

Resolution of Persistent Rebound Hyperemia after Scleral Lens Removal with Haptic Fenestrations

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Introduction

Suction induced by scleral lenses on the eye can lead to conjunctival congestion with the lenses on, rebound hyperemia after lens removal, and may even result in the development of corneal edema. Adding fenestrations, or small holes, to scleral lenses helps decrease suction of the lens to the patient’s ocular surface and may also help reduce complaints of mid-day fogging.

Case History

A 46 year old Hispanic female presents for scleral lens follow up.

Chief Complaint: The patient reports redness in both eyes that worsens after lens removal. The redness persists throughout the night, which is significant enough that she has to instill a drop of Lumify into both eyes in the morning. Aside from the redness, the patient is very happy with the vision and comfort of both lenses.

POHx: Keratoconus OU diagnosed at age 17, s/p PKP OD in her 30’s and ended up with a fixed pupil.

PMHx: Hypertension

Medication: Hydrochlorothiazide

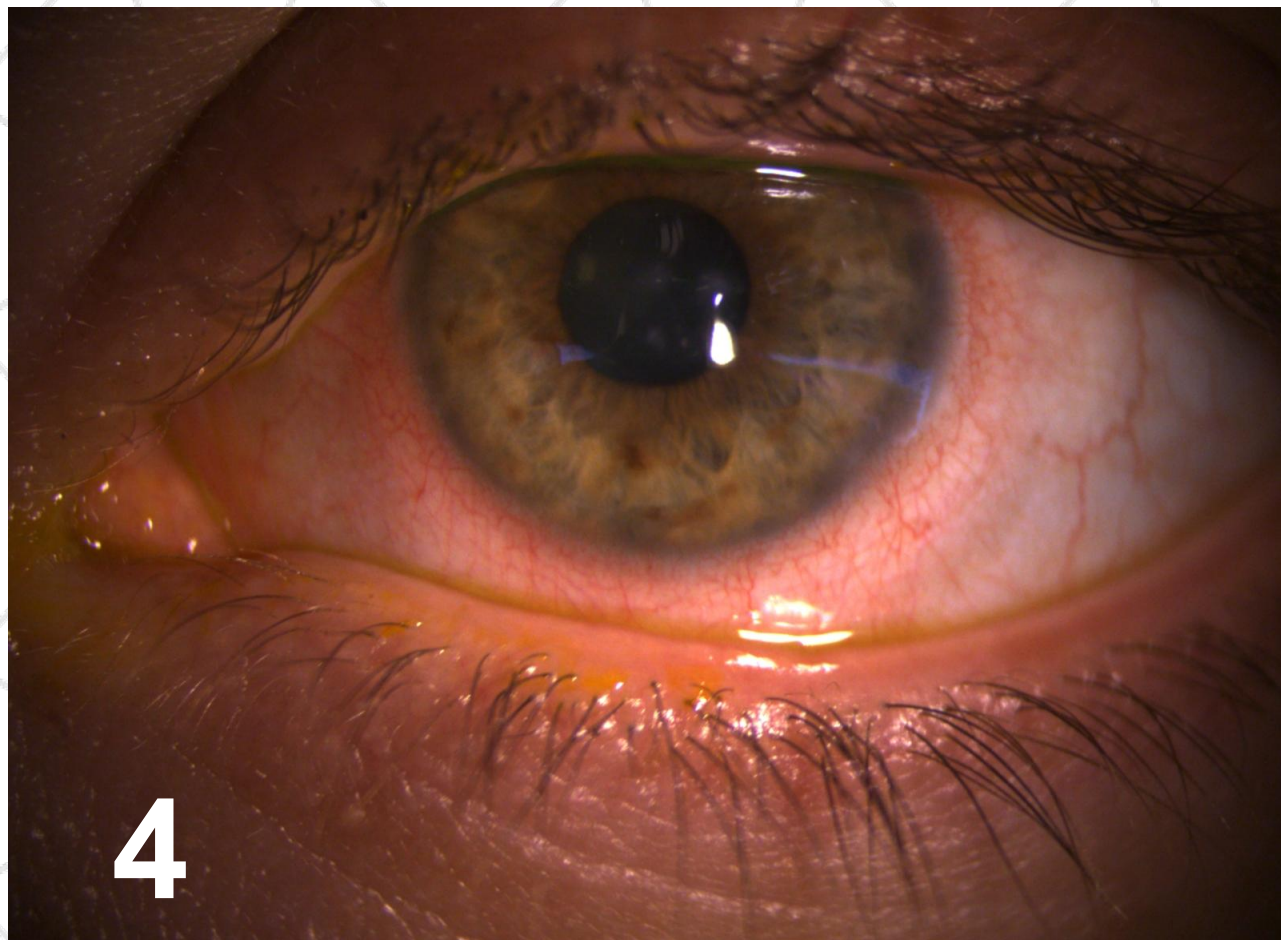
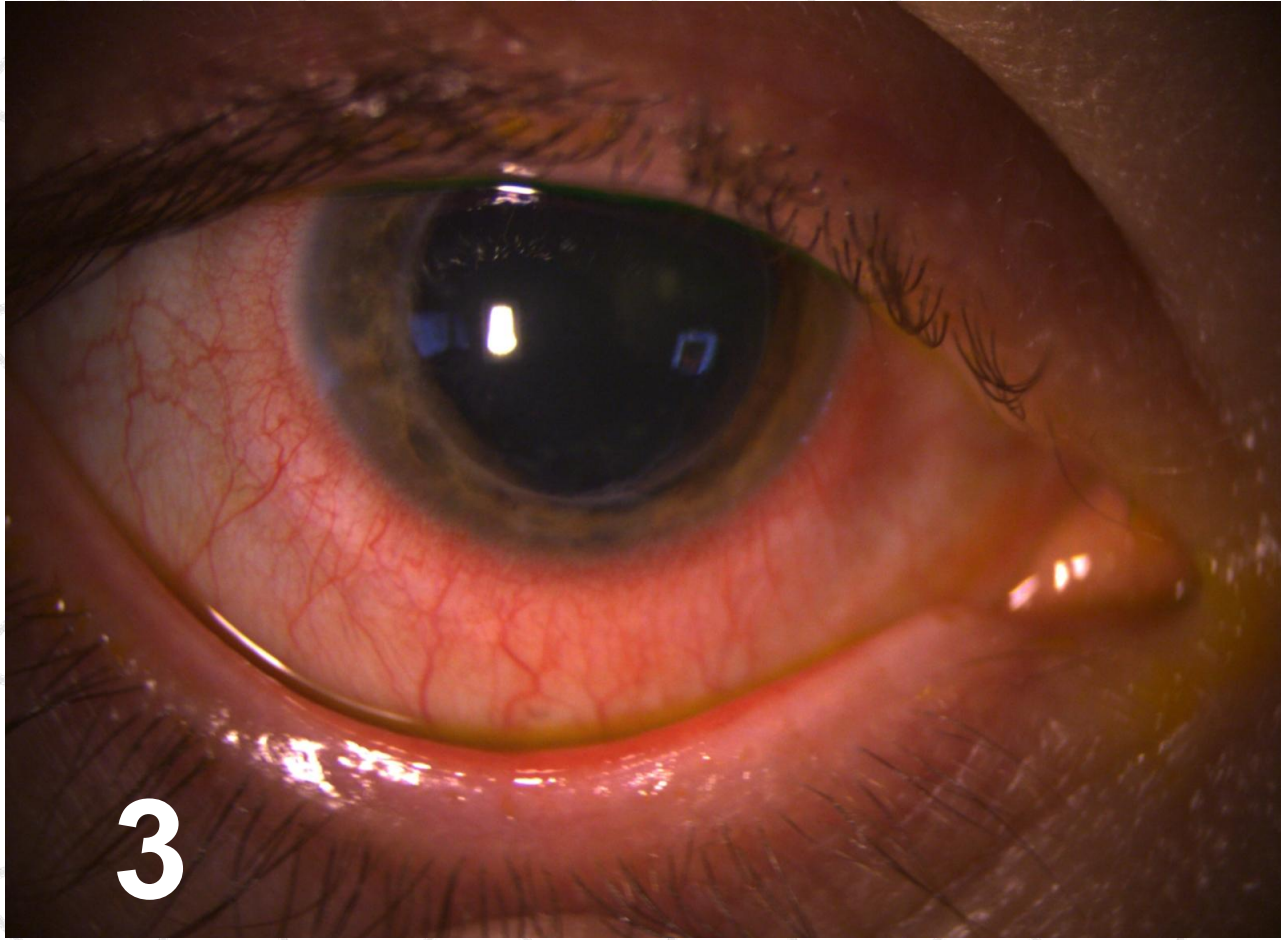
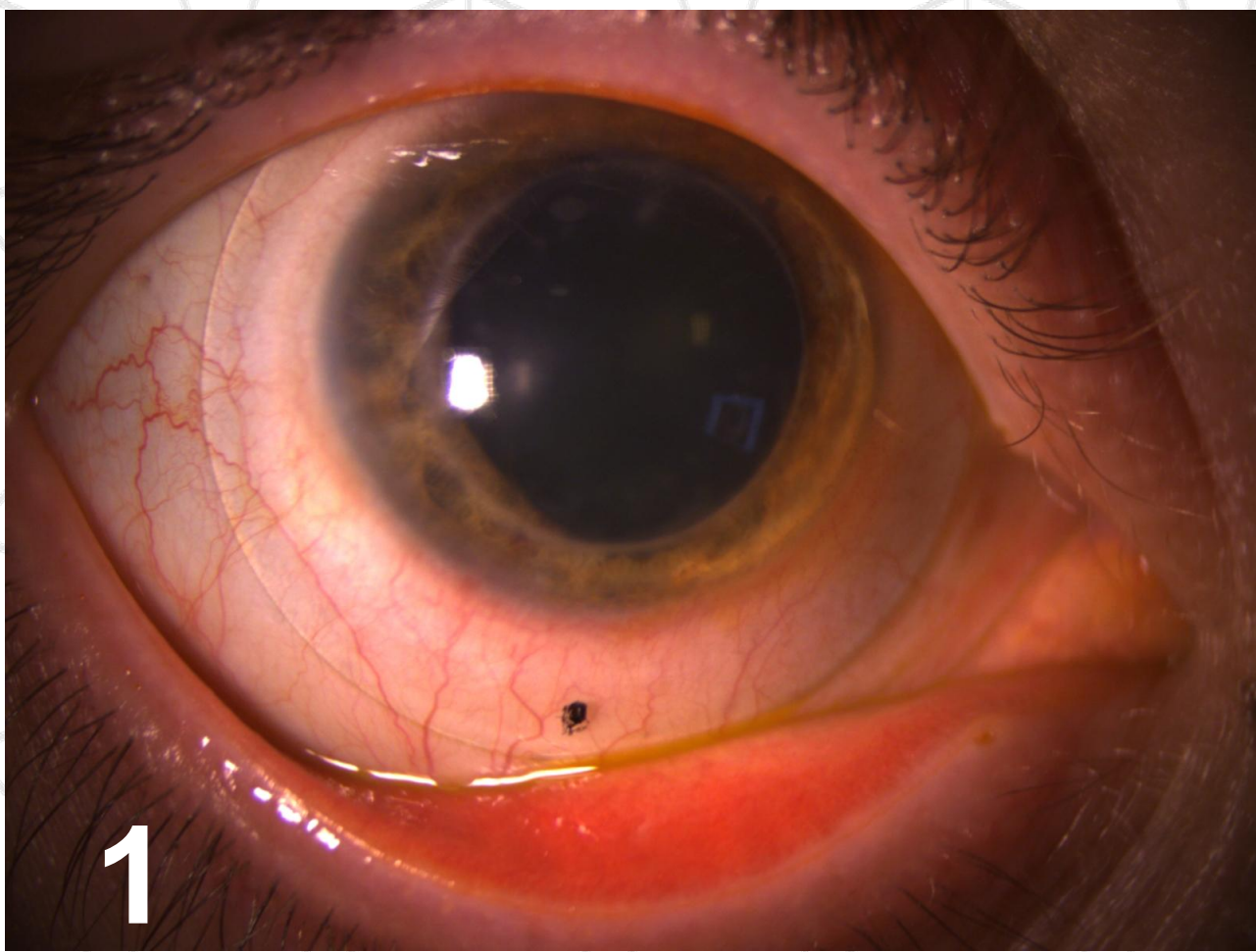
Clinical Findings

