

INTRODUCTION

There are many indications for a penetrating keratoplasty (PKP) that leads to over 40,000 being done annually in the US¹. One of the main complications post surgery is irregular astigmatism. This can be challenging to correct in glasses, but is well managed with RGP or scleral lenses. Scleral lenses are used in 50% of (PKP) patients successfully, but when fitting these patients special considerations need to be made for wearing². Scleral lens use can cause reduced tear exchange, stagnation of fluid in the lens chamber, and corneal ischemia². Many of these complications in PKP patients can be improved by taking a break of lens wear during the day³.

PATIENT HX

The patients medical history was positive for s/p OD: Aphakia with iris damage and correctopia secondary to open globe injury with iris prolapse, dry AMD
OS: Exudative AMD with Avastin injections, trabeculectomy with a scarred bleb
OU: PKP OU from KCN, Advanced POAG, PCIOL OU
Ocular Medications: Prednisolone OD QHS, Brimonidine BID OD, Timolol BID OU, Lotemax QHS OS, and AT PRN.

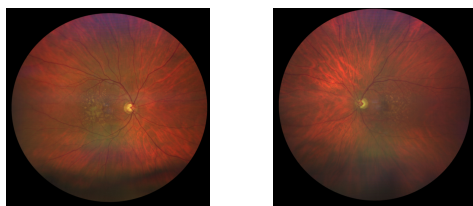


Figure 1: Fundus photos

ENCOUNTER

A 67 year old white male presented to clinic with a GP on the left eye from an outside office that he has been wearing for many years that gave a VA of 20/80. The patient was told he was a "tricky fit" and he was not able to get a working GP lens on the right eye.
GP Parameters: BC 6.70, Diam 9.3, Power -3.00
The patient was interested in scleral lenses for both eyes and a Zenlens was trialed in office.

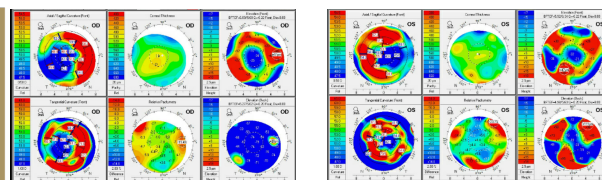


Figure 2: Topography readings

Zenlens Trial	OD	OS
Sag	4500	4500
Power	-2.00	-2.00
Base Curve	44.37	44.37
Diameter	16.0	16.0
APS	H:Flat3/V:Steep3	H:Flat3/V:Steep3
ORx	+11.50	+5.00
VA	20/30	20/40
Initial Order	OD	OS
Sag	4575	4725
Power	+13.00	+3.50
Base Curve	42.87	44.37
Diameter	16.0	16.0
APS	H:Steep5/V:Flat2	H:Steep4/V:Std
ORx	+1.50	-0.25

At the one month followup, the patient presented with microcysts OD around the sutures. The midperiphery had increased variable clearance outside the GHJ. The fit was adjusted as shown below, and the patient was seen back in five weeks. The new fit resolved the microcysts with the vision improving to 20/25⁻² OD and 20/40 OS.

1 Month F/U	OD	OS
Sag	4625	4775
Power	+16.00	+4.50
Base Curve	41.37	43.37
Diameter	16.0	16.0
APS	H:Steep8/V:Flat2	H:Steep5/V:Std
Final Lens Order	OD	OS
Sag	4625	4875
Power	+16.00	+3.75
Base Curve	41.37	43.37
Diameter	16.0	16.0
APS	H:Steep10/V:Flat2	H:Steep5/V:Std

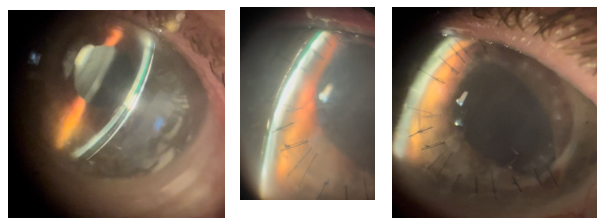


Figure 3: Anterior segment photos of final lens

CONCLUSION

This case had a variety of anterior and posterior segment diseases that needed to be taken into consideration when fitting scleral lenses. Penetrating keratoplasty is sometimes the only option for patients with severe keratoconus. Penetrating keratoplasty often induces irregular astigmatism that is best corrected with rigid contact lenses, additionally due to a traumatic incidence, the patient was left aphakic OD, so correcting for anisometropia also becomes a concern with the large difference in refractive error in each eye. Fitting the patient into scleral lenses can reduce contact lens induced complications, reduce anisometropia, and improve a patients acuity and comfort.

CLINICAL PEARLS

Penetrating keratoplasty is sometimes the only option for patients with severe keratoconus. Penetrating keratoplasty often induces irregular astigmatism that is best corrected with rigid contact lenses. Vision can be dramatically improved in patients by using scleral lenses to improve a patients acuity and comfort. Adjusting the fit and wear time of scleral lenses can improve lens induced complications post PKP.

REFERENCES

1. Ho, Sharon K., Lilian Andaya, and Barry A. Weissman. "Complexity of contact lens fitting following penetrating keratoplasty." *International Contact Lens Clinic* 26.6 (1999): 163-167
2. Severinsky, Boris, et al. "Scleral contact lenses for visual rehabilitation after penetrating keratoplasty: long term outcomes." *Contact Lens and Anterior Eye* 37.3 (2014): 196-202.
3. Pullum, Kenneth W., Angela J. Hobley, and John H. Parker. "Hypoxic corneal changes following sealed gas permeable impression scleral lens wear." *Journal of The British Contact Lens Association* 13.1 (1990): 83-87.