

Jessica Tu, OD

University of Missouri-Saint Louis College of Optometry, Saint Louis, MO

### Background

Acanthamoeba keratitis occurs secondary to a parasitic infection to the cornea, typically associated with inadequate contact lens hygiene.<sup>[1]</sup>

Scleral contact lenses are indicated for post-corneal transplantation as a safe and effective management option to protect the corneal tissue and smooth over refractive irregularities.<sup>[2]</sup> Success rates with scleral contact lens fits decrease with poor compliance and secondary ocular surface diseases that may contribute and mimic a pseudo-poor lens fit.

### Case Summary

**Patient Demographics:** 64 year-old Caucasian Female

**Chief Complaint:** fogging of scleral contact lenses and increased mucous production OS > OD; removal of lens 6-9x/day

**HPI:** Gradual decrease in vision due to fogging of lenses with complaints of constant discharge. Patient is frequently “picking” at medial canthus for mucous strands OS > OD.

**Ocular History:** Bilateral acanthamoeba keratitis secondary to cleaning hybrid contact lenses with well water: full-thickness penetrating keratoplasty OU. Previous complaints of discomfort secondary to corneal GP wear and referred for scleral contact lens fit for resolution; history of dry eyes OU – non-compliant management

**Medical History:** No medications reported and NKDA

**Pertinent Findings:**

**Visual Acuities (cc):** OD: 20/20<sup>-1</sup> OS: 20/20<sup>-1</sup>

**Pupils:** PERRL, (-) APD OD/OS

**Intraocular Pressures:** OD:

**Slit Lamp Exam:**

**Lids:** dermatochalasis OU, mild crusting/collarettes OU, blocked meibomian glands OU

**Conjunctiva:** trace injection OU

**Cornea:** s/p corneal transplant with clear corneal incisions OU, central graft with few spots of inferior haze inferior OD, haze/scarring with encroaching vessels temporally with few spots of haze inferior OS

**Tear film:** reduced breakup time, with prominent mucous strands that move with blink OU

**Diagnosis:**

1. Keratoconjunctivitis sicca, not specified as Sjogren’s, bilateral OU (associated mucus fishing syndrome OU)
2. Corneal transplant status OU

### Treatment

No change to original scleral contact lens parameters (DIA/SAG/BC/POWER)

OD: ZenLens RC Toric PC 14.8//7.11/-1.50DS

OS: ZenLens RC 14.8//6.99/+0.50DS



Image 1: Original ZenLens fit OS



Image 2: ZenLens fit with chemosis OS



Image 3: meibomian gland imaging, showing abnormal and atrophied glands OD/OS

**Management:**

1. Lid scrubs, with demonstrated and written instructions QD
2. Warm compresses with Bruder Mask BID x 10-15 minutes

**Prescribed:**

1. Doxycycline hylate 50mg PO BID
2. Prednisolone acetate ophthalmic solution 1% 1gtt BID OU
3. Olopatadine hydrochloride ophthalmic solution 0.7% 1gtt QD OU
4. Preservative-free artificial tears 1gtt 4-6x/day OU

### Results

- Patient did not require a change in the scleral lens parameters and a re-order of the scleral lens was not necessary
- Use of an oral medication, topical steroid, artificial tears and proper lid hygiene techniques (lid scrubs, warm compresses, etc.) relieved all chief complaints
- Patient education was priority due to history of non-compliance, resulting in bilateral corneal penetrating keratoplasty secondary to acanthamoeba keratitis

### Discussion

**Keratoconjunctivitis Sicca:**

- Large range of etiologies highlights the importance of understanding the complete patient history and targeting the true underlying cause
- Mild to moderate cases of keratoconjunctivitis sicca require frequent non-preserved artificial tears and nighttime ointment along with lid hygiene care. Advanced cases often require use of external aids (i.e. punctal plugs), and consideration of more drastic and long-term management (i.e. cyclosporine topical drops and/or oral medication)<sup>[1]</sup>

**Challenges Encountered:**

- Numerous diagnosis, with different timelines, led to confusion for the patient, requiring more in-depth explanation and patient education
- Management of ocular condition from multiple eye care professionals, with differing management/treatment advice, amplified patient confusion
- Patient history of non-compliance required more rigorous patient education, with written and verbal instructions, and reminder of previous management regimen (especially with scleral lens wear)
- Patient travelled a long distance for specialty lens management, posing as a difficulty for scheduling follow-ups

### Conclusion

- Re-ordering and change of scleral parameters are not always necessary immediately, especially prior to management/treatment of underlying cause of ocular surface inflammation and dryness
- Thorough explanation of the importance of compliance is just as important as the physical management/treatment options
- Consideration of financial limitations when treating this patient posed as a challenge, however, also acted as motivation for compliance with non-medication based hygienic techniques

### References

1. Gerstenblith AT, Rabinowitz MP. The Wills Eye Manual, 6<sup>th</sup> edition. Philadelphia: Lippincott Williams and Wilkins, 2012.
2. Chang C, DeLoss K. Contact Lenses After Corneal Transplantation: A road map to success through the challenging journey of fitting contact lenses post-keratoplasty. CL Spectrum, Jun 2018.