# Highs and Lows; Challenges of Post Lasik Scleral Lens Fitting With Concurrent Dry Eye Syndrome

Anisha K Patel OD and Zoeanne Schinas OD

NOVA SOUTHEASTERN UNIVERSITY
College of Optometry

## BACKGROUND

Scleral contact lens fitting in post operative patients can be extremely challenging. Post LASIK ectasia needs special consideration since adequate clearance over the apex should be achieved, whilst avoiding excessive clearance over the peripheral oblate regions of the cornea. For Post LASIK oblate corneas, there are specific lenses with reverse geometry curves to provide an optimum fit. In larger diameter lenses (>15mm), toric haptics have shown to eliminate sectorial compression and impingement of conjunctival vessels, leading to improved comfort and reduced rebound hyperemia on lens removal.

## PATIENT HISTORY

- 33y/o Hispanic female
- H/O Retinopathy of Prematurity s/p focal laser OU
- H/O high myopia -10D OU, s/p LASIK (2007) OU
- **Post LASIK ectasia OD**
- **Irregular oblate cornea OS**
- **Dry eye syndrome OU**

| | OD | OS |
|---|---|---|
| **BCVA** | CF @ 5FT | 20/30-1 |
| **Anterior segment** | 1+ MGD, 2+ PEK, LASIK flap scar, Fleischer's Ring, apical thinning | 1+ MGD, 2+ PEK, LASIK flap scar |
| **TBUT** | 2 seconds | 2 seconds |
| **HVID/IPA** | 11.5mm/10mm | 11.5mm/10mm |
| **Keratometry** | 55.5/56.7 @ 89 | 42.0/43.9 @ 27 |
| **Pachymetry** | 364um | 484um |

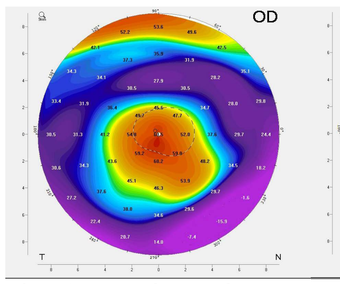


**Figure 1.** Tangential topography map showing steep inferio-central ectasia with peripheral flattening.

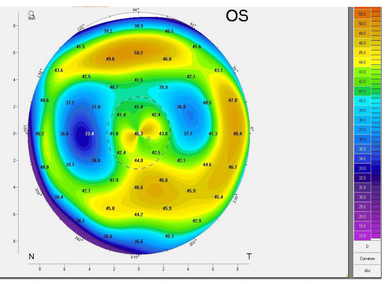


**Figure 2.** Tangential topography map showing irregularity with areas of flattening and mild ATR astigmatism.

## TROUBLESHOOTING & MANAGEMENT

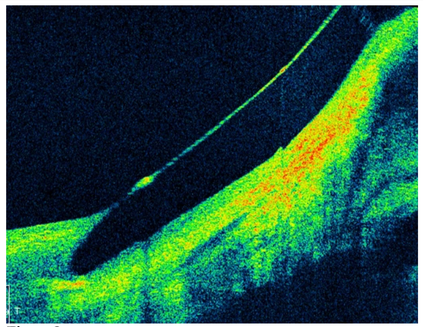

**Figure 3**

**Figure 4**

- **Dryness after a few hours of wear** → fill lens bowl with 1 drop of PF Refresh Optive advanced with PF saline (Sclerafil)
- **Impingement at lens edges along 180 meridian (Figures 3,4)** → flatten SLZ in horizontal meridian, taking note of lens markings.
- **Minimal limbal clearance and low apical clearance** → increase LCZ in 50um increments and increase the overall sag
- **Midday fogging of vision OS** → removal of lens, refill with fresh PF solution and reinsert.

