

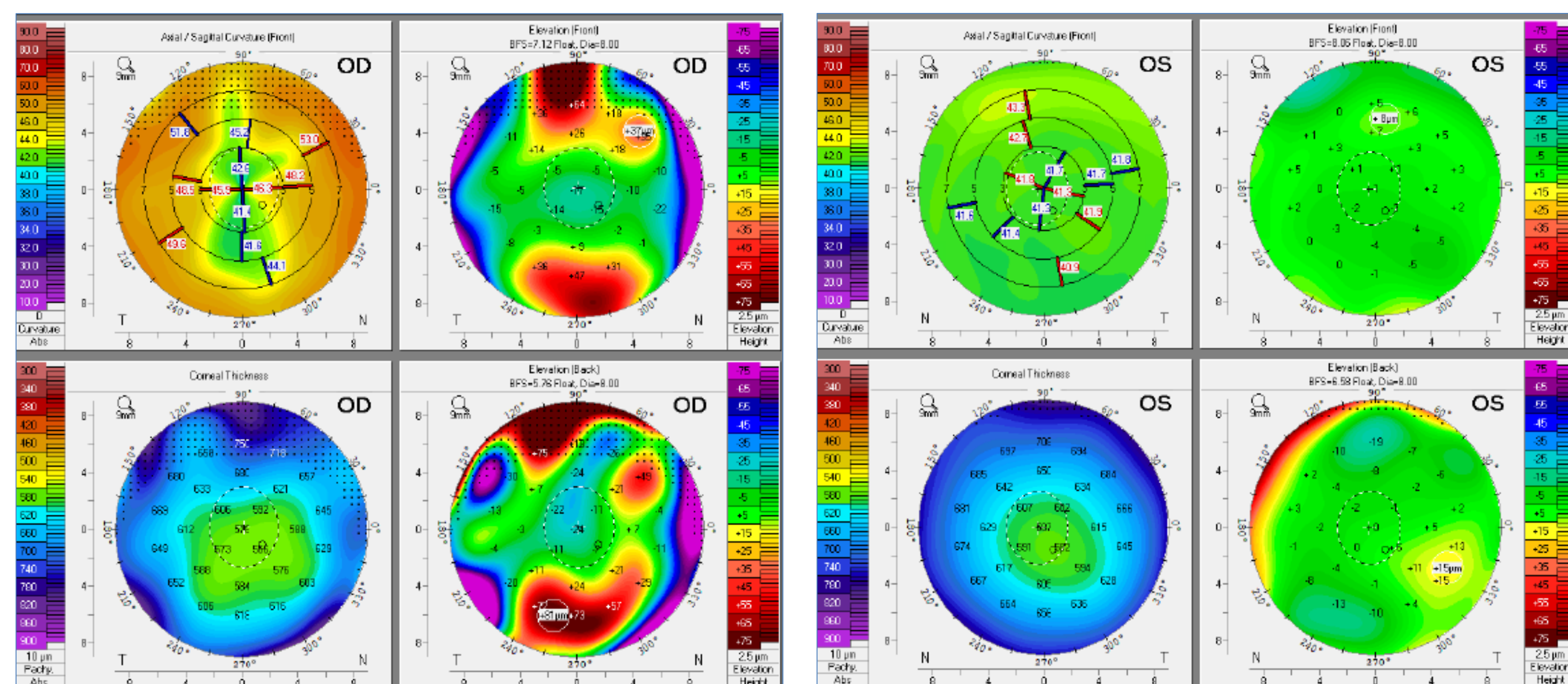
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## Background

Over decades, the rate of microbial keratitis (MK) has been consistent at 2 to 4/10,000 cases in contact lens (CL) wearers per year, with the greatest risk factors being lack of hand hygiene, contamination of lens storage case, integrity of multipurpose solutions, contact with tap water, and possible genetic predisposition of the patient [1]. Even with the introduction of extended wear Silicone Hydrogel (SiHy) lenses, which offer improved oxygen permeability, the rate of MK has not decreased, likely due to variability in compliance with the recommended wear schedule[1]. The management of CL-related MK includes discontinuation of CL wear and initiation of anti-microbial treatment based on the underlying etiology.[2] Fearing a recurrence of an adverse event, or an adverse event impacting the previously unaffected eye, many practitioners avoid refitting these patients in CL, even after the cornea has fully healed. However, further discussion is warranted regarding the benefits, and sometimes necessity, for CL wear in these patients.

