

Background

A 33-year-old white female with a history of a visually significant corneal scar in the right eye. The subjective refraction was S+0.50D and a -8.00D cylinder.

The scar is secondary to a prior herpes simplex infection, with best-corrected vision with glasses or specialty soft contact lenses of 20/150. Her prior scleral fittings never went past the fitting phase due to discomfort with the lenses due to two prominent pingueculae located nasally as well as temporally.

Scleral Profilometry (Eye Surface Profiler, ESP, Eaglet Eye) showed the pingueculae located at 8:30 (temporal inferior) and between 3 o'clock and 3:30 o'clock (nasally). Image 1 shows the Bi-sphere elevation map measured with ESP. Red and white areas show local elevations.

The layover shows the edge and CPR of the lens which has been designed online at blanchardlab.com (see image 2 for the final design). The layover has been rotated about 5 degrees clockwise showing good alignment with the local elevations, the pingueculae. This slight rotation could be observed with slit lamp imaging as well (image 3).

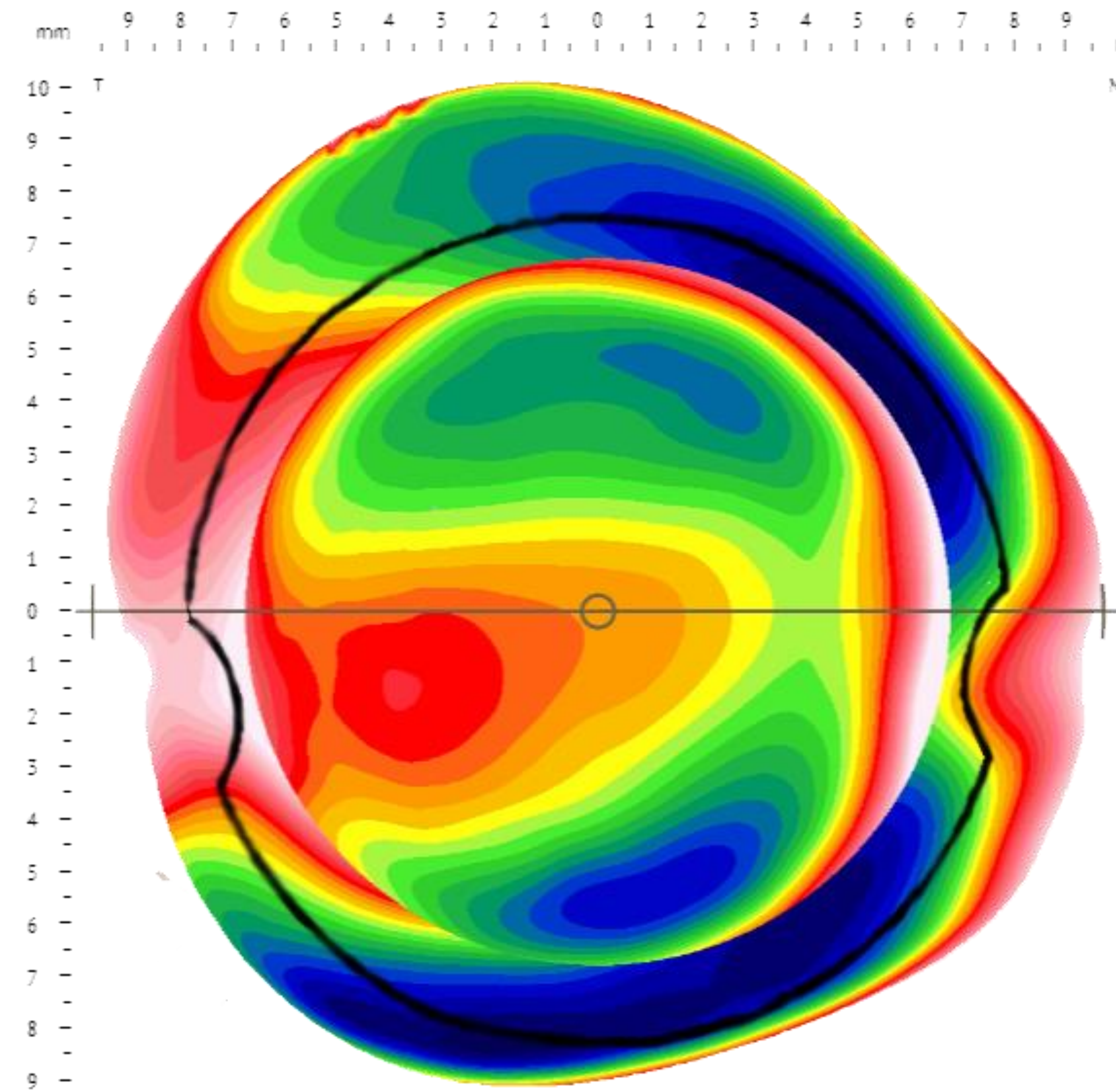


Image 1: Bi-sphere elevation map with a custom created lens edge layover. Red and white show local elevations. Notice the match of the location of pingueculae (image 3) and the red elevations.

