VANCE THOMPSON VISION

Inquiry into Spectacle Independence: Discussion on refractive surgery options to fit patient-specific needs

Kristen Walton OD FAAO
Brandon Baartman MD
John Goertz OD FAAO

Financial Disclosures

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Disclosure of Relevant Financial Relationships

Name: Brandon Baartman, MD

Name of Ineligible Company	Nature of Relevant Financial Relationship (include all that apply)	
	What was Received?	For What Role?
Refocus Group	Consultant Fee	Consultant
Allergan	Consultant Fee	Consultant
Sight Sciences	Honorarium	Lecture
Sight Sciences	Consultant Fee	Consultant
Sight Sciences	Research	Research
Glaukos	Speaker	Lecture
Glaukos	Research	Research
EyeGate Pharma	Consultant Fee	Consultant
Equinox	Consultant Fee	Consultant
Expert Opinion	Consultant Fee	Consultant
Trefoil Therapeutics	Research	Research
Oyster Point Pharma	Research	Research
KOWA	Research	Research
STAAR Surgical	Research	Research
RX Sight	Research	Research

Financial Disclosures

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Disclosure of Relevant Financial Relationships

Name: Kristen Walton, OD

Name of Ineligible Company	Nature of Relevant Financial Relationship (include all that apply)	
	What was Received?	For What Role?
Glaukos	Research	Research
Trefoil Therapeutics	Research	Research
Oyster Point Pharma	Research	Research
Sight Sciences	Research	Research
Alcon	Research	Research
Bausch & Lomb	Research	Research
Beaver Visitec (BVI)	Research	Research
KOWA	Research	Research
STAAR Surgical	Research	Research
RX Sight	Research	Research

Financial Disclosures

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Disclosure of Relevant Financial Relationships

Name: John Goertz, OD

Name of Ineligible Company	Nature of Relevant Financial Relationship (include all that apply)	
	What was Received?	For What Role?
Glaukos	Research	Research
Trefoil Therapeutics	Research	Research
Oyster Point Pharma	Research	Research
Sight Sciences	Research	Research
Alcon	Research	Research
Bausch & Lomb	Research	Research
Beaver Visitec (BVI)	Research	Research
KOWA	Research	Research
STAAR Surgical	Research	Research
RX Sight	Research	Research

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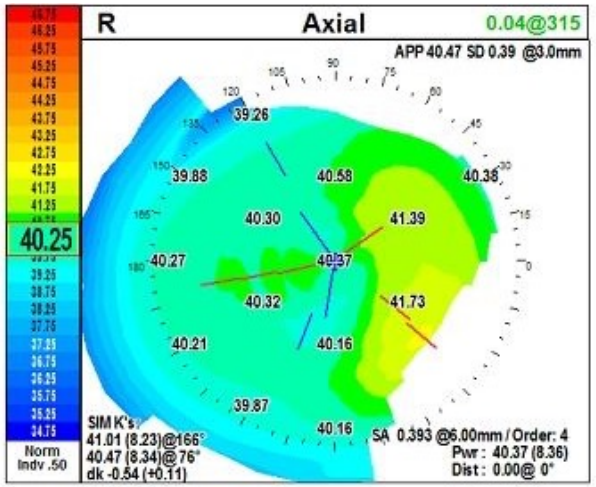
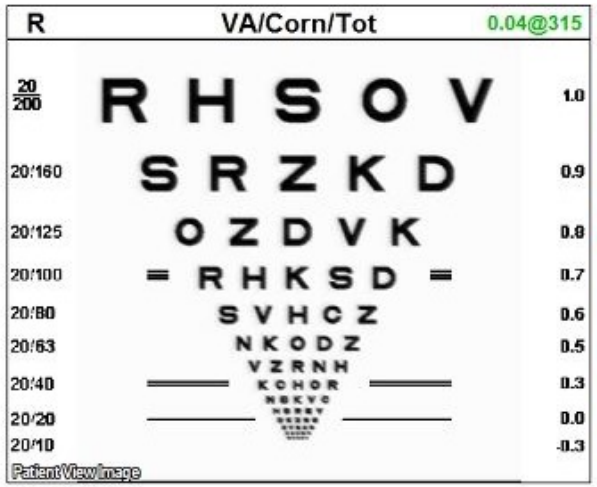
Preoperative Testing

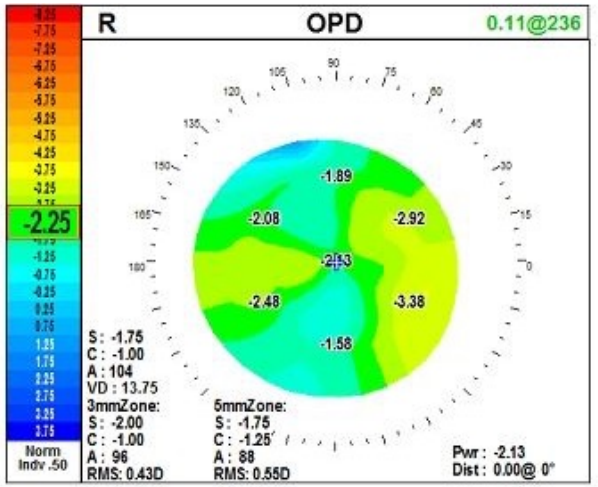
“Super Techs”

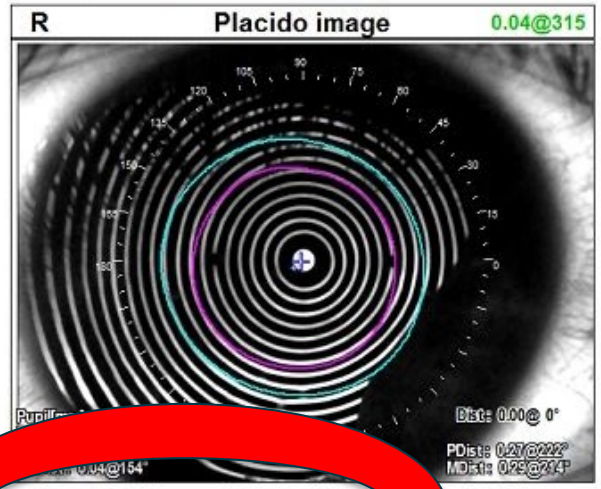
- One Patient
- One Tech
- One Scan
- One Room
- One Visit

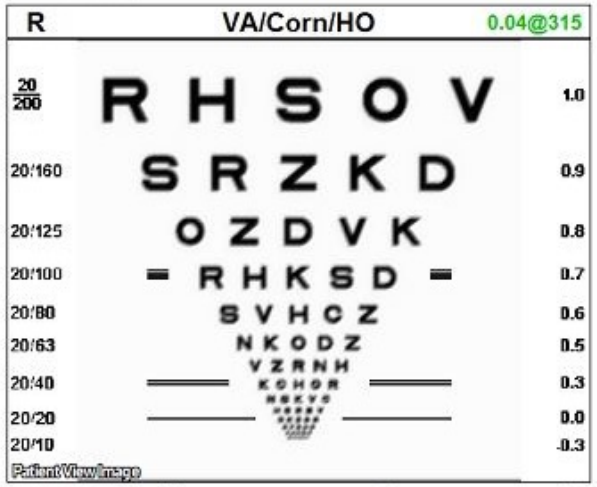
Autorefraction











HOA [μm]: Cornea@4.00mm R

Total, Internal@4.00mm / Order = 4

	T.Sph	T.Coma	T.Tre	HO
Total:	0.018	0.089	0.232	0.260
Cornea:	0.095	0.150	0.177	0.260
Internal:	0.077	0.066	0.056	0.120

Refraction: VD = 13.75mm

	Sph	Cyl	Axis	RMS
REF	-1.75	-1.00	104	
WF@6.00	-1.75	-1.25	92	0.65D
Diff	0.00	-0.25	-12	

Exam	SPH	CYL	AXIS	SimK Steep	SimK Flat	dK	e(Q)	SA@6.0mm	Pupil
1 R	-1.75	-1.00	104	41.01(8.23)@166	40.47(8.34)@ 76	-0.54(+0.11)	-0.62(0.38)	O+0.01 C+0.39	4.82 6.18

Cornea Index: n=1.3375 (Ax,Ins), n=1.3760 (Ref,I.OPD) Qm:6.0mm λ:587.6nm

Manifest and Cycloplegic Refraction

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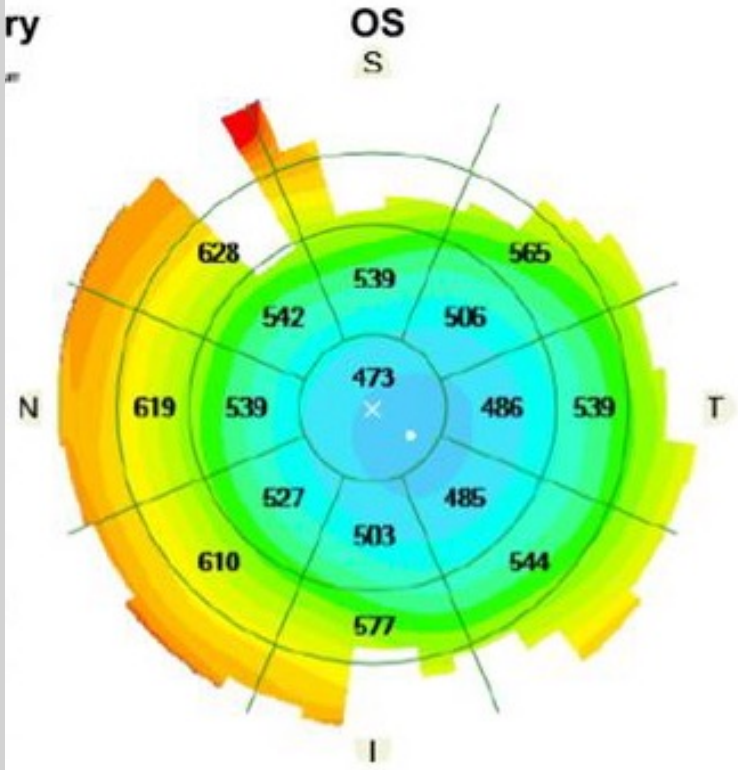
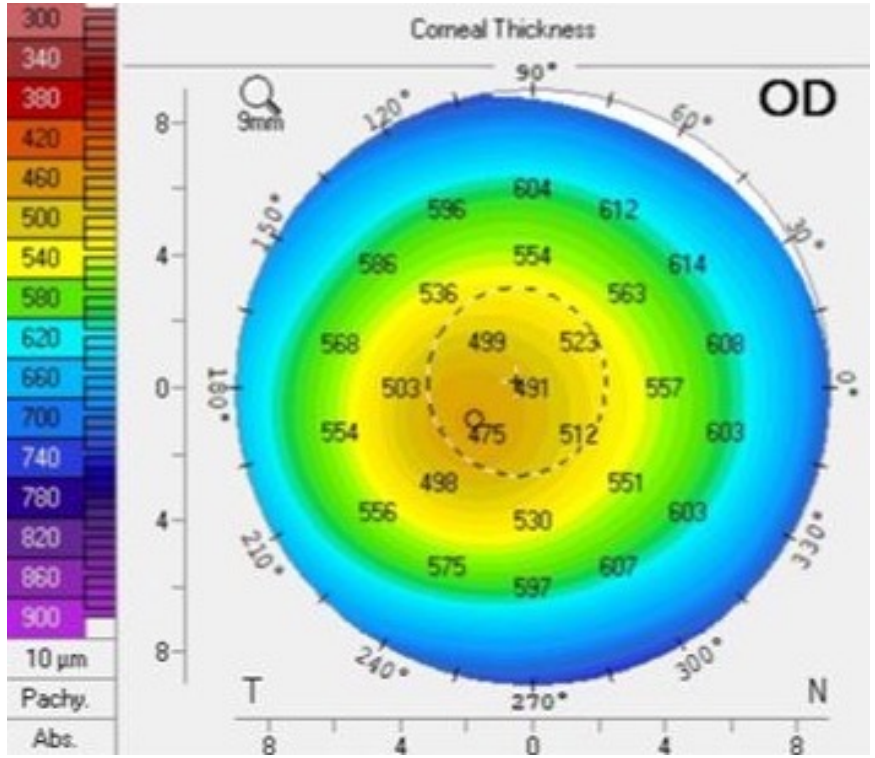
https://www.amazon.com/Green-Day-Insomniac/dp/B000002N2P

https://metro.co.uk/2013/02/07/justin-timberlake-unveils-optical-artwork-for-new-album-the-2020-experience-3397966/

