Case Report:

Post-LASIK Lens Fitting Success

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Dr. Morrison earned her Doctor of Optometry and completed a Masters Degree in Vision Science with a focus on scleral lenses, along with a Residency in Cornea and Contact Lens from Pacific University College of Optometry. She served on faculty at the University of Houston College of Optometry facilitating education and research in the Contact Lens and Cornea service. Currently Dr. Morrison practices at Mission Eye Care Center for Dry Eye and Corneal Disease in Calgary, where she is the co-residency supervisor of the Mission Eyecare Residency in Cornea and Contact Lens, and also adjunct faculty at NSU Oklahoma College of Optometry.

Patient Background

52-year-old male with a history of Lasik surgery, presented with a challenging eye profile. His prescription was -0.25-0.25x132 and -0.50 in the other eye, with an additional reading prescription of +1.50. For over a decade, the patient had been unable to wear contact lenses due to poor fit, discomfort, and fluctuating vision. Previous attempts at fitting him with corneal gas permeable (GP) lenses resulted in adhesion issues, while his oblate-shaped cornea prevented successful wear of soft lenses.

Challenges with Post-LASIK Fitting

Post-Lasik patients, especially those with significant central corneal flattening, often present unique challenges for contact lens fitters. The irregular corneal shape makes traditional GP lenses prone to adhesion or decentration, while soft lenses often result in inconsistent vision. In this patient's case, the central flattening of his cornea, due to refractive surgery, and his history of GP fitting failures made a traditional fitting approach time-intensive and unsuccessful.

Profilometry with the ESP

The Eye Surface Profiler (ESP) was crucial in assessing the patient's unique corneal shape in detail, capturing both the corneal curvature and its post-surgical irregularities with high accuracy. By providing a comprehensive map of his corneal profiles (Figure 1), the ESP allowed for a precise, data-driven approach to lens design that minimized trial and error.
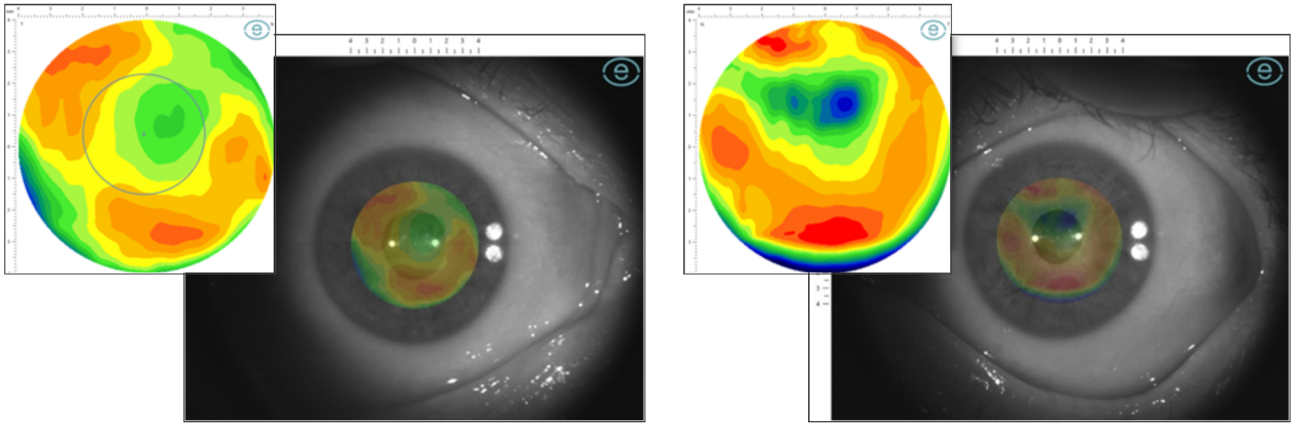
Figure 1 ESP Corneal elevation map (OD left, OS right).

Empirical Fitting

Using the ESP's empirical fitting algorithm, TruKone lenses from TruForm were designed to match the patient's eye shape closely. The fit was successful on the first try, an accomplishment given the patient's complex ocular profile. Notably, the profilometry data enabled a fit that provided:

Fig. 2 TruKone final lens.

- **Immediate Comfort**: The patient experienced significantly improved comfort, even during extended wear.
- **High Visual Acuity**: Achieved 20/20 vision, with minimal adjustments required in the lens' multifocal aspect.
- **Optimized Chair Time**: With no need for multiple fitting sessions, the process was expedited, allowing the optometrist to focus more on fine-tuning the lens' multifocal design rather than re-assessing fit.
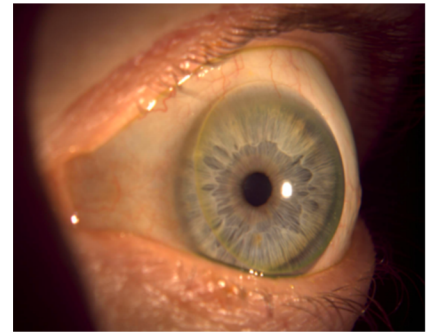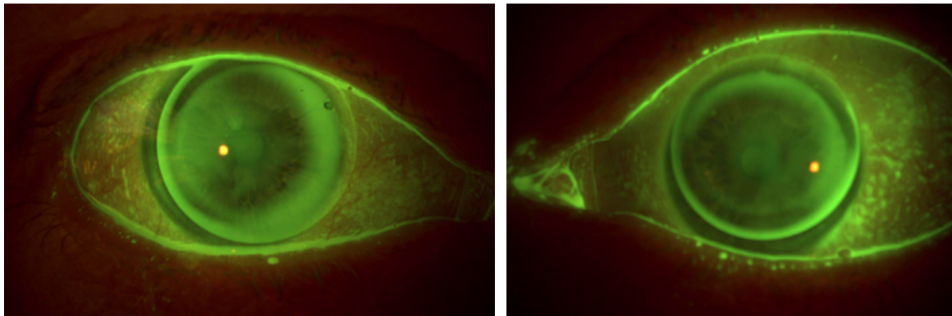

Fig. 3 Anterior segment images of the First Lens Fit fit OD/OS.

Conclusion

This streamlined approach not only improved the patient experience but also **saved considerable chair time by reducing the need for diagnostic fitting and complex modifications**. With a customized, empirically designed lens from the ESP, even challenging post-surgical cases like this can achieve optimal comfort and vision swiftly.