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# USE OF FOURIER DOMAIN PROFILOMETRY TO OPTIMIZE FULLY SCLERAL LENS FITTING: A CASE REPORT


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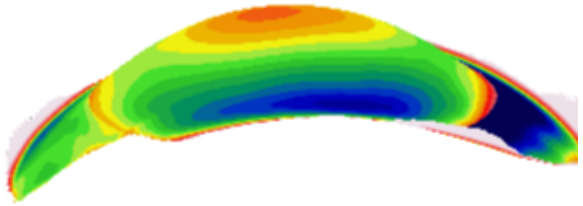

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- We report the case of a 35-year old woman diagnosed with keratoconus since she was 18 years old and wearer of corneal rigid contact lenses (CL) (Figure 1)

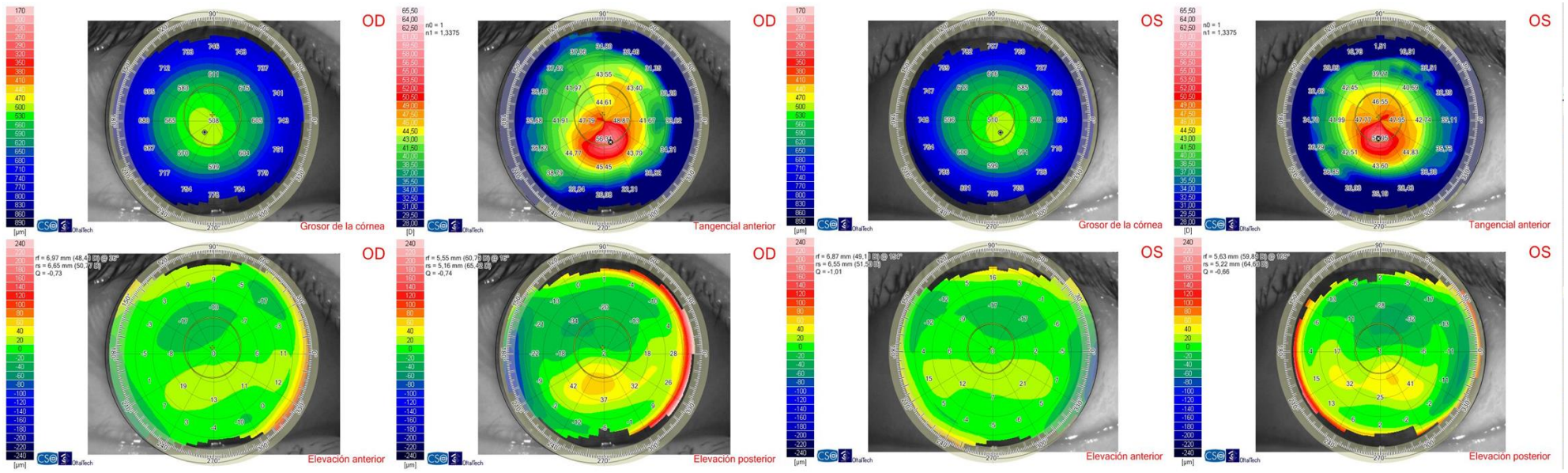


Figure 1.- Corneal analysis with the Sirius system in the right (four maps on the left) and left eyes (four maps on the right) of the case reported. Each analysis consisted of four maps displaying different type of information from the cornea analyzed: pachymetric map (top left), tangential topographic map (top right), anterior elevation map (down left), and posterior elevation map (down right).

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- We refitted the case with the fully scleral CL ICD16.5 (Paragon Vision Sciences) for obtaining not only a successful visual restoration, but also a comfortable wear
- We initiated the fitting with the spherical model of the CL, but it failed due to instability of the lens (Figure 2)
- We confirmed the presence of a clear asymmetry of the anterior scleral geometry in both eyes by using the profilometer ESP (Eye Surface Profiler, Eaglet Eye), with a difference between nasal and temporal sagittal heights of 470 and 170 µm in right and left eyes, respectively (Figure 3)

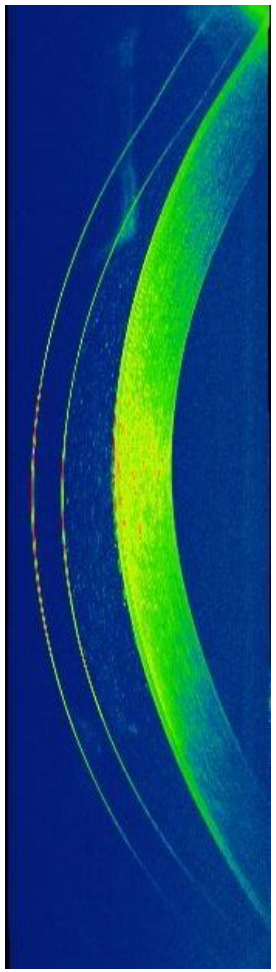

Figure 2.- Optical coherence tomography (OCT) analysis of the initial spherical scleral lenses fitted. As shown, there was an asymmetric meniscus.

