

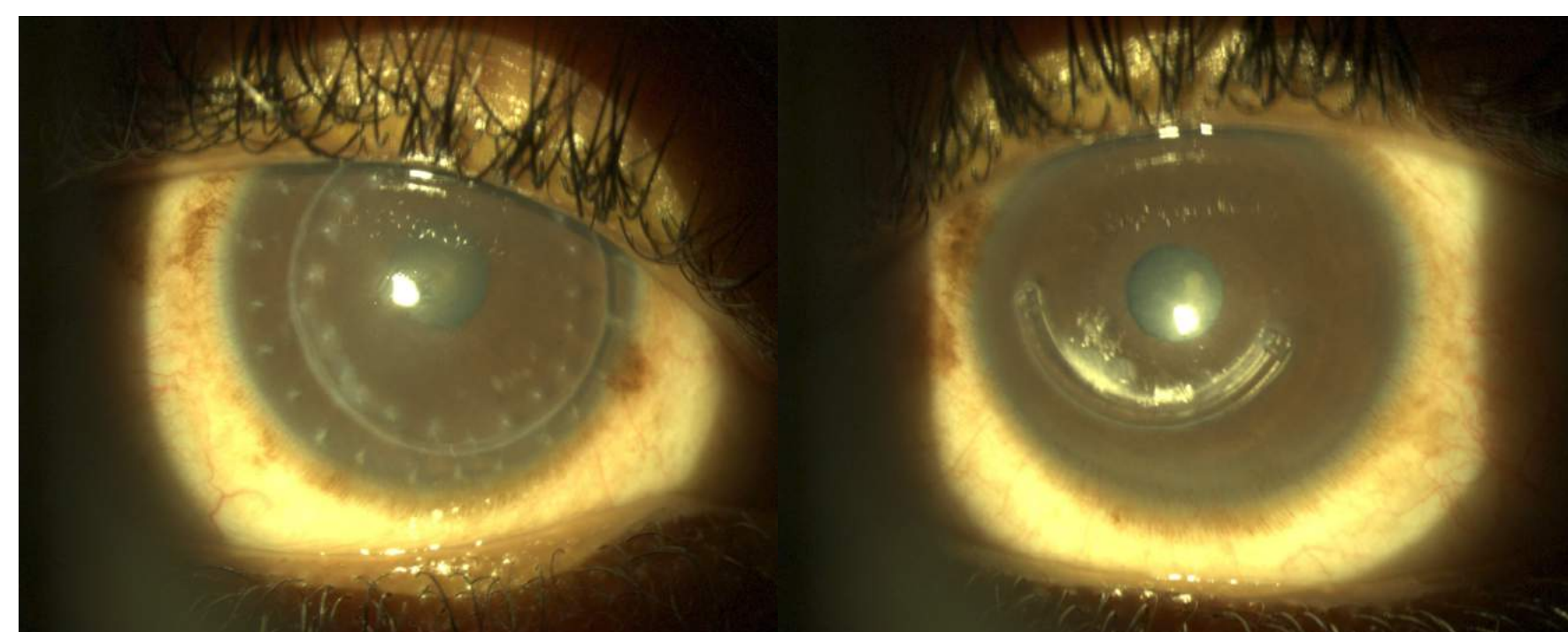
## INTRODUCTION

A 36-year-old African American male with keratoconus was referred for a contact lens fitting. He reported a history of contact lens intolerance in the right eye and discomfort in his current “piggyback” system in the left eye which consisted of a soft contact lens under a hybrid lens.

## PERTINENT HISTORY AND EXAM FINDINGS

- S/P PKP OD in 2012 secondary to keratoconus
- S/P Intacs and Crosslinking OS in 2014
- Longstanding moderate angle alternating esotropia greater at near with history of diplopia and ability to fuse. No history of strabismus surgery

	OD	OS
Current lens	None secondary to history of discomfort, poor vision and fit	“Piggyback” system with DD hydrogel lens underneath a hybrid lens
Corneal Findings	Transplant with haze inferior, neo superior, scattered endothelial pigment	Dense central SPK, neo superior, intacs inferior with surrounding crystalline haze



## METHODS

Based on presenting topography and history of intolerance in a variety of lens designs, we initiated scleral lens fit with Ampleye lens OD/OS

