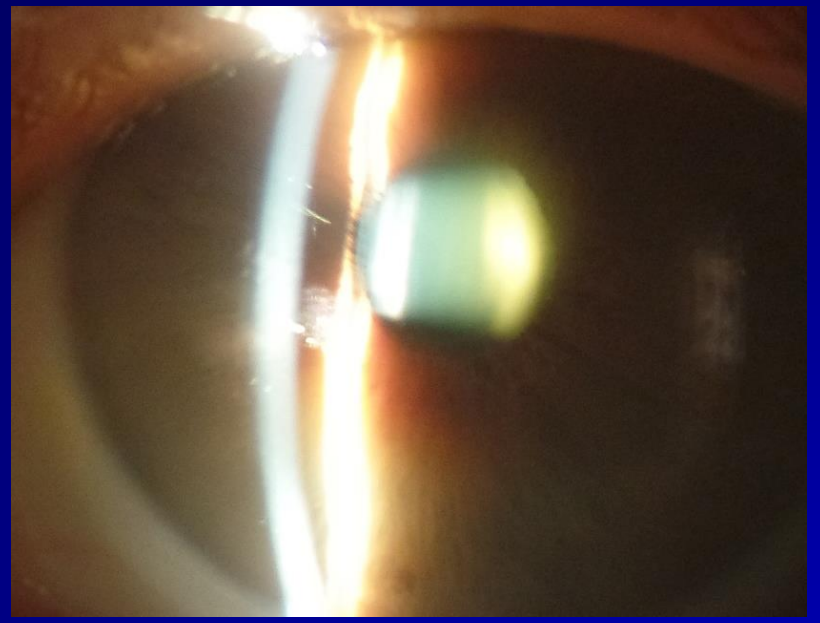
Superior Limbic Keratoconjunctivitis (SLK)



Superficial Punctate Keratopathy (SPK)



Optical Section



Set Up: 45 degree Angle

Oculars: Straight On

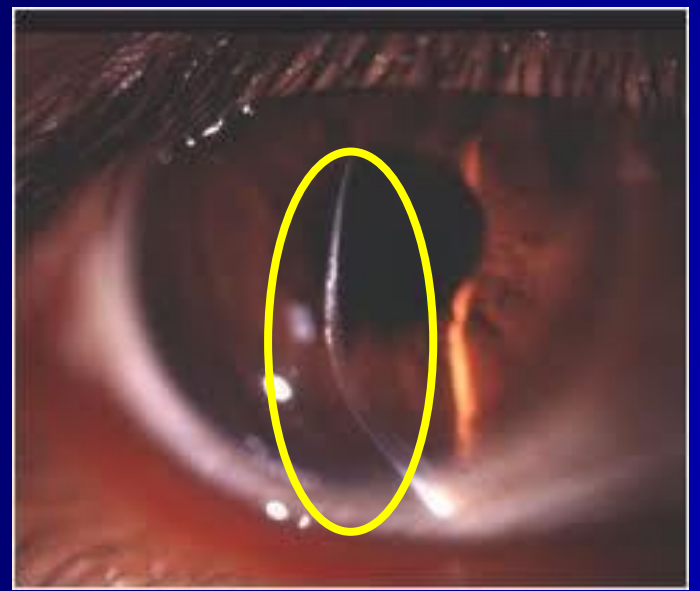
Light Beam: white or blue filter….1 mm wide

Observing: The Hazy Band on the Cornea

Optical Section

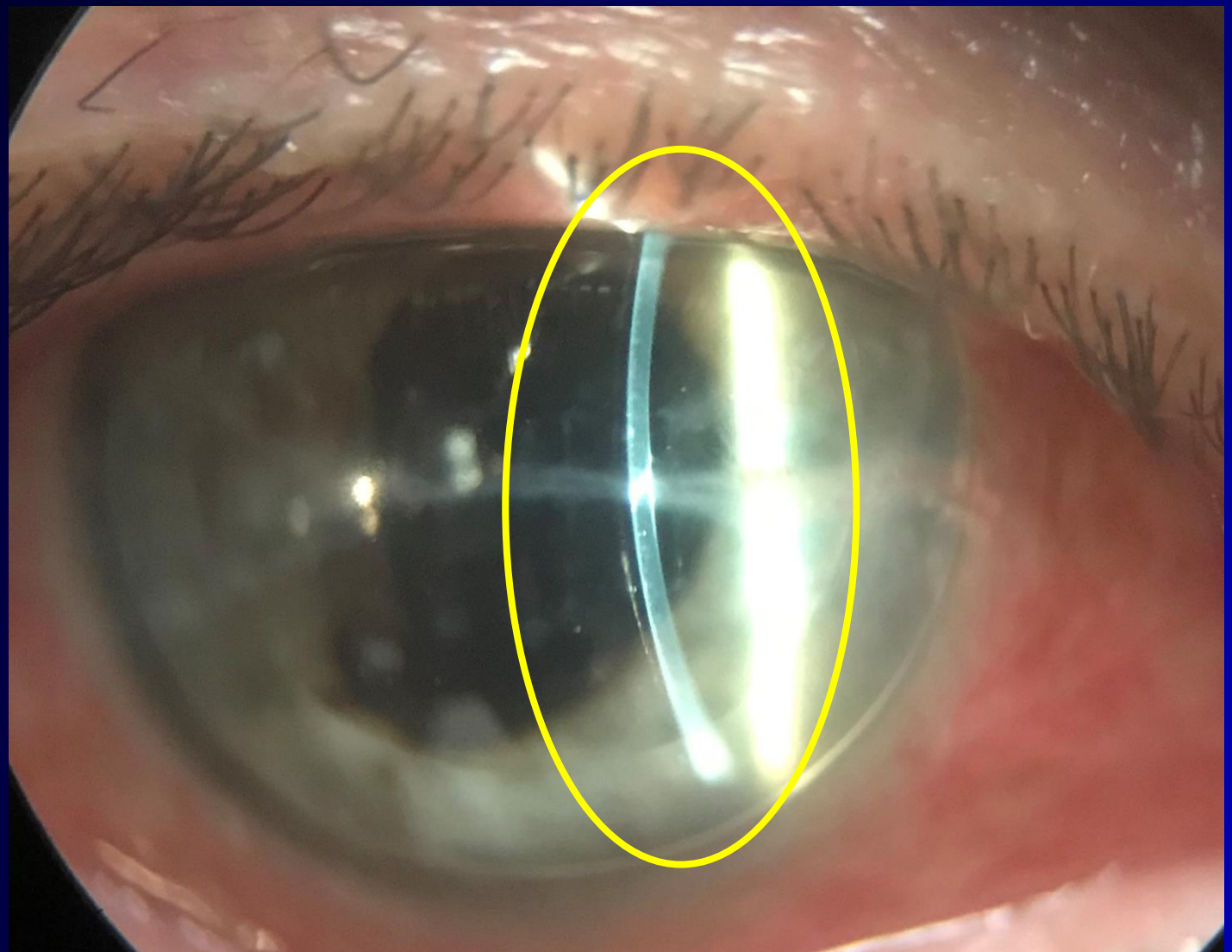
- Corneal Dellen

- Cornea Profile
  - (keratoconus)

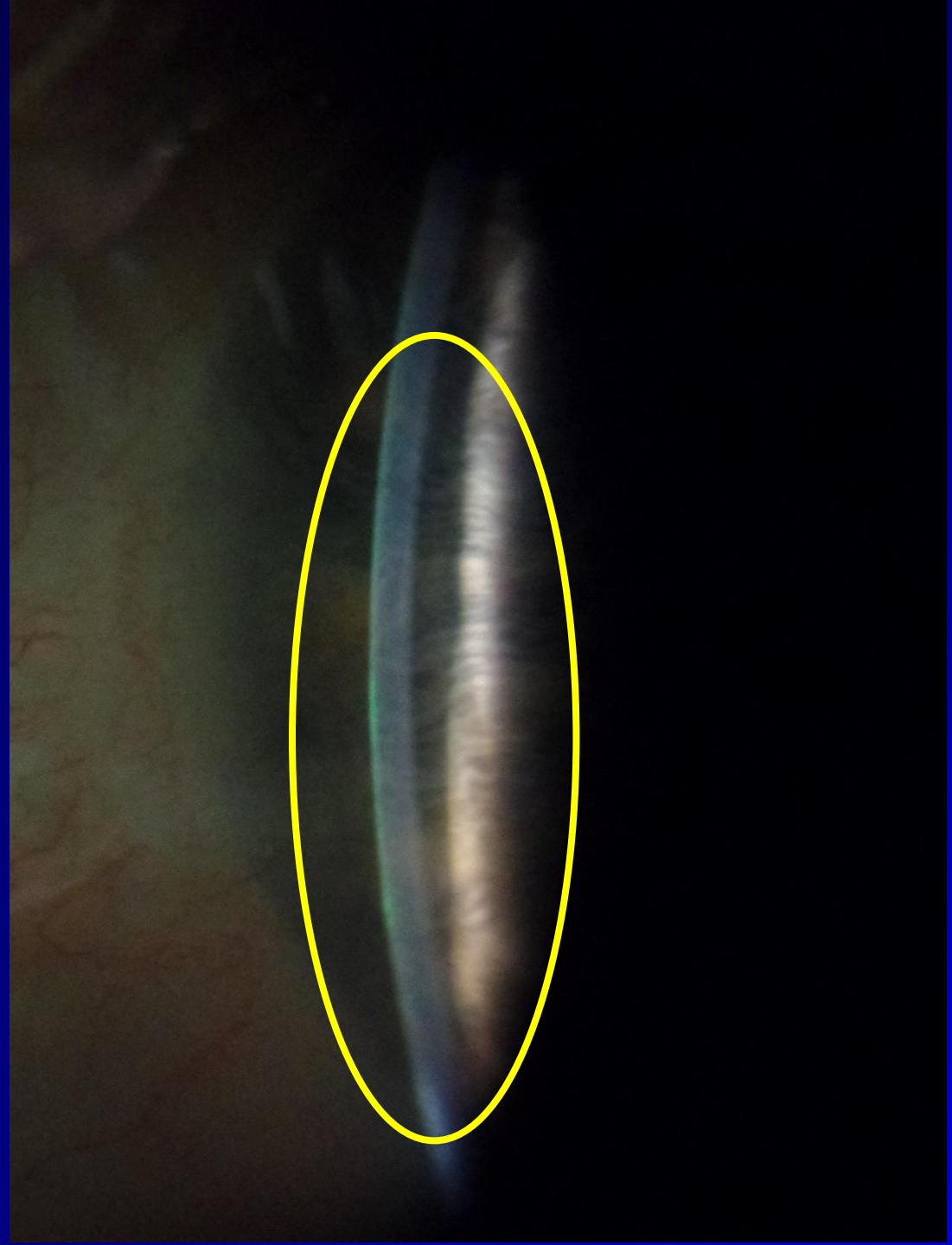


Bill J, IOL

Roberto



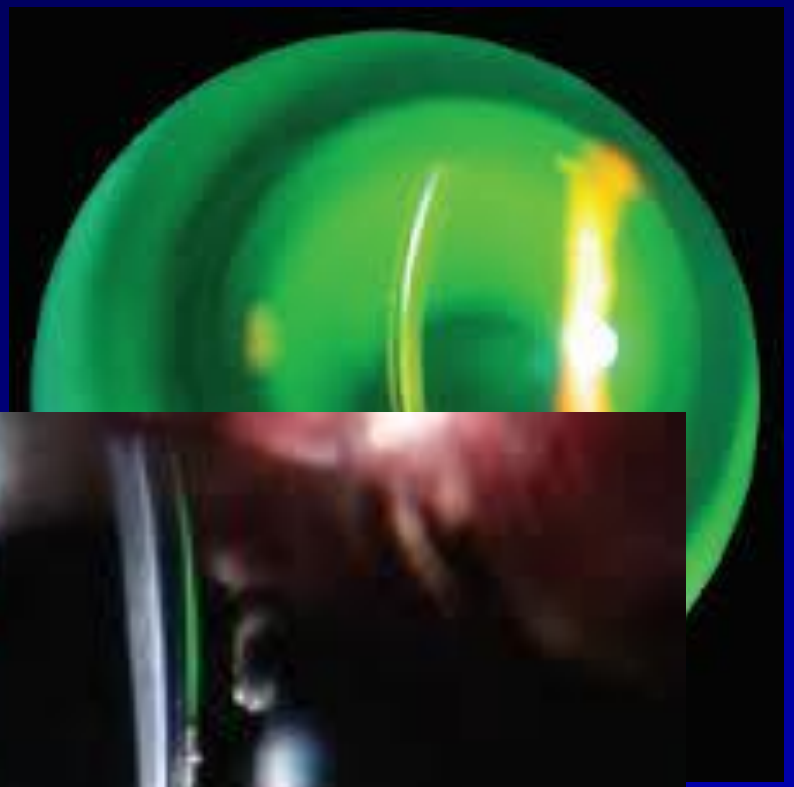
Average Anterior Chamber Angle



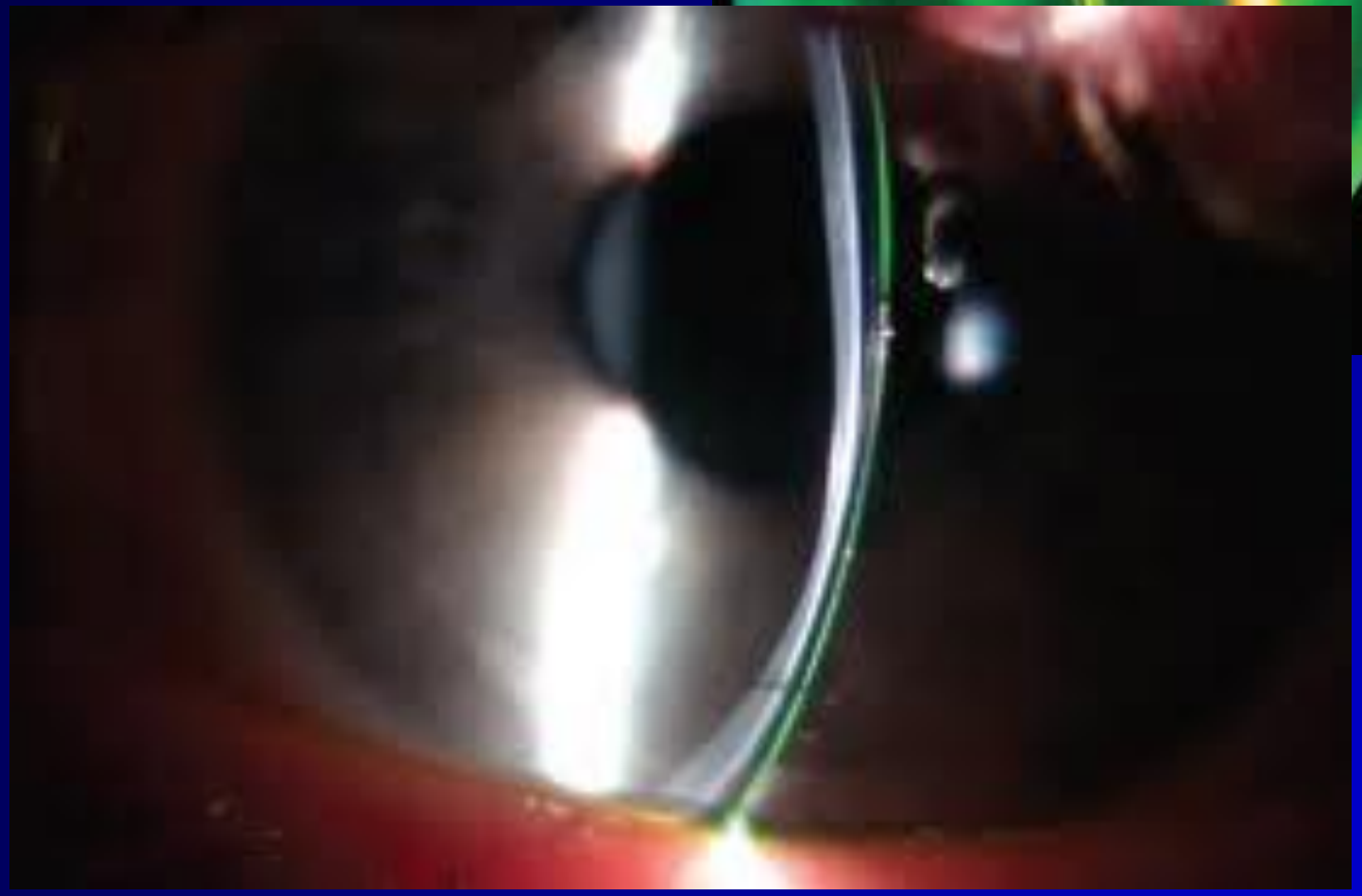
Narrow Anterior Chamber Angle

Observations:

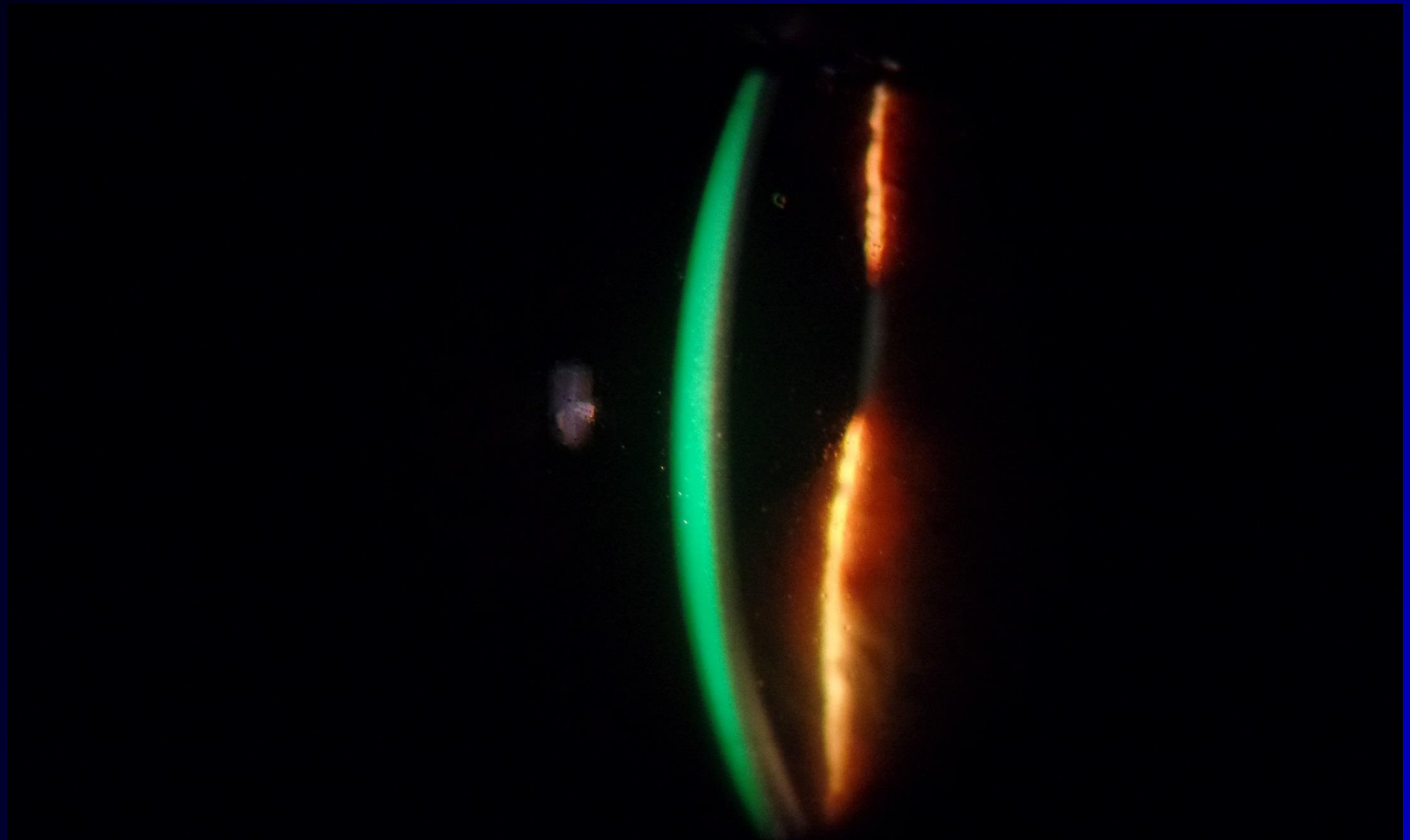
Lens – Cornea Relationship for RGPs
Flat Fitting Lens Keratoconus



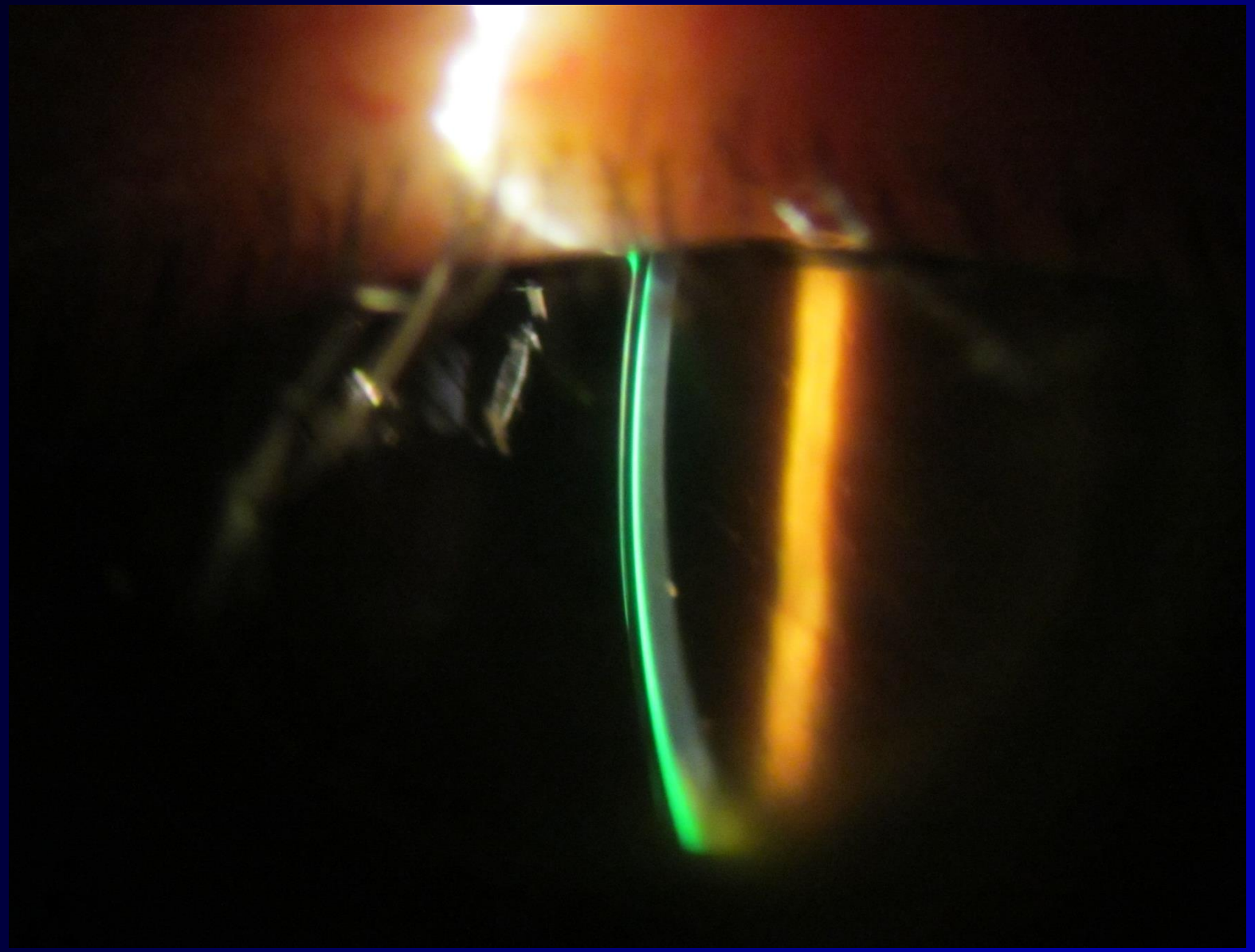
Flat Fitting GP
Keratoconus



Scleral Lens Clearance

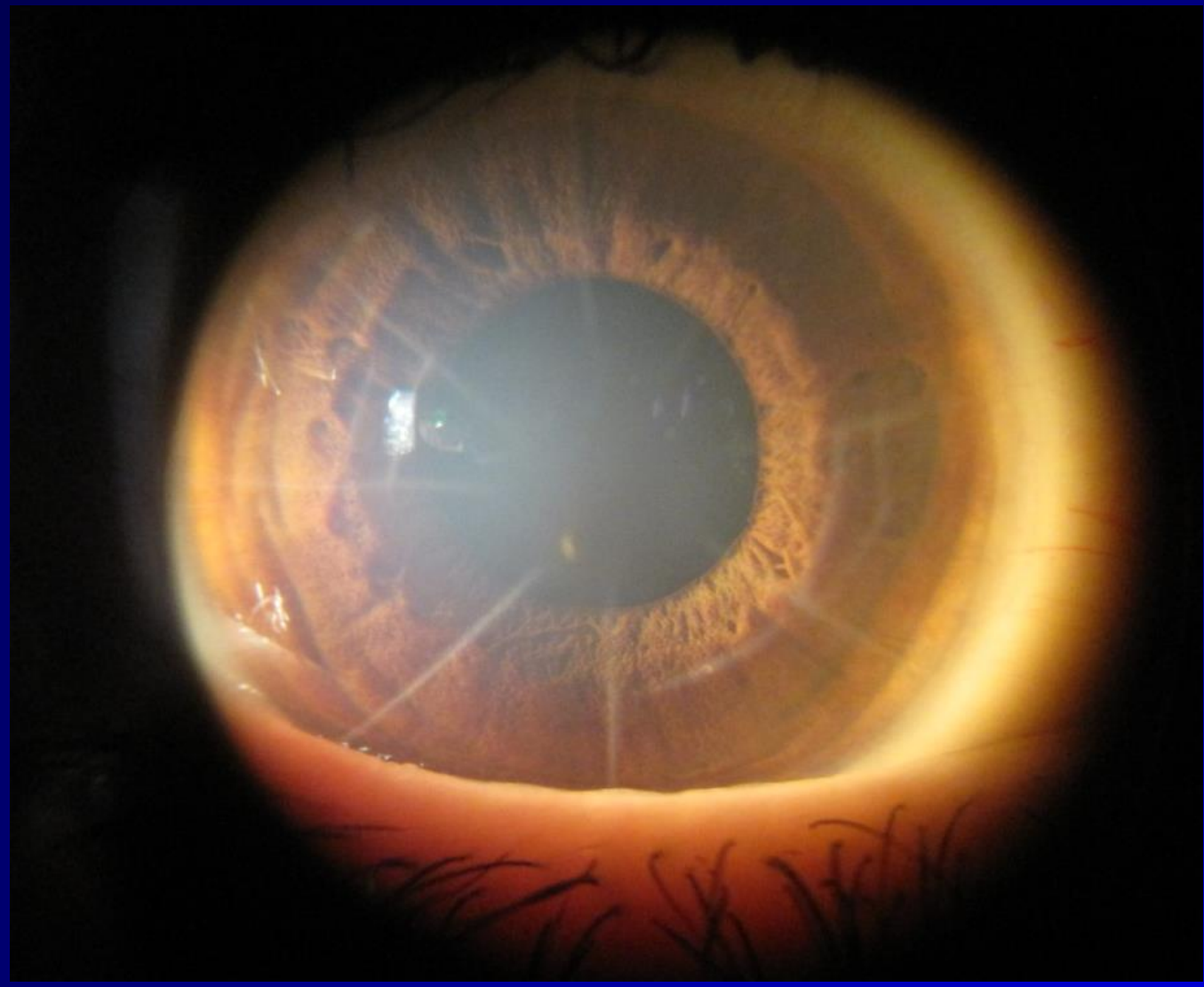


Scleral Lens Clearance



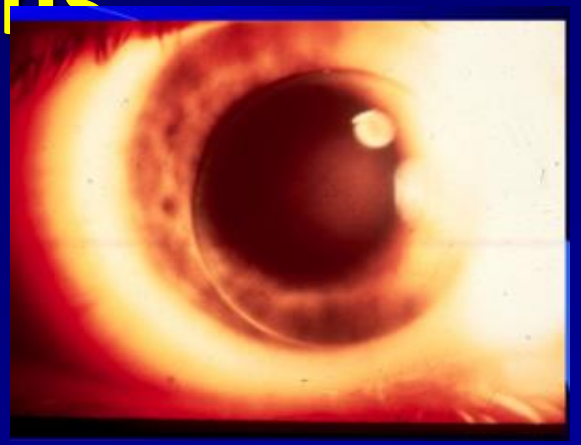
Sclerotic Scatter

- Set Up: 60 to 90 degrees angle
- Oculars: Off to the Temporal Side… Not Used
- Light Beam: White, 2 – 3 mm Wide
- Observing: Halo on the Cornea with the Unaided Eye



