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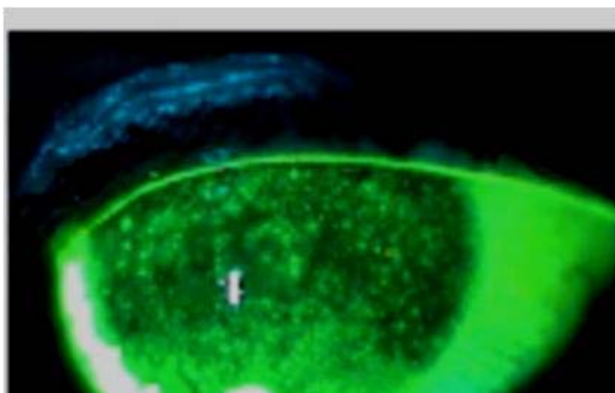
Scleral RGP Lens for Severe Dry Eye

Key words: Chronic Graft versus Host Disease, Dry eye, Scleral lens fit

Introduction

A 45-year-old man (TL) was referred for contact lens consultation and evaluation of his severely dry eyes and ocular discomfort subsequent to systemic diagnosis of Chronic Graft versus Host Disease (cGVHD) 18 months after bone marrow transplant. He had experienced only minor relief from traditional dry eye therapy, which included Restasis bid, Refresh Plus q 30 min, Genteal gel bid, Lacrilube ung hs, punctal plugs upper and lower in both eyes and oral Omega-3 supplements. He was also taking numerous systemic medications to battle multiple systemic issues from the cGVHD. His chief complaint was that he could not read for more than 5 minutes at a time because of eye pain, discomfort and blurring.

Examination showed that VA with his current moderately myopic prescription was OD 20/50 and OS 20/40 at 1:30 pm. Updated spectacle refraction demonstrated no improvement. Near unaided acuity was J5 at 15". Slit lamp evaluation showed moderate (2-3+) but extensive corneal staining throughout the cornea that was more intense inferiorly. He also had 2+ general bulbar hyperemia, 2+ palpebral hyperemia and 1-2+ upper papillary reaction. TBUT was < 1 second and Schirmer scores were 0 mm in each eye. Topography revealed central steepening with moderate distortion and irregularity.



After receiving an explanation of the risks and benefits of scleral RGP lenses, TL decided to proceed with scleral lens fitting. The first diagnostic lenses were a Jupiter design (Essilor Contact Lens Division, Dallas TX) with an 18.2 mm lens diameter, 8.6 mm optical zone, 13.8 mm corneal chamber and a base curve 0.50D steeper than flat K.

Extensive punctate staining typical in cGVHD patients with severe dry eye

The fit of the right lens was ideal (figure below), demonstrating central clearance of at least 200 microns (gauged relative to the corneal thickness), limbal clearance and uniform scleral bearing/alignment (no evidence of high edge lift or compression of the conjunctival vessels). The left lens resulted in small limbal bubbles with trace evidence of conjunctival compression. Over-refraction was performed to determine the required power. The right lens was ordered with the same posterior curves as the diagnostic lens while the left was ordered with a base curve 0.75D flatter and the scleral portion 0.50D flatter than that of the diagnostic lens.

At dispensing, the lenses provided acuity of OD 20/40 and OS 20/30. I asked the patient to discontinue use of Restasis, which historically has complicated scleral lens wear. After an instructional session of insertion and removal techniques, I recommended an initial wearing time of 4 hours to increase gradually to 8 hours. I recommended insertion with preservative-free saline (Unisol) filling the bowl of the lens. Preservative-free lubricating drops (Refresh Plus) were to be used as needed during lens wear.

At the one-week follow-up, TL reported good tolerance of the lenses with a wearing time of up to 10 hours. He stated that his eyes felt much better such that he only required lubricating drops every 2-3 hours and he could read and work at the computer for up to one hour. Visual acuity with the lenses at one week had improved to OD 20/25 and OS 20/20. Slit lamp evaluation showed 1+ general hyperemia and only trace punctate staining. Topography was also improved with more regular central readings and much less distortion. He continues to wear the scleral RGP lenses 10-12 hours per day, reporting that his overall quality of life has improved significantly although he continues to undergo treatment for his physical conditions.

We will continue to monitor TL's corneal health and lens condition every 6 months. The improvements that TL experienced in visual acuity, slit lamp findings and overall comfort are typical for this type of case. His wearing time is better than average as many of our scleral lens wearers find it more comfortable to remove, clean, rewet and re-insert their lenses after six hours of wear. For patients with severe dry eye conditions, scleral RGP lenses should be considered as a viable alternative to traditional treatment with lubricating eye drops.

Scleral lens (18.2mm) in place



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Michael Lipson is an optometrist and assistant professor at the University of Michigan's Kellogg Eye Center, Department of Ophthalmology and Visual Science.

He received his optometry degree from Illinois College of Optometry and completed his undergraduate studies at Michigan State University.

He works with all types of contact lenses with emphasis on specialty contact lens fitting for overnight corneal reshaping, keratoconus, post-corneal transplant, post-refractive surgery and for severe dry eye patients.

He has spoken to optometrists and ophthalmologists nationally on the subject of overnight corneal reshaping and he conducts fitting workshops on corneal reshaping for private doctors and at schools of optometry. He has been the principle investigator for studies on corneal reshaping, visual quality of life and new lens designs (Synergeyes) that have been published in peer-reviewed journals.

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