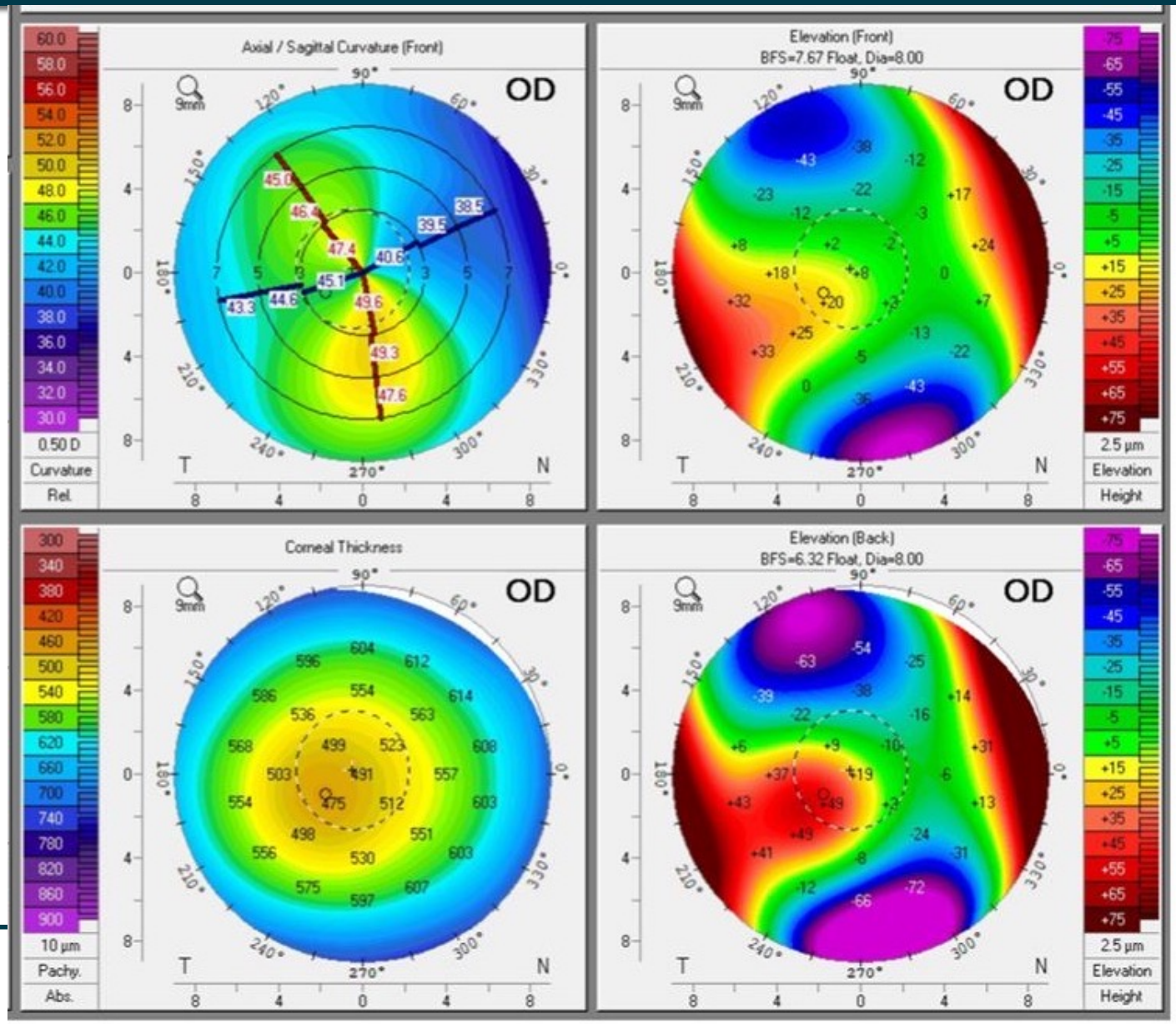
Pachymetry

https://dghtechnology.com/products/pachmate-2/

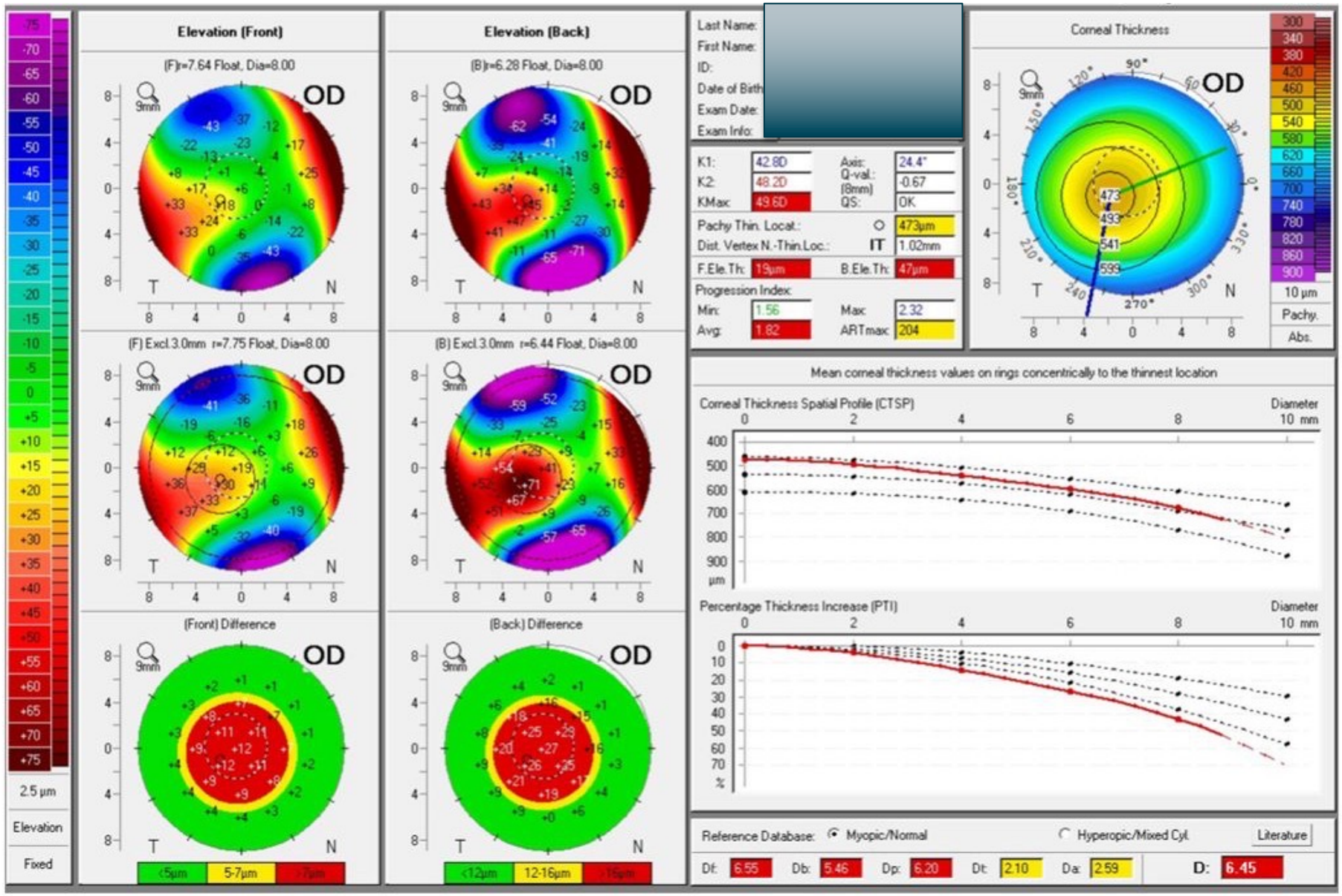




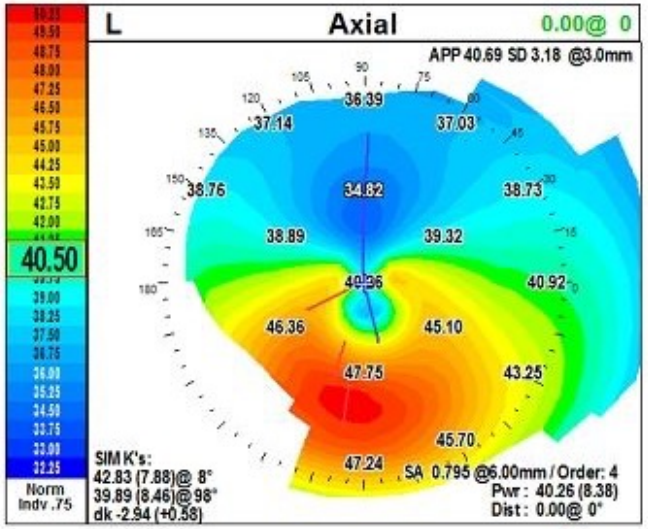
Tomography

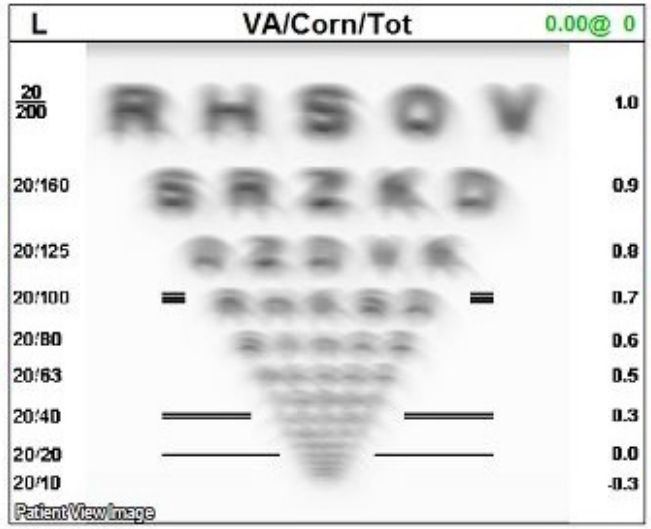

Axial / Sagittal Curvature (Front)
OD
Elevation (Front)
BFS=7.67 Float, Dia=8.00
OD
Corneal Thickness
OD
Elevation (Back)
BFS=6.32 Float, Dia=8.00
OD
0.50 D
Curvature
Rel.
10 µm
Pachy.
Abs.
2.5 µm
Elevation
Height
T
N

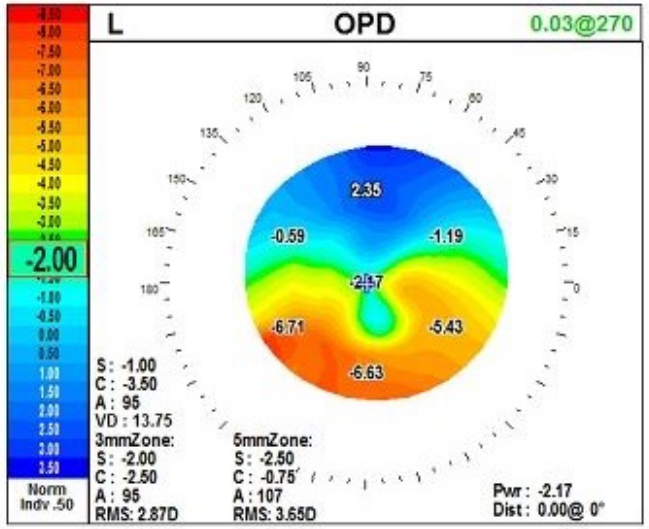
Tomography

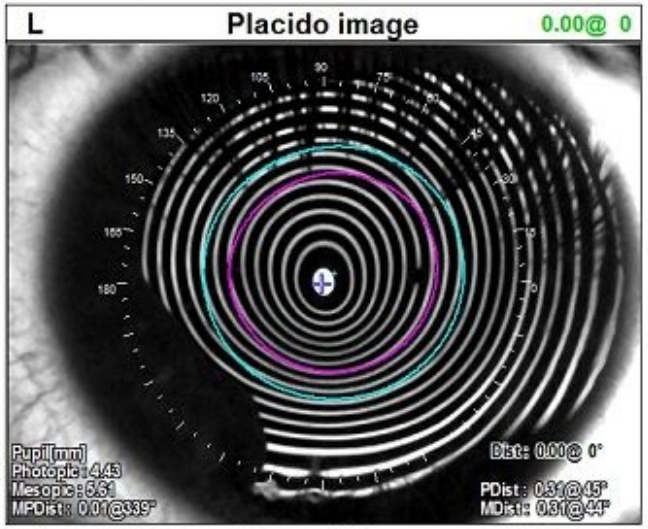

Elevation (Front)
(F)r=7.64 Float, Dia=8.00
Elevation (Back)
(B)r=6.28 Float, Dia=8.00
(F) Excl.3.0mm r=7.75 Float, Dia=8.00
(B) Excl.3.0mm r=6.44 Float, Dia=8.00
(Front) Difference
(Back) Difference
OD
Last Name:
First Name:
ID:
Date of Birth:
Exam Date:
Exam Info:
K1: 42.8D
K2: 48.2D
KMax: 49.6D
Axis: 24.4°
Q-val.: -0.67
(8mm)
QS: OK
Pachy Thin. Locat.: 473µm
Dist. Vertex N.-Thin.Loc.: IT 1.02mm
F.Ele.Th: 19µm
B.Ele.Th: 47µm
Progression Index:
Min: 1.56
Max: 2.32
Avg: 1.82
ARTmax: 204
Corneal Thickness
10 µm
Pachy.
Abs.
Mean corneal thickness values on rings concentrically to the thinnest location
Corneal Thickness Spatial Profile (CTSP)
Diameter 10 mm
Percentage Thickness Increase (PTI)
Diameter 10 mm
Reference Database: Myopic/Normal Hyperopic/Mixed Cyl. Literature
Df: 6.55 Db: 5.46 Dp: 6.20 Dt: 2.10 Da: 2.59 D: 6.45
2.5 µm
Elevation
Fixed

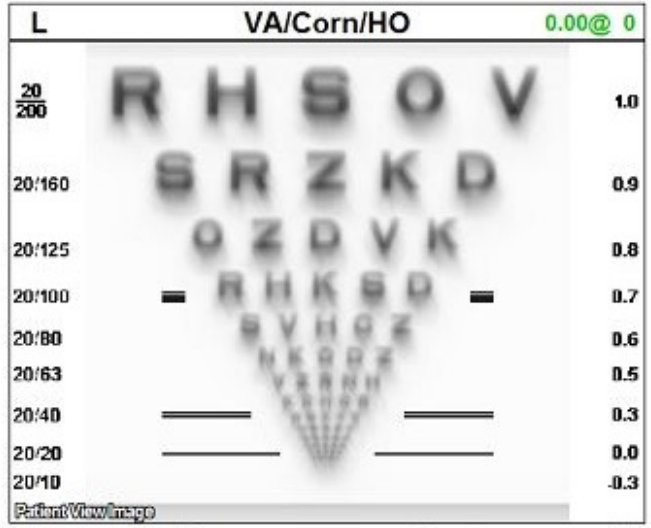
Topography











HOA [μm]: Cornea@4.00mm L

Total, Internal@4.00mm / Order = 4

	T.Sph	T.Coma	T.Tre	HO
Total:	0.064	0.793	0.575	0.997
Cornea:	0.181	1.410	0.367	1.497
Internal:	0.118	0.618	0.316	0.731

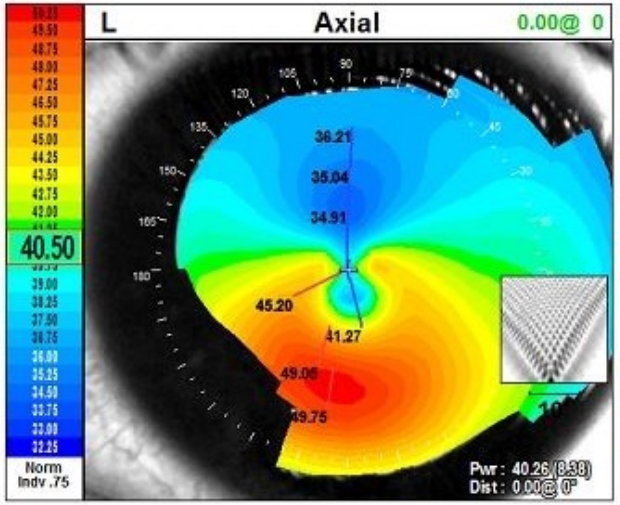
Refraction: VD = 13.75mm

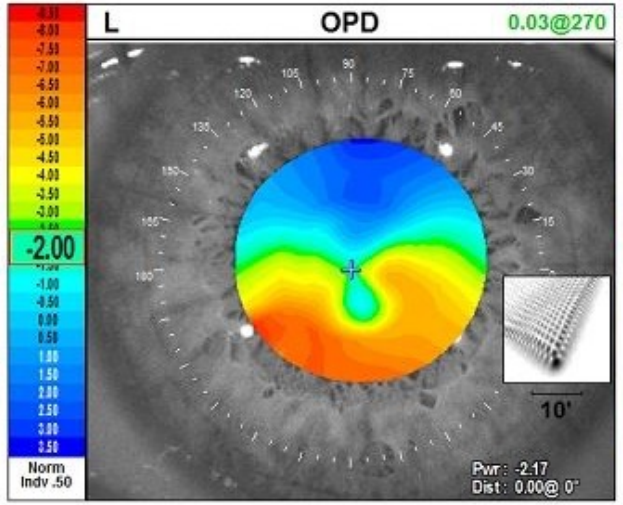
	Sph	Cyl	Axis	RMS
REF	-1.00	-3.50	95	
WF@5.61	-1.50	-2.50	93	2.00D
Diff	-0.50	+1.00	-2	

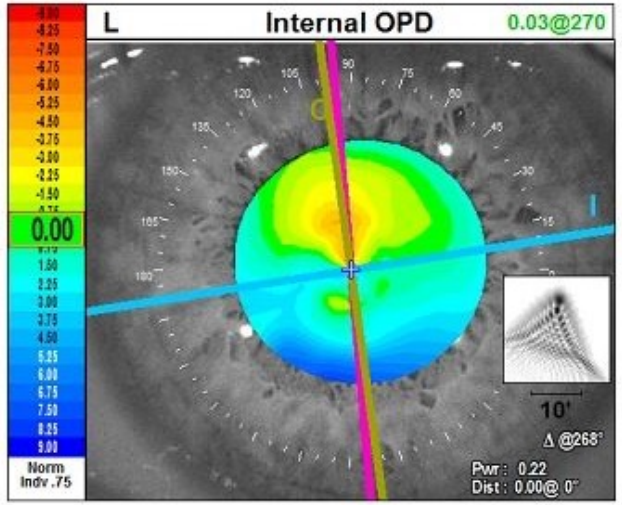
Exam	SPH	CYL	AXIS	SimK Steep	SimK Flat	dK	e(Q)	SA@6.0mm	Pupil
1 L	-1.00	-3.50	95	42.83(7.88)@ 8	39.89(8.46)@ 98	-2.94(+0.58)	1.33(-1.76)	O+0.05 C+0.80	4.43 5.61

Cornea Index: n=1.3375 (Ax,Ins), n=1.3760 (Ref,I.OPD) Qm:6.0mm λ:587.6nm

Topography







Corneal Power Unit:(D) L

	Steep	Flat	Avg	Astig
SimK	42.83@ 8°	39.89@ 98°	41.36	2.94
APP		40.69 SD 3.18 @3.00mm		
		41.67 SD 4.07 @Mesopic		
ECCP		41.10 @4.50mm		
Cornea SA		0.795µm @6.0mm		
Corneal asphericity		Q: -1.76	e: 1.33	

Refraction: VD = 13.75mm L

	Sph	Cyl	Axis	RMS
Center	-1.00	-3.50	95	
3.00mm	-2.00	-2.50	95	2.87D
Mesopic	-2.75	-0.50	114	3.88D

HOA [µm]: Cornea@4.00mm
Total, Internal@4.00mm / Order = 4

	T.Sph	T.Coma	HO
Total:	0.064	0.793	0.997
Cornea:	0.181	1.410	1.497
Internal:	0.118	0.618	0.731

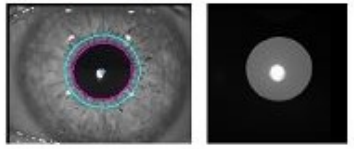
Cyl: VD = 0.0mm L

Total	Cornea	Internal
-3.25@ 95°	-2.94@ 98°	-2.19@ 9°

Pupil Information

Photopic	4.43mm / Δ0.31@ 45° (+)
Mesopic	5.61mm / Δ0.31@ 44° (+)
Dist to P/M	0.01@339°

