

# Scleral Lens Management in Corneal Scarring resulting from Acanthamoeba Keratitis

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## Introduction

Acanthamoeba keratitis (AK) is a potentially sight threatening infection that remains a challenging condition to diagnose and treat.<sup>1</sup> It is most common in contact lens wearers and remains a concern of all lens modalities, but it is most prevalent in soft contact lens wear.<sup>1</sup> Early detection results in a better outcome, but because of the challenging clinical presentations the diagnosis can be delayed or confounded by coinfections.<sup>1</sup> The options for management after treatment are dependent on the severity of the infection and may involve specialty contact lenses to help improve vision.

## Case Presentation

### Background

A 23 year-old female was referred from the cornea service for a scleral lens evaluation OS. Her ocular history includes soft contact lens wear with a chronic corneal ulcer for 4 months OS before presenting to the cornea service for a second opinion. At her initial cornea consult visual acuity measured hand motion OS. A corneal culture was obtained and revealed Acanthamoeba OS and she completed an extensive drop treatment regimen.

Chief Complaint	Blurred vision OS, difficulty functioning in glasses at work
Medical Hx	Environmental Allergies
Systemic Medications	None
Ocular History	Acanthamoeba keratitis OS, corneal scarring OS
Ocular Medications	Preservative free artificial tears PRN OU, Prednisolone acetate 1% one drop qd OS
Manifest Refraction	OD -2.25-0.75x180 20/20 OS -1.25-2.00x170 20/40-
Slit Lamp Examination	Moderate central haze/scarring 3.5 mm with thinning (Figure 2)

## Methods and Results

A rigid gas permeable lens was applied OS and her vision improved to 20/20 with overrefraction. The diagnostic lens was discarded after use and an impression was taken to design an EyeFitPRO OS to successfully improve vision and maintain comfort with lens wear.

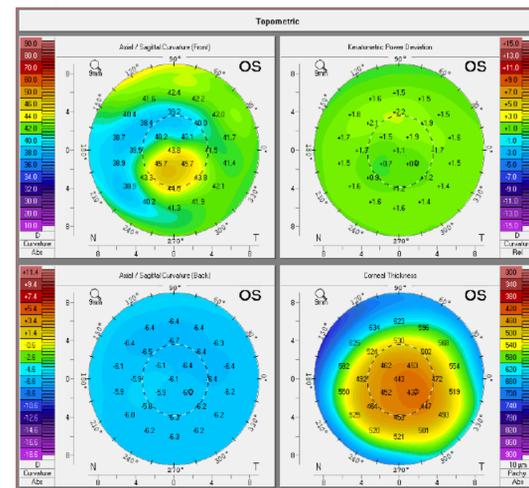


Figure 1. Oculus Pentacam OS demonstrating irregular astigmatism and corneal thinning

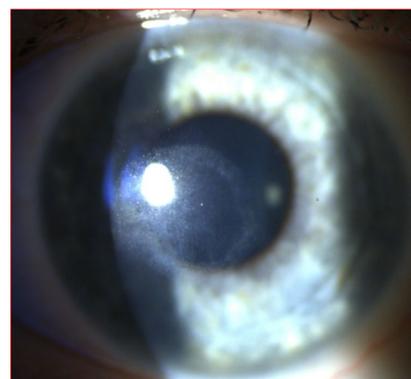


Figure 2. Corneal scar OS (left)

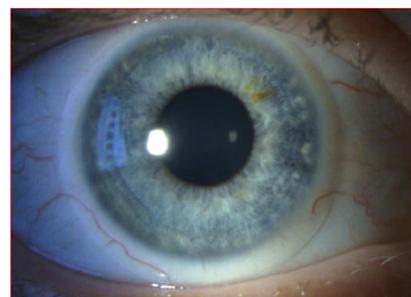


Figure 3. OD was fit with a daily soft toric contact lens with BCVA 20/20 (left)

