

# Rehabilitation of Exposure Keratopathy with Scleral Lenses

## Exposure Secondary to Longstanding Facial Palsy After Surgical Resection of Vestibular Schwannoma

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### Introduction

Vestibular schwannomas (VS) are benign intracranial neoplasms of the vestibulocochlear nerve (CN VIII). Due to the proximity of CN VIII to the facial nerve (CN VII), CN VII is vulnerable in surgical resection of VS. This can lead to ocular complications. These include lagophthalmos, persistent epithelial defects, corneal ulceration, corneal vascularization, corneal melting, and perforation.<sup>1</sup> A large US hospital study over 8 years found that facial palsy occurred in 14% of patients who underwent VS resection.<sup>2</sup> Patients in this study reported that gold implants and lateral tarsorrhaphy were insufficient in providing relief of symptoms and corneal protection.<sup>2</sup> This case illustrates the therapeutic benefits of scleral lenses for patients with facial palsy and their impact on eyelid position.

### Case History

A 38-year-old female was referred to the Medical Contact Lens service by her oculoplastic surgeon for a scleral lens fitting of the left eye.

- She was experiencing chronic exposure, dryness, and significant reduction in vision and quality of life.

**Medical History:** left sided VS resection in 2008

**Ocular History:** CN VII palsy secondary to VS resection, causing chronic keratoconjunctivitis and recurrent corneal infections.

Previous managements:

- Gold weight implantation & lateral tarsorrhaphy; both did not provide sufficient relief and affected cosmesis
- Preservative free artificial tears every 10-15 minutes