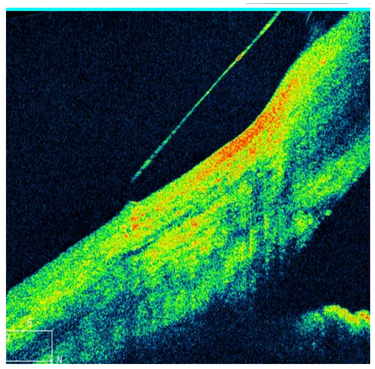

**Figure 5.** AS- OCT imaging depicts improved lens edge profile no longer causing impingement and improving lens comfort.

## FINAL LENS PARAMETERS

| OD | OS |
|---|---|
| PROLATE Zenlens™, Alden Optical - **3.25sph/7.60/16.0/4605 sag/APS H 7 flat / V 2 flat/0.35ct/Boston XO2/blue**<br><br>**BCVA: 20/25+2** | OBLATE Zenlens™, Alden Optical **-2.00sph/8.54/16.0/4450 sag/APS H 2 flat/V stnd/ 0.41ct/Boston XO2/clear**<br><br>**BCVA: 20/25** |

## RIGHT LENS

**Figure 6.** Slit lamp assessment of central clearance over right lens.

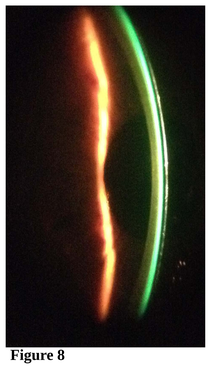

**Figure 8**

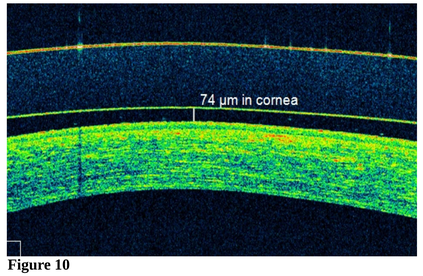


**Figure 10**

**Figure 8. OD:** AS-OCT imaging depicts 74um clearance over the apex of ectasia, quickly expanding to 100-150um in the paracentral region after 6 hours of wear.

## LEFT LENS

**Figure 7.** Slit lamp assessment of central clearance over left lens.

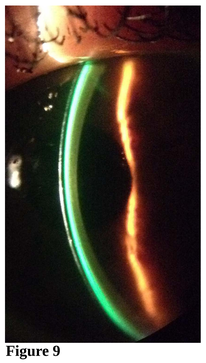

**Figure 9**

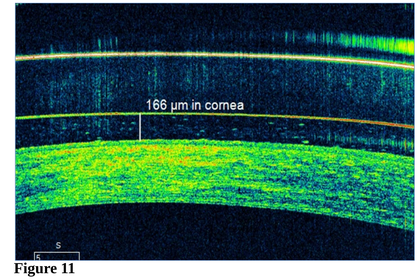


**Figure 11**

**Figure 9. OS:** AS-OCT imaging depicts 166um clearance over the central cornea after 6 hours of lens wear.

## CONCLUSION

The patient reported excellent vision and significantly reduced dry eye symptoms once fitted with the Zenlens Scleral lenses. She is able to wear the lenses for a total of 12 hours per day and reports rarely having to remove and reinsert the lenses midday in order to resolve foggy vision.

Contact lens fitting for irregular corneas and ocular surface disease is becoming more of an occurrence in daily optometric life. Scleral lenses rank second only to rigid gas-permeable lenses for the management of corneal irregularity[1]. When considering patients with ocular surface disease, scleral lenses have shown to significantly reduced the Ocular Surface Disease Index scores thus reducing symptoms and improving ocular comfort[2].

REFERENCES:
1.Scleral Lenses in the Management of Corneal Irregularity and Ocular Surface Disease; Ellen Shorter, O.D et al, Eye and Contact Lens, 2017;0;0: 1-7
2. Lee JC, Chiu GB, Bach D, et al. Functional and visual improvement with prosthetic replacement of the ocular surface ecosystem scleral lenses for irregular corneas.Cornea2013;32:1540–1543