## EyeFitPRO OS

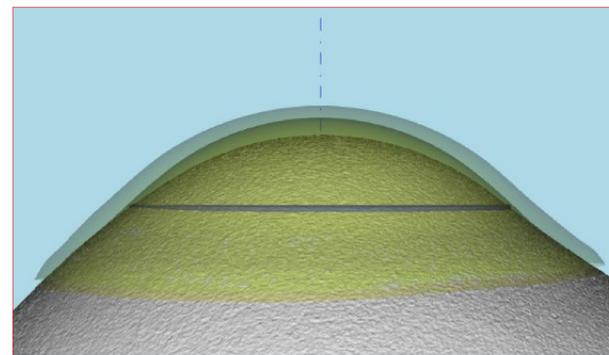


Figure 4. Image of the OS lens designed from software, superior view



Figure 5. Initial EyeFitPRO OS

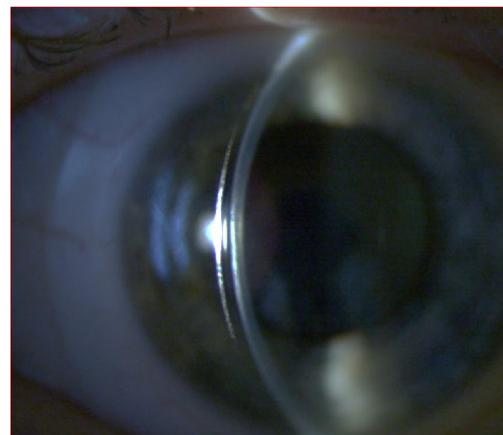


Figure 6. Initial EyeFitPRO vault OS

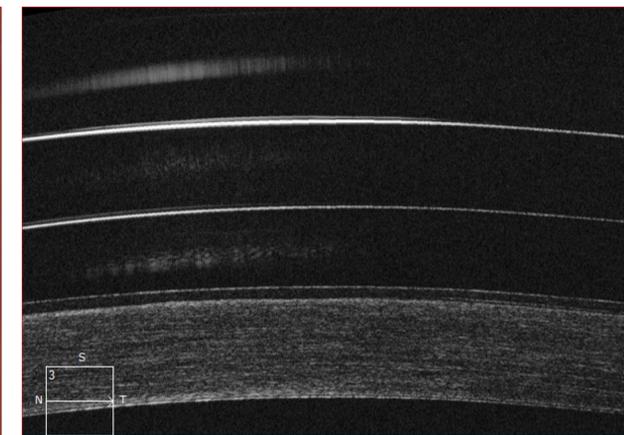


Figure 7. Anterior segment OCT image of second OS lens central vault at dispense.

Figure 8. A second lens was designed after initial follow up. Final EyeFitPRO parameters (below)

Base Curve	Diameter	Power	Center Thickness	Back Optic Zone	Material
7.44 mm	17.0 mm	-6.00 DS	0.35 mm	9.26 mm	Optimum Extra

Figure 9. Final lens OS with BCVA 20/20-

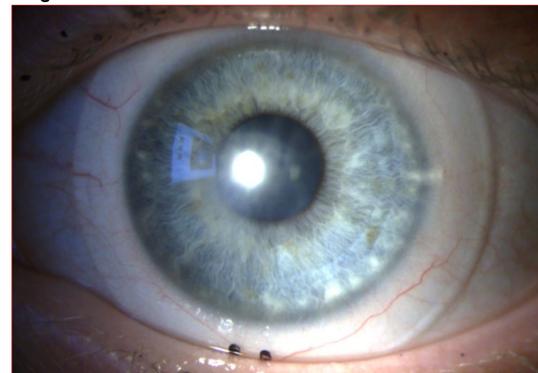


Figure 10. Final lens OS



## Discussion

The management of patients after a severe contact lens related corneal infection is dependent on the patient motivation and medical necessity of contact lens wear after treatment. A resulting corneal scar or penetrating keratoplasty could lead to a rigid gas permeable material and EyeFitPRO is an efficient lens fitting option for post AK. It is important to manage the contact lens cleaning solution recommendations for specialty contact lenses. The CDC recommends no water to rinse contact lenses, but the majority of available rigid gas permeable cleaning solutions recommend rinsing with water. Considerations for cleaning and care regimens should be communicated to contact lens wearers and reviewed at follow up visits.

## Conclusion

AK provides many challenges in diagnosis, treatment, and management.<sup>1,2,3</sup> Visual outcomes vary with the delay of the diagnosis and severity of infection.<sup>1,2</sup> The management post infection may involve specialty contact lenses to fully correct the vision. Patient education on minimizing the risks and care systems is necessary to avoid AK.<sup>1,2,3</sup>

## Acknowledgements

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## References

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