## CASE 1: SOFT MODIFIED MONOVISION CL

54-year-old male patient with a history of penetrating keratoplasty secondary to CL-related **pseudomonas infection OD**. His post-operative refraction : -1.00 – 4.50 x 09 (20/30-2) and corneal topography revealed 4.1D of irregular, against-the-rule astigmatism OD. His left eye was unaffected and had a refraction of -7.25 DS. BCVA was 20/25 OD and 20/20 OS. However, due to the significant anisometropia and anticipated aniseikonia in spectacles, the patient was referred for CL fitting. The patient was successfully fit into an extended-range soft toric lens OD and a daily disposable, multifocal lens OS providing BCVA of 20/20 OU at distance and 20/25 OU at near. Given the high degree of astigmatism and the desire for multifocal correction, this was considered a successful endpoint for the patient.



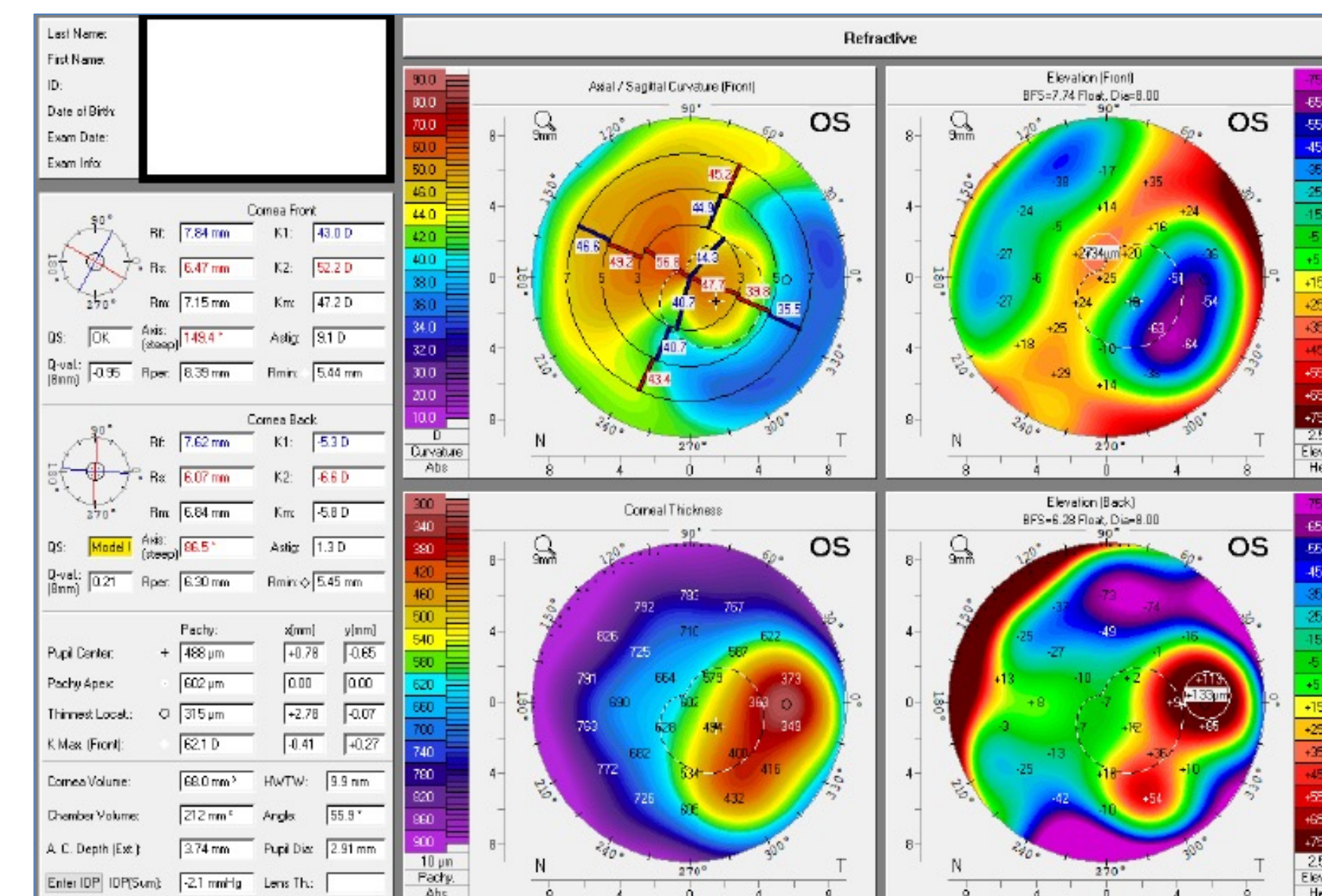
Case 1 post-operative corneal tomography OD, OS

## CASE 1: CL PARAMETERS

	OD	OS
Lens Type	Soft, hydrogel, toric (extended-range)	Soft, silicone hydrogel, spherical multifocal
Power	-1.00 – 4.25 x 090	-7.25 HIGH
Replacement	Monthly	Daily
Wear Schedule	Daily	Daily
VA	20/20 at distance, 20/25 at near	

## CASE 2: PIGGYBACK SYSTEM WITH CORNEAL GP

36-year-old male status-post Photorefractive Keratectomy (PRK) OS to minimize corneal scarring following **CL-related bacterial corneal ulcer** was referred for CL fitting due to reduced vision and irregular astigmatism. Manifest refraction was: pl OD and pl - 1.00 x 180 OS yielding BCVA of 20/20 and 20/100+ respectively. The patient was initially fit into a corneal GP yielding an improvement of BCVA to 20/40+ OS but later piggybacked for comfort. Special consideration was given to the material, care, and replacement of both lens types.



