

Scleral Lens Management after Intrastromal Corneal Ring Segments (Intacs)

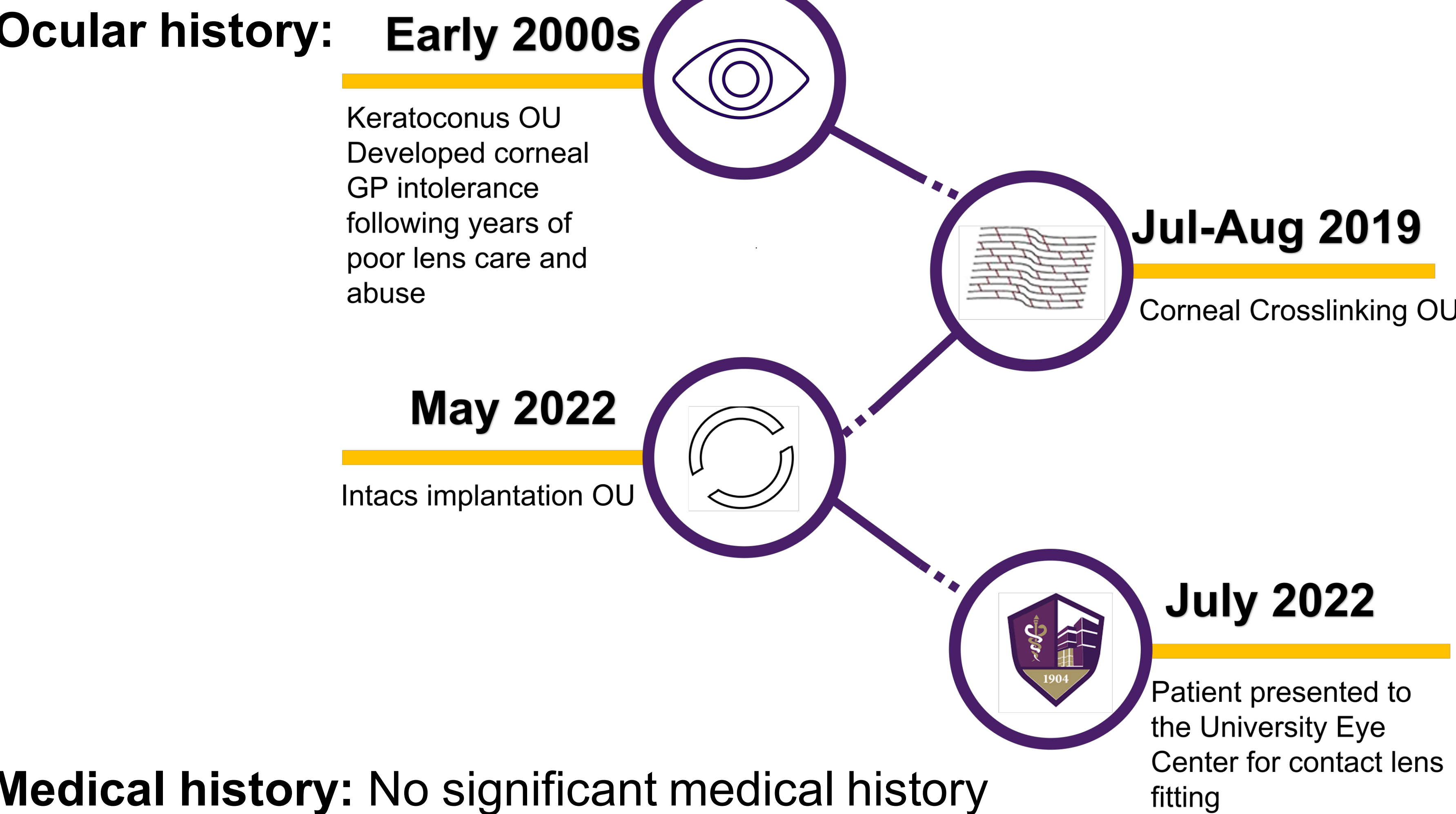
Jessica Liaw OD and Dawn Lam MSc, OD, FAAO

INTRODUCTION

Intrastromal corneal ring segments (Intacs) are semi-circular ring segments used to treat keratoconus by reducing corneal steepening and astigmatism¹. We present a case highlighting the challenges and management of a patient with Intacs using scleral lenses.

CASE HISTORY

A 34-year-old Hispanic male with keratoconus presented reporting blurry vision with and without glasses. The patient was referred to the University Eye Center for specialty contact lens fitting OU following Intacs implantation.