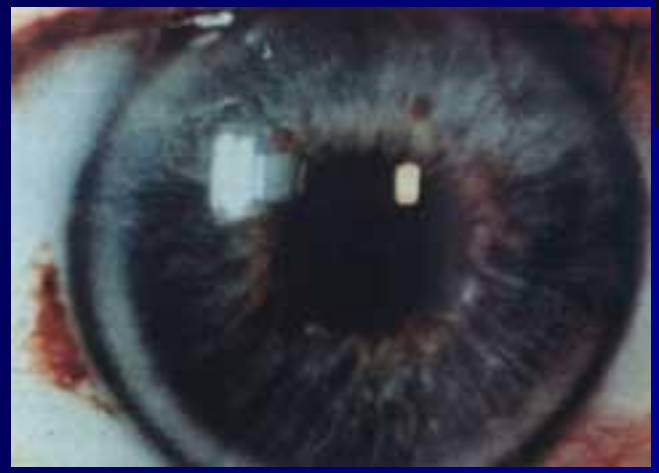
Sclerotic Scatter Observations

Rigid Lens Edema

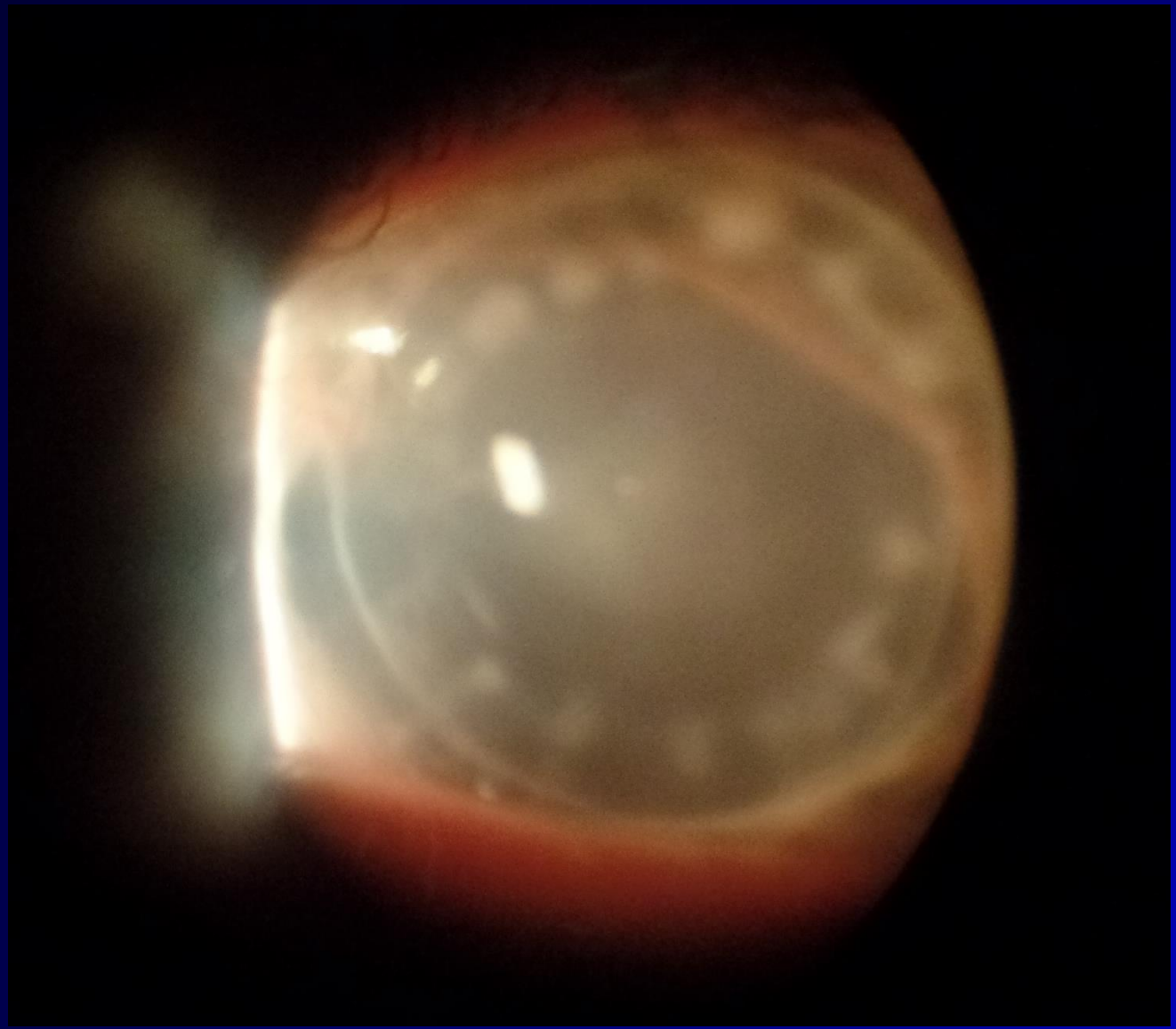


Central Corneal Clouding

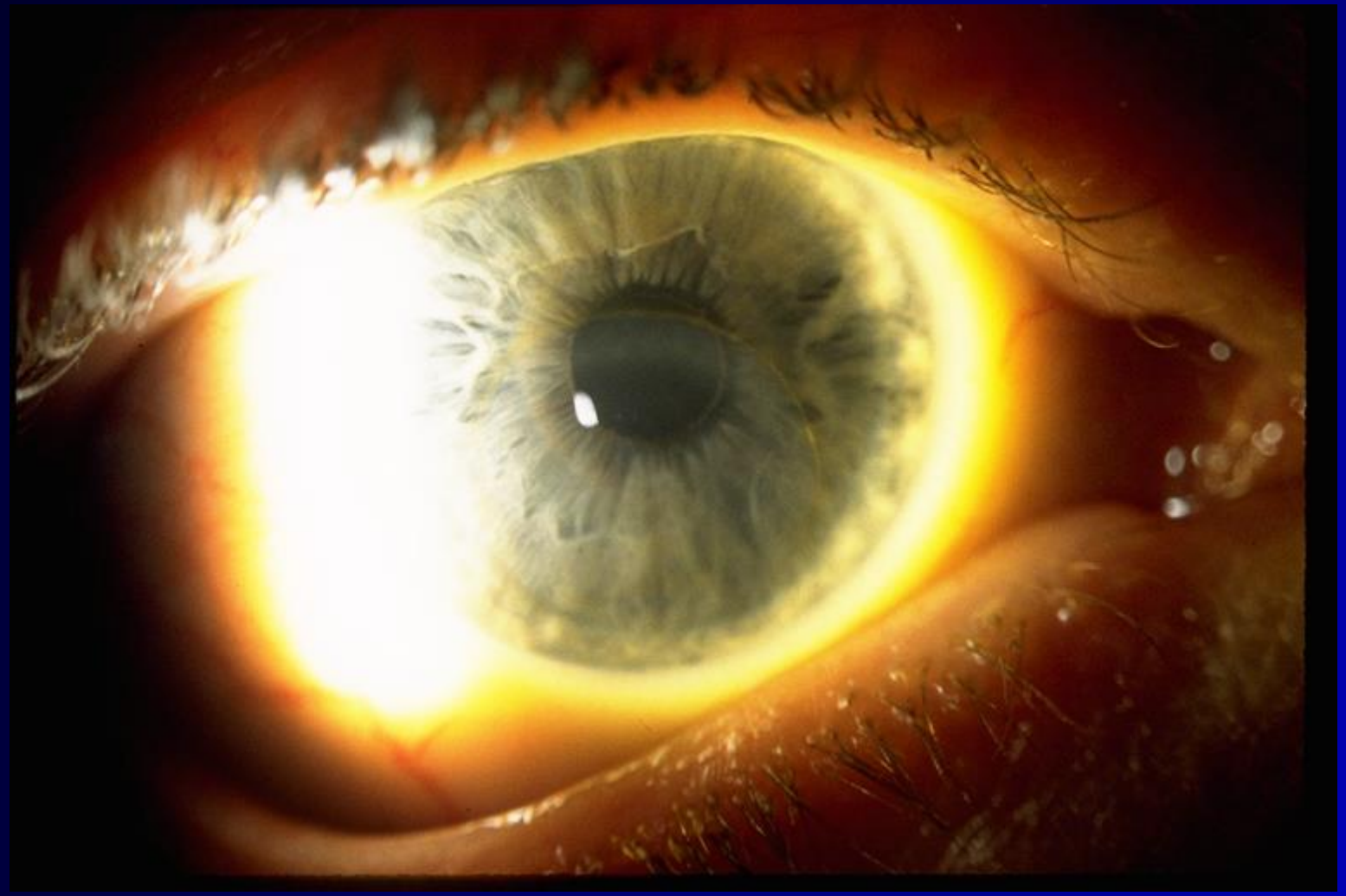
Arcus Senilis



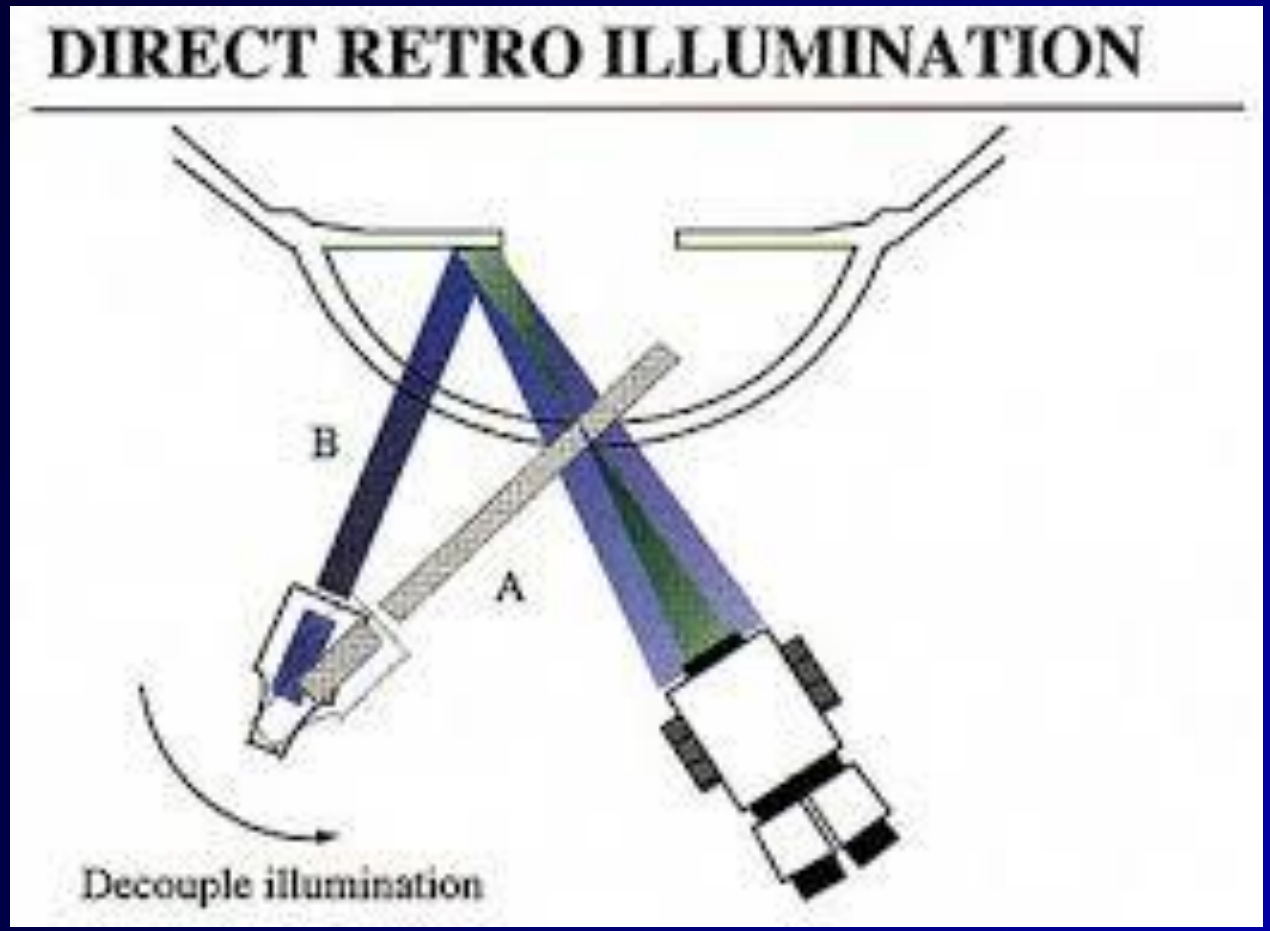
LL PKP Edema

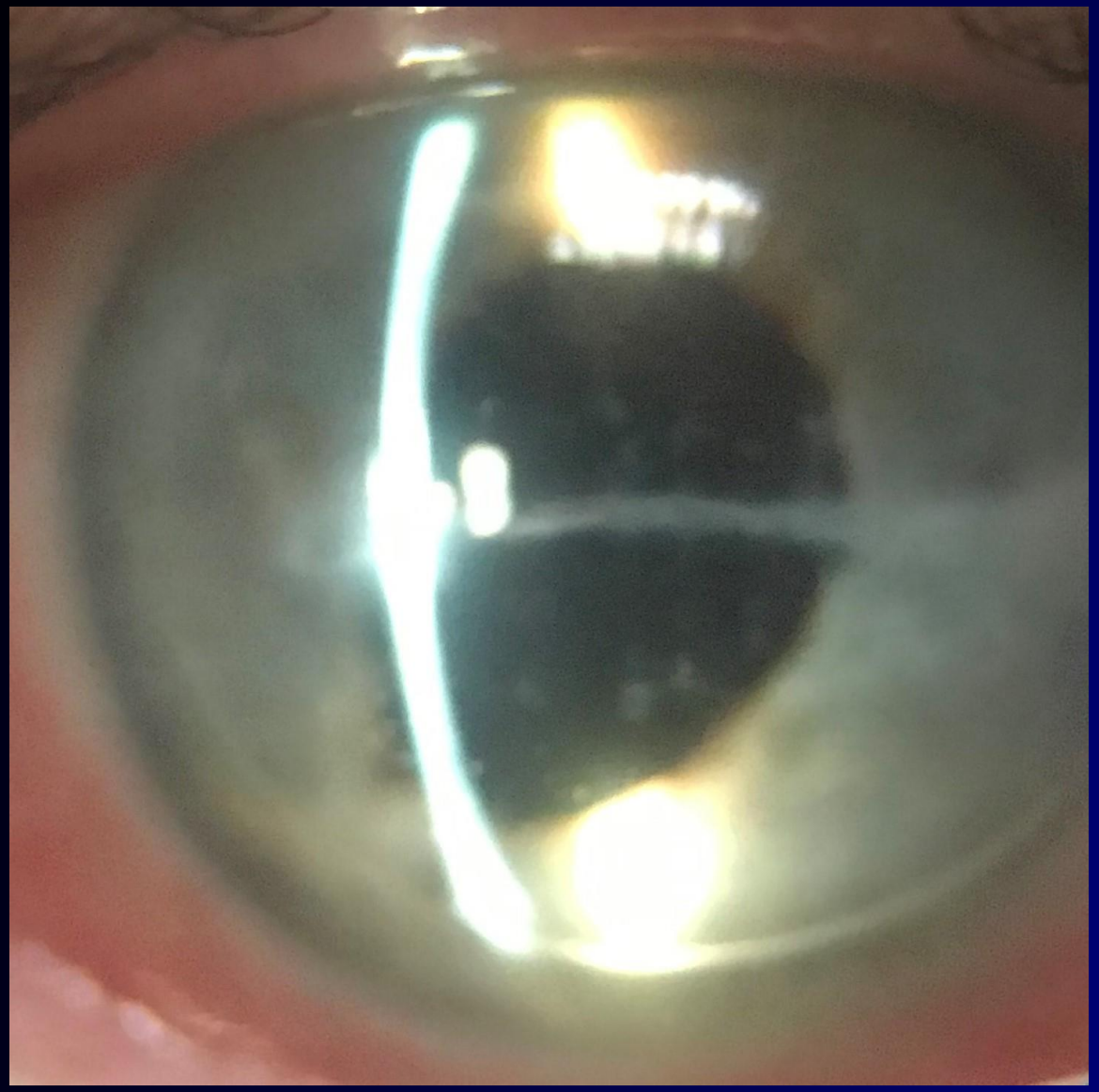


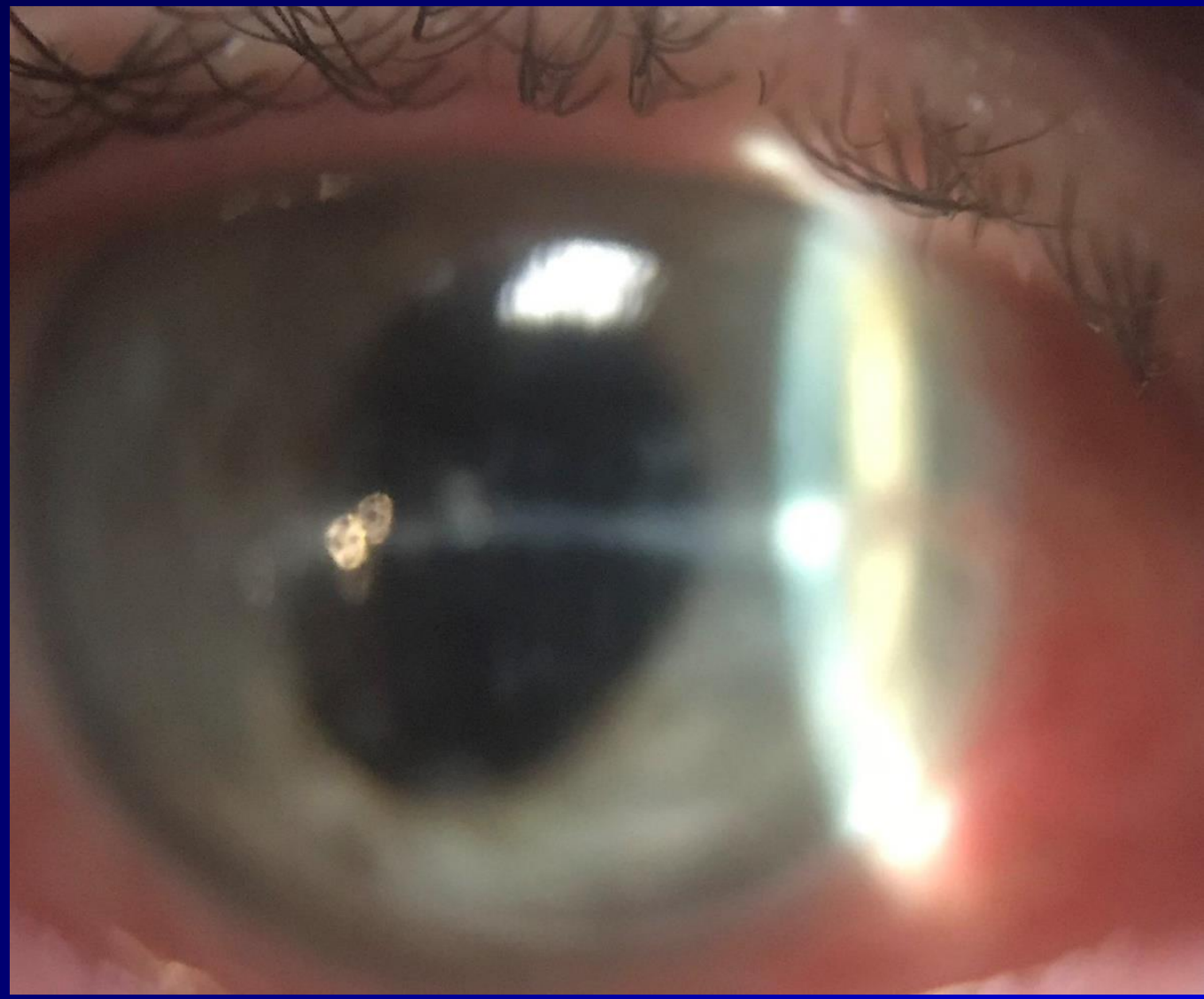
Fleischer Ring

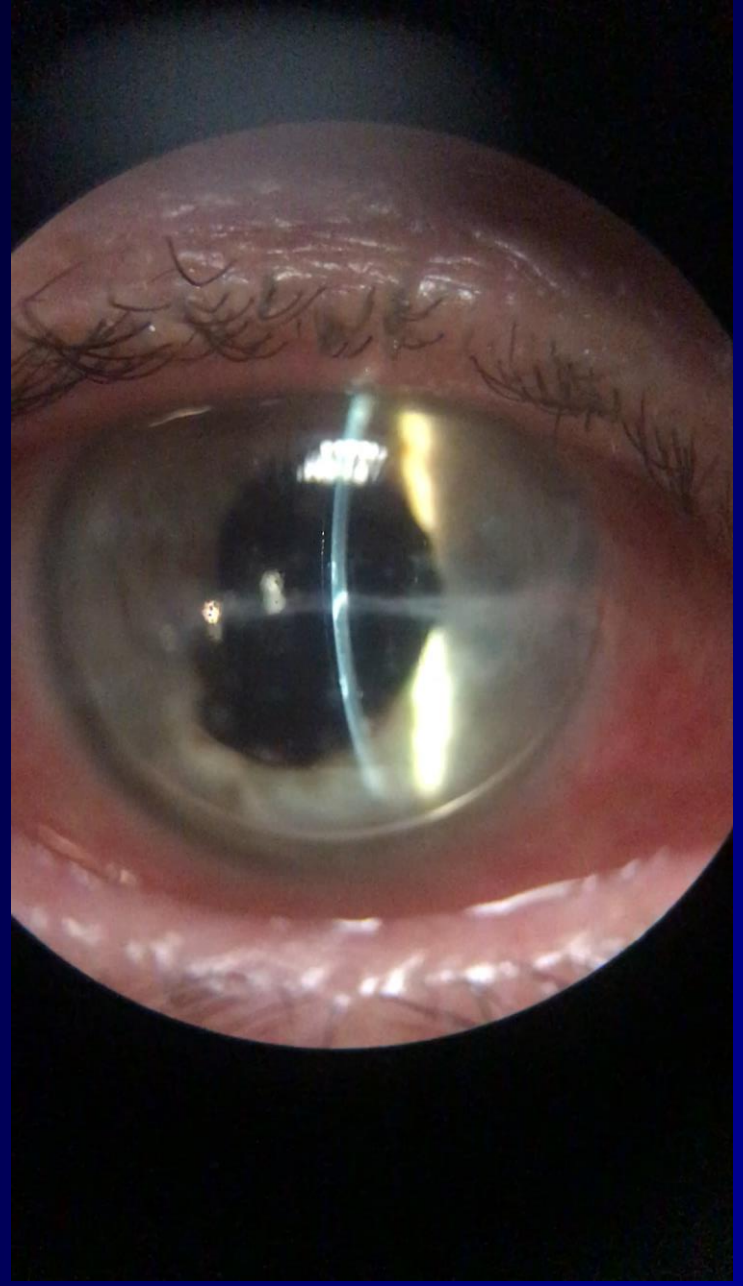


Retro Illumination, Direct

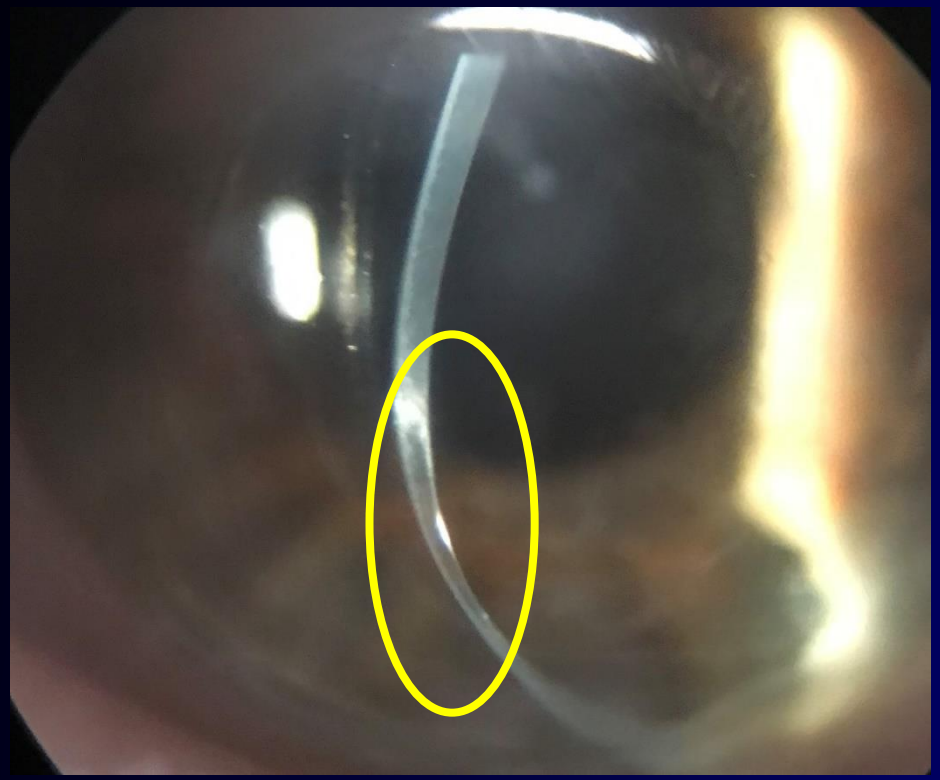


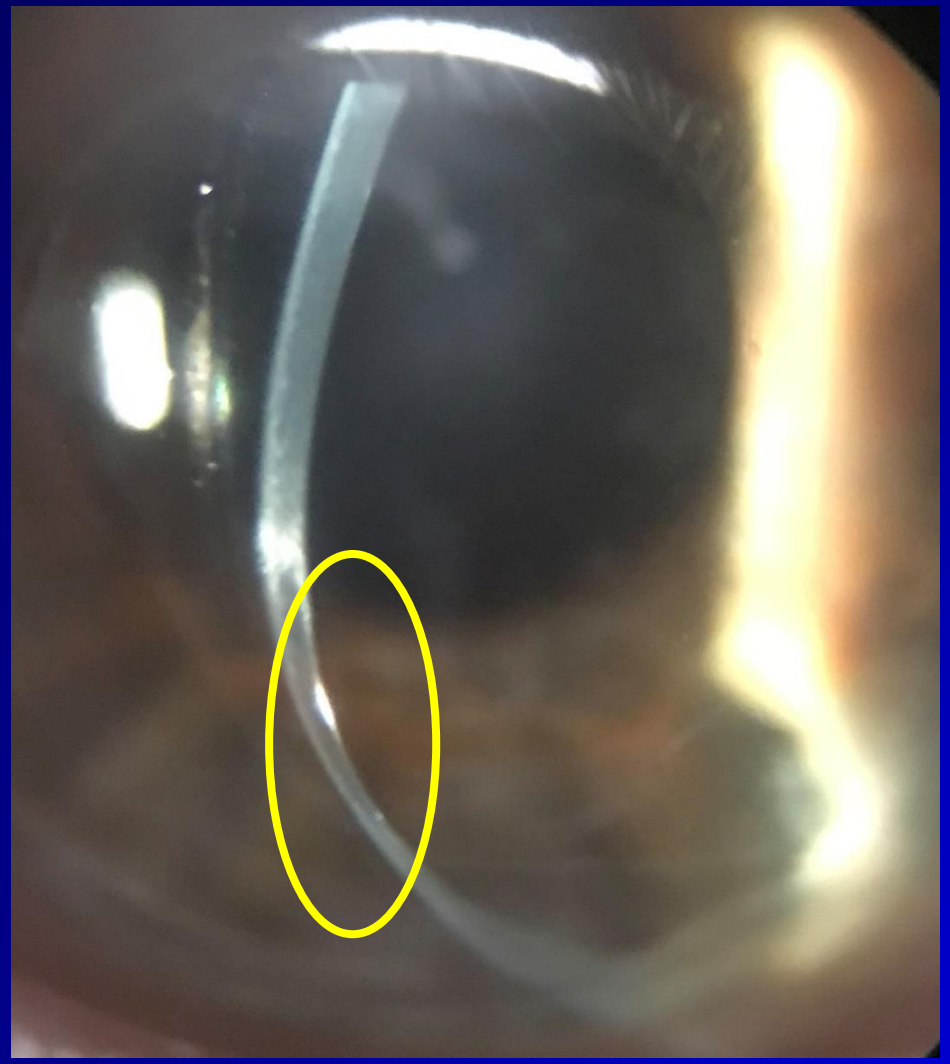




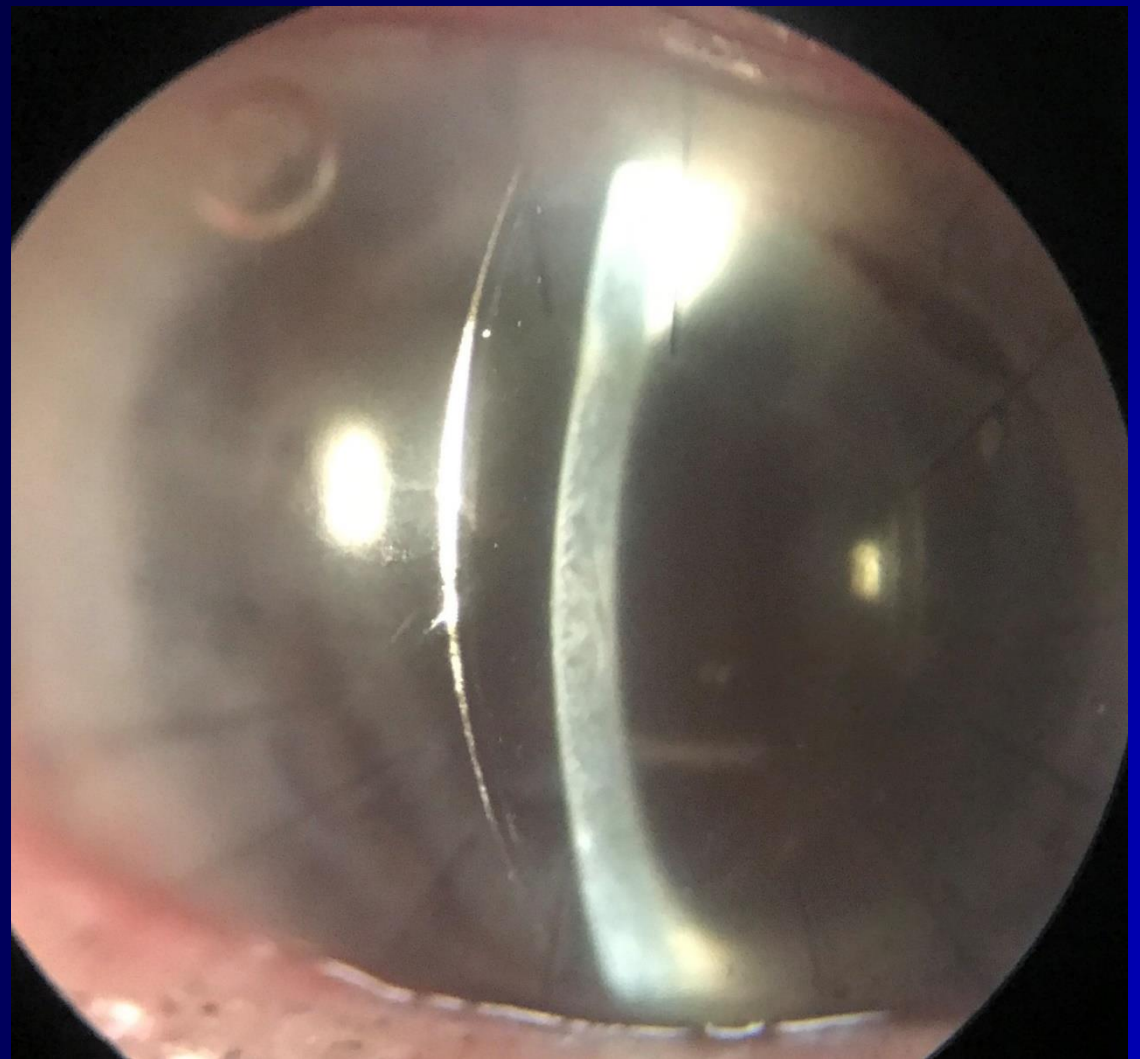


Scleral Lens Clearance





Scleral Optic Section



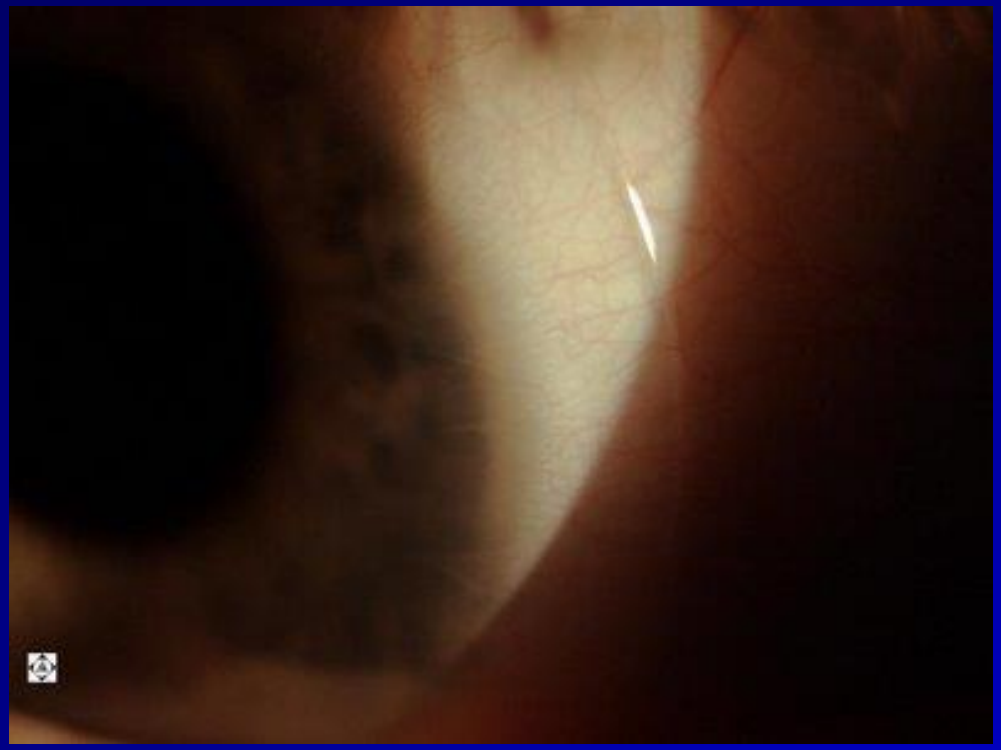
Retro

Retro Direct Illumination
Set up

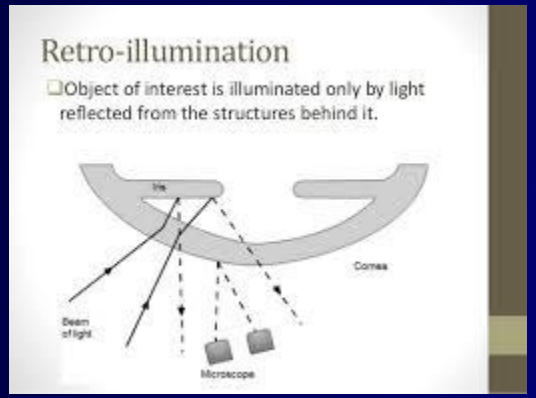