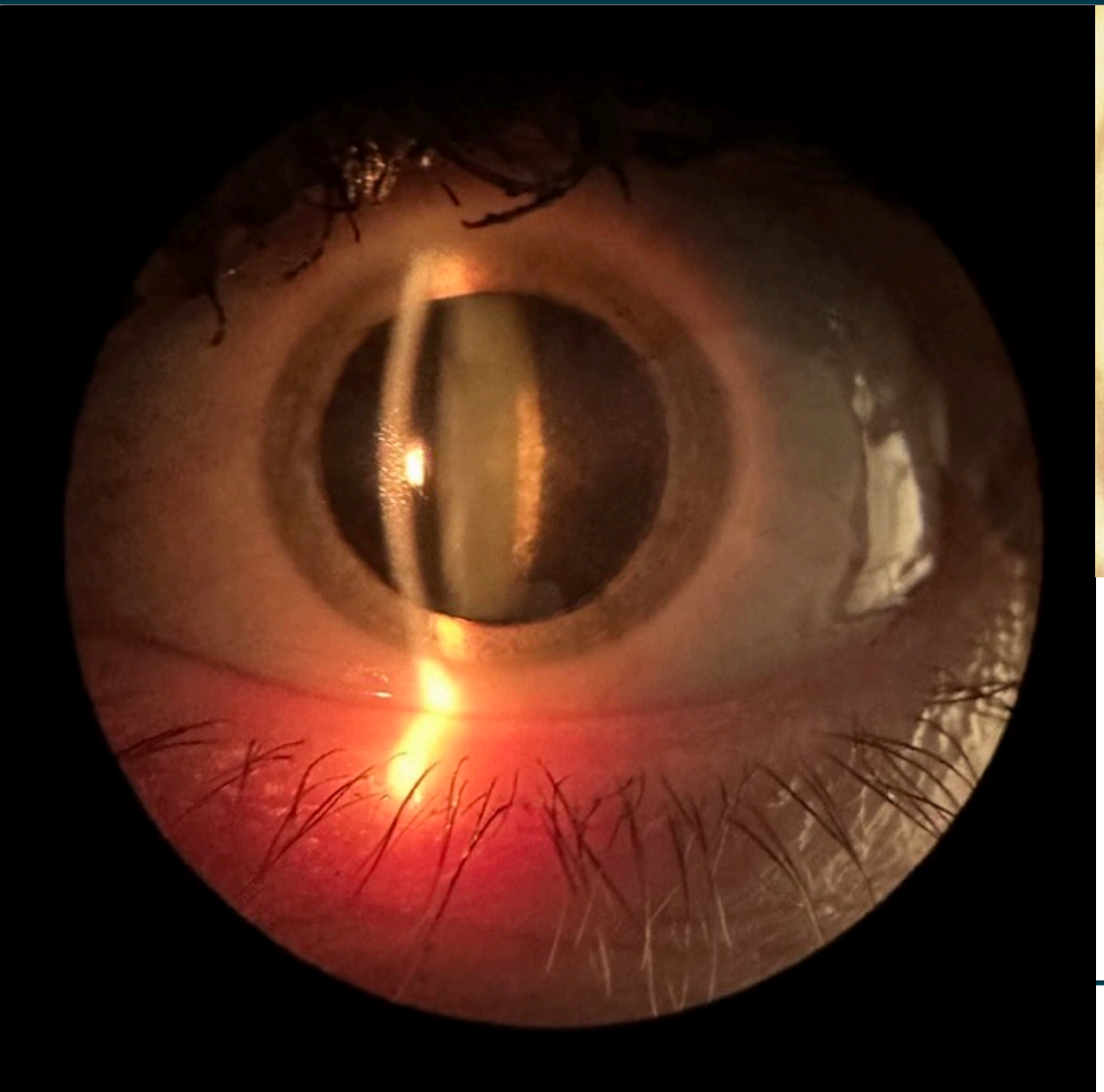
WTW
12.84mm
(Photopic)

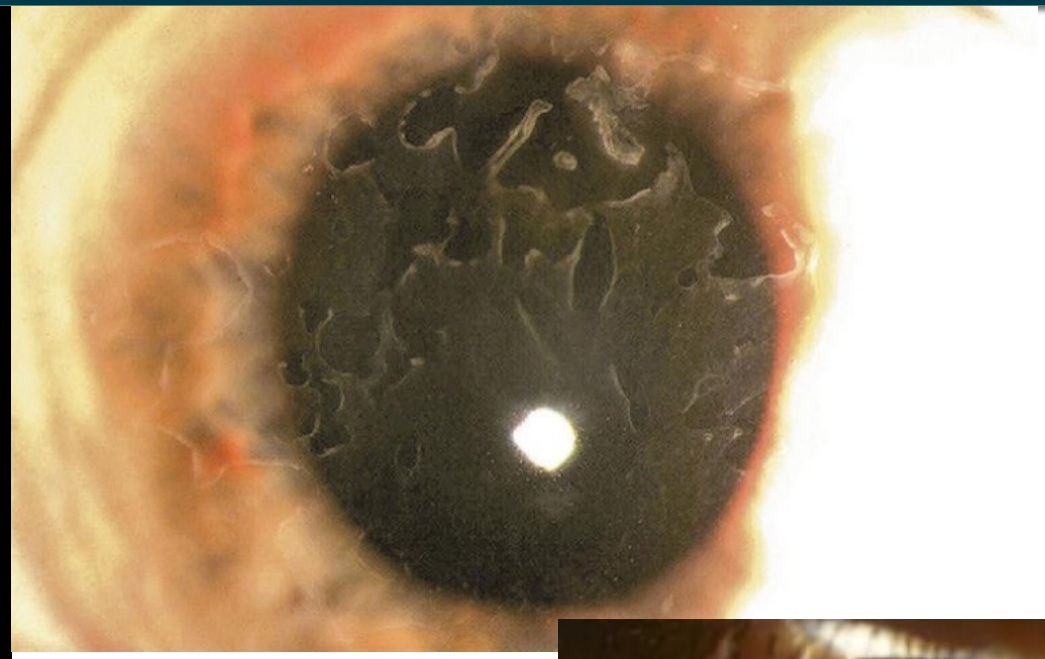


Exam	SPH	CYL	AXIS	SimK Steep	SimK Flat	dK	e(Q)	SA@6.0mm	Pupil
1 L	-1.00	-3.50	95	42.83(7.88)@ 8	39.89(8.46)@ 98	-2.94(+0.58)	1.33(-1.76)	O+0.05 C+0.80	4.43 5.61

Cornea Index: n=1.3375 (Ax,Ins), n=1.3760 (Ref,I.OPD) Qm:6.0mm λ:587.6nm

Slit-lamp Examination





https://www.aao.org/education/image/fuchs-endothelial-dystrophy-11
https://ophthalmologybreakingnews.com/anterior-basement-membrane-dystrophy--causes-symptoms-and-treatment

Fundus Examination

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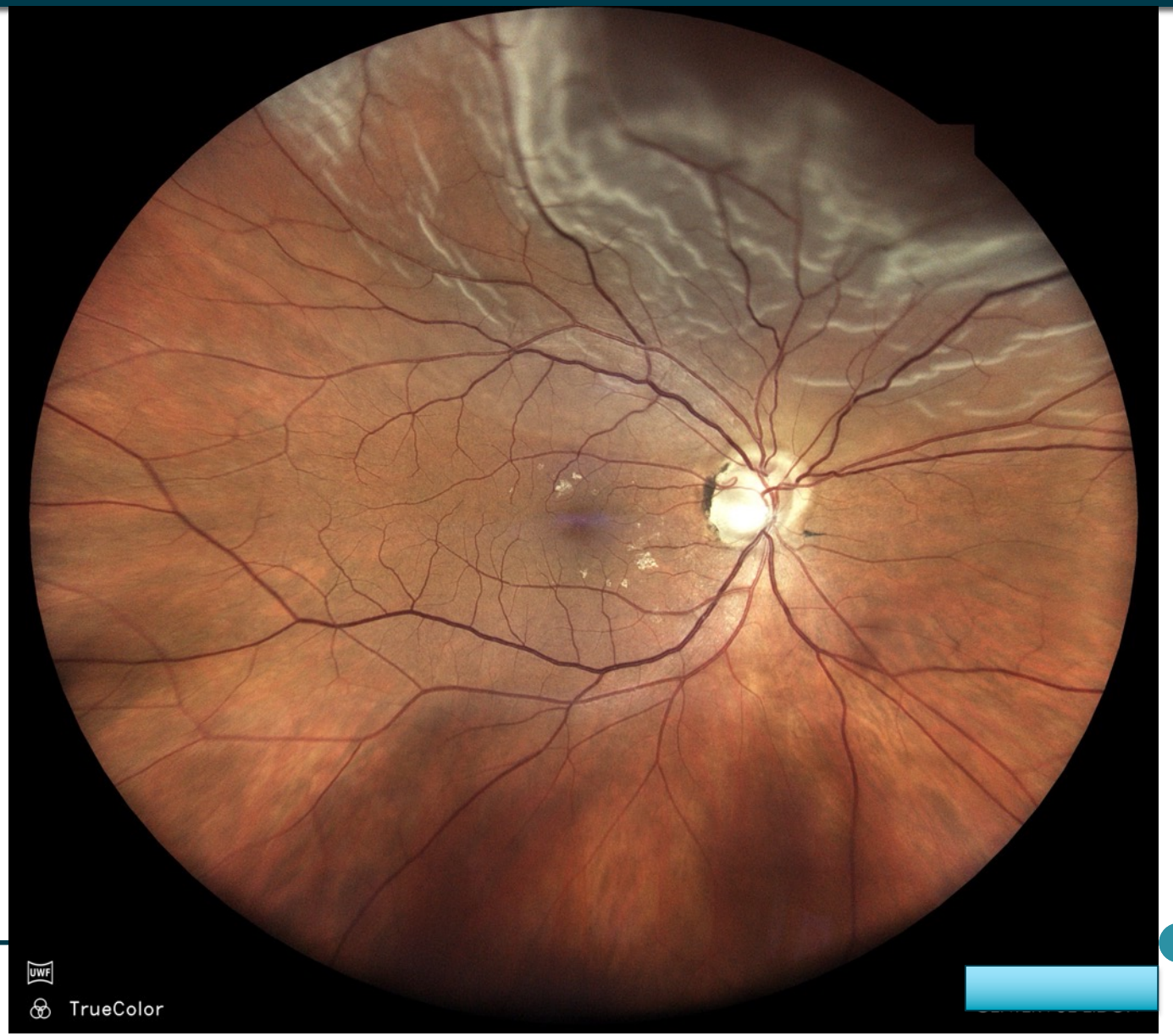

OCT Macula and Nerve

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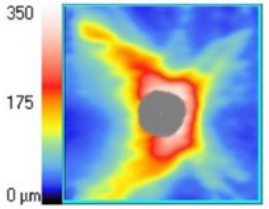
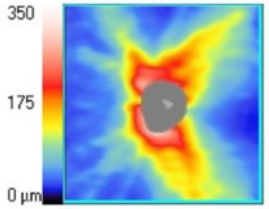
ONH and RNFL OU Analysis:Optic Disc Cube 200x200 OD ● | ● OS

RNFL Thickness Map

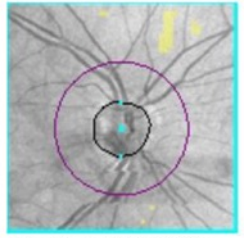


	OD	OS
Average RNFL Thickness	102 µm	101 µm
RNFL Symmetry	85%	
Rim Area	1.65 mm²	1.70 mm²
Disc Area	1.65 mm²	1.77 mm²
Average C/D Ratio	0.07	0.21
Vertical C/D Ratio	0.06	0.18
Cup Volume	0.000 mm³	0.011 mm³