Medical history: No significant medical history

Medications: None

EXAMINATION FINDINGS

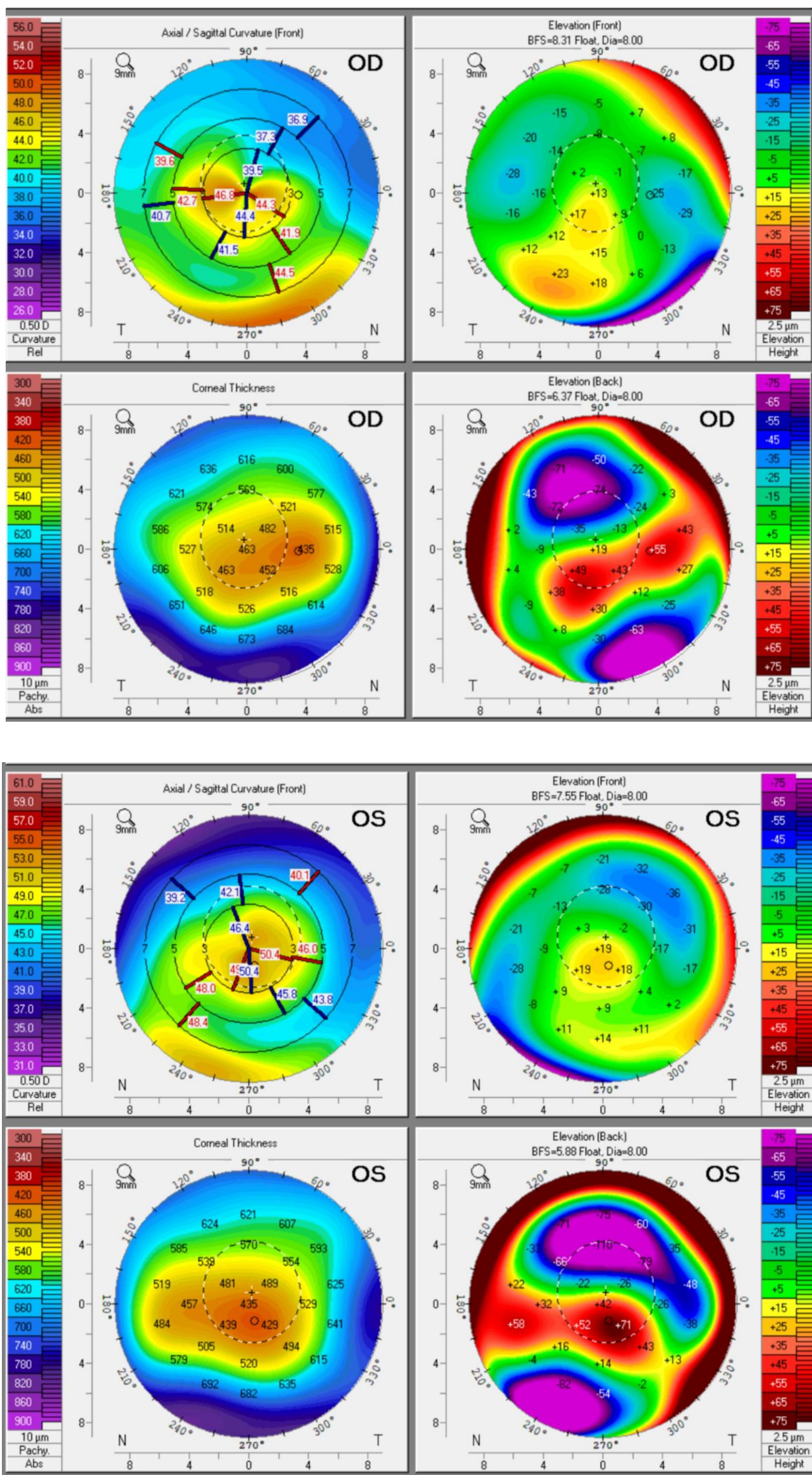


Figure 1: Pentacam tomography OU

	OD	OS
Unaided VA	20/40-	20/300
Glasses VA	20/25	20/30
Rigid lens VA	20/20	20/20-2
Cornea 7/18/22	Inferior Intac, faint stromal haze, (+) Vogt's striae	Inferior Intac, (+) Vogt's striae, clear
Cornea 12/1/22	Inferior Intac, Neovascularization 3-4:00, Pannus 7:00 approaching Intac (-) redness, edema, photophobia	Inferior Intac, Neovascularization 7:00, Pannus 5:00 approaching Intac (-) redness, edema, photophobia