- Evenly split 60 degree angle to scan cornea
- Oculars are on the same side as being observed
- Reduce angle to 40 degree for the very top and very bottom of the eye
- Scan full side of cornea and then concentrate on limbal area
- Bounce the light off the iris and focus it on the cornea

Retro illumination, Direct

- Ghost Vessels



- Back surface of contact lens



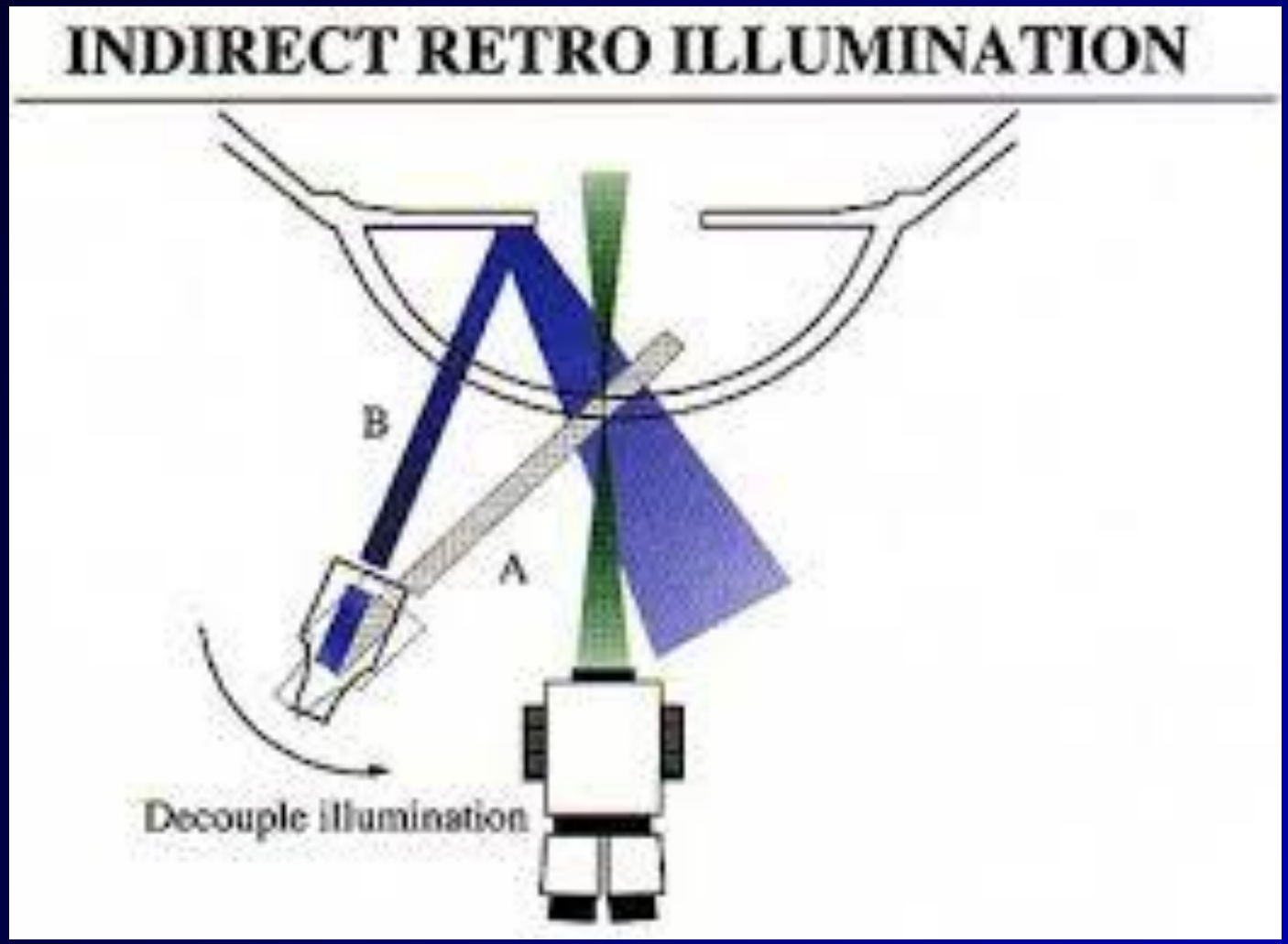
Retro Illumination; Direct

Retro illumination, Direct

- Vascularization

- Microcystic Edema

Indirect Retro Illumination

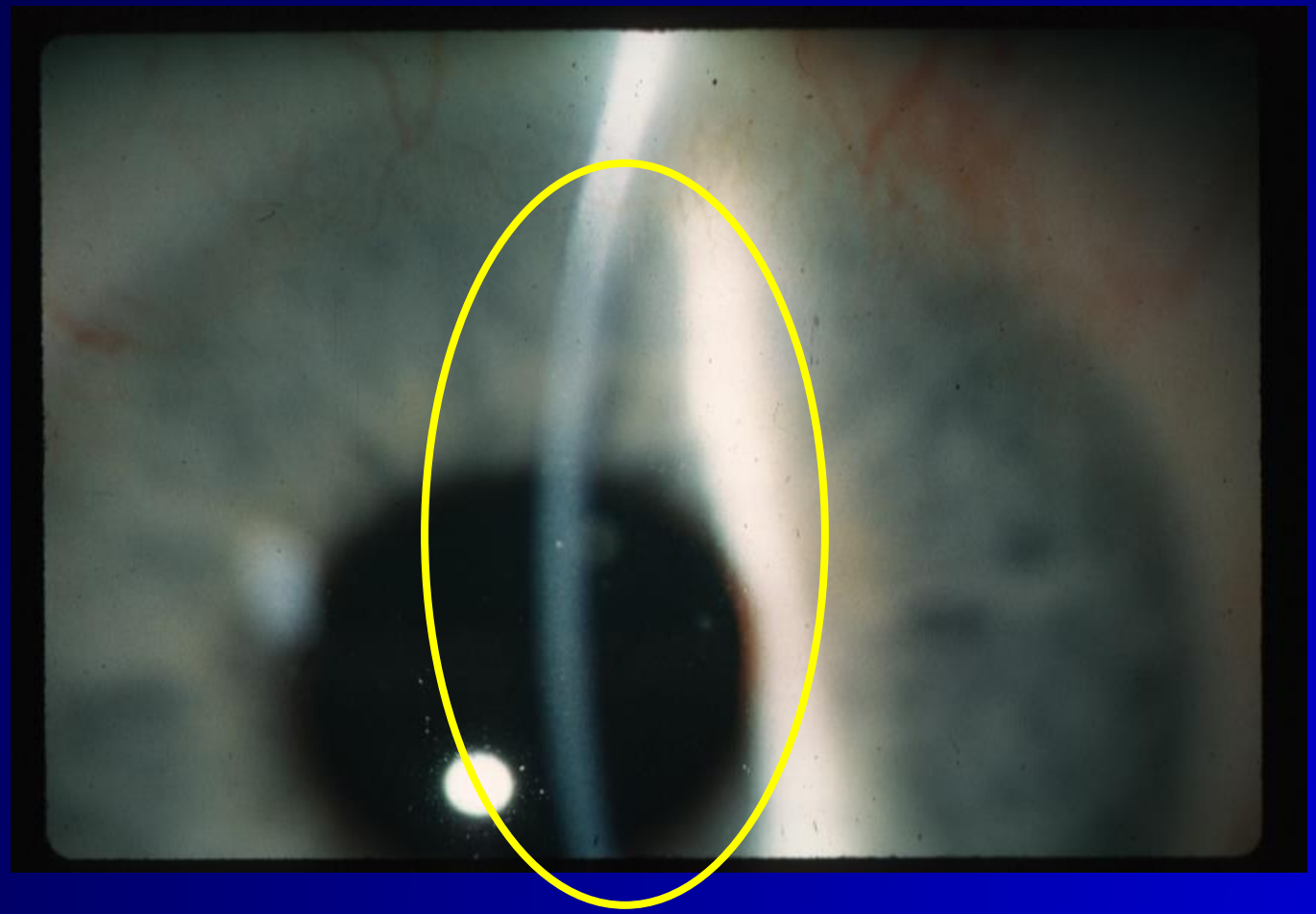


Indirect Retro Procedure

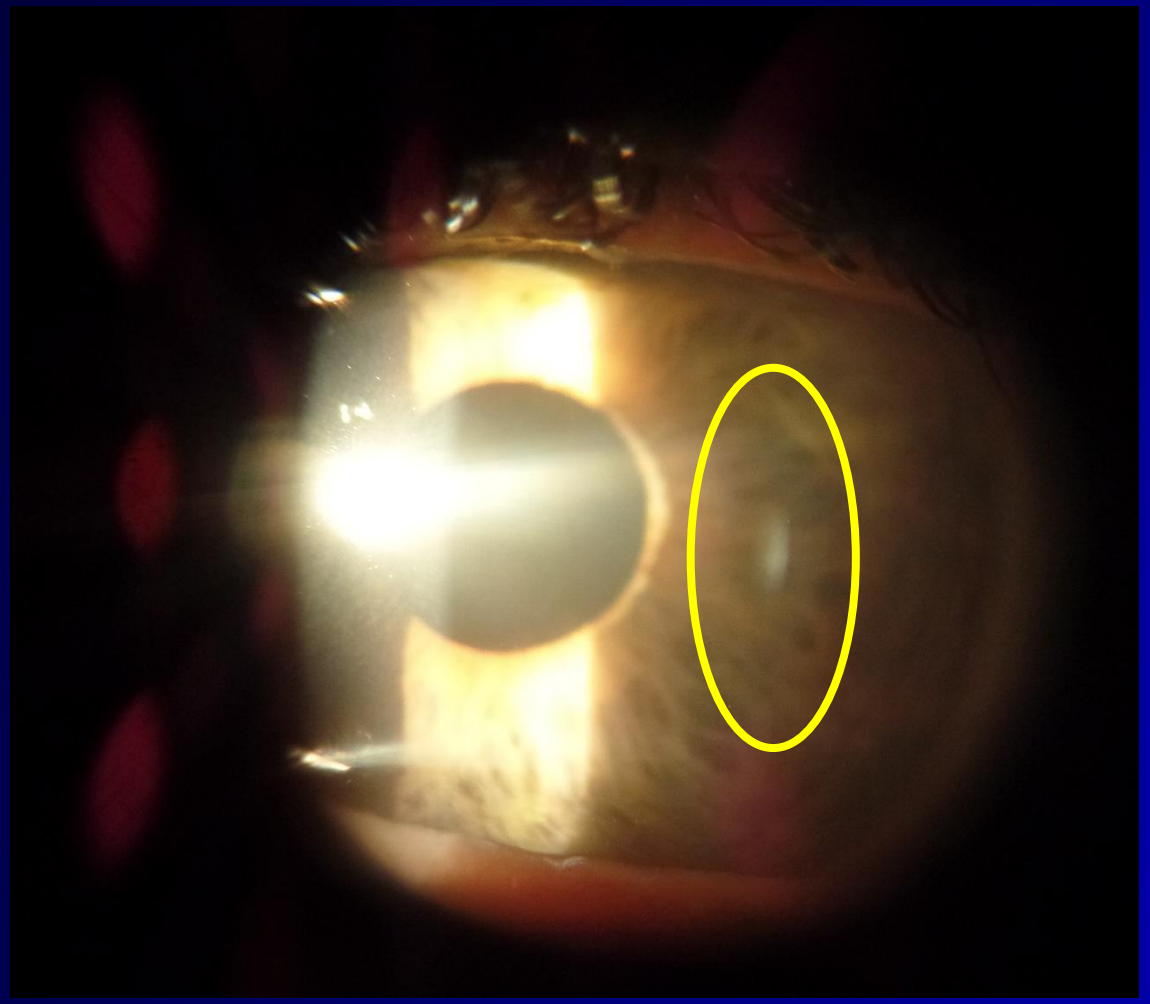
- 45 degree angle
- White light , 2 – 3 mm width
- Looking between the bands

