

## INTRODUCTION

Interstitial keratitis (IK) is an infectious or immune-mediated inflammation of the corneal stroma, which spares the corneal epithelium or endothelium. Common secondary sequelae of this non-ulcerative inflammation include corneal neovascularization, scarring, irregular astigmatism, and decreased vision. Bilateral interstitial keratitis is an uncommon clinical finding today of often idiopathic etiology. In this case, a patient with a long-standing history of IK is fit with a specialty lens in the right eye.

## PERTINENT HISTORY & EXAM FINDINGS

An 82-year old Asian female is referred by a corneal specialist and a cataract surgeon for a specialty lens fitting OD. The patient has a long-standing history of IK following presumed in-utero infection, status-post Penetrating Keratoplasty (PK) OS approximately 10 years prior, and status-post CE/PC-IOL OD in March 2019. The referring providers' goal is to improve vision OD in preparation for cataract extraction OS.

The patient's uncorrected entering acuities were OD 20/200 OS CF at 4'. There was no improvement with manifest refraction. Per the referral, dilated fundus examination was non-contributory. Slit lamp examination of the right eye revealed patchy stromal scarring densest centrally with ghost vessels inferiorly, a clear and well-centered PC-IOL, and all other structures unremarkable. Examination of the left eye revealed status-post penetrating keratoplasty with clear and compact stroma, and a resolving suture inferotemporally. There was a 3+ nuclear sclerotic cataract, and all other structures were unremarkable.

## METHODS

Topographies obtained of each eye revealed approximately 2D of highly irregular astigmatism in the right eye secondary to stromal scarring, and 10D of regular with-the-rule astigmatism in the left. In addition, the cornea steepness profile of the right eye was not quite oblate, with areas of mid-peripheral cornea appearing steeper than central.

Based on this topography, we first attempted to mask the relatively low magnitude of central astigmatism with a thick soft contact lens. A +2.00D spherical Biofinity lens was applied and topography obtained with the lens on. The lens failed to mask the highly irregular corneal surface, thus a rigid gas permeable lens was next considered.

The corneal topography indicated a reverse geometry lens design to account for the oblate corneal shape. A Blanchard RSS trial lens of BC 8.04mm and diameter 10.5mm was first applied. Slight central pooling, inadequate edge lift and limbal touch were observed. With over-refraction, acuity improved to 20/40. The patient felt highly motivated by the improvement in the acuity and quality of her vision, as well as the good overall comfort of the lens. A lens of BC 7.85 and diameter 10.2 was ordered and the patient was seen for 1-month follow-up.

