Abducens Nerve Palsy After Surgical Removal of Acoustic Neuroma

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Case Presentation

History
- RK, a 29 year-old Caucasian male was referred for visual evaluation due to diplopia.
- CC: Constant horizontal double vision, worse in right gaze. Unable to return to work due to diplopia.
- Medical History: Significant for ipsilateral facial numbness and hearing loss x 5 years.
- MRI revealed a 3.8 cm right sided acoustic neuroma with associated compression of brainstem.
- RK underwent sub occipital craniotomy to remove acoustic neuroma on 11-13-2013.
- Post-operative symptoms included:
  - Reduced salivation and lacrimation (both resolved before discharge).
  - Restricted Abduction of affected eye
  - Esotropia in primary gaze
  - Diplopia
  - Ischemia, trauma, compression, inflammation, demyelination and infection

Ocular Examination:

01/14/2014: Sensorimotor Examination
BCVA: 20/20 OD/OS/OU
Steretios: RDS: None, LDS: None
CT: Distance: Noncomitant 20pd CRET
Near: Noncomitant 18pd CRET
EOM: OD: Abduction limited to 60 degrees past midline
OS: No restriction
Saccades/Pursuits: Jerky
Ocular health: Unremarkable

02/10/14: Binocular Vision Progress Evaluation
BCVA: 20/20 OD/OS/OU
Steretios: RDS: None, LDS: None
CT: Distance: Noncomitant 16pd CRET
Near: Noncomitant 14pd CRET
EOM: OD: Abduction limited to 65-70 degrees past midline
OS: No restriction
Saccades/Pursuits: Smooth
Ocular health: Unremarkable

Diagnosis/Treatment

Diagnosis:
- Acquired right lateral rectus palsy secondary to acoustic neuroma and/or surgical intervention.
- Neuro-Rehabilitative Therapy
- Treatment: 20 pd BO Fresnel prism OD: Relieve diplopia in primary gaze

Technique | Purpose
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Vestibular Ocular Reflex Therapy | Stimulate vestibular system to increase range of motion of the visual system
Eye stretches with finger touches | Increase range of motion of the visual system
Pursuit Therapy | Develop accuracy of smooth pursuits
Greenwald Eye Movements | Integrate/match vestibular and ocular input

Conclusions

As demonstrated by this case, diplopia is a debilitating consequence of trauma to the brain. Neuro-Optometric Rehabilitation (NOR) therapy can decrease the amount of time patient experience diplopia. NOR includes use of lenses, prisms, vision therapy and vestibular-ocular therapies. RK was able to return to work after application of Fresnel prism. Understanding the concepts of neuro-plasticity, timely treatment of diplopia can provide better long term outcomes and improve quality of life for patients.

References

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