Scleral Lens Fit for Ocular Surface Disease Associated with Fibromyalgia.

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INTRODUCTION

According to the report of the Dry Eye Workshop held in 2007 the definition of dry eye is “a multifactorial disease of the tears and ocular surface that results in symptoms of discomfort, visual disturbance, and tear film instability with potential damage to the ocular surface. It is accompanied by increased osmolarity of the tear film and inflammation of the ocular surface.” 1 Dry eye syndrome and symptoms have also been associated with many autoimmune diseases including fibromyalgia. Fibromyalgia is a pain disorder that is known to cause prolonged episodes of pain in joints and muscles. A recent study looked at the corneal sensitivity and tear production of twenty fibromyalgia patients and compared these characteristics to a group of control subjects. The findings showed that fibromyalgia patients have decreased corneal sensitivity and decreased tear production compared to normal subjects. 2 Scleral Lenses have been successfully used to manage a wide variety of ocular surface disorders, in this case study we see dry eye syndrome associated with fibromyalgia successfully treated with scleral lenses.

CASE REPORT

ZC is a 49 year old African American female veteran. Her pertinent medical history includes fibromyalgia, primary open angle glaucoma, and dry eye syndrome. Her list of medications includes pregabalin 75mg PO BID for fibromyalgia, latanoprost ophthalmic
solution 1 gtt qhs OU for primary open angle glaucoma, and 1% carboxymethylcellulose ophthalmic gttqid/prn OU and lacrilube ophthalmic ung qhs OU for dry eye syndrome. Upon presentation to the specialty contact lens clinic ZC had not received relief from symptoms from any topical treatment of her dry eye syndrome. In the past she had been treated with topical steroid gttst and had attempted Restasis with no success. At the initial eye exam ZCs ocular findings were as follows (posterior segment findings were unremarkable for the purposes of this case study and will be left out):

O: VA OD: 20/20-2
   OS: 20/20-2 cc in phoropter
   PERRL -APD
   EOM FROM
   CVF FTPC OD OS

Habitual Rx
   OD:-0.75-0.50x065
   OS:-0.50-0.25x055 Add +2.25

BCVA: OD: 20/20-
   OS: 20/20-

SLE
   L/L: clear ou
   CONJ: 2+ injection OU, rtbut ou
   CORNEA: OD: trace spk inferior OS:1+spk inferior
   A/C: deep/quiet ANGLES:4/4
   IRIS: normal ou, -nvi

Ks   OD:+42.25/+42.75 x 031
    OS:+43.25/+43.75 x 155

The presence of dry eye syndrome can be seen by the superficial punctuate keratitis, reduced tear film break up time, and grade 2+ injection to the bulbar conjunctiva OU. Beyond these findings the patient was asked to complete the Ocular Surface Disease Index (OSDI) questionnaire to subjectively quantify her symptoms. The patients responses to the questionnaire resulted in a score of 93 indicating severe dry eye based on the design of the OSDI scoring system.3 Scleral lens fitting was performed using Essilor Jupiter fitting set as follows:

TRIAL LENS #1

OD: Lens company: Essilor/Jupiter
   Power:-6.00
   Base Curve:7.34
   Diameter:15.6
   Assessment: nasal and temp blanching on landing zone; ~1 corneal thickness vaulting centrally; good limbal clearance; centered
   Subjective: felt good; "didn't feel like I had to blink as much"
   Over-refraction: +1.00 20/20-2
   AutoRx: +1.25-0.50x060

OS: Lens company: Essilor/Jupiter
Power:-6.00
Base Curve:7.34
Diameter: 15.6
Assessment: ~1 corneal thickness vaulting centrally; good vaulting of limbus; centered;
Subjective: felt good; "eyes feel very cool, the dryness is soothed"
Over-refraction:+2.00 20/20
AutoRx:+1.75-0.25x164

Upon completion of the fitting process the patient was sent home and an order was placed for custom scleral lenses for ZC. The lenses ordered were as follows:

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Code</th>
<th>Design</th>
<th>Material</th>
<th>R</th>
<th>Re</th>
<th>Ab</th>
<th>Sph</th>
<th>Cyl</th>
<th>A</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>SOL1</td>
<td>Jupiter 155 / 8.6</td>
<td>Tyro-97 SCL Clear</td>
<td>8.00</td>
<td>-5.00</td>
<td>15.60</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Subjective assessment: Pt states lenses are comfortable and vision is good.