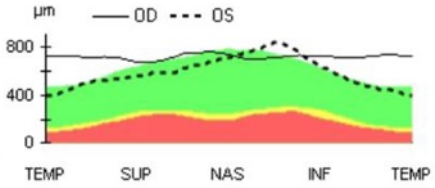
RNFL Thickness Map



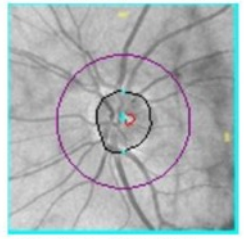
RNFL Deviation Map



Neuro-retinal Rim Thickness

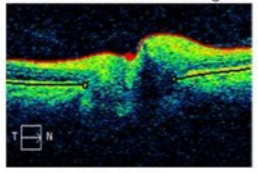


RNFL Deviation Map

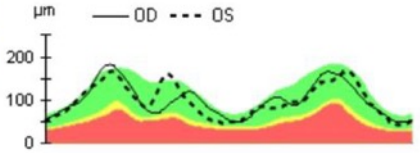


Disc Center(-0.03,-0.27)mm

Extracted Horizontal Tomogram

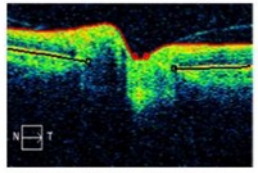


RNFL Thickness

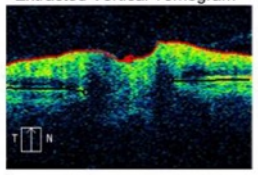


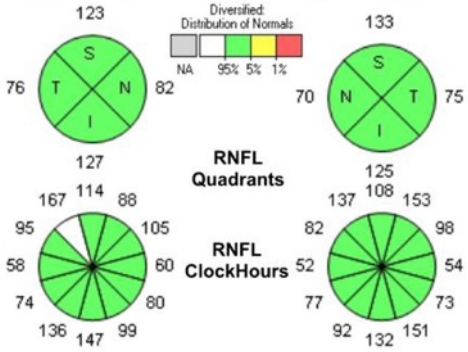
Disc Center(0.00,-0.06)mm

Extracted Horizontal Tomogram

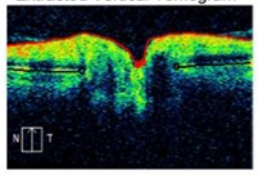


Extracted Vertical Tomogram

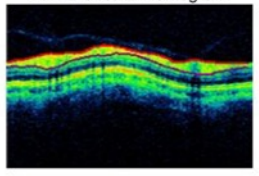




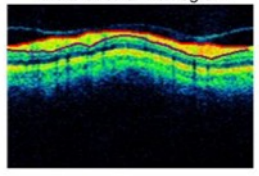
Extracted Vertical Tomogram



RNFL Circular Tomogram

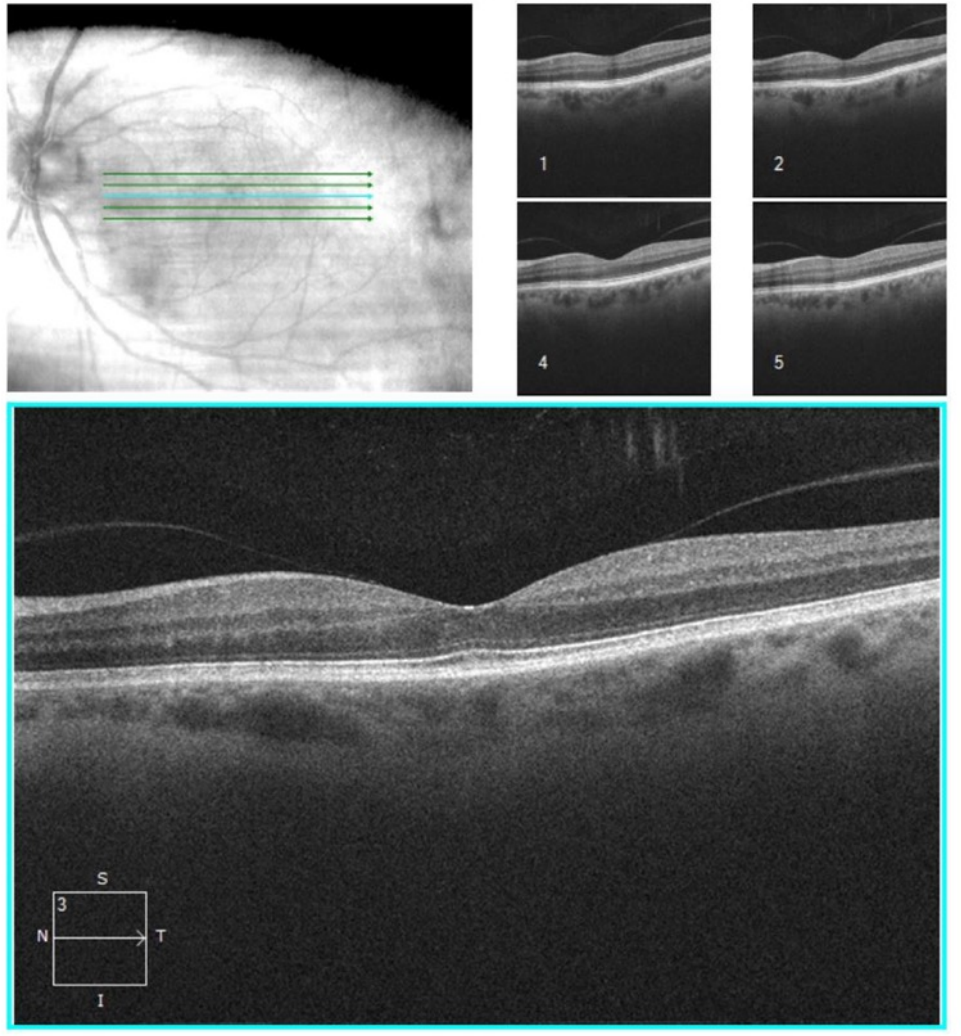


RNFL Circular Tomogram

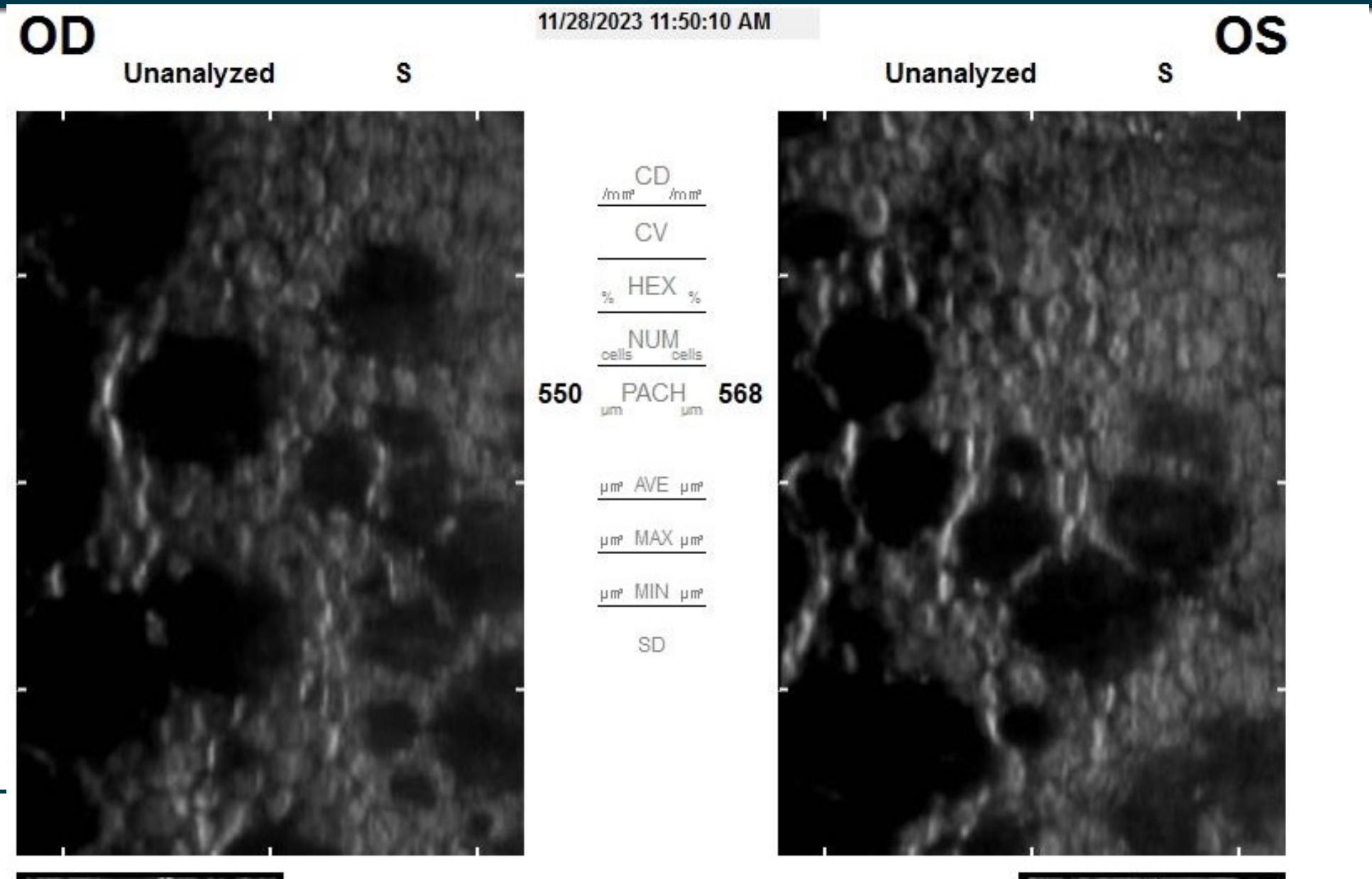


High Definition Images: HD 5 Line Raster OD ○ | ● OS

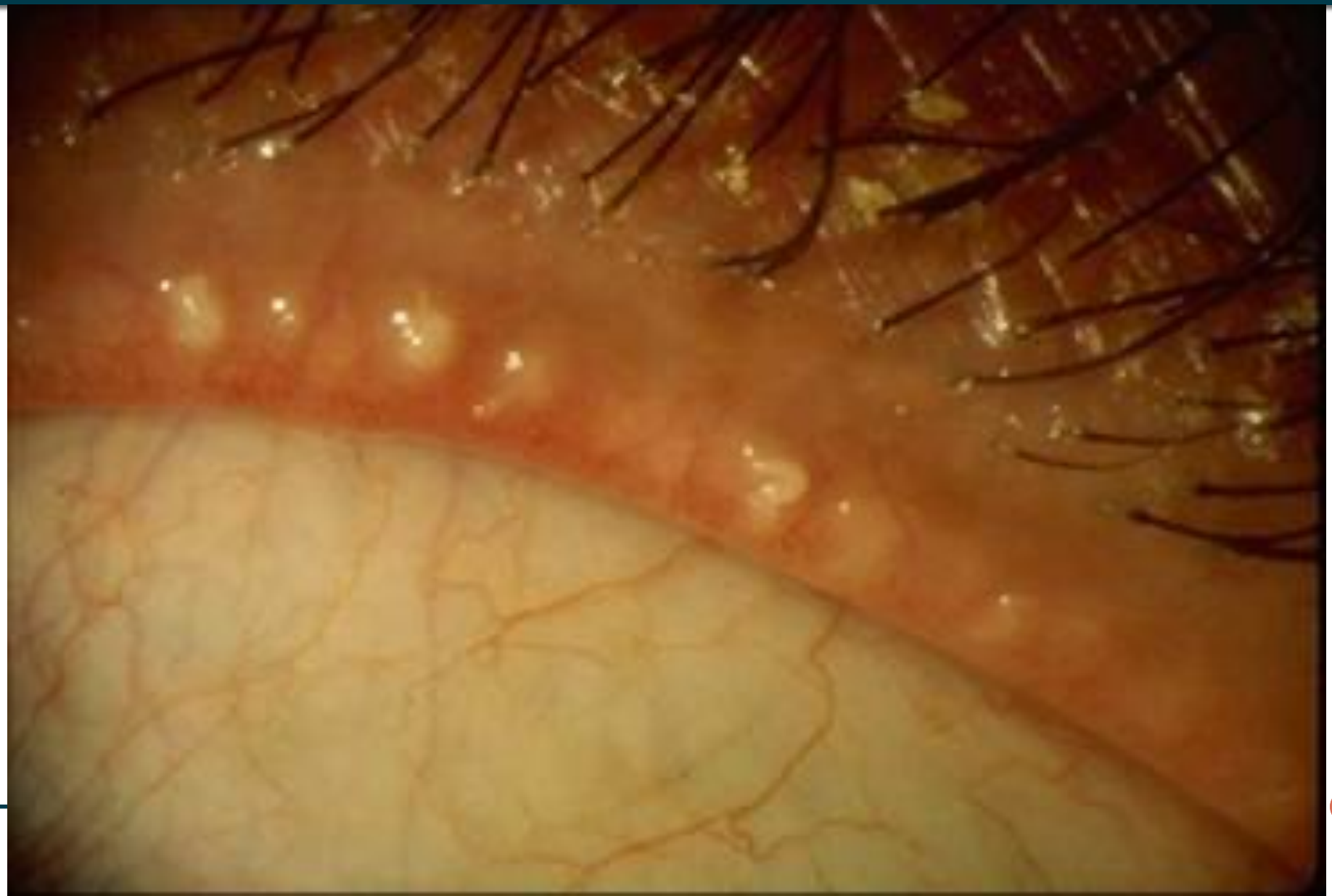
Scan Angle: 0° Spacing: 0.25 mm Length: 6 mm



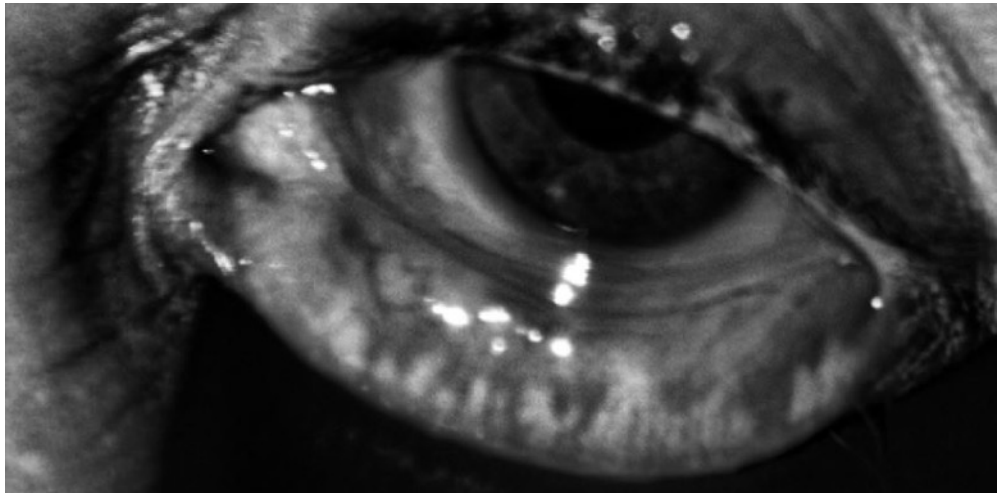
Endothelial Cell Count



Dry Eye Testing



Dry Eye Testing



https://www.icarespecialists.com/dry-eye-kingston/diagnosing-dry-eye/

https://www.labticianthea.com/product/inflammadry/

Genetic Testing

VANCE THOMPSON VISION

[redacted]

[redacted]

SAMPLE INFORMATION
Sample ID: AVA0101393
Sample Type: Buccal Swab
Date Collected: 05/06/2022
Date Received: 05/11/2022
Date Reported: 05/20/2022

ORDERING PROVIDER
Physician Name: Dr. John Goerrtz
Clinic Name: Vance Thompson Vision
Test Indication: Post Refractive Surgery Ectasia

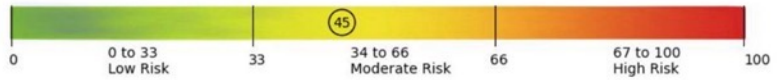
FINAL RESULTS SUMMARY

CONDITION TESTED	RESULT	DETAIL	EXPLANATION
Keratoconus (KC)	Moderate genetic risk	45 polygenic risk score	Tested for variants within 75 genes found to be associated with keratoconus.
TGFBI Corneal Dystrophies (CD)	Negative for Corneal Dystrophy	No pathogenic variants detected	Tested Negative for known variant(s) associated with TGFBI corneal dystrophies.

This AvaGen Genetic Test result should be considered with other clinical criteria, the patient's family history and communicated in a setting that includes appropriate genetic counseling.

Keratoconus (KC) Risk Assessment

Based on the polygenic risk score of 45, this patient's risk for KC is Moderate.



THE POLYGENIC KC RISK SCORE: The AvaGen Genetic Eye Test provides a polygenic risk score for individuals tested for their genetic risk for KC. The risk score is the cumulative sum of individual risk contributed by several independent SNPs that were identified in our genetic association study by screening thousands of variants in 75 genes related to corneal structure and function. KC is a complex genetic disease that involves genetic and environmental components as well as their interactions that contribute to the development of the disease. Genetics is an important contributor in KC risk, but it is not the only contributing factor that determines risk for KC.

[redacted]

[redacted]

SAMPLE INFORMATION
Sample ID: AVA0101393
Sample Type: Buccal Swab
Date Collected: 05/06/2022
Date Received: 05/11/2022
Date Reported: 05/20/2022

ORDERING PROVIDER
Physician Name: Dr. John Goerrtz
Clinic Name: Vance Thompson Vision
Test Indication: Post Refractive Surgery Ectasia

Keratoconus Polygenic Test Details

Keratoconus risk genes for this patient:
COL5A1, COL4A1, ADAMTS18

Keratoconus-Related Genes Tested:
ABCA4, ABCB5, ABCC6, ADAMTS18, ADGRV1, AGBL1, ANGPTL7, BEST1, CHST6, COL2A1, COL4A1, COL4A2, COL4A3, COL4A4, COL5A1, COL5A2, COL6A1, COL8A2, COL12A1, COL17A1, CYP4V2, DIAPH1, DOCK9, FOXE3, FYN, GJA8, GSN, HGF, IL1A, IL1RN, IL6,IL10, ITGB1, KERA, KRT3, KRT12, KRT13, KRT15, KRT16, KRT23, KRT24, LCAT, LOX, LRRN1, LTBP2, MAP2K1, MAP3K19, MTOR, MYLK, NLRP1, OVOL2, PAX6, PIK3CG, PIKFYVE, PIK3R1, PRDM5, PTK2, PXDN, PXN, RAF1, RHOA, SFTPD, SHC1, SIX5, SLC4A11, TACSTD2, TCF4, TGFBI, TLN1, UBIAD1, VSX1, WNT9A, WNT9B, ZEB1, ZNF469

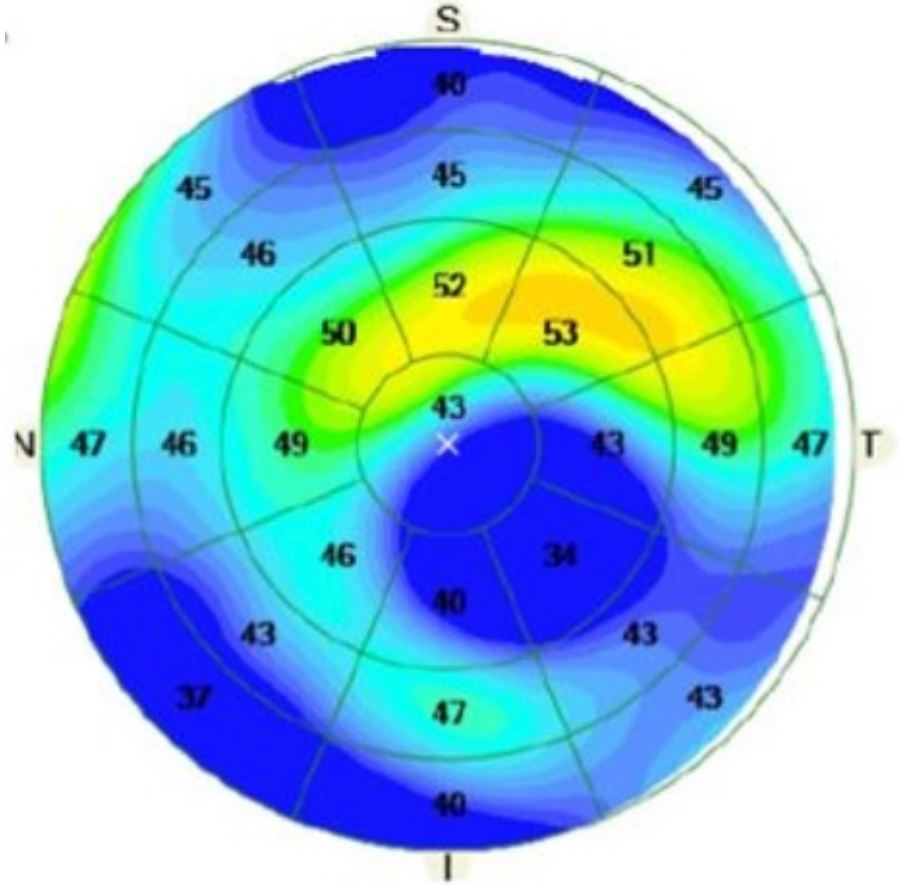
TGFBI Corneal Dystrophies Test Result

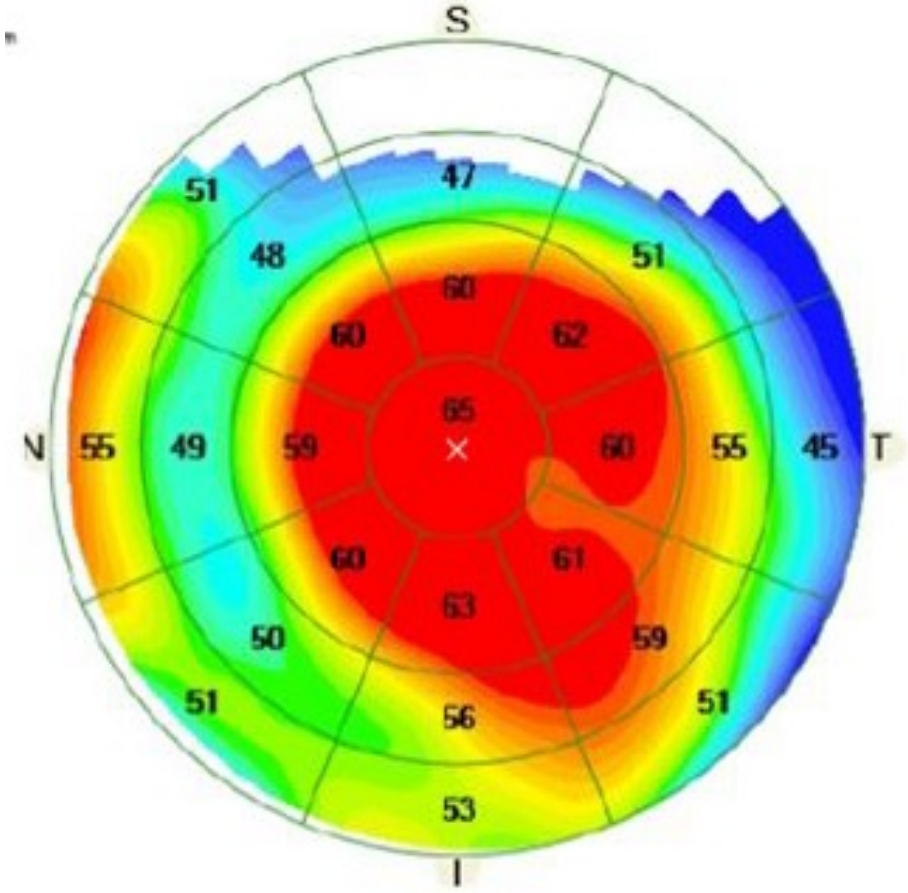
This patient has tested negative for the TGFBI associated Corneal Dystrophies variants

AvaGen Detects the Following TGFBI Associated Corneal Dystrophies

Granular Type 1	Lattice Type IIIA	Epithelial Basement Membrane
Granular Type 2	Reis-Bucklers	Schnyder's-like
Lattice Type 1	Theill-Behnke	Avellino

Epithelial Mapping





VANCE THOMPSON VISION

Preoperative Discussion

Preoperative discussion

- Proper discussion about their objectives and expectations
- Discuss all options—SUGGEST BEST
- Risk and benefits of each

https://www.hobbydb.com/marketplaces/hobbydb/subjects/cledus-snow-snowman-character

https://www.reddit.com/r/gifs/comments/2mtuuw/graces_secret_pencil_case_ferris_buellers_day_off/

https://sports.betmgm.com/en/blog/ufc/20-highest-paid-ufc-fighters-bm05/

VANCE THOMPSON VISION

Treating Dry Eye

Treating Dry Eye

- “Patient’s with significant dry eye are not good candidates for ANY elective refractive surgical procedures”
  - Brandon Baartman, MD
    (sometime, maybe)

Treating Dry Eye

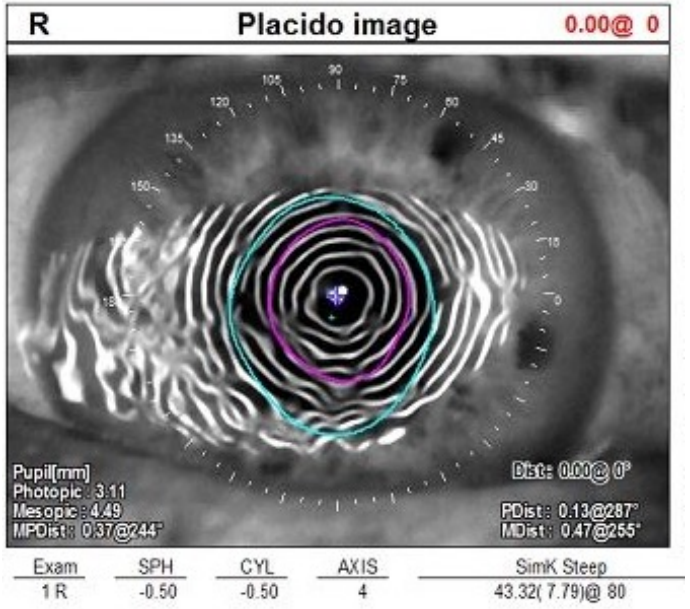
- "The tear/corneal epithelial complex is the major light refracting surface of the eye, accounting for approximately 65% of the optical power of the eye."

