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Case Series

Scleral Lens - An Approach to Aesthetic Improvement in Ptosis - A Case Report

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Abstract

Introduction: Ptosis is drooping of the upper eyelid which can be neurological, myogenic, traumatic, mechanical, or progressive exopthalmoplegia. Ptosis correction is sometimes challenging possibly due to its progressive nature. This case report emphasizes the other dimension of Scleral fitting the patient. The case report enlightens the importance of scleral lenses for improving cosmesis in eyes with ptosis.

Case: This case series reports 3 cases of ptosis managed with scleral lenses. Firstly, a 50-year-old male complained of drooping of the right eye and poor visual quality for distant objects. The patient's previous ocular history reports that he underwent Laser vision correction in both eyes and ptosis correction in the right eye. The palpebral fissure height with scleral lenses increased to 11 mm with scleral lenses which was 10 mm at baseline measurement. Similarly, the second case is of a patient was 65 years old lady who had unilateral ptosis which was managed with a scleral lens. The palpebral fissure height increased to 7 mm with scleral lenses which was 0 mm previously. Lastly, a 35-year-old male patient was diagnosed with Steven Jhonson syndrome and has blepharoptosis in the right eye. Scleral lenses were tried with which the PFH improved to 8 mm from 4 mm.

Conclusion: The case report underscores the potential utility of scleral lens as a noninvasive option for ptosis management particularly in cases where surgical intervention may not be desirable or feasible. The scleral lens offers an innovative approach to address both the aesthetic and functional aspects and ultimately improve the quality of life.

Keywords: Ptosis; Scleral Lens; Dry eye, Ptosis Management; PROSE Lenses; Blepharoptosis

Introduction

Scleral lenses have been proven a boon in many cases for the advantages of visual rehabilitation it provides to patients with compromised corneas and ocular surface disorders. They vault over the cornea filled with preservative-free saline and land on the conjunctiva, providing comfort as they do not touch the cornea. The saline nourishes the cornea and ocular surface and thus is proven as a great option for ocular surface disorders. In addition to its visual rehabilitation role scleral lenses play an important role in therapeutic cases such as persistent epithelial defects, conjunctival chalasis as well as cosmetic reasons [1].

Ptosis is drooping of the upper eyelid which can be neurological, myogenic, traumatic, mechanical, or progressive exopthalmoplegia. Surgical approaches are always an option for moderate to severe cases however post-surgical complications concern patients to go ahead with the procedures. In such cases, scleral lenses can be used to enhance the patient's cosmesis and rehabilitate the vision which has been emphasized in the present case report which aims on the other dimension of Scleral fitting according to the patient's need.

Case Report

Case 1

A 50-year-old male patient came to the tertiary eye care center with a complaint of drooping of the right eye and poor visual

quality for distant objects. The patient's previous ocular history reports that he underwent laser vision correction in both eyes and ptosis correction 20 years back in the right eye. The patient's general health was unremarkable and was not under any systemic or ocular medication. On examination, his visual acuity with his glasses was 6/6 and N6 in both eyes. On slit lamp examination the right upper eyelid was found to be obscuring visual axes with a palpebral fissure height of 9 mm rest all the findings were unremarkable for both as has been diagnosed with aponeurotic ptosis. Corneal Topography was done to evaluate any post-LASIK ectasia, but there was no evidence of post-LASIK ectasia or flap deablation. The patient was referred for a contact lens trial to evaluate the changes in the aberrations with the contact lens.

Scleral lenses were tried because of ptosis and reduced quality of vision. The trial lens parameters were 19.5 mm in diameter, 3600 microns sag height, and 0.60 eccentricity. Over refraction was performed and the acceptance was -9.00DSph with which the patient can read 6/6 and N6 with a near add of +1.75DSph. ASOCT showed 300µm vault and on slit lamp fit assessment no edge lift or blanching were noted. The palpebral fissure height increased to 11 mm with scleral lenses. The patient felt the quality of vision improved significantly and appreciated the improvement in the cosmesis of the right eye Figure 1 (A, B).

Case 2

A 65-year-old female reported with complaints of droopiness of the eye associated with a dimension of vision and photophobia in the left eye for 2 years. The patient was under medication for diabetes, hypertension, and hypercholesterolemia for the last 7 years and was using lubricating eye drops for better comfort. On clinical examination, the patient's visual acuity with habitual correction was 6/9 in the right eye and 6/60 in the left. On ptosis examination, the palpebral fissure height of the right eye was 10 mm and the left eye was 1 mm. Slit lamp evaluation showed a normal anterior segment with early cataract changes in the right eye and the left has complete ptosis with corneal vascularization, diffuse SPK. Her TBUT values were 6 seconds and 2 seconds in the right and left eye respectively. Schirmer's was 10 mm in the right eye and 5 mm in the left eye. Meibography shows significant gland loss in the upper and lower lid of the left eye. Intraocular Pressure was found to be 10 mm of Hg in both eyes with a Goldman applanation tonometer. The patient was diagnosed with dry eye and advised for a scleral lens trial for vision and comfort. The scleral lens trial was done with an 18.5 mm diameter, 8 mm base curve, +0.25DSph power, 3000 microns sag height, and 0.60 eccentricity lens. AS OCT showed vault around 600µm, Slit lamp fit assessment showed good haptics, and without any edge lift. Vision improved to 6/9 with the over-refraction of +1.00DSph. The patient felt she could open the eye and reduced light sensitivity with SL. On ptosis examination, the PFH of the left eye was increased to 7 mm in the left eye. She was very comfortable with SL and able to open her eyes better Figure 1 (C, D).

