Strabismic Amblyopia in the Presence of a Chiari I Malformation: A Case Study
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I. Case History

Patient #1

- Patient demographics: 5-year-old, white male
- Chief complaint: second opinion on amblyopia OS, currently undergoing patching and vision therapy
- Ocular, medical history: history of amblyopia OS and strabismus OS
- Medications: None
- Other salient information: (+) headaches, (+) tingling in feet

Patient #2

- Patient demographics: 12-year-old, white male
- Chief complaint: referral for amblyopia OS, currently undergoing patching 6 hours a day
- Ocular, medical history: history of amblyopia OS
- Medications: None
- Other salient information: (+) headaches (daily)

II. Pertinent findings

Patient #1

- Clinical: Visual Acuity cc- 20/20 OD, 20/50 OS. Cover test reveals 6 intermittent left esotropia at near cc. Wet Retinoscopy measures as +3.50-1.00x180 OD and +4.50-2.00x020 OS. Swollen optic nerve noted OS.
- Physical: None
- Radiology studies: MRI results reveal a borderline Chiari I malformation with between 3 to 4 mm of cerebellar tonsillar ectopia.

Patient #2

- Clinical: Visual Acuity sc- 20/20 OD, 20/80 OS. Cover test measures a 4 PD intermittent left exotropia at distance and a 6 PD intermittent left exotropia at near along with a 1.5 PD right hyperphoria. Wet retinoscopy reveals plano OD, OS. Anterior and posterior segment findings are within normal limits.
- Physical: None
- Radiology studies: MRI reveals a mild cerebellar tonsillar ectopia with probable Chiari I malformation.
III. Differential diagnosis

- Primary: Strabismic amblyopia OS
- Secondary: Chiari I Malformation
- Tertiary: Other neurological or ocular pathology

IV. Diagnosis and discussion

- Elaborate on the condition: Chiari I malformation is due to a structural abnormality of the caudal cerebellum and medulla. Type 1 is the most common and involves extension of the cerebellar tonsils at least 3-5 mm below the foramen magnum. Common symptoms of this disorder include balance problems, muscle weakness, ringing or buzzing in the ears, dizziness, numbness in extremities, headaches, and vision problems.¹
- Expound on unique features: The most common ocular finding of Chiari I malformation is nystagmus. Strabismus has also been noted with these patients; however, it occurs much less frequently.³

V. Treatment, management

- Treatment and response to treatment: Both patients are currently continuing with patching therapy and will be seen for their routine amblyopia follow-up in six to eight weeks. Both patients were sent to their pediatricians for a neurology referral for Chiari I malformation.
- Bibliography, literature review encouraged

VI. Conclusion

- Both cases demonstrate that amblyopia should not be assumed in the presence of decreased vision with children.
- Performing a comprehensive exam with dilation is essential to fully assessing a patient for amblyopia.
- Managing amblyopia should include routine monitoring, and with unexplained vision loss in the absence of a definitive amblyogenic risk factor, neurological imaging should be performed.