

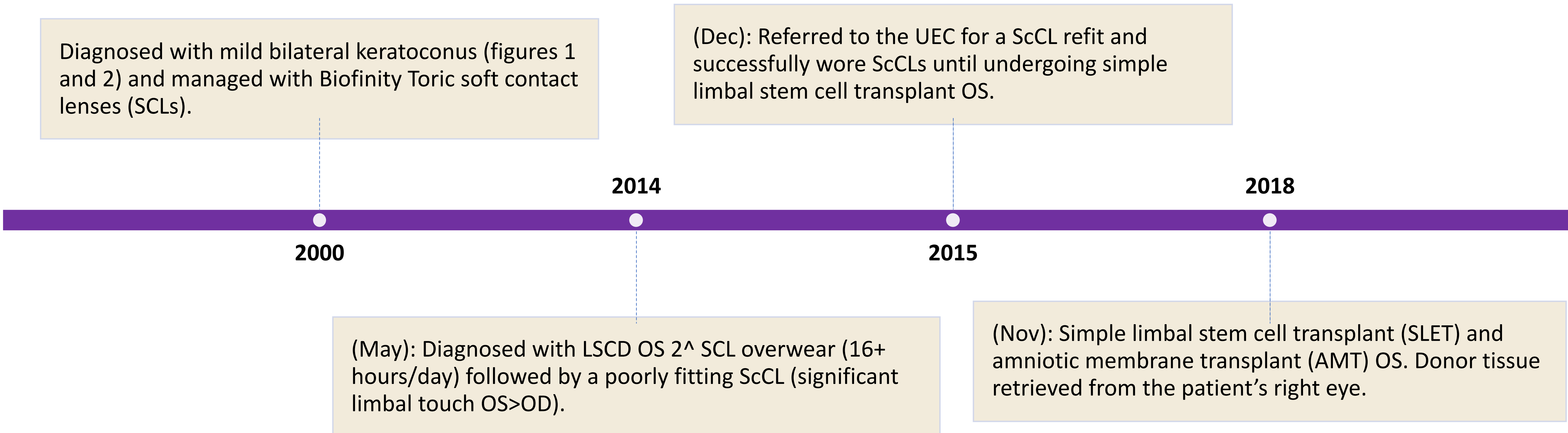
### BACKGROUND

- Limbal stem cells reside at the junction between the cornea and the sclera and function to replenish the corneal epithelium.
- Limbal stem cell deficiency (LSCD) results when these cells are damaged by mechanical, chemical, and/or inflammatory insult to the limbal environment.<sup>1</sup>
- Reducing stress on the limbal area decreases the risk for LSCD and corneal conjunctivalization.
- Scleral contact lenses (ScCLs) correct irregular astigmatism caused by keratoconus and provide therapeutic relief from dry eye associated with LSCD.

### CASE HISTORY

A 52-year-old Asian female presented to the University Eye Center (UEC) with complaints of blurred vision at near with her habitual scleral contact lenses (ScCLs).

#### Ocular History Timeline:



**Medications:** prednisolone acetate ophthalmic suspension OU, Losartan (hypertension), and Otezla (psoriatic arthritis).  
**Co-management:** The patient is co-managed by a corneal surgeon and rheumatologist.

### EXAMINATION FINDINGS

		OD		OS	
DVA	NVA	20/40 <sup>-1</sup> (PH NI)	20/50	20/70 (PH NI)	20/40
Ks		44.3/46.4 @ 102.8°	K <sub>Max</sub> 47.5D	44.3/47.2 @ 72.7°	K <sub>Max</sub> 49.7
Habitual ScCL Fit		Well-fitting, except for nasal limbal touch (Figure 3)		Well-fitting with adequate limbal clearance 360	

\*Measured with the patient's habitual scleral lenses.

