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INTRODUCTION

It is estimated that the global incidence of Herpes Simplex virus (HSV) keratitis is 1.5 million individuals per year, with 40,000 of these individuals developing severe visual impairment¹. Pediatric cases of HSV keratitis are often more complicated than adult cases due to their high rates of misdiagnosis, stromal involvement, and variable effective doses of medication². As a result, these patients have a significantly higher risk of developing long-term complications, most notably visually significant corneal scarring and neovascularization³. Traditional management includes oral and topical medications to prevent recurrence and penetrating keratoplasty of significant scarring or neovascularization⁴. Few studies have explored the use of specialty contact lenses as a less-invasive, adjunctive treatment option in pediatric cases of HSV keratitis scarring.

Case Description

An 11-year-old Black male presented with an 8 mm round, anterior stromal, central corneal scar OD secondary to untreated HSV keratitis. He was referred for contact lenses as he is not a candidate for corneal transplantation due to the severity of his corneal neovascularization. Manifest refraction was +9.25 sph OD, BCVA 20/100, and plano OS, BCVA 20/20 OS. Topographies demonstrated a highly irregular and flat cornea OD. As a result, a diagnostic specialty contact lens fitting was initiated.

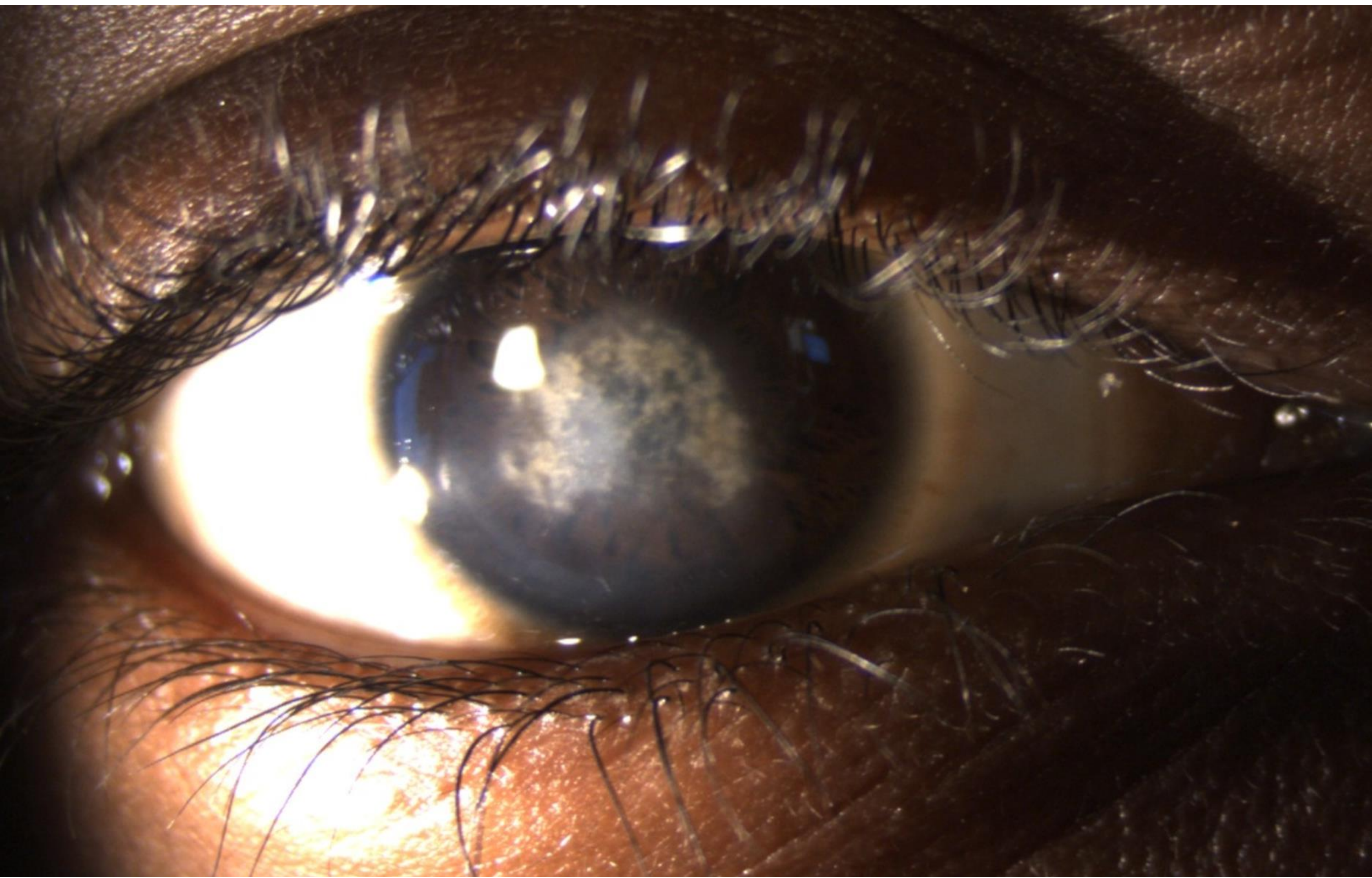


Figure 2: slit lamp photograph of the patient’s right eye

Specialty Lens Fitting

A diagnostic lens fitting with gas permeable and hybrid lenses was initiated for the right eye, but unsuccessful, due to poor comfort and fit. As a result, a mini-scleral was empirically ordered. Due to the highly irregular corneal topography and small diameter lens, many challenges arose in the fitting process: excessive lens movement, persistent areas of mid-peripheral touch, and even manufacturing limitations. Steepening of the lens edges and considerable flattening of the base curve eventually stabilized the fit. Though a small persistent area of superior-nasal mid-peripheral touch remained, the cornea was not compromised and the patient was asymptomatic with limited wear-time and timely follow-ups. The patient was successfully fit with BCVA 20/50- OD.

The patient wears his lenses at school for six hours a day. He reports significant improvement in vision and a lower frequency of eye turn OD with lens wear.

	Prescription	Diameter	Base Curve	Sag	Edge
Initial Lens	-0.25 sph	14.8	8.04	3300	STD
Lens 2	-0.25 sph	14.8	8.04	3300	STP2 V, STP5 H
Lens 3	+3.25 sph	14.8	8.66	3300	STP2 V, STP5 H
Final Lens	+9.25 sph	14.8	9.79	3300	STP2 V, STP5 H +0.75 LIMBAL

Table 1: Lens Parameters of Scleral Lens Fitting

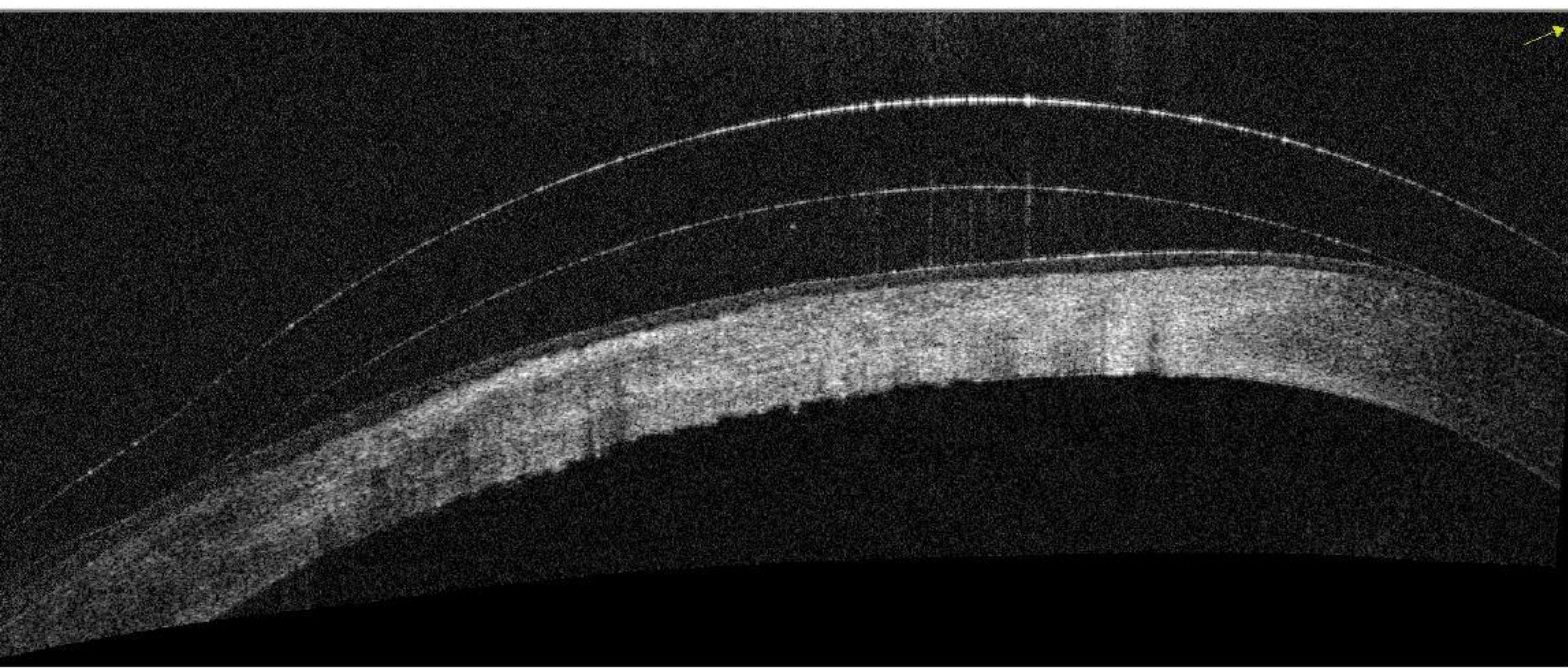


Figure 3: anterior segment OCT of Lens 3, demonstrating mid-peripheral and limbal scleral touch