Initial Scleral Lenses: EyeFit Prosthetics

- OD: -5.25 / BC 7.751 / Dia 17.5 VA: 20/60+2, +1.50 SOR
- OS: -9.00 / BC 7.145 / Dia 17.5 VA: 20/50-2, +1.00 SOR

Initial Scleral Lens Fit:

- OD: CC 0.5:1 (175um) / LC 360 / mild nasal and temporal edge lift, no blanching / well centered / dot at 6:00 / mild inferior perilimbal conjunctival congestion (**Figure 1**)
- OS: CC 1:1 (350um) / mild superior limbal touch, clearance elsewhere / mild nasal and temporal edge lift, no blanching / well centered / 2 dots at 6:30 / mild inferior perilimbal conjunctival congestion (**Figure 2**)



Anterior segment photo of right and left eye before initial scleral lens removal (**Figures 1 & 2**), with rebound hyperemia immediately after removal (**Figures 3 & 4**)

Management

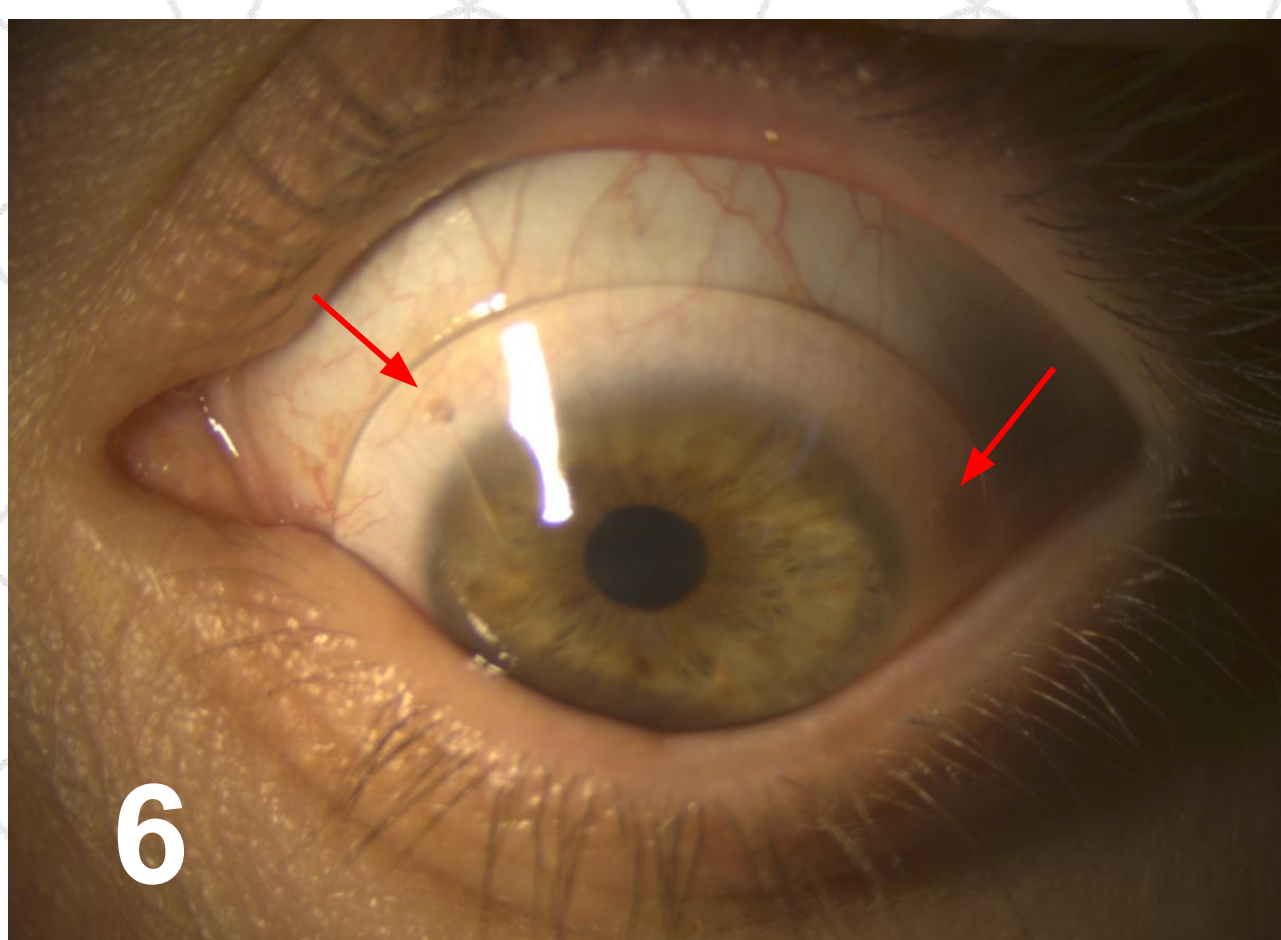
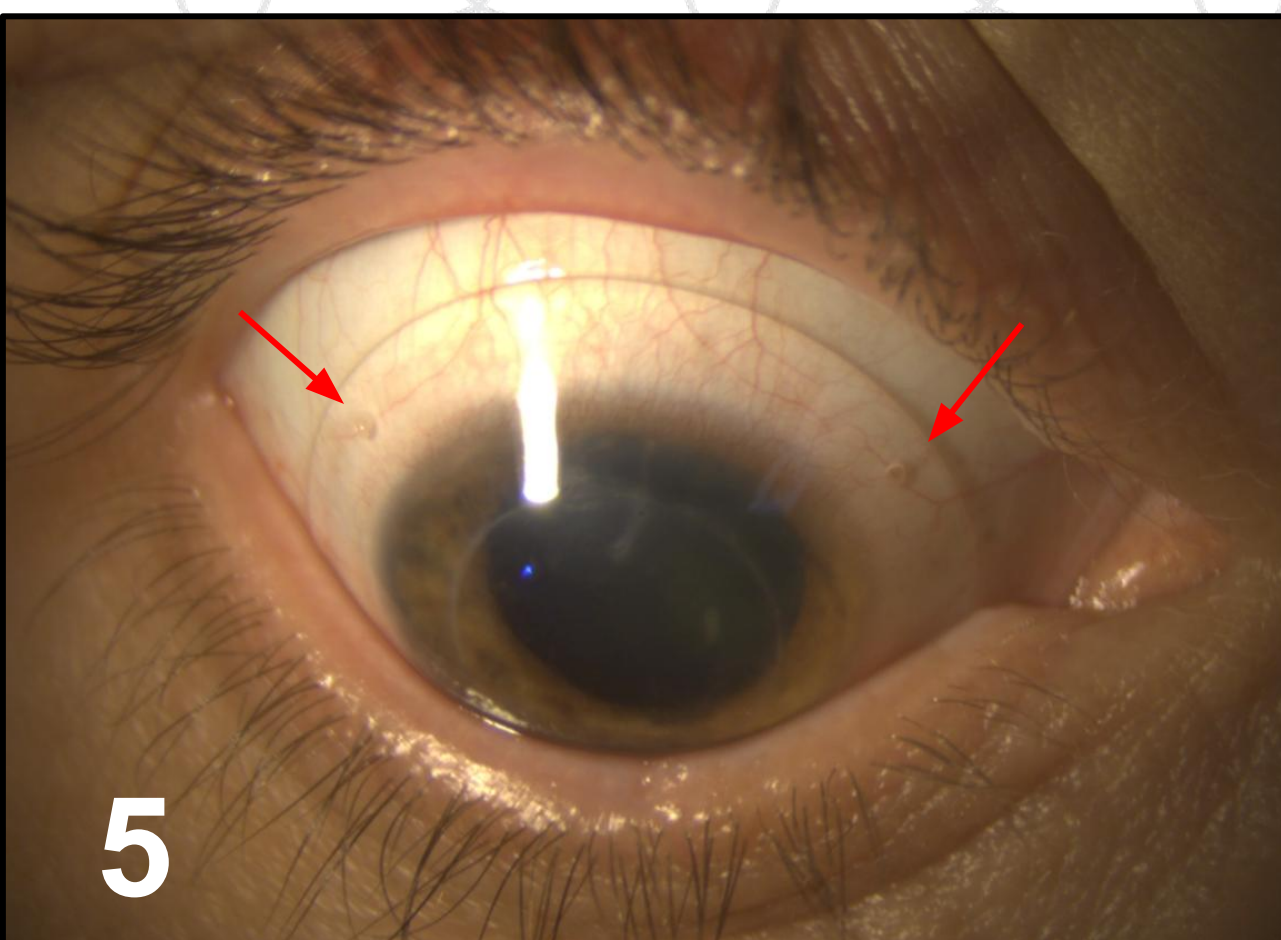
For the final lenses, SOR was incorporated and haptic fenestrations were added.