### Examination Findings

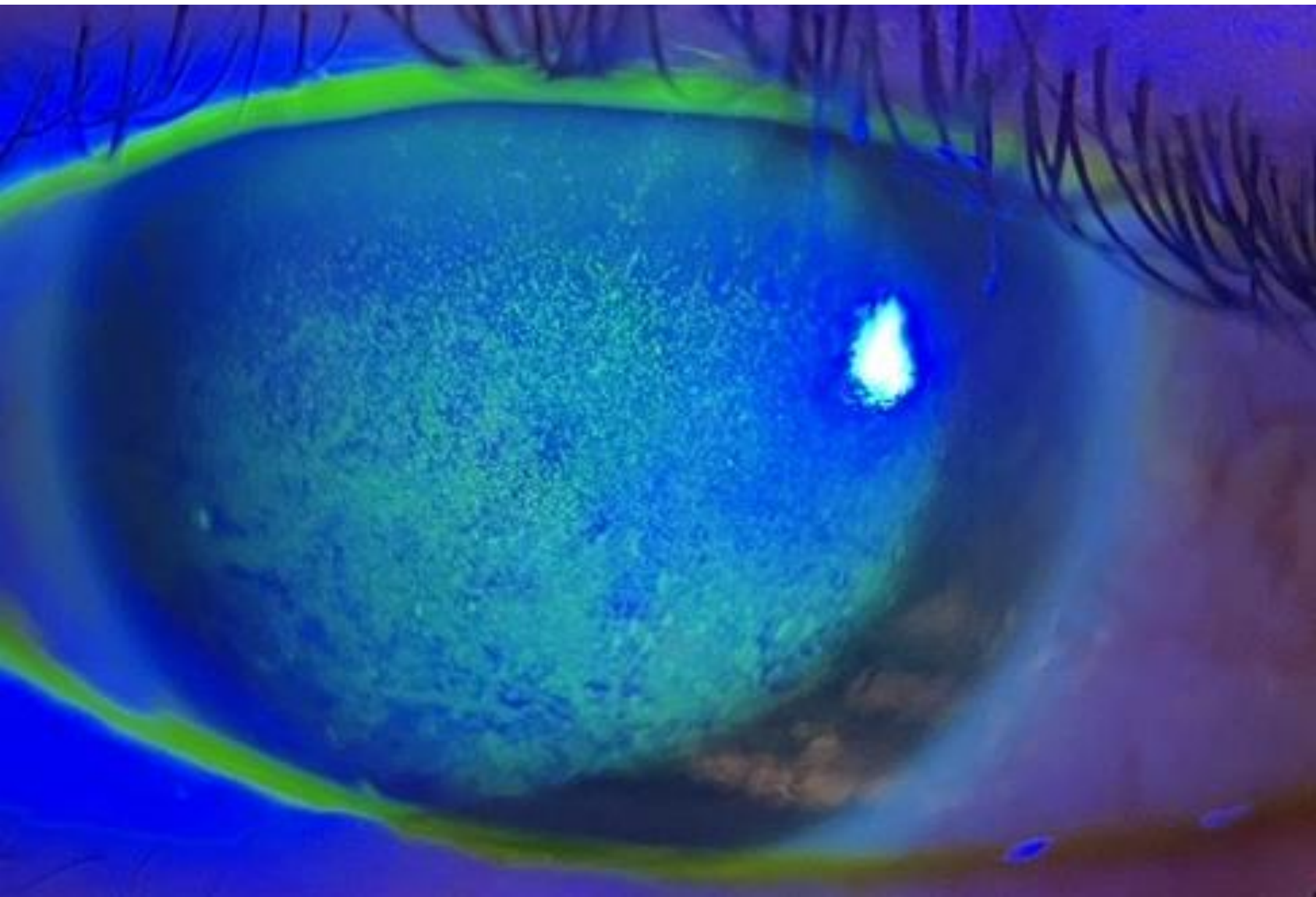


Figure 1: Corneal staining prior to initiating scleral lens wear.