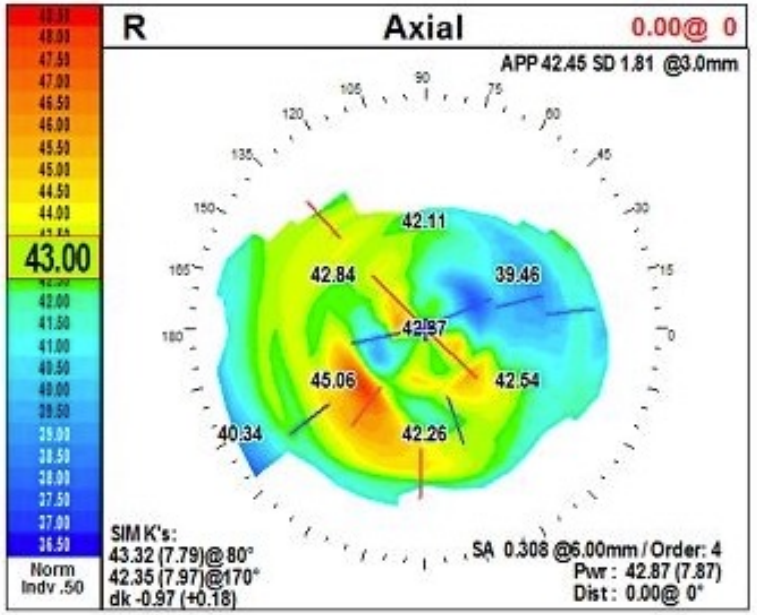
Olsen T, Arnarsson A, Sasaki H, Sasaki K, Jonasson F. On the ocular refractive components: the Reykjavik Eye Study. *Acta Ophthalmol Scand.* 2007;85(4):361–6

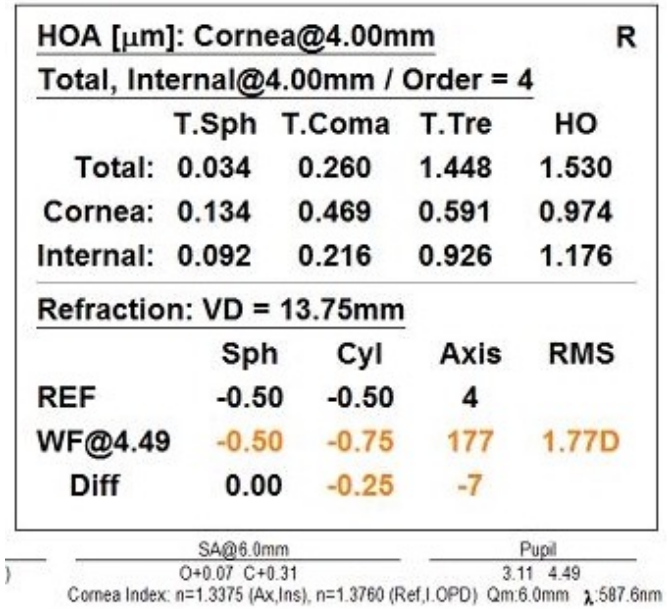
Treating Dry Eye

- Treat dry eye in all patients interested in refractive surgery
- Major refractive surface for clarity
- Dry eye can impact accuracy of scans

Impact on scans







VANCE THOMPSON VISION

Reviewing Data and Procedures

Age Requirements

- LASIK/PRK—18 to 100+
- ICL– 21 to 45
- RLE– No age restriction

Thickness Parameters

- 12 to 14 Micros per diopter (VISX)
- 100-120 Micro flaps
- 250 Micro Bed—NOW 300 Micron ”standard”

https://eyewiki.aao.org/Calculation_for_LASIK_Ablation

“40% Rule”

VANCE THOMPSON VISION

Association between the percent tissue altered and post-laser in situ keratomileusis ectasia in eyes with normal preoperative topography

Marcony R Santhiago [1], David Smadja [2], Beatriz F Gomes [3], Glauco R Mello [4], Mario L R Monteiro [4], Steven E Wilson [5], J Bradley Randleman [6]

Affiliations + expand

PMID: 24727263 DOI: 10.1016/j.ajo.2014.04.002

Santhiago MR, Smadja D, Gomes BF, Mello GR, Monteiro ML, Wilson SE, Randleman JB. Association between the percent tissue altered and post-laser in situ keratomileusis ectasia in eyes with normal preoperative topography. Am J Ophthalmol. 2014 Jul;158(1):87-95.e1. doi: 10.1016/j.ajo.2014.04.002. Epub 2014 Apr 13. PubMed PMID: 24727263

Abstract

Purpose: To investigate the association of a novel metric, percent tissue altered, with the occurrence of ectasia after laser in situ keratomileusis (LASIK) in eyes with normal corneal topography and to compare this metric with other recognized risk factors.

Design: Retrospective case-control study.

Methods: The study included 30 eyes from 16 patients with bilateral normal preoperative Placido-based corneal topography that developed ectasia after LASIK (ectasia group) and 174 eyes from 88 consecutive patients with uncomplicated LASIK and at least 3 years of postoperative follow-up. The following metrics were evaluated: age, preoperative central corneal thickness, residual stromal bed, Ectasia Risk Score System scores, and percent tissue altered, derived from [PTA = (FT + AD)/CCT], where FT = flap thickness, AD = ablation depth, and CCT = preoperative central corneal thickness.

Results: In the ectasia group, percent tissue altered ≥40 was the most prevalent factor (97%), followed by age <30 years (63%), residual stromal bed ≤300 μm (57%), and ectasia risk score ≥ 3 (43%) ($P < .001$ for all). Percent tissue altered ≥ 40 had the highest odds ratio (223), followed by residual stromal bed ≤ 300 μm (74) and ectasia risk score ≥ 4 (8). Stepwise logistic regression revealed percent tissue altered ≥ 40 as the single most significant independent variable ($P < .0001$).

Conclusions: Percent tissue altered at the time of LASIK was significantly associated with the development of ectasia in eyes with normal preoperative topography and was a more robust indicator of risk than all other variables in this patient population.

LASIK—Best Candidate

- Refractive findings
- Topography findings
- Slit-lamp findings
- Other Factors
- Patient education

Laser Programing

- Standard vs wavefront vs wavefront optimized vs topographic guided.

https://www.imdb.com/title/tt0086567/

Phorcides

June 2021

CORNEA ISSUE

By Mark Lobanoff, MD

Understanding the eye's "fingerprint"

How to use topography-guided LASIK to improve patient outcomes.

Imagine you are in your car just after a rainstorm has concluded. You look through your windshield; while you can still read the letters on the road signs, the view is blurred and distorted by the small, curved droplets of water on the glass. Each droplet acts as a lens, bending light, while superimposed upon the larger curvature of the windshield. As you turn on the wipers and remove the droplets, your image clarity improves (**Figure 1**).

Now imagine a cornea and its main large curvatures, the flat keratometric axis and the steep keratometric axis. These curves play the biggest role in focusing light on the retina. It is these large curvatures that we have worked with over the years with glasses and traditional LASIK; correcting them places the image focus on the retina. But if you take a closer look, every cornea has smaller raised topographic elevations across its surface, similar to raindrops on a windshield.

These sets of elevation, — like a fingerprint — are unique to each eye. With topography-guided LASIK, the newest evolution of refractive surgery, we can better address these elevations to improve patient outcomes.

Mark Lobanoff, MD, is a refractive surgeon based in Minneapolis, Minn. His new clinic/surgery center opening in November of this year will be known as OVO LASIK + LENS. He is the inventor and owner of Phorcides, CEO of Lochan LLC, CEO of C2 and a paid consultant for Alcon.

TARGETING THE TALUS

Over the past few years, I have chosen to refer to a raised curved topographic elevation on the cornea as a "talus," a term borrowed from geographic topography. These taluses bend the light and alter its focus (**Figure 2, page 21**). One way to refer to the distortions of light brought on by a talus is by using a branch of descriptive mathematics known as Zernike polynomials. Depending on the size, shape and distribution of the raised topographic irregularities, they may bend light in ways Zernike polynomials describe as "coma," "trefoil" and "quadrafoil." Correcting these smaller aberrations in addition to correcting the larger corneal curvature leads to better quality of vision. We know this by asking patients about their quality of vision when wearing hard gas permeable contact lenses (that correct both the smaller taluses and the larger corneal curvature) as opposed to their vision with soft contact lenses (that only correct the larger corneal curvatures). This is similar to the image quality through the windshield improving when wipers smooth out and remove droplets of water.

IMAGE COURTESY: ADOBE

Figure 1. Droplets on a windshield bend light, much like a lens on an eye.

CREATING A MAP

With topography-guided LASIK, a topolyzer is used to look for taluses on the cornea. The WaveLight Vario Topolyzer (Alcon) obtains 22,000 topographic data points to create a highly accurate map of the corneal topography. Multiple images are then averaged, resulting in 80,000 to 100,000 topographic data points for calculation and treatment. The CONTOURA software in the Alcon planning laptop then determines how much tissue ablation is needed to smooth out each talus. Every eye has its own unique tissue ablation profile. Even if two eyes share the same manifest refraction (MRx), each has its own "fingerprint" of corneal elevations that needs to be treated.

CORNEA ISSUE

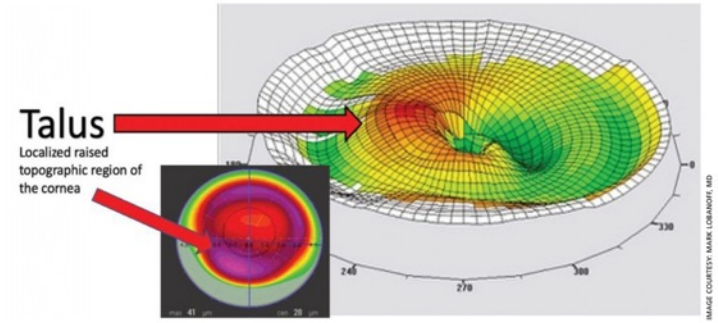


IMAGE COURTESY: MARK LOBANOFF, MD

Figure 2. An image of a talus on the eye, created by the Alcon Vario software.

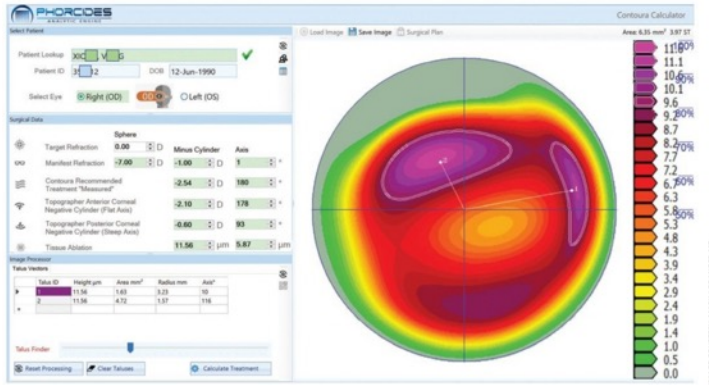


IMAGE COURTESY: MARK LOBANOFF, MD

Figure 3. An image from the Phorcides Analytic Engine, developed by Mark Lobanoff, MD, to assist with topography-guided surgeries.

SMOOTH SURFACE, BETTER VISION

Topography-guided LASIK takes all of this mapping and planning and applies the customized "fingerprint" treatment to the eye. CONTOURA (Alcon) is the only device to receive FDA approval for a topography-guided LASIK procedure. The FDA study conducted by Alcon for CONTOURA (tinyurl.com/535b6rsm) showed that correcting

https://phorcides.com

PRK—Best Candidate

VANCE THOMPSON VISION

- Previous LASIK
- Thin Corneas
- ABMD
- Abnormal Corneas (+/- Crosslinking)

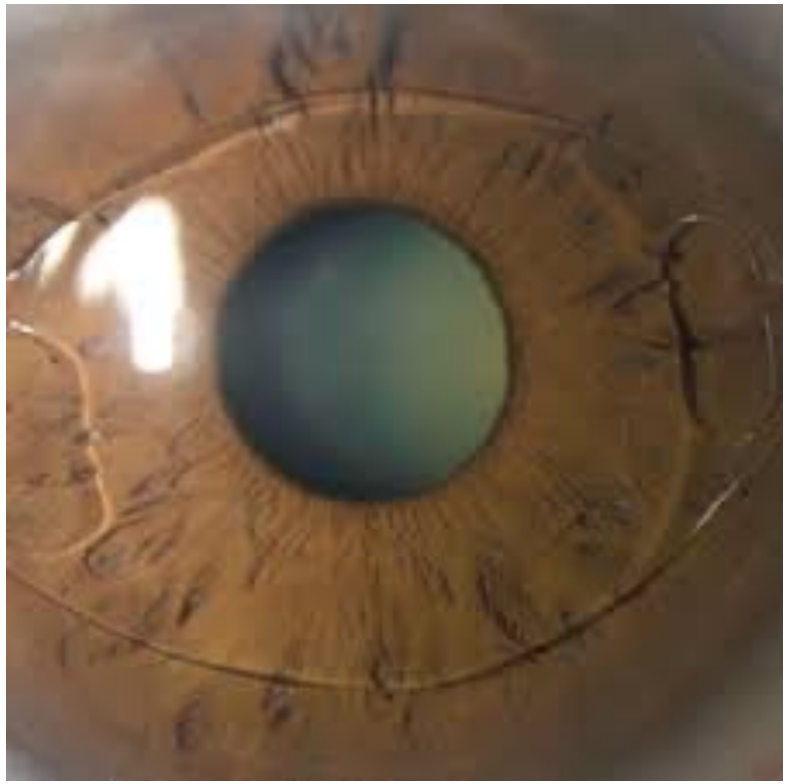
PRK

- Refractive findings
- Topographic findings
- Slit-lamp findings
- Other factors
- Patient education

https://www.youtube.com/watch?v=XfQFq8jMMsY

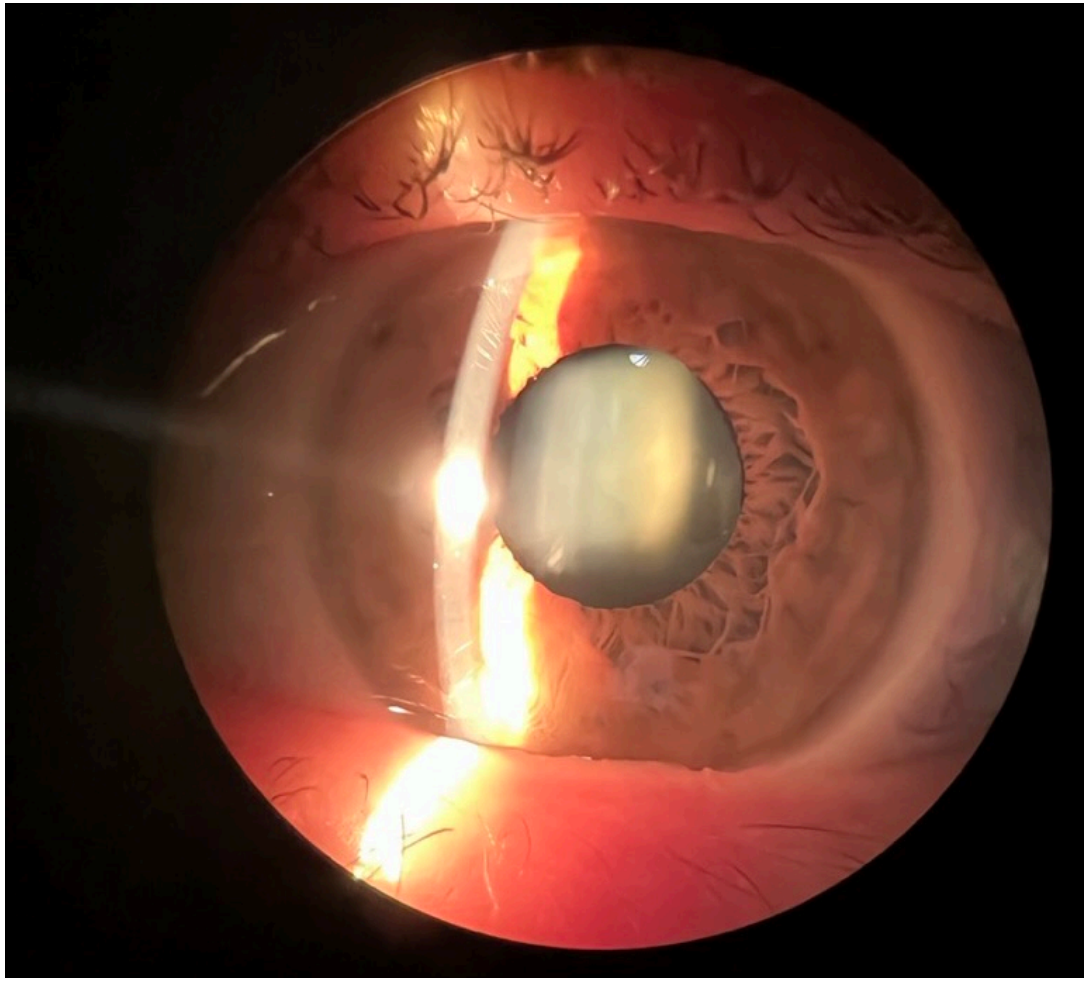
Implantable Collamer Lens (ICL)

