Scleral Contact lens fitting in Neurotrophic Keratitis

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Introduction

This case report provides a complex presentation of severe neurotrophic keratitis secondary to trigeminal nerve compression attributable to a seller/cavernous meningioma. We explore different treatment options, including aggressive lubrication with artificial tears, punctual plugs, and tarsorrhaphy to improve signs of secondary exposure to keratopathy that patients often develop with this condition. We discuss implications for using therapeutic scleral contact lenses to treat neurotrophic keratitis and factors to consider when determining whether a patient is a good candidate to wear scleral contact lenses. This case highlights detrimental effects that this condition can have on patient vision and the way that scleral contact lenses can restore corneal health, improve vision, and affect patients' quality of life positively.

Case Description

72-year-old Caucasian female
Scleral contact lens fitting.
Chief complaint: "blurry vision in the left eye (OS)".
Medical history: (+) sellar/cavernous sinus meningioma
(+) complete cranial nerve III and VI palsy
(+) left facial paresis attributed to trigeminal neuralgia.

- Prior treatment included fractionated radiation and transsphenoidal resection.
- Ocular history was positive for severe neurotrophic keratitis OS
- lateral tarsorrhaphy, pseudophakia OS
- post-cataract extraction without complication 3 months,
- Fuchs corneal dystrophy in both eyes (OU).

Initial VA's OD was no light perception (NLP) in the right eye
Initial VA's OS was 20/400 with pinhole that improved to 20/200.

- Confrontation fields showed complete 360-degree constriction OD / normal OS.

- Extraocular muscles were smooth, accurate, full, and extensive,
- Pupils were equal, round, and reactive to light OU.

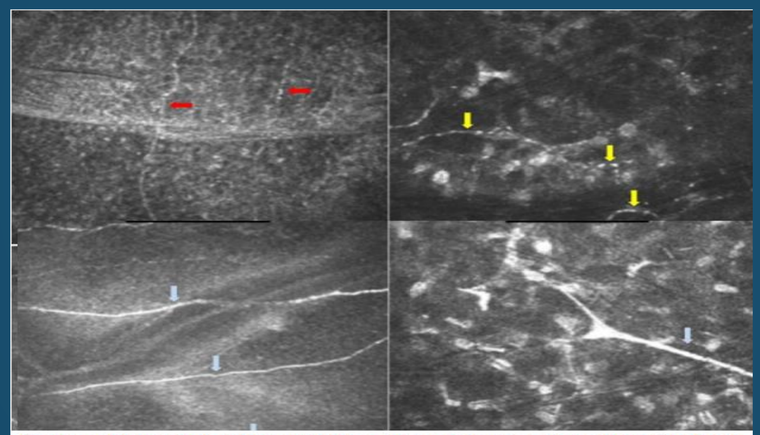
Right eye: None significant Factors

Left eye showed lateral tarsorrhaphy, 3+ MGD, telangiectasia, inferior punctual plug, and moderate ptosis. The conjunctiva and anterior chamber was normal. The cornea showed 3+ PEE, 4+ guttata, moderate central epithelial, stromal haze and inferior thinning, with no epithelial defect or filaments. The lens showed a clear, centered, and stable posterior chamber intraocular lens (PCIOL) with 1+ posterior capsular opacification(PCO).

Left cornea was found to be sufficiently healthy to wear contact lenses and the patient was fit with a CooperVisionOnefit Med oblate scleral contact lens with optimized pupil optics (OPO). Appropriate fit of the scleral contact lens showed adequate vault over the cornea with full clearance over the limbus. Visual acuity *with the contact lens in the left eye improved to 20/60*.

Discussion

This case provides a complex presentation of neurotrophic keratitis for which many treatment options were attempted before scleral contact lenses were tried. I believe that this case also highlights patient factors that need to be considered when determining whether contact lenses are a good fit for a particular patient and the positive effect that it can have on vision and quality of life. Before she visited our clinic, the patient's current treatment was use of aggressive lubrication with artificial tears and punctual occlusion in an attempt to increase lubrication and reduce the rate at which the tears drained. Given that there was no difference in the left eye's corneal presentation when compared to the right eye, which had been closed shut because of eyelid ptosis, it was determined that further management options needed to be explored. A lateral tarsorrhaphy was performed in the left eye to decrease the eye's exposure to the outside environment; however, it did not appear to improve the cornea's current state significantly. Scleral contact lens treatment was considered only after these treatment options were explored without much improvement in signs or symptoms. Using scleral contact lenses to treat neurotrophic keratitis is often not the first choice of treatment, as wearing contact lenses carries a risk of infection. Given neurotrophic keratitis', nature, which includes decreased corneal sensitivity and reduces the cornea's ability to heal, patients with this condition must be educated thoroughly on contact lens hygiene and have a high sense of self-awareness and motivation to seek care if infection may be present. In this case, the patient expressed strong motivation to maintain proper lens hygiene and had good support from friends and family who were willing to help her.



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I believe that her motivation to continue with using the contact lenses stemmed from the patient's dramatic improvement in vision that she received by wearing them. This patient's initial visual acuity was only 20/400, which categorized her as severely visually impaired based upon The World Health Organization classifications of low vision [7].

Scleral contact lens fit over the left eye improved her vision to 20/60, which now places her as near-normal vision on the classification scale of low vision [7].Although 20/60 visual acuity may not appear to be very impressive to a typical patient, it was a dramatic change for this particular patient. She had lost all vision in the right eye and her best corrected visual acuity with traditional spectacle lenses ever improved her vision to only 20/200 in the left eye. As one can imagine, this can be debilitating to one's everyday life and compromise mental health, as it prohibits the patient from fulfilling certain activities. The scleral contact lens restored this patient's vision and gave her a sense of hope that she could accomplish future goals.

Conclusion:

In summary, neurotrophic keratitis is a complex disorder of the cornea that can leave patients with severe vision loss. Many treatment options are available; however, patients may find it inconvenient to comply with traditional treatment methods that can or may leave the patient with irreversible cosmetic changes. Further, many doctors may be reluctant to fit a patient with reduced corneal sensitivity and poor corneal healing ability with scleral contact lenses because of the risk of infection. However, vision and quality of life can be improved dramatically with appropriate contact lens fit and careful patient education and care. In similar cases of neurotrophic keratitis or corneal disorders, I believe that scleral contact lenses are a viable treatment option to consider, as they can have positive therapeutic ability and improve many patients' potential for vision.

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