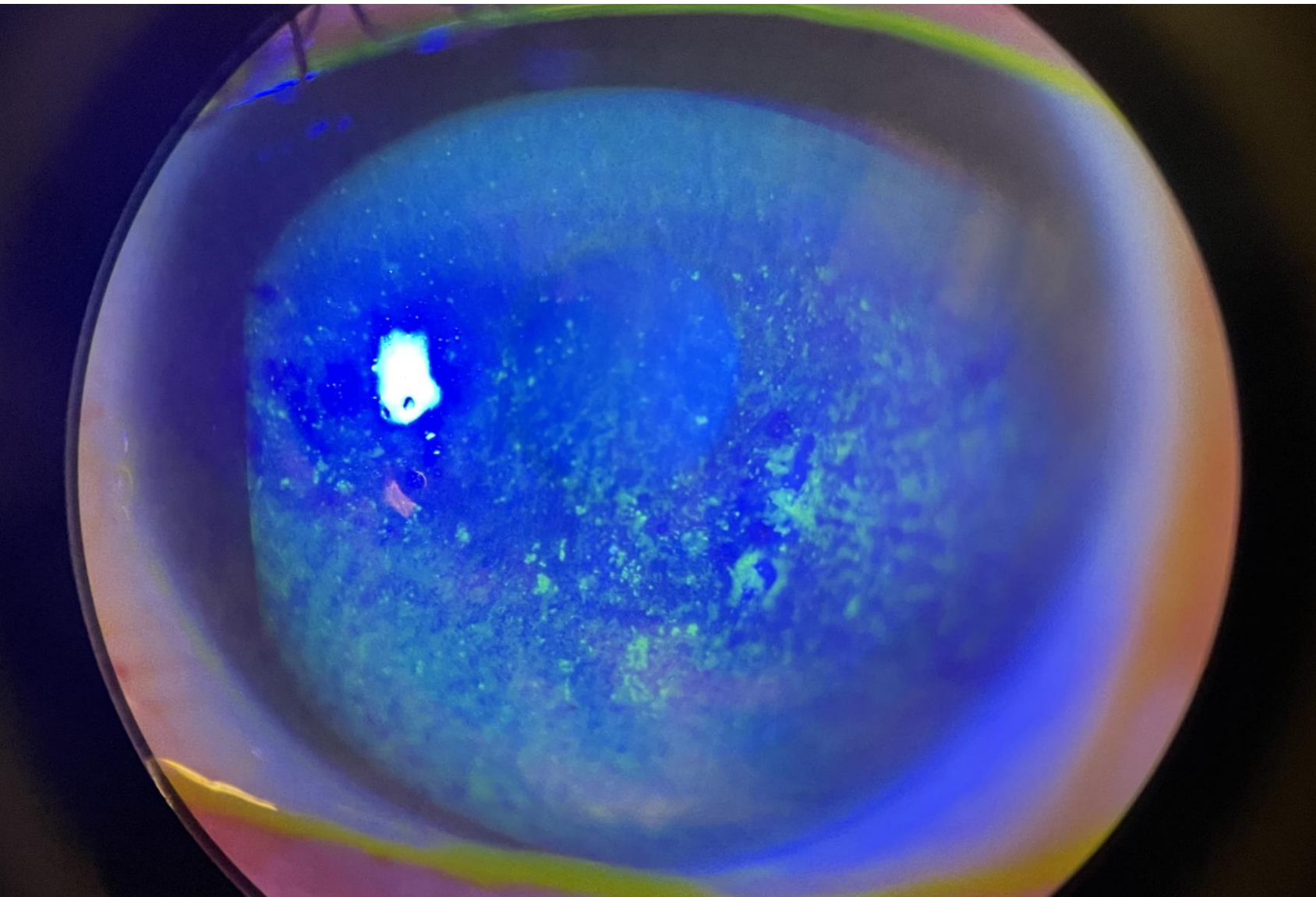


Figure 2: Corneal staining after 1 month of scleral lens wear.

