

## PURPOSE

Scleral lenses can be successfully used to correct refractive error in patients with irregular corneal astigmatism. They are also a viable option for patients with history of corneal transplant. The increased size of the lens and vault over grafted tissue protects the graft-host junction and the limbal stem cell zone. In this case report a patient with high amounts of irregular corneal astigmatism secondary to corneal patch grafts was fit with scleral lenses resulting in improved vision.

## HISTORY

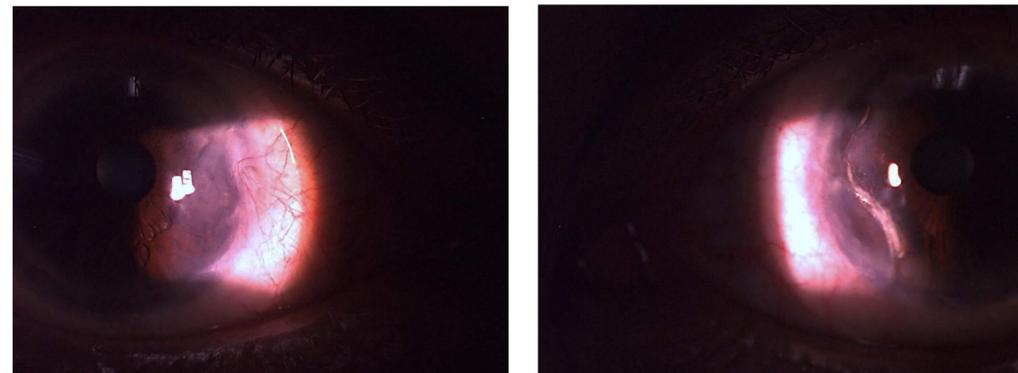
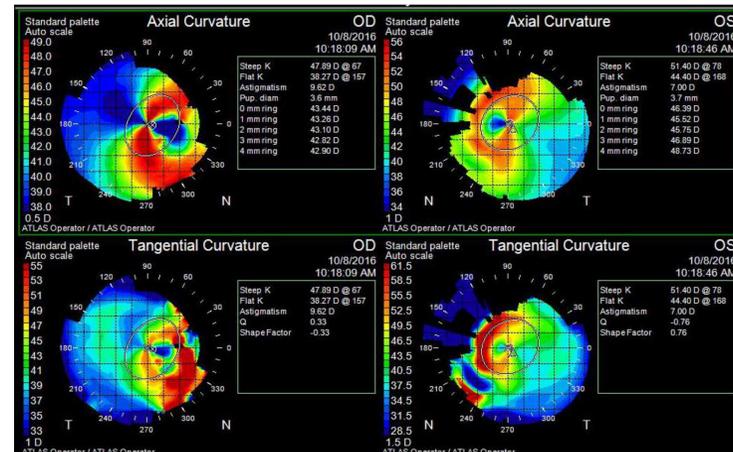
A 68 year old African American patient was referred to the corneal specialist with the complaint of blurred vision in his spectacles for years after having bilateral patch grafts due to corneal perforation. Corneal perforations were secondary to peripheral ulcerative keratitis OU.

## EXAMINATION

**Medical History:** Hypercholesterolemia  
**Ocular History:** Bilateral corneal patch grafts s/p corneal perforations 20 years ago, 1 year apart between OD/OS  
**Contact Lens History:** Patient has never worn contact lenses

Findings	OD	OS
Best Corrected VA	20/30+	20/40+
Spectacle Rx	+1.50-6.50x142	Plano-8.50x165
External Evaluation	Normal	Normal
Biomicroscopy Exam	Nasal patch graft with areas of corneal thinning, (-) sutures or infiltrates	Nasal patch graft with areas of corneal thinning, (-) sutures or infiltrates
Keratometry (simK)	47.89 @ 067 38.27 @ 157	51.40 @ 078 44.40 @ 168

## TESTING/IMAGING



- Corneal topography shows irregular cornea with large amounts of irregular astigmatism OU
- Slit lamp exam with trial contact lenses shows good clearance over the graft tissue, good central clearance, and appropriate edges without blanching.

## CONTACT LENS FITTING AND RESULTS

OD	AVT Scleral Design	8.44mm BC	4487 micron SAG	Med PC	16.1mm diameter	+2.00DS 20/20
OS	AVT Scleral Design	7.50mm BC	4732 micron SAG	Med PC	16.1mm diameter	-3.25DS 20/20

The patient has become a successful scleral lens wearer with improved acuity and visual symptoms compared to his spectacle vision. He subjectively reports improved clarity of his vision. Evaluation of his corneas reveals maintained integrity of grafts as well as corneal tissue.

## DISCUSSION AND CONCLUSION

Often times patients with corneal disorders and dystrophies are forced to undergo corneal transplant surgery to give the best opportunity for a more uniform and clear cornea in order to achieve the best vision possible. However, these patients often have refractive error post-surgery and require correction. It is estimated that 47% of patients who undergo corneal transplantation surgery will require contact lenses to alleviate post-surgical astigmatism.

In this case report the patient was unique in the fact that he did not have full penetrating keratoplasty, instead having nasal patch grafts. As evident by the corneal topography the patient was left with high amounts of irregular astigmatism that could not be fully corrected with spectacles. While corneal gas permeable lenses are often the first line of treatment for these patients it is sometimes not plausible due to poor centration and fit due to corneal irregularities.

Patch grafts create centration difficulties with corneal GP lenses that can impact the graft-host junction. With the proper fitting of scleral lenses, we have a better chance to create a smooth refractive surface while ensuring protection of the underlying tissue through the increased diameter and vaulting of this contact lens technology. With scleral contact lenses we have the ability to control the sagittal depth of the lens to ensure there is an appropriate amount of clearance between the cornea and graft tissue and the lens. It is also important when fitting these lenses to make sure there is not excess clearance which can lead to a hypoxic cornea and risk of graft rejection. Close monitoring is important when fitting post-transplant patients to ensure they do not develop corneal edema, hypoxia, or possible transplant rejection.

## REFERENCES

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