Resident’s Day Submission
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Abstract: Chin down head posture is typically used to maintain single binocular vision. This case of V-pattern esotropia with severe compensatory chin down head posture was treated surgically resulting in ocular alignment and normalized head posture.

I. Case History
- 11 year old, Caucasian male referred by an Optometrist for photophobia of an unknown cause.
- Ocular History: unremarkable
- Medical History: Autism, seizures, gestational exposure to recreational drugs, asthma, and delivery complications-oxygen deprivation
- Medications: Inhaler
- No known medication allergies
- Social History: 5th grade; fully integrated classes with an individual aide

II. Pertinent findings
- Distance VA sc 10/20 - OD,OS; Near VA sc 20/20 - OD,OS
- General observation: Severe chin down head posture
- Cover test at near:sc
  - Chin down (up gaze)- ortho
  - Primary gaze- 20 pd CLET; 3-5 pd LhyperT
  - Right gaze- 15 pd CLET; >12pd LhyperT
  - Left gaze- 12 pd CLET
  - Chin up (down gaze)- 30 CLET
- EOM: +2-3 overaction of inferior oblique, OU
- Stereopsis: 1200" only with habitual chin down head posture
- Visual fields and color vision: normal, OU
- Cycloplegic refraction: OD pl-0.50x085, OS +0.50-0.50x090
- Internal & External: ocular health was normal, OU
- No photophobia noted throughout testing

III. Differential diagnosis
- Primary/Leading: V-pattern esotropia with compensatory chin down head posture
- Others: A-pattern exotropia, nystagmus with null point in superior gaze, bilateral CN IV palsy or paresis, photophobia, inferior visual field loss, uncorrected or inaccurately corrected refractive error, and bilateral down gaze paresis

IV. Diagnosis and discussion
- V-pattern esotropia is the most common pattern strabismus.1 It is considered significant when there is an increase in convergence of 15pd or more between up-gaze and down-gaze.1,2,3 V-pattern esotropia can be attributed to an oblique muscle dysfunction.3
- The abnormal head posture is not a diagnosis, but is typically a sign of an underlying pathology.4 An abnormal head posture is adopted to improve visual acuity, maintain single binocular vision or maximally separate the two images, and center the field of binocular vision.4
Autism is found to have a higher incidence of strabismus when compared to the typical population.  

- Signs: Non-comitant deviation showing increase in convergence from superior to inferior gaze, vertical misalignment, overaction of the inferior oblique or underaction of the superior oblique, and torticollis.  
- Symptoms: Diplopia in primary gaze, asthenopia

V. Treatment, management  
- Significant deviations (> 15pd between up-gaze and down-gaze) are typically treated with surgery with a goal of regaining fusion and single, comfortable, binocular vision.  
  - There are several different types of surgery depending on the primary cause of the V-pattern esotropia. The surgeon will choose the most appropriate procedure for the patient.  
  - Strabismus surgery demonstrates favorable outcomes. Complications are rare, preventable and treatable.  
  - Urgency and timing of the surgery is dependent on the current binocular status and age of the patient, as well as the likelihood of improving binocular vision.  
  - Strabismus surgery in children has been found to have a positive social and emotional impact to the patients' quality of life.  
- Prism can be considered to acquire single vision in primary gaze, but will not alleviate double vision in all positions of gaze.

VI. Conclusion  
- Chin down head posture is typically an indication of an underlying pathology.  
- A full evaluation of the patient’s current vision, binocular status and ocular health are all needed to help diagnose the cause of the compensatory head posture.  
- Early detection and treatment of the primary cause is important in helping improve the patient’s quality of life.  
- As autism increases in prevalence, ocular findings, such as strabismus, are being detected at a higher incidence compared to the typical population.  
- Clinical pearls  
  - When working with pediatric and/or special needs populations, make sure to keep up to date with current and developing research.  
  - If you are not comfortable working with pediatric and/or special needs populations, find someone in the area to whom you can refer. Do not let them “fall through the cracks.”  
  - When considering surgery as a treatment for your patients, especially the pediatric population, be prepared to fully explain the procedure and outcomes to the parent or guardian to give them confidence in your recommendations and referral.

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