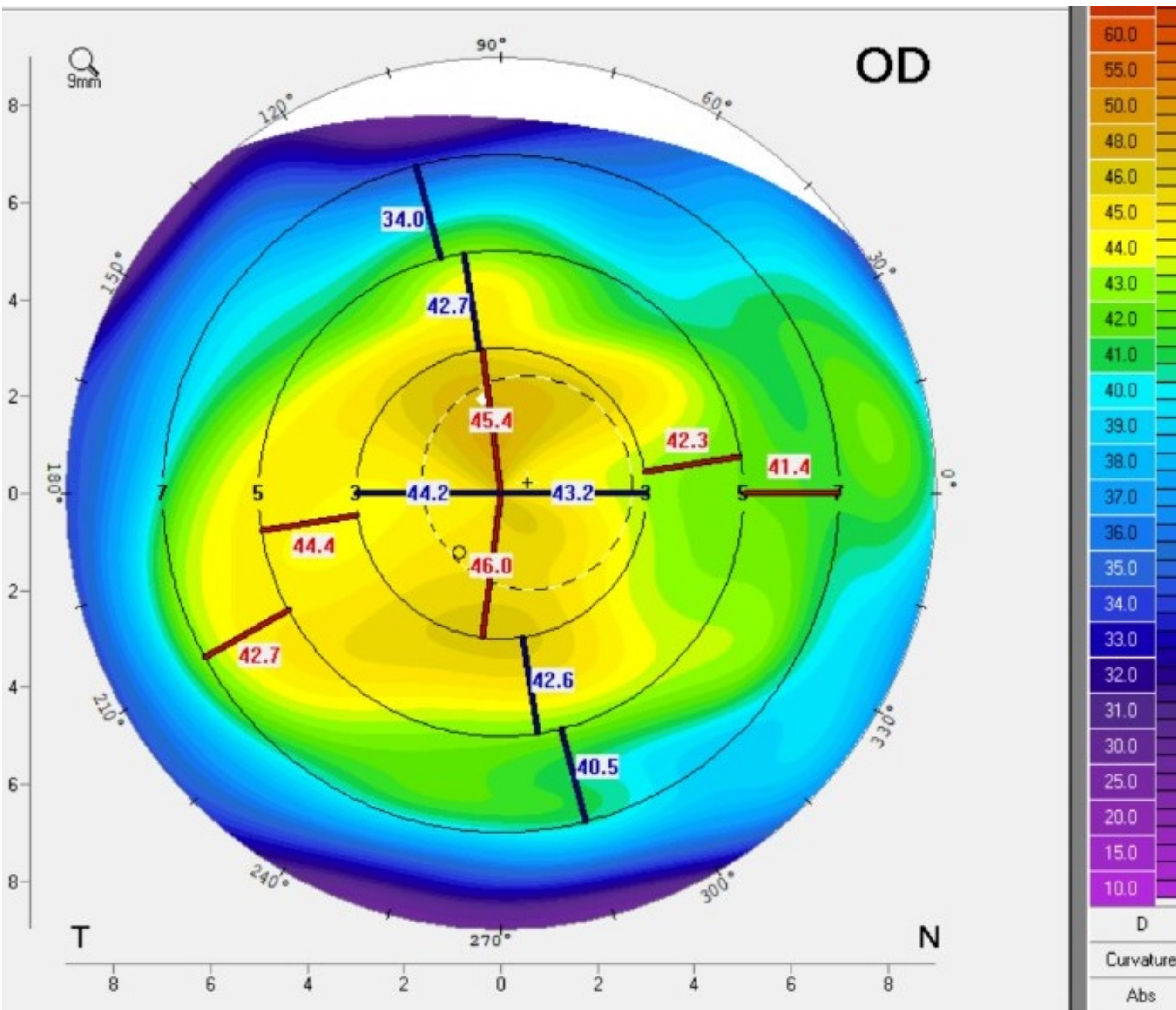


Figure 1: Anterior tangential map of the right eye.