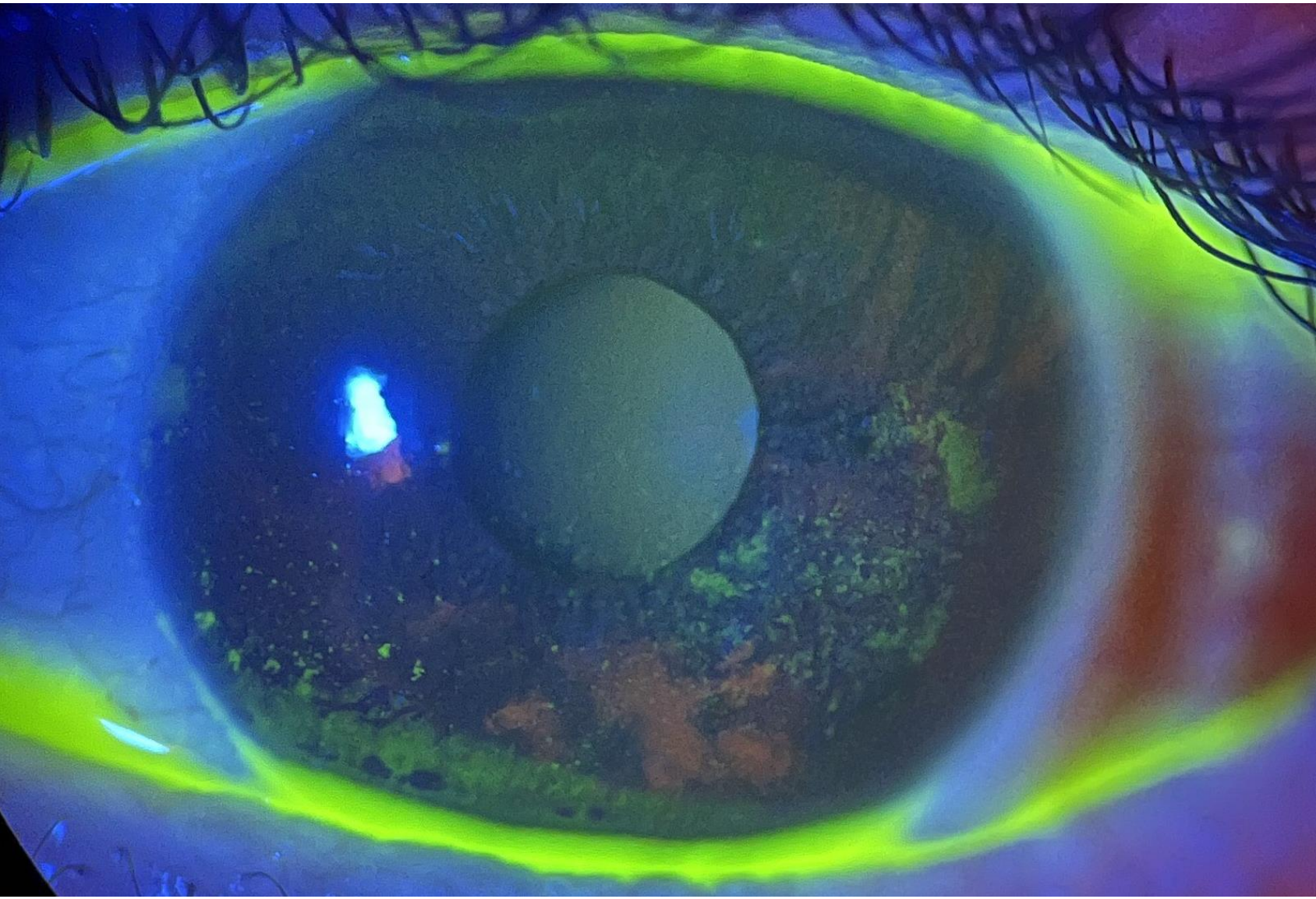


Figure 3: Corneal staining after 2 months of scleral lens wear.

Table 1: Left Eye Anterior Segment Findings		
External	3-4+ VII palsy with poor passive blink, good Bell's; 3mm lag with closure, 1mm lag with tight closure	
Cornea	2+ subepi scarring inferotemporal with diffuse 3-4+ epitheliopathy in VA, no epi defect, 3+ diffuse staining	

Table 2: Left Eye VA		
8/8/23	uncorrected	20/70-2
9/11/23	Scleral lens	20/25-2
9/29/23	Scleral lens	20/30+2