Indirect Retro Observations

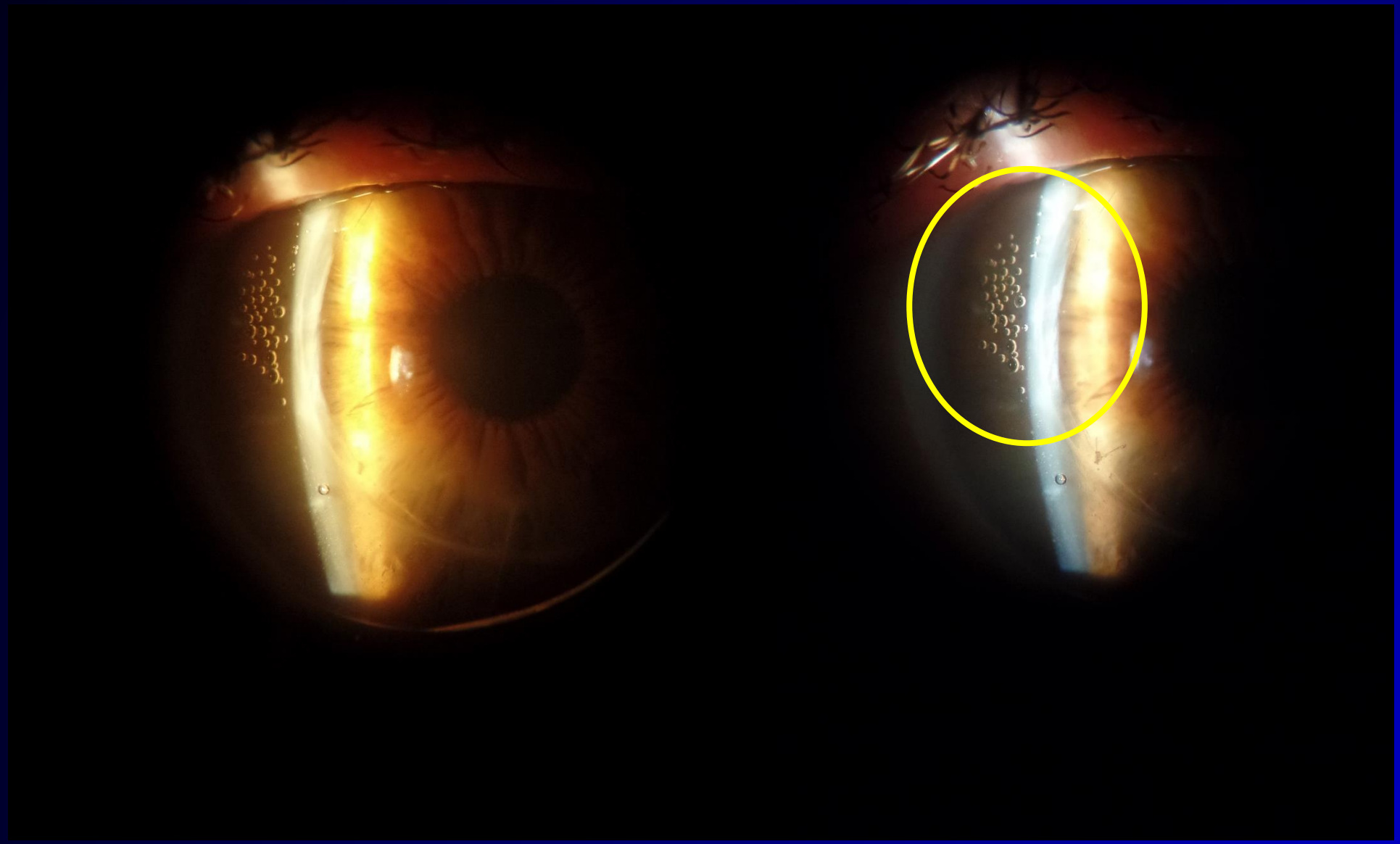
- Soft Lens Edema



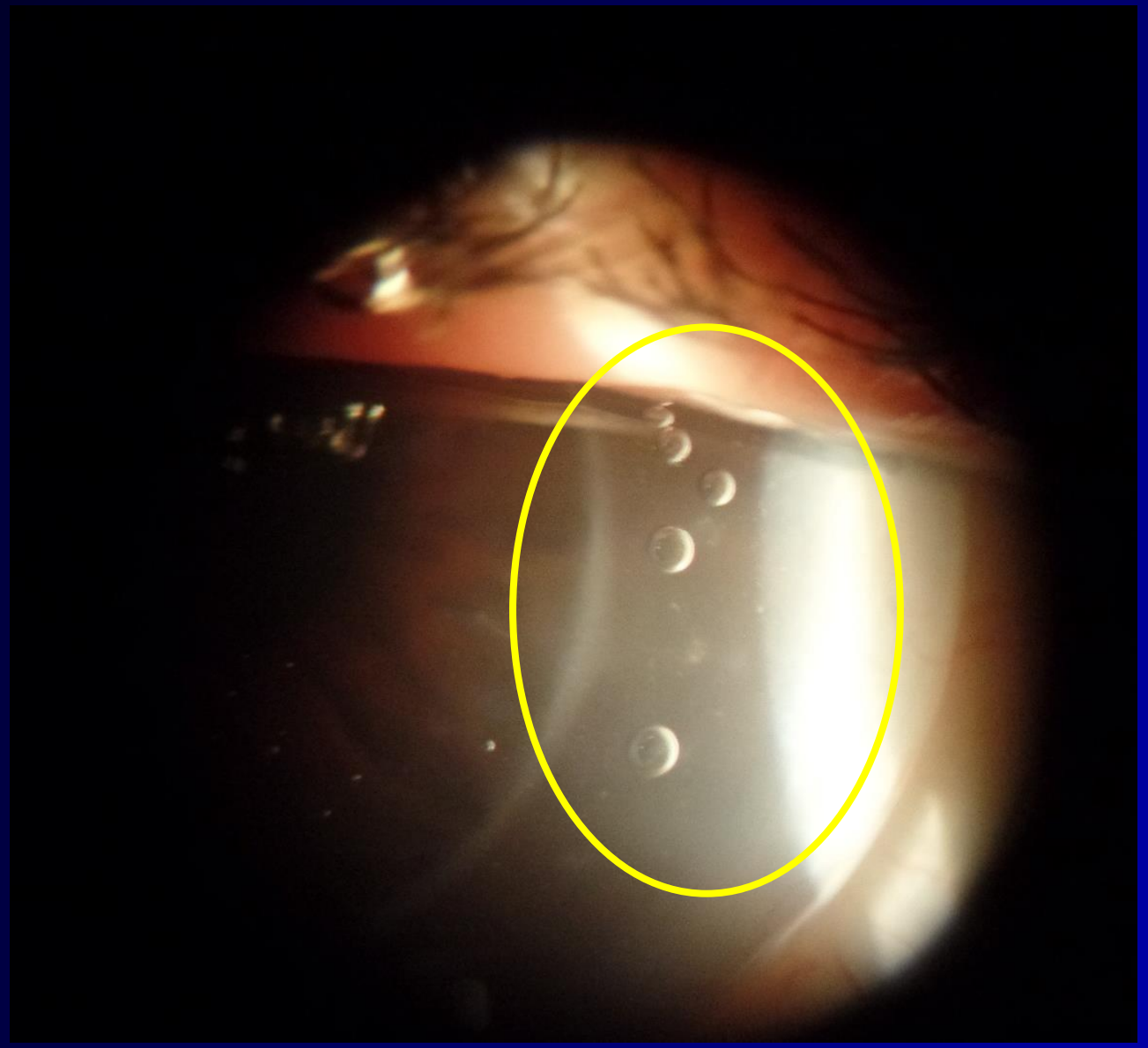
Bill J Clear Cornea Incision



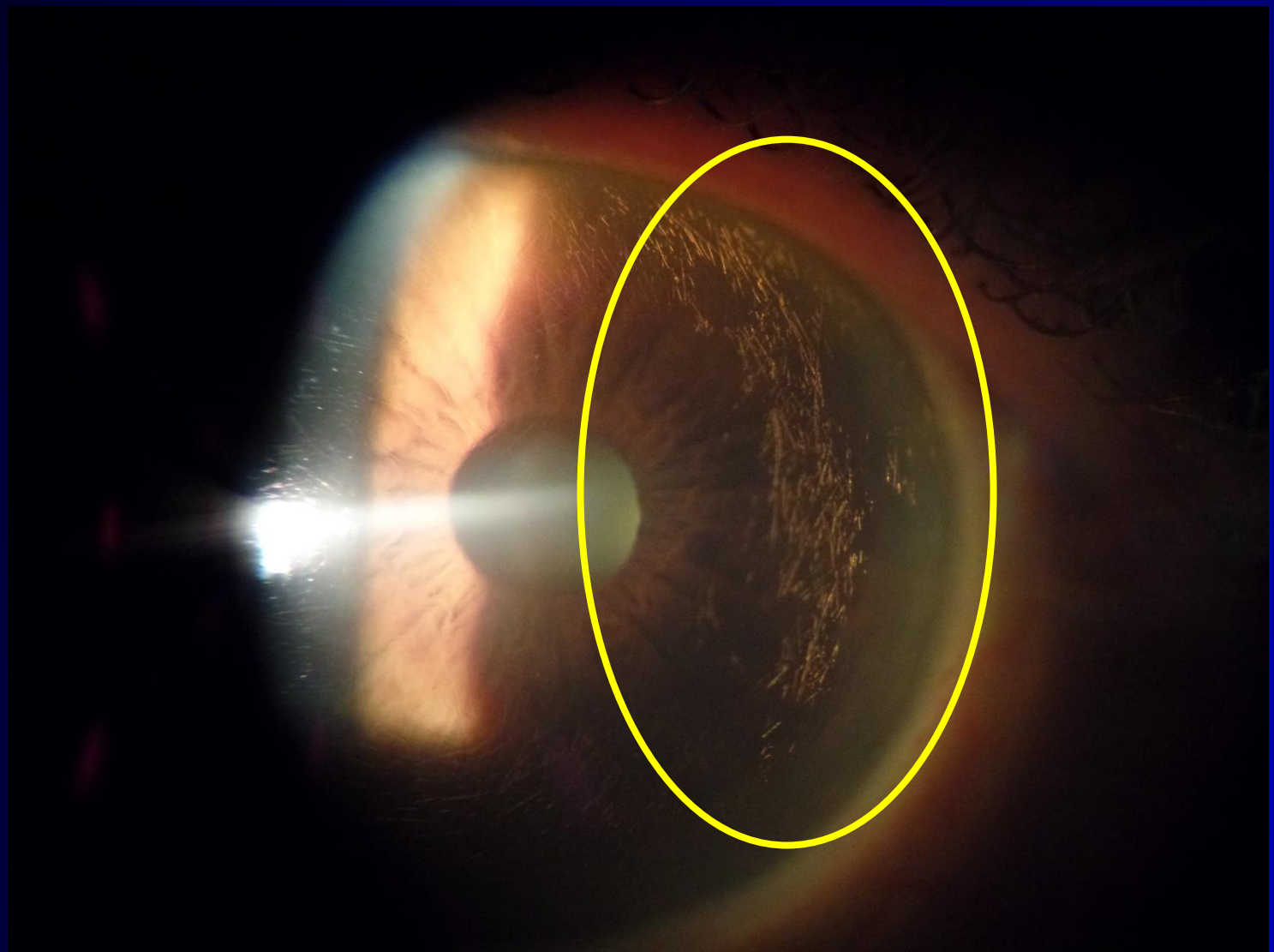
Fred S Retro



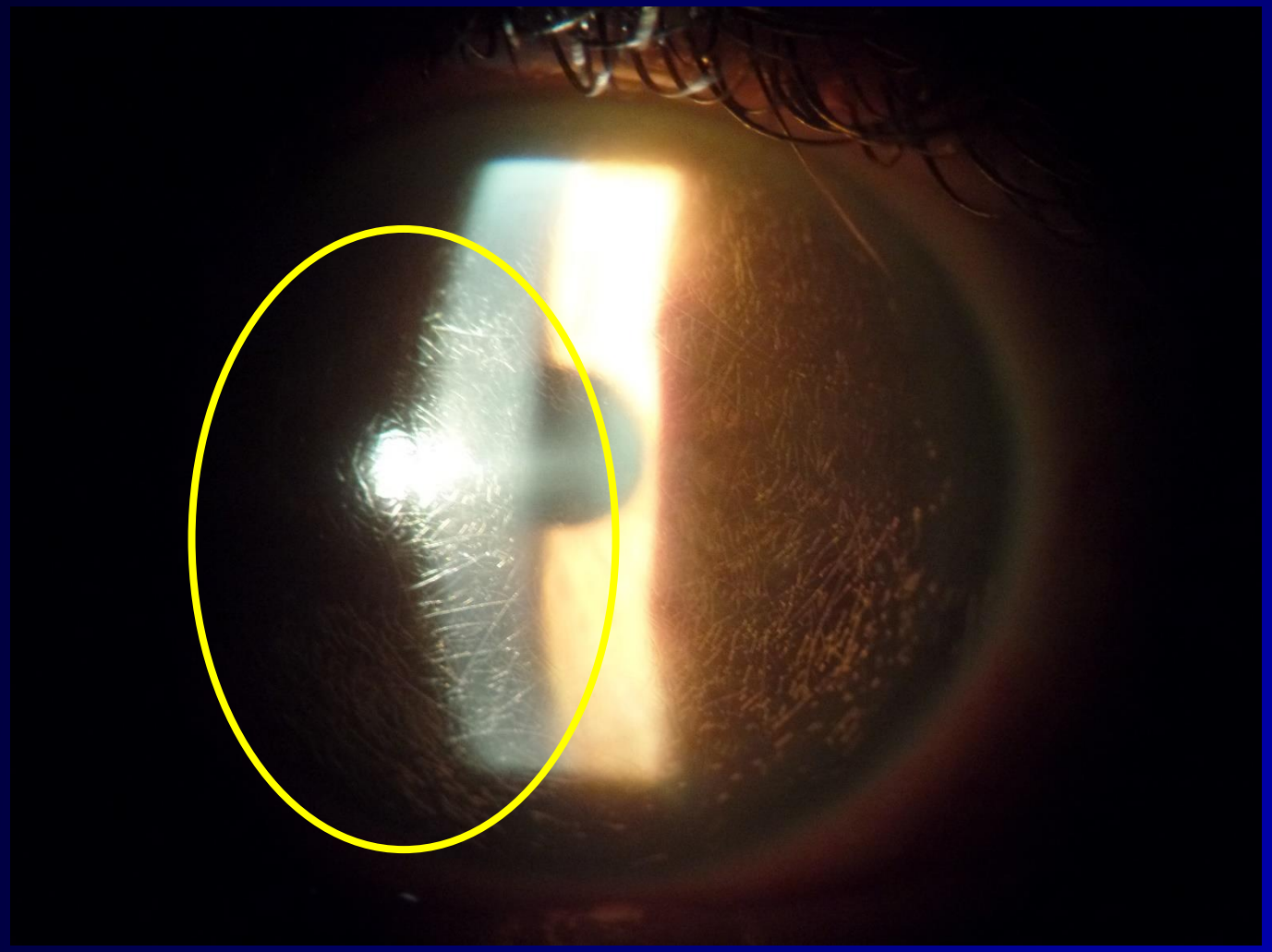
Fred S Retro

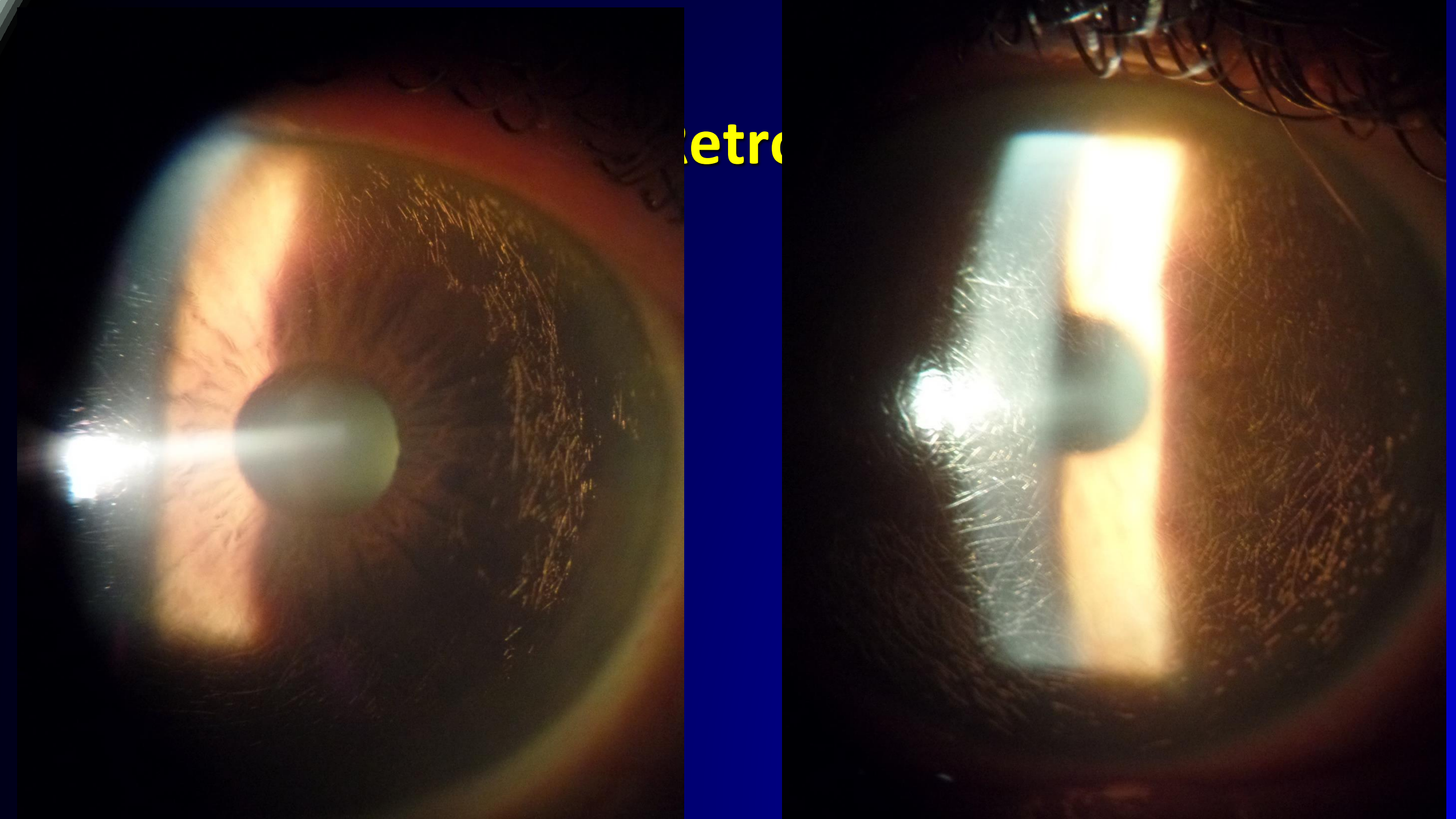


Material Crazing



Material Crazing



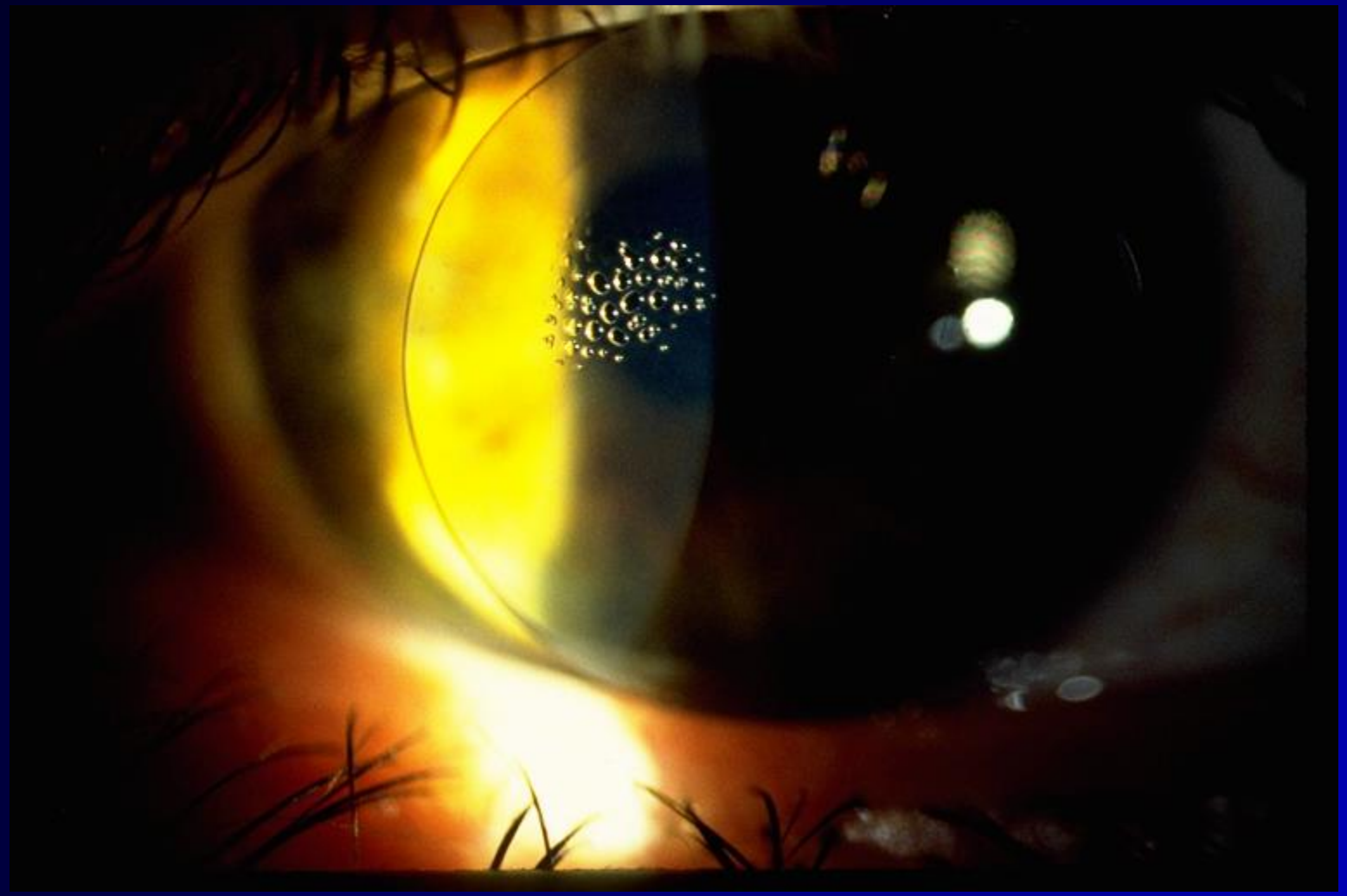


Indirect Retro Illumination

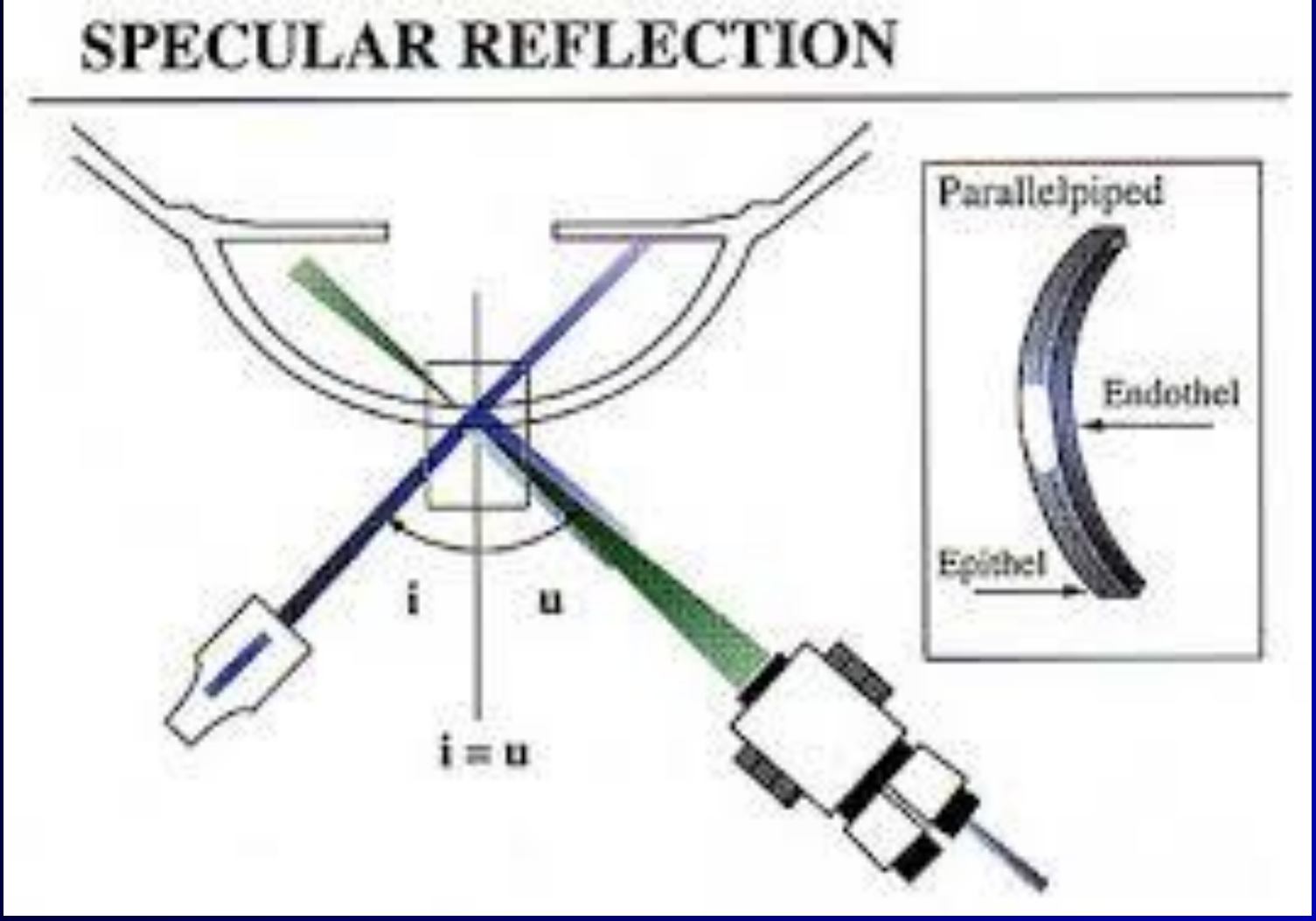
- Embedded Foreign Body

- Torn Lenses

Air Bubbles under RGP

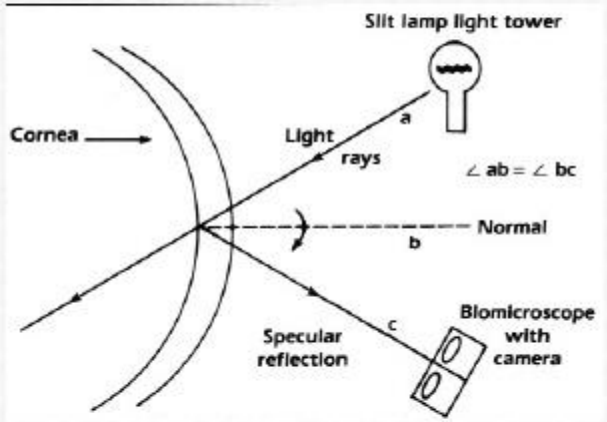


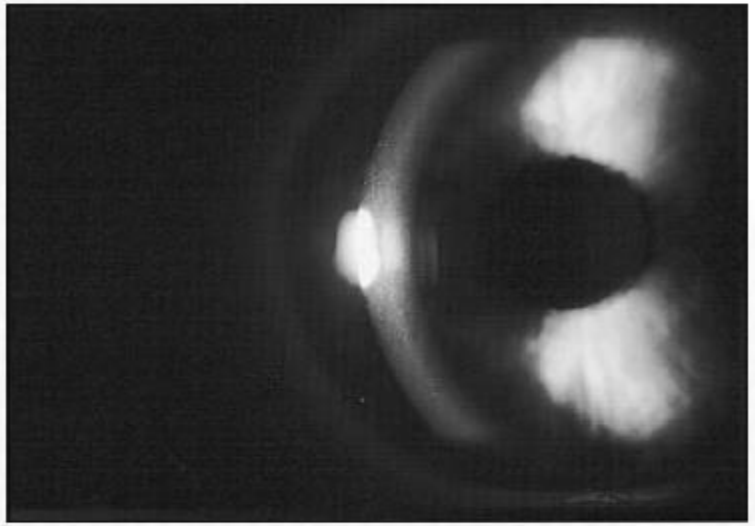
Specular Reflection



Specular Reflection

Specular Reflection

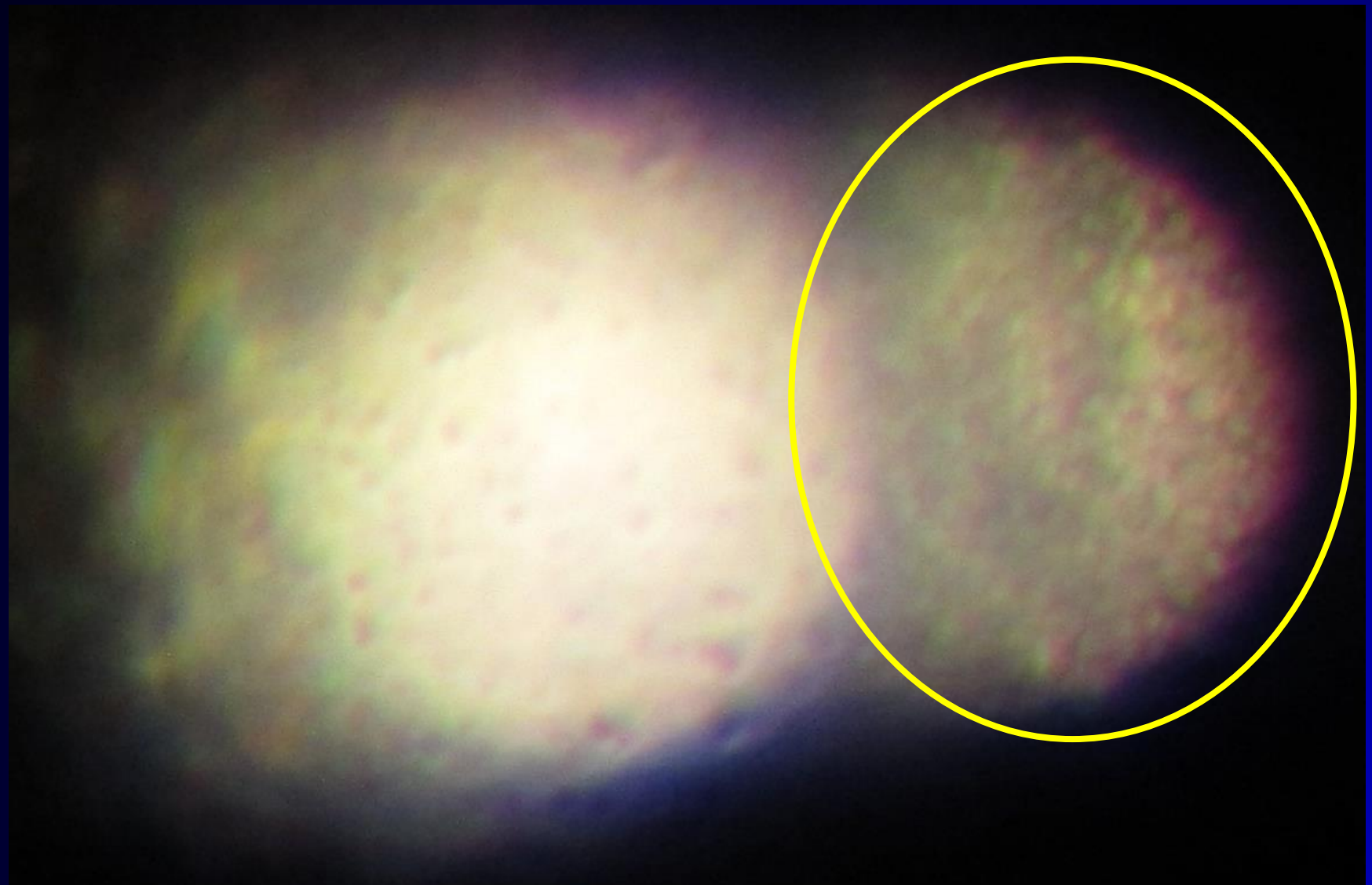




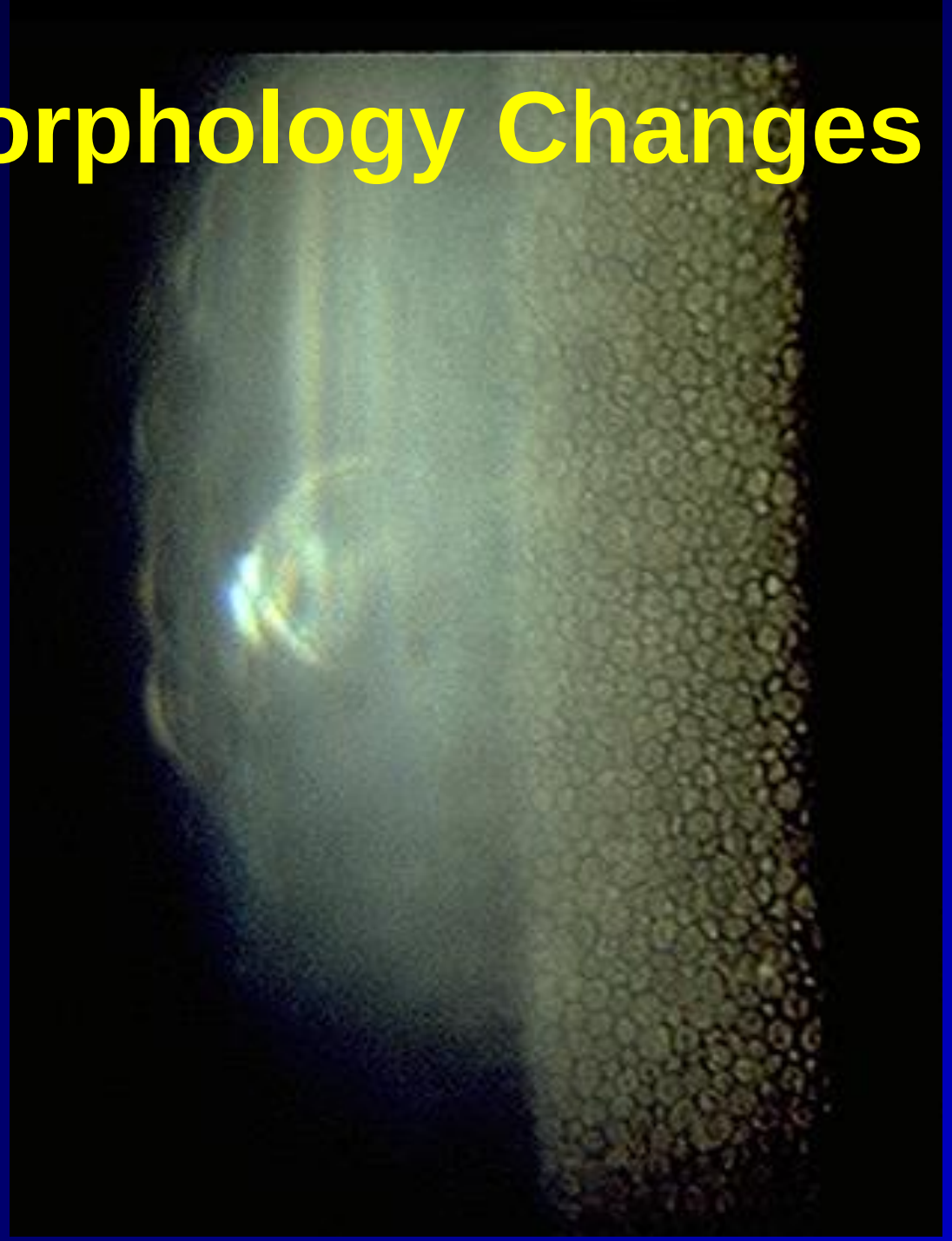
Specular Reflection Set Up

- 90 degree equally split angle
- Oculars are at 45 degree angle
- 1-2 mm white light
- Beam of light is focused on a specific area with the examiner's eye trained on the same location.
- Align the microscope along the reflection of light. The patient's gaze should split the angle in half. On a perfectly smooth surface a mirror image of light source is seen

Jordon O Endothelium