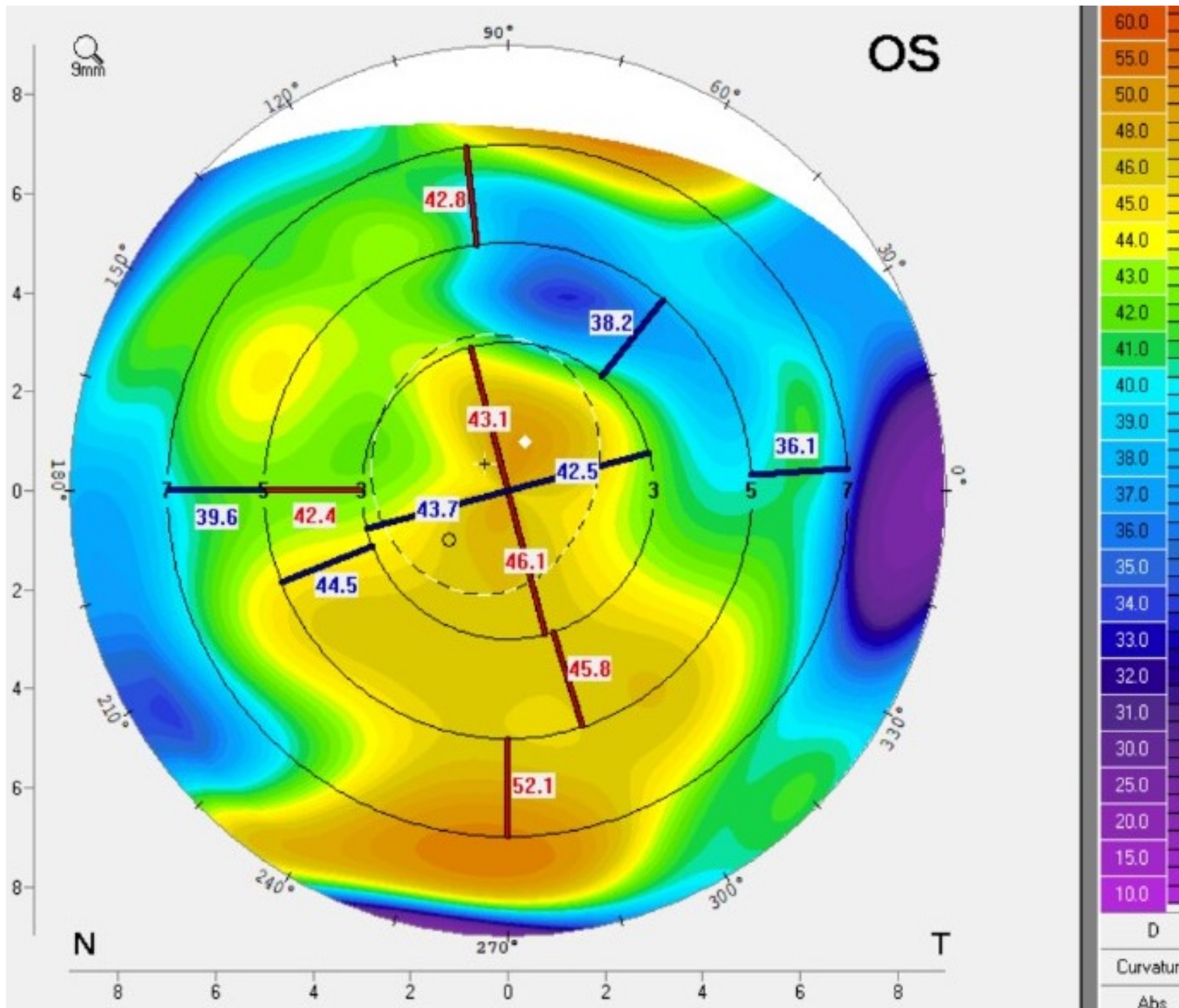


Figure 2: Anterior tangential map of the left eye.

