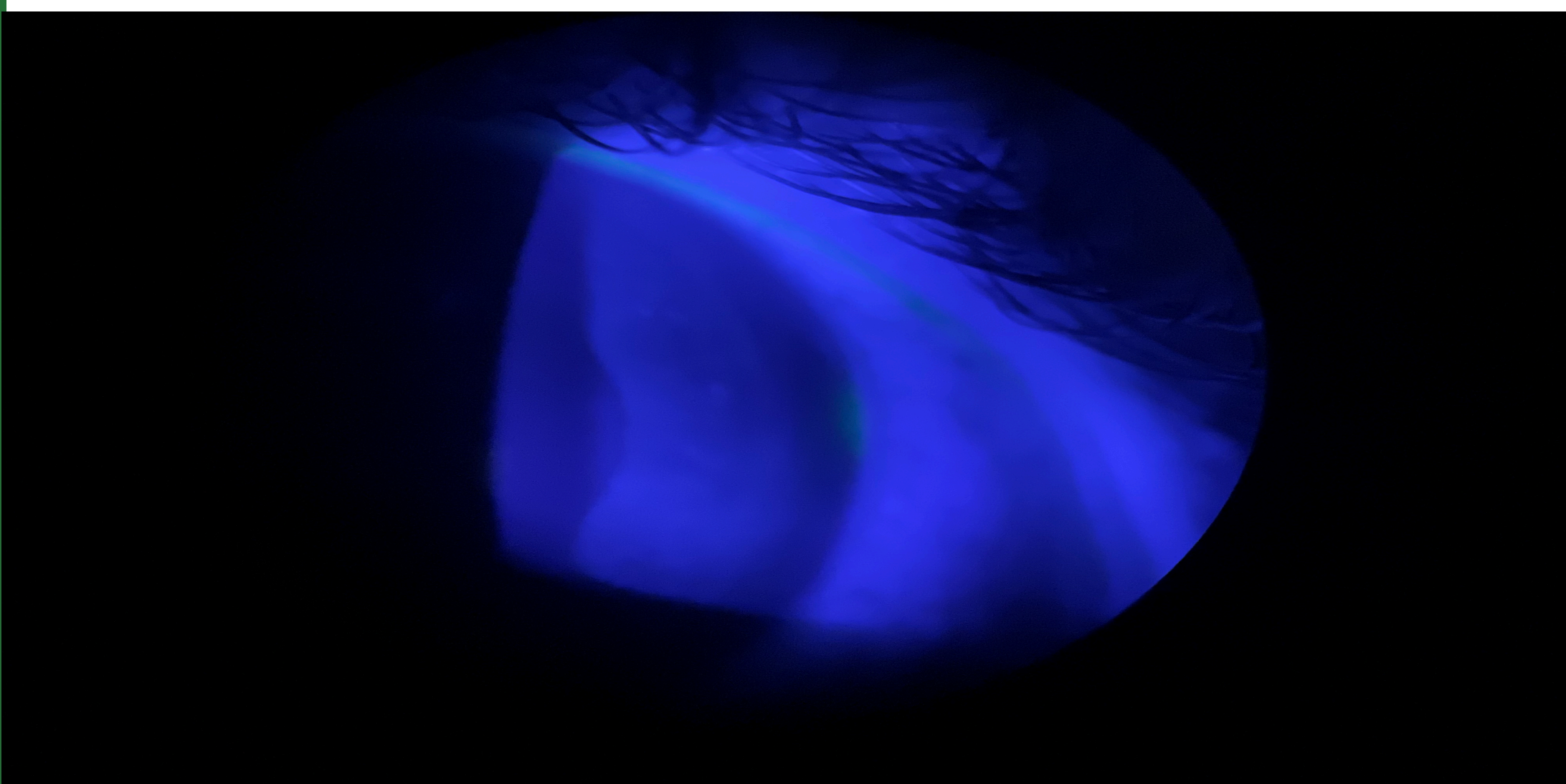
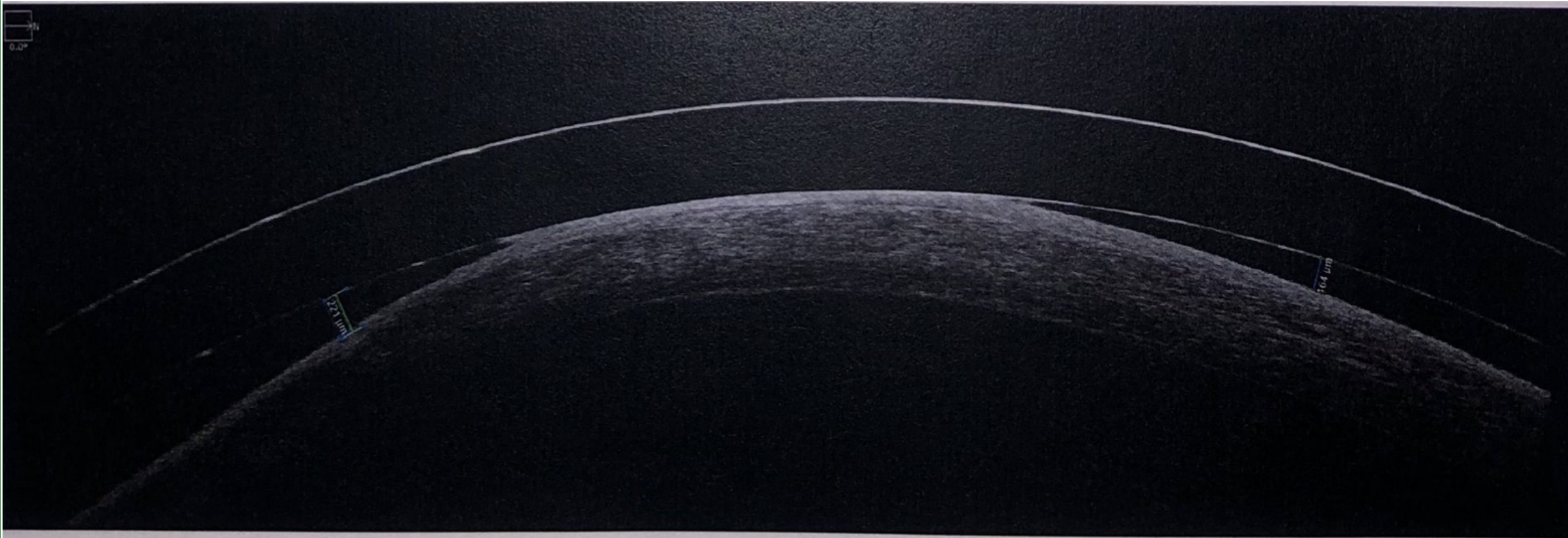
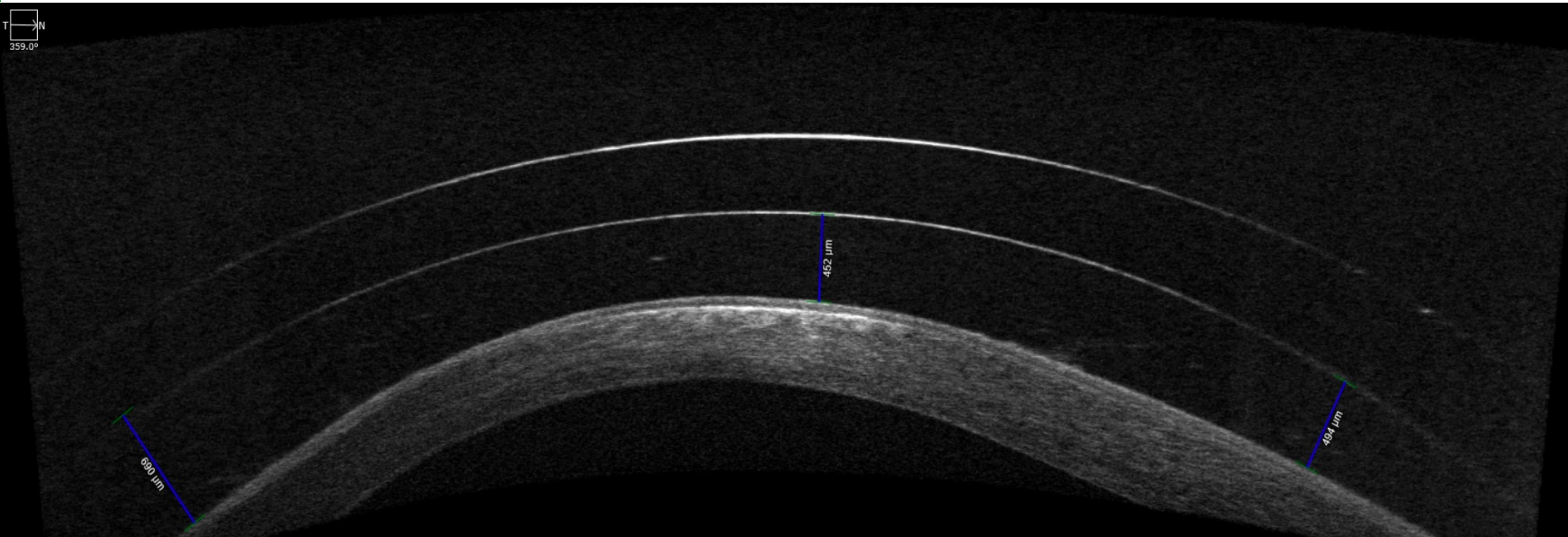
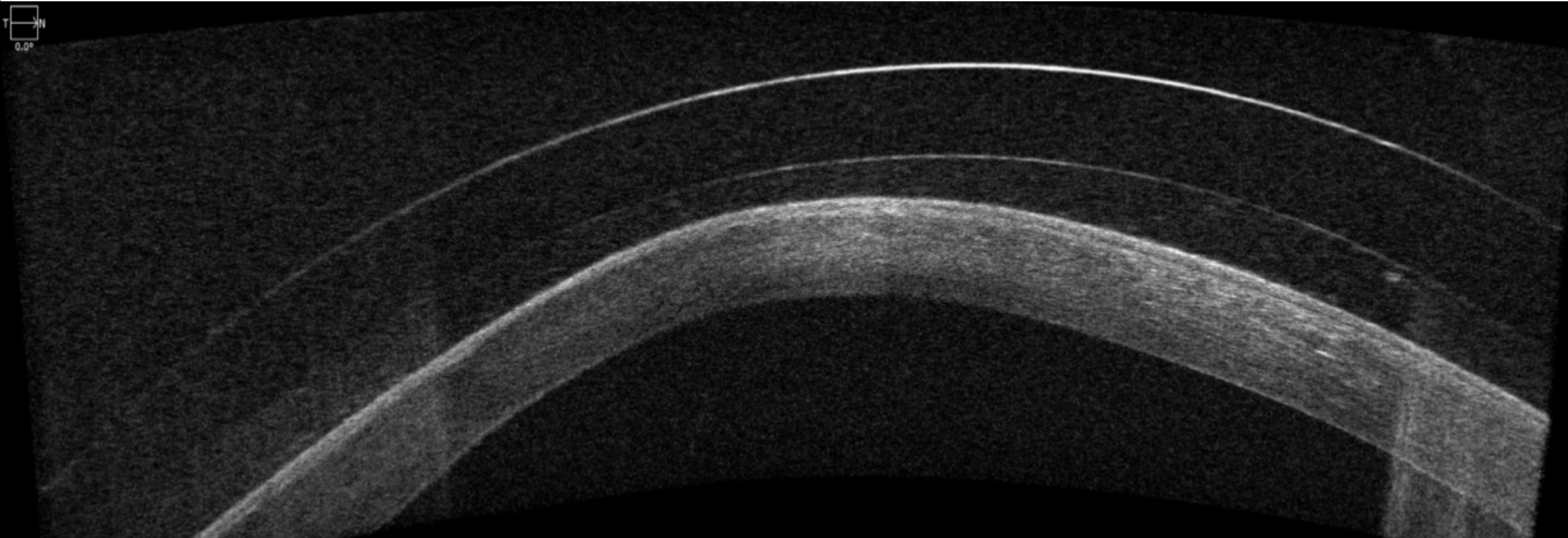


The Scleral Lens Patient with a Poor Fit and Cornea Ulcer

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BACKGROUND		
43-year-old white-male patient was diagnosed with bilateral keratoconus in 2008, with the right eye being worse than the left eye. In 2018, patient was fitted into scleral lens OD and a soft toric lens OS. The patient had been lost to follow-up since finalizing the fit. The patient was seen urgently on July 2021 by my co-resident for a painful red-eye OS. After the initial visit, I inherited the patient due to scleral lens complications. There was a total of seven-visits, from the initial to the final visit. Patient was not being treated for any other ocular or medical conditions.		
