

# Case Report:

## Solving a conjunctival Hyperemia with the ESP

### Javier Rojas

Javier Rojas received his Bachelor of Science in Optometry from the University Complutense in Madrid. Following his Bachelor he achieved a Master degree in Clinical Optometry and Research from the University Camilo José Cela. He earned his membership in the American Academy of Optometry in 2004 (FAAO) and became a Diplomate in Cornea, Contact Lenses and Refractive Technologies in 2015. He is specially interested contact lenses, and has been trained to fit contact lenses in patients with pathological eyes such as keratoconus, pellucid marginal degeneration, dry eye and other corneal conditions.



### Introduction

A 20-year old keratoconus patient was first fitted with scleral lenses in 2016. The lenses were spheric with a diameter of 15.50mm. When wearing the lenses there was a central clearance visible of approximately 100 micron after wearing them for several hours in both eyes. There's was no visible blanching or impingement in the landing zone of the lens even though a lens with a symmetric periphery was fitted. The wearing time was 15 hours a day with good vision and comfort.

In 2018 the patient returned for a follow-up and lens replacement. Overtime the lens parameters have changed and the quality of the lenses decreased. During the follow-up there was mild hyperemia detected on the nasal and temporal conjunctiva of the left eye, this increased after removing the lens. (Figures 1 and 2)

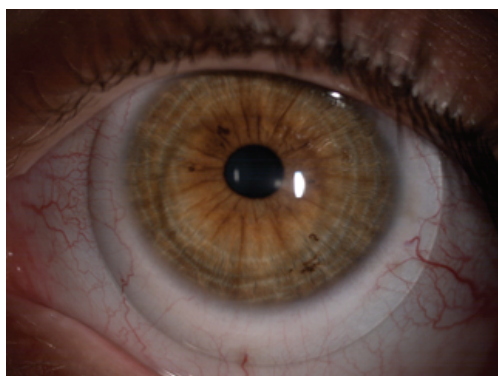


Figure 1: Mild Hyperemia in nasal and temporal conjunctiva of OS with the previous lens.

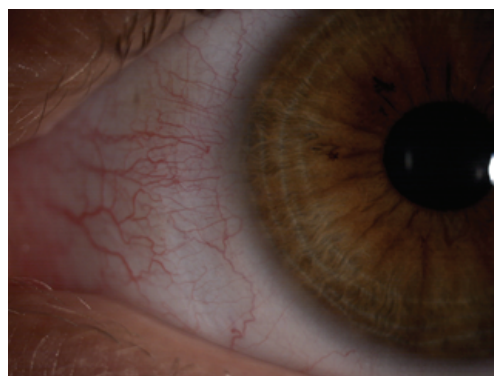


Figure 2: Re-occurring hyperemia in nasal conjunctiva after removing the lens.

### Profilometry

After obtaining a measurement with the Eye Surface Profiler (ESP), Eaglet-eye, The Netherlands. Data revealed a toric-pattern in the sclera, with a minimum sagittal height located at 145 degrees in OD and 20 degrees in OS, a difference of 130 micron in height between the low and high meridian was present in both eyes. (Figures 3 and 4).

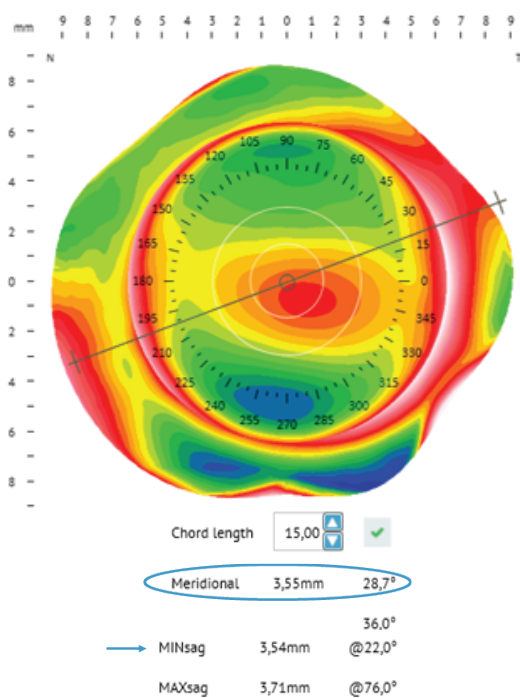


Figure 3: Sagittal height in the lower meridian oriented to 22 degrees in OS following profilometry