Final Scleral Lenses: EyeFit Prosthetics

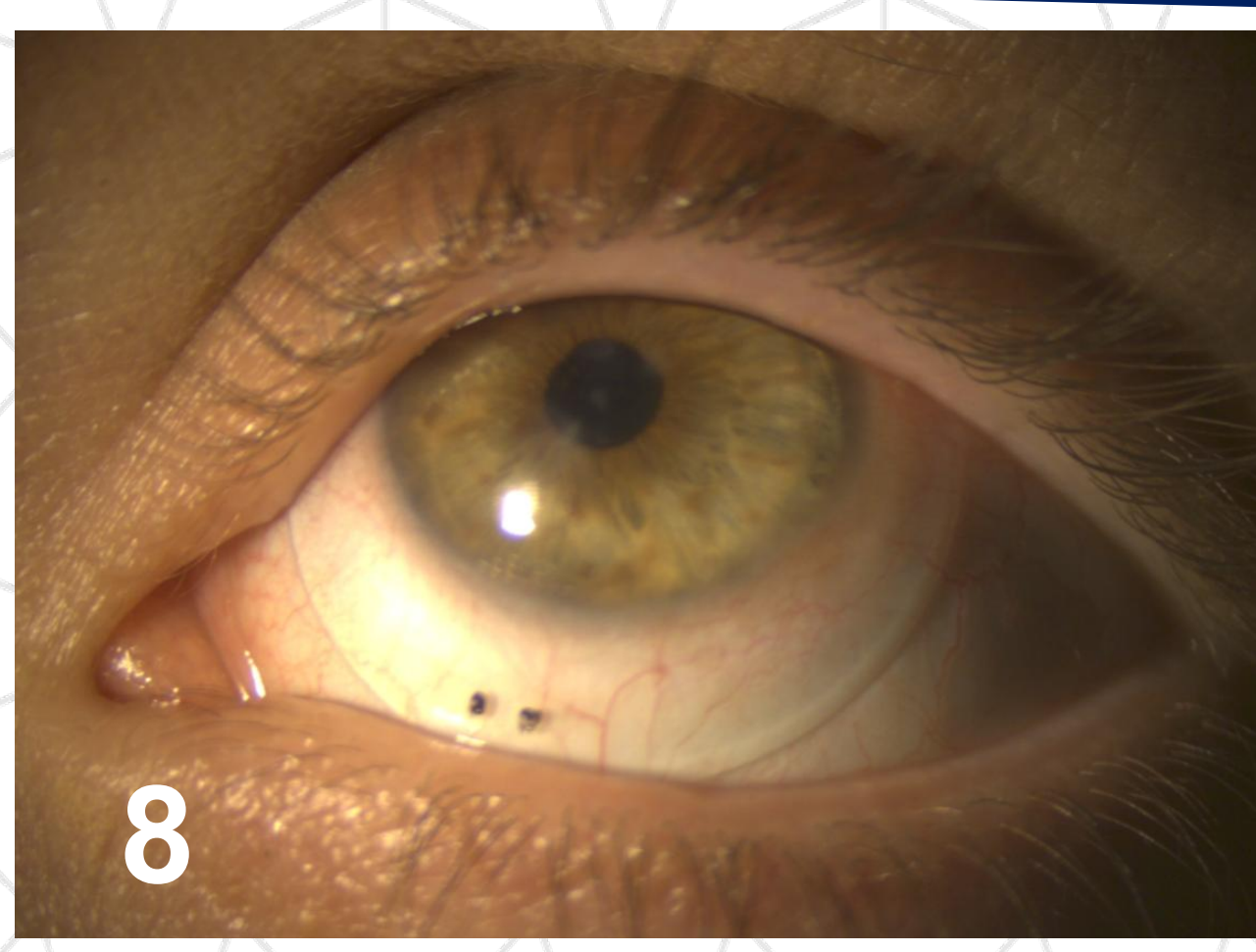
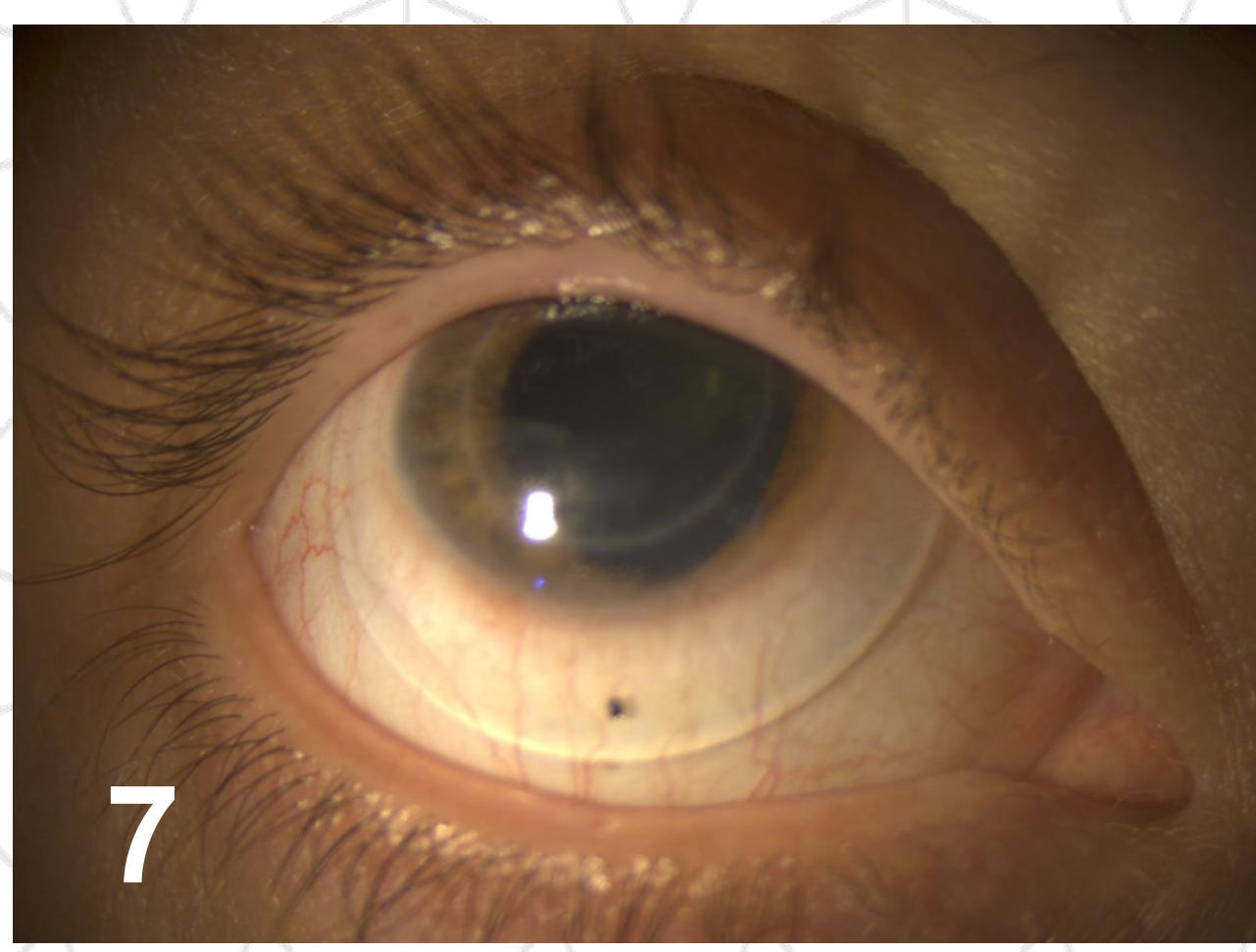
- OD: -4.25 / BC 7.751 / Dia 17.5 VA: 20/40-2
- OS: -8.50 / BC 7.145 / Dia 17.5 VA: 20/50-2

