

Introduction

Pterygium excision surgery can be performed to address cosmetic problems and reduced vision. However, reduced vision can still remain after surgery due to remaining irregular corneal astigmatism.

This case reviews a 58-year-old Asian male veteran with a history of multiple pterygium excision surgeries in both eyes.

Patient History

Chief complaint: Longstanding blur OU with glasses

Ocular history: Multiple pterygium excision surgeries OD (2x) and OS (3x), mild non-proliferative diabetic retinopathy OU

Medical history: Type 2 diabetes, high cholesterol, post-traumatic stress disorder

Ocular medications: None

Systemic medications: Glipizide, metformin, insulin, gabapentin, venlafaxine

Clinical Findings

Unaided visual acuity: 20/160 OD, 20/125 OS

Manifest refraction:

OD: -5.00+4.25x015 20/30-2 PH: NI
OS: -4.25+2.00x005 20/50-2 PH: 20/40-2

Anterior segment: Mild stromal haze inf-temporally OD and inf-nasally & inferiorly OS

Posterior segment: Mild cataracts, microaneurysms and few dot/blot hemorrhages OU

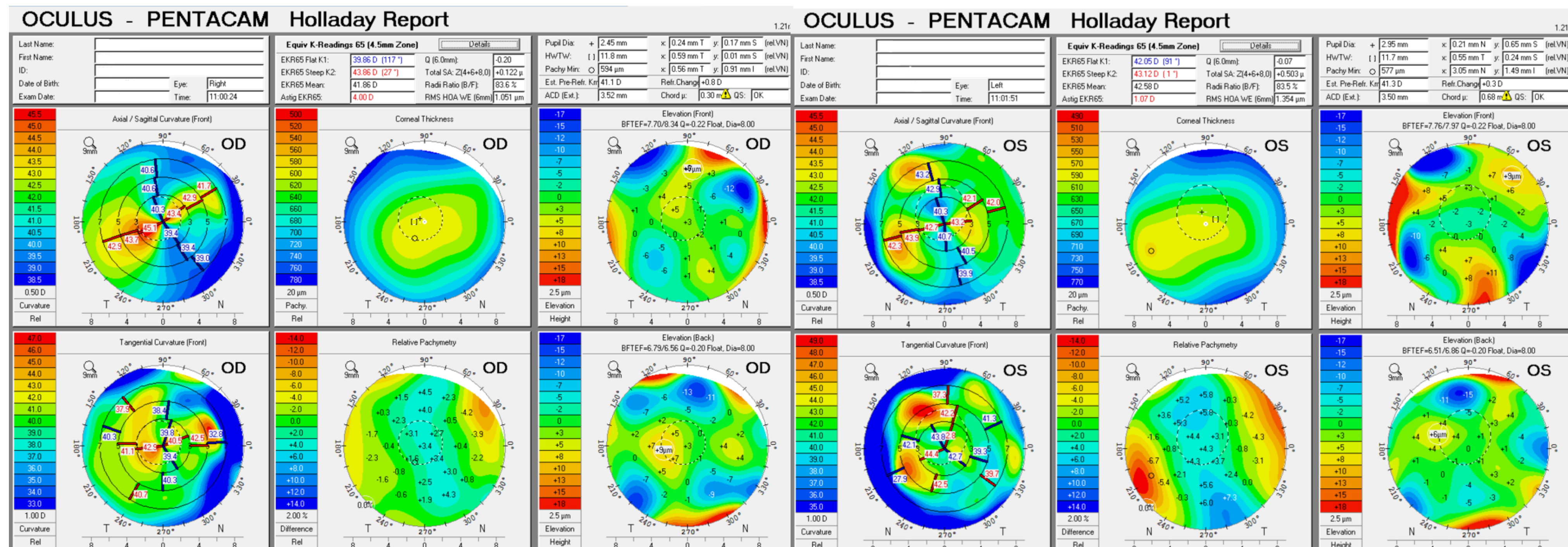


Figure 1. Topography images taken after multiple pterygium excision surgeries in both eyes show irregular astigmatism OS>OD with flattening of the cornea nasally OU. Pterygia typically induce flattening of the cornea, causing irregular astigmatism.

Treatment & Management

The patient previously wore corneal rigid gas permeable contact lenses (RGPs) but discontinued wear due to discomfort and frequent ejection. The patient was refit into the following scleral lenses:

- OD: Valley Custom Stable Elite 4,067/8.65/+0.50/15.8/SL 5,-2 VA: 20/20-2
- OS: Valley Custom Stable Elite 4,067/8.65/+0.50/15.8/SL 5,-2 VA: 20/30+2

Both vision and comfort were significantly improved with these lenses. Despite the peripheral zone of corneal flattening after surgery, the lenses were able to achieve adequate clearance of ~200um over the entire cornea after lens settling.

