

Travis Pfeifer OD, Melissa Levine OD FAAO

INTRODUCTION

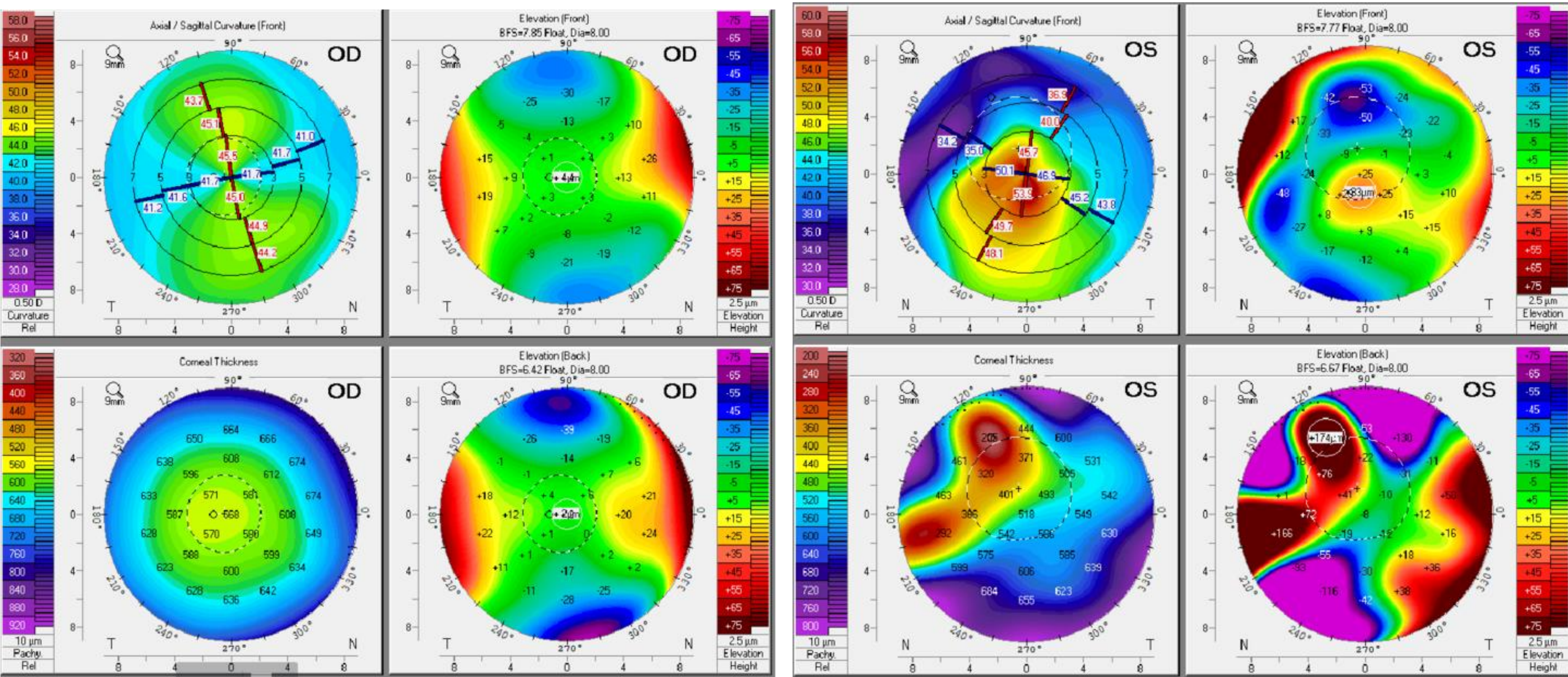
A 7-year-old male presents for evaluation of corneal scar OS. His mother reports that the scar is secondary to either an infection or allergies. It began as a bump on the left upper lid four years prior. She reports his eye was red and noted yellow discharge at the time of infection. His left upper lid then scabbed over, followed by his vision worsening. He was not on any medications and reported no known medication allergies.

