TIPS FOR NOVICE SCLERAL LENS FITTERS

Three pointers to help you nail that fitting.

BY KAREN LEE, OD

Despite being a relatively young practitioner, I am often asked what I know now that I wish I had known when I first started fitting scleral lenses. There is no shortage of how-to articles reviewing a broad range of scleral lens topics: An internet search for "scleral lens tips" returns 734,000 hits. Still, nothing can substitute clinical experience.

Fitting skills improve dramatically after a practitioner completes four or five fittings. This article offers several pearls for scleral lens fitting that would likely have saved me frustration and chair time if I had known them when I started out.

TIP NO. 1: ONE SIZE DOES NOT FIT ALL.

As with automobiles, there are many scleral lens options available. Selecting the appropriate "vehicle" will greatly improve your ability to navigate the given terrain. A universal scleral lens, perfect for every patient, does not exist. Therefore, it is crucial to have several diagnostic trial sets with a variety of diameters and customization capabilities.

The appropriate scleral lens diameter depends on the patient's diagnosis and anatomic features (Table). Smaller-diameter lenses have several advantages. They are easier for patients to handle, and they may not require the use of toric peripheral curves, as the sclera tends to be more symmetric near the limbus.[1] These lenses are ideal for patients with smaller horizontal visible iris diameters and palpebral fissures. These lenses however, are limited in sagittal depth, making them less ideal for patients with severe corneal irregularities.

Larger-diameter lenses are able to accommodate patients with severe corneal irregularities and those who require greater sagittal depth. Much like a skyscraper that requires a robust foundation, a deeper scleral lens also needs a sturdier foundation—a larger landing area (Figure 1). Patients with ocular surface disease may benefit therapeutically from larger-diameter scleral lenses. These lenses however, often require toric peripheral curves due to peripheral scleral asymmetry.[1]

TIP NO. 2: PERFECTION IS RARE.

Textbook-perfect scleral lens fits may occur, but they are few and far between. I have spent hours chasing areas of imperfection that, in hindsight, did not need perfecting. Some minor imperfections may be acceptable, as long as the patient's ocular health and vision are not compromised.

It is common for well-fit scleral lenses to sit slightly inferotemporal on the eye due to scleral shape.[2] If there are no visual complaints and no signs of midperipheral bearing, the slight decentration may be acceptable. When lens decentration causes decreased vision due to misalignment of the optical and visual axis, it may be deemed unacceptable. This is particularly problematic for multifocal scleral lenses. Lens centration often improves with the use of back-surface toricity, by incorporating prism, or by decreasing the lens diameter.[3] Don't let a little decentration prevent finalization of a fit if the patient is doing well and corneal and conjunctival staining are absent at follow-up.

TABLE. DIFFERENCES IN SMALLER- AND LARGER-DIAMETER SCLERAL LENSES

Smaller OAD	Larger OAD
Low to moderate corneal irregularity	Moderate to severe corneal irregularity
High refractive error	Ocular Surface Disease
Post-Surgical (PKP, RK, Intacs, LASIK, PRK)	
Easier application	Application may be more challenging
Usually does not require toric periphery	May require toric periphery
Can accommodate smaller tear reservoir	Can accommodate larger tear reservoir

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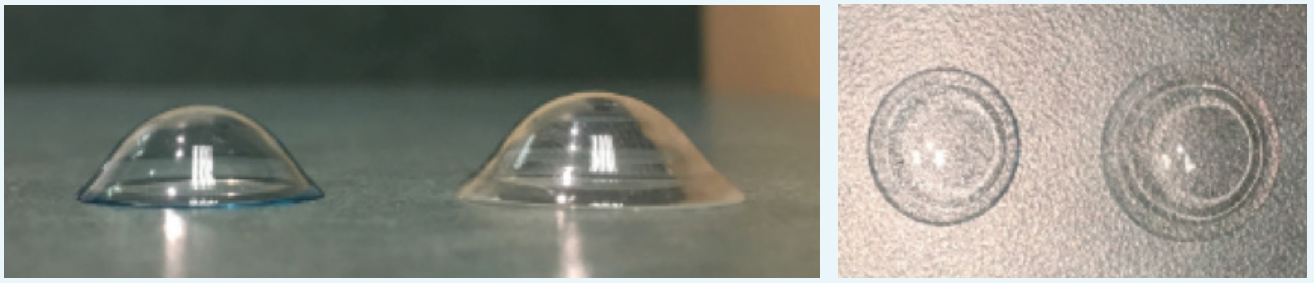

Figure 1. The effect of scleral lens diameter on sagittal depth. Both lenses have a central base curve of 52.00 D. The lens on the left of each picture has a diameter of 16.0 mm and a sagittal depth of 5270 µm. The lens on the right has a diameter of 18.0 mm and a sagittal depth of 6030 µm.

