Burn Baby Burn: Optimizing Outcomes with Scleral Lenses and Keratoconjunctivitis Sicca

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Background

Herpes Simplex Keratitis (HSK) is a common corneal condition that can lead to scarring, poor corneal wound healing, and permanent vision loss. Management of HSK scarring with scleral lenses can be complicated by ocular surface disease. This case report will outline strategies for optimizing visual acuity and comfort when fitting scleral lenses on patients with corneal opacifications secondary to HSK and keratoconjunctivitis sicca.

Case Description

A 55-year-old Caucasian female was referred for scleral lens fitting. Left eye visual acuity was limited by central corneal scarring due to previous HSK infection. Health history was remarkable for rheumatoid arthritis, which was treated with hydroxychloroquine and methotrexate. Entering visual acuities were 20/20 OD, 20/300 OS. The patient was fit in a 15.8mm Valley Custom Stable Elite® scleral lenses with 4920 sag and 45.00 base curve OU. Lenses demonstrated good central clearance and aligned edges. BCVA in scleral lenses improved to 20/20 OD and 20/25^{-} OS at diagnostic fitting. After 3 months of full-time scleral lens wear, the ocular surface showed consistent diffuse corneal staining and reduced corneal sensitivity. BCVA was reduced to 20/40^{-} OS. Treatment with cyclosporine 0.05% q. 12h was initiated. After 1 month on cyclosporine with continued full time scleral lens wear, VA improved to a consistent 20/20^{-2} OS.

Management Plan

- Full time scleral lens wear with Hydrapeg® coating
- Cyclosporine 0.05% q. 12h
- Refresh Optive® PF drops when not in lenses, Refresh PM qhs
- Referral to rheumatologist for management of systemic disease

Results

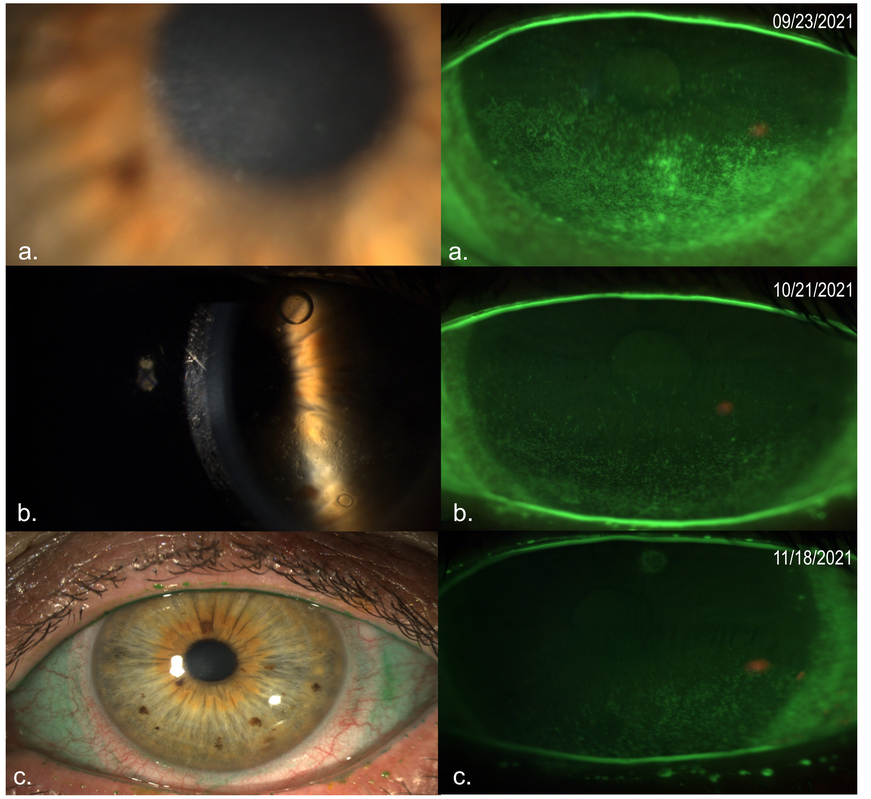

Figure 2. Slit lamp images OS. **a.** Central scarring 2' to HSK infection. **b.** Poor wetting of lens. **c.** Lissamine green staining with lens off eye, demonstrating therapeutic effect of scleral.

Figure 3. Corneal staining OS. **a.** 3 mo. of scleral lens wear only. **b.** 1 mo. of cyclosporine therapy with scleral lens wear. **c.** 2 mo. of cyclosporine therapy with scleral lens wear.

	09/23/2021 *3 mo. scleral lens wear, prior to cyclosporine Tx*	11/18/2021 *5 mo. scleral lens wear, 2 mo. of cyclosporine Tx*
BCVA	20/40^{-}	20/20^{-2}
Conjunctiva	3+ diffuse injection, 2+ staining with Lissamine Green	1+ diffuse injection, 2+ staining with Lissamine Green outside landing of scleral lens
Cornea	Grade 2+ diffuse SPK, concentrated central and inferiorly, 2 mm stromal haze	Tr SPK, concentrated inferiorly, 2 mm stromal haze, modest reduction in stromal haze

Discussion

This case highlights the benefit of dual therapy for patients with fluctuating visual acuity and diffuse corneal staining despite full time scleral lens wear. To optimize scleral lens outcomes, the follow therapies should be considered:

- cyclosporine 0.05% / lifitegrast 5% ophthalmic solution
- optimal management of underlying systemic disease
- lubrication of the ocular surface outside of lens wear
- cenegermin-bkbj 0.002% (if decreased corneal sensation)
- diluted autologous serum drops to fill lens bowl
- selection of largest diameter scleral lens possible (see Figure 2c)

Conclusion

Patient visual acuity and comfort in scleral lenses may be limited if underlying ocular surface disease is not managed appropriately with adjunct therapies.

References

1. *Cressey, A., Jacobs, D. S., Remington, C., & Carrasquillo, K. G. (2018). Improvement of chronic corneal opacity in ocular surface disease with prosthetic replacement of the ocular surface ecosystem (prose) treatment. American Journal of Ophthalmology Case Reports, 10, 108–113. https://doi.org/10.1016/j.ajoc.2018.02.010*
2. *Schornack, M. M., Pyle, J., & Patel, S. V. (2014). Scleral lenses in the management of ocular surface disease. Ophthalmology, 121(7), 1398–1405. https://doi.org/10.1016/j.ophtha.2014.01.028*