CASE PRESENTATION

His entering visual acuities were 20/40 in the right eye and 20/100 in the left eye in glasses. Upon slit lamp evaluation, corneal stromal scarring was noted in an arcuate pattern from the superior-nasal limbus to the pupil on the left eye along with 3mm of corneal neovascularization nasally in the right eye. Refraction revealed amblyogenic high astigmatism OU. Corneal sensitivity testing with a cotton tip wisp revealed normal sensitivity OD and decreased sensitivity OS. Based on the history and presentation, the scarring was presumed to be secondary to herpetic stromal keratitis. Topography showed high regular astigmatism OD and irregular astigmatism OS correlating with the corneal scarring. The patient also had scarring on his upper left lid that correlates with the herpetic infection.A rigid gas permeable contact lens (GPCL) was trialed OS in-office with improvement in VA from 20/100 to 20/60. A bitoric GPCL was ordered empirically for the right eye and a spherical GPCL was ordered for the left eye. Best corrected VA in GPCLs was 20/30 in the right eye and 20/40 in the left eye. After adaptation, the patient's best corrected vision OD improved to 20/25.

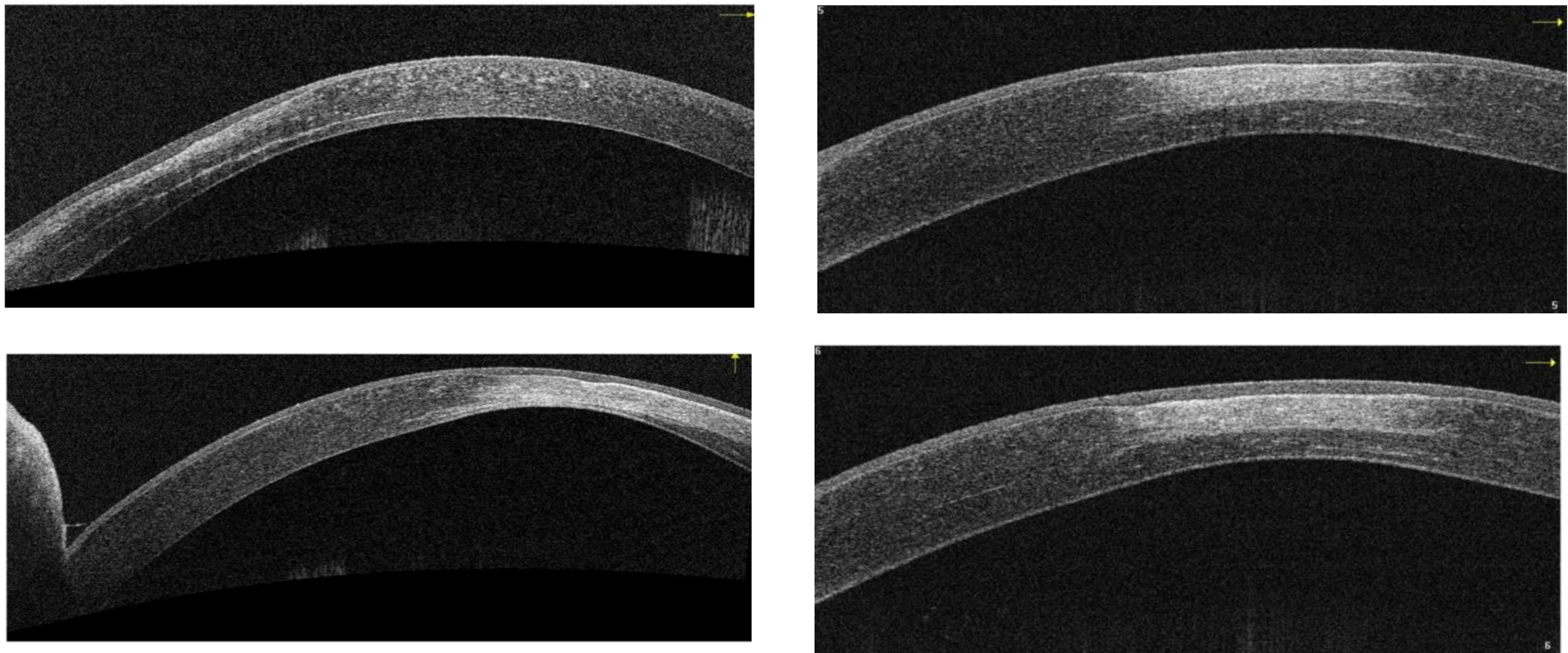


Fundus Photography showing posterior staphyloma OD and OS



Pentacam Tomography OU

Exam Findings		
	OD	OS
Manifest Refraction	+1.50 -2.50 x 010	-2.25 -2.25 025
BCVA with spectacles	20/40	20/70
Slit Lamp Evaluation	<ul style="list-style-type: none">normal endothelium, epithelium, stroma and tear film	<ul style="list-style-type: none">arcuate scarring through superior visual axis 10mm horizontal x 4mm vertical with neovascularizationscar upper eyelid 2^ HSV infection
Pentacam Tomography Keratometry	41.6 / 45.3 @ 97.0	48.7 / 50.0 @ 106.8
Dilated Fundus Examination	<ul style="list-style-type: none">Unremarkable	<ul style="list-style-type: none">Unremarkable



OCT Images showing corneal scarring OS

TREATMENT AND MANAGEMENT CONSIDERATIONS

When fitting children with contact lenses, providing the best opportunity for visual development essential; therefore, all contact lens options must be explored. Our patient was a great candidate for corneal GP lenses for multiple reasons. Given the left eyes corneal scarring a corneal GP will serve to create a spherical primary refracting surface while also correcting his refractive error and provide him best vision. Given his elevated corneal astigmatism that matches with his refractive astigmatism on the right eye, a bitoric corneal GP is a