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Introduction

- Keratoconus is a condition that leads to progressive thinning and steepening of the cornea<sup>1</sup>. It often presents in early adolescence and progresses until middle age<sup>1</sup>.
- There are multiple options to enhance the vision in these patients including contact lenses, Intacs, and corneal transplants<sup>2</sup>. Cornea crosslinking is an effective method used to reduce progression<sup>2</sup>.
- With advancing technology in contact lenses, it can be easy to forget the basics and move straight into more advance lens designs such as sclerals or hybrids.

- This case explores the refitting of a keratoconus patient into corneal RGPs from hybrid lenses due to CL intolerance

Case History

- 55-year-old male with complaints of decreased vision with glasses OD>OS was referred by ophthalmology for a CL fitting.
- The patient has as history of Keratoconus, worse OD than OS and ocular allergies. Ocular medications include cromlyn QID OU
- Most recently, he was fit with hybrid lenses OU, but discontinued wear 1 year ago due to discomfort. He presents wearing glasses only. He has a previous history of corneal RGP wear without complications.
- After discussion with the patient, it was decided to refit him in corneal RGPs.

Clinical Findings

- Presenting VAs with glasses 20/50 OD and 20/20- OS. Pinhole improved OD to 20/25.

Slit Lamp Evaluation	
OD	OS
Cornea: mild central thinning (-) scarring, Vogt striae, Fleischer ring	Cornea: mild central thinning (-) scarring, Vogt striae, Fleischer ring
Conj: 1+ papillae inf/sup	Conj: 1+ papillae inf/sup

Contact Lens Fitting

Trial 1				
Eye	Parameters	Fitting	VA	ORx
OD	Rose K 6.80/-6.00/8.8	Mild inferior decentration Good apical alignment	20/20-	-0.25 with VA 20/20
OS	Rose K 7.7/-1.50/8.8	Significant inf decentration; significant apical pooling	Not tested due to poor fit	

Trial 2				
Eye	Parameters	Fitting	VA	ORx
OD	Rose K 6.80/-6.00/8.8	Mild inferior decentration Good apical alignment	20/20-	-0.25 with VA 20/20
OS	Rose K IC 7.85/-2.00/11.2	Better centration. Apical pooling. Overall tight fit.	20/150	+2.00 with VA 20/20

Ordered Lenses				
Eye	Parameters	Fitting	VA	ORx
OD	Rose K 6.80/-6.25/9.0	Mild inf decentration Central touch	20/20	Plano
OS	Rose K IC 7.95/+0.50/11.2 1 step flat PC	Mild inf decentration Broad area of central touch with adjacent pooling	20/25+2	+0.50 with VA of 20/20