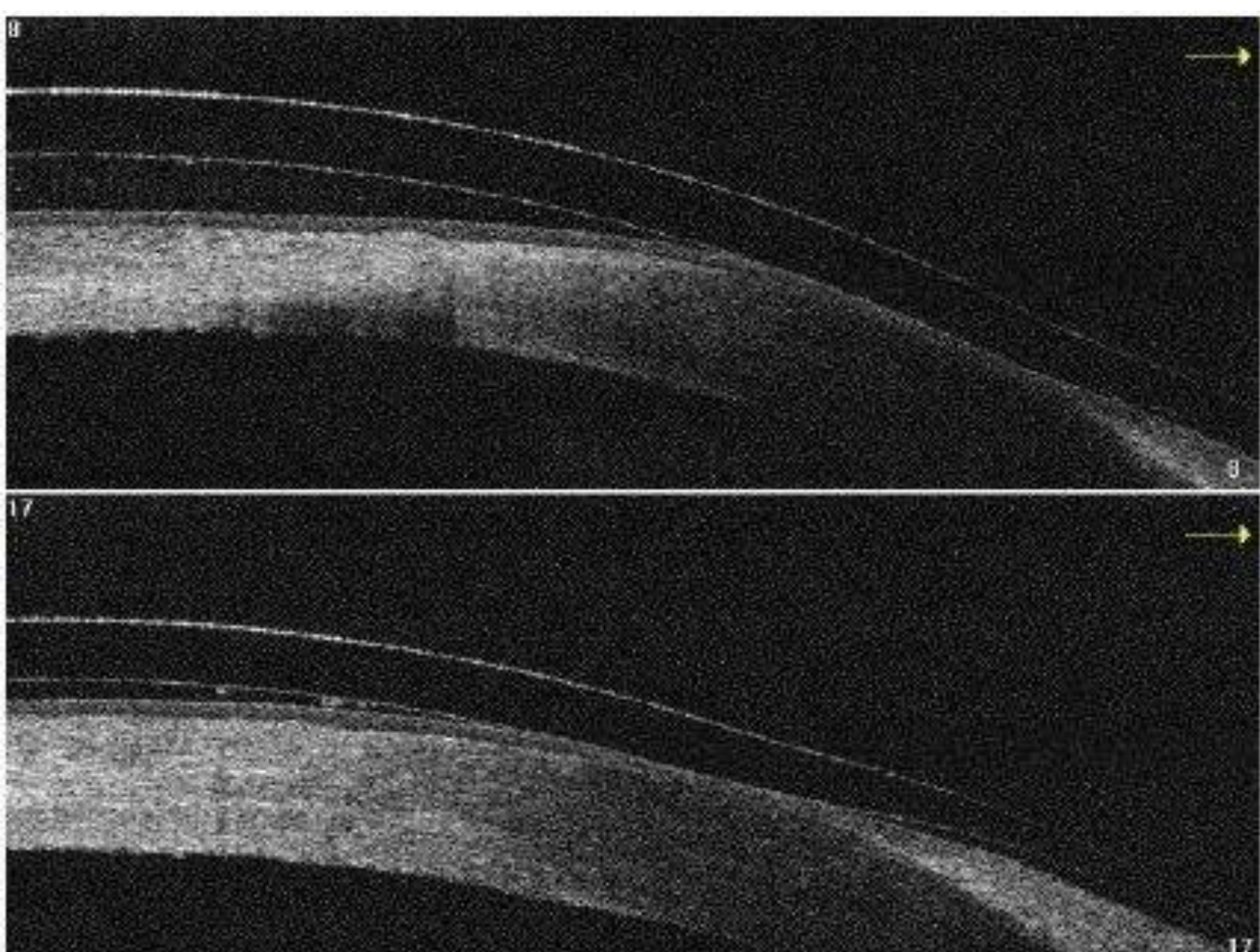


Figure 4: anterior segment OCT of Lens 3 (superior nasal quadrant), demonstrating mid-peripheral and limbal touch