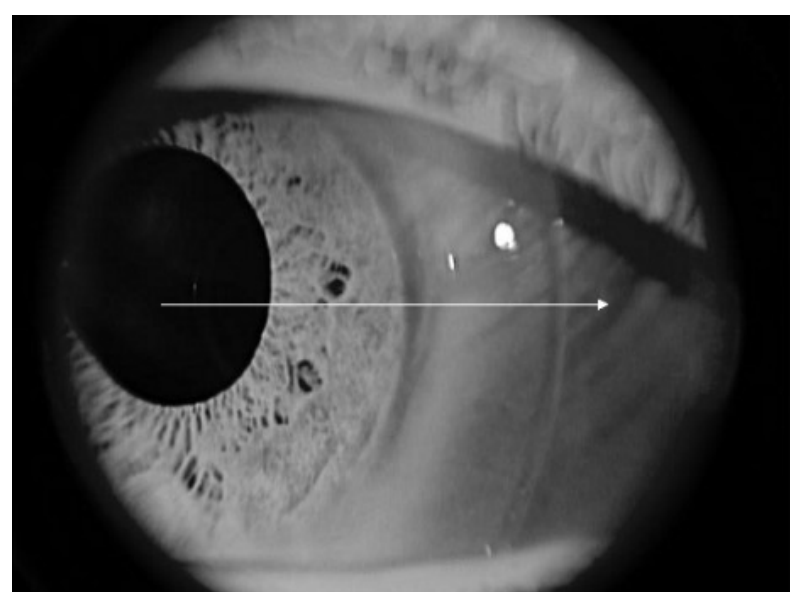
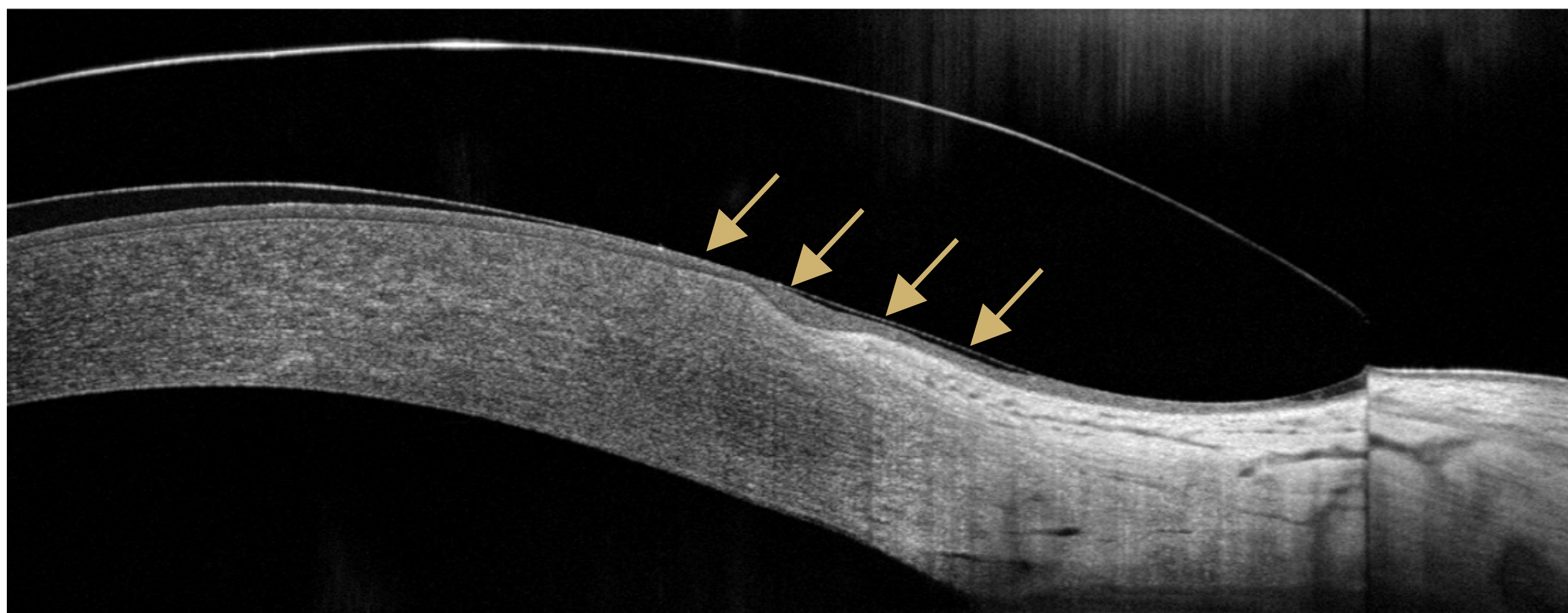


Figure 3: Nasal limbal touch in habitual ScCL OD.

