

Case Report:

Fitting Keratoconus with Scleral Lens

Dr. Barry Leonard

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Introduction

This is a new lens fit for the left eye. Patient was presented with a VA of 20/250 wearing glasses. She came in for a scleral lens fitting with the aim to get better visual acuity. The patient is diagnosed keratoconus and has a highly irregular cornea. In addition the patient was presented with a cataract (grading +2) which is causing decreased vision as well. The right eye has a failing graft and can not be fitted at this time.

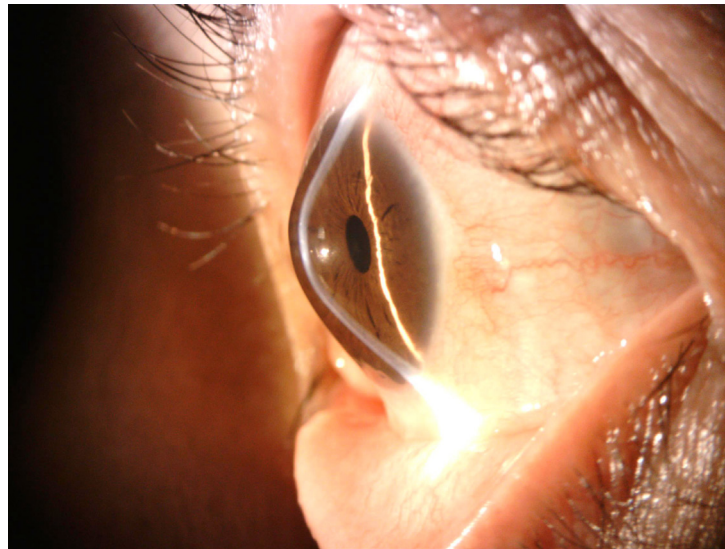


Figure 1

Profilometry measurement

A height map was gathered from the eye using the Eaglet-Eye, Eye Surface Profiler (ESP), The Netherlands. At the top of the conus there was an elevation marked of 216 microns. This implies that this keratoconus is 216 microns higher than the normal sphere of the cornea. As you can see in the image the conus is decentred temporal superior. The graphic underneath the image is visualising the abnormal shape as well.

Looking at the scleral shape we can conclude that scleral toricity is present as well. Having a more blue overlay vertically and a more red overlay horizontally would indicate astigmatism following the rule.

Lens Order

The first ordered Zenlens was based on the ESP algorithm for a 16 prolate lens design. As expected it is incorporating the scleral toricity.

First lens ordered based on the ESP algorithm:

Zenlens prolate 16 / Sag 48000
/ Flat 6 / Steep 4

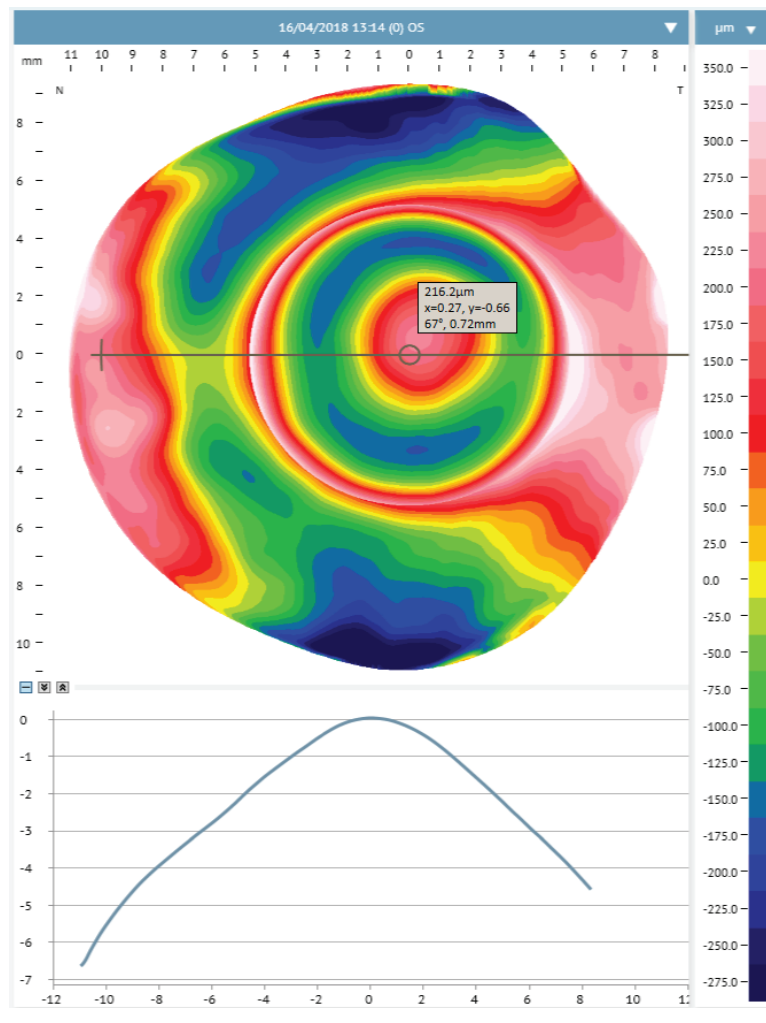


Figure 2

Lens Fitting

The first ordered lens is visualised below, first fit was the final fit. As you can see there is still a tear layer in between the top of the conus and the scleral lens after settling. There was no central touch, blanching / impingement or decentration present.

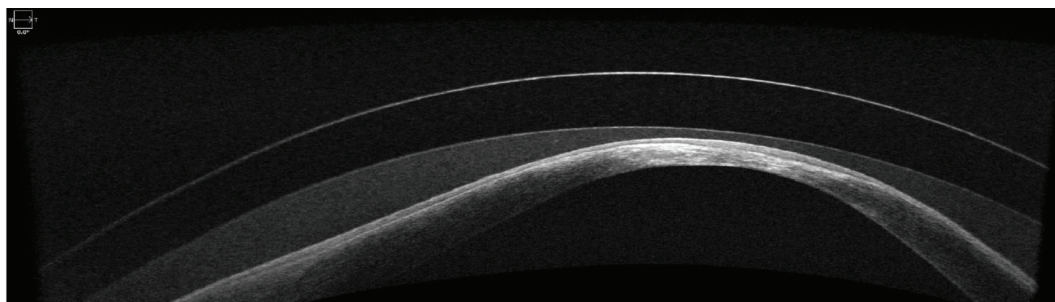


Figure 3

Conclusion

With the first fitting lens we achieved 20/70 vision which is still reduced due to a presented cataract. First fitting lens was the final lens. Profilmometry can help estimate the right fitting lens through their algorithms. The measured data can visualise the exact height and location of the keratoconus.