



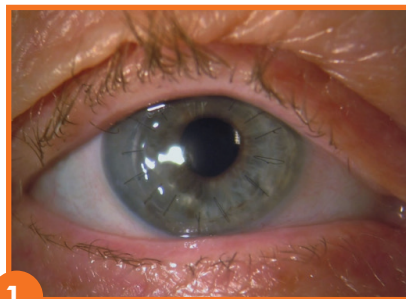
by: Greg DeNaeyer, OD

A 73-year-old female patient with Granular Corneal Dystrophy and s/p PKP presented with decreased vision. Visual acuity of the right eye was 20/60 (triplopia) with an MRx of: +6.00 -4.00 x 167. Slit lamp examinations shows a clear corneal graft (figure 1). Corneo-scleral mapping with the sMap3D shows this patient has 2 diopters of oblique scleral toricity (Figure 2).

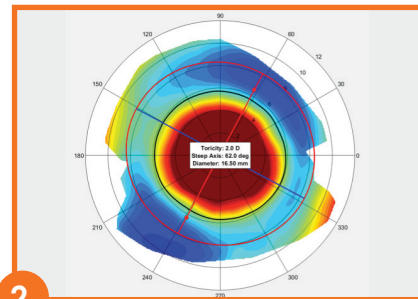
sMap Pro fitting software demonstrates the best fit Europa with standard design parameters. For this case, excessive corneal clearance results secondary to the oblate geometry of the patient's graft (Figure 3). An adaptive function of the software is able to adjust the lens geometry of the Europa lens to achieve both acceptable corneal and mid-peripheral clearance.

For this case, 11 diopters of reverse geometry allows the lens to evenly clear the entire corneal surface without excessive central vault (Figure 4). The designed Europa lens has 2 diopters of back surface haptic toricity, which was customized from the sMap3D measurement (Figure 5 and 6). Anterior segment OCT reveals roughly 305 microns of central clearance (Figure 7). The patient's vision measured 20/20 with the final lens.

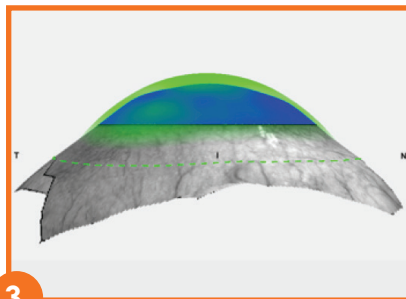
This case illustrates the use of the sMap3D as a method of designing the Europa scleral lens on complex corneas. Virtually fitting the lens on a 3 dimensional model of the patient's anterior ocular surface avoids multiple individual stepwise changes and remakes, simplifying scleral lens fitting and significantly reducing chair time.



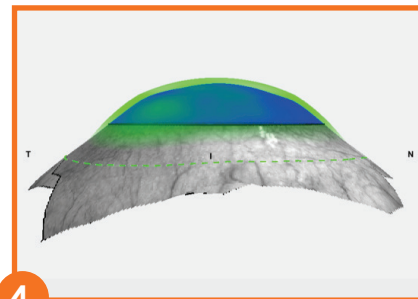
1. Anterior segment photo of patient s/p PKP



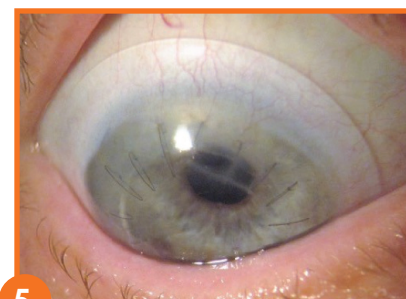
2. sMap3D report scleral elevation – note the scleral toricity of 2.0 D



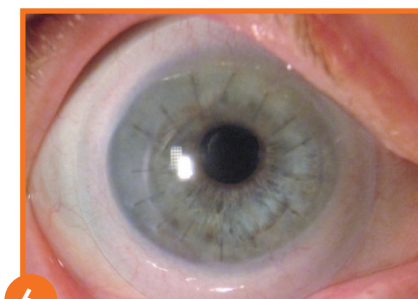
3. Simulated fluorescein pattern of Europa 16.5mm lens generated by sMap3D



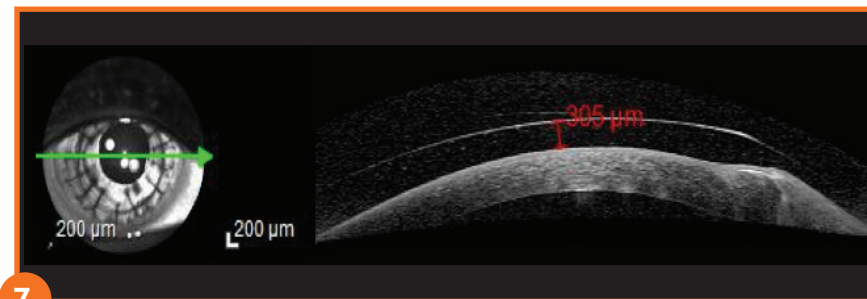
4. Simulated fit of Europa 16.5mm adaptive fit lens generated by sMap3D to the anterior surface of the eye



5. Anterior segment photo of the lens at follow up with 2.0D of back surface haptic toricity



6. Anterior segment photo of the lens at follow up



7. AS-OCT of the dispensed lens