Endothelial Morphology Changes

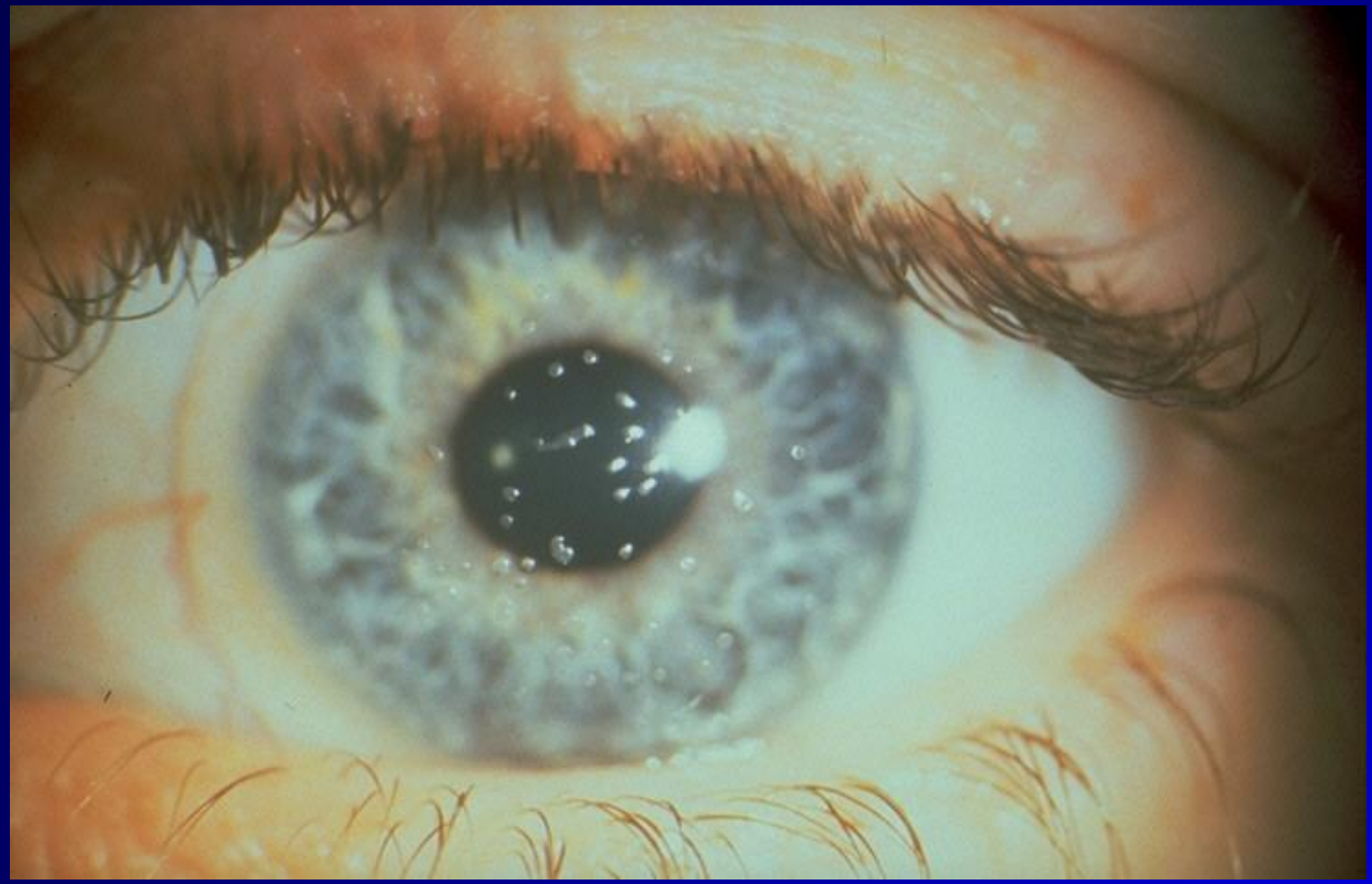


Polymegathism

Pleomorphism

Specular Reflection Observations

Contact lens surface deposits



Conical Beam

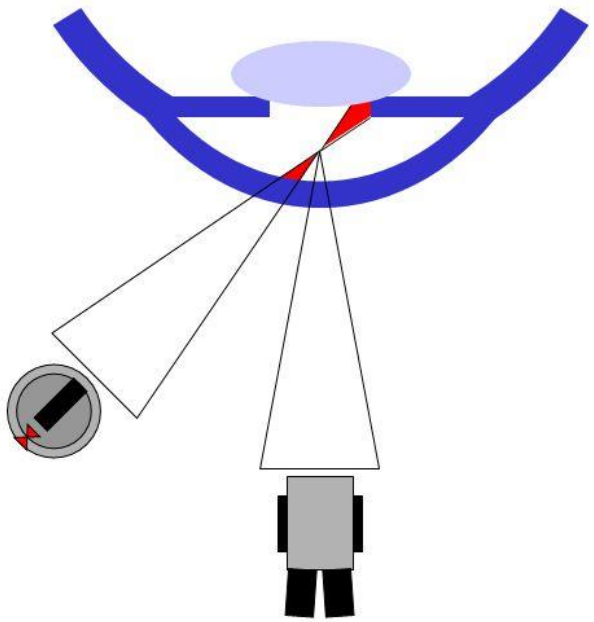
Types of Illumination
Direct Focal Illumination - Conical Beam

Principle

- assessment of particles floating in the anterior chamber by illuminating with a light beam
- Tyndall's phenomenon
- pinpoint illumination 0,3 - 0,5mm

Applications

- assessment of particles in aqueaous humor
- inflammation cells, pigmented cells, metabolic waste



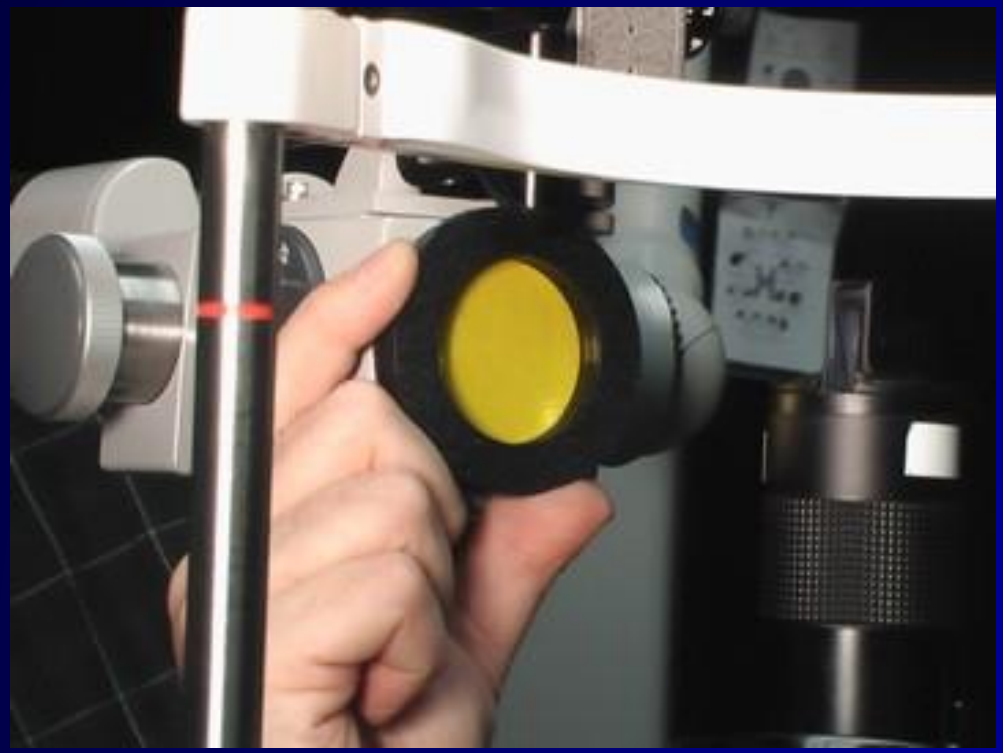
Conical Beam

- Set Up
- Form the smallest circle with the beam
- Beam is located of a specific area with the examiner’s eye trained on the same location
- Not usually used for contact lens evaluation

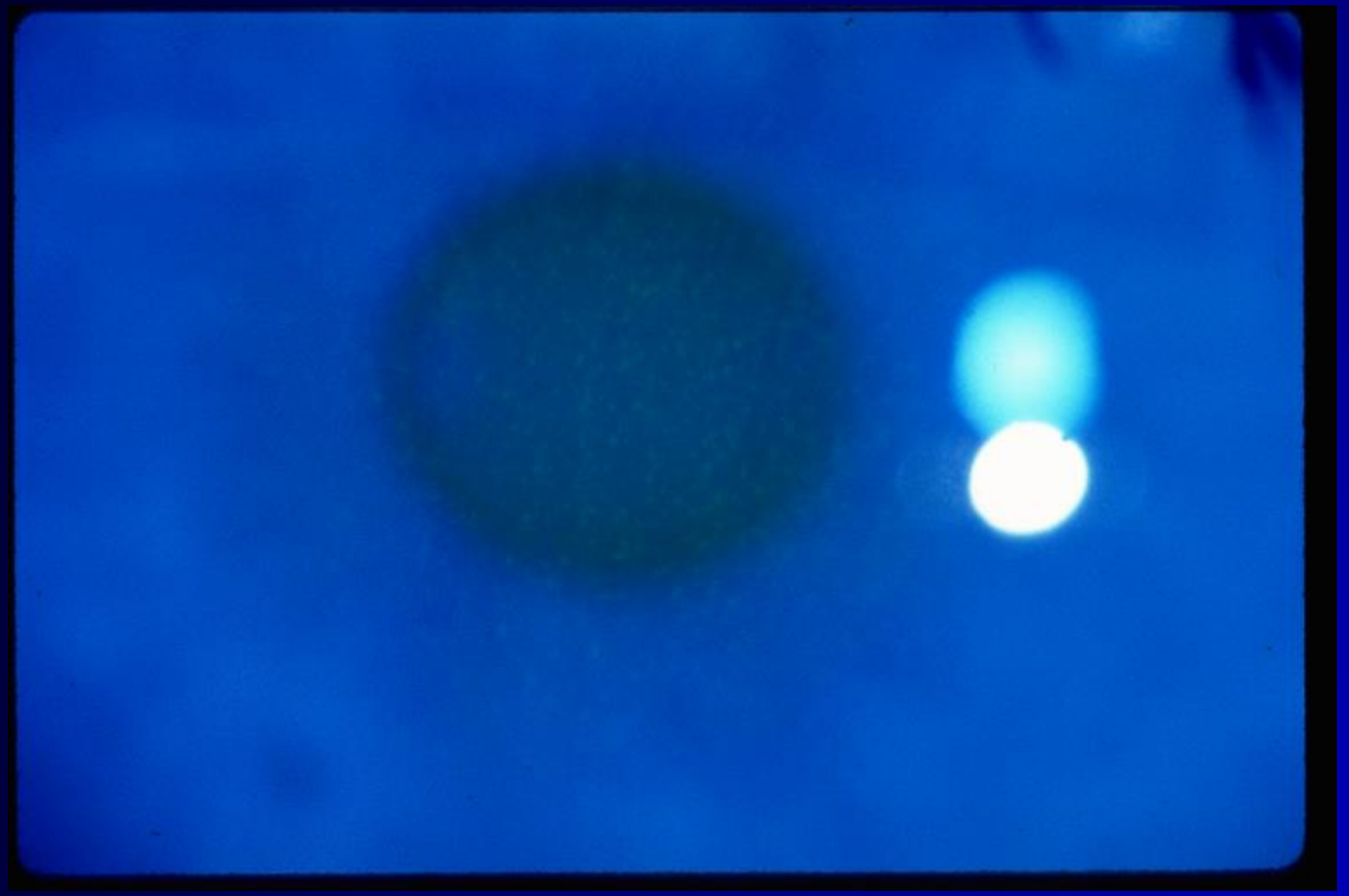
Flair in the Aqueous Humor
Tyndall Effect

Wratten Filter

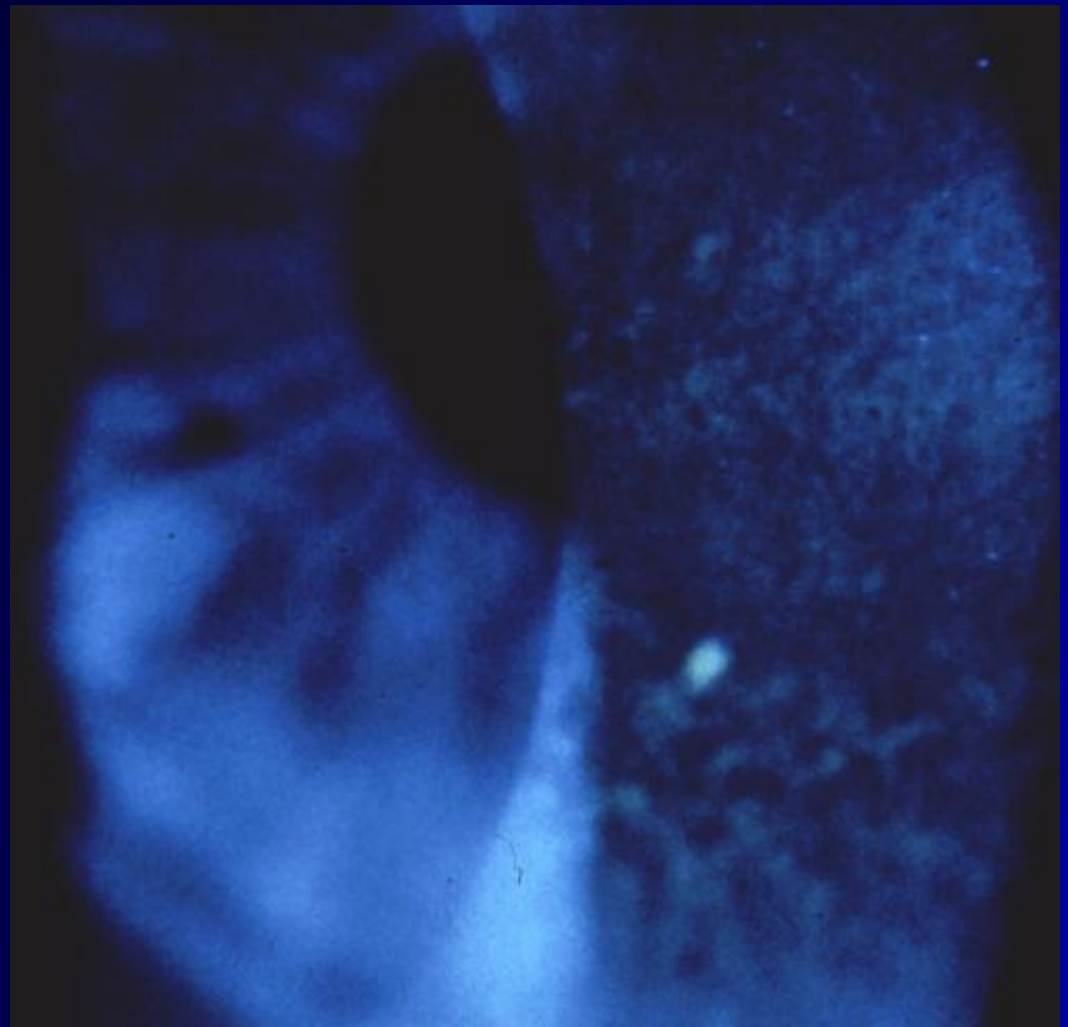
- Attached filter to the slit lamp used to enhance fluorescein patterns with UV inhibiting lenses
-



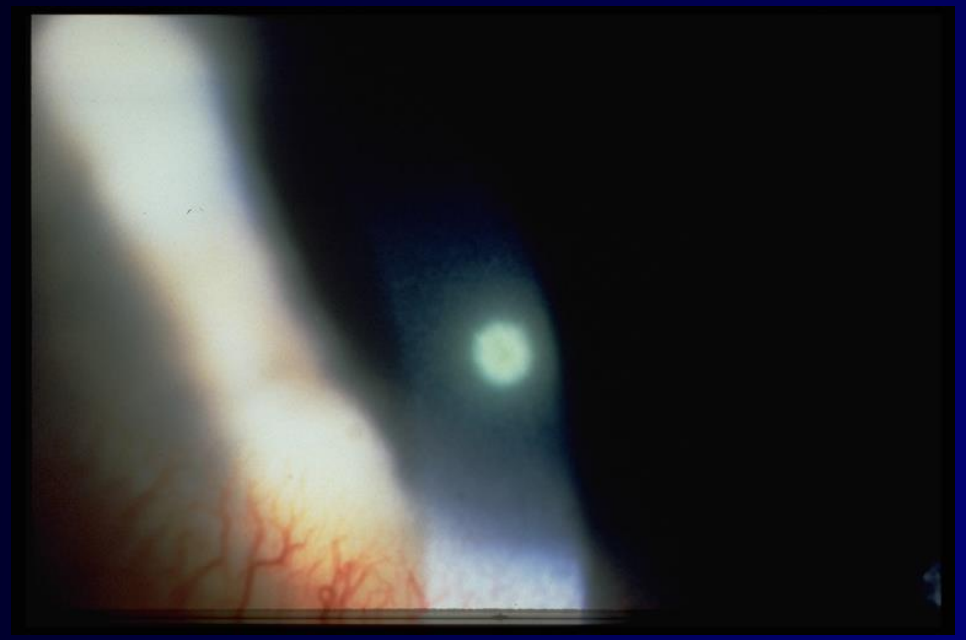
Stippling



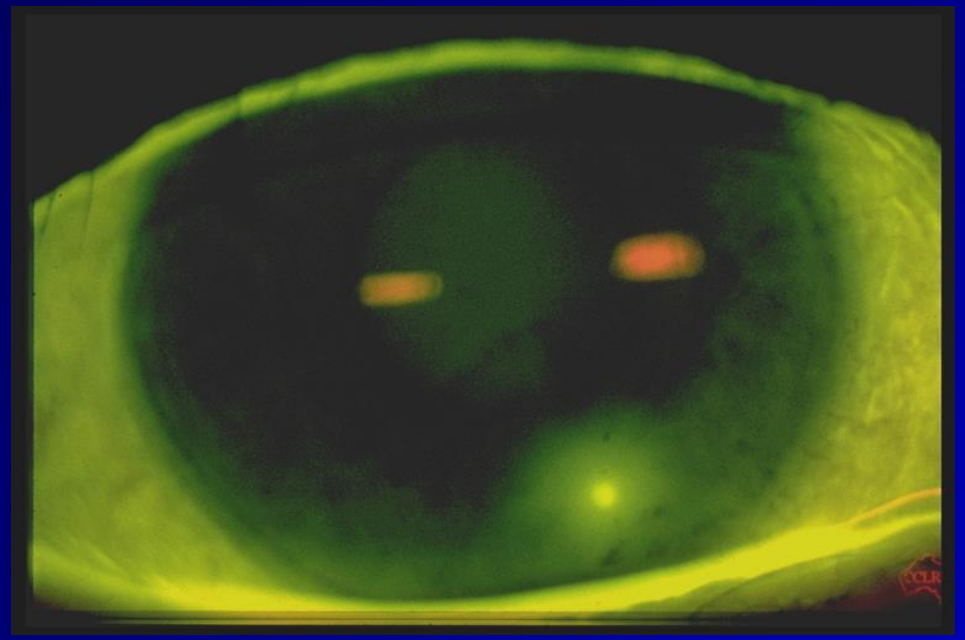
Superficial Punctate Keratopathy (SPK)