Case description

The choice was made to use a Onefit MED scleral lens (Blanchard, CooperVision Specialty EyeCare) due to its ability to include two Controlled Peripheral Recesses (CPR) in the lens edge which will reduce impingement in the conjunctiva located at the pingueculae.

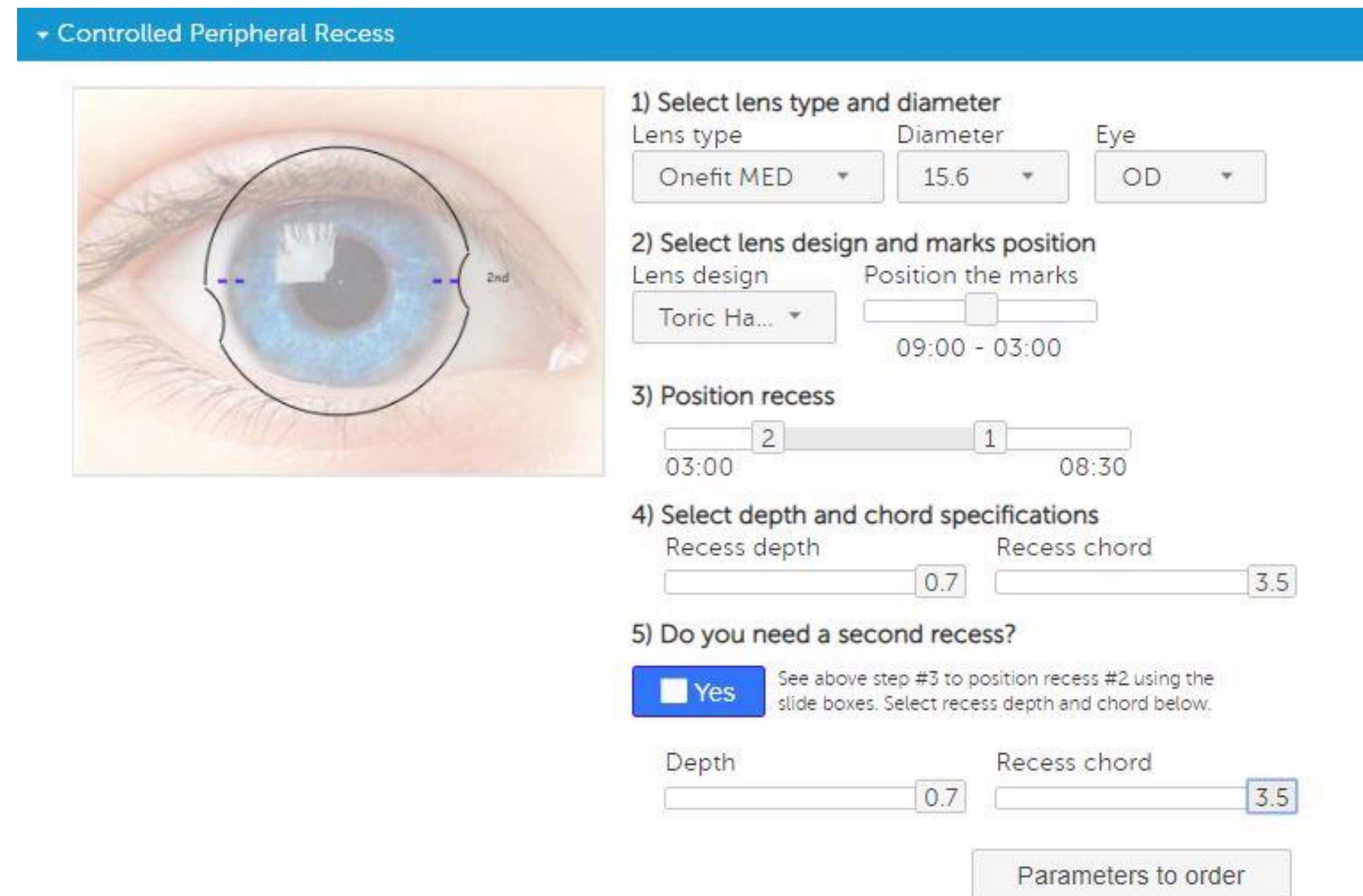


Image 2: Online tool of Blanchard to create controlled peripheral recesses. Five steps are required to design the recesses. The rotation of the position marks pointing to the flat meridian have been taken from the automated fitting algorithms of the ESP.

