

Case Report:

Unique Scleral Lens Fitting for Buphthalmos

Dr. Aaron Wolf

Dr. Aaron Wolf received his Bachelor of Arts from Baylor University before earning his Doctor of Optometry degree from the University of Houston in 2009. He is the owner of Austin Optometry Group, a private practice in Austin, Texas. His practice focuses on ocular surface disease and specialty contact lenses including scleral lenses and orthokeratology. Dr. Wolf provides topography-designed corneal, scleral, and orthokeratology lenses, impression-based lenses, and custom HOA correcting lenses.



Introduction

The patient, white male 45 years old, was interested in contact lenses to avoid spectacles fogging from facemask, which is now so apparent due to mask wear (COVID measures). He has infantile glaucoma, buphthalmos, Haab's striae, and iridectomy (at age 2). He previously dropped out GP and soft lenses due to discomfort and poor fitting. Spec prescription: OD +1.50-1.25x179 Add 2.25 VA 20/40
OS +5.00 -5.25x87 Add 2.25 VA 20/40

Background

Buphthalmos is a general term for an enlarged eye. It is usually a symptom of childhood glaucoma, which tends to develop within the first year after birth. Buphthalmos can be very challenging to fit, due to the large HVID and oblate nature of the eye, but a scleral lens can be beneficial, as the eye will be protected against dryness.

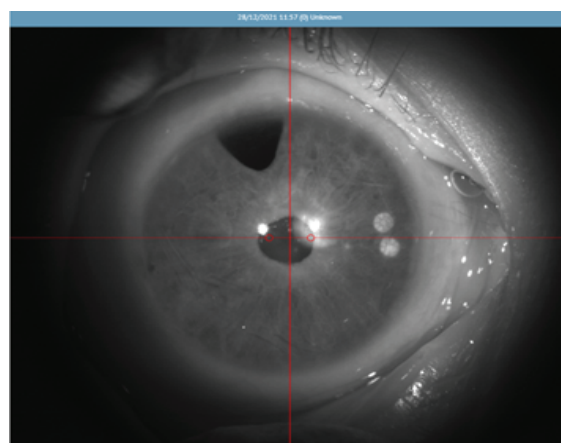


Figure 1 Eye Surface Profiler: Source image.

Profilometry Measurements

Both eyes have a HVID over 15 mm. The Eye Surface Profiler or ESP (Eaglet Eye, Houten, The Netherlands) is able to take a measurement of up to 20mm in diameter in a single shot with no stitching or data extrapolation. This is of utmost importance in order to get enough information about the scleral shape, especially by these abnormally large corneal diameters.

The height data gathered by the ESP showed flat corneal K-readings and a steep sclera (see Figure 2). The scleral lens Onefit MED+ (CooperVision Specialty EyeCare) was selected because of its large primary functional diameter. Once the measurements were taken, the ESP's DirectConnect™ option was used to send the data to the Onefit MED Fitting Tool. Powers were determined through the ESP online calculator.

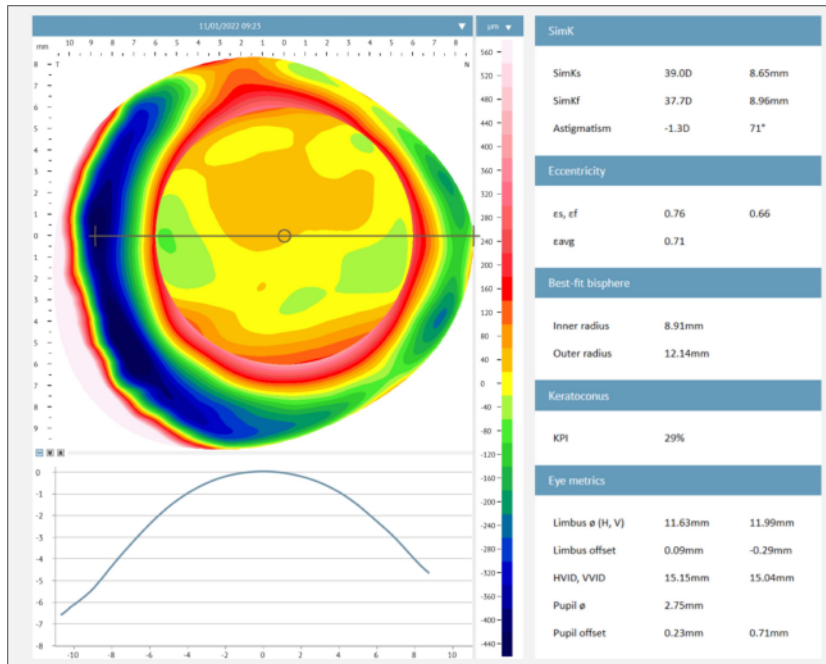


Figure 2 ESP Bisphere elevation map and Eye metrics.

General

Fit axis (°)

Lens

Supplier

Type

Diameter

Fit:

Edge 1

Edge 2

DirectConnect

Onefit
SCLERAL LENS PLATFORM

Figure 3 DirectConnect for lens ordering.

Lens Fitting

The initial lenses ordered (mono vision):

OD BC 8.69 Dia. 17.00 +2.62 SAG 4850

OS BC 8.69 Dia. 17.00 +3.62 SAG 5000

showed good central and mid-peripheral clearance, but had some limbal bearing, and edge lift. A second pair of lenses was reordered, with higher limbal clearance and steeper edges, to achieve proper alignment and limbal vault:

OD BC 8.82 Dia. 17.00 +3.62 SAG 4900 VA 20/40+ (*distance*)

OS BC 8.43 Dia. 17.00 +2.50 SAG 5100 VA J2 (*near*)

After 6 months of wear (Figure 4) he is very happy with the comfort and the vision the lenses are giving him. He wears the lenses for up to 16 hours without a problem.



Figure 4 Six months after scleral lens fit.

Conclusion

As patients with Buphthalmos are generally at higher risk for more complex ocular complications, a successful scleral lens fit can be life-changing. This could have been a very challenging fit but thanks to the accuracy of the ESP measurements and the experience of the fitter, the number of refits was kept to a minimum.