REFERENCES

1. Colin, J et al. "INTACS inserts for treating keratoconus: one-year results." *Ophthalmology* vol. 108,8 (2001): 1409-14. doi:10.1016/s0161-6420(01)00646-7
2. Michaud, Langis et al. "Predicting estimates of oxygen transmissibility for scleral lenses." *Contact lens & anterior eye : the journal of the British Contact Lens Association* vol. 35,6 (2012): 266-71. doi:10.1016/j.clae.2012.07.004
3. Bautista-Llamas, Maria-José et al. "Complications and Explantation Reasons in Intracorneal Ring Segments (ICRS) Implantation: A Systematic Review." *Journal of refractive surgery (Thorofare, N.J. : 1995)* vol. 35,11 (2019): 740-747. doi:10.3928/1081597X-20191010-02

BIOMICROSCOPY

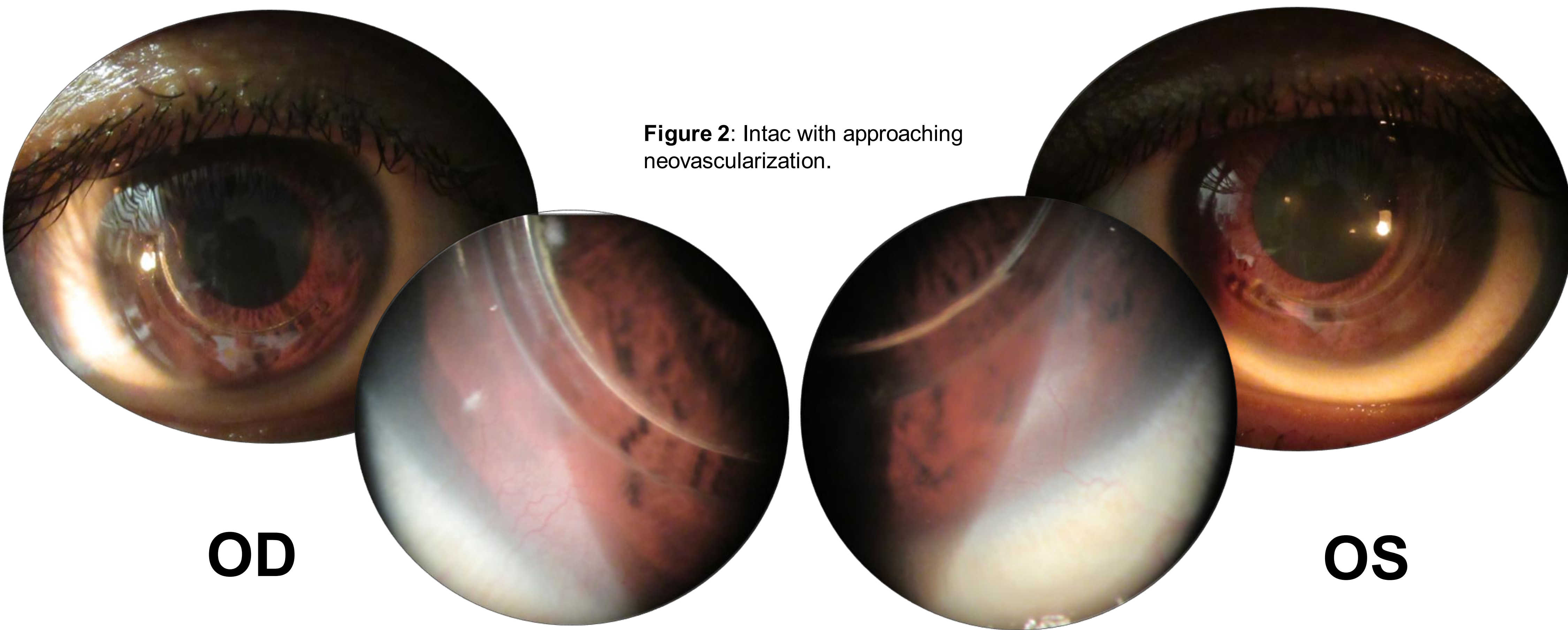


Figure 2: Intac with approaching neovascularization.