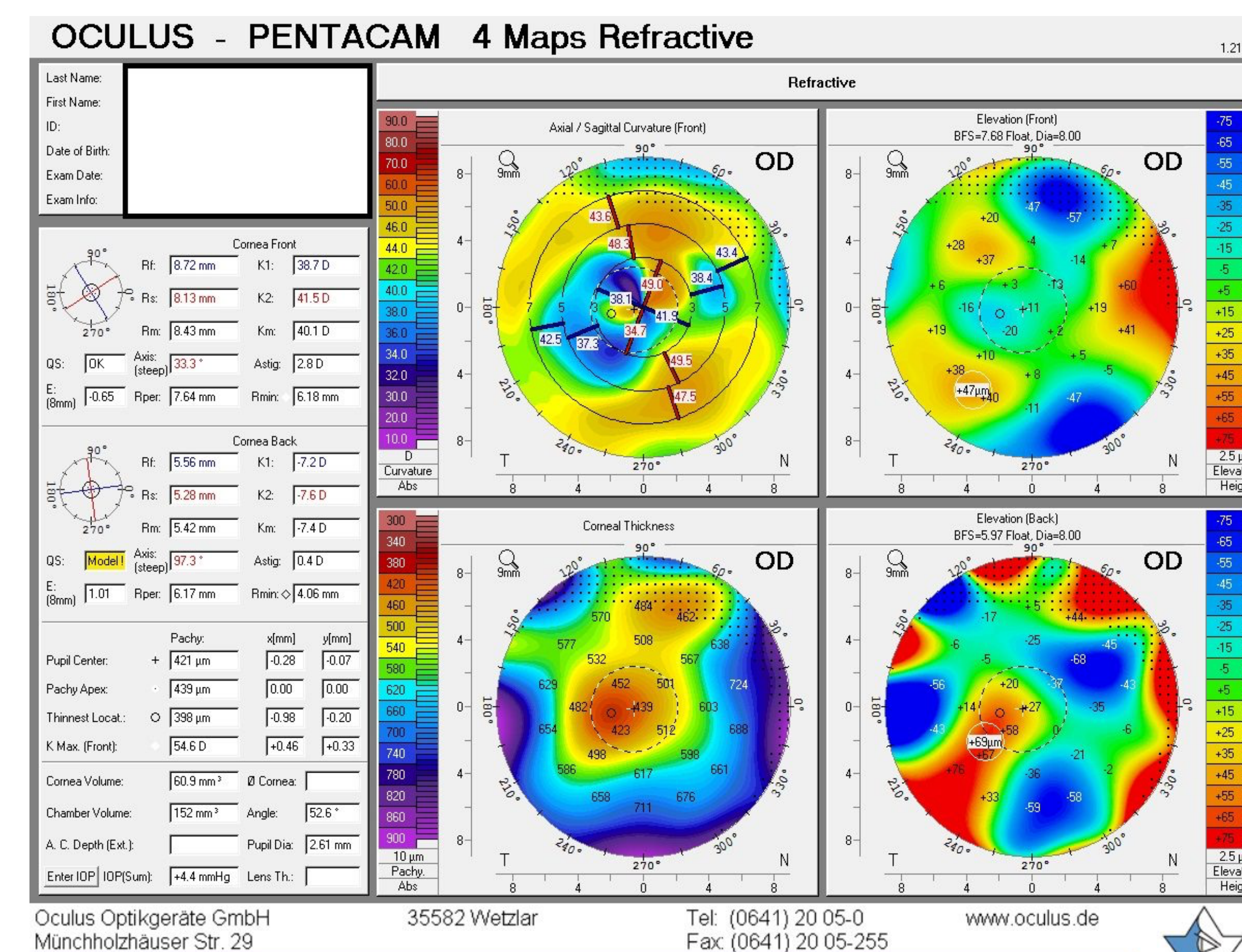


Figure 1. Corneal topography of the right eye.

