

Dare to Be Rare: Acute Corneal Hydrops Associated with Post LASIK Ectasia

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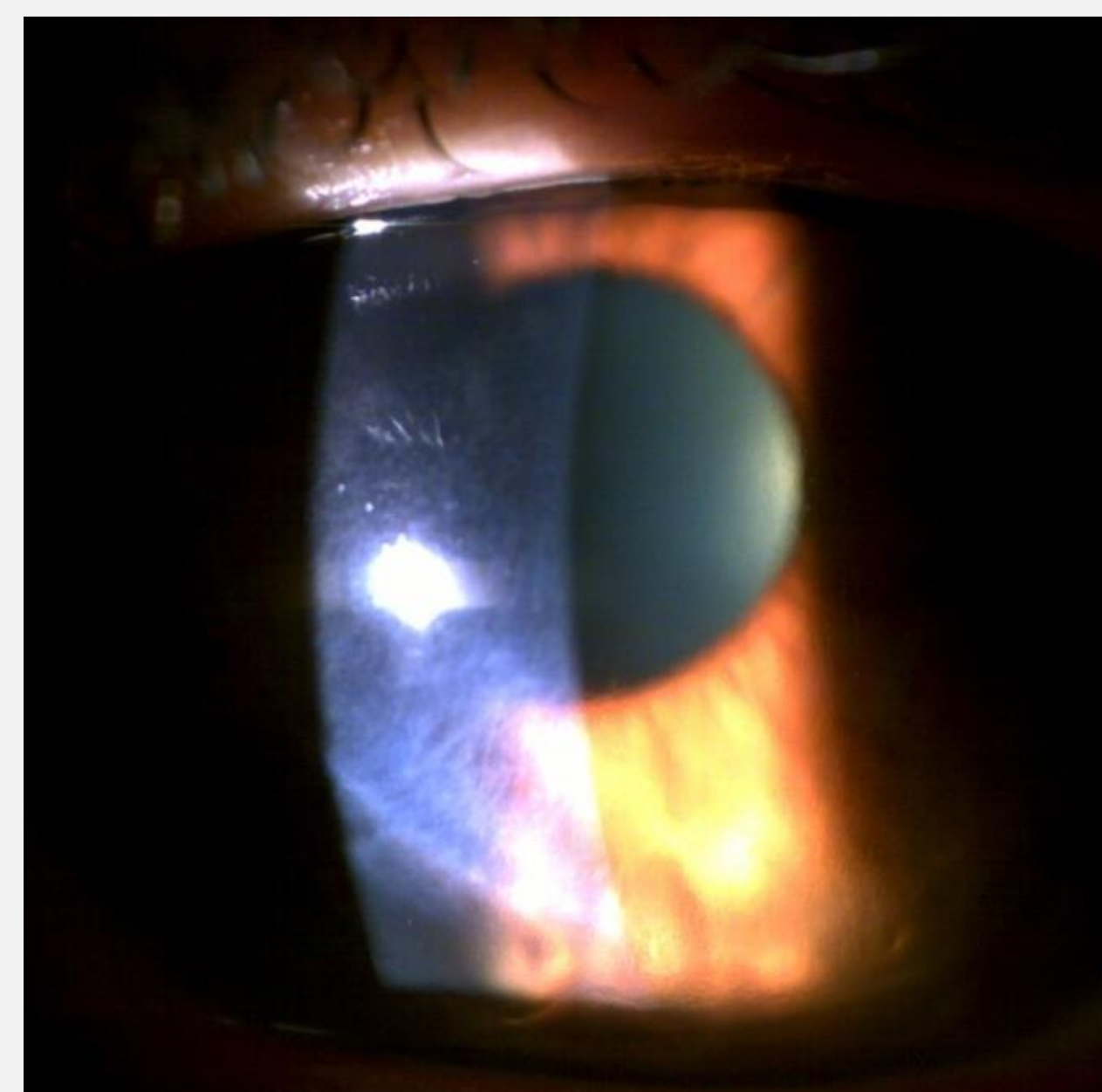
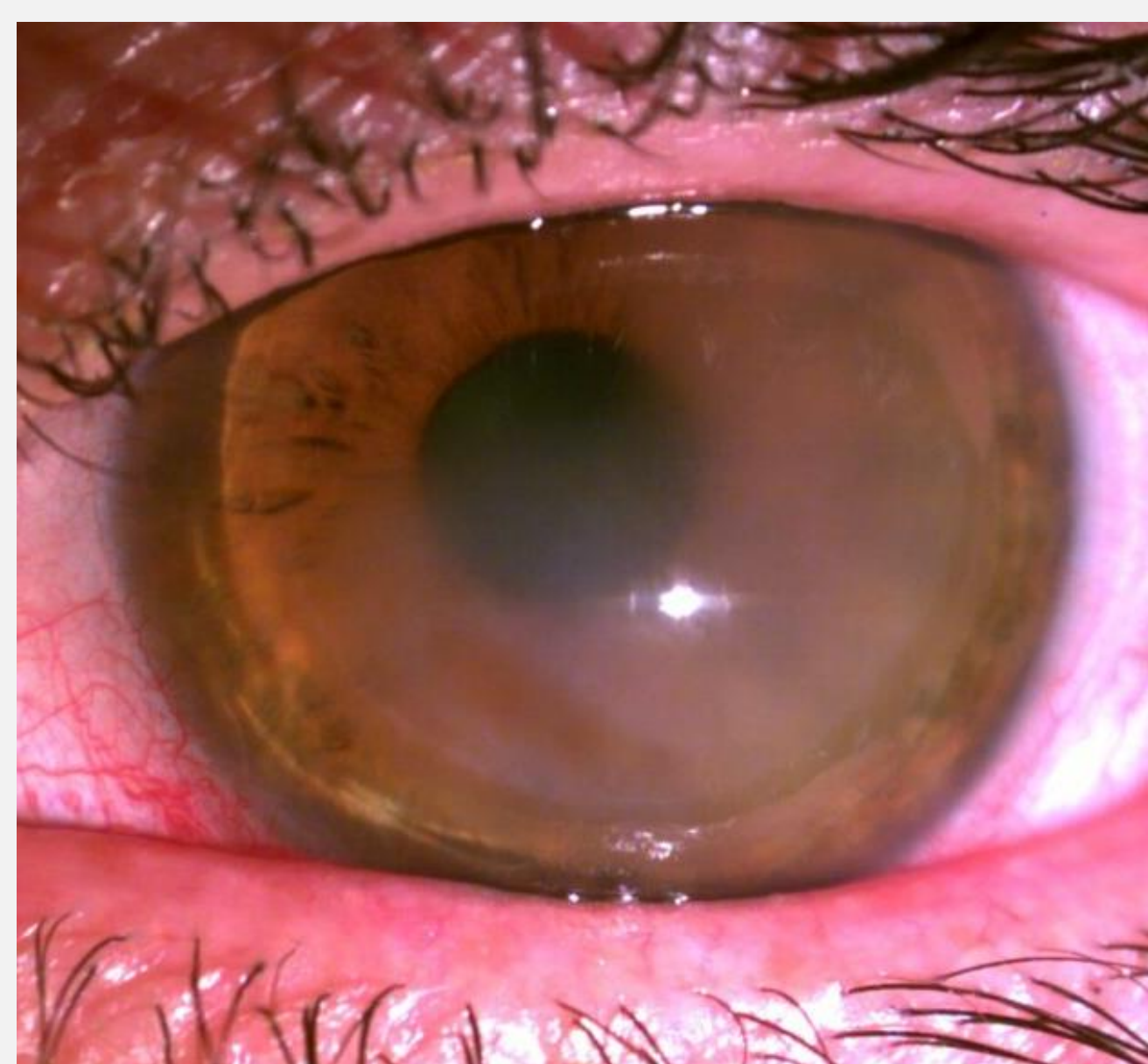
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Purpose