Inflammatory Related Adverse Responses



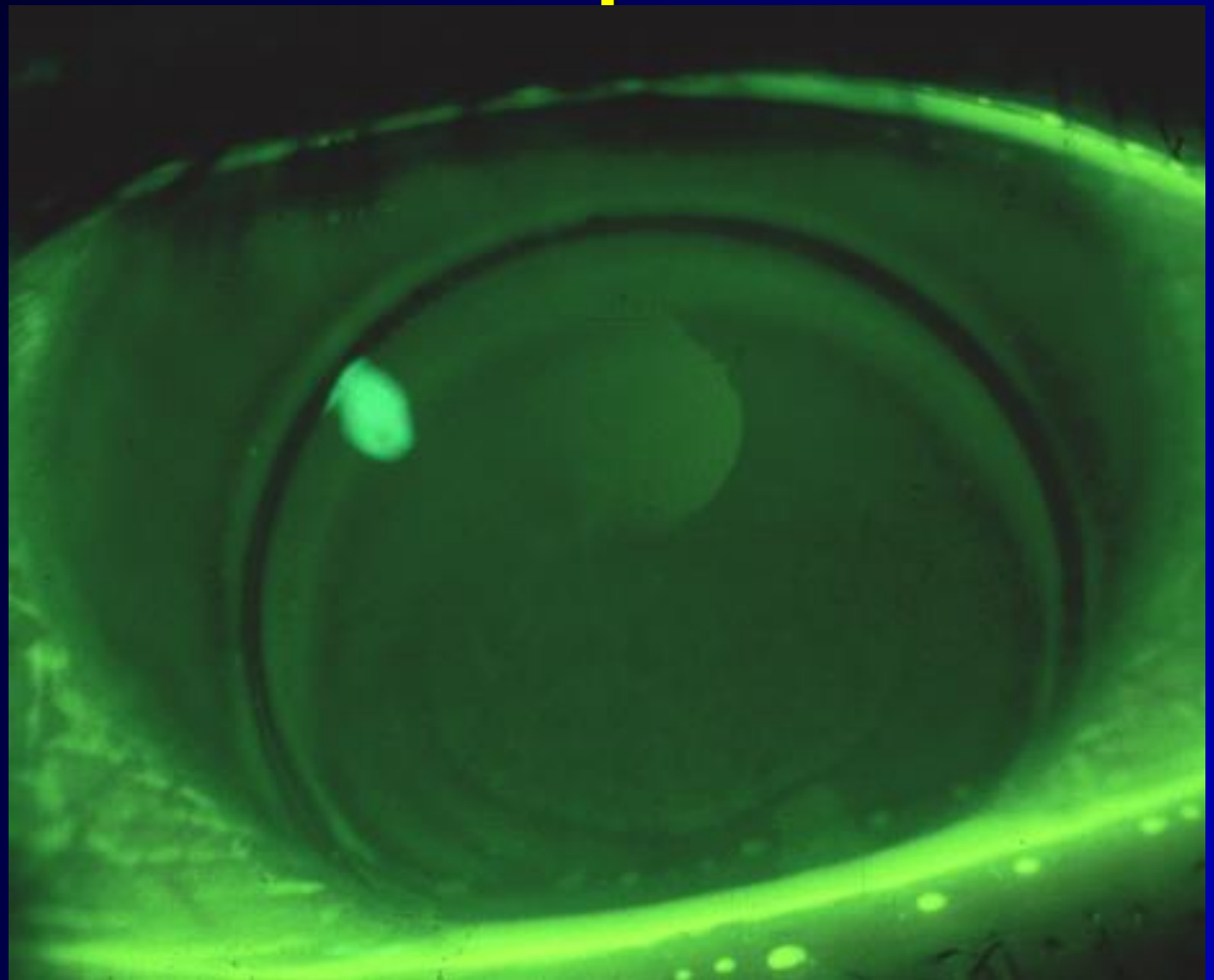
Peripheral infiltrate



Peripheral infiltrate staining

Marginal Infiltrate

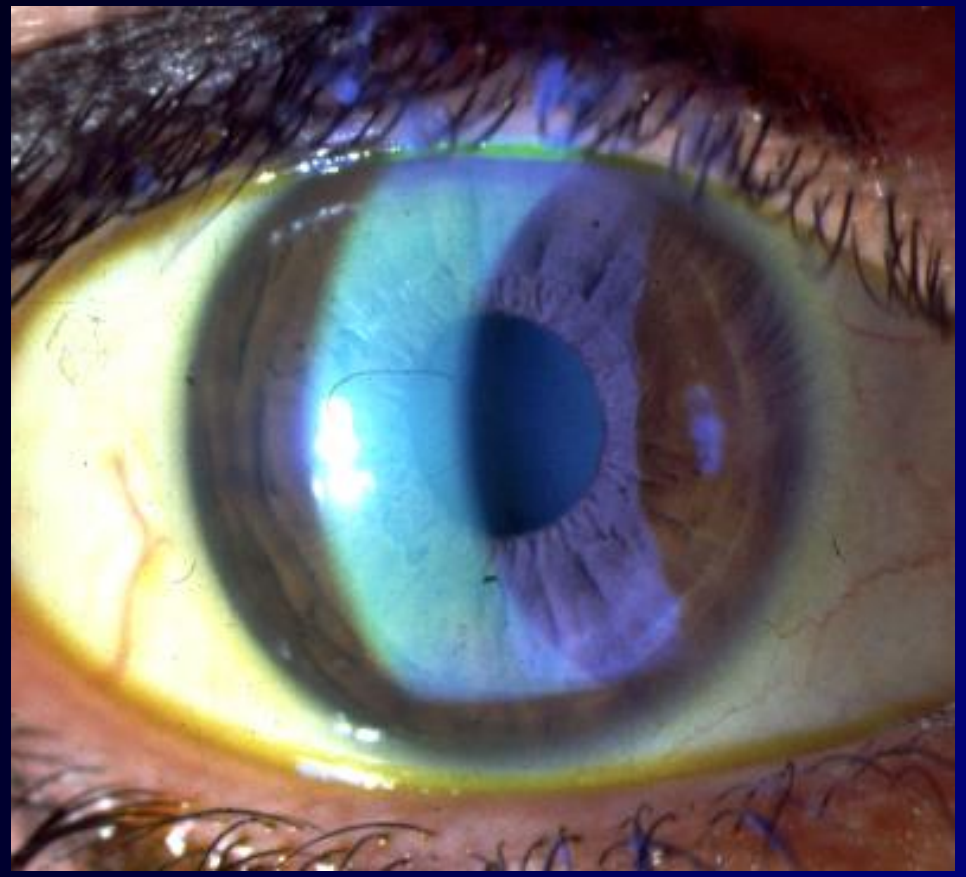
GP Imprint

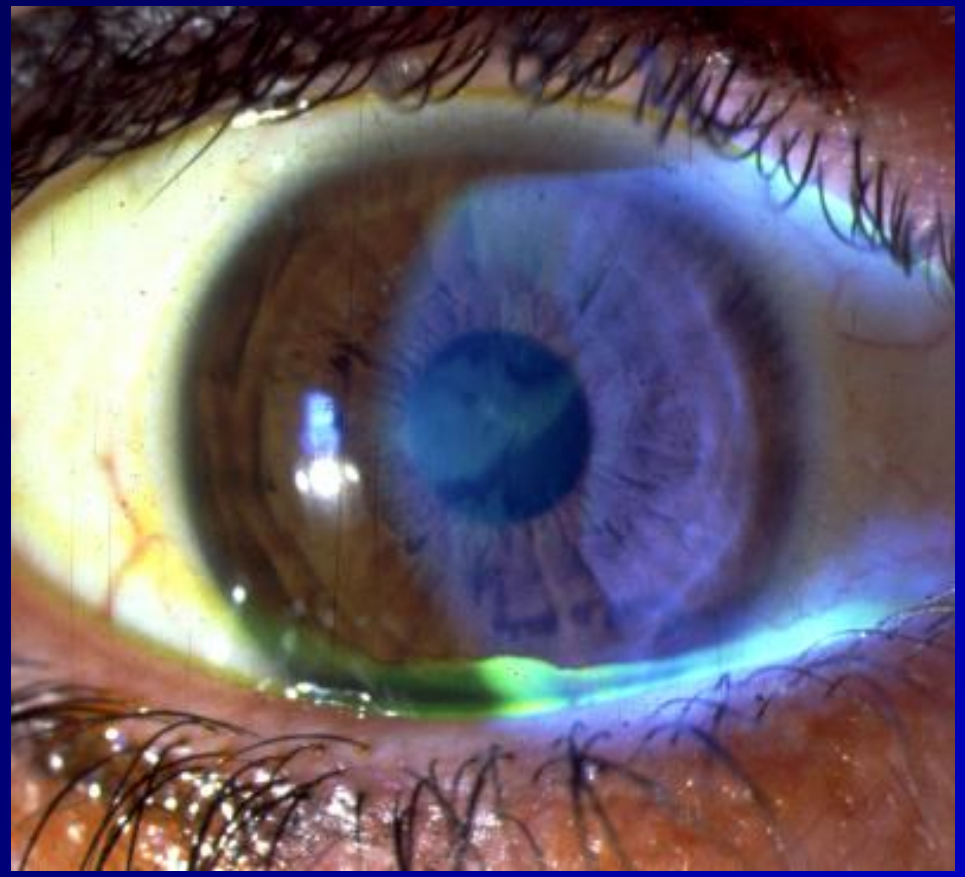


Protein Debris on RGP

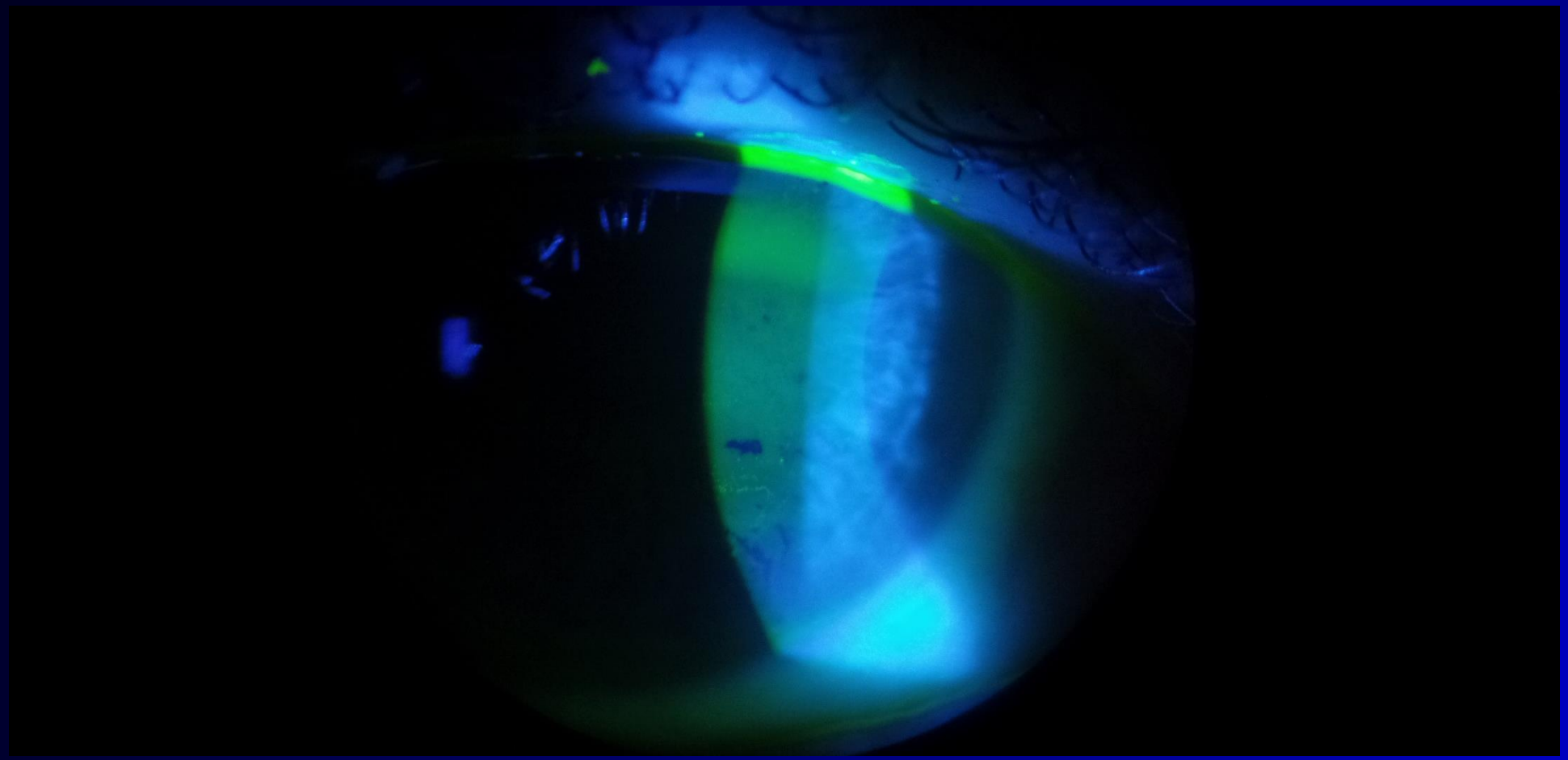
Striae

Tear Film Disorders
(Dry Eye)





Tear Break Up Time



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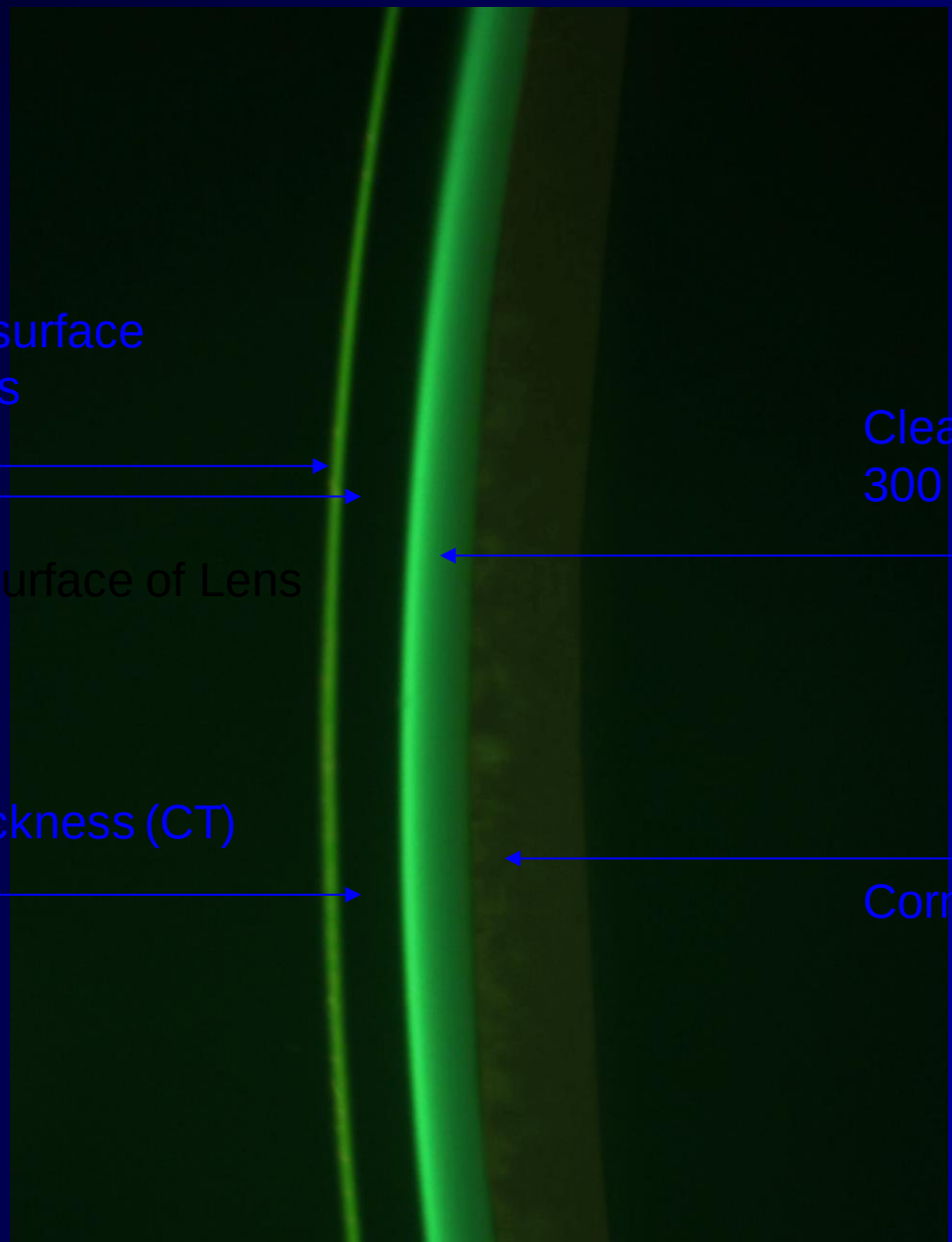
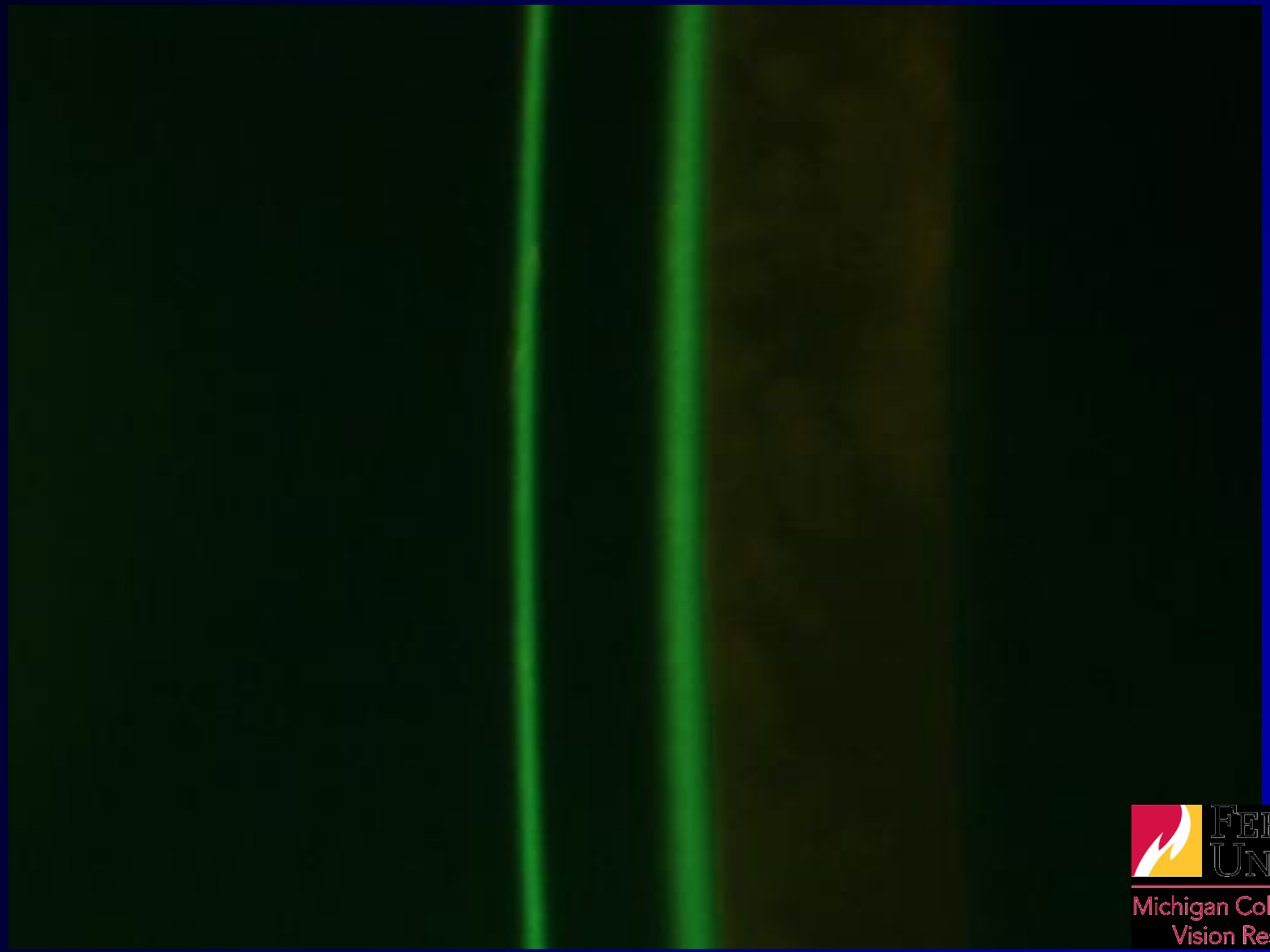
Authors: Josh Lotoczky, OD; Chad Rosen, OD; Craig W. Norman, FCLSA
Contact info: CraigNorman@ferris.edu

Supported by an unrestricted educational grant from

Scleral Lens Fit Scales



50 Microns



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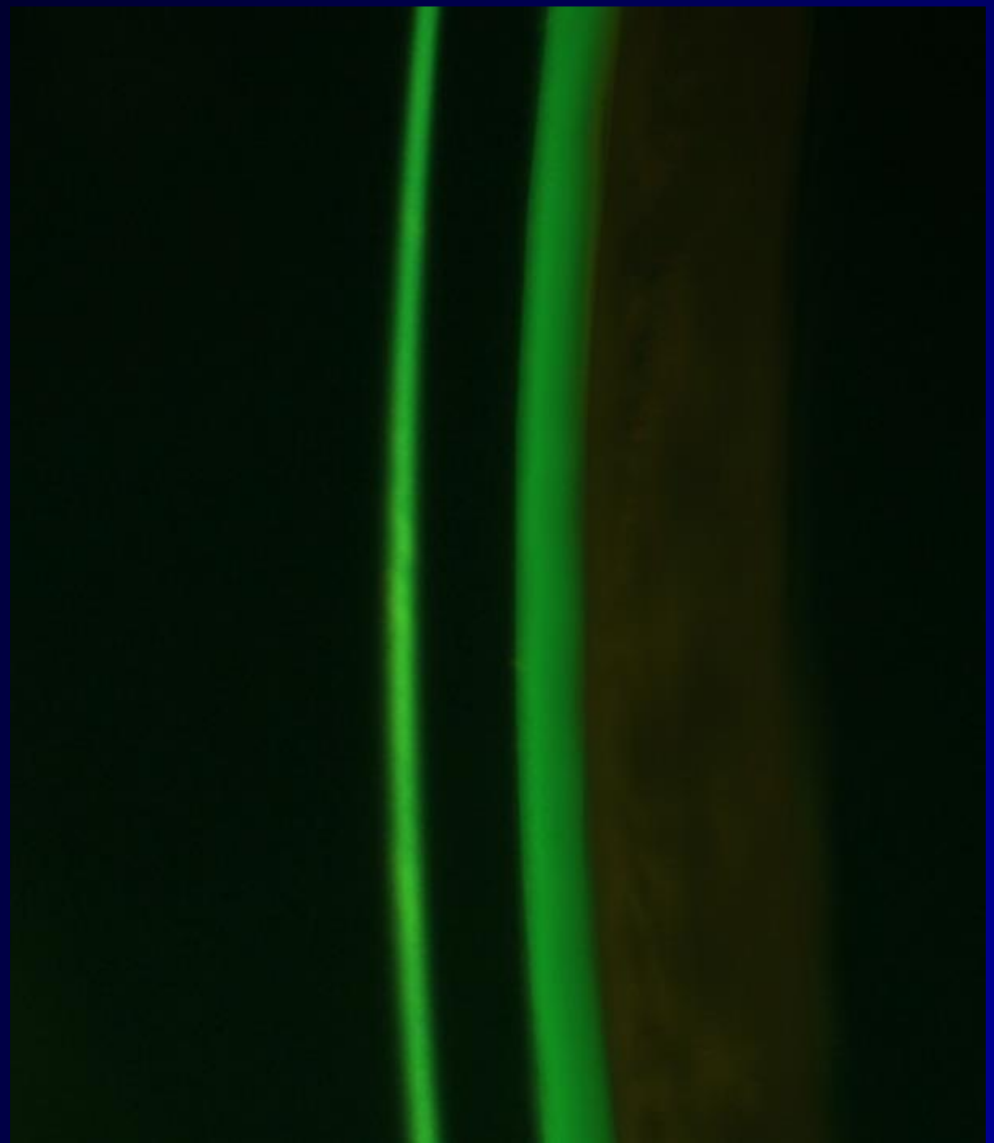
150 Microns



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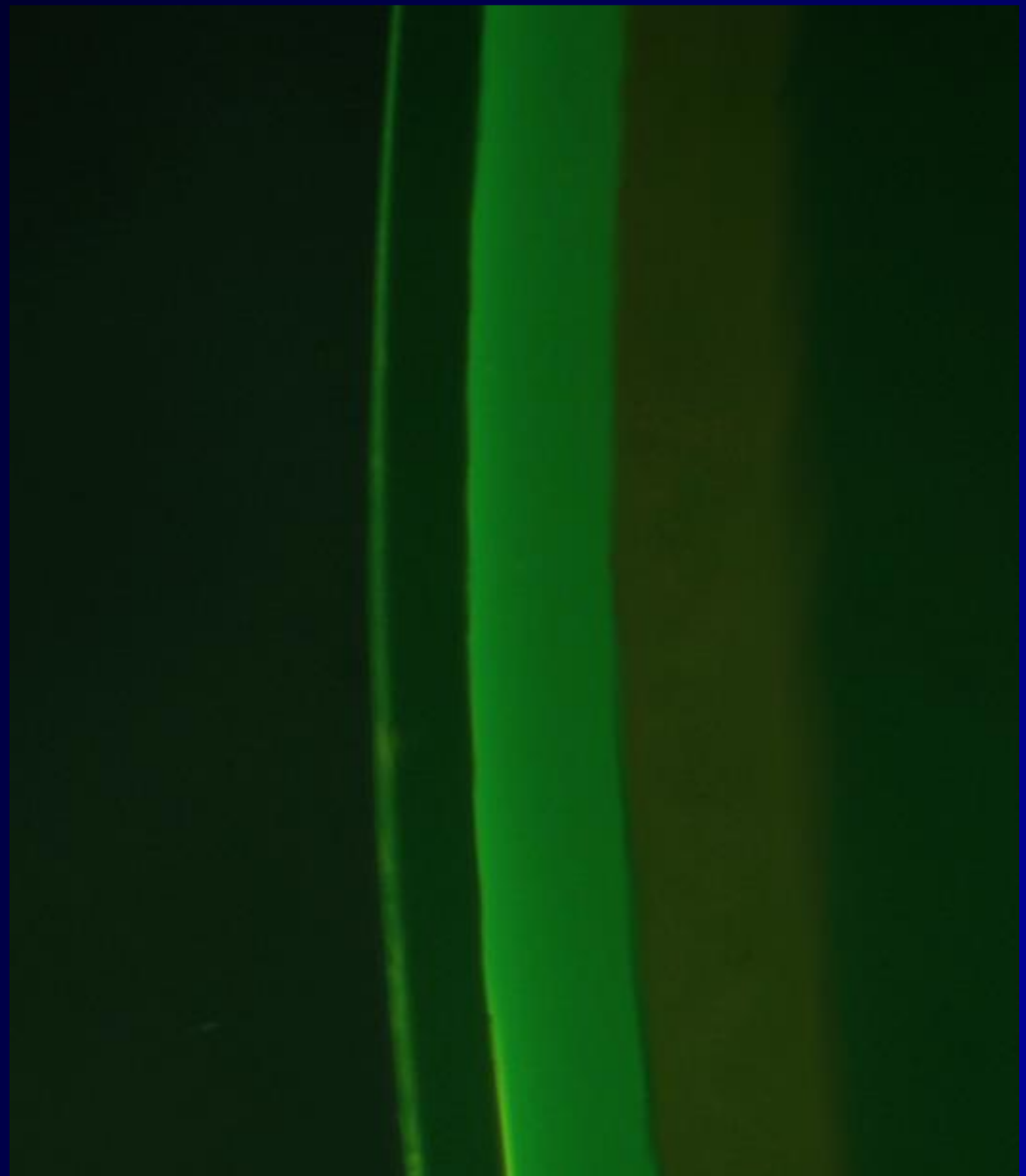
500 Microns