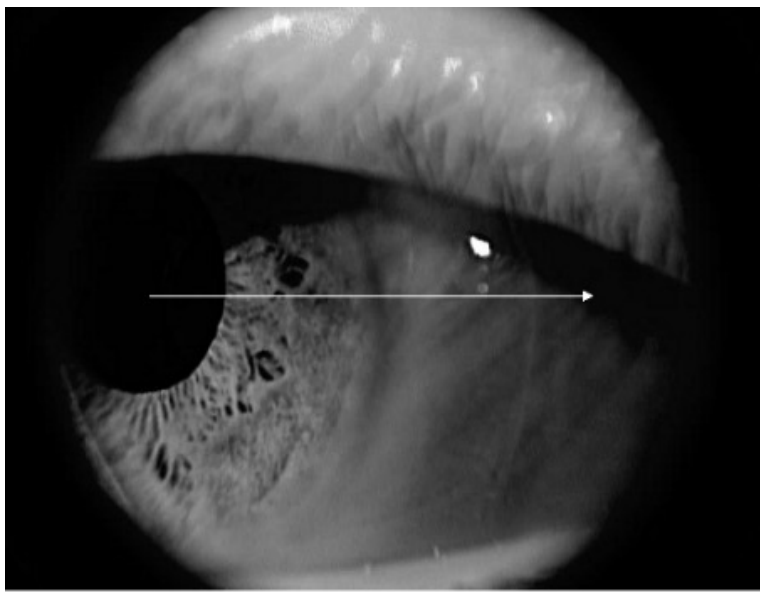
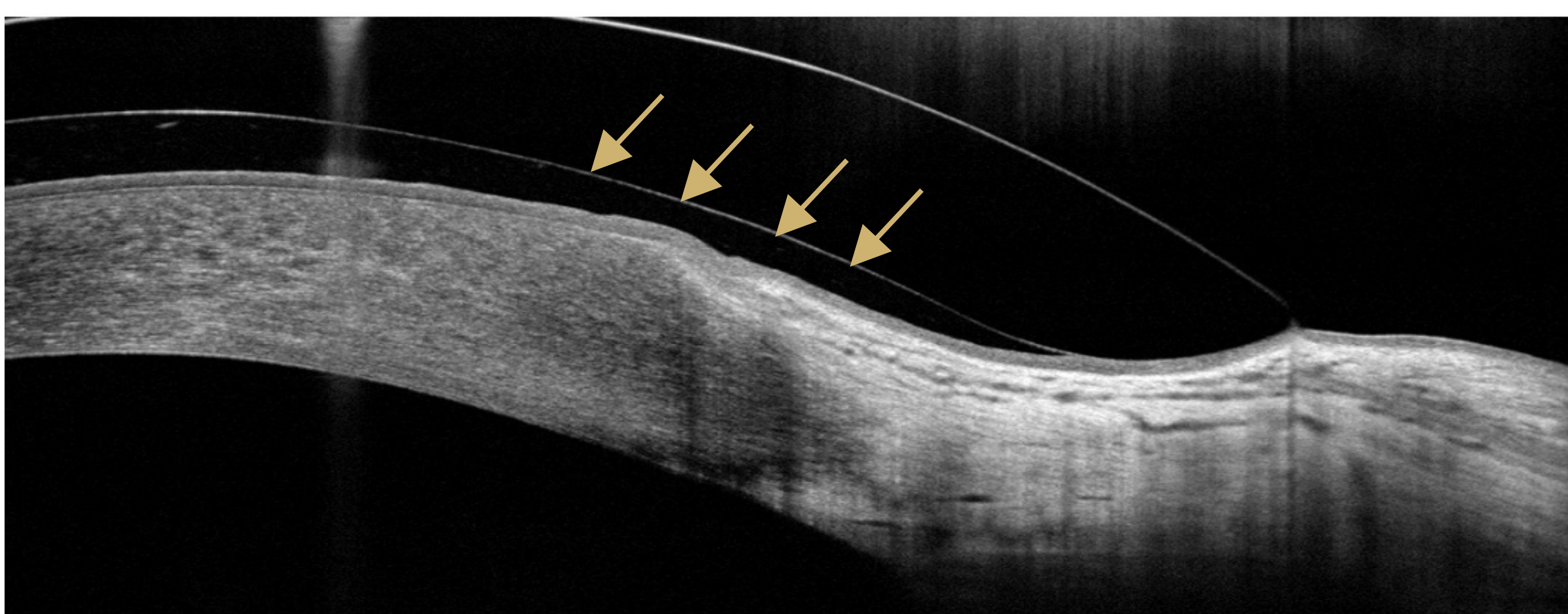