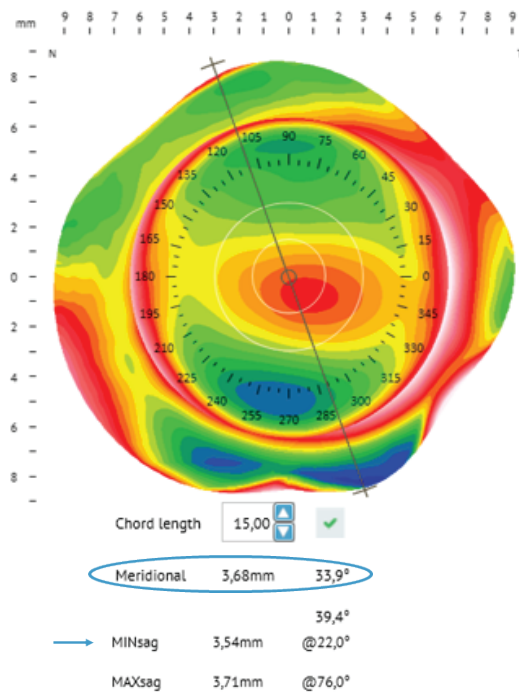


Figure 4: Sagittal height in the perpendicular meridian to the flat meridian in OS. The difference in the sagittal height between both meridians is 130 microns.

## Fitting

Following the results of the ESP measurement new lenses with a toric haptic were fitted in both eyes, expecting to relieve the compression in the lower meridian and maintaining the alignment in the opposite meridian. The difference of 130 microns had to be corrected by the lenses with a toric haptic zone, the lenses used offered toricity steps of 25 micron, due to this 5 steps off toricity were added (125 micron). The final ordered lenses were 15.5 ICD Flexfit for both eyes with a height of 4000 micron, PCCZ 0, LCZ 0/Steep +5, SLZ 0 for OD and sagitta 3800, PCCZ +4, LCZ 0/Steep +5, SLZ-1 for OS. The lens were well centered and showed no signs of impingement or blanching. The lenses were stabilized with the orientation with the minimum sagittal height on 145 degrees in OD and 20 degrees in OS which is agreeing with the minimal sagittal heights suggested by the ESP. (Figures 5 and 6)

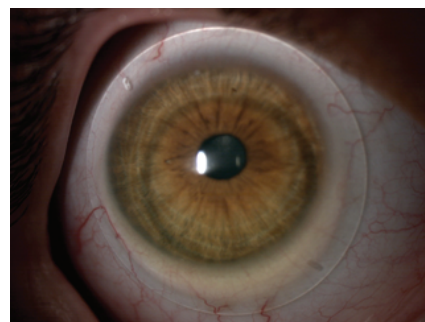


Figure 5: Right lens with 125microns toricity and stabilization marks corresponding the flattest meridian oriented to 140 degrees, matching the meridian suggested by the ESP.

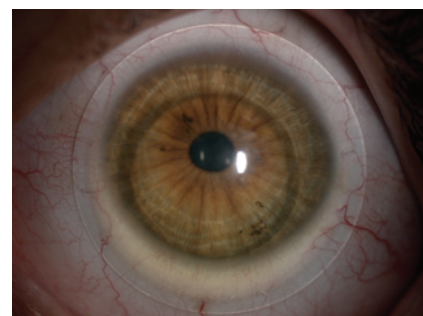


Figure 6: Left lens with stabilization marks in 20 degrees, good alignment without blanching, impingement or touch on the central cornea.

## Conclusion

The ESP can assist practitioners in deciding when to order a toric or spherical haptic. This is an example of how a toric lens can be beneficial for the ocular health, given that the nasal compression and re-occurring hyperemia disappeared with the new order. The patient noticed better comfort than with the previous lenses. (Figure 7)

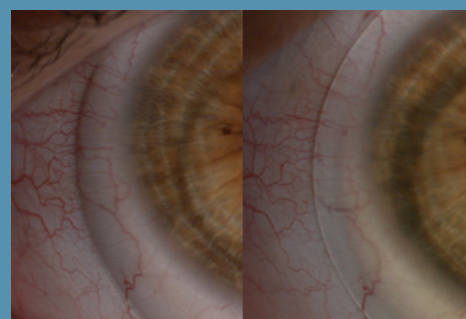


Figure 7: Decrease in nasal hyperemia in OS with the new toric lens (right) compared to the previous lens (left).