Tangible™ Hydra-PEG Coating Resolves Chronic Front Surface Scleral Lens Deposits in a Patient with Bell’s Palsy
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Background
28 yo WM presented for scleral lens refit OS. He had a h/o a large acoustic neuroma that was excised with sequelae of permanent Bell’s Palsy and exposure keratitis. OHx was positive for lid weight implantation and occlusion of puncta with silicone plug OS.

The patient had complaints of recurrent debris buildup after 2-3 hours of scleral lens wear for which he removed, cleaned and reinserted for relief. The debris buildup caused blurring of vision, discomfort and a general inconvenience. The habitual scleral lens was fit by an outside provider, approximately one year ago. The records revealed that the scleral lens was dispensed with a plasma treatment.

Case Description
Entering VAs were 20/20 sc OD and 20/30 cc (scleral lens) OS. Anterior segment revealed normal findings OD. OS showed ptosis, lid weight and lagophthalmos. The patient exhibited the classical signs of Bell’s Palsy of his left side (Figure 1).

Scleral lens evaluation was positive for severe debris buildup in an inferior, horizontal band fashion consistent with the area of exposure due to the lagophthalmos (Figure 2). The overall fit of the scleral lens was adequate.

The patient was refit with a scleral lens with Tangible™ Hydra-PEG coating (developed by Tangible Science LLC, Menlo Park, CA, USA). With the new coating, the patient noticed improved comfort and vision, longer wear time, and decreased debris buildup compared to his habitual lens (Figure 3). The patient was followed for 3 months and his condition appeared stable with no decrease in comfort or increase in lens deposits.

Discussion
The patient had severe debris buildup due to his inability to rewet the inferior surface of the lens. His cornea was protected from environmental elements, but the scleral lens was not.

This type of debris buildup is also commonly found in patients with ocular prosthetics exhibiting post-enucleation socket syndrome (PESS). The interpalpebral zone will collect deposits that can dry due to the exposure to air. A silicone based lubricant offers prosthetic patients more comfort, but may not be a viable option in sighted patients as it may cause complications.

Traditionally, providers have used plasma treatment to facilitate "initial comfort", but the benefits are lost over time with wear or if the lens becomes dry. The Tangible™ Hydra-PEG coating increases lubricity and reduces protein and lipid deposition. There are several studies currently investigating the longevity of this coating and there are no contraindications for its use.

Conclusion
Although scleral lenses are used to treat exposure keratitis, patients with permanent lagophthalmos can experience debris buildup on the front surface of the scleral lens in the exposed area. The Tangible™ Hydra-PEG coating offers a higher degree of wettability when compared to traditional GP coatings and should be considered as an option in patients with permanent lagophthalmos.

References