

High against-the-rule corneal toricity fitted with multifocal bitoric corneal RGP lenses

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Background

Purpose of Visit

- 47-year-old Caucasian male videographer/performer presents for contact lens (CL) fitting

Chief Complaints

- Long standing aberrations with glasses
- Narrow field of view with glasses
- Would like to try multifocal CLs

Case History

Ocular and CL History

- No significant personal/family ocular history
- Tried translating corneal GP design many years ago but CLs often decentered off cornea
- Currently only wears glasses

Medical History

- No significant personal/family medical history; Taking no medications

Case Description

Manifest Refraction

- OD +1.00-5.75x092 20/20-
- OS +0.50-6.00x085 20/20-
- Add +2.00 0.4/0.4M

Topography

- OD sim K's 41.00/45.00 @178 Elevation difference ~100um
- OS sim K's 41.29/44.69 @172 Elevation difference ~80um

Slit Lamp and Dilated Fundus Exam

- Unremarkable OU

Case Description (continued)

RGP lenses with an **aspheric multifocal bitoric design** were empirically ordered based on topographies, refraction, lens fitting guide, lab consultation, and topographer software.

Trial 1

- OD Dia 9.5, BC 8.10/7.40, Pwr +0.50/-5.75, Add +2.50
- OS Dia 9.5, BC 8.00/7.45, Pwr -0.50/-5.75, Add +2.50
- Distance vision: OD 20/25- OS 20/20-
- Near vision: OU 0.4/0.8M
- Fit OU: interpalpebral, well-centered, good movement on blink, good surface wetting
- NaFI Pattern OU: adequate apical clearance, slightly more mid-peripheral bearing horizontally vs vertically, and adequate edge lift

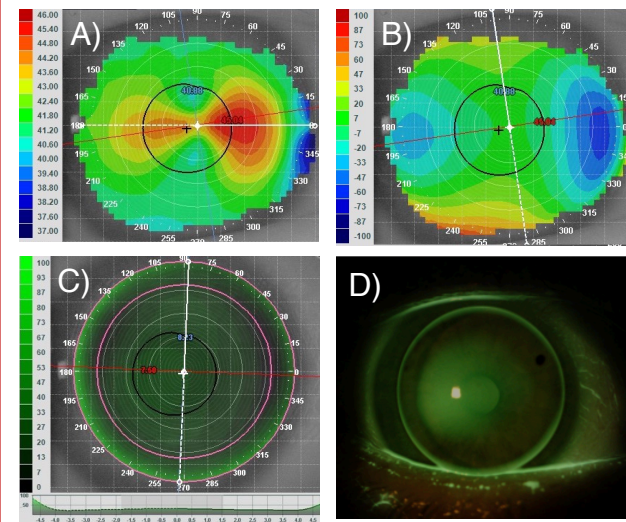


Figure 1 (Right Eye): A) Topography Axial Map, B) Topography Elevation Map, C) Predicted NaFI Pattern, D) Photo of final lens

Subsequent trials accounted for over-refraction and flattened horizontal BC slightly to address asymmetric midperipheral bearing.

Finalized CLs

- OD Dia 9.5, BC 8.10/7.45, Pwr +0.25/-5.25, Add +2.50
- OS Dia 9.5, BC 8.00/7.50, Pwr -0.50/-5.75, Add +2.50
- Distance vision OD 20/20- OS 20/20-
- Near vision OU 0.4/0.6M
- Fit OU: interpalpebral, well-centered, good movement on blink, good surface wetting
- NaFI Pattern OU: adequate apical clearance, mid-peripheral bearing, and edge lift
- Good comfort/vision/fit OU

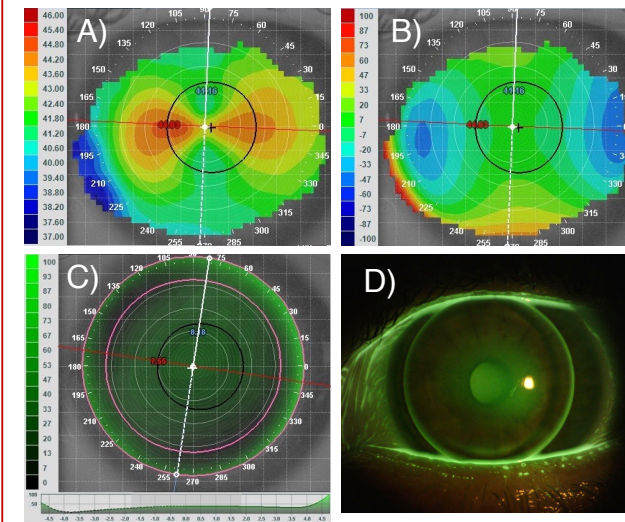


Figure 2 (Left Eye): A) Topography Axial Map, B) Topography Elevation Map, C) Predicted NaFI Pattern, D) Photo of final lens

Conclusion

- The patient was successfully fit into multifocal bitoric corneal RGP lenses, which provided a wider field of view and less aberrations compared to glasses.
- Several options such as custom soft CLs, corneal GPs, and scleral lenses were considered.
- Soft CLs may prove difficult to address visual needs because of the high amount of astigmatism correction required and possible lens rotation.
- The low elevation differences of the topographies suggested that the patient would likely succeed in both corneal GPs and scleral lenses (1).
- Aspheric multifocal design was selected to avoid need for translation with ATR toricity and to accommodate the use of desktop computer at work (2).
- Topographic CL software can aid in predicting tear fluid patterns and designing CLs when empirically ordering (3).

References

- Zheng F, et al. Corneal Elevation Differences and the Initial Selection of Corneal and Scleral Contact Lens. Poster presented at the Global Specialty Lens Symposium, 2015 Jan, Las Vegas.
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