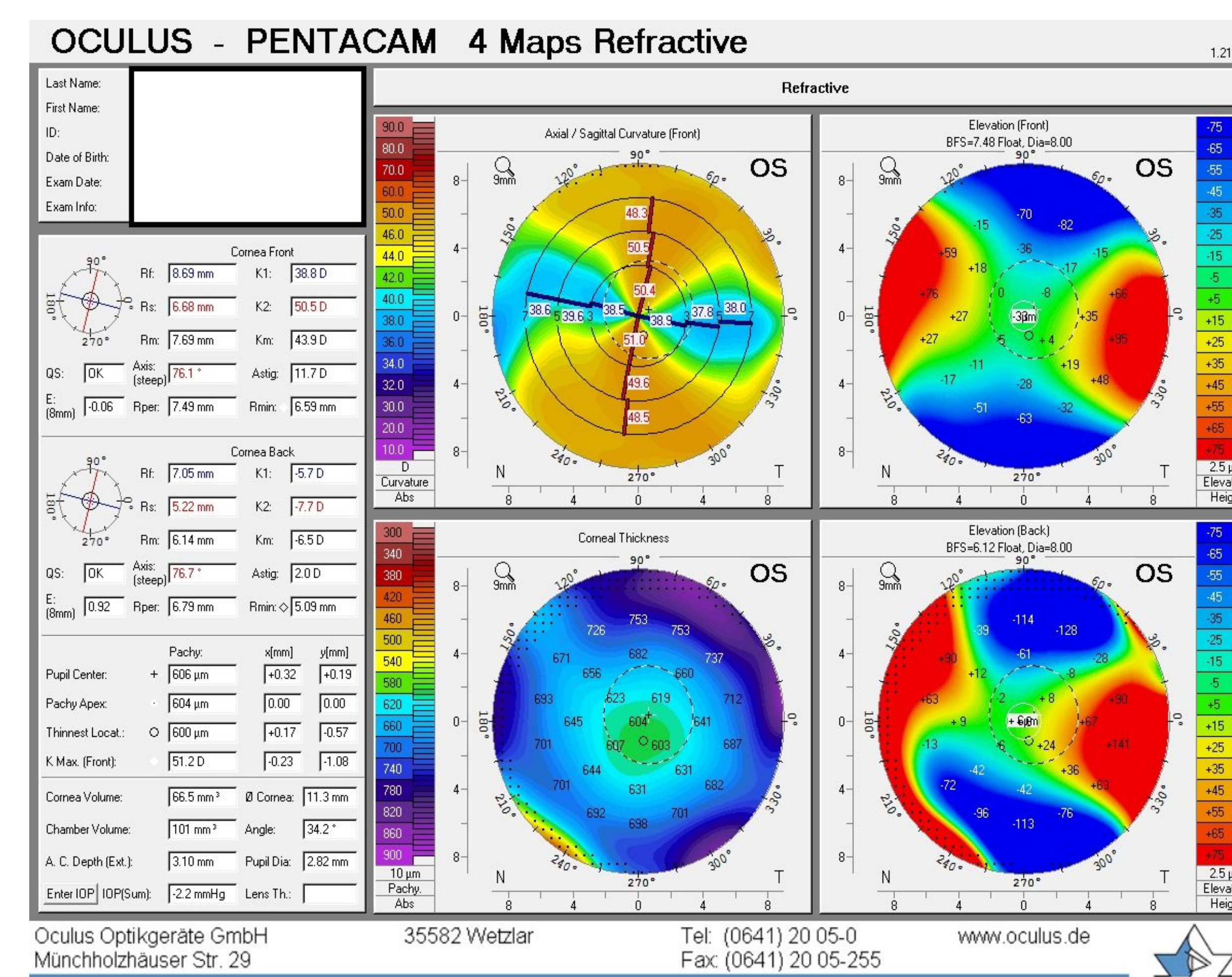


Figure 2. Corneal topography of the left eye.

At the follow up, the lens was placed on the eye and acuity improved further to 20/30. Slit lamp evaluation showed an area of central touch but was safe to dispense to the patient. Insertion and removal was performed with the patient with difficulty, especially considering the patient's functionally monocular status and first time handling lenses. However, the patient was determined, and successfully completed I&R training. The lens was dispensed to the patient and she was seen back in 3 weeks.

She presented with a corneal erosion superior to the visual axis in the right eye, and reported difficulty especially with lens removal. The patient was given an I&R refresher in office, educated to discontinue contact lens wear for 48 hours, and lubricate copiously with preservative-free artificial tears. After allowing the defect to re-epithelialize, the patient was refit into a lens of steeper base curve, with no change to the reverse curves, and the lens was finalized over subsequent visits. The patient achieved a final best corrected acuity of 20/30 OD.



Figure 3. Dispensable steeply fitting trial lens, achieved 20/30 vision.