VANCE THOMPSON VISION



ICL

- Health of natural lens
- ?Need for PI



ICL Candidates

VANCE THOMPSON VISION

- Age--21 to 45 years old
- MRx---3.0 D to -15.0 D with or without astigmatism up to 4.0 D and a reduction in myopia ranging from -16.0 to -20.0 D.
- 3 mm Anterior Chamber Depth
- NO Hyperopia in the United States

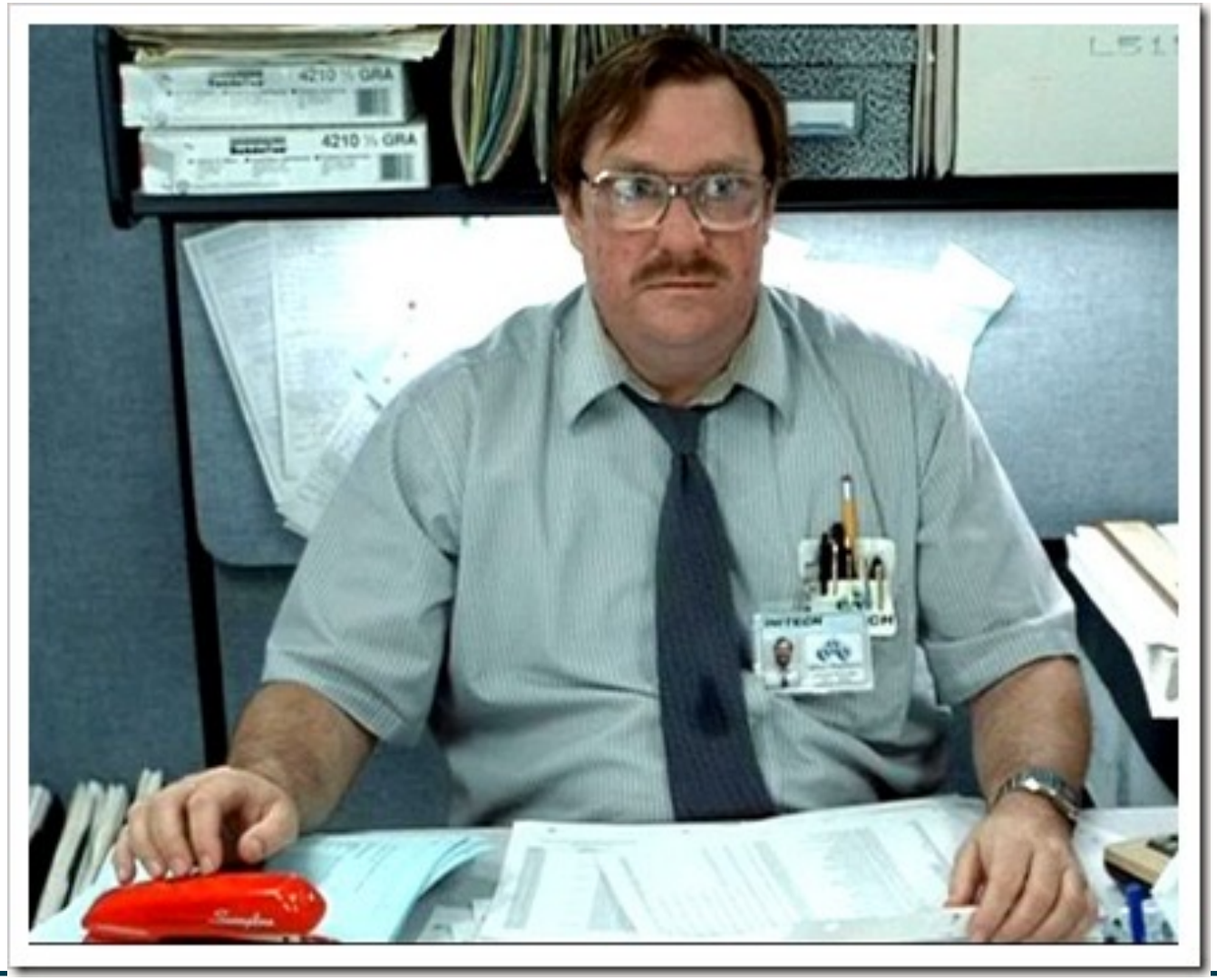
https://us.discovericl.com/evo-visian-icl-lens

Best ICL Candidates

VANCE THOMPSON VISION

- Refractive findings
- Topographic findings
- Slit-lamp findings
- Other factors
- Patient education

Refractive Lens Exchange (RLE)



BEST Candidates

https://retockit.files.wordpress.com/2011/05/miltonofficespace_thumb.jpg

Best RLE Candidates

- Refractive findings
- Topographic findings
- Slit-lamp findings
- Other factors
- Patient education

RLE

VANCE THOMPSON VISION

Taiwan J Ophthalmol. 2021 Jul-Sep; 11(3): 280–286.
Published online 2021 Apr 24. doi: 10.4103/tjo.tjo_20_20

PMCID: PMC8493983
PMID: 34703744

Age affects intraocular lens attributes preference in cataract surgery

Shu-Wen Chang[1,2,*] and Wan-Lin Wu[1]

Author information ▸ Article notes ▸ Copyright and License information PMC Disclaimer

PURPOSE:

The aim of this study is to analyze the effects of age on intraocular lens (IOL) attributes preference.

CONCLUSION:

The adoption of IOLs with emerging technologies increased significantly over the years. Younger adults tended to adopt advanced technology IOL more than the older ones.

RLE Options

Monofocal

Toric

Extended Depth of Focus

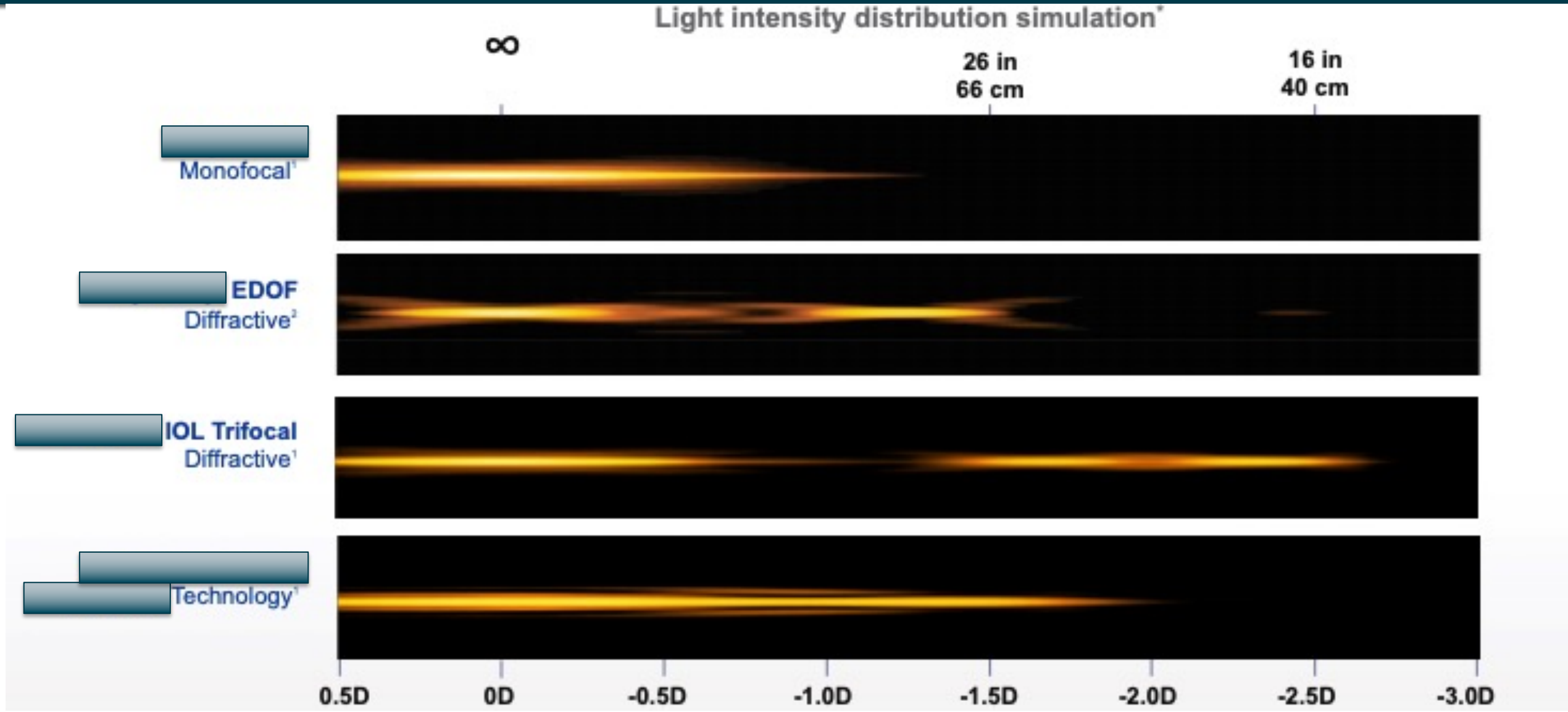
Multifocal

Light Adjustable Lens

https://professional.myalcon.com/ca/en/cataract-surgery/intraocular-lens/

https://eyewiki.aao.org/Light_Adjustable_Intraocular_Lenses

IOL Light Distribution



https://www.myalcon.com/international/professional/cataract-surgery/iols/vivity/

VANCE THOMPSON VISION

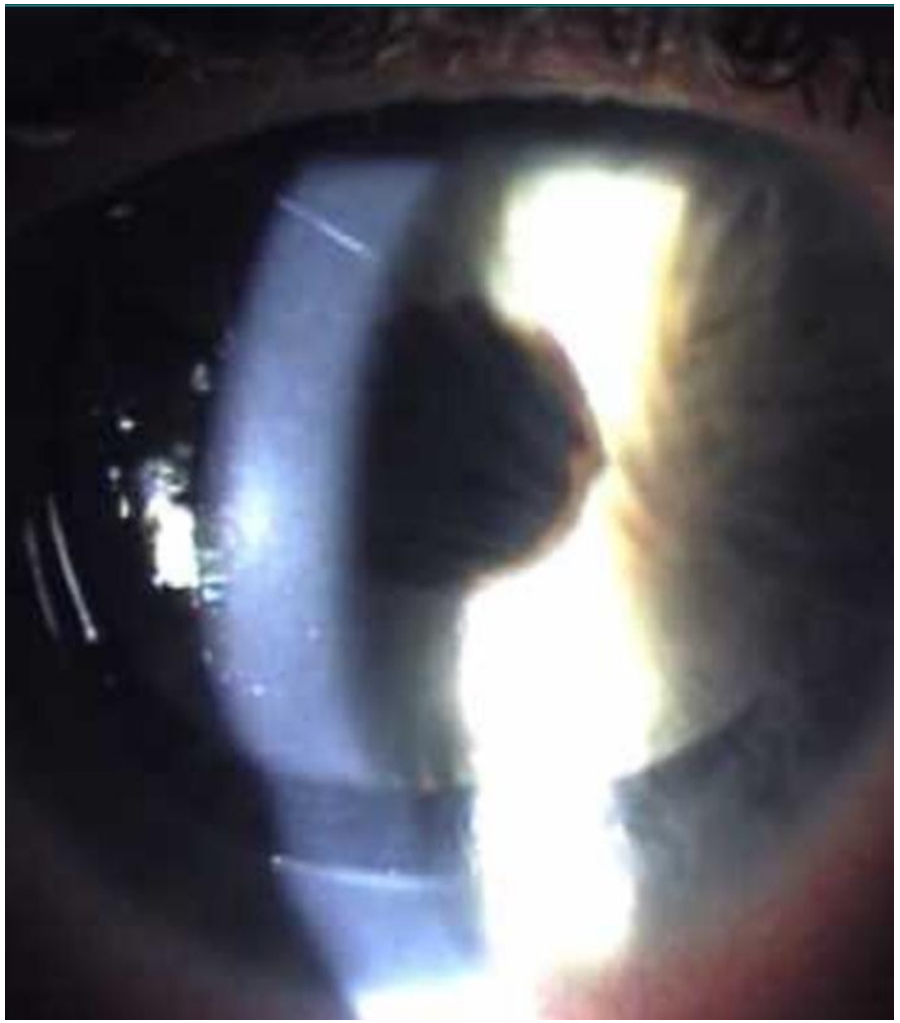
Post Operative Care

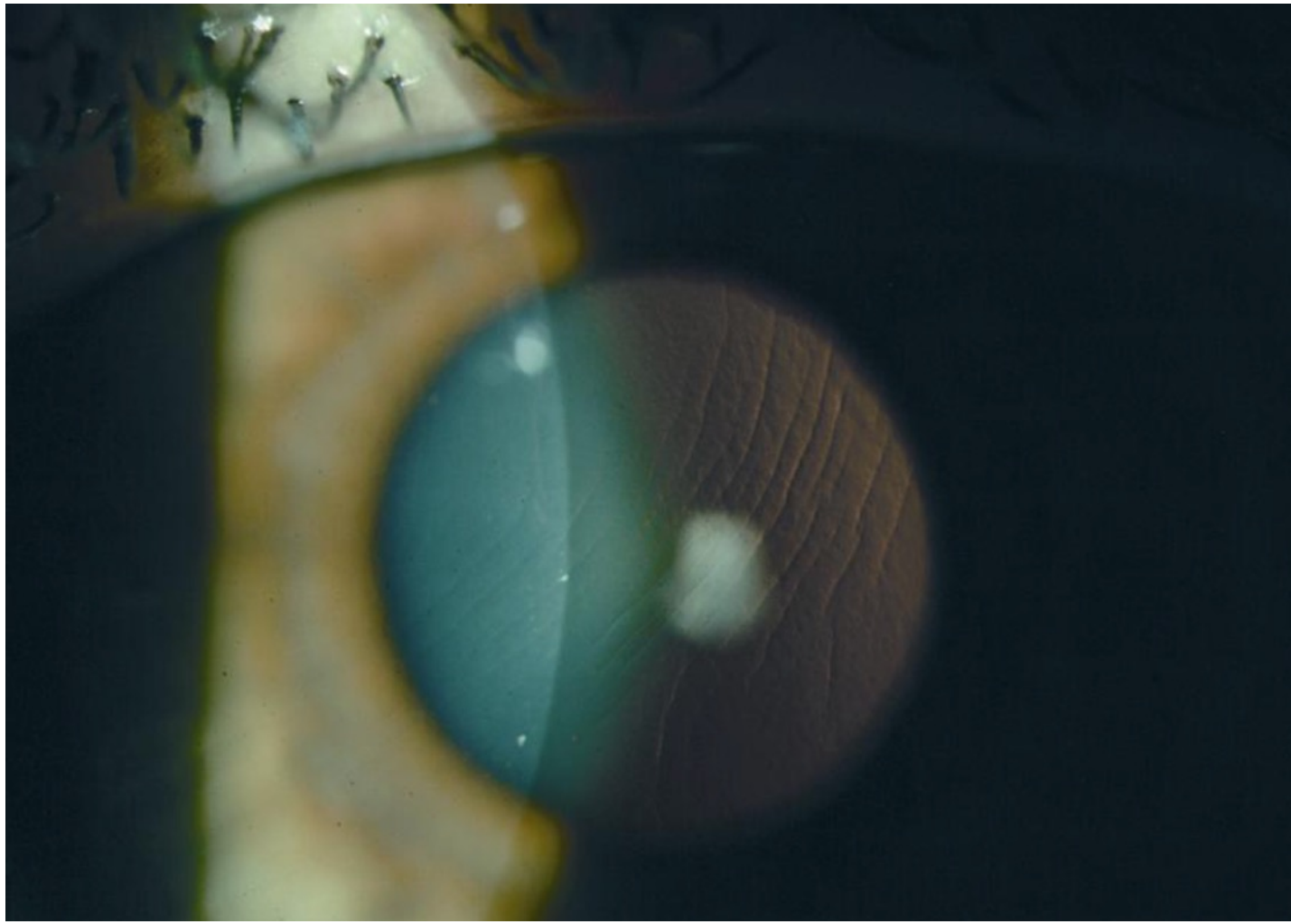
LASIK

- Acuity
- Flap position and inflammation
- Monitor Dryness Levels
- Appointments 1day, 1week, 1month, 3 months
- Medication schedule