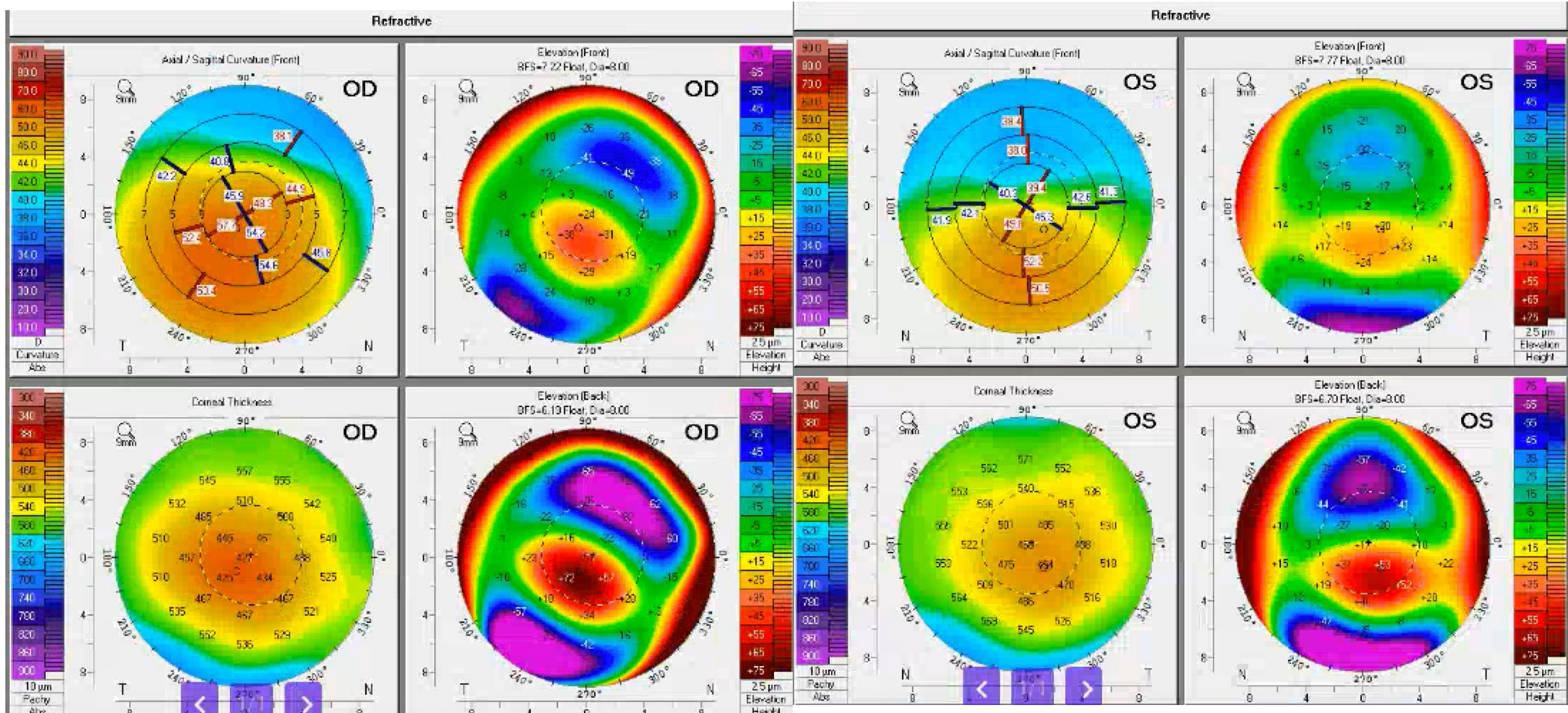
References

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2. Bromley, J. G., & Randleman, J. B. (2010, July). *Treatment strategies for corneal ectasia*. Current opinion in ophthalmology.<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4733526/>.  
3. Boyd, K., 2020. *Keratoconus Diagnosis and Treatment*. [online] American Academy of Ophthalmology. Available at: <<https://www.aao.org/eye-health/diseases/keratoconus-diagnosis>> [Accessed 6 January 2022].

Contact Lens Fitting Continued

Final Contact Lens				
Eye	Parameters	Fitting	VA	ORx
OD	Rose K 6.60/-8.25/9.0	Mild inferior decentration Good apical alignment	20/20	Plano
OS	Rose K IC 7.75/pl/10.8/1 flat PC	Mild inferior decentration Good apical alignment	20/20	plano

Topography



Topography images showing Keratoconus

Discussion and Conclusion

- Refitting this patient back into corneal RGPs helped improved his vision and comfort compared to his previous hybrid lenses. A discussion was had about fitting only the right eye since his left eye was able to achieve acceptable vision with glasses alone. However, the corneal RGP helped improved the quality of his vision overall.
- One challenge experienced with fitting this patient was caused by his lower sitting cones, which lead to more inferior decentration of the lenses. Increasing the diameter of both lenses helped to improve centration.
- Corneal RGPs remain an excellent option for patients and are often overlooked. In a patient who is tolerating corneal GPs well and the fit remains adequate, moving to a scleral or hybrid lens is unnecessary, and may cause more issues than it fixes.