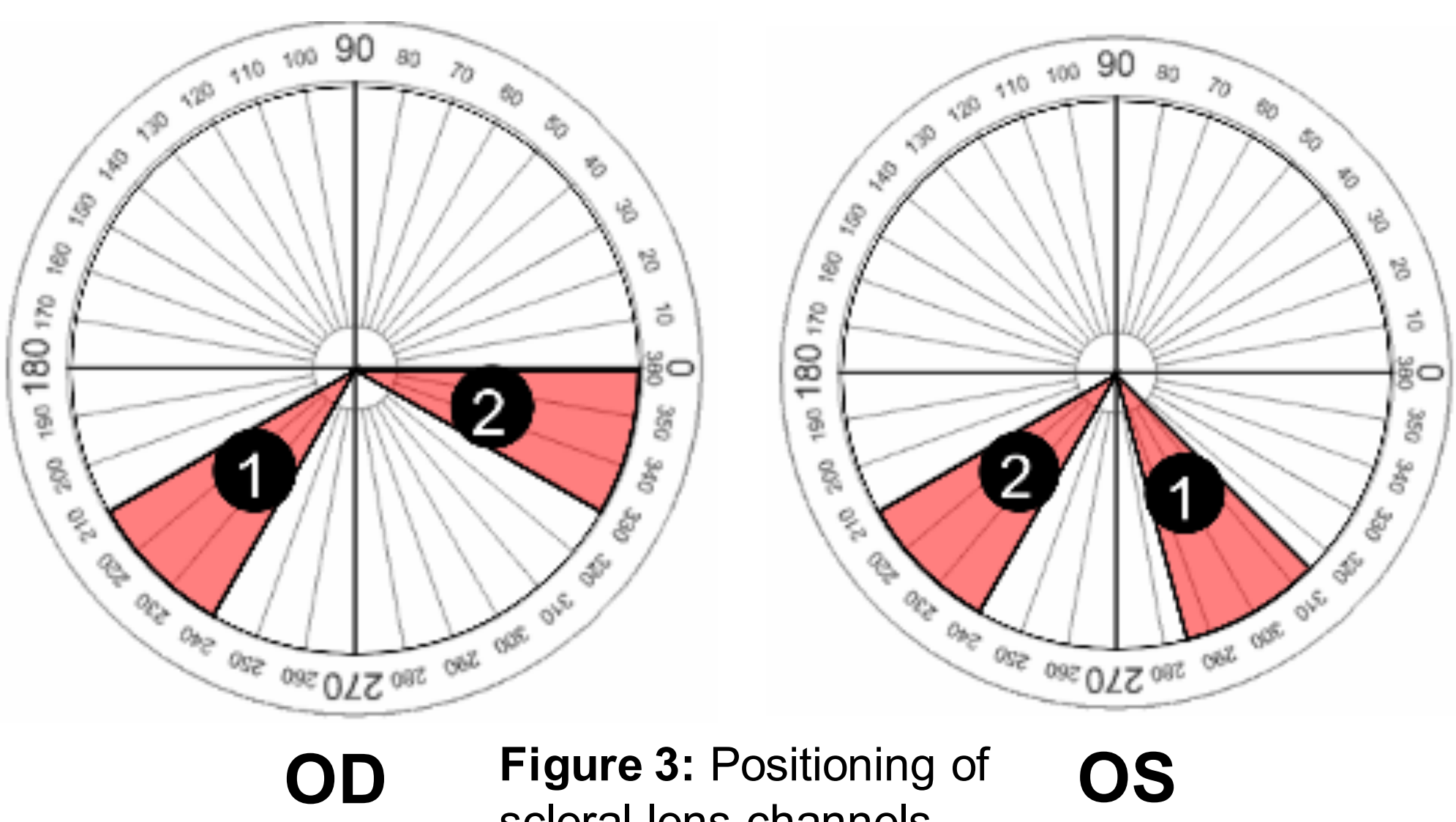


Figure 3: Positioning of scleral lens channels

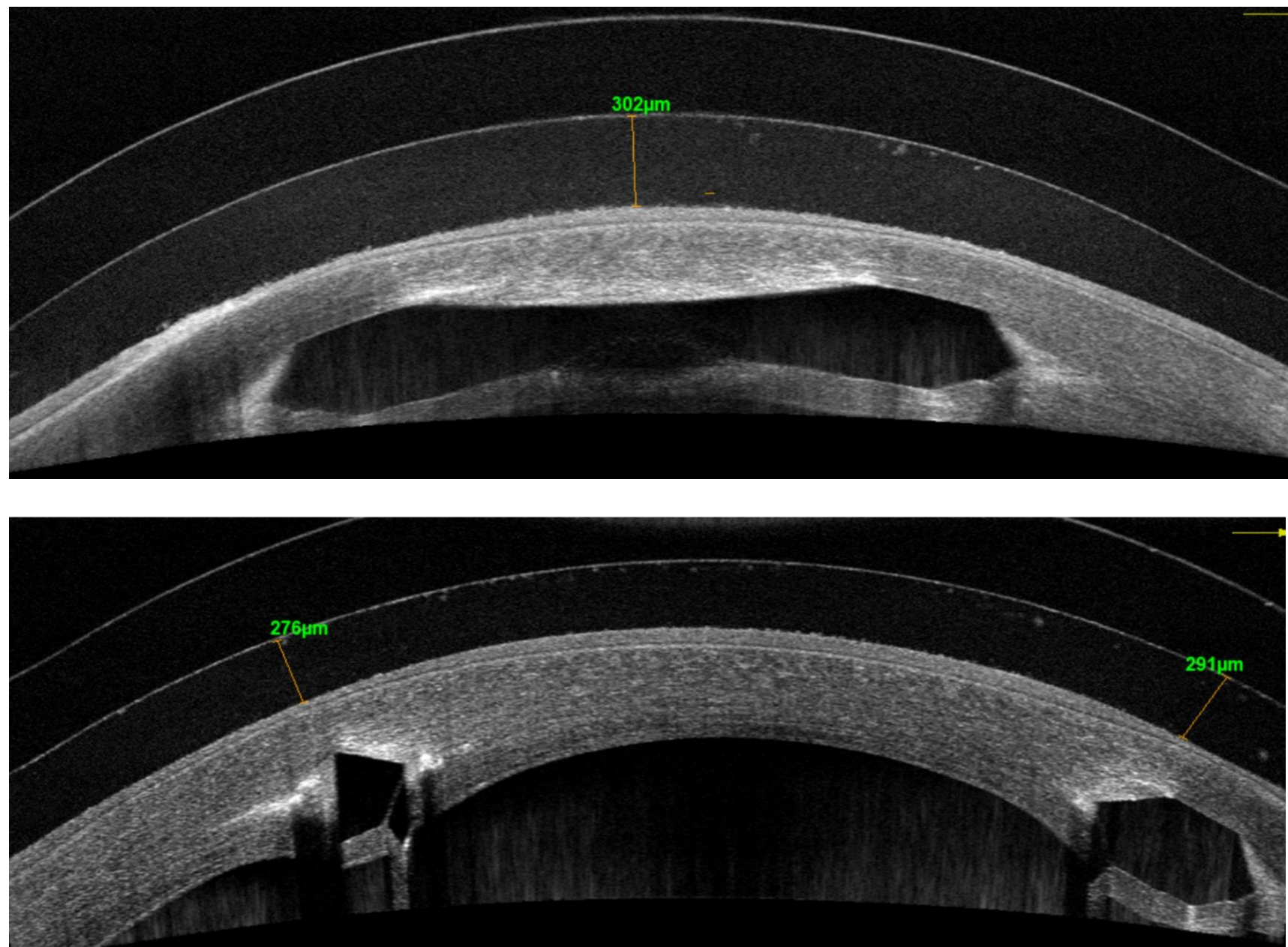


Figure 4: Anterior segment OCT with scleral lens through Intac segments OD (top) OS (bottom)
*images acquired at dispense prior to lens settling

MANAGEMENT

- Patient was fit in scleral lenses due to a history of corneal lens intolerance and to vault ring segments and areas of peripheral steepening
- Developed superficial corneal neovascularization extending from limbus to Intac OU after one month of wear
- Corneal inflammation and ill-fitting scleral lens were ruled out as causes
- Central clearance was minimized and limbal clearance was optimized to reduce risk of corneal hypoxia²
- Co-managed with referring surgeon who advised continuation of lens wear with quarterly monitoring of the ocular health

DISCUSSION

- Intacs are utilized by surgeons for CL intolerant patients¹
- Unpredictable post-surgical outcomes can lead to unsatisfactory vision
- Resulting corneal irregularity poses challenges for post-surgical CL fitting
- Corneal neovascularization is a known, but rare complication of Intacs³
- It is unclear whether this patient developed corneal neovascularization from a post-surgical complications, from hypoxic stimulus by wearing a scleral lens, or a combination of both

CONCLUSION

- Intacs implantation presents additional contact lens fitting challenges
- Scleral lenses can vault over the corneal irregularity presented by Intacs segments
- Scleral lenses avoid unnecessary bearing on the corneal surface
- Complications from scleral lenses necessitates close monitoring of patients by their comanaging surgeon