

Helena Tzou
Pediatrics and Vision Therapy Resident
Southern College of Optometry

Topic- Binocular Vision

Abstract Title- Vertigo and Vergence: Vision Therapy for Patients with Ménière's Disease and Convergence Insufficiency

Abstract Text- Patients with vertigo secondary to Ménière's disease as well as convergence insufficiency can experience decreased symptoms with vision therapy, including binasal occlusion.

I. Case History

•Patient demographics- 34-year-old, Caucasian female

•Chief complaint- Patient complains of difficulty focusing at reading, computer, and driving distances in both eyes for 5 months as well as difficulty with sustained near work. The timing is described as constant. Severity is described as severe. Patient reports of photophobia and nausea when focusing for more than 10 minutes to read with headaches and eyestrain. No diplopia was noted.

•Ocular, medical history

-Last eye exam with Ophthalmology on 12/5/13

-History of vision loss in upper right quadrant of right eye. Unclear MRI results. Unknown reason for vision loss.

-Refractive History: single vision lenses for full time wear

-Denies flashes or floaters

-Last medical exam with Otolaryngology 2 years ago.

-ENMT History: Ménière's disease, diagnosed 2008

-Endocrine History: Ovarian cyst rupture on 8/31/13, visual symptoms 2 weeks prior to rupture

-Neurological History: Headache near bridge of nose

•Medications- Low dose Bactrim, multivitamins

•Other salient information- Patient cannot drive or perform near work or computer work for more than 10-15 minutes at a time before experiencing headaches and feeling nauseous. Patient has tried multiple, different types of lighting and glare reducers with no relief. Glare problems have increased since August 2013. Patient reports sensory overload occasionally when walking in big stores, driving, or watching television.

II. Pertinent findings

•Clinical

-Distance visual acuity (VA) with correction OD, OS, OU 20/20, Near VA OD, OS, OU 20/20

-Cover Test- Distance orthophoria, Near 10 right intermittent exotropia

-Habitual Rx- OD: -2.50 -0.75 x 090, VA 20/20; OS: -2.75 -0.50 x 090, VA 20/20

-Anterior Segment and Posterior Segment- healthy findings

-Near Point of Convergence- unable to perform due to patient discomfort

-Vergence Ranges- unable to perform due to patient discomfort

-Other findings- unremarkable

•Physical- N/A

•Laboratory studies- N/A

•Radiology studies- N/A

•Others- N/A

III. Differential diagnosis

•Primary/leading- Convergence Insufficiency

•Others- Accommodative Dysfunction, Right Intermittent Exotropia

IV. Diagnosis and discussion

•Elaborate on the condition

Convergence insufficiency is characterized by an exophoria greater at near than distance, low accommodative convergence to accommodation (AC/A) ratio, receded near point of convergence, low negative relative accommodation, and low base out vergence ranges. Vision therapy is the primary treatment option for this condition for patient of all ages with success rates between 85% and 95%. (Clinical Management of Binocular Vision by Scheiman and Wick).

•Expound on unique features

According to the Mayo Clinic, Ménière's disease is a disorder of the inner ear which causes sudden episodes of vertigo, a feeling of spinning motion. Other symptoms include inconsistent hearing loss, ringing in the ear as known as tinnitus, and, occasionally, a sensation of fullness or pressure in the ear. In many cases, only one ear is affected. Patients in all age groups can develop this condition with a greater prevalence in those in their 40s and 50s. Meniere's disease is a chronic condition in which various treatments can decrease symptoms and minimize long-term impact on a patient's life.

V. Treatment, management

•Treatment and response to treatment

-12 weeks of vision therapy was initiated to increase control of eye movement, increase vergence ranges, improve accommodation, and integrate visual skills.

-Week 6: Patient complained of increased light sensitivity and colorimetry was performed with unremarkable results.

-Week 7: Patient was able to perform computer activities for 1 hour at home.

-Week 8: Patient was able to drive while wearing polarized, grey-filtered sunglasses. Patient was fit with Bangerter Foil Patches LP Light Preception for binasal occlusion to decrease symptoms, especially at symptoms when reading at computer distance.

-Progress evaluation was performed after 12 weeks of vision therapy. Patient reported a decrease in headaches, dizziness, and nausea since starting vision therapy and responded well to binasal occlusion on her glasses. Patient reported shadows or vertical double vision when sitting in the passenger seat of a car when viewing road signs and vehicles. Binasal occluders were changed to Bangerter Foil Patches <0.1, and 8 more weeks of vision therapy was recommended as a result of the following clinical findings:

-Distance VA with correction OD, OS, OU 20/20, Near VA OU 20/20

-Cover Test- Distance 2 exophoria, Near 6 alternating exotropia

-Stereo Acuity- 40 seconds of arc with Wirt Circles

-Near Point Convergence- 5 cm break/ 6cm recovery

-Amplitude of Accommodation- OD 14 D, OS 13 D

-Base In Distance Ranges (blur/break/recovery)- X/2/1

-Base Out Distance Ranges- X/18/unable to recover and possible suppression

-Base In Near Ranges- 4/10/8

-Base Out Near Ranges- 10/18/unable to recover and possible suppression

-Changed to binasal occluders to Bangerter Foil Patches <0.1

-Week 16: Binasal occluders were removed.

-Week 18: Bangerter Foil Patches 0.8 were placed on glasses. Patient was also given Bangerter Foil Patches 1.0 to be used if symptoms increased.

-Progress evaluation was performed after 20 weeks of vision therapy. Patient reported tired eyes and difficulty focusing on static objects after viewing moving objects when driving. Patient was now able to drive 30 minutes but continued to avoid near work. Bangerter Foil Patches 0.8 remained unchanged, and 8 more weeks of vision therapy was recommended as a result of the following clinical findings:

-Distance VA with correction OD, OS, OU 20/15, Near VA OU 20/20

-Cover Test- Distance 4 exophoria, Near 14 right intermittent exotropia

-Stereo Acuity- 40 seconds of arc with Wirt Circles

-Near Point Convergence- 8 cm break/ 10 cm recovery

-Amplitude of Accommodation- OD 10.50 D, OS 11 D

•Refer to research where appropriate- N/A

•Bibliography, literature review encouraged- N/A

VI. Conclusion

•Clinical pearls, take away points if indicated- Vision therapy can reduce symptoms of convergence insufficiency and may decrease vertigo in patients with Ménière's disease.