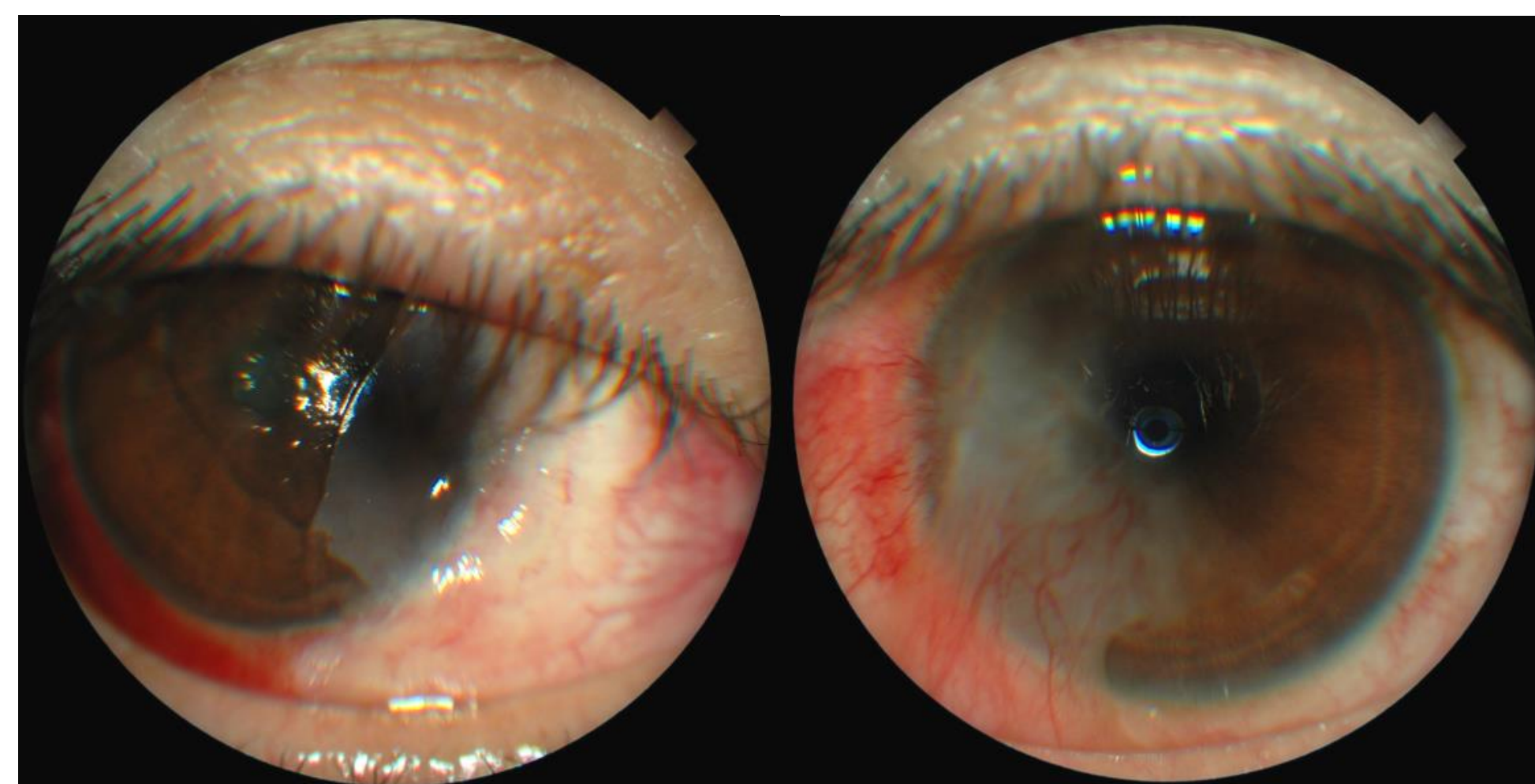


Figure 2. Anterior segment photos post pterygium excision surgery OD (left) and prior to surgery OS (right).

Discussion

Pterygia may cause irregular astigmatism by inducing flattening of the cornea to the leading apex. Induced astigmatism can be caused by mechanical traction exerted by the pterygium on the cornea and pooling of the tear film at the leading edge.¹

Discussion (cont.)

In cases where high corneal astigmatism or significant encroachment onto the visual axis is present, pterygium excision surgery is warranted and can decrease the amount of irregular astigmatism. One prospective study found that surgery reduced corneal astigmatism from 3.47 to 1.29D.²

However, in eyes with advanced pterygia, corneal irregularity is not eliminated completely and can remain if the lesion has reached the paracentral cornea, making timing of the surgery a significant factor in visual outcome.

Conclusion

Pterygium excision surgery, although often successful, can occasionally induce irregular astigmatism when there is a large area of corneal involvement. This can make it difficult to fit post-surgical patients with traditional corneal RGPs. In these cases, scleral lenses can improve stability and vision by vaulting the irregular corneal surface.

References

- Maheshwari S. Effect of pterygium excision on pterygium induced astigmatism. *Indian Journal of Ophthalmology*. 2003;51:187–188.
- Altan-Yaycioglu R, Kucukerdonmez C, Karalezli A, Corak F, Akova YA. Astigmatic changes following pterygium removal: Comparison of 5 different methods. *Indian Journal of Ophthalmology*. 2013;61(3):104-108.

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