The occurrence of focal areas of mild conjunctival blanching due to tightness is another common occurrence when fitting scleral lenses. If the majority of the blanching is less than 3 consecutive clock hours along the landing zone of the lens, it may not be worth sacrificing the rest of the fit to eliminate this small suboptimal area. If blanching is diffusely noted throughout, flattening the peripheral curves may improve the fit. If the tightness is sectoral at 3 and 9 o'clock (ie, nasal and temporal) or at 12 and 6 o'clock (ie, superior and inferior), incorporation of toric peripheral curves may alleviate it.

Small mild patches of superficial punctate keratitis (SPK) that do not correlate with the fit of the lens may also be acceptable. There are many possible causes of SPK, from overly aggressive eye rubbing to late-night blinkless "Game of Thrones" marathons. The reality is, this pinpoint pattern of epithelial damage is not always secondary to scleral lens wear. Of course, SPK that can be attributed to scleral lens wear must be addressed immediately, as this may have long-term consequences (Figure 2).

Diffuse corneal staining that does not correlate with the fit of a lens should also be addressed, as it may be a sign of corneal toxicity (Figure 3). This type of solution sensitivity reaction is most commonly attributed to toxic preservatives trapped in the tear reservoir behind the lens. A detailed history of all eye drops and lens cleaners used may help identify the cause of a sensitivity reaction. Switching to preservative-free cleaners or medications and emphasizing the importance of waiting at least 10 minutes after medicine drop instillation before applying lenses can make all the difference.

TIP NO. 3: BE AN ADVOCATE FOR APPLICATION AND REMOVAL TRAINING AND PROPER USE OF SOLUTIONS.

In a prospective study by Kornberg et al, younger and older patients adopted the use of a scleral device with equal ease regardless of diagnosis.[4] However, difficulty with lens handling is one of the primary reasons for scleral lens failure.[5]

Having visited BostonSight, the nonprofit organization that pioneered PROSE treatment, I can attest that the application and removal (A&R) training they provide is incredibly thorough and may be the secret behind their success. You can integrate supplemental educational videos and instructional hand-outs into your practice, and offer patients multiple A&R training visits if needed. A perfectly fit scleral lens is useless if the patient is unable to wear it, so be sure to ask patients if they are experiencing handling problems at every visit. Offer additional A&R training if needed.

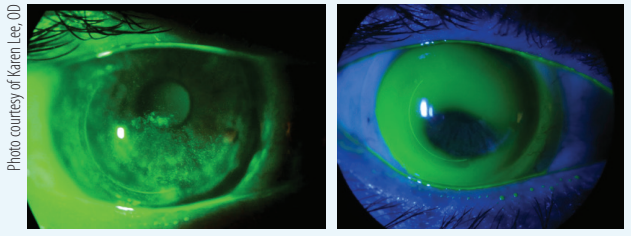

Photo courtesy of Karen Lee, OD

Figure 2. Corneal staining secondary to apical bearing.

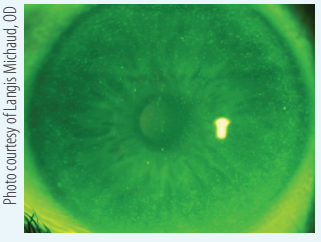

Photo courtesy of Langis Michaud, OD

Figure 3. Diffuse corneal staining.

SAVING CHAIR TIME

I hope these pearls can help novice scleral lens fitters to save many hours of chair time. Having several different scleral lens diagnostic trial sets and not sweating minor imperfections may simplify and expedite the fitting process. Offering thorough A&R training to your patients will set them up for scleral lens success. ■

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