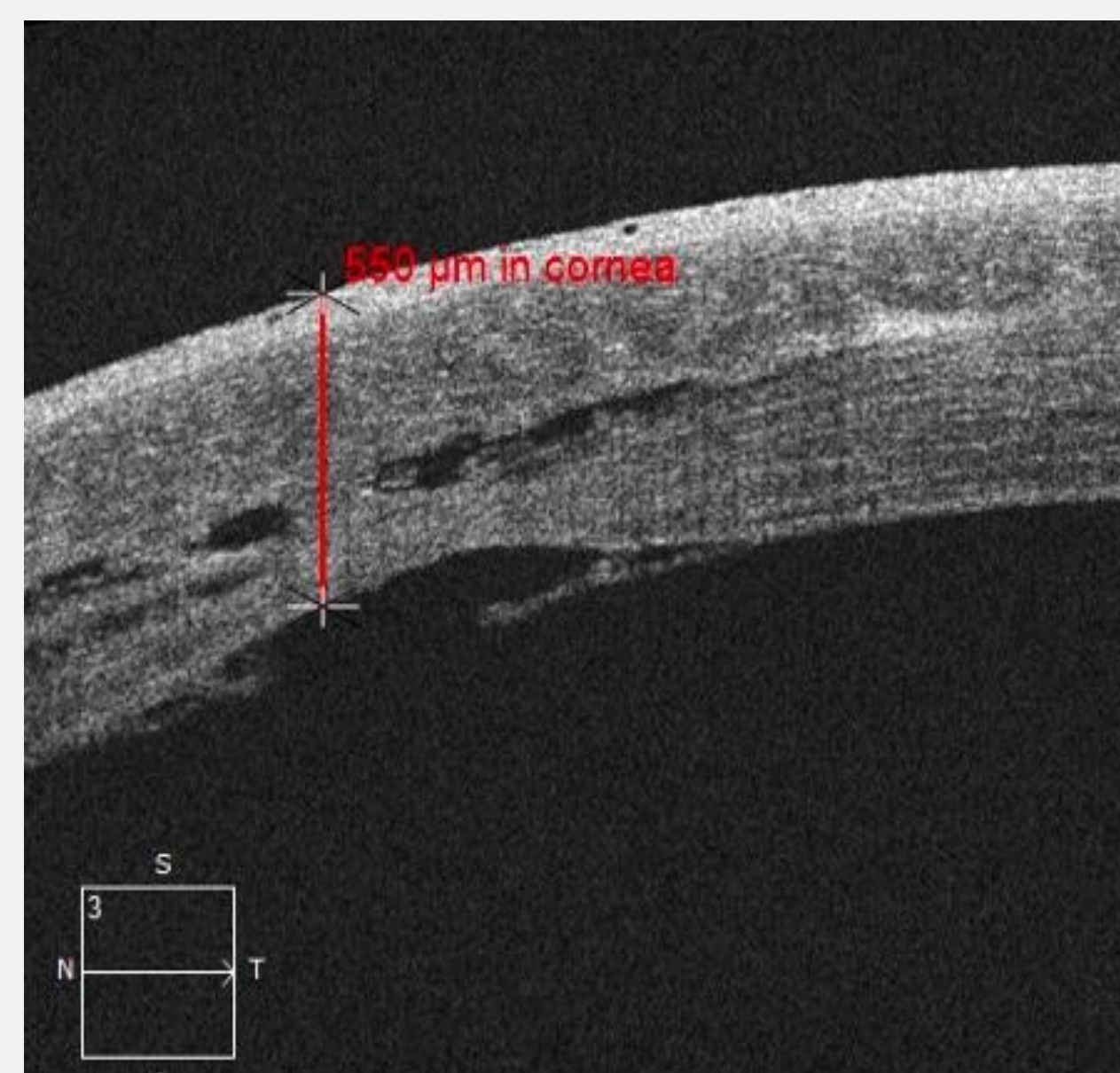
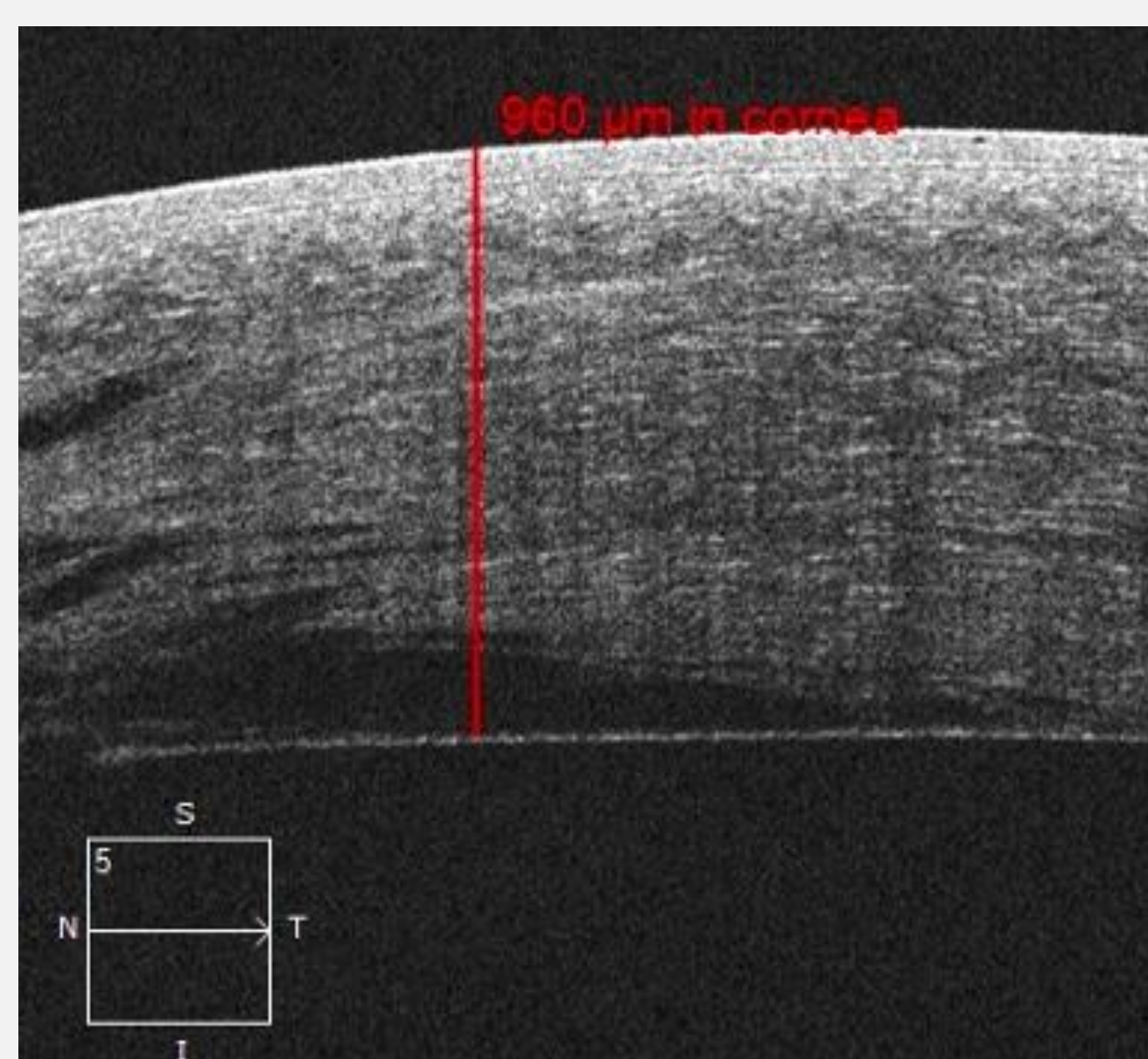
Corneal hydrops occurs from an acute break in Descemet's membrane.¹ This allows aqueous to enter the cornea through the endothelium causing stromal edema, blurred vision, pain, photophobia and potential vision loss due to resultant corneal scarring.¹ While acute corneal hydrops occurs in 2-3% of keratoconic patients, it is a rare complication in post LASIK ectasia.¹ This poster will highlight a patient who developed unilateral corneal hydrops while wearing a scleral lens (ScCL) for post LASIK ectasia. Once the hydrops resolved, she underwent corneal cross linking (CXL) to slow the progression of her post LASIK ectasia.²