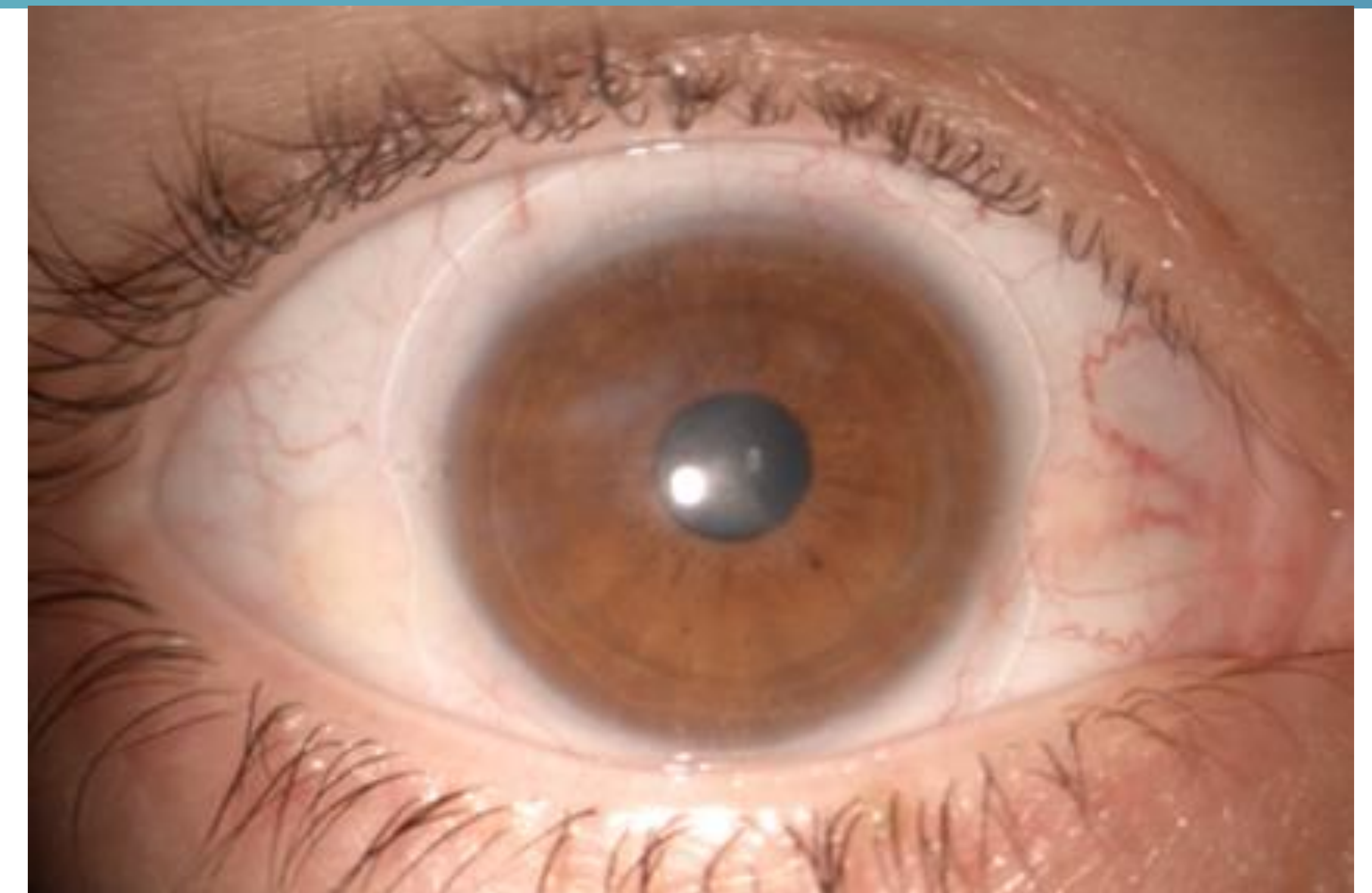


Image 3: Slit lamp image of the eye after 8 hours of wear. Both pingueculae have a yellowish appearance.

The fitted lens had a diameter of 15.6mm a sagittal height of 4100 and a sphere power of +2.25D.

And included two recesses located at 8:30 and 3:00 o'clock. Both recesses had a chord of 3.5mm and a depth of 0.7mm

The final fitted lens gave 20/20 vision and up to 12 hours of comfortable wearing time and did not require a refit. No post lens tear debris or scleral redness had occurred after 12 hours of wear. Image 3 shows a healthy sclera after 8 hours of wear.

Conclusions

For a patient with a high cylinder subjective refraction a scleral lens is one of the best options to restore vision, but a pinguecula might be a contra-indication due to discomfort. New technologies offer more comfort for the patient and possibilities to avoid the pinguecula. Scleral lenses allow longer wearing times with new features like a recess. Scleral Profilometry may reduce the number of refits required to get a perfect fit in complicated cases.

Contact and disclosure

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