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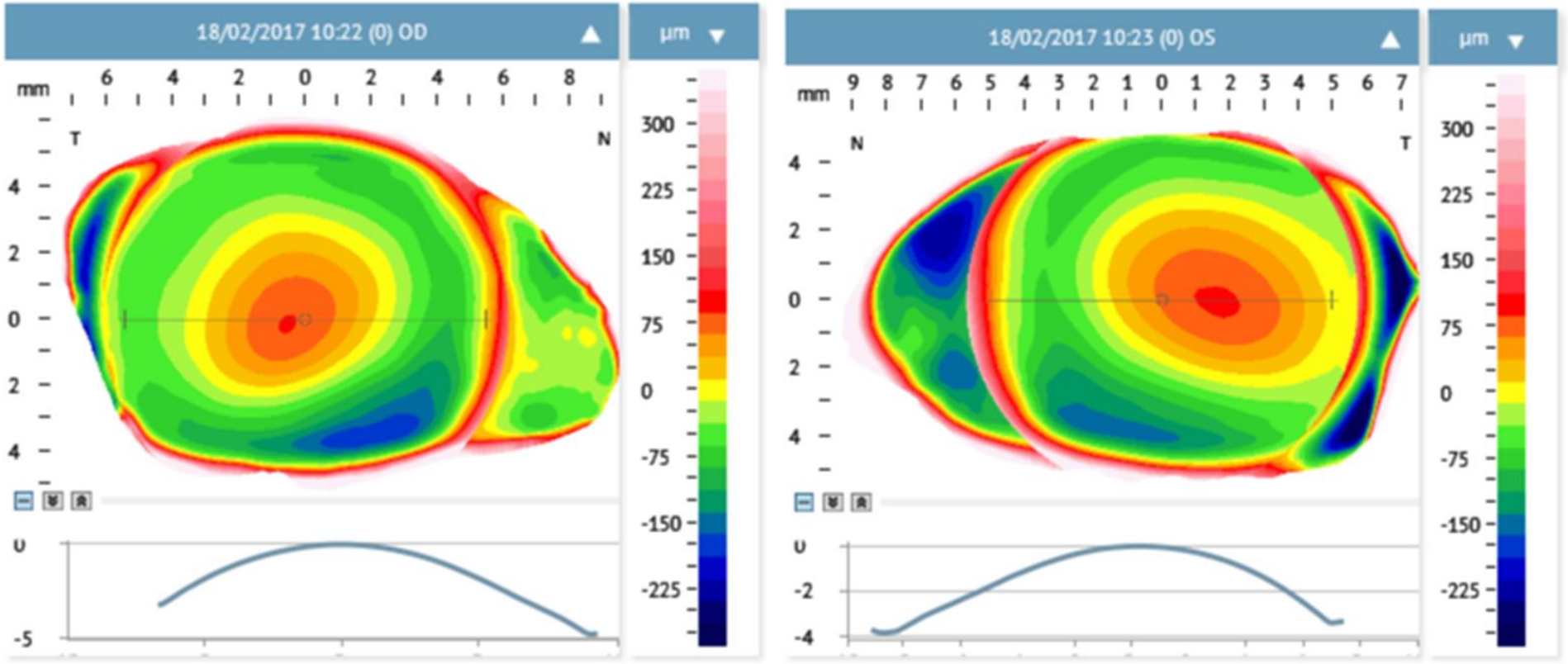


Figure 3.- Bisphere elevation map characterizing the corneo-escleral topographic profile (left, right eye; right, left eye).

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- Although this profile suggested the need for the fitting of a CL with significant peripheral toricity, we followed the manufacturer guidelines and performed a trial with a CL of moderate peripheral toricity (125 µm of difference between steep and flat meridian)

- The stability of the CL failed again and finally a CL with a peripheral toricity close to that measured with the profilometer was fitted (Figure 4)

- With this lens, good visual performance, lens stability and comfortability was obtained and maintained during a 1-year follow-up

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*Conclusion*

This case suggests that fully scleral contact lens fitting might be optimized with the use of a corneo-scleral profilometers, minimizing potentially the number of trials. This potential benefit should be investigated further in future studies.