Case Report

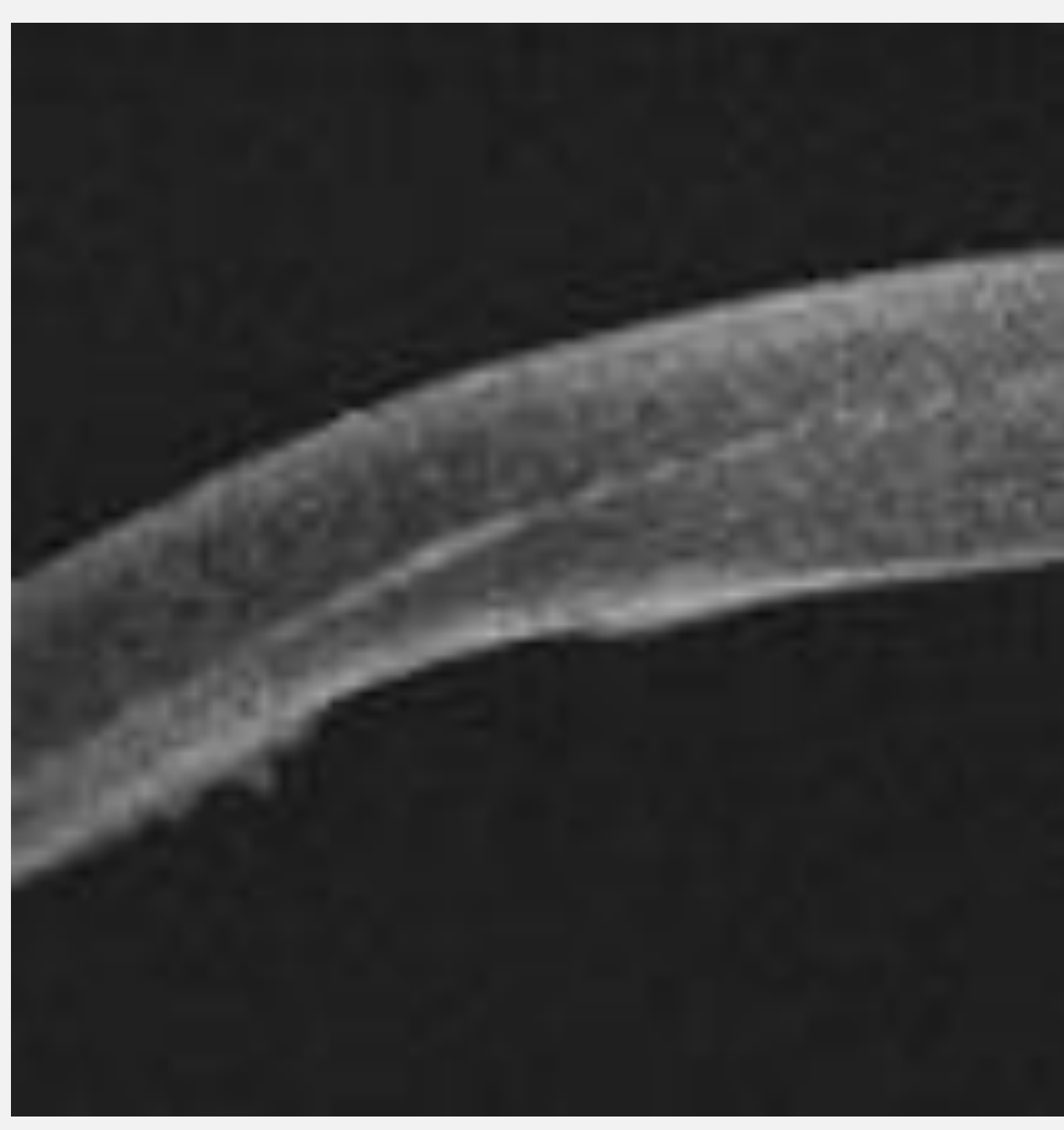
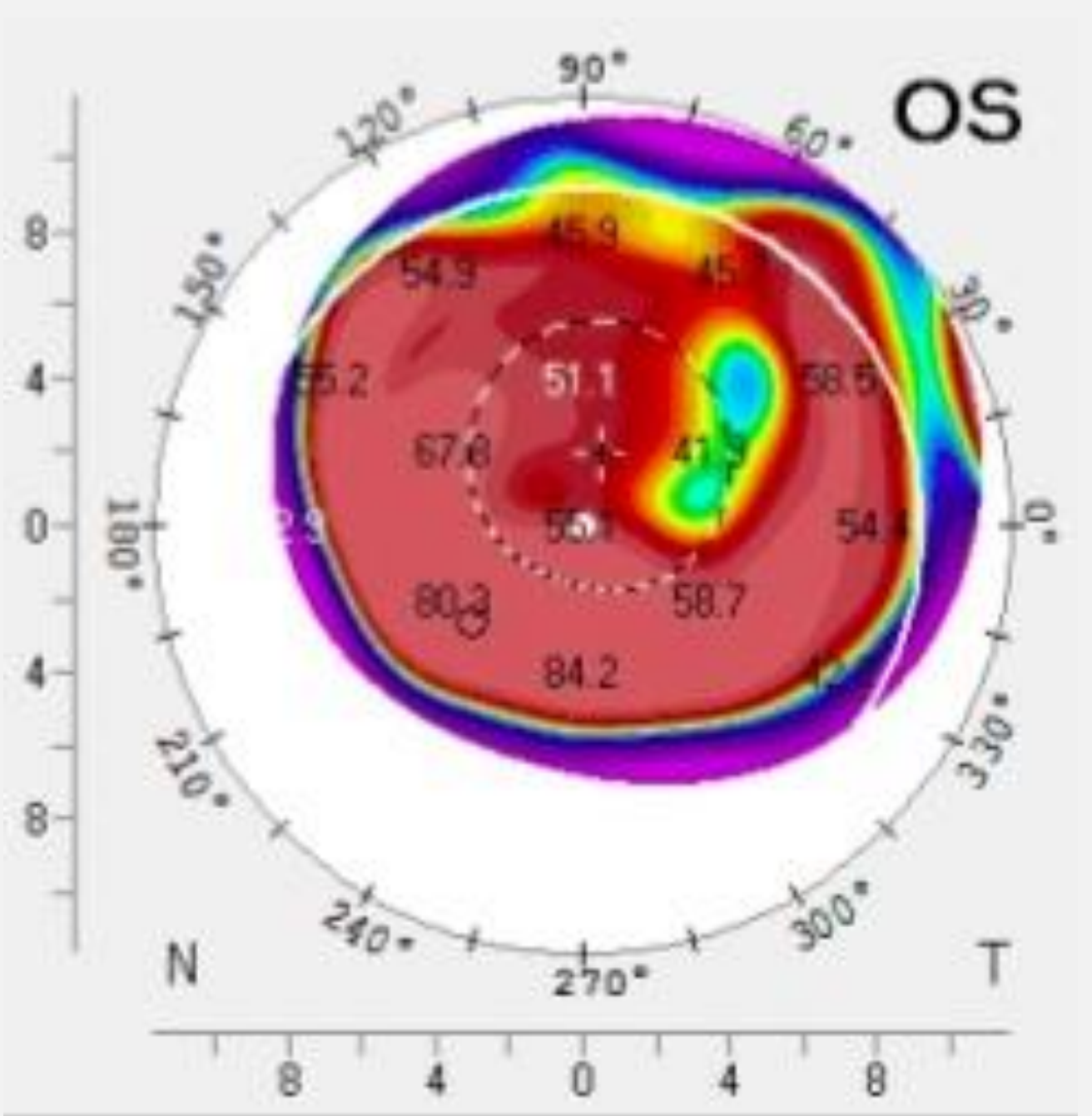
A 53-year-old Hispanic female presented to NSU Health Eye Care Institute with complaints of blurry vision, pain, and redness, OS. She has a long history of ScCL wear, OU. Her ocular history was positive for post-LASIK ectasia, and dry eyes, OD and OS. Her medical history is positive for iron deficiency anemia and hypertension, for which she takes iron and valsartan P.O., respectively. Best corrected visual acuities at distance were 20/20 OD and 20/40 OS with glasses. Corneal evaluation with slit lamp biomicroscopy revealed mid-peripheral LASIK scars OD and OS. Stromal edema affecting 70% of the cornea, sparing the superior nasal pupillary zone, was observed OS only. Anterior Segment Optical Coherence Tomography (OCT) confirmed the break in Descemet's membrane. The patient underwent months of topical therapy, OS (tobramycin-dexamethasone drops q4h, Muro 128 QID, brimonidine 2% QD, and preservative-free artificial tears). After resolution of the corneal hydrops, CXL was performed OU and ScCL wear was resumed. Ultimately, the patient was refit to ScCLs with a prolate design, front toric optics, and a vaulted edge to clear elevated pingueculae on the temporal bulbar conjunctiva, OU.



