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NON-SURGICAL VISUAL REHABILITATION USING MINI SCLERAL CONTACT LENSES IN CORNEAL SCARRING SECONDARY TO TRAUMA OR INFECTION



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OBJECTIVE

To assess the effectiveness of mini-scleral contact lenses (mini-SCLs) as a non-surgical approach for visual rehabilitation in patients with corneal scarring and visual impairment secondary to ocular trauma or prior corneal infection.

METHODS

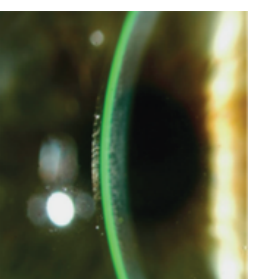
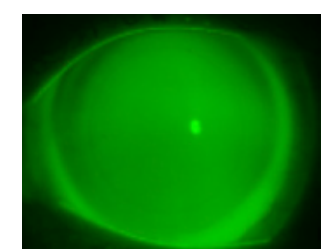
This retrospective case series included six eyes of six patients (aged 24–76 years) with unilateral corneal scarring and reduced best-corrected visual acuity (BCVA). Etiologies included penetrating ocular trauma (n=2), corneal foreign body injury (n=3), and post-infectious keratitis (n=1). All patients had inadequate visual correction with spectacles and poor tolerance of rigid gas-permeable lenses. Clinical evaluation before and after mini-SCL fitting included BCVA, intraocular pressure, autorefractometry/keratometry, corneal tomography (Figures 1-6), and anterior/posterior segment optical coherence tomography.

RESULTS

All patients experienced meaningful improvements in BCVA following mini-SCL fitting.

- In eyes with foreign body–related scars, vision improved from 0.3 to ≥ 0.8 .
- The post-keratitis case improved from 0.3 to 1.0.
- Among trauma cases, one eye improved from hand motion to 0.3, and the other from 0.4 to 1.0.

The lenses provided an optically regular surface, effectively neutralizing irregular astigmatism and enhancing visual quality.



CONCLUSION

Mini-scleral contact lenses provide an effective non-surgical alternative for visual rehabilitation in patients with corneal scarring secondary to trauma or infection. They offer notable improvements in visual acuity by masking corneal irregularities and enhancing optical quality. This approach is particularly valuable for patients who are not suitable candidates for corneal surgery or prefer to postpone surgical intervention.

References:

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- Biberoglu Celik E, et al. Visual rehabilitation with scleral lenses after open globe injury repair. Int Ophthalmol. 2026;46(1):88. doi: 10.1007/s10792-026-03965-4.
- Özçelik O, et al. Spectrum of Scleral Lens Fit and Patient Compliance: A Single Center Retrospective Study. Turk J Ophthalmol. 2025;55(4):186-192. doi: 10.4274/tjo.galenos.2025.23238.
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EYES WITH FOREIGN BODY-RELATED SCARS

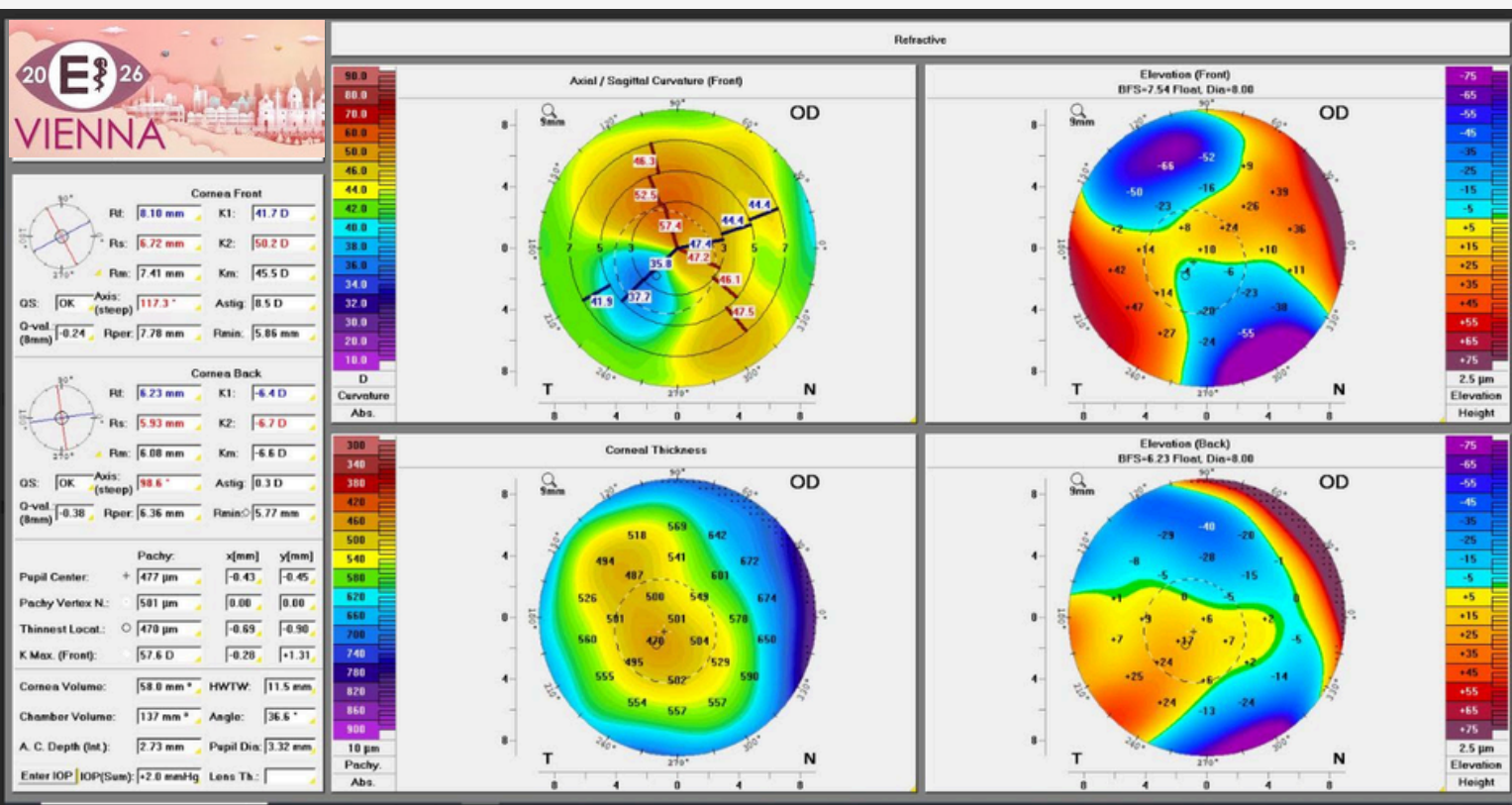


FIGURE 1

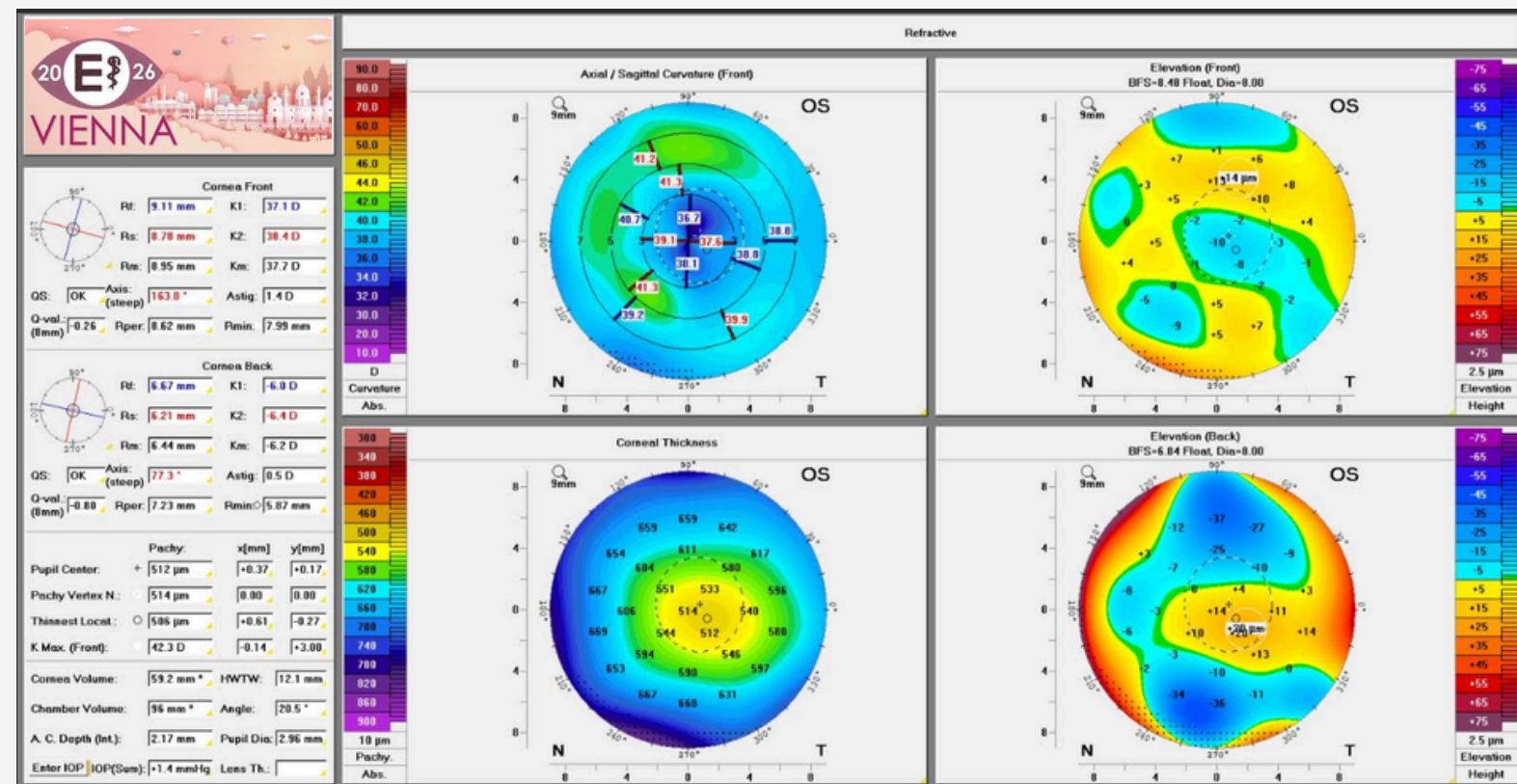


FIGURE 2

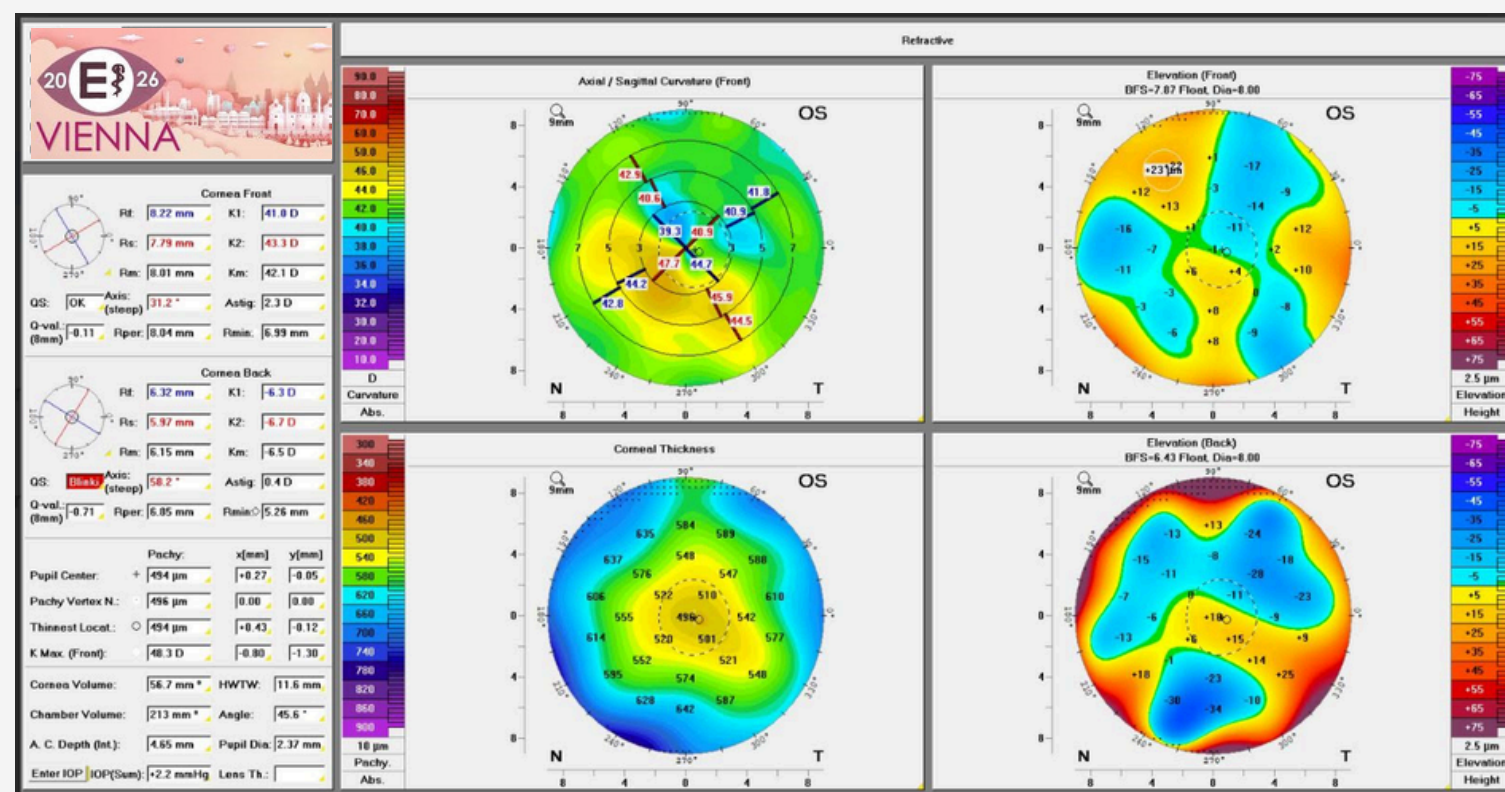


FIGURE 3

POST-KERATITIS CASE

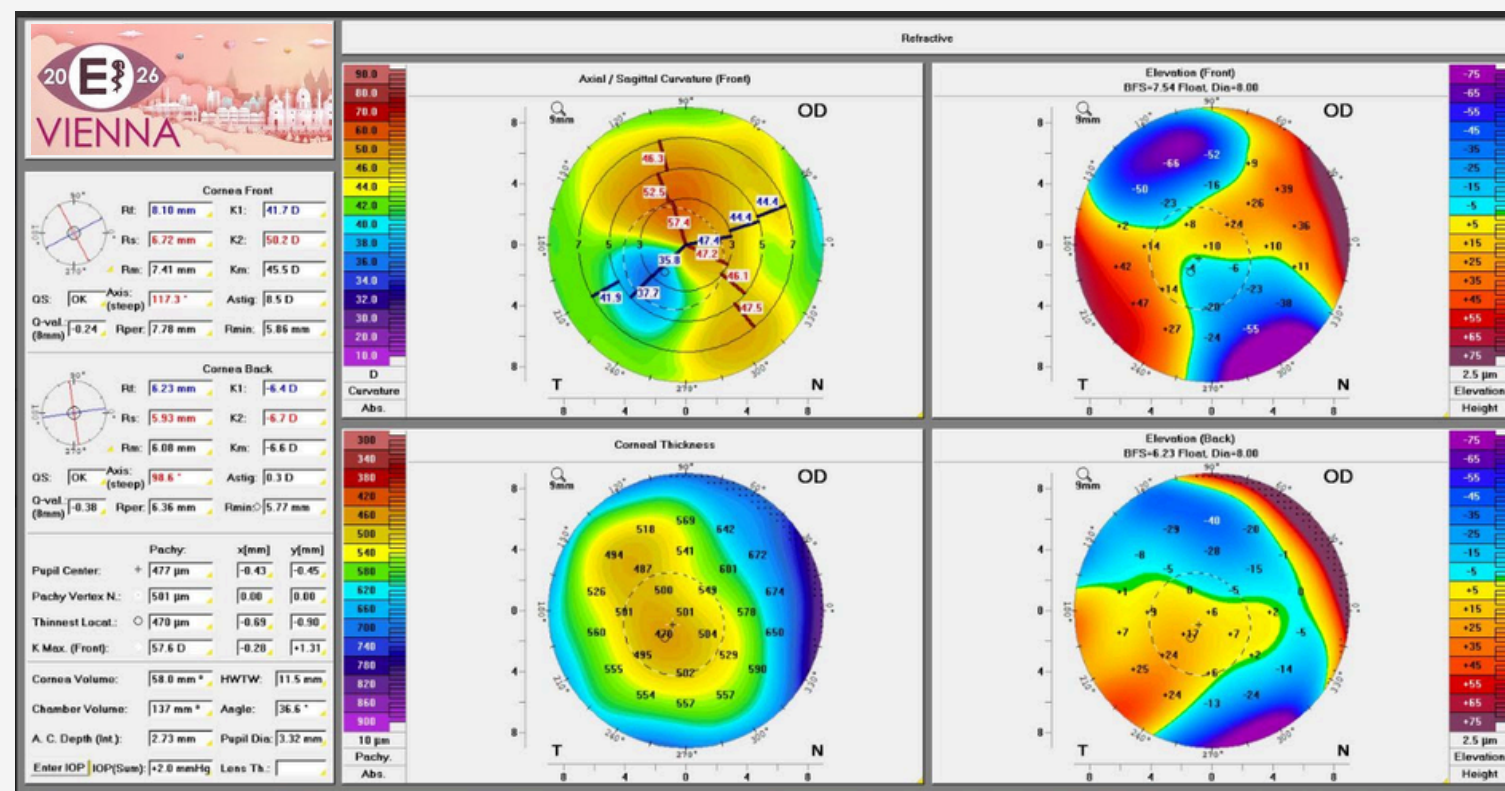


FIGURE 4

TRAUMA CASES

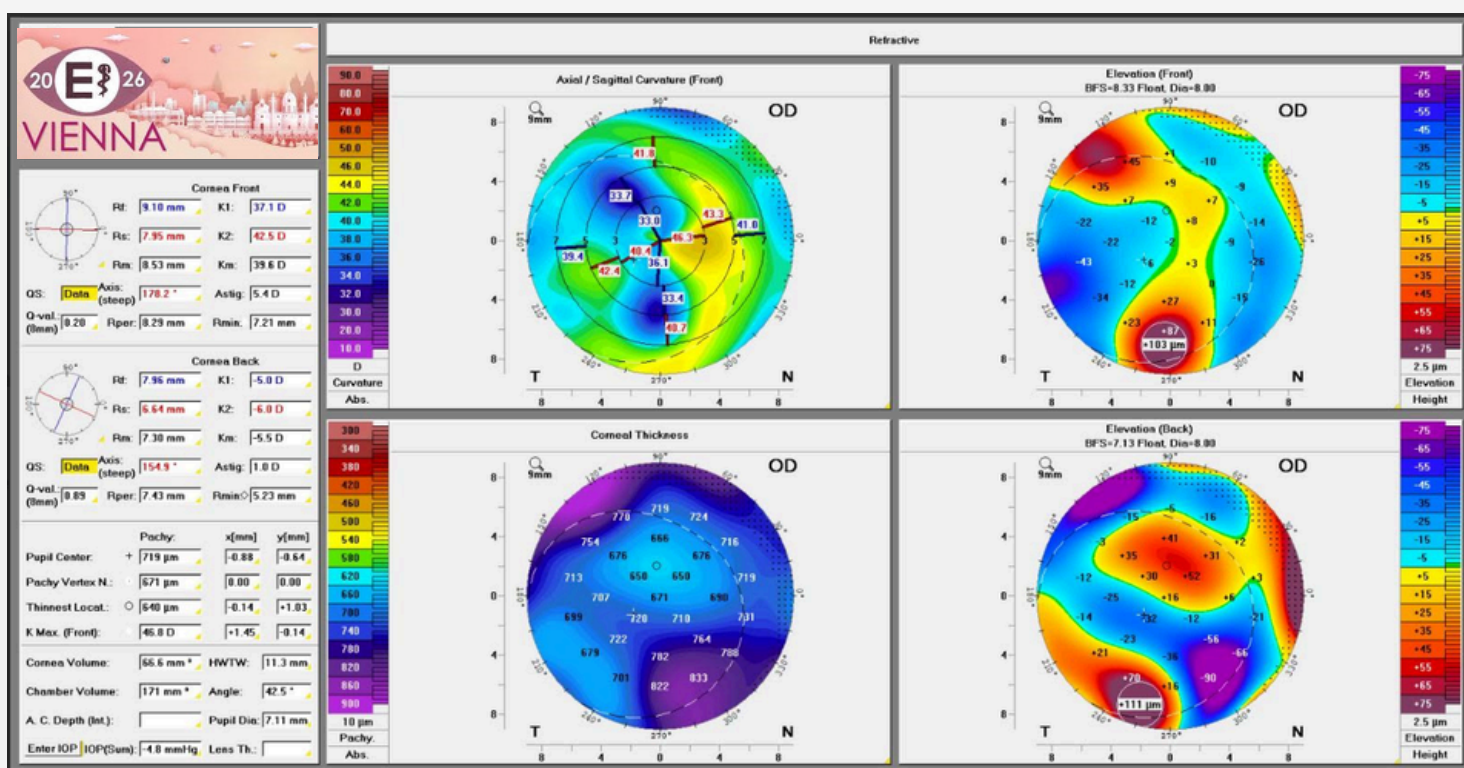


FIGURE 5

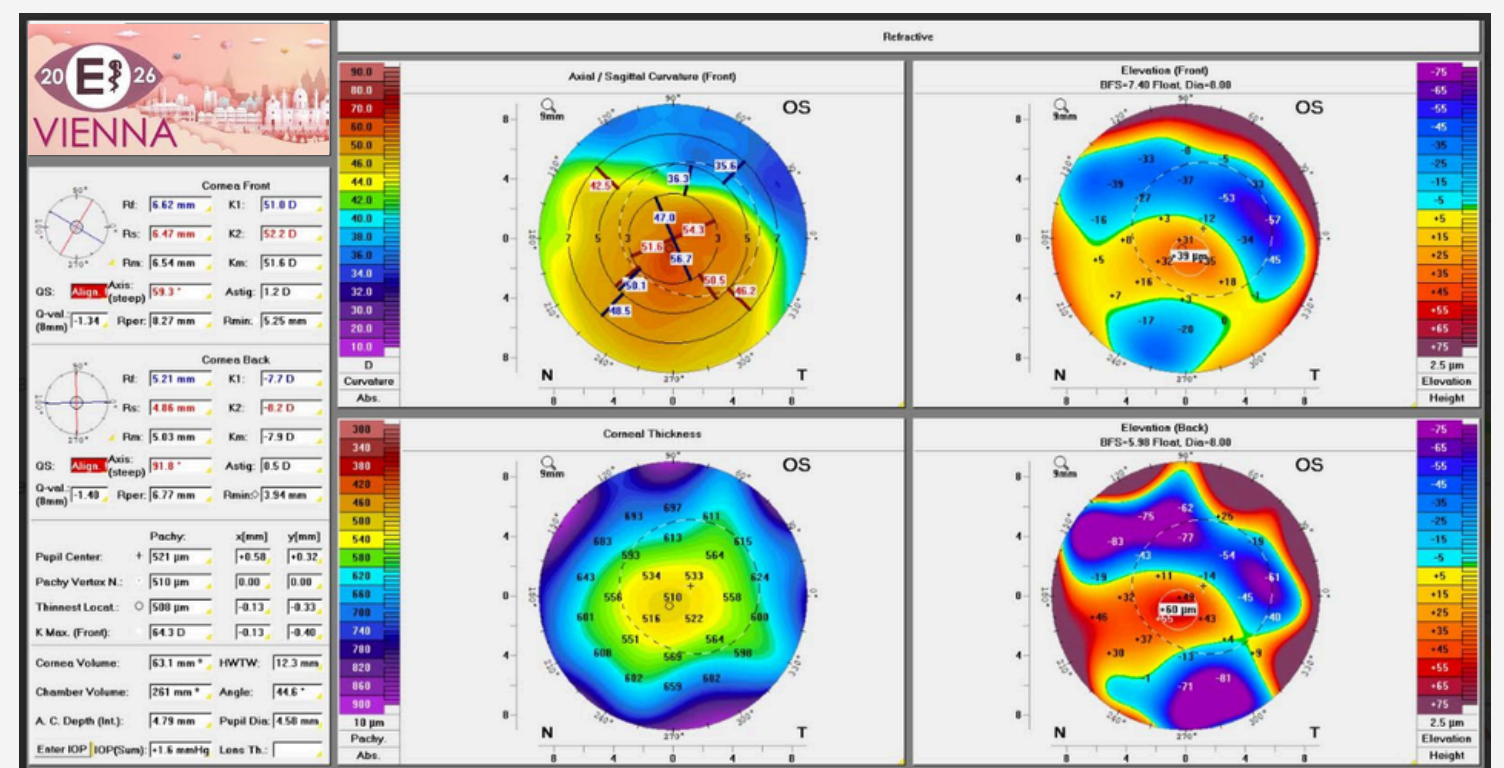


FIGURE 6