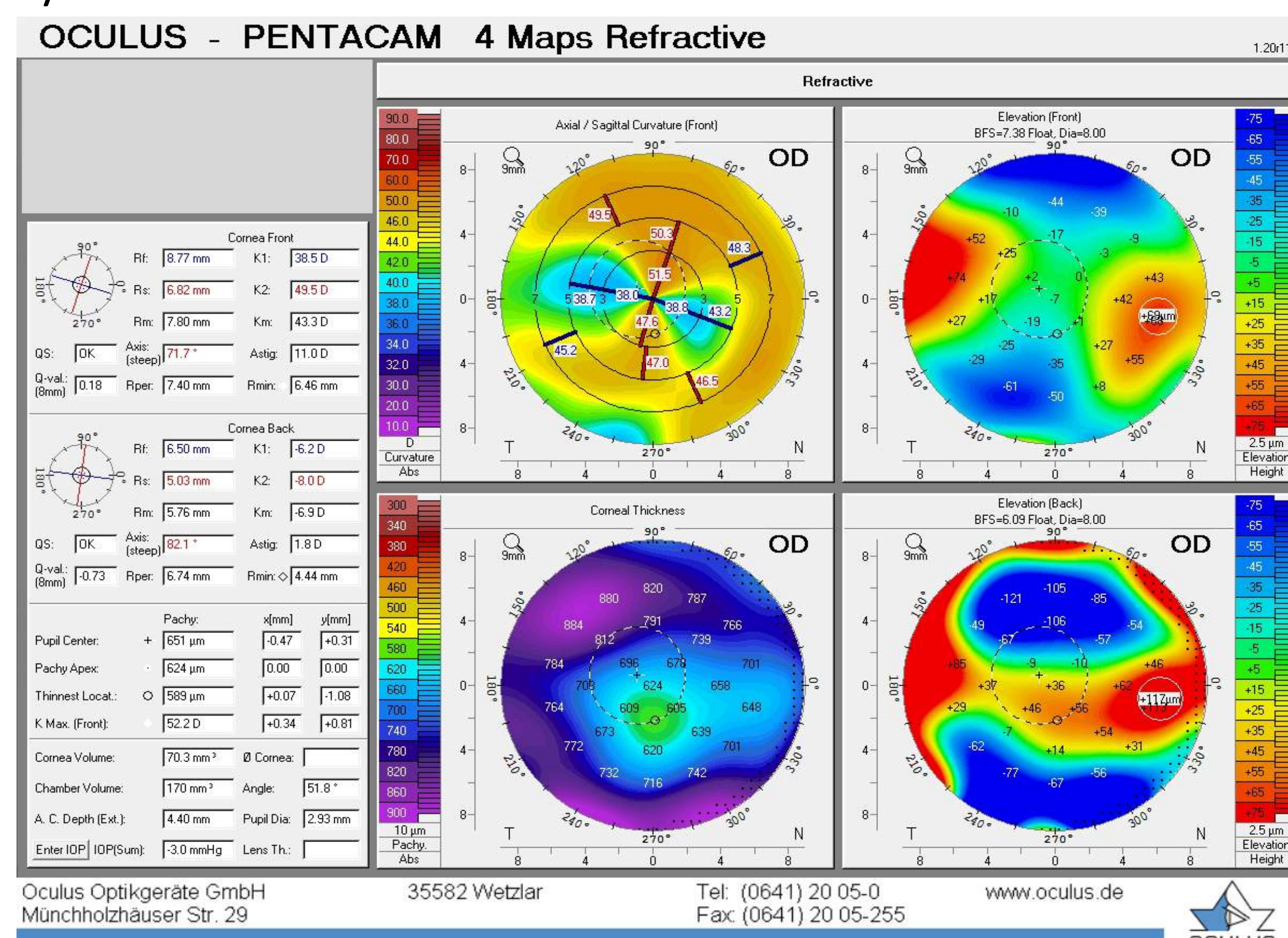


Figure 1. Corneal topography at initial presentation – right eye

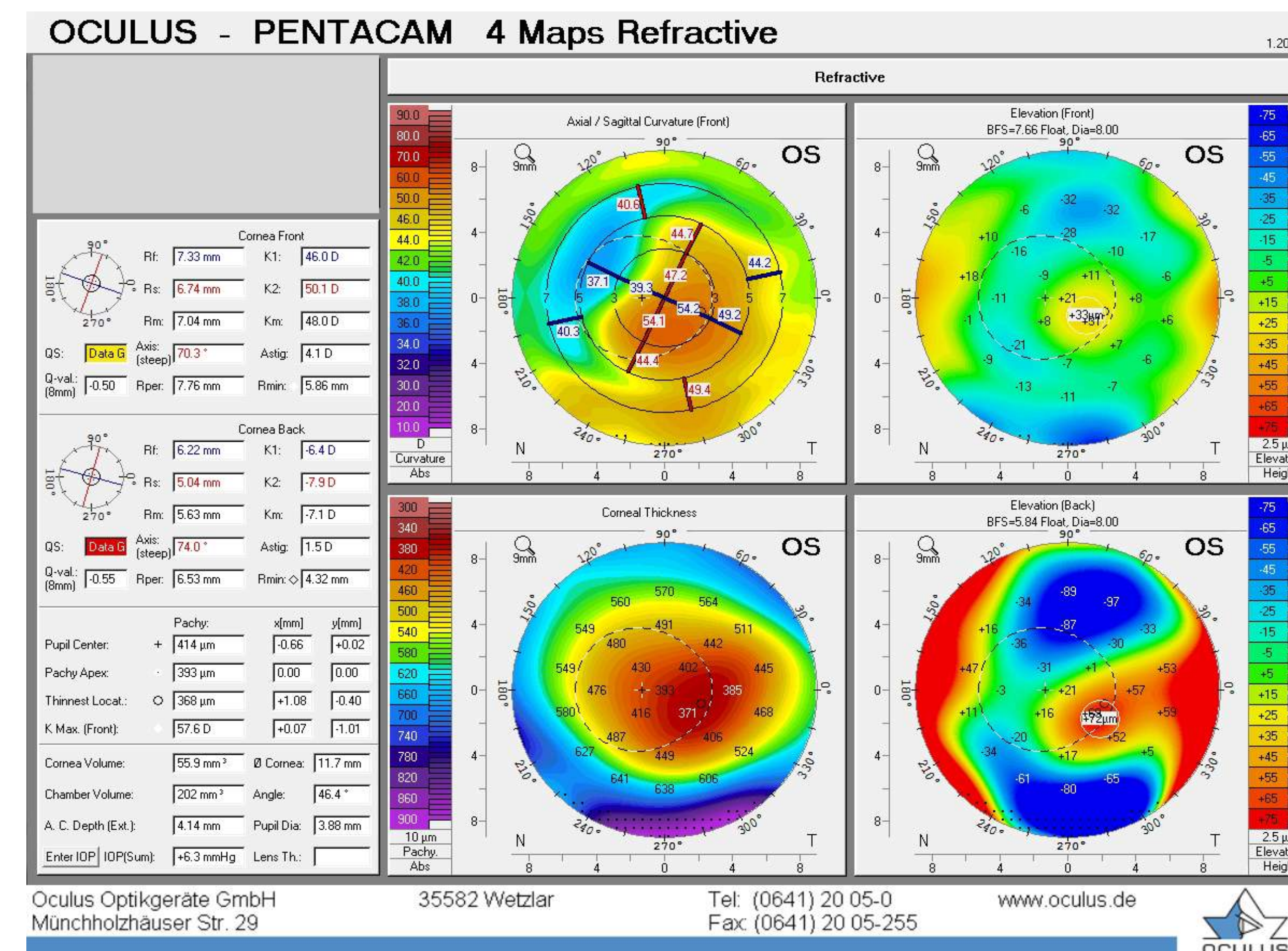


Figure 2. Corneal topography at initial presentation – left eye

- The visual acuity with the scleral lens in the right eye improved from 20/200 to 20/30 and from 20/400 to 20/40 in the left eye.
- The initial fit showed slightly excessive vault centrally upon initial evaluation; however acceptable otherwise and there was no blanching or edge lift off. We proceeded to ordering both lenses with adjusted parameters accounting for the over-refraction and decreasing the sag.
- Patient was strongly advised to discontinue hybrid/SCL wear due to oxygen concerns and corneal findings.
- Upon achieving an adequate fit, comfort and vision in both eyes, the patient became symptomatic for diplopia, reporting two clear images side by side.
- Patient was referred for complete binocular work up to be fit with appropriate prism glasses on top of the best corrective scleral lens.
  - Patient was prescribed base-out prism to be worn over contact lenses
- Upon subsequent visit post vision therapy evaluation we were able to achieve an improved fit and dispensed new scleral lenses with modifications
- However at the 2 week follow up our patient developed microcystic edema in the post-PK right eye
- Patient was strongly advised to discontinue lens wear in the right eye and was put on PredForte 1% TID with a 5 day taper and Muro drops QHS.
- Upon using both drops for 2 weeks the edema resolved. The right scleral lens was reordered with the hyper DK Menicon Z and further fit modifications however the edema still persisted in the post PK eye.
- We refit the right eye with Rose K 2 Post graft RGP lenses to increase tear exchange and improve oxygen transmission to the cornea

- We were able to achieve adequate fit and vision for the right eye, however patient was unable to adapt to comfort of the GP lens.
- Ultimately piggybacking GP lens over right eye provided best fit, vision and comfort.

