

LEVEL 3 DRY EYE TREATMENTS: SCLERAL LENSES

The final installment of a four-part series about treatments for advanced dry eye disease.

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WITH S. BARRY EIDEN, OD, FAAO, AND CHRISTINE W. SINDT, OD, FAAO, FSLs



Regular readers know that this series has explored options for treating patients with stage 3 dry eye disease (DED) by asking experts to address frequently asked questions. Previous installments have examined the use of autologous serum, amniotic membrane transplantation, and punctal cauterization. This final installment discusses the use of scleral contact lenses in this difficult patient population.

Scleral contact lenses are large-diameter rigid gas permeable (RGP) lenses that vault the corneal surface and land on the sclera. The bowl of the lens is filled with nonpreserved solution prior to insertion, which results in protection and added moisture for the ocular surface.

— Abby Gillogly Harsch, OD, FSLs, FAAO, and Nicole Stout, OD, FAAO

In what type of patient with DED would scleral lenses be most beneficial?

S. Barry Eiden, OD, FAAO: We find them very helpful for patients with neurotrophic keratitis, exposure-induced keratitis, etc.

Christine W. Sindt, OD, FAAO, FSLs: I prefer to limit scleral lens fitting for dry eye to severe cases, such as graft-versus-host disease, severe Sjögren syndrome, DED due to medication use which cannot be stopped, neurotrophic corneas, exposure keratopathy, and burns. I fit them in patients with rosacea-related stem cell deficiency, but this can also induce complications, so it must be monitored closely. I think the benefits must outweigh the risks.

What do you recommend as a follow-up schedule for patients with scleral lenses?

Dr. Eiden: After the initial dispense we see patients at 1 week, 1 month, 3 months, and 6 months. After that, ongoing follow-up will range from quarterly to every 6 months, or, if the condition is very stable, annually.

What are the clinical contraindications for use of scleral lenses?

Dr. Eiden: I am always concerned about corneal hypoxia with scleral lenses. If endothelial cell count on specular microscopy is low, we try to avoid using them.

“ For patients who benefit from scleral lenses for ocular surface disease, we look at this as an ongoing therapy.

—S. Barry Eiden, OD, FAAO

Dr. Sindt: It would be correct to say a contraindication is inflammation or infection, however, sometimes it is necessary to fit a scleral lens to get the inflammation under control, especially in cases of severe dry eye. It is important to know the natural progression of the disease in order to understand the consequences of treating or not treating with scleral lenses.

What are the risks for the patient with scleral lens treatment?

Dr. Eiden: The primary risk is for mechanical trauma due to insertion and removal. There is also increased risk of microbial keratitis and, again, hypoxic sequelae.

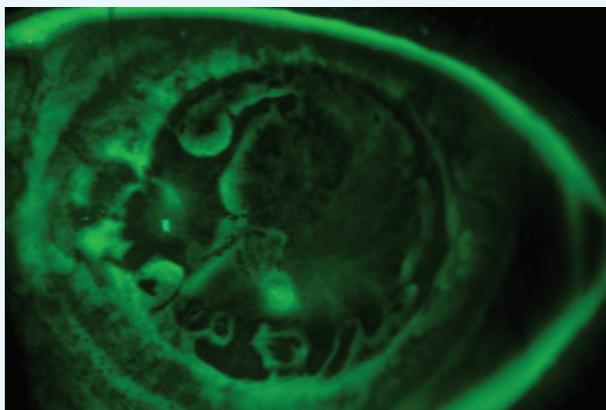


Figure 1. Ocular surface of an 80-year-old patient who experienced herpetic keratitis.

