

Semi-scleral lens fitting with segment specific-ACT in irregular cornea patient after chemical burn

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Purpose

To report a case of using semi-scleral lens with Segment Specific Asymmetric Corneal Technology (SS-ACT) in managing patient with irregular cornea secondary from alkali burn

Case Report

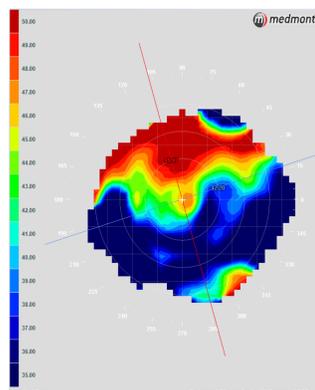
History

A 58-year-old male was referral from public hospital for contact lens fitting due to irregular cornea resulted from alkali burn in LE 5 years ago. The unaided VA was 6/60. His left eyelid was tight and cornea was surrounded by 1.5-2mm pannus. (Fig. 1)



[Fig. 1] Pannus in left eye

He claimed that he tried rigid gas permeable lens in the hospital and the vision improved. Corneal topography showed the superior cornea was significantly steeper. (Fig. 2)

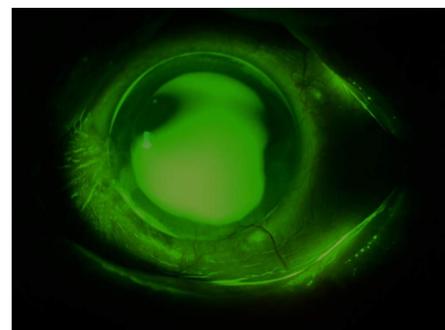


[Fig. 2]
Topography in left eye
Flat K 8.00mm @ 17
Steep K 7.43mm @ 107

Disclosure: The author has no direct or indirect proprietary interests in any products mentioned in the poster.

Contact Lens Fitting

He was first fitted Oculus Rose K IC, which is a 10.8mm diameter RGP lens with irregular cornea design. Although BCVA improved to 6/9.5-, good lens fitting cannot be achieved. Local bearing at the superior cannot be avoided despite changing the base curve. (Fig. 3)



[Fig. 3] Contact lens fitting (Trial fit)
Oculus Rose K IC / BC 7.8 / -2.00 / dia 10.8 / VA 6/9.5-

He was then tried with Oculus Rose K XL, which is a 14.6mm diameter semi-scleral lens. Standard design was used in the fitting session. BCVA was similar and the lens fitting was slightly better but still a local bearing can be found at the superior area. (Fig. 4)



[Fig. 4] Contact lens fitting (Trial fit)
Oculus Rose K XL / BC 8.0 / plano / dia 14.6 / VA 6/9.5-

Lens was finally ordered with Segment Specific Asymmetric Corneal Technology(SSACT) to create a steeper curvature at bearing region. After the modification, better lens fitting was achieved and the tear lens was more evenly distributed. (Fig. 5) In subsequent aftercare, the lens performance and ocular health were both stable.



[Fig. 5] Contact lens fitting (Trial fit)
Oculus Rose K XL / BC 7.9 / -4.00 / dia 14.6 / VA 6/9.5-
ACT Axis: 107 degree Segment width: 60-150
Amount of ACT: 1.5 Prism: 1.5D

Discussion

Patients having previous chemical burn usually have a distorted cornea and corneal scarring resulting in irregular astigmatism and poor spectacle vision. As the distortion is unpredictable and varies a lot depending on the extent of affected area, getting a optimal fitting is very challenging. Lens fitting will only be performed after the corneal inflammatory response completely resolved and ocular conditions became stable.

Standard design GP lens for irregular corneal or semi-scleral lens cannot provide optimal fitting due to highly distorted cornea in this case. SSACT is a relative new technology that can create a

curvature change at a specific arc or segment to prevent excessive bearing on local region. The modification of segment width and amount of asymmetry will be based on patients' corneal topography. It can help to enhance lens performance by improving lens fitting and maintaining good ocular health.

It is utmost important on closely monitoring ocular health in this kind of patients. Contact lens wear is associated with high risk of microbial infection, corneal inflammation and corneal staining. As their cornea is already compromised, it would be concerned if the contact lens has negative influence on the ocular health.

Patients with a large localized curvature change beyond the optical zone or in the edge lift could be beneficial from SSACT. Practitioner can apply SSACT to this kind of patients in order to optimize the lens performance.

References

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