Slipped Flap

VANCE THOMPSON VISION





Combination Drops

PRK

VANCE THOMPSON VISION

- Monitor wound healing--remove bandage contact lens (around day 4)
- Presence of corneal haze and monitoring resolution
  - Who is at risk?
  - How to decrease risk of haze
    - Vitamin C
    - Sunglasses

PRK

VANCE THOMPSON VISION

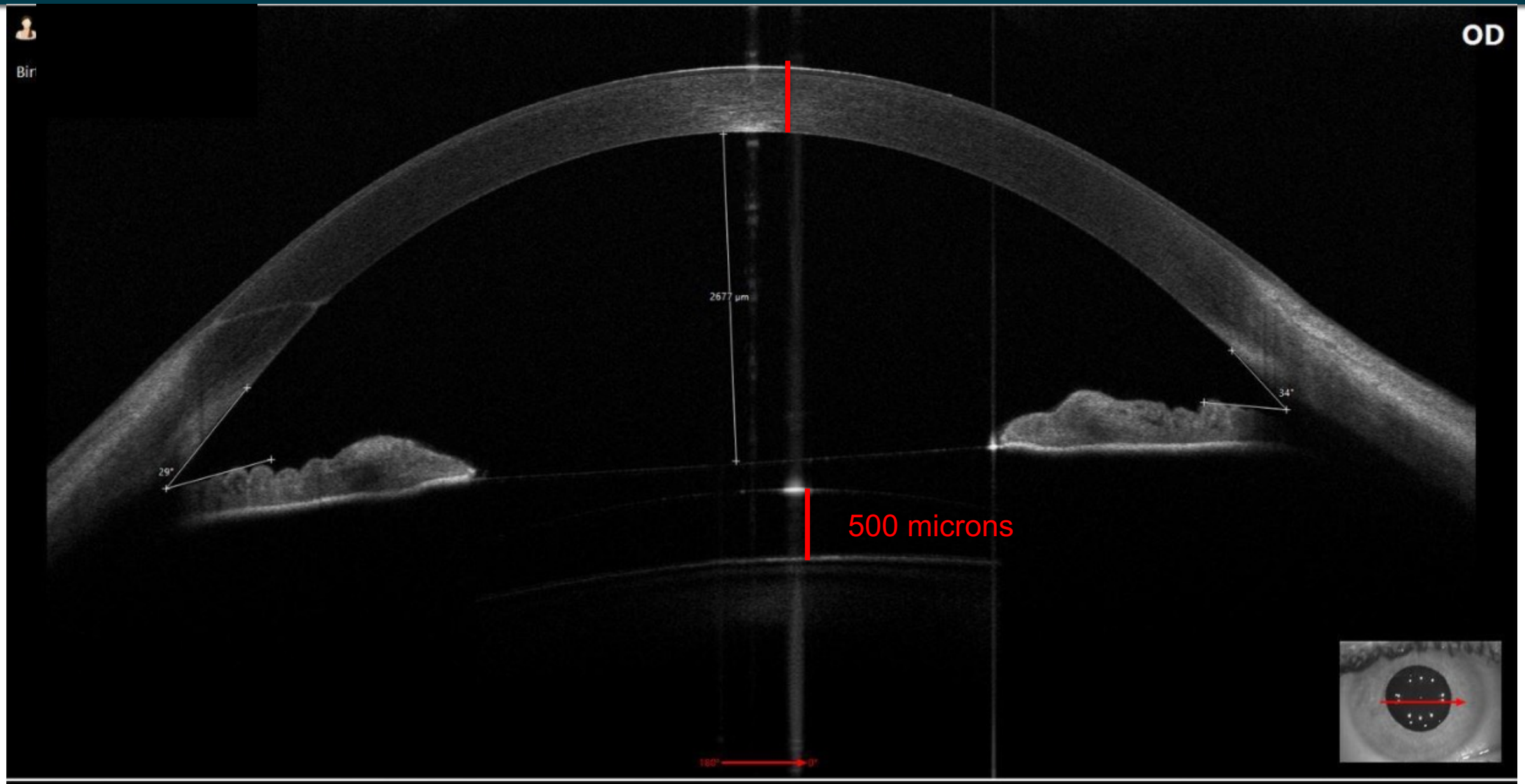
- Acuity improvement over time (important to set up patient expectations prior to surgery)
- Follow-ups– 4day, 14 day, 1 month, 3 months
- Monitor dryness
- Medication schedule

ICL

- Monitor lens position
  - Vault over natural lens
  - Rotation of haptics (Toric)
- Acuity
- Anterior chamber reaction
- IOP monitoring

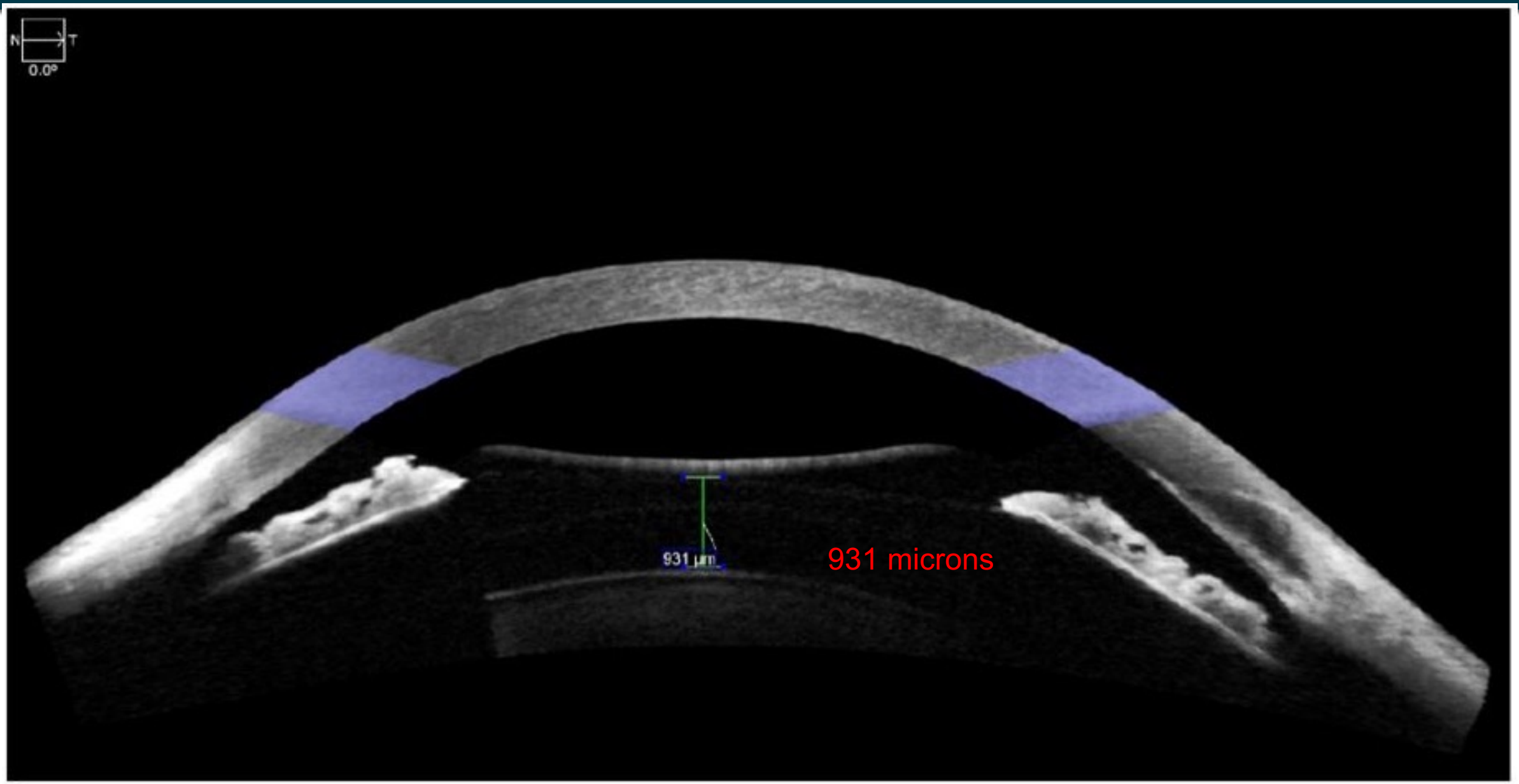
ICL

VANCE THOMPSON VISION



ICL

VANCE THOMPSON VISION



ICL

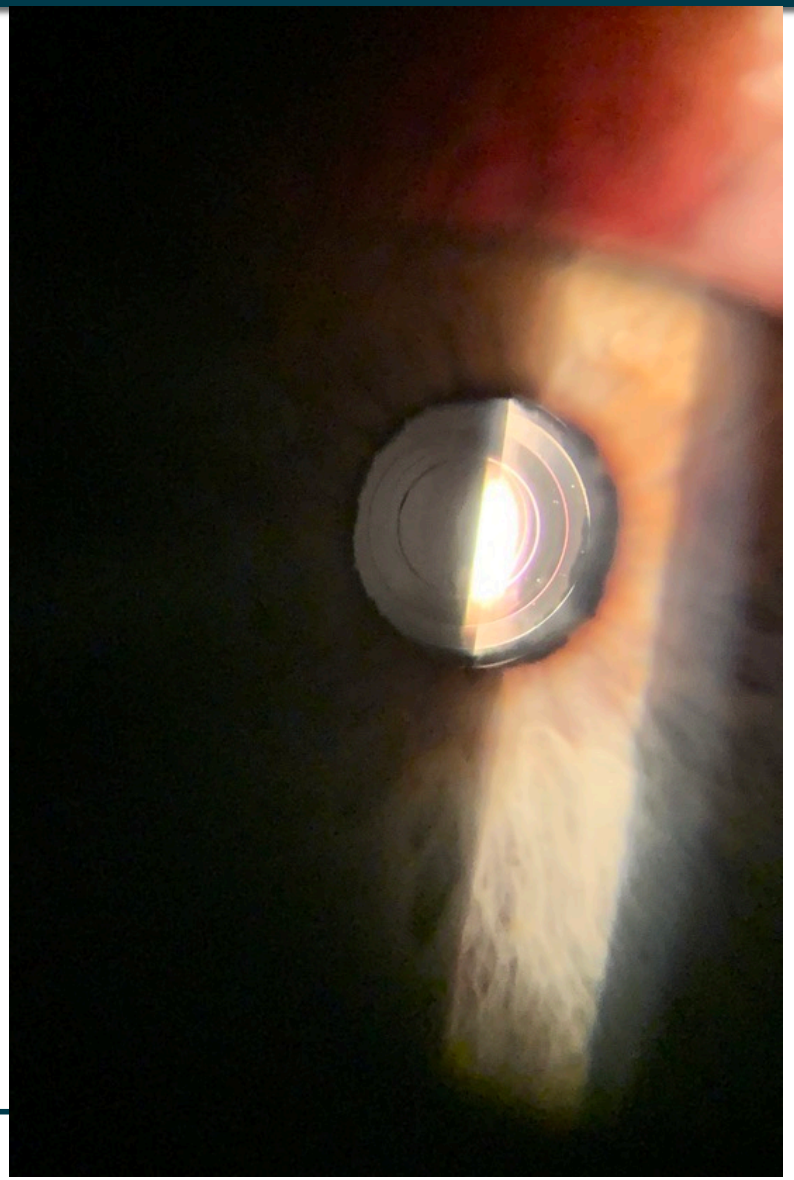
- What to do with residual Rx
  - Glasses or Contact Lenses
  - LASIK vs PRK finetune
  - Lens exchange

ICL

- Follow-up visits 0 day, 1 day, 7 day, 1 month, 3 month, 6 month then annually

RLE

- Similar to cataract surgery
- Acuity (Distance and Near)
- IOP
- Anterior Chamber Reaction
- Lens position



RLE

- Follow-up visits: 1 day, 1 week, 1 month, 3 months.
- YAG and LASIK fine-tune at 3 months plus

RLE

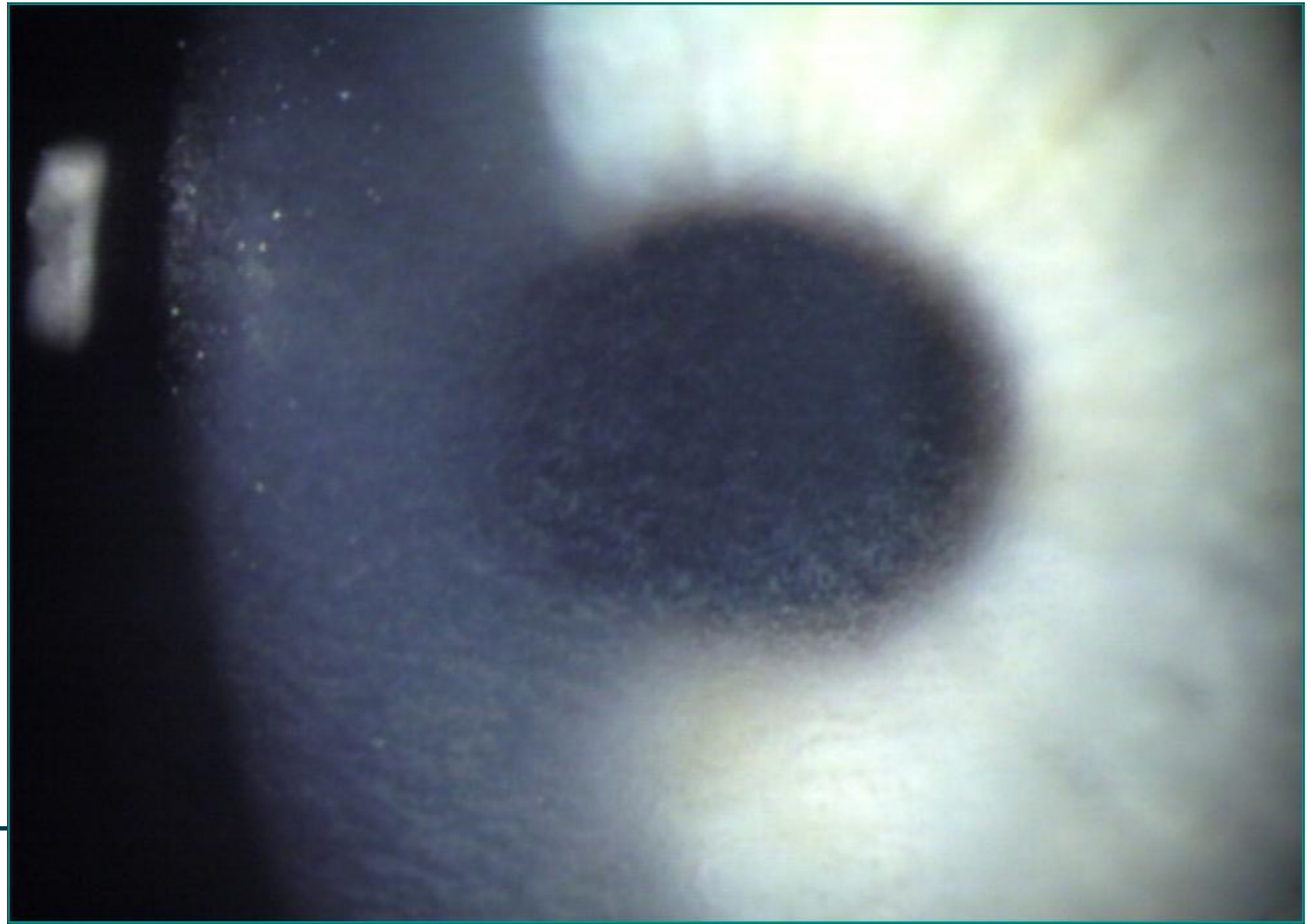
- Younger patients
- Need extra “coaching” through process
- Most will be advanced implants