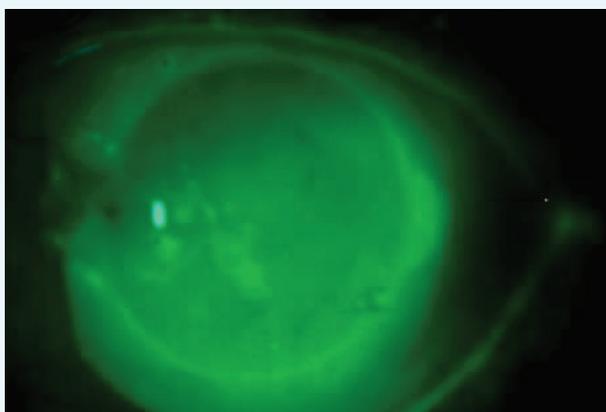


Figure 2. Ocular surface of the same patient 1 week after application of a scleral lens.

How quickly do you expect patients to notice improvement of their symptoms with scleral lenses?

Dr. Eiden: We have seen virtually immediate positive subjective responses, even during diagnostic fitting evaluations.

Dr. Sindt: Some patients feel better almost immediately, but I expect physical improvement of signs within 2 weeks.

How long should patients expect to wear scleral lenses?

Dr. Eiden: For patients who benefit from scleral lenses for ocular surface disease, we look at this as an ongoing therapy.

What is the most common positive or negative feedback you receive from patients who wear scleral lenses?

Dr. Eiden: An 80-year-old patient experienced herpetic keratitis and as a result had light perception visual acuity in an eye that was highly uncomfortable due to ocular surface degradation. This was formerly treated with ban-

dage soft contact lens and tarsorrhaphy without success and was referred to us for scleral lens management. When we placed a diagnostic lens, he went from chronic pain to comfort. He would not allow us to remove the diagnostic lens! We fit him, and he has worn the lens for more than 5 years on a continuous wear basis, removing the lens for cleaning and disinfection only once weekly (Figures 1 and 2).

Dr. Sindt: I frequently hear comments such as “You gave me my life back,” which I feel is very positive. The negative is when patients call me to say they broke a lens and need one as soon as possible. Cost can also be a factor, although most people feel the positive result is worth the cost.

What clinical pearls can you share regarding this treatment method?

Dr. Eiden: It is key to achieve full corneal vault without any areas of bearing and as close as possible to parallel landing on the bulbar conjunctiva. We want to fit with the highest Dk materials possible, thinnest designs possible, and minimizing vault values to optimize oxygen transmission. The use of anterior segment optical coherence tomography to evaluate lens vault and landing is highly valuable. Keep in mind that all scleral lenses settle, and vault values will decrease: Those measured at dispensing will be higher than those measured after lenses have been on for several hours. We typically want to evaluate the lens after it has been on the eye for more than 4 hours. Over the past year, we have moved more and more into reverse-geometry oblate shape designs that minimize myopic powers due to their flatter base curves. This optimizes vision quality.

Dr. Sindt: First, understand the disease you are working with. Second, always treat meibomian gland dysfunction. Third, look under the eyelids. Autoimmune diseases frequently attack the lids, too.

What patient education should be provided before dispensing scleral lenses?

Dr. Eiden: Great care and time should be put into education regarding insertion, removal, care of the lenses, and the warning signs of problems that patients should be on the lookout for.

What daily wear time do you recommend for scleral lenses in patients with DED? Do you typically have them continue frequent use of artificial tears?

Dr. Eiden: Most patients will wear their lenses for well over 12 hours. Use of lubricants during lens wear is not as impactful as it is with soft lenses or corneal RGP lenses because the retrolens fluid provides the ocular surface wetting. It is not uncommon, however, for patients to benefit

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from removing the lens, rinsing, and refilling with nonpreserved saline during the day. We do not encourage that, but some patients find it beneficial.

Dr. Sindt: Patients usually wear them all waking hours because, as patients will tell us, their “day is over” once they take them out.

What agents do you recommend using to fill the scleral lens bowl before insertion? What cleaning agents do you recommend for patients with DED?

Dr. Eiden: We use unit-dose nonpreserved and nonbuffered saline vials to fill the lens. An example is LacriPure (0.9% NaCl, Menicon), which is approved by the US Food and Drug Administration.

Dr. Sindt: I recommend either Clear Care (Alcon) or Unique pH (Menicon) for lens disinfection because they are compatible with plasma treatment. ■

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