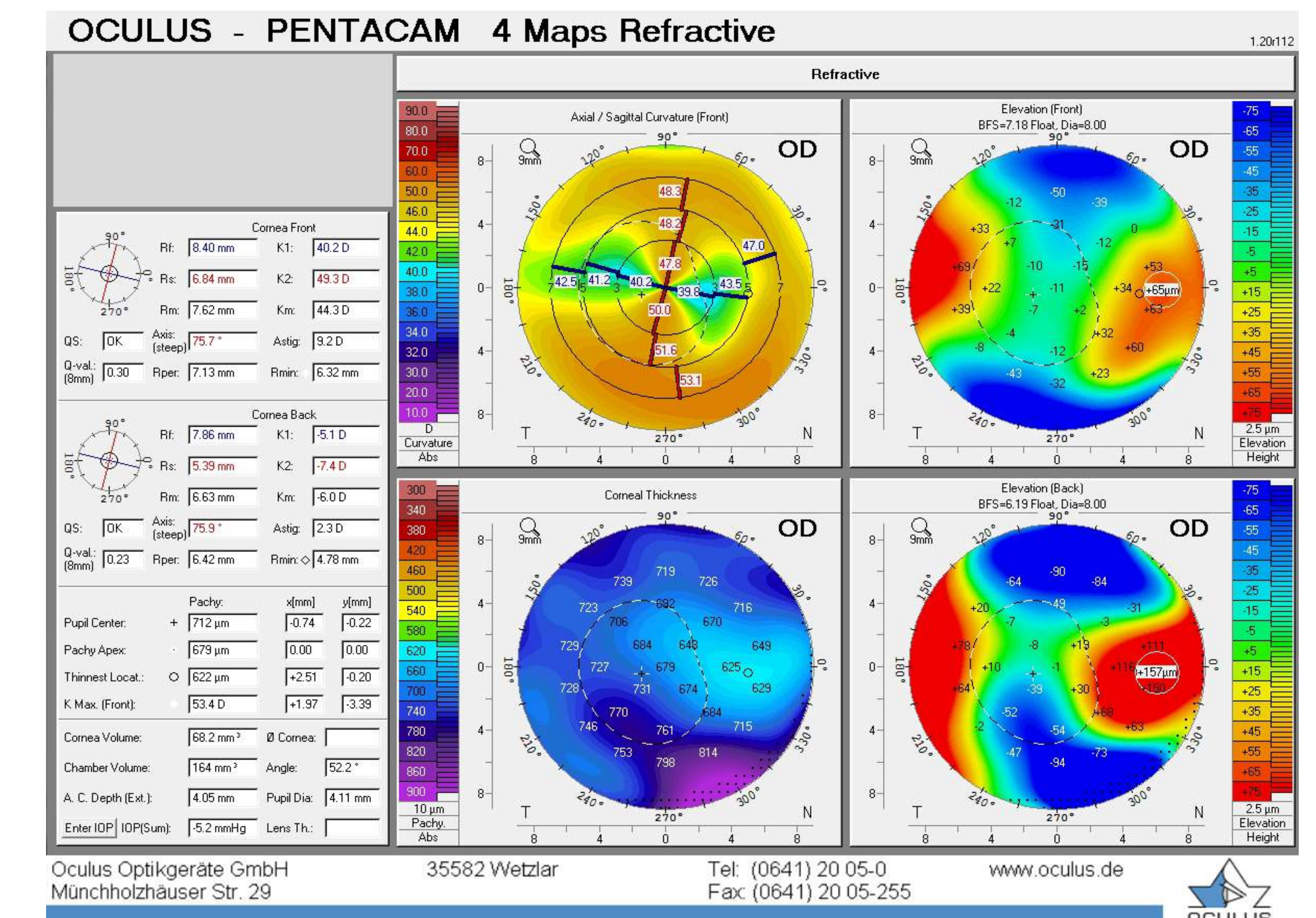


Figure 3. Corneal topography demonstrating corneal edema after scleral lens wear – right eye

## DISCUSSION AND CONCLUSION

Although scleral lenses are a valid management choice for patients with an irregular corneal surface, caution should be taken prior to fitting post-graft corneas with scleral lenses as they are typically thicker and contain a tear layer that limits oxygen transmission to the cornea. A gas permeable lens will always allow for greater oxygen flow, and should be considered as an initial trial. Additional measurements such as endothelial cell count should be considered prior to any contact lens fitting in this patient population. The fitting process may be altered along the way based on clinical presentation, patient goals, past contact lens history and possible confounding binocular abnormalities. Patient education on the importance of regular follow up is imperative towards more effective management.

## REFERENCES

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