Case 3

A 35-year-old male came to the clinic complaining of a diminution of vision with a burning sensation associated with irritation. The patient was diagnosed elsewhere with Stevens-Johnson Syndrome 12 years back and the left eye was severely keratinized. The best corrected Visual acuity in the right eye was 2/60 and the left eye was hand movement only. His palpebral fissure height was 4 mm in the right eye and severe ptosis and corneal keratinization in the left eye. The patient was referred for a scleral lens trial in the right eye. The scleral lens trial was done with an 18.5 mm diameter, 2800 microns sag height, and 0.60 eccentricity trial lens. AS OCT showed 200 microns vault and slit lamp fit assessment showed good haptics, and without any edge lift. Vision improved to 6/9 with the over-refraction of -2.00DSph. The patient felt he could open the eye better with scleral lenses. On ptosis examination, the PFH of the left eye was increased to 8mm in the right eye Figure 1 (E, F).

Discussion

Scleral lenses have always been a choice of optical management in cases where other optical modalities give unsatisfactory results not only from a visual rehabilitation point of view these lenses have also been in talks for their therapeutic approach also. The present case report along with some countable literature has reported the use of scleral lenses in managing ptosis which enlightens the use of a scleral lens to enhance the cosmesis and hence confidence of the patient too.

Ptosis treatment consists of surgical and non-surgical modalities. Recently M. EL-abiary., *et al*. [3] reported a case of a 56-year-old patient diagnosed with ptosis secondary to oculopharyngeal muscular dystrophy managed using cosmetic glue which is applied

in the upper eyelid 10-13 mm from the lid margin. However, this type of cosmetic glue is not yet medically established as a treatment option. Previously application of Octyl-2-Cyanoacrylate has been also reported as a management option for progressive myopathic blepharoptosis [4]. In the present case report, both cases, even an increase in the PFH increased the confidence level of the patient.

Few case reports have been published that states managing ptosis with scleral lenses. similarly Cherney., *et al*. [5] and Scofield-Kaplan., *et al*. [6] have reported a cases with bilateral ptosis secondary to Chronic Progressive External Ophthalmoplegia (CPEO), scleral lenses and reported the improvement in PFH and concluded the use of SL in preventing surgical procedures. Lindsay., *et al*. [7] in their innovative case report have concluded the successful use of larger-diameter scleral lenses with ptosis props in an eye with progressive bilateral ptosis secondary to ocular myopathy. However, incorporating a ptosis prop in the scleral lens makes the scleral lens bulky and is not always a priority option until cosmesis is the main complaint.

Recently, Katsoulos., *et al*. [8] have reported the efficacy of eyelid elevation by trying high-vault scleral lenses in a pediatric patient with clinical findings similar to secondary to Kearns-Sayre syndrome, albeit with a smaller scleral lens diameter and less severe ptosis. With an increase in upper eyelid support and a slightly widened palpebral aperture, the patient reported better vision due to increased eyelid lifting. They concluded that the more the sagittal depth, the more the lens volume and bulk and thus more support for the upper eyelid which can be effective in many cases to achieve the expected cosmetic result. However, the theoretically higher vault can compromise the oxygen delivery to the cornea which may further result in corneal hypoxia-related complications which can be a hurdle for long-term scleral lens use. Thus, further studies needed to address such challenges in fitting scleral lenses in patients with ptosis and with sufficient follow-ups are also needed with a larger sample size which should also consider the quality of life experienced by the patient undergoing such interventions.

Conclusion

This series of cases exemplifies the underutilized but effective role of scleral lenses as a non-surgical alternative in the management of ptosis, specifically in situations wherein surgery is contraindicated, rejected by the patient, or associated with unsatisfactory outcomes. Beyond their established role in ocular surface protection and visual rehabilitation, scleral lenses can provide significant aesthetic by mechanically supporting the upper eyelid. The ability of scleral lenses to bridge the gap between therapeutic and aesthetic needs is evident from the observed improvement in cosmesis and functional vision in all of the three cases. No identifiable health information was included in this case report. A consent was taken from the patient.

Conflict of Interest

Authors declares no any financial interest or any conflict of interest exists.

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