INTRODUCTION

Diplopia also known as double-vision can be bothersome and effect overall patient function. Transient diplopia can been seen in conditions such as myasthenia gravis and following traumatic brain injury. Myasthenia gravis is a neuromuscular disorder characterized by muscle weakness and fatigability with a prevalence ranging in the literature from 5 to 15 cases per 100,000 persons with a 3:2 female to male ratio.1 Ocular Myasthenia Gravis (OMG) is a subset of general myasthenia gravis (GMG) and is the presenting symptom in 50% of cases.2 Ocular involvement can include the levator muscle, extraocular muscles, and orbicularis oculi resulting in ptosis, diplopia, and incomplete closure, respectively.

Traumatic brain injury (TBI) is a closed head injury insulting the brain leading to diffuse axonal loss.3 These injuries may affect any of the neural afferent or efferent visual pathways. Visual disturbances following TBI vary in literature in prevalence from 30% to 85%.4 Diplopia is a common symptom following TBI that damages the efferent visual pathways.

PURPOSE

To determine if the use of soft prosthetic occluding contact lenses can adequately eliminate diplopia secondary to history of myasthenia gravis and traumatic brain injury.

DISCUSSION

Diplopia is a commonly encountered condition in clinical practice. Patients may present with transient episodes of diplopia and cause dysfunction in daily activities. Treatment options for diplopia include ocular occlusion, monovision optical correction, prism glasses, surgical intervention, and treating underlying conditions.5 This case series discusses the role that specialty contact lenses play in eliminating diplopia in patients with myasthenia gravis or traumatic brain injury.

CONCLUSION

Many treatment options exist for diplopic patients. However, when diplopia is variable or correcting with prism is not an option, custom soft prosthetic contact lens with black pupil is a good option to eliminate diplopia and improve overall patient function.

CASE A

A 27 year-old White female with history of Ocular Myasthenia gravis presented to the SUNY University Eye Center complaining of occasional double vision. Patient has not had recent episode of diplopia but would like a custom contact lens made for future use.

Medical history: Myasthenia Gravis

Medications: Pyridostigmine 30 mg

Entering Visual Acuity with vision soft lenses:

DVA OU: 20/20 NVA OU: 20/20

Refraction:

OD: -1.00 sph 20/20
OS: -1.50-0.75x180 20/20

Pupils: Bright 5 mm OD/OS Dim 6 mm OD/OS

Contact Lens Parameters

Alden Prosthetic CL with Black Pupil

<table>
<thead>
<tr>
<th>SPH</th>
<th>BC</th>
<th>OAD</th>
<th>Design</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>-3.00</td>
<td>8.6</td>
<td>14.5</td>
<td>Aqua # 1 10.00 BP 11.00</td>
<td>49% H2O 51% Hioxyfilc-on B</td>
</tr>
</tbody>
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Management: Due to acute, variable episodes of diplopia secondary to myasthenia gravis, this patient was initially fit in a 10 mm black occluding pupil soft contact lens. Patient was not satisfied due to excess light scatter from the periphery of the occluding pupil. She was refit with an increased diameter of the black pupil by 1 mm. This eliminated diplopia and excess light.

CASE B

A 31-year-old Asian male with history of Traumatic Brain Injury presented to the SUNY University Eye Center complaining variable vertical diplopia.

Medical History: Traumatic Brain Injury

Medications: Mirtazapine

Entering Visual Acuity sc:

OD: 20/70 PH 20/50 OS: 20/70 PH 20/50

Pupils: Dim 6 mm OD/OS

Motility: Torsional Nystagmus OD/OS

HVID: 11mm

Corneal Examination: Unremarkable, Clear to NaFL OU

Contact Lens Parameters

Alden Prosthetic CL with Black Pupil

Contact Lens Parameters

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<thead>
<tr>
<th>SPH</th>
<th>BC</th>
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<th>Design</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>-3.00</td>
<td>8.6</td>
<td>14.5</td>
<td>11mm black pupil</td>
<td></td>
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Management: Due to variable episodes of vertical diplopia secondary to TBI, this patient was initially fit in a 9 mm black occluding pupil soft contact lens. However, the patient was still experiencing diplopia. A success fit was achieved with an 11 mm occluding pupil lens. Email made with -3.00 sph power to improve ease of handling.

REFERENCES