Abstract

This case presents the diagnosis and treatment of a 10 year-old with divergence insufficiency esotropia, characterized by esodeviation greater at distance than near. In diagnosing this condition, pathogenic underlying causes must be ruled out.

I. Case History

- Patient Demographics:
  - 10 year old hispanic male
  - Entering 5th grade in the fall
  - Recently moved to the US from Venezuela
- Chief complaint:
  - Headaches and double vision with current glasses on after prolonged periods of work. Double vision is worse, if not wearing glasses.
- Ocular history:
  - Accommodative Esotropia (diagnosed in Venezuela)
  - Single vision glasses (5 years), current Rx (2 years) for the first 3 years of glasses wear the Rx was changed every 6 months
- Medical History: Unremarkable
- Medications: no current systemic medications
- Development: Unremarkable
- Other salient information:
  - Family has been in the US on asylum from Venezuela for the past two years because the patient was almost kidnapped in Venezuela. Patient had a shift in his glasses prescription after traumatic experience.

II. Pertinent findings

- Initial Visit
  - Unaided V.A at distance was OU and at near was 20/20 OD, OS and 20/15 OU.
  - Aided V.A. at distance was 20/20-1 OD, 20/25+1 OS, and 20/20 OU. Aided V.A. at near was 20/25 OD, 20/20- OS and 20/20 OU.
  - Current glasses Rx: OD +1.75sph, OS +1.25sph
  - Retinoscopy (dry): OD +2.25sph, OS +2.00sph
  - Manifest Refraction (dry): OD +2.00sph, OS +1.50sph
  - Manifest Refraction (cyclopic): OD +4.50sph, OS +3.75sph
  - Cover Test (sc): DCT 23IAET, NCT 10EP
  - Cover Test (cc): DCT 12EP, NCT 4EP
    - Fatigued to: DCT 18IAET, NCT 4EP
  - Cover Test (dry manifest): DCT 12IAET, NCT 4EP
  - Worth 4 Dot: (cc) 4 dots all distances, (Manifest) 4 dots all distances
  - Pupils, EOMs, CF: unremarkable
  - Color Vision (HRR): Pass OD, OS
  - Stereo (RTDSB): Global 63”, Local 32”
  - Distance Vergences: NFV x/1/0, PFV x/25/16
Near Vergences: NFV x/14/0, PFV x/25/18
- SLE: Unremarkable OD, OS
  - IOP (Goldmann): 10mmHg OD, OS
- DFE (90/20): Unremarkable OD, OS
  - C/D Ratio: OD 0.4x0.4, OS 0.3x0.3

Follow-up
- Aided V.A. at distance (cc) was 20/25 OD, 20/20- OS, 20/25+ OU
- Pupils, EOMs, CF: unremarkable OD, OS, OU
- Retinoscopy (dry): OD +3.50sph, OS +3.50sph
- Manifest Refraction: OD +3.00sph 20/20, OS +3.00sph 20/20, OU 20/20
- New Rx: OD +3.00sph, OS +3.00sph
- Cover Test (Manifest): DCT 6EP, NCT 1EP'
- Comitancy (old Rx):
  - Distance: primary gaze 15IAET, right gaze 15