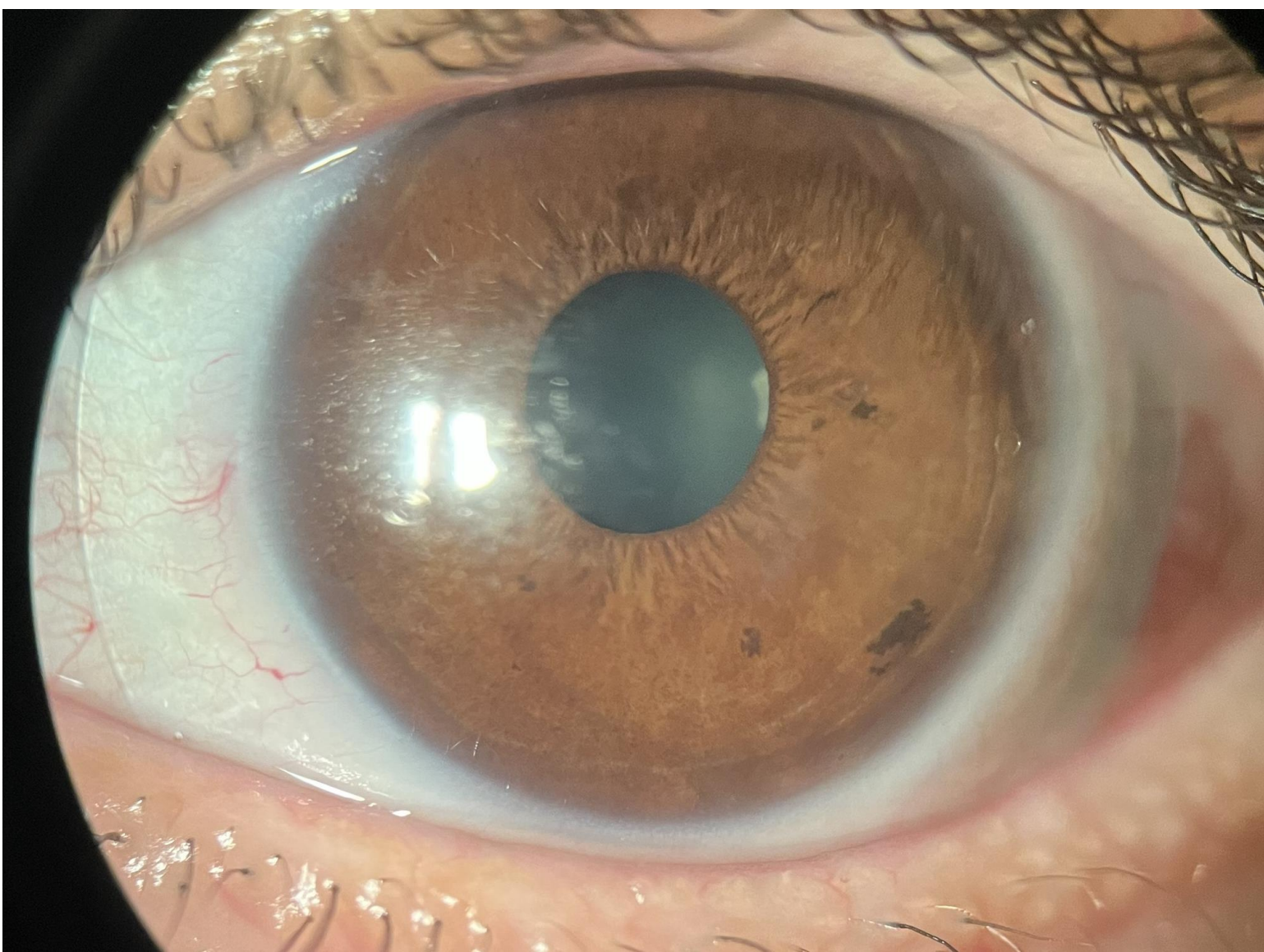


Figure 4, 5: Left: Final scleral lens. Right: Optic section of lens, tear layer, and cornea.



Figure 6: Top: Illustrates the aperture size asymmetry caused by wearing a scleral lens in the left eye and no lens in the right eye. Bottom: Symmetry of aperture size with scleral lenses in both eyes.

### Case Management

#### Scleral Contact Lens Fitting

- A CS 2020 Elite 15.8 scleral lens (Valley Contax, Eugene, OR) was fit to provide constant lubrication and protection to the cornea.
- The patient had a four-line improvement in vision with 12 hours of daily wear for 2 months. See Figures 1-3 and Table 2.
- The patient's quality of life improved as she was no longer instilling artificial tears every 15 min.

#### Scleral Lens Effect on Eyelid Position

- Increased aperture size of the left eye while wearing the scleral lens.
- Scleral lenses can be used as a non-surgical and non-pharmacological treatment of eyelid ptosis.<sup>3</sup> Center thickness, sagittal height, and diameter can be manipulated to adjust the lid-lens interaction.
- Hydra-PEG was added both to improve the lid-lens interaction and aid with dryness of the front surface of the scleral lens.
- Upneeq was prescribed to increase aperture size of the fellow eye by at least 1 mm.<sup>4</sup>

### Conclusion

Scleral lenses can provide constant protection and lubrication to the cornea and serve as a great first line of treatment. Prior studies found gold implants and lateral tarsorrhaphy are unable to reduce ocular discomfort, whereas scleral lenses improved comfort and vision.<sup>2</sup> Scleral lenses should be considered for all patients with facial palsy. Since 2010, changes to VS management have helped decrease the incidence of post-surgical complications.<sup>1</sup> Doctors will now “wait-and-scan” before operating or will opt for incomplete resection to avoid causing neurological injury.<sup>1</sup> Nonetheless, a referral for scleral lens fitting before VS surgical resection could help prevent ocular complications.

### References

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2. Zaki V. (2017). A non-surgical approach to the management of exposure keratitis due to facial palsy by using mini-scleral lenses. *Medicine*, 96(6), e6020.
3. Zubkousky, S., & Sotomayor, P. (2022, December 5). Scleral lenses improve ptosis in patients with concurrent ocular surface disease: A case series: Published in Cro (Clinical & Refractive Optometry) journal. CRO (Clinical & Refractive Optometry) Journal.
4. Upneeq, RVL Pharmaceuticals, Inc. (Bridgewater, NJ)