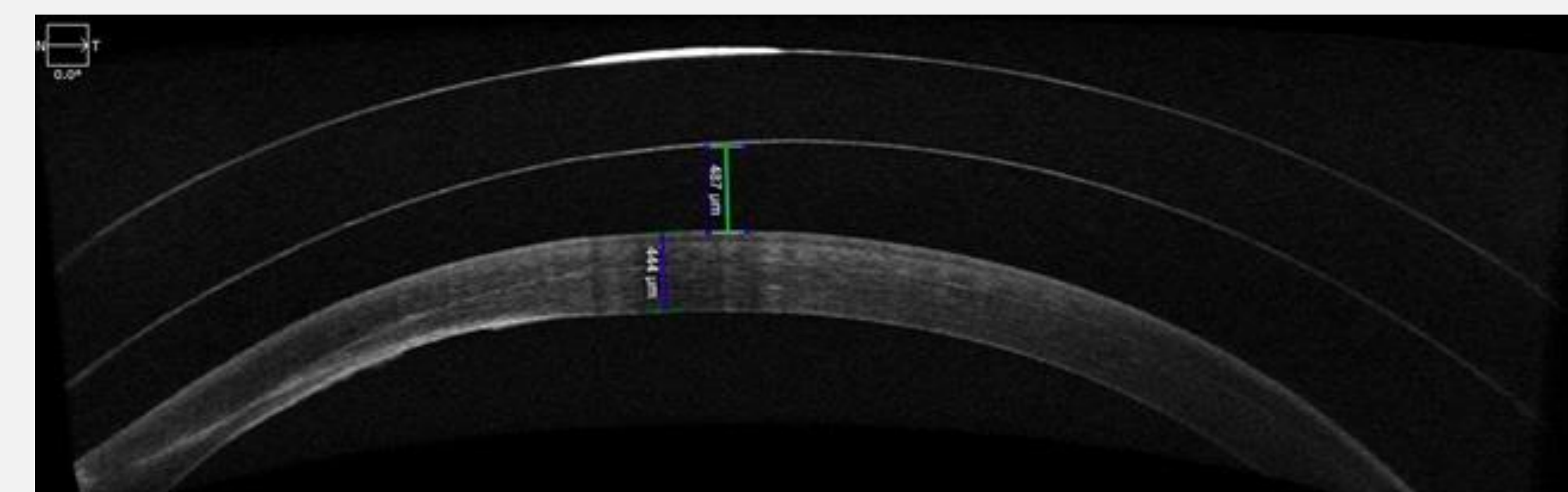
Figures 1 & 2: Anterior segment photos of Corneal hydrops OS showing a large area of stroma edema (left image) and cornea scarring (right image).