VANCE THOMPSON VISION

Complications and Unhappy Patients

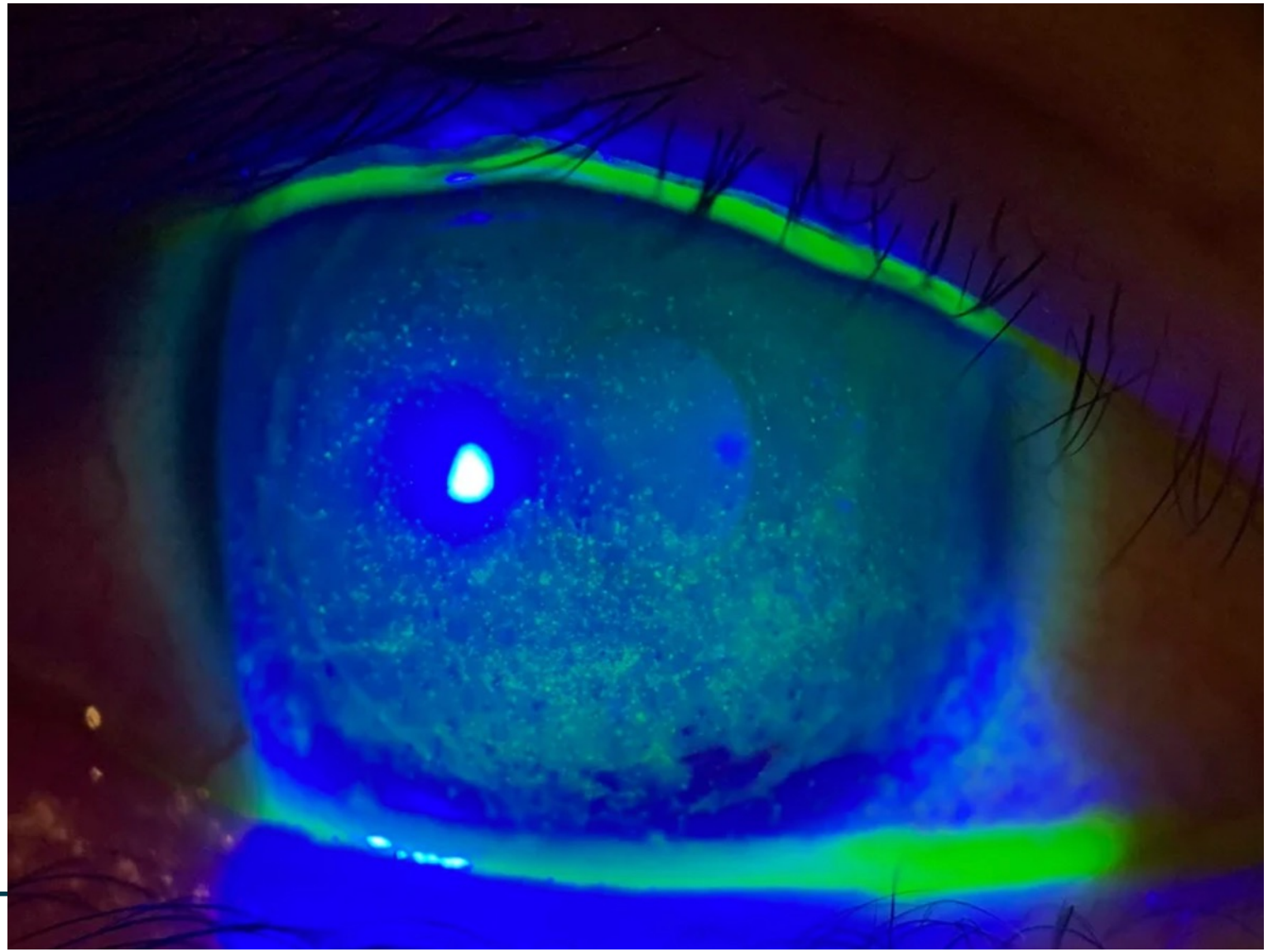
LASIK Complications

- DLK



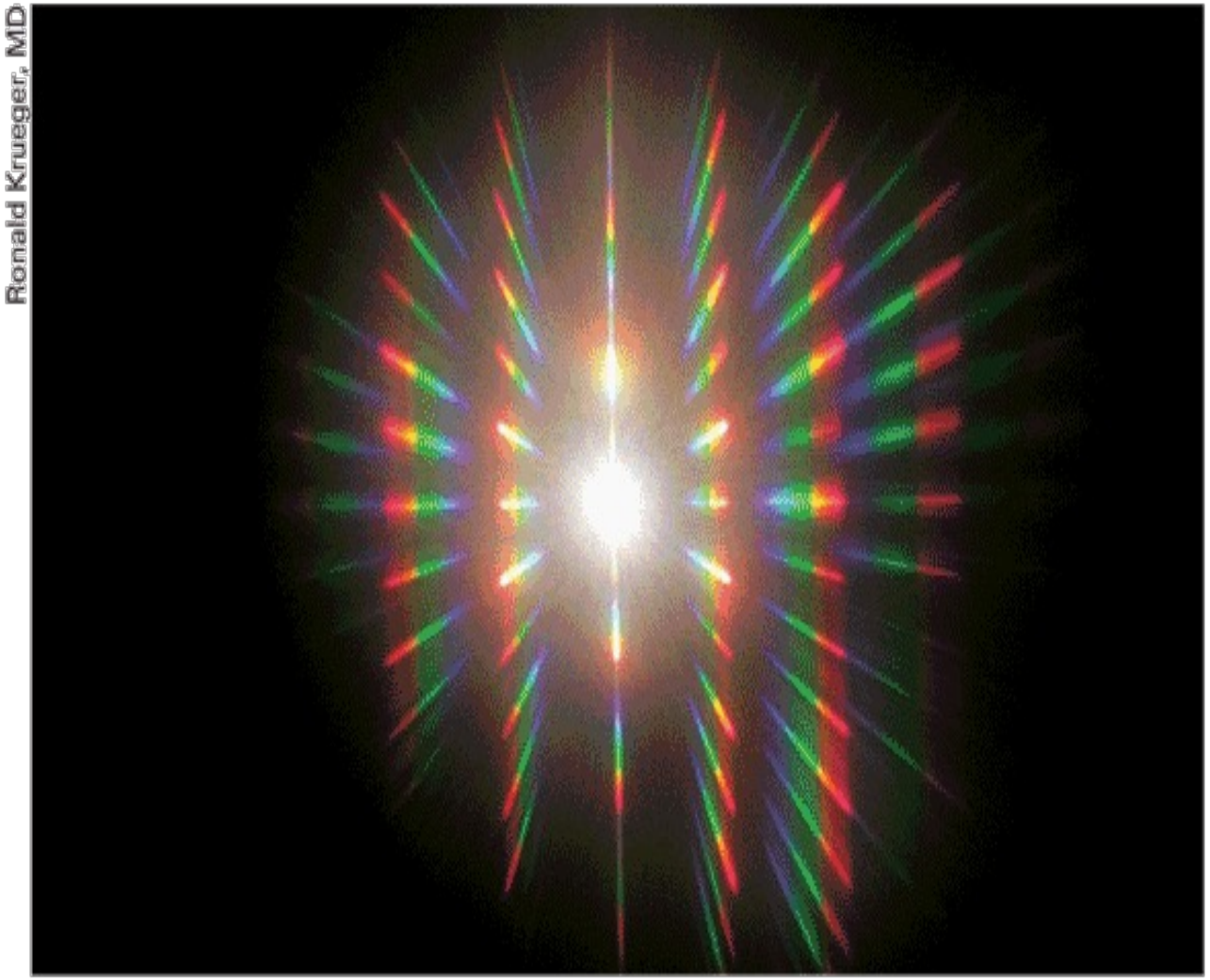
LASIK Complications

- Dry Eye



LASIK Complications

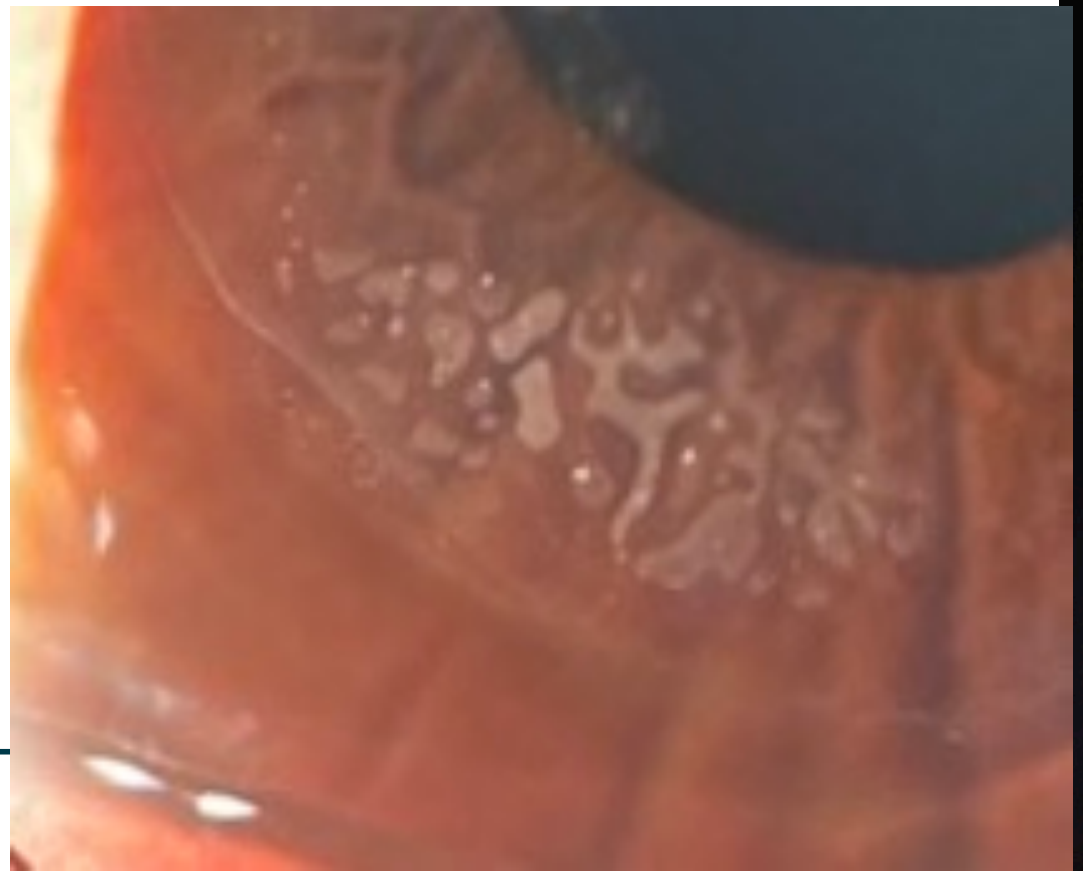
- Rainbow Glare

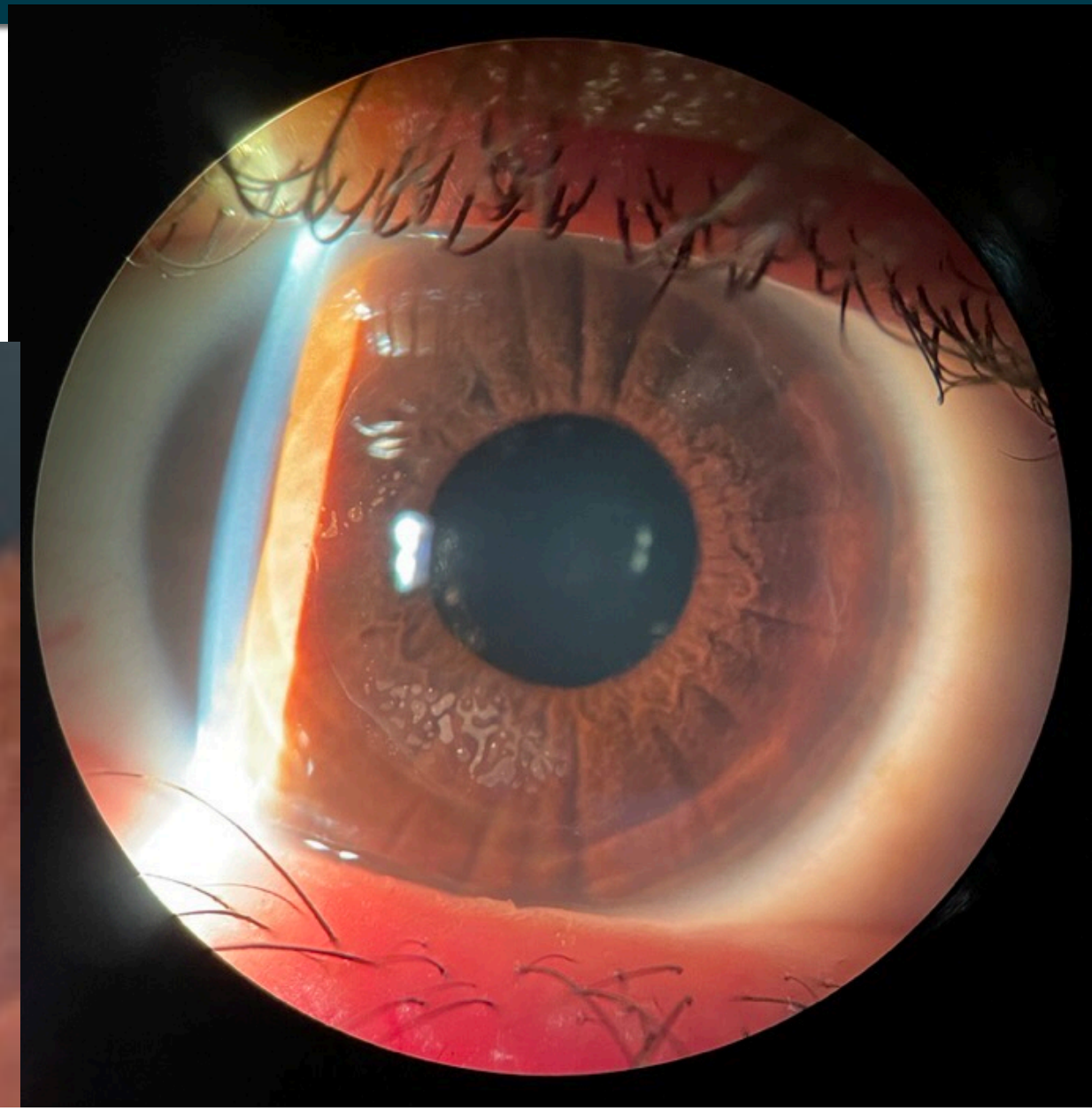


https://www.reviewofophthalmology.com/article/a-refresher-on-postop-rainbow-glarey.com/article/a-refresher-on-postop-rainbow-glare

LASIK Complications

- Over/Under correction
  - Flap Lift vs PRK





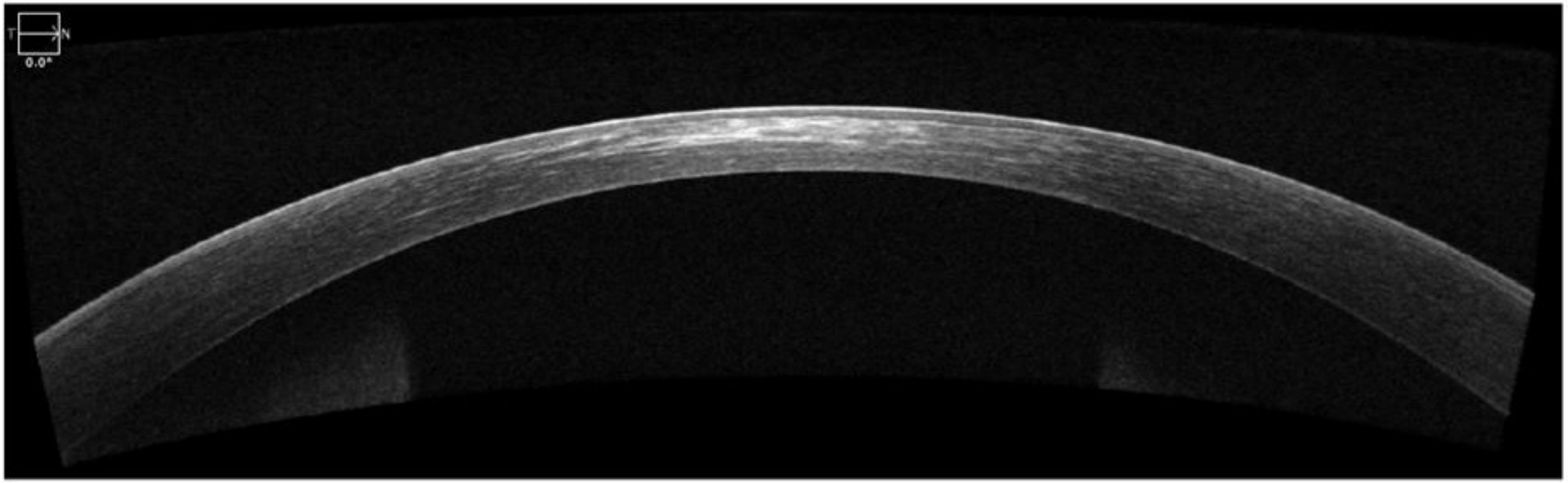
PRK Complications

- Delayed Epithelialization

https://www.reviewofoptometry.com/article/fixing-a-hole-how-to-heal-persistent-epithelial-defects

PRK Complications

- Haze



PRK Complications

- Over/Under Correction

ICL Complications

- Incorrect Vault
- Residual Correction
  - Check rotation with Toric ICL
  - LASIK/PRK Fine-tune

RLE Complications

- TASS
- CME
- Dry Eye
- PCO
- Lens Exchange (LAST RESORT)

Unhappy RLE Patient

- 55 yo computer tech
- Cataract surgery 2 years ago – monofocal IOL OU
- Unhappy with having to wear glasses for everything

Evaluation

	OD	OS
Dsc	20/30-1	20/20-1
RX	+.75-1.50x95 20/20	+.50-1.50x79 20/20

Options

- Leave it as is
- Contacts or glasses
- LASIK fine-tune for cylinder
- IOL Exchange for Trifocal, EDOF, Toric, LAL

Post-op

VANCE THOMPSON VISION

	OD	OS
Dsc	20/20	20/25
Nsc	20/20	20/20
Rx	+.50-.50x15	+.25-.25x91