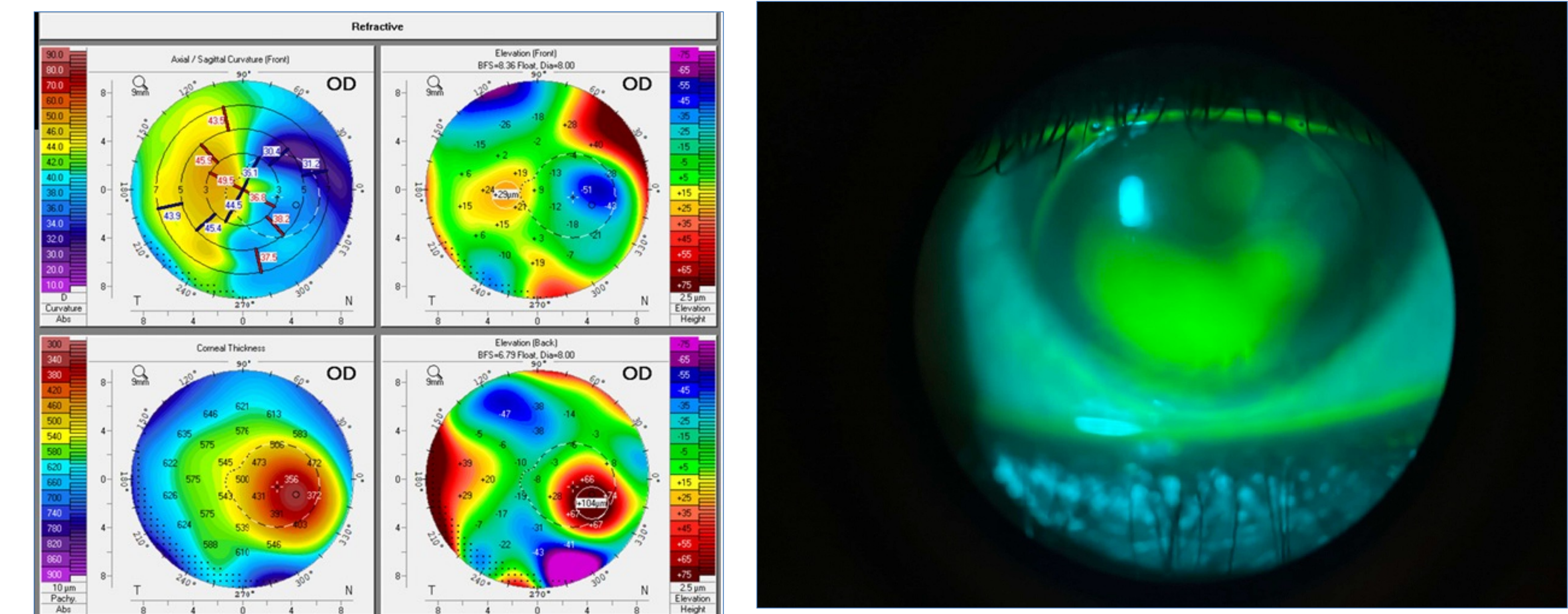
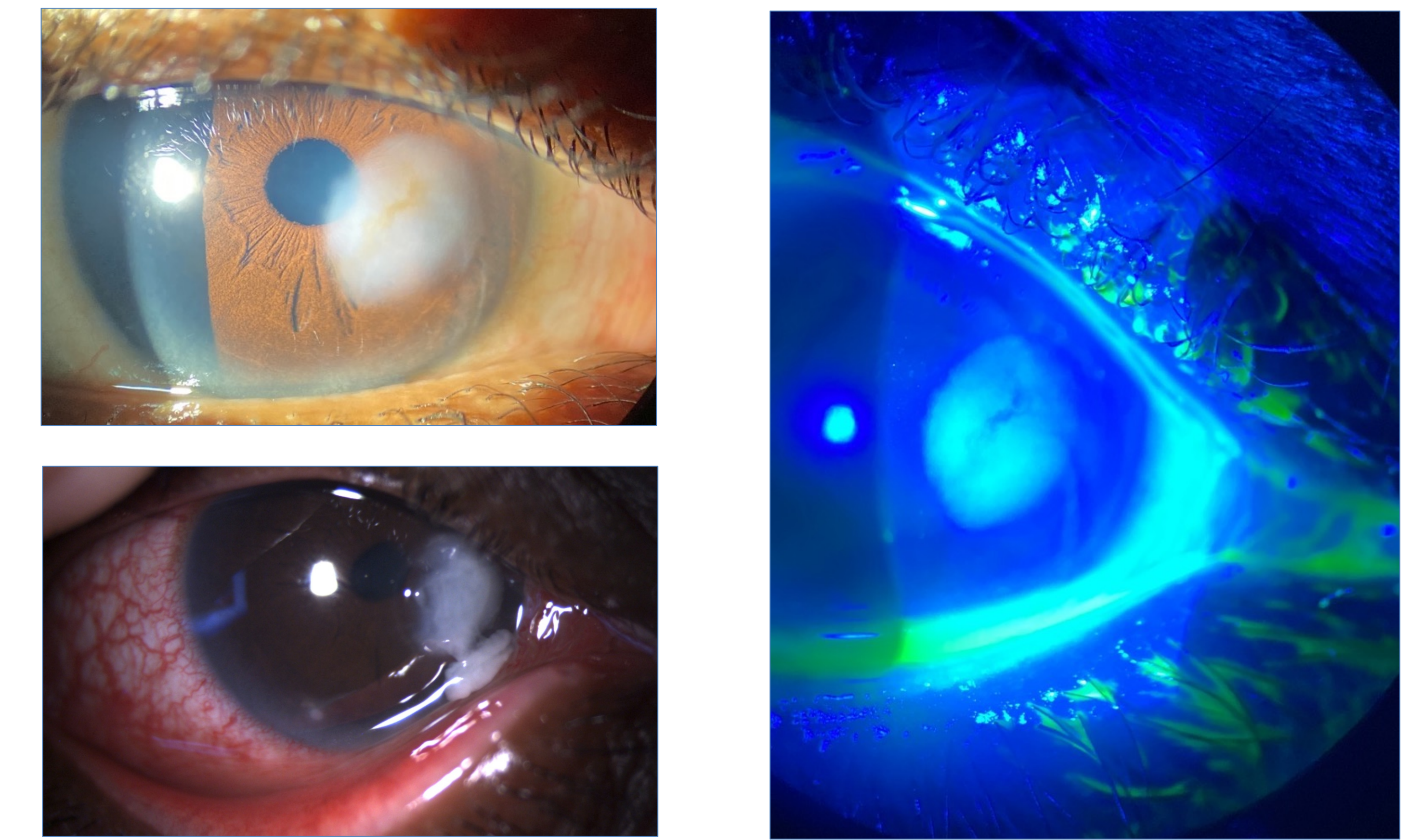
Case 2 post-operative corneal tomography OS

