Management of Recurrent Herpes Simplex Keratitis with Scleral Lenses over Corneal Transplant

Introduction

Herpes Simplex Keratitis (HSK) is a viral infection of the eye caused by the Herpes Simplex Virus (HSV). HSV can be transferred to the eye by an active infection and lie dormant until reactivated by a number of factors including ultraviolet radiation, stress, fever, trauma, menstruation, or certain medications. HSK affects the epithelial nerve fibers of the cornea causing pain, redness, blurry vision, photophobia, and discharge. If the infection goes deeper to involve the stroma, it can lead to scarring and decreased vision.

HSK is treated with topical antivirals and oral antivirals. If there is an stromal involvement, infections are treated additionally with a topical steroid to try and reduce the inflammation. If scarring becomes visually significant after resolution of the infection, a corneal transplant may be necessary to improve the potential for clarity. Unfortunately, HSV may recur after a corneal transplant, which may lead to a graft rejection.

Patients with quiescent HSK, reduced vision due to corneal irregularities. Traditional spectacle correction and soft contact lenses will not fully correct the corneal irregularities. A corneal gas permeable (CGP) lens is a less comfortable contact lens bearing. The current scleral gas permeable (SGP) lens maximizes vision, clearing the scar, and discharge.2 If the infection goes deeper to involve the stroma, it can lead to scarring and decreased vision.

Corneal gas permeable (CGP) lens is a less comfortable device and may increase the risk of irritating the scar from contact lens bearing. The current scleral gas permeable (SGP) lens maximizes vision, clearing the scar, and discharge.2 This case report describes the physical fitting and physiological challenges inherent with a severely distorted cornea requiring a high hyperopic correction.

Case Report

51 year old Caucasian female accountant referred for contact lens management:

I. Chief complaint: blurry vision OS with correction

II. Ocular history: HSK OS x 2004. Penetrating Keratoplasty OS x 2006. Recurrent Herpes Simplex Keratitis OS x 2012 causing visually significant scar over graft. Resolving graft rejection

a. Habitual spectacle wearer
b. Failed soft contact lens and corneal gas permeable lens after PKP OS.

III. Medical history: unremarkable

IV. Medication: Pred 1% TID OS, Valcyclovir 1000mg qd

Silt lamp exam:

OD: No significant findings
OS: PKP with significant HSV scar located superior temporally on the graft. Slight central haze encroaching the pupil. Large vessel growth superiorly over the graft with inactive smaller neovascularization – Figure 1

Corneal Topography – Figure 2

Pachymetry: central 490 / apex 490 / thinnest 450

BCVA with spectacles:

OD: -4.50-0.50x48 20/20

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Discussion and Conclusion

When managing diseased corneas with SGPs, the goal is to completely vault the cornea and limbus by having the lens rest on the conjunctiva. In this particular case, we had to vault the elevated scar, ensuring there was not excessive clearance elsewhere; accompanied with use of the highest DK material available will allow maximum oxygen transmittance. Furthermore, due to the increased center thickness of a plus lens, it was necessary steepen the base curve, effectively adding minus, to reduce the excessive plus power of the lens. This reduces the center thickness allowing an increase in oxygen permeability. Since this patient has had a full thickness transplant, corneal shape should be closely monitored. This must all be taken into consideration when fitting SGPs, especially in patients with compromised corneas.

References