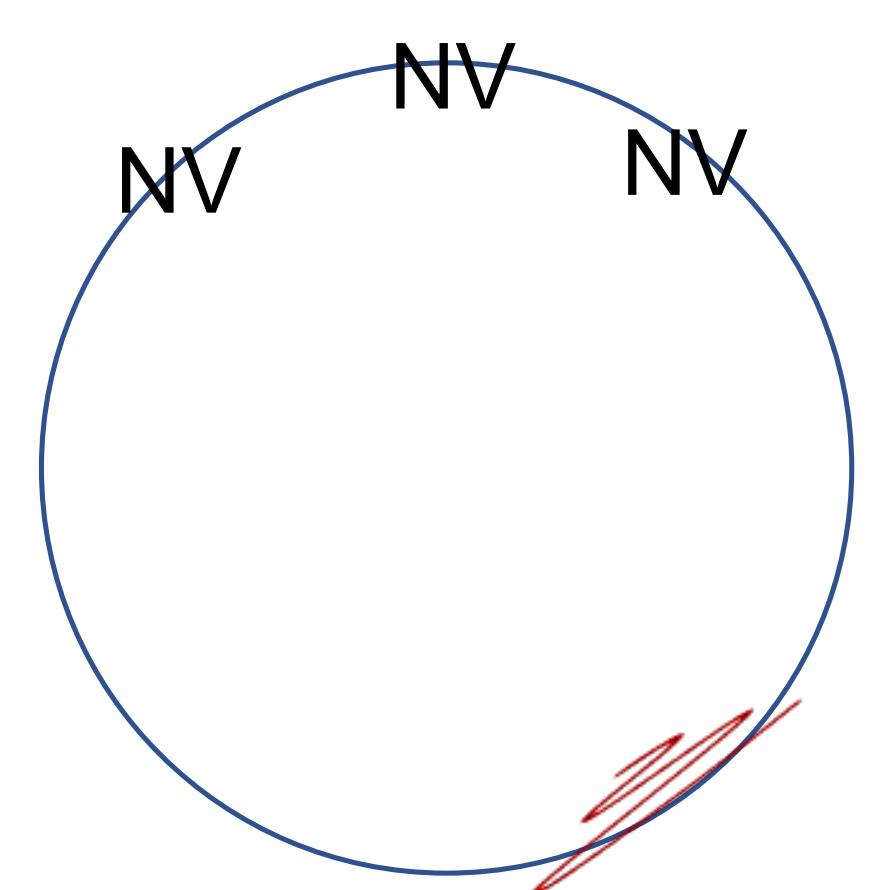
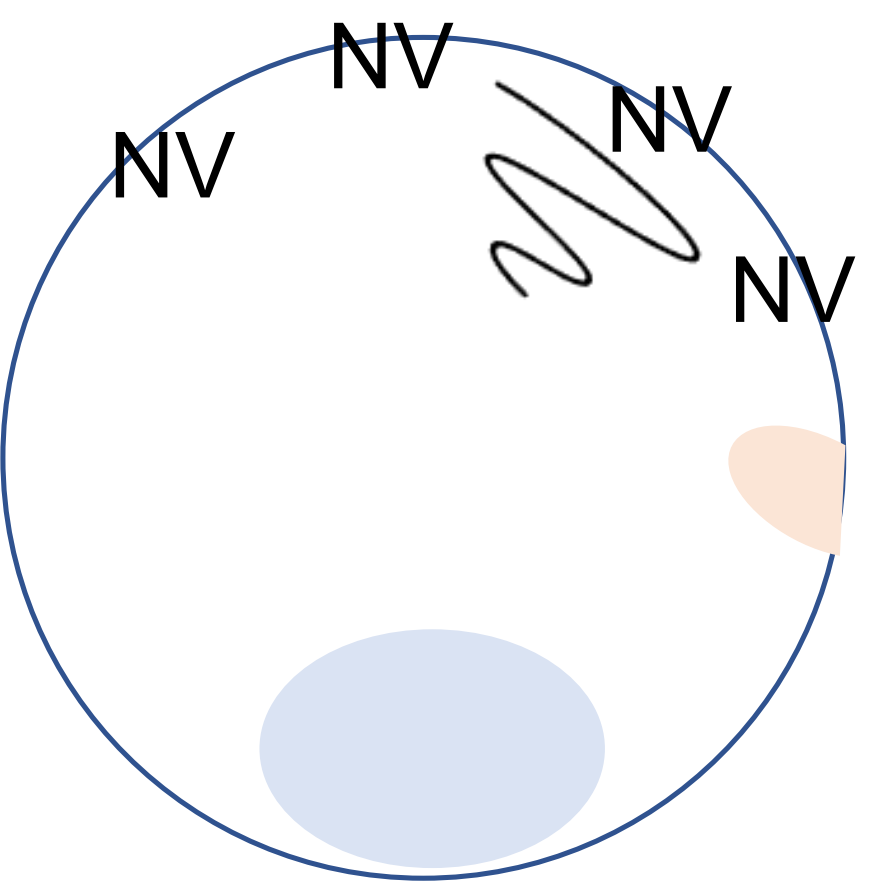


