

INTRODUCTION

Rigid gas permeable lenses can improve the quality of vision in patients and can promote positive eye health in comparison to soft lenses. This case demonstrates a patient who experienced distortion and decreased spectacle vision due to scarring and irregular topography caused by culture-positive *Pseudomonas aeruginosa* microbial keratitis attributed to soft contact lens overwear. When refit into rigid gas permeable lenses, his complaints of distortion subsided. Also, the refit into gas permeable lenses provides a lower relative risk for recurrence than continuation of his current soft lens modality.

CASE HISTORY

A 37-year-old Asian male presented in the emergency service complaining of a painful, red left eye. His symptoms also included discharge, photosensitivity, and reduced vision. He reported sleeping in his contact lenses for extended periods and admitted to monthly replacement of his biweekly lenses. He also reported wearing his lenses for extended periods of time and only removing his lenses 4-5 times a month. Systemic history was remarkable for CVA and ruptured aneurysm with remaining gait and cognitive difficulties.

PRESENTATION

Findings	OD	OS
Uncorrected VAs	20/30	20/50+
Biomicroscopy Exam	Unremarkable	<ul style="list-style-type: none"> 2+ injection, diffuse corneal edema, excessive mucous discharge, and 2mm infiltrate with overlying epithelial loss that measured to be greater than 4mm two smaller satellite lesions were noted. 2+ cells and fibrin were observed in the anterior chamber

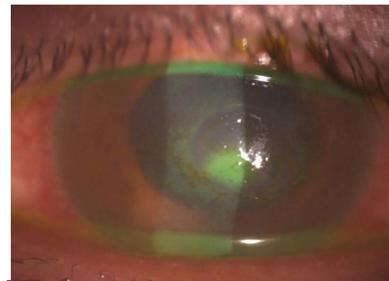


Figure 1. Anterior segment photo of the left eye during initial presentation displays positive sodium fluorescein staining of corneal ulcer

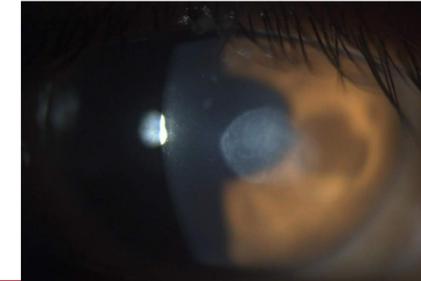
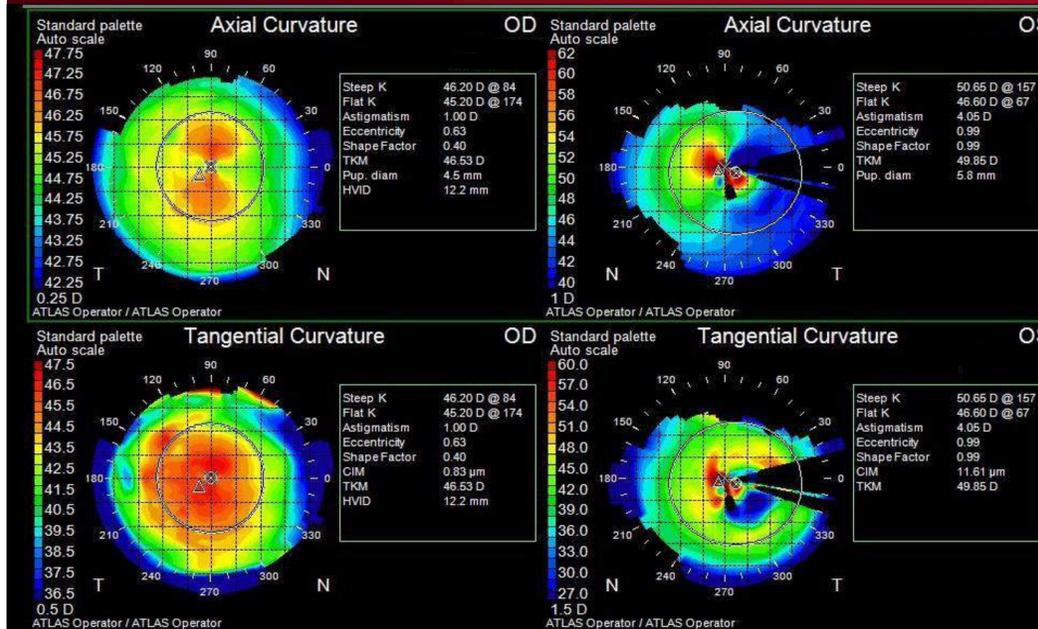


Figure 2. Anterior segment photo of the left eye showing a resolved corneal ulcer by Visit 6

TESTING



Due to the size and the location of the ulcer, the patient's cornea became completely irregular. Topographic images demonstrate the irregularity and GPs were chosen to reduce the patient's symptoms. Using GPs and sclerals for irregular corneas reduce the effects of distortion and ghosting by creating an even, optical surface for light to initially refract through (Barnett, 2017).

RESULTS

The patient returned to clinic 3 months after initially being seen for his corneal ulcer to be refit into gas permeable lenses. He reported better compliance with the care and hygiene of his rigid lenses. He also reported less distortion in comparison to his spectacles and better quality of vision.

Findings	OD	OS
Best Corrected VA with Specs	20/20	20/30+
Spectacle Rx	-3.50 sph	-3.00-0.75x045
Biomicroscopy Exam	unremarkable	Central scarring, no infiltrate, irregular anterior margin
Keratometry (simK)	46.20 @ 84 45.20 @ 174	50.65 @ 157 46.60 @ 67

FINAL CONTACT LENS PARAMETERS

OD	Conforma Sphere GP	7.42 mm BC	9.4mm diam	-3.25 sph	20/20
OS	Conforma Sphere GP	7.55 mm BC	9.4mm diam	-3.00 sph	20/20-

DISCUSSION AND CONCLUSION

Pseudomonas aeruginosa is a common, gram negative rod bacteria. It is a common cause of corneal ulcers and classically produces a painful red eye, thick mucopurulent discharge, and a hypopyon. Risk factors for *Pseudomonas aeruginosa* microbial keratitis include contact lens wear, ocular surface disease, and immunocompromised patients.

Rigid gas permeable lenses are a great modality for improved clarity and hygiene. In addition, they can improve vision in irregular corneas by creating a more regular refractive surface in the presence of central corneal scarring related to microbial keratitis.

REFERENCES

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