Final Scleral Lens Fit:

- OD: CC 0.5:1 (175um) / LC 360 / mild nasal edge lift, no blanching / well centered / dot at 6:00 / fenestration at 10:00 and 1:00 / no NaFI uptake
- OS: CC 1:1 (350um) / mild superior limbal touch, clearance elsewhere / mild nasal and temporal edge lift, no blanching / well centered / 2 dots at 6:30 / fenestration at 11:00 and 2:00 / (+)slow NaFI uptake inferior nasal



Figures 5 & 6: Anterior segment photos showing location of haptic fenestrations



Anterior segment photo of right and left eye before final scleral lens removal (**Figures 7 & 8**) and immediately after removal (**Figures 9 & 10**)

When the patient returned for her scleral check appointment a month later, she reports that the perilimbal hyperemia has greatly improved in both eyes with and without lenses (**Figures 7-10**) and no longer requires a drop of Lumify in the morning. The patient is happy with the comfort and reports improved vision with her newer lenses.

Discussion

Fenestrations or channels can be used to reduce suction induced during scleral lens wear to improve ocular health and patient comfort. Mild, short-term hyperemia after lens removal may be normal, but persistent rebound hyperemia indicates abnormally strong suction that may be detrimental to the patient’s ocular health, especially in patients with corneal grafts.

Acknowledgements

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