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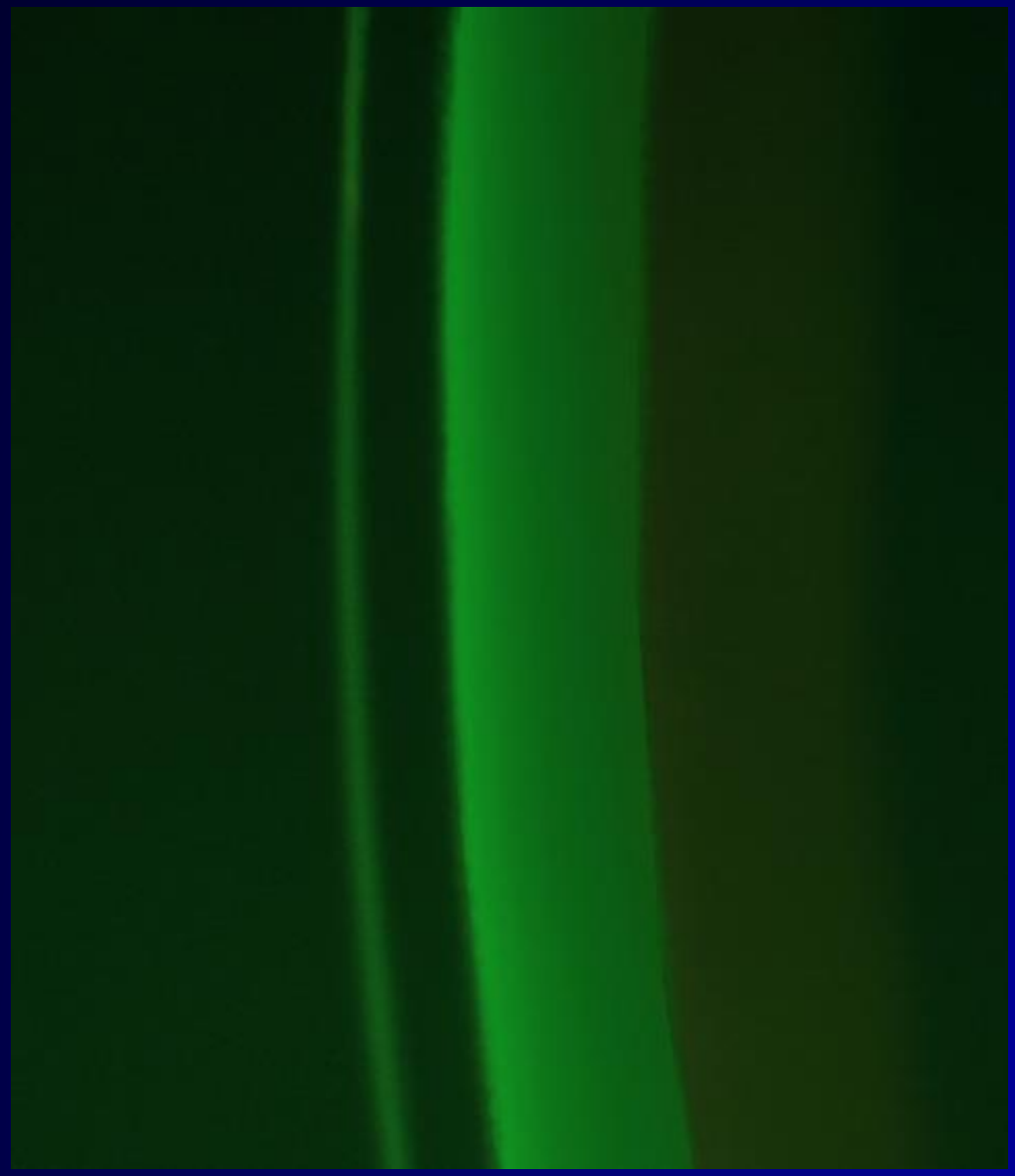
600 Microns



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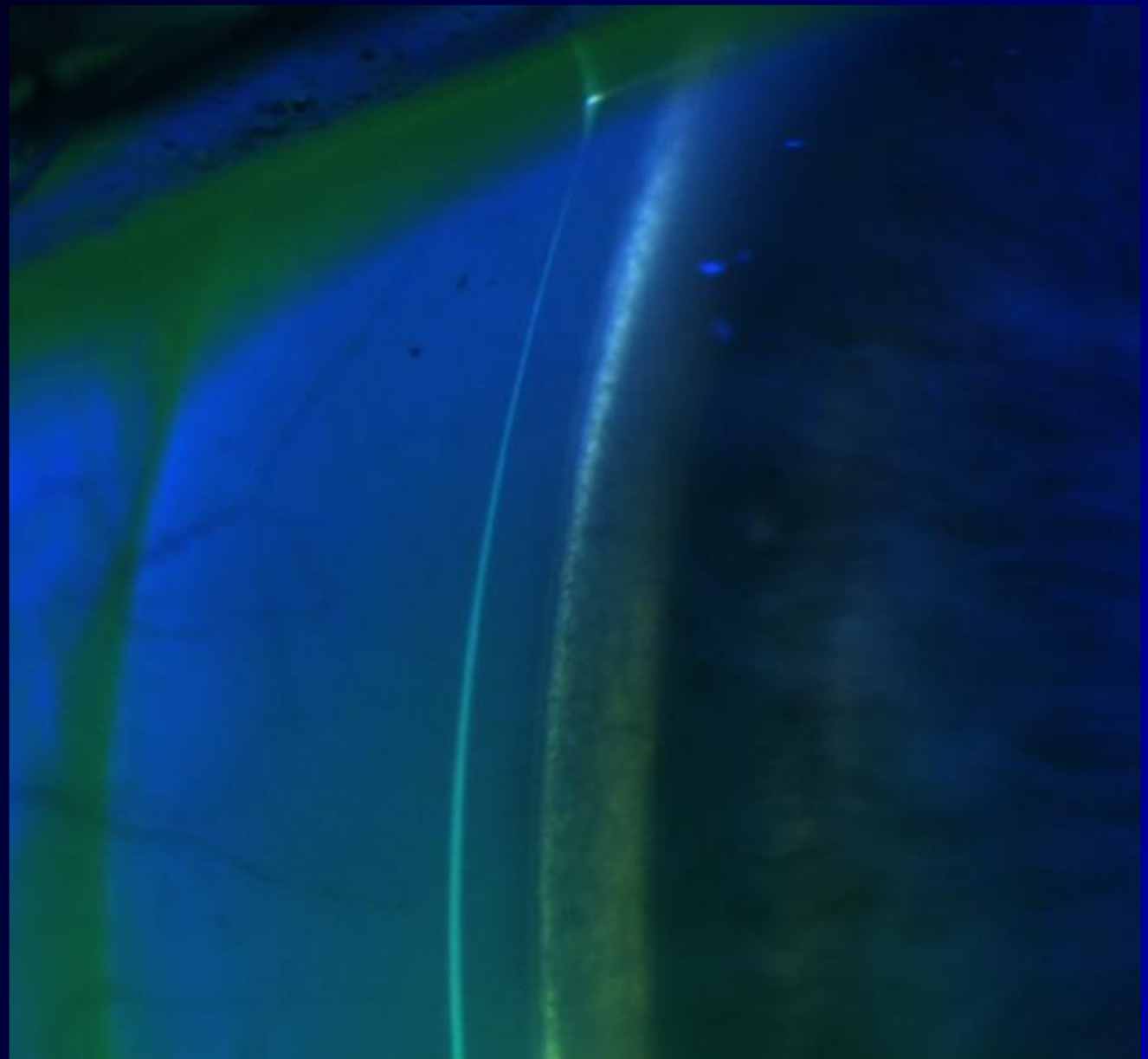
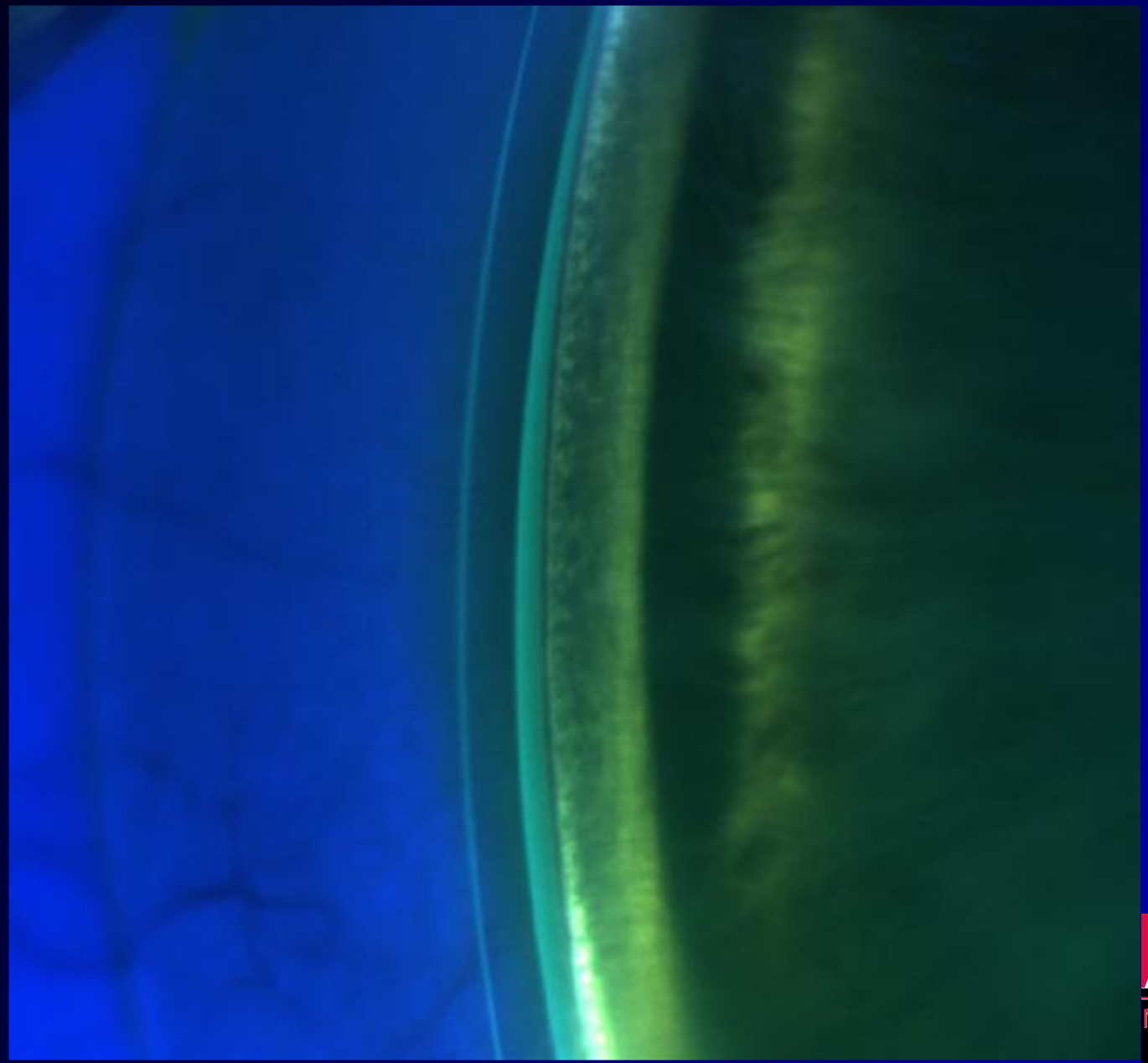
Limbal Vaulting None



Good



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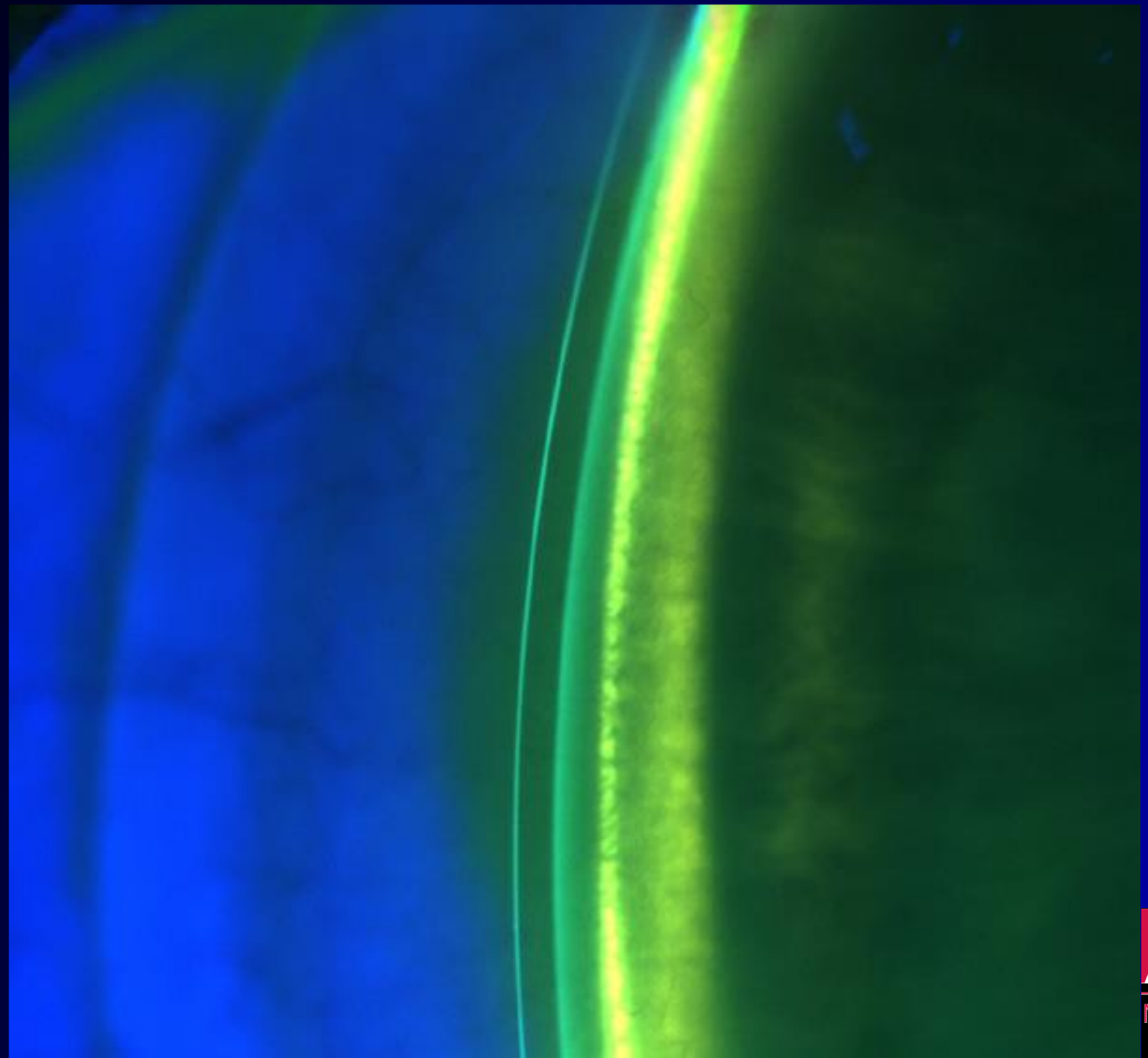
Moderate



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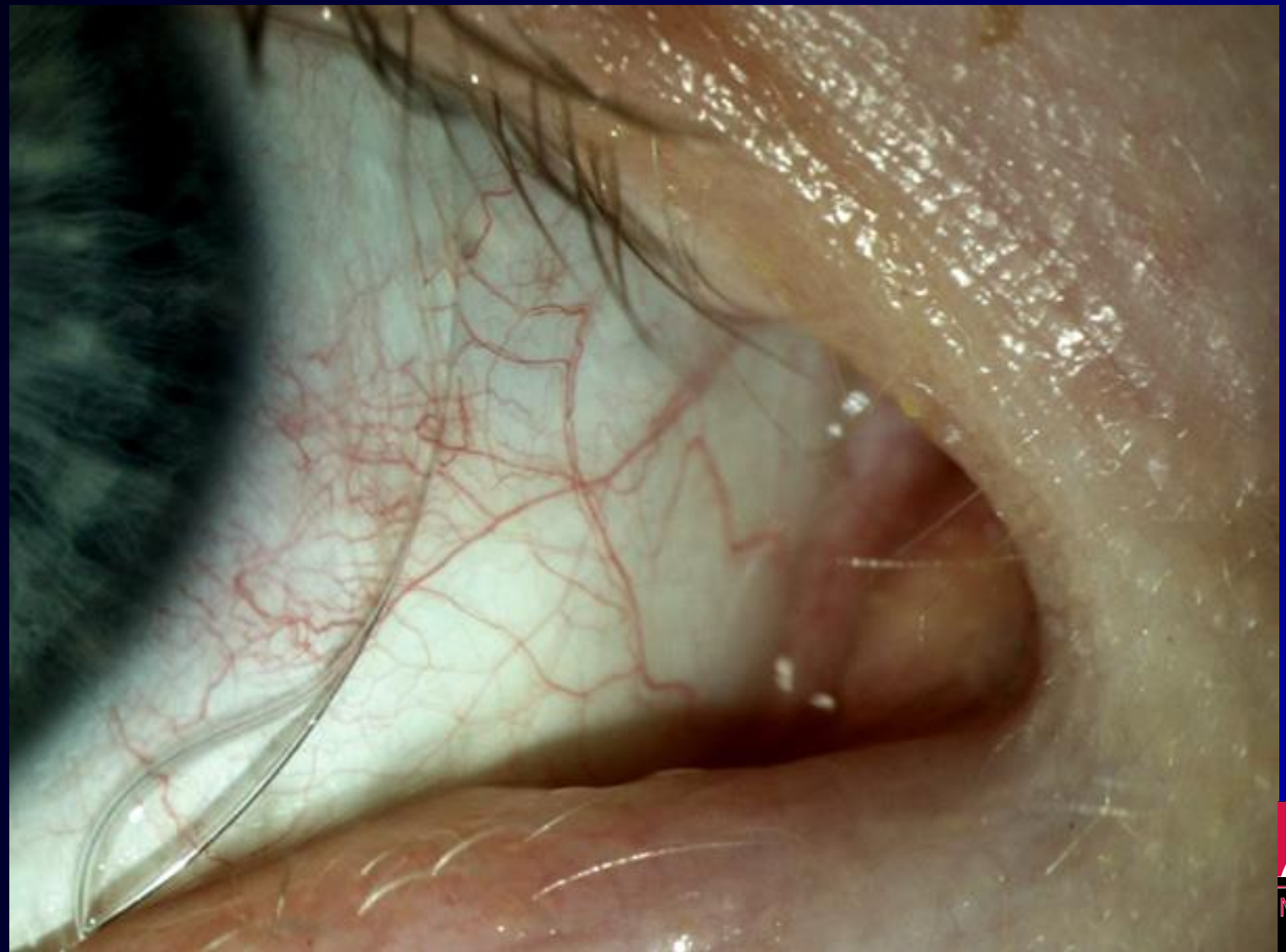
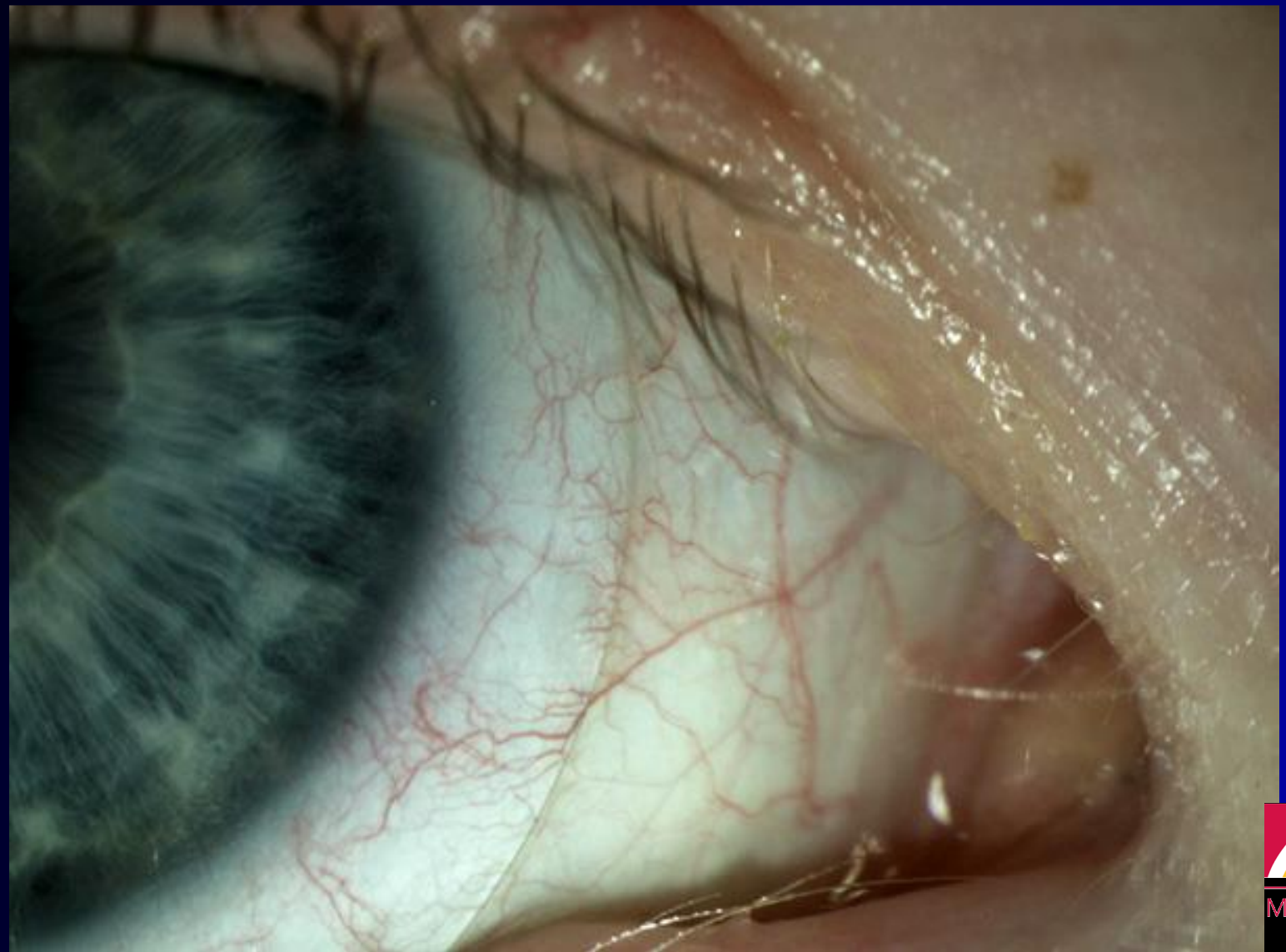
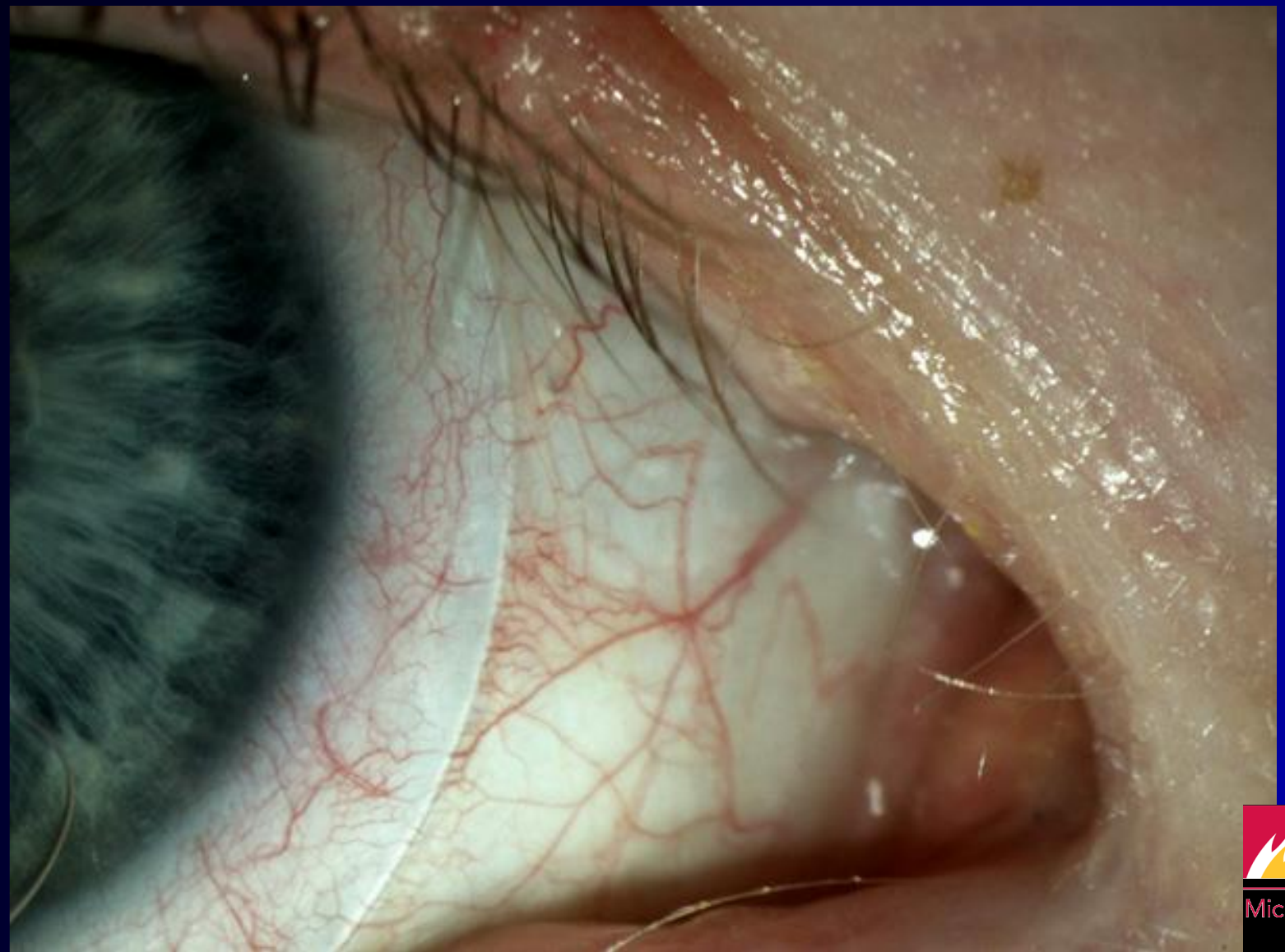
Severe Lift with Bubble