Figure 4: Nasal limbal touch relieved with new ScCL OD.

### BIOMICROSCOPY

Cornea	OD	OS
	 <p>(+)Limbal scarring from 5-6 o'clock 2^ SLET incision (+)superior pannus c 1.5mm neovascularization (NV) (+)trace limbal staining 360 (+)unstable tear film</p>	 <p>(+)1-2mm NV at 1, 10, and 12 o'clock, conjunctivalization at 3 o'clock (+) 4x4mm flat corneal opacity inferiorly and whorl-like staining superiorly (+)unstable tear film</p>

### MANAGEMENT

Final Lens Parameters: Essilor Jupiter

Dia	BC	Power	PC 1	PC 2	PC 3	PC 4	DVA	NVA
16.6	8.04	-3.00-1.50x088	7.34x1.90	8.20x0.90	12.75x0.70	14.25x0.4	20/40 (PHNI)	20/20
17.4	8.65	+0.13-0.75x104	6.89x1.90	8.20x0.90	11.75x1.00	14.00x0.5	20/70 (PHNI)	20/25

\*Material: Boston XO2; stabilized by 1.25Δ prism OD/OS

\*\*Near add: +1.50 D

\*\*\*BCVA c specs OD: 20/50; OS: 20/150

- Steepening PC 3 by 0.50D relieved nasal limbal touch (Figure 4).
- Large diameter scleral lenses are preferred for patients with ocular surface disease to protect the ocular surface and vault the limbus better<sup>2</sup>, but the patient was unable to tolerate lenses larger than her current lenses.

### DISCUSSION

- Maintaining a hospitable limbal environment for ScCL wearers is achieved by avoiding mechanical trauma due to lens compression and by optimizing limbal clearance for maximal oxygen transmissibility.
- Inflammation can be a cause of and/or a result of LCSD. Therefore, frequent monitoring of limbal health in contact lens wearers of any modality is advised if they have concurrent inflammatory conditions like psoriatic arthritis.<sup>2</sup>

### REFERENCES

1. Deng SX, Kruse F, Gomes JAP, Chan CC, Daya S, Dana R, et al. Global Consensus on the Management of Limbal Stem Cell Deficiency. Cornea. 2020;39(10):1291-302.
2. Rossen J, Amram A, Milani B, Park D, Harthan J, Joslin C, et al. Contact Lens-induced Limbal Stem Cell Deficiency. The ocular surface. 2016;14(4):419-34. Epub 2016/07/30.