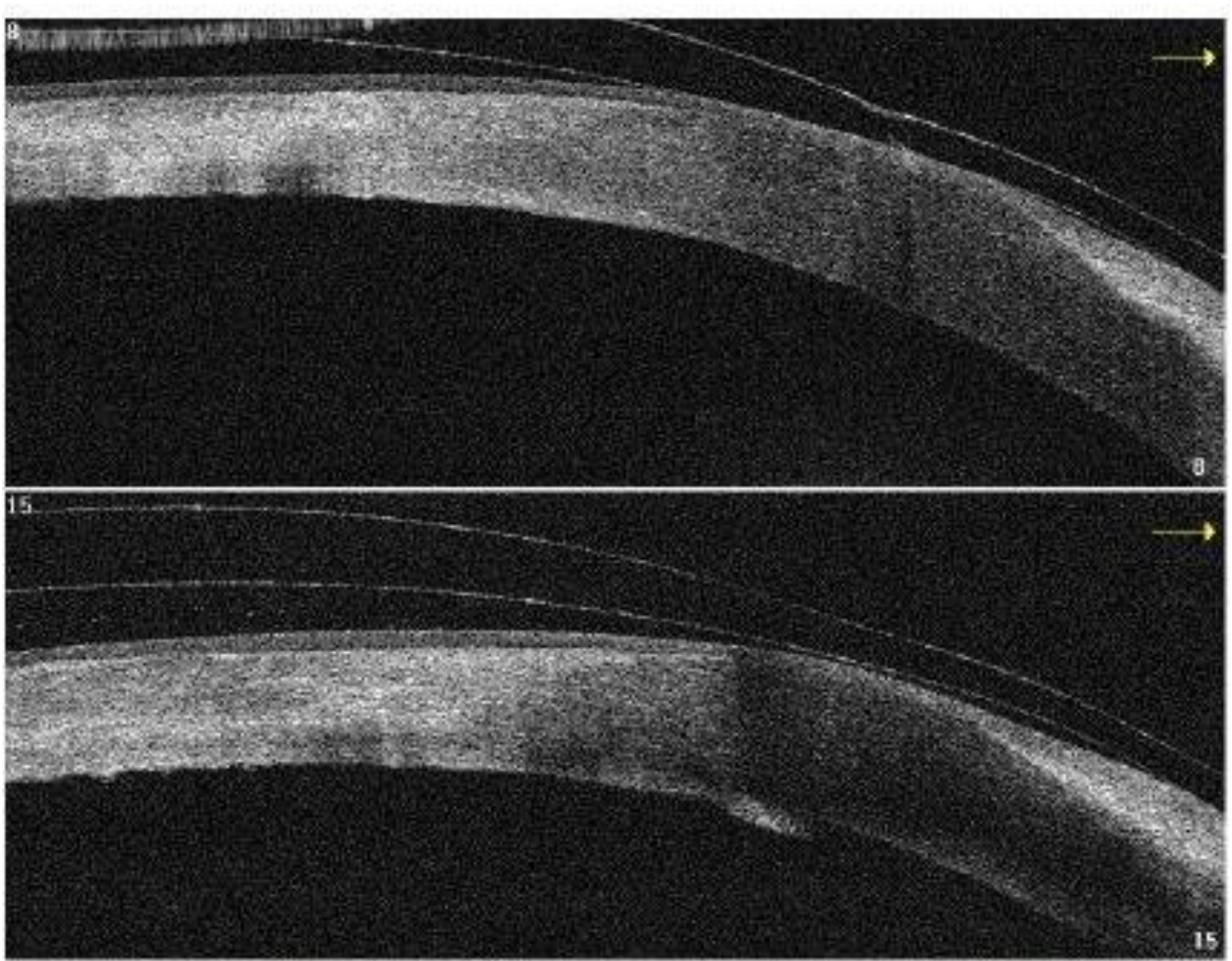


Figure 5: anterior segment OCT of Final Lens, demonstrating improved mid-peripheral and limbal clearance

CONCLUSIONS

Current treatment options for pediatric cases of HSV keratitis scarring and neovascularization are limited to medical management and a penetrating keratoplasty⁴. Main indications for intervention with penetrating keratoplasty are to improve vision and reduce susceptibility of amblyopia⁵. However, pediatric cases of penetrating keratoplasty have higher rates of complications including graft rejection and variable final outcomes⁶. A less studied treatment option for these patients is specialty contact lenses. Factors to consider when fitting the pediatric population in specialty lenses include age, patient/parent motivation, HVID, corneal topography, and co-management with corneal specialists. Ultimately, a well-fitting specialty contact lens is a less-invasive treatment option that can evidently improve vision and potentially reduce susceptibility of amblyopia in certain patients.

This case is a clinical reminder to assess all patients, including children with corneal scars, for specialty lens candidacy. Though often overlooked, the pediatric population may arguably benefit most given their developmental status and susceptibility to amblyopia.

REFERENCES

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