O:   VA  OD: 20/25-1
     OS: 20/20-1
     OU: 20/20 cc with CLs

Near VA OU with +2.75 otc readers over CLs 20/20

CL parameters:
OD:   Lens company: Essilor/Jupiter
      Power:-5.00
      Base Curve:7.34
      Diameter:15.6
      Assessment: good corneal vaulting; no blanching noted, good tear exchange
      over refraction: +0.50 20/20

OS:   Lens company: Essilor/Jupiter
      Power:-4.00
      Base Curve:7.34
Diameter: 15.6
Assessment: good corneal vaulting; trace blanching inferior nasal, good tear exchange
over refraction: +0.25 20/20

EDUCATION DISCUSSION INCLUDED:
[x] Importance of cleanliness, hand washing, clean storage case, etc
[x] Insertion of contact lens and removal
[x] Cleaning regimen
[x] Contact lens replacement schedule
[x] Contact information in case of emergency or concerns.
[x] Limitations of contact lenses

The patient was given extensive training on insertion and removal and sent home with the lenses. Another order was placed for a remake to account for the over-refraction. Photos were taken of the fit and can be seen here:

Approximately one month later the patient returned to have the remake assessed and to repeat the OSDI questionnaire after having worn her initial pair of scleral CLs consistently since the prior visit. The patient was very enthusiastic that the lenses had dramatically improved her symptoms and her quality of life. She stated that she wore the lenses for twelve hours per day with excellent comfort. The responses she gave to the OSDI questionnaire resulted in a score of zero indicating that this mode of managing her dry eye was very effective and essentially eliminated all her symptoms. Furthermore, objective findings revealed that the SPK had resolved and her bulbar conjunctiva was white and quiet OU. The order parameters and assessment of her final pair of scleral CLs was as follows:
Subjective assessment: Pt states lenses are comfortable and vision is very good.

O: VA OD: 20/20 cc with CLs  
OS: 20/20  
OU: 20/20  

Near VA OU with +2.75 otc readers 20/20

CL parameters:
OD:  
  Lens company: Essilor Jupiter  
  Power: -4.50  
  Base Curve: 7.34  
  Diameter: 15.6  
  Assessment: good corneal vaulting; no blanching noted over refraction: plano DS

OS:  
  Lens company: Essilor Jupiter  
  Power: -3.75  
  Base Curve: 7.34  
  Diameter: 15.6  
  Assessment: good corneal vaulting; no blanching noted over refraction: plano

A little over three months later the patient was phoned to ask how she was doing with her scleral lenses. She stated that they were doing very well and she continued to have great comfort, long wear time, and lasting relief from her dry eye symptoms. The patient was so happy with her lenses that she wrote a letter to the administration of the VA hospital expressing gratitude and commending the eye clinic on an excellent job.
DISCUSSION

This case exemplifies the excellent results that are possible when scleral lenses are used to manage dry eye syndrome. The ability of the scleral lens to protect the cornea and bathe it in a soothing fluid reservoir throughout the day succeeded with this patient where topical drops, both medicated and primarily lubricating, all failed. These findings make theoretical sense when considering the reduced corneal sensitivity and reduced tear production that fibromyalgia patients have been shown to exhibit. The dramatic resolution of symptoms seen by a 93 point decrease in the patients OSDI score and the elimination of the objective findings on slit lamp exam also emphasize the success this patient had with scleral lenses.

CONCLUSION

In patients with dry eye syndrome associated with fibromyalgia scleral contact lenses can be an excellent method to manage ocular surface symptoms.

REFERENCES