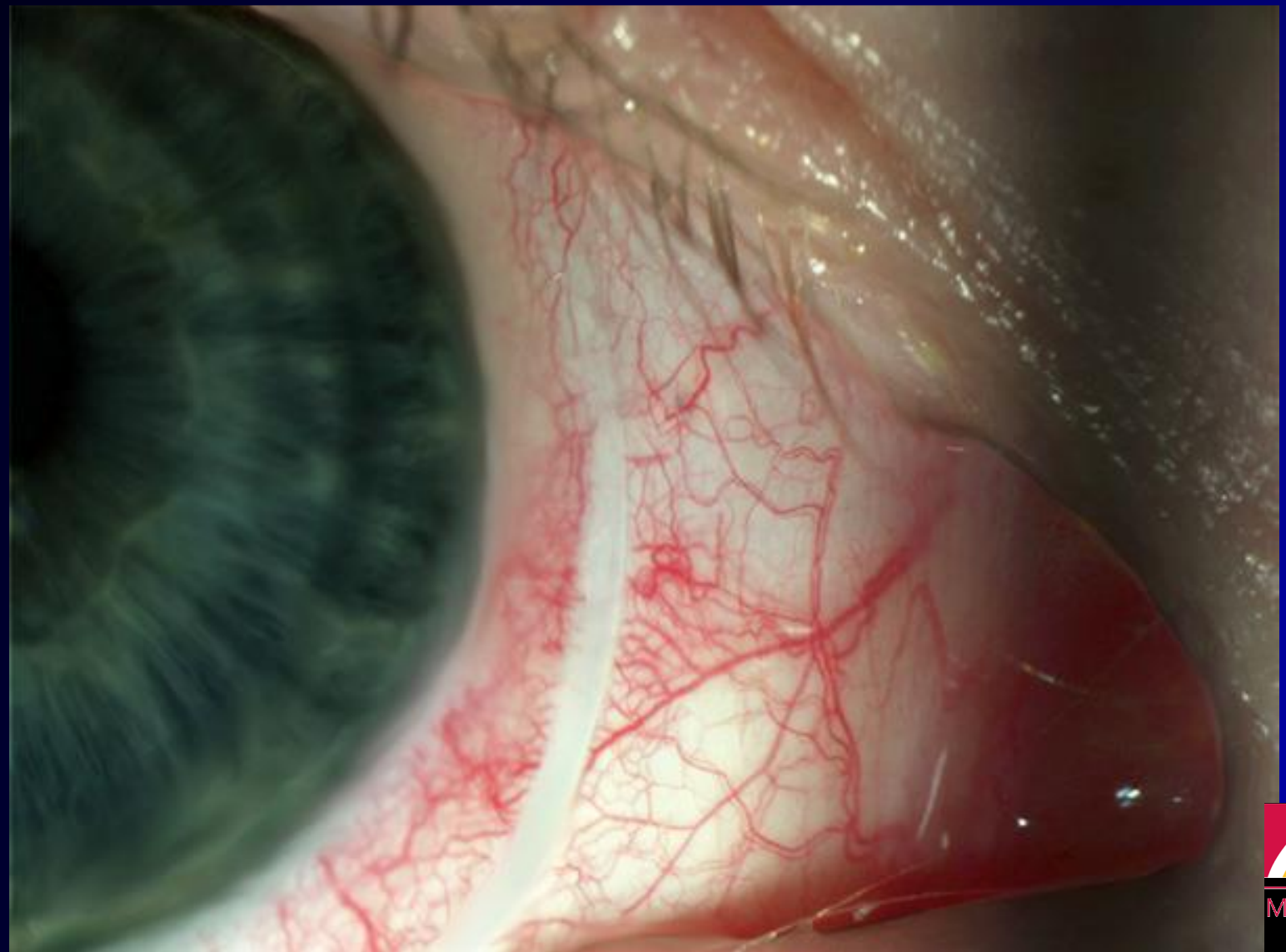
Good Edge Alignment



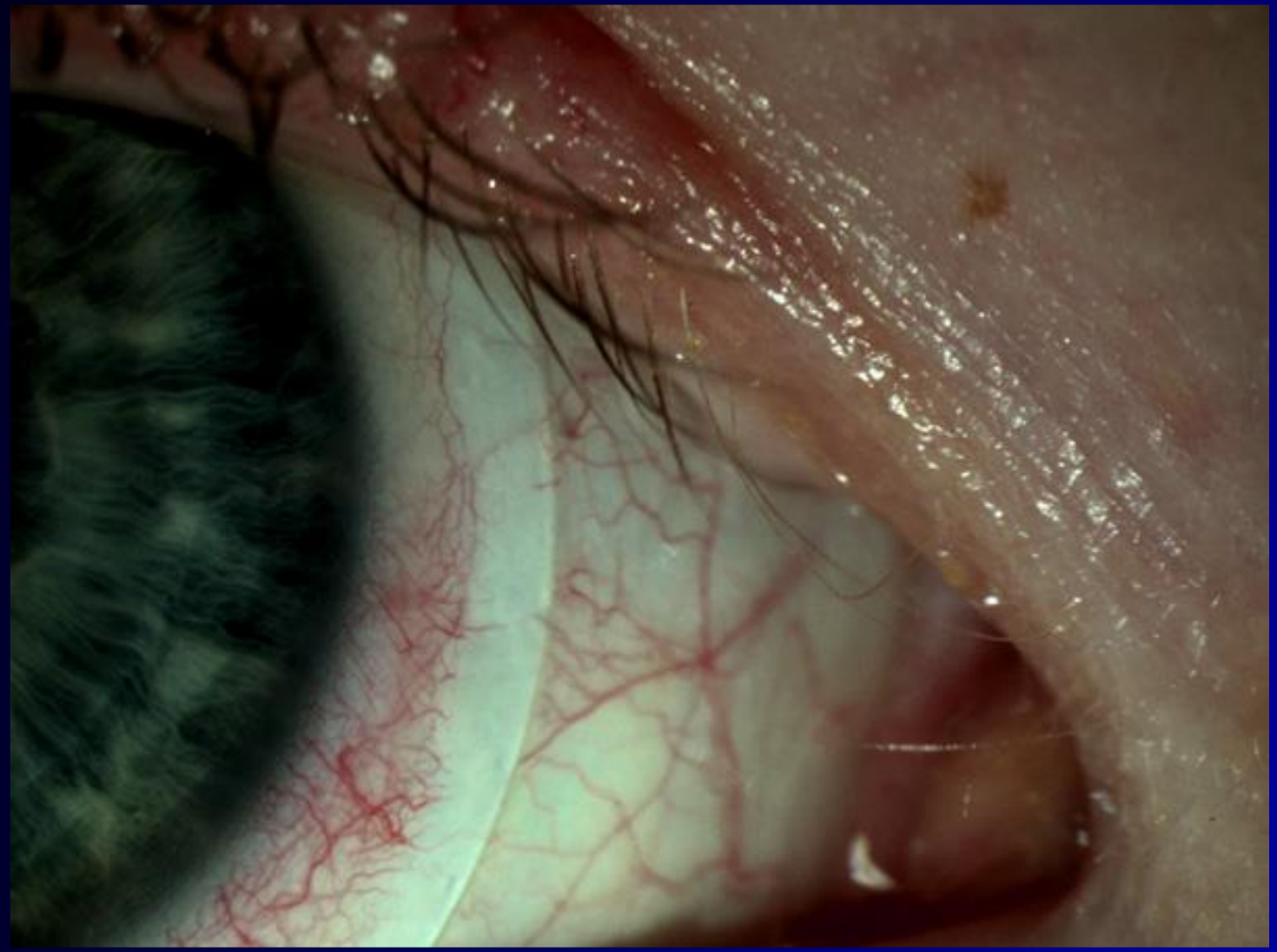
Mild Impingement



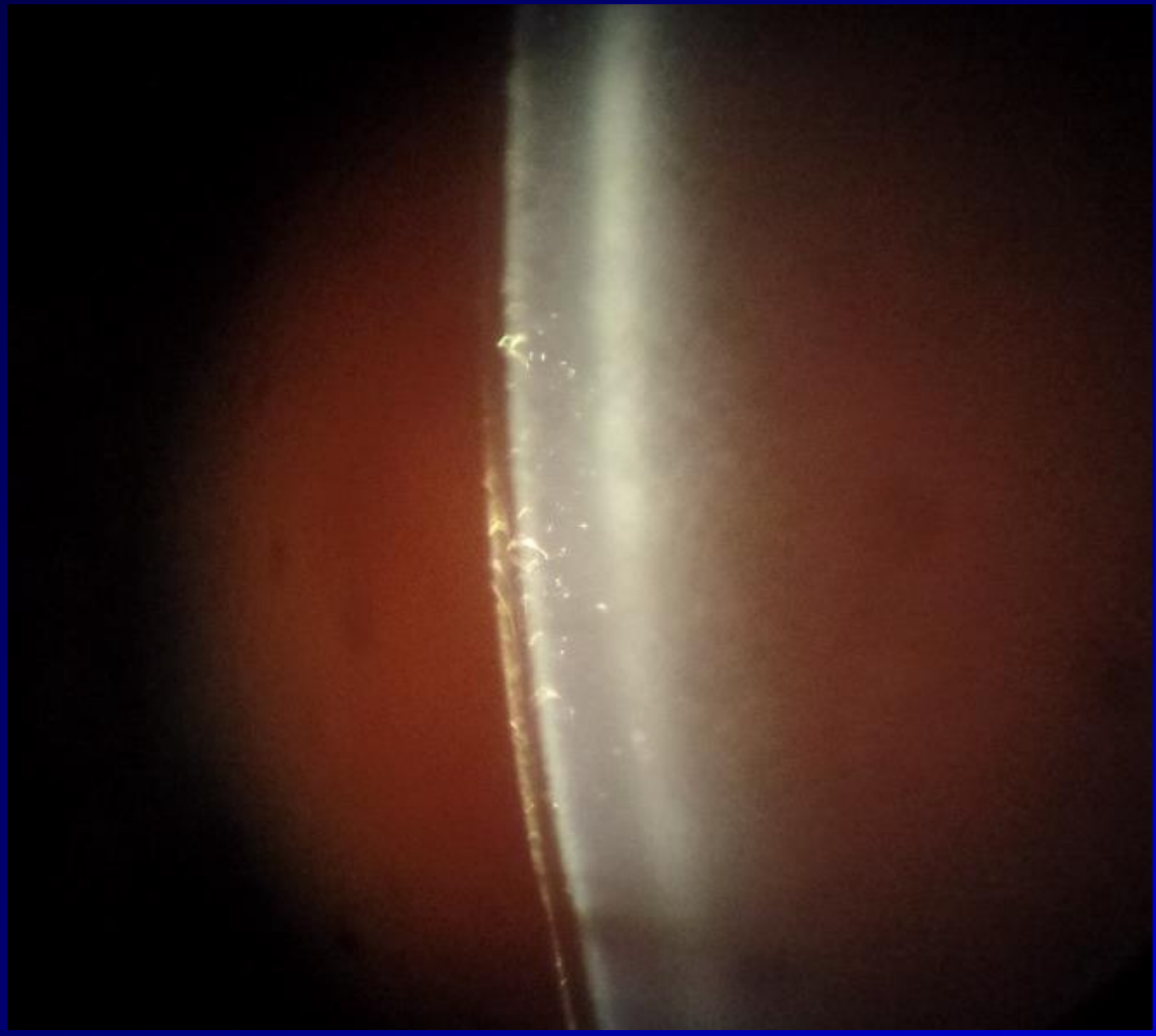
Severe Impingement



Severe Impingement



Edema Lyndon



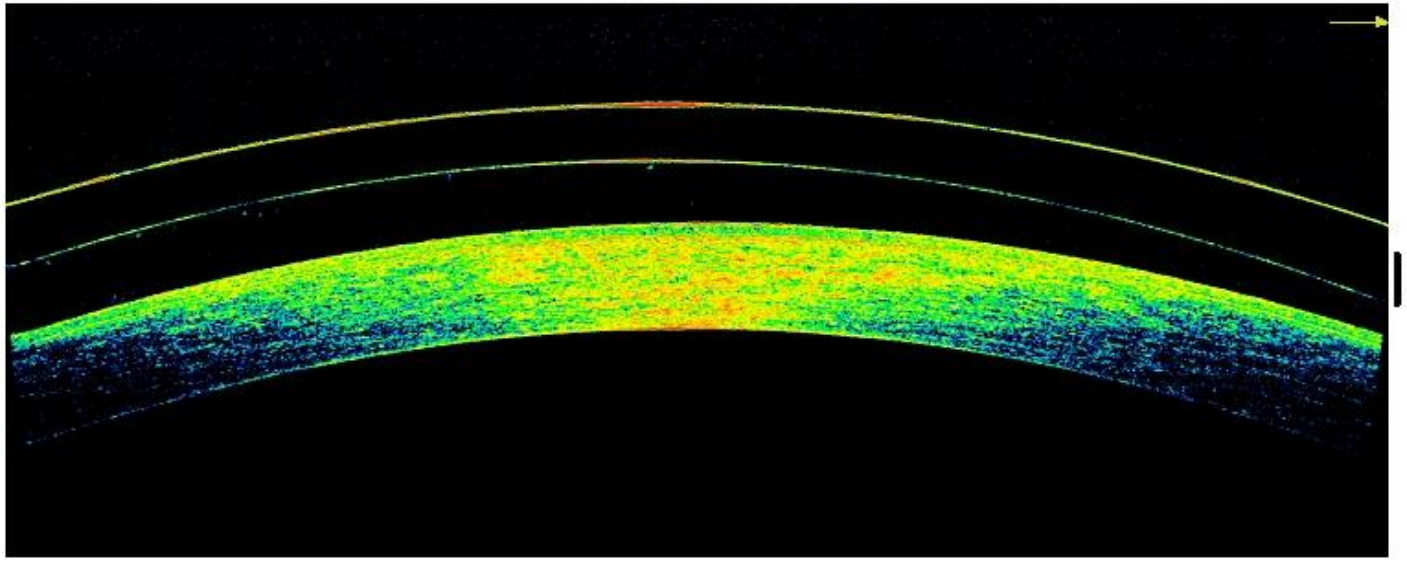
Thank You

OD Central Toric

Cornea Pachymetry

Scan Quality Index Good 48

Right / OD

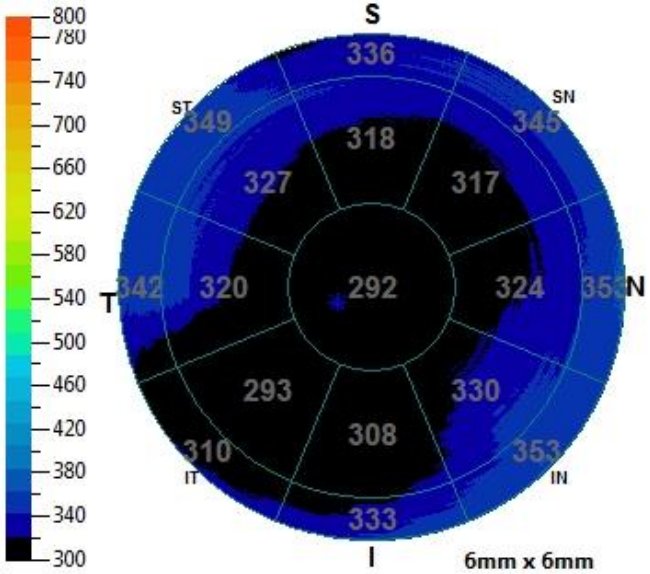


Pachymetry Assessment

Superior - Inferior Comparison within 5mm zone

SN-IT(2-5mm):	24	S-I(2-5mm):	10
Min:	281	Location Y:	-188
Min-Median:	-30	Min-Max:	-72

Min thickness (x, y) -0.404mm, -0.188mm shown as *



Print | Change Analysis | OU Report | Comment

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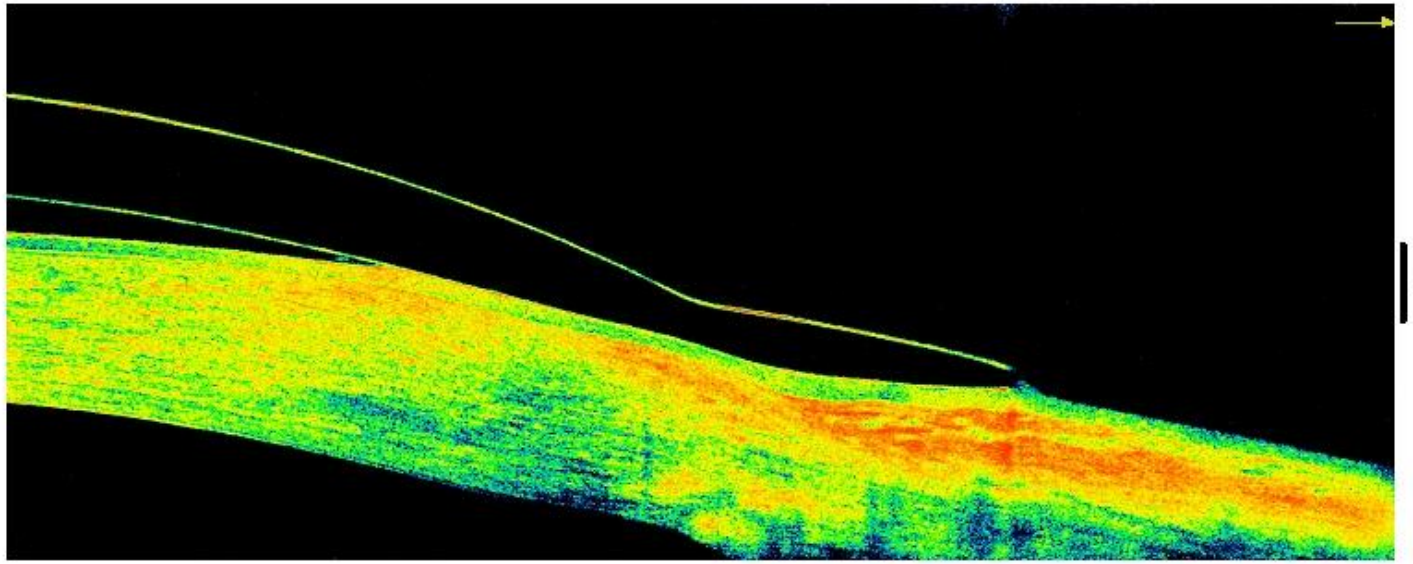
OD Nasal Toric

Cornea Pachymetry

Scan Quality Index Good 60

Right / OD

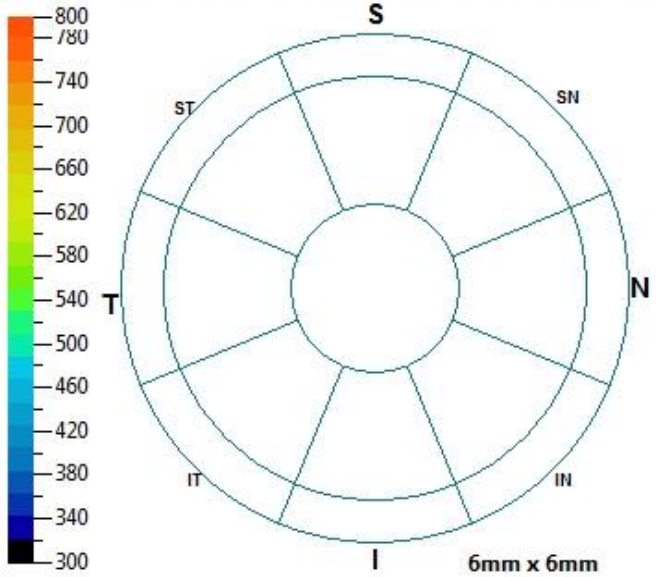


Pachymetry Assessment

Superior - Inferior Comparison within 5mm zone

SN-IT(2-5mm):	N/A	S-I(2-5mm):	N/A
Min:	N/A	Location Y:	N/A
Min-Median:	N/A	Min-Max:	N/A

Min thickness (x, y) 0.000mm, 0.000mm shown as *



Print | Change Analysis | OU Report | Comment

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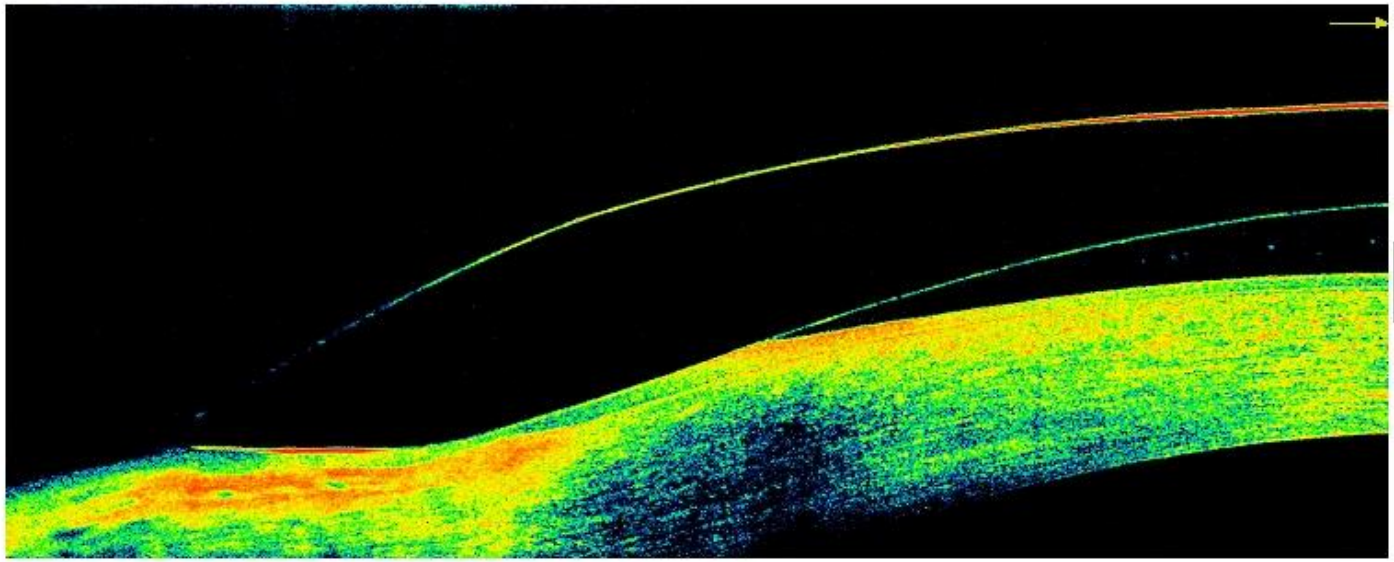
OD Temporal Toric

Cornea Pachymetry

Scan Quality Index Good 53

Right / OD

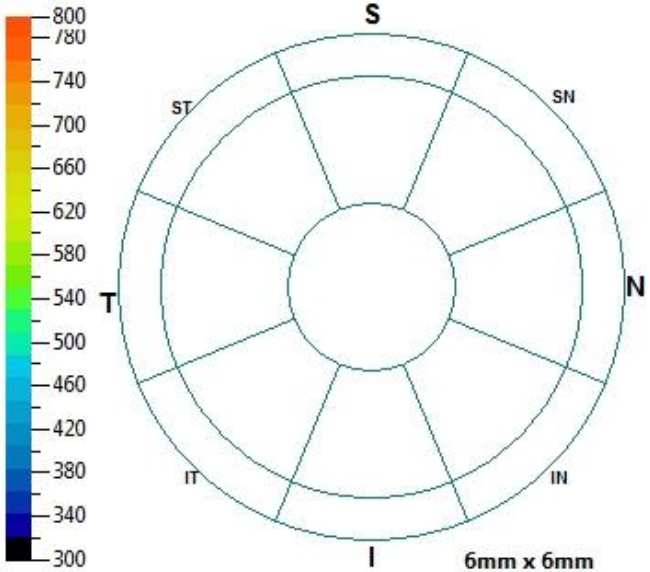


Pachymetry Assessment

Superior - Inferior Comparison within 5mm zone

SN-IT(2-5mm):	N/A	S-I(2-5mm):	N/A
Min:	N/A	Location Y:	N/A
Min-Median:	N/A	Min-Max:	N/A

Min thickness (x, y) 0.000mm, 0.000mm shown as *



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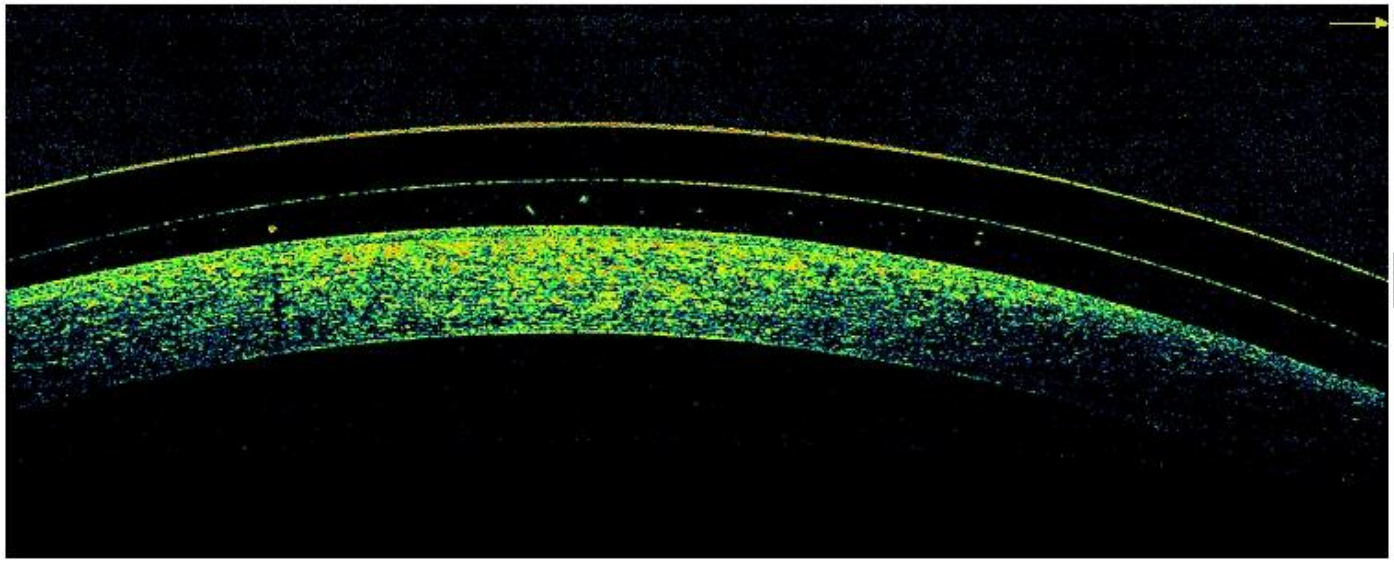
OS Central Toric

Cornea Pachymetry

Scan Quality Index Good 43

Left / OS

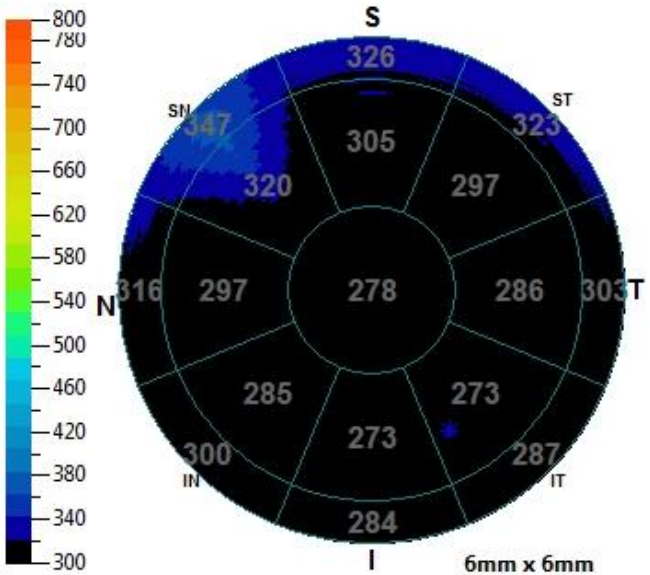


Pachymetry Assessment

Superior - Inferior Comparison within 5mm zone

SN-IT(2-5mm):	47	S-I(2-5mm):	32
Min:	268	Location Y:	-1658
Min-Median:	-21	Min-Max:	-88

Min thickness (x, y) 0.926mm, -1.658mm shown as *



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