## CASE 2: CL PARAMETERS

	OD	
Lens Type	Gas permeable (over soft contact lens)	Soft contact lens (under gas permeable)
Power	-3.50 sph	+3.00
Base Curve Radius	7.7	8.3
Diameter	9.6	14.20
Replacement	Annual, prn	Daily
Wear Schedule	Daily	Daily
Material	Optimum Extreme	Silicone hydrogel
VA	20/20-3	

## CASE 3: CORNEAL GP

44-year-old male following resolution of **pseudomonas superinfection overlying presumed herpetic disciform keratitis** presents CL fitting due to reduced vision and irregular astigmatism. Best corrected spectacle vision was 20/40 OD. Corneal GP fitting was completed with final BCVA of 20/30 OD.



Case 3 post-operative corneal tomography and anterior segment photos OD

## CONCLUSION

Although having a previous history of a corneal adverse event increases the risk of developing a repeated event by 4-6 fold,[3] the visual and cosmetic benefits of wearing CLs need careful consideration in light of the risks. When catering to these types of patients, it's crucial to reinforce CL hygiene and to enforce closer follow-up visits. Depending on the case of the adverse event, consider daily disposable lenses (which offer a daily sterile CL), or provide RGPCLs as they provide high oxygen permeability and adequate tear exchange.[4] The most important takeaway, however, is the value of collaborative care and high-quality patient education to maximize future compliance and safety.

## REFERENCES

1. Szcotka-Flynn LB, Shovlin JP, Schneider CM, et al. American Academy of Optometry Microbial Keratitis Think Tank. *Optom Vis Sci.* 2021;98(3):182-198.
2. Carnt N, Samarawickrama C, White A, Stapleton F. The diagnosis and management of contact lens-related microbial keratitis. *Clin Exp Optom.* 2017;100(5):482-493.
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4. Hosai BM, Biglan AW, Elhan AH. High levels of binocular function are achievable after removal of monocular cataracts in children before 8 years of age. *Ophthalmology.* 2000;107(9):1647-1655.