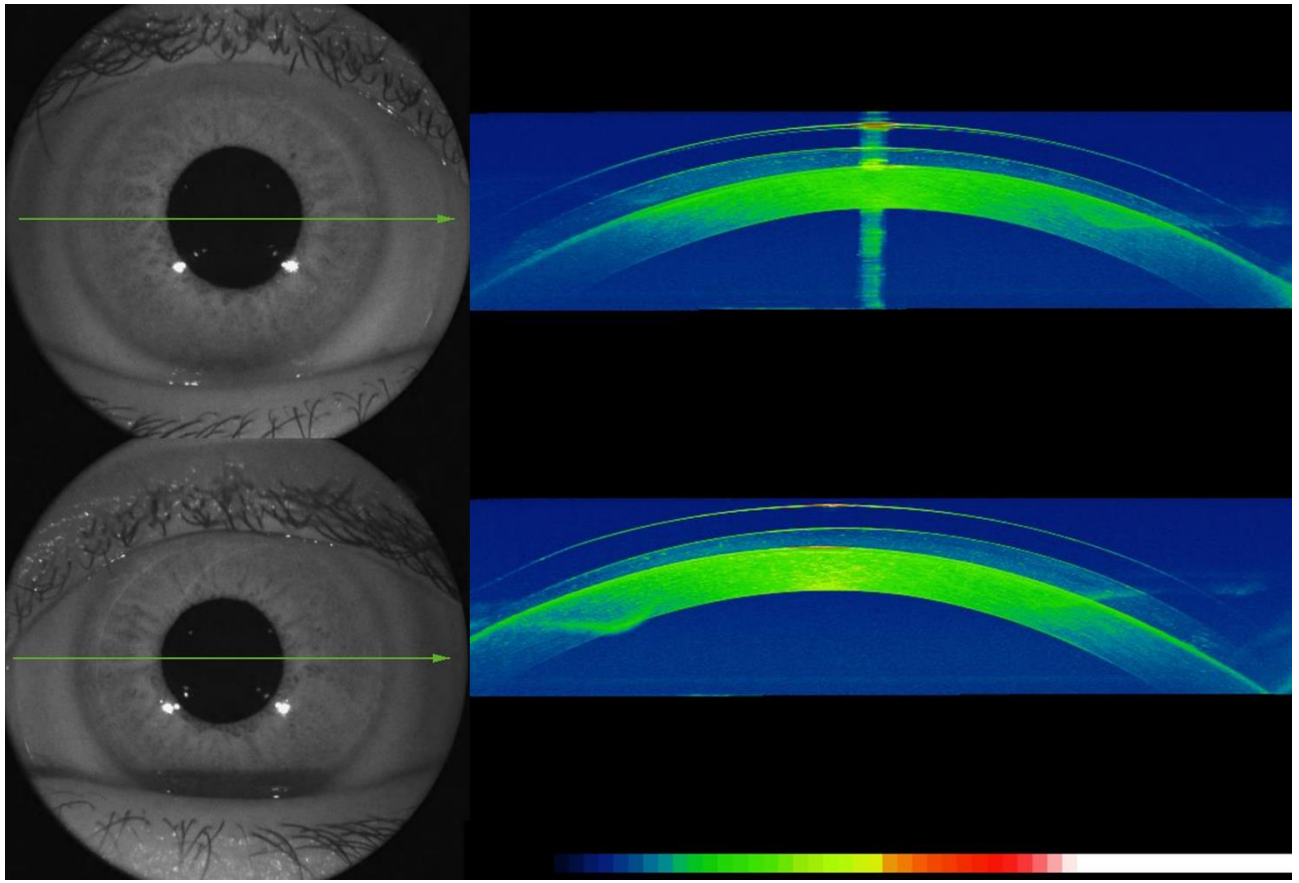

Figure 4.- Optical coherence tomography (OCT) analysis of the final scleral lenses fitted in right (up) and left eyes (down) (left: frontal image of the eye; right: horizontal OCT scan showing the position of the lens).

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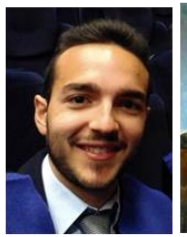
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THANK YOU

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