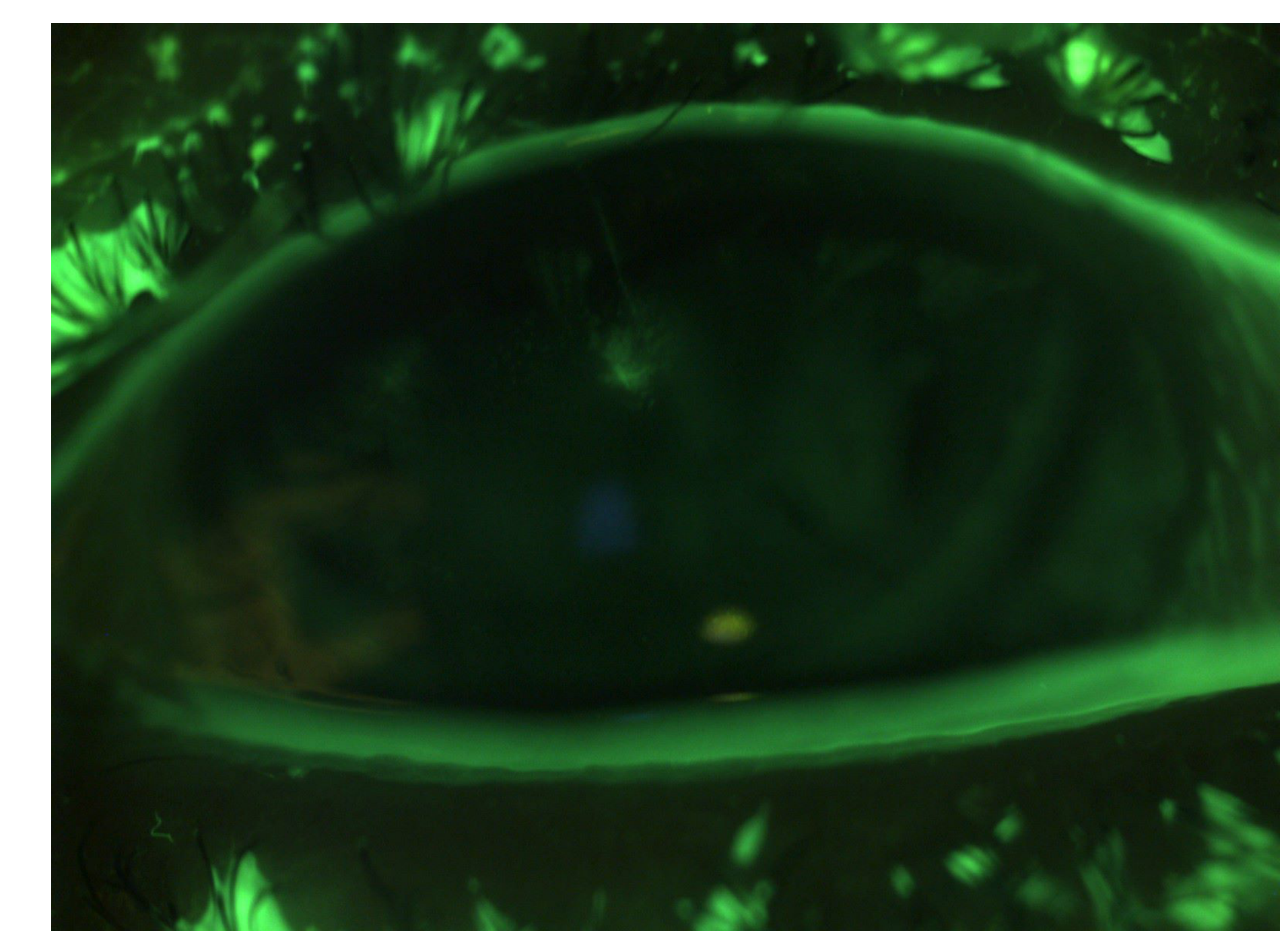


Figure 4. Corneal erosion secondary to poor contact lens handling.

Over the course of the fitting, the patient underwent cataract extraction of the left eye. Despite the slow healing of the left eye, the surgeons have requested a fitting of the left eye as well upon seeing the success of the reverse-geometry gas permeable contact lens fitting which significantly improved vision in her sighted eye.

## CONCLUSIONS

Fitting this geriatric patient with a rigid lens would have proven difficult, even contra-indicated, had the patient not been highly motivated and with cognitive and physical abilities intact. This case serves as a reminder to strive to deliver the highest quality of care to patients without limiting bias, in order to achieve the optimal outcome for both the patient and practitioner.

## REFERENCES

- Jupiter, D. G., & Katz, H. R. (2000, January). Management of irregular astigmatism with rigid gas permeable contact lenses. Retrieved September 25, 2019, from <https://www.ncbi.nlm.nih.gov/pubmed/10656303?dopt=Abstract>.
- Tu, E., Feldman, B. H., & Rose, L. (2015, August 27). Interstitial Keratitis. Retrieved January 1, 2020, from [https://eyewiki.aao.org/Interstitial\\_Keratitis](https://eyewiki.aao.org/Interstitial_Keratitis).
- Zadnik, K. (1994). Contact lenses in the geriatric patient. *Journal of the American Optometric Association*, 65(3), 193-197. Retrieved from <https://europemg.org/article/med/8201171>.