Vision in both lenses is unacceptable:

- EB reports:
  - Due to debris accumulation in post-lens tear film
  - In Sjögren’s syndrome: scleral lenses can provide the ocular surface protection is becoming an increasingly
  - Maximize VA & reduce secondary glare
  - Reduce the number of times per day the lens must be removed and reinserted for cleaning
  - Improve comfort (possibly)
  - Reduce the likelihood of scleral lens dropout
  - Reduce the number of times per day the lens must be removed and reinserted for cleaning

BACKGROUND

Ocular surface protection is becoming an increasingly important indication for scleral lenses:

- In Sjögren’s syndrome: scleral lenses can provide the ocular surface with additional hydration

Fogging is a very common scleral lens complication:

- Due to debris accumulation in post-lens tear film and/or deposit formation on anterior lens surface
- Fogging is particularly prevalent & important in patients wearing scleral lenses to manage ocular surface disease

- Minimizing lens fogging is critical to 1:
  - Improve comfort (possibly)
  - Reduce the likelihood of scleral lens dropout
  - Reduce the number of times per day the lens must be removed and reinserted for cleaning

VISIT TIMELINE:

- June 6, 2016:
  - Referral received from local OD
  - ZenLens delivery & same-day fit

- June 15, 2016:
  - Patient EB presents for initial fit

- July 11, 2016:
  - ZenLens one-month OD

- July 23, 2016:
  - ZenLens one-month OS

- July 25, 2016:
  - ZenLens delivery & same-day fit

- September 20, 2016:
  - ZenLens one-month follow-up:

- November 29, 2016:
  - ZenLens delivery & same-day f/u
  - ZenLens one-month follow-up:

INITIAL FITTING

Initial lens fitting:

- ZenLens oblate with LD = 16.0 initially selected for the possibility of using a microvial to clear the pterygia

- Initial examination findings:
  - VAs with ORx: OD 20/60; OS 20/25
  - Adequate central & limbal clearance except over pterygia where lens was bearing OU
  - Slight superior/inferior edge liftoff OU
  - 2+ post-lens tear debris after fitting assessment OU

Empirical lens order:

- ZenLens oblate with LD = 16.0, BOZR = 4.400 OU
- Ordered steep-6 vertical meridian OU to reduce edge liftoff, standard horizontal OU

LENSES #1: ZENLENSES OBLATE

LENSES #2: EYEPRINT PROSTHETICS (EPP)

EB reports:

- Dry eye symptoms absent
- Fogging considerably reduced compared to initial ZenLens fit
- VAs with ORx: OD 20/30; OS 20/20 (20/20 with DMV spg of anterior lens surface)
- Central/limbal/scleral fit as observed on June 23
- 2+ conjunctival prolapse nas/temp/inf OU
- 3+ post-lens tear debris, anterior deposits OU

EB reports:

- Dry eye symptoms remain reduced since ZenLens fitting
- Fogging is reduced after 5 hours

FOLLOW-UP

EPP one-month follow-up:

- VAs in EPP lenses: OD 20/30, OS: 20/20
- Adequate central and limbal clearance OU
- Adequate scleral alignment, including over both nasal pterygia OU
- Confirmed with anterior segment OCT:
  - Vault = 56 um OD; 43 um OS
- Trace anterior lens deposits OU

EB reports:

- Dry eye symptoms absent
- Fogging considerably reduced compared to initial ZenLens fit
- VAs with ORx: OD 20/20; OS 20/20 (20/20 with DMV spg of anterior lens surface)
- Central/limbal/scleral fit as observed on June 23
- 2+ conjunctival prolapse nas/temp/inf OU
- 3+ post-lens tear debris, anterior deposits OU

CONCLUSION

- Scleral lenses remain an excellent treatment option for patients with severe ocular surface disease when unresponsive to conservative treatment.
- Ocular impression-based scleral lenses (such as the EyePrint Prosthetic lenses) may provide a benefit over conventional lenses in managing ocular surface disease:
  - 1. Optimized alignment over the sclera / over ocular surface irregularities may contribute to reduced lens fogging
  - 2. Hydra-PEG coating may result in reduced deposits
- Further research is warranted regarding the pathophysiology of scleral lens fogging and how to mitigate this complication.
- Advances may improve the comfort & long-term success rates of scleral lenses in treating severe ocular surface disease.

REFERENCES