Figures 3 & 4: Anterior Segment OCT revealing break in Descemet's membrane OS at 1-day follow-up (left image) and 2-week follow-up (right image).



Figures 5 & 6: Corneal Topography OS confirming ectasia (left image) and Anterior Segment OCT at 4-month follow-up demonstrating resolution of Hydrops (right image).



Figures 7: Anterior segment OCT performed on OS after insertion of scleral lens. Central clearance of 437 microns with significantly less over corneal apex.

Discussion

Corneal hydrops is caused by a rupture in Descemet's membrane, which heals with scarring within months.³ Treatment includes lubricants, hyperosmotic eye drops, prophylactic antibiotic eye drops, and topical steroids.³ ScCLs should be considered after hydrops resolutions because it significantly improves vision due to the reduction in both lower- and higher-order aberrations.¹ Best corrected visual acuities following the hydrops event OS and CXL OU were 20/20 OD and 20/25 OS at distance. With a monovision correction, the patient obtained comfortable 20/20 acuities binocularly at distance and near. This case demonstrates that corneal hydrops may develop in patients with post-LASIK ectasia.

Conclusion

Corneal hydrops is a rare complication of post-LASIK ectasia.¹ Unlike other corneal ectasias which typically stabilize in the 4th decade of life, post LASIK ectasia may continue to progress.² CXL, known to slow progression in Keratoconus, may provide the same benefit in post LASIK ectasia.² While ScCLs are used for patients with many forms of corneal irregularity, they are an ideal management option for those with post-LASIK ectasia, especially once corneal hydrops has occurred.

References

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2. Zhao, L., Yin, Y., Hu, T., Du, K., Lu, Y., Fu, Q. et al. (2023) Comprehensive management of post-LASIK ectasia: From prevention to treatment. *Acta Ophthalmologica*, 101, 485–503. doi:10.1111/aos.15636
3. Bachmann, Björn O et al. "Corneal Hydrops - Aetiology and Advanced Therapeutic Strategies." "Der korneale Hydrops – Ursachen und moderne Therapieansätze." *Klinische Monatsblätter für Augenheilkunde* vol. 240,6 (2023): 795-802. doi:10.1055/a-2048-6703