

# Case Report:

## Scleral fit on post Radial Keratotomy eye

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Dr. Tom Arnold has a private group practice in Sugar Land, Texas. With a long-standing interest in specialty contact lenses, he is a Fellow of the Scleral Lens Education Society and was one of three winners of the photo contest at the 2017 Global Specialty Lens Symposium. He has been a consultant for and spoken on behalf of Blanchard Lab, Bausch + Lomb Specialty Vision Products, Boston Sight Sclerals, EyePrint Prosthetics and AccuLens. Dr. Arnold is adjunct faculty at the University of Houston College of Optometry.



### Introduction

A 45-year-old woman presents for a contact lens evaluation. She had undergone radial keratotomy twenty years before. Her chief complaints were poor night vision, especially when driving, starburst and reading in conditions of low light and dry eyes. Her current spectacle refraction: Right eye S plano, Left eye S-0.75 C-0.25 x 103 addition +1.00. Corrected visual acuity RE 20/25 (logMAR 0.1) and LE 20/30 (logMAR 0.18).

### Profilometry Measurement

Profilometry directly measures 3D sagittal height, and creates a bi-sphere elevation map which shows where data is more elevated or depressed.

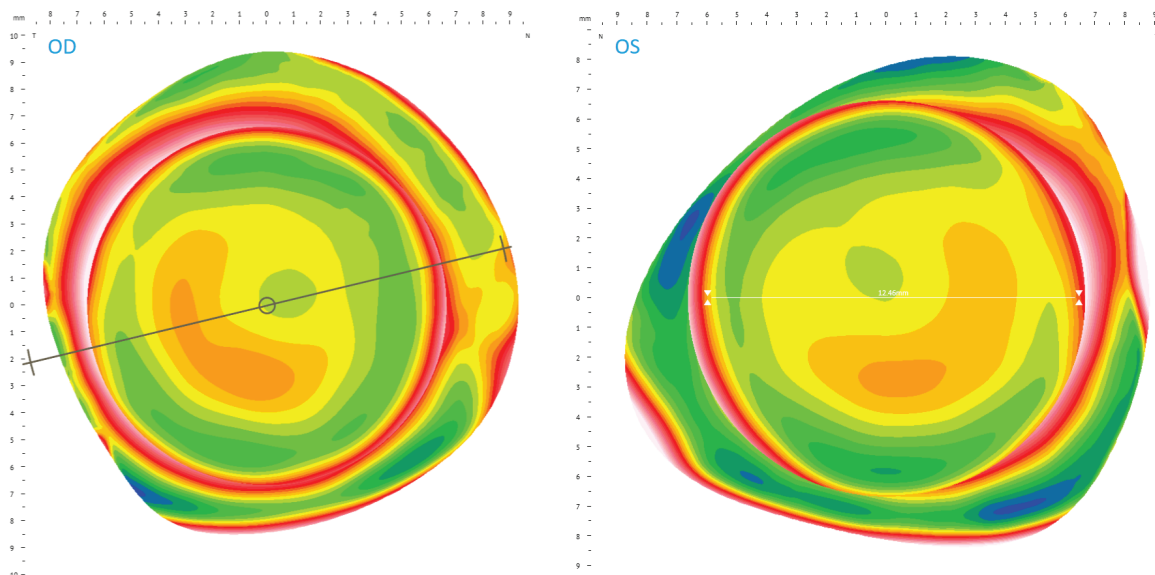


Figure 1

# Lens Fit and Order

Based on scleral mapping from the Eye Surface Profiler (ESP) (Eaglet-Eye, Houten, NL). Trial lenses were selected using the first lens fit algorithms provided by the ESP to determine edge toricity and sagittal height of the lens. The algorithms predict for both eyes a SAG 4500 and spherical landing zone (Edge) with the standard peripheral shape. The predictive algorithm of the Onefit MED allows a scleral SAG toricity of 150 microns before recommending a toric fit. This is in accordance with the lab recommendations. Both eyes

Sagittal height OD			Sagittal height OS		
Fix rotation	✓		Fix rotation	✓	
Chord length	16.00	✓	Chord length	16.00	✓
360°	4.27mm	36.3°	360°	4.23mm	39.5°
MINsag	4.19mm	@103.0°	MINsag	4.15mm	@61.0°
MAXsag	4.34mm	@65.0°	MAXsag	4.28mm	@179.0°

Figure 2

The following trial lenses were selected from the Blanchard Onefit Med diagnostic set:

RE: 16mm / Sag 4500 / plano / toric haptic -75/-75

LE: 16mm/ sag 4600 / -0.50 / toric haptic +75/-75

After examining the trial lenses at the slit-lamp after settling for approximately 30 minutes, modifications were made. CCR was included to create a better uniform tear layer in the mid-periphery. Used CCR values are 110. CCR introduces a reduction in the total SAG of the lens. The CCR number has to be compensated in the ordered SAG.

## Final Order

RE: 16 mm SAG 4700 / CCR 110 / S-2.37 / toric haptic std / -100

LE: 16 mm SAG 4750 / CCR 110 / S-1.87 / toric haptic +75/-75

The final order shows a nice combination of the use of technology as well as the practitioner customizing the fit reducing the number of trials and dispensed lenses. In this case the final SAG has been updated due to the inclusion of the oblate CCR requiring an update of 150 microns of SAG. The edge (landing zone) has been ordered with toricity aiming for a sealed fit which helps to achieve better centration where lab recommendations are aiming for a near-sealed fit.

## Conclusion

Fitting an oblate cornea with scarring can be challenging. The Eye Surface Profiler can help to select the initial trial lenses which are close enough to the final RX so that multiple trials are avoided. Thus, chair time is reduced and the patient experience is enhanced.