great option to correct his refractive error. This also will lead to him wearing a corneal GP in both eyes that will help with adaptation and comfort. As he continues to age, the correction from the corneal GP’s will allow his visual system to develop more normally. A highly oxygen permeable material, Optimum Extra (DK 100), was selected to ensure good corneal health. Given the corneal neovascularization, maximizing oxygen transmission is important in a child who will be wearing contact lenses for many years to come.

Daily wear corneal GPs are a safe and effective way to correct pediatric patients provided proper care is taken by the patient and their parents. The patient and his parents were educated on the signs and symptoms of a potential recurrence such as redness, new vesicles, ocular pain or photophobia and advised on the importance of treating quickly if noted.

Contact Lens Parameters		
	OD	OS
Brand	X-Cel	X-Cel
Design	Visions™ Bitoric	Visions™ Spherical
Base Curve	8.13 mm / 7.58 mm	7.34mm
Rx	+1.25 / -1.75	-4.75 Sph
Diameter	9.00 mm	9.00 mm
Material	Optimum Extra	Optimum Extra
Color	Green	Blue
Visual Acuity	20/25	20/50

CONCLUSIONS

Managing this patient's reduction in visual acuity in a timely fashion was extremely important because this patient was still in the critical period of visual development. Due to the irregularity of the surface of his left cornea, spectacles or soft lenses would likely not improve vision to the greatest extent. A rigid contact lens is the best option to provide the best quality of vision. While it would have been possible for this patient to only wear a GPCL on the left eye, the comparison between the eye with the GPCL and the eye with no contact lens may impair adaptation. Also based on his high corneal astigmatism in the right eye, a bitoric GPCL will provide him with better quality of vision compared to spectacles or soft contact lenses. While some practitioners may be hesitant to fit a child in a rigid lens, numerous studies show that children can adapt to GPCL which may provide optimal visual correction while maintaining a good safety profile ^{4,5}. For our patient, wear time was gradually increased which allowed him to adapt to the lenses and tolerate daily wear with optimized vision. It is particularly important to monitor this patient closely to ensure there is no recurrence. While not on an antiviral long-term, the patient’s parents have been educated that this may be necessary in the future.

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