INITIAL VISIT		
Entering VA	OD: 20/40 with scleral lens OS: 20/150 uncorrected	
Conjunctiva	OD: 2+ diffuse bulbar injection OS: 4+ diffuse bulbar injection	
Cornea	OD: diffuse central punctate epithelial erosion (PEE) OS: small sub-epithelial infiltrates (SEIs) with surrounding corneal haze, and areas (+)NaFl staining	
A/C	OD: deep and quiet OS: 2+ cell, (-)flare	
Iris/Pupil	Round, reactive	
2018 Spec Rx	OD: -1.00 -8.00 x084 VA: 20/80 OS: -1.50 -2.00 x075 20/60	
Final Rx	OD: -1.00 -8.00 x084 VA: 20/80 OS: -1.75 -4.00 x105 20/20	
<ul style="list-style-type: none">• Patient reports proper contact lens wear and care with both care regimens: Boston Simplus for nightly disinfection with LacriPure Saline to fill the bowl of the scleral lenses OD and Clear Care for nightly disinfection OS.• Confocal microscopy revealed findings consistent with a diagnosis of bacterial corneal ulcer (see figure below)		
		

Follow-up Visit #1		CLINICAL MANAGEMENT
Entering VA	OD: 20/40 with scleral lens OS: 20/150 uncorrected PHNI	Patient developed a cornea ulcer in his left eye while wearing a soft-toric monthly lens in the left eye and a scleral lens in his right eye. The patient was instructed to discontinue contact lens wear and start topical antibiotic OS. The cornea ulcer resolved after ~2-weeks from the initial onset. Patient was also instructed to decrease wearing time for scleral lens until new fitting process could begin. He did not have spectacles at home and only relied on his contact lenses for vision correction. Once the left eye ulcer resolved, a new fitting process of the scleral lens for the right eye was initiated. The patient also requested new lens modality for his left eye, from monthly wear to either bi-weekly or daily wear. No refraction changes were noted OD but an increase in astigmatism was found OS. Unfortunately, no biweekly or daily wear lens with the high astigmatism were available for needed Rx. Decided to order Biofinity XR Toric trial. Although it is a monthly lens, the patient agreed to replace the lens twice per month. Communicated with consultant to order new scleral lens and have it ship to patient as soon as possible. After a couple visits, a good fit was achieved, and the patient was happy with comfort and vision OU.
Conjunctiva	OD: 2+ diffuse bulbar injection OS: 2+ diffuse bulbar injection	
Cornea	OD: central PEE, central scarring, Vogt’s Striae OS: small SEIs with mild corneal haze	
A/C	OD: deep and quiet OS: 1+ cell, (-)flare	
Final Visit #7		
Entering VA	OD: 20/25 with scleral lens OS: 20/20 with Biofinity XR	
Conjunctiva	OD: clear OS: clear	
Cornea	OD: central scarring, Voight’s Striae OS: Vogt’s Striae	
A/C	OU: deep and quiet, (-)cell, (-)flare	
AS-OCT		ADJUSTMENTS
		Patient was complaining of lens becoming foggy after several hours, reduction in vision, and constant redness upon removal of the lens. After lens evaluation, central touch with blanching specific to the superior and inferior quadrants. After speaking with the lab consultant, we decided to modify the periphery (360° flattening + inferior quadrant specific steepening) and increase the central clearance by 250μ to raise the lens off the cornea, with power compensated accordingly.
		OCT showing 450 μm of clearance. Patient returned wearing the lens for 8-hrs. Average wearing time is 17hrs/day, reports good comfort, better vision than previous lens, BUT reports that the lens feels a bit loose. He wishes the lens were a bit “snugged/tight.” It was difficult to anticipate exactly how the new lens will settle with the different edge profile, but 250μ should be at least sufficient.
		OCT showing 200 μm of clearance. Decided to make the diameter smaller. We needed to cut back quite a bit all the way around, so changing the diameter by 0.5mm was the best way to do this. It reduced the clearance ~100μ centrally and over the limbus. The goal was to lose ~200μ all together, so taking base curve down to lose the remaining 100μ after the diameter reduction. The loss of weight from the fluid vault and the lens diameter will help with centration.

DISCUSSION
Contact-lens-related bacterial keratitis is a severe and potentially blinding condition requiring urgent treatment to contain damage and to improve prognosis. The goal of treatment is the rapid eradication of the pathogen. Currently the “gold standard” of treatment for corneal ulceration is the use of fortified antibiotics or monotherapy with second generation fluoroquinolones. ¹ Frequency of re-evaluation depends on severity of disease, but bacterial keratitis should initially be monitored on a daily basis. Scleral contact lenses are now considered the standard of care for correction of irregular corneas caused by Keratoconus. For many patients, the optimal and clear vision that these lenses provide often outweighs the risk of wearing them. ² In some instances, scleral lenses are now considered for correction of normal cornea because of their comfort and quality in optics. In these cases, the risk and benefit ratio should be evaluated, and the lens fitted accordingly. For individuals with keratoconus, the patient should be monitored closely for progression in order to avoid contact between the cornea apex and the scleral lens. ³
CONCLUSION
Managing multiple complaints in a single visit can be overwhelming, so having a plan and goal for each visit is important for the patient-provider relationship. The option of fitting a scleral lens in the left eye was available upon request by the patient; however, the patient wanted to continue wearing different contact lenses for each eye. This case highlights the importance of encouraging patients to having a back-up pair of spectacles. It also highlights the importance of routine eye exams. When patients are lost to follow-up, they may experience a poor fit that can compromise the ocular surface. Reviewing proper contact lens wear and care is key to maintaining them in their contact lenses. Lastly, when fitting scleral lenses, patients can help detect the location of the problem for optimal fit.
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