The Pancake Cornea Conundrum

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ABSTRACT

Postsurgical corneal flattening poses unique visual challenges that only reverse geometry GP and hybrid lenses can counter. The modality's flatter design allows a more optimized fit on both prolate and oblate corneas for your patients. This is a case report of a post-LASIK patient with myopic regression who previously had poor success with soft contact lenses and was successfully refitted in a reverse geometry hybrid contact lens.

INTRODUCTION

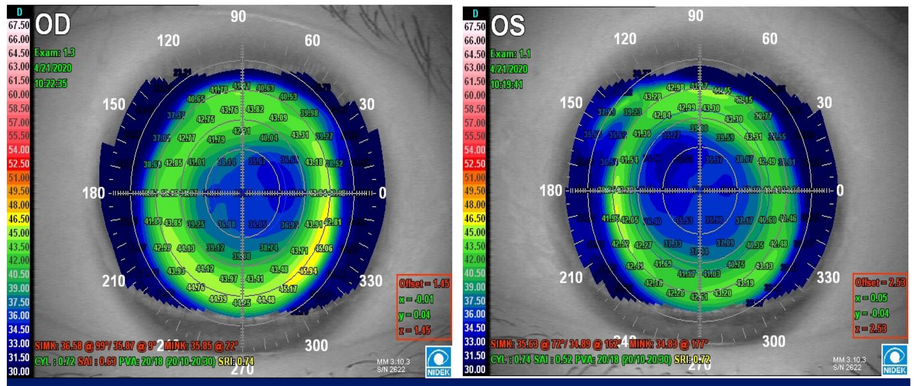
From the first laser *in situ* keratomileusis (LASIK) performed in 1991 and its subsequent FDA approval in 1995, there have been an estimated 10 million Americans who have had LASIK. One study found that myopia greater than 1.00D typically develops in LASIK patients after 10 years; another reported that over half were under or over-corrected by at least 1.00D at the 15-year mark. The number of post-LASIK patients in need of corrective lenses to treat their post-refractive regression will only continue to grow as the number of surgeries increases.

CASE

A 54-year-old Asian male presented with blurry vision and glare at night that had gradually worsened over several years. Ocular history included uneventful bilateral microkeratome-assisted LASIK in 2002 with a high pre-op myopic astigmatic prescription. He was referred for a specialty contact lens fitting due to a prior uncomfortable soft contact lens fit.

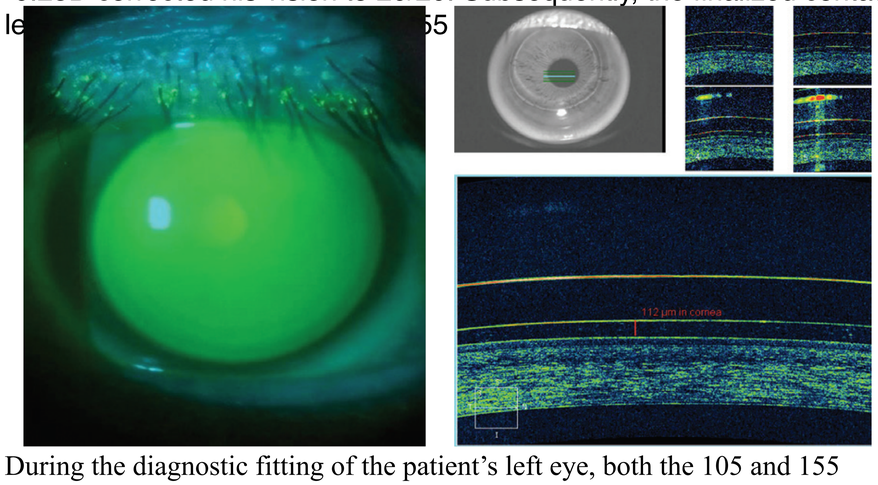
Uncorrected visual acuities were 20/40±2 that pinhole-corrected to 20/20-2 OD and 20/100-1 that pinhole-corrected to 20/40+2 OS. The patient's manifest refraction was -1.00+0.75x165 OD and -2.00 OS with an add of +1.75 and visual acuity of 20/20 OU. His cycloplegic refraction was -0.75+0.75x165 with visual acuity of 20/20 OD and -1.75 with visual acuity of 20/20-2 OS.

The topographical map of the patient's right eye depicted a central oblate pattern with uniform mid-peripheral steepening. There was no evidence of corneal ectasia or irregular astigmatism. Similarly, the left eye showed an even larger area of central flattening with uniform mid-peripheral steepening that indicated a well-centered flap, well-aligned ablation of the stromal tissue and absence of any central islands.

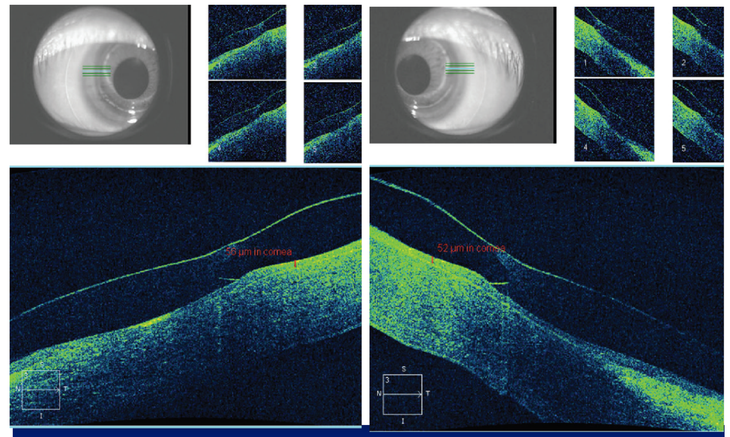


HYBRID CL FITTING

The initial UltraHealth FC diagnostic lens selected for the right eye was 155 vault/medium skirt/-1.50D. This lens showed significant fluorescein clearance at the central apex and a very loose fit. We immediately replaced the lens with the next lower vault design with parameters of 105 vault/medium skirt/-1.00D. This lens demonstrated fluorescein alignment, mild inner landing zone (ILZ) clearance and soft skirt alignment on the sclera. Because we believed we could achieve an even greater alignment fit with the lowest vault available in the diagnostic set, we inserted a 55 vault/medium skirt/plano lens and determined this was the most appropriate vault for the patient's right eye. An overrefraction of -0.25D corrected his vision to 20/20. Subsequently, the finalized contact le 55



During the diagnostic fitting of the patient's left eye, both the 105 and 155 vaults with medium skirts showed "lens crash" over the cornea. The 205 vault/medium skirt/-2.50D diagnostic lens demonstrated apical clearance over the cornea and limbus. There was good centration and tear film alignment in the ILZ. Unfortunately, after 30 minutes of lens settling, the patient noted ocular irritation and foreign body sensation. The nasal ILZ had "crashed" onto the peripheral cornea, and the temporal ILZ showed minimal tear layer vault. With an overrefraction of -1.50D, the patient's left eye corrected to 20/20. After adjusting for the vertex distance and lens crash of the ILZ, we ordered lens parameters of 255 vault/flat skirt/-4.75D to achieve a desired 80/20 support ratio between the ILZ and soft skirt on the peripheral cornea and sclera.



DISCUSSION

The importance of providing specialty lens fittings for patients with post-refractive corneas cannot be overstated. As these individuals are typically limited in their surgical enhancement options and generally have active lifestyles, it is imperative the eyecare practitioner offers specialty CL options if soft lenses provide a poor fit and vision. It is equally important to develop a robust skillset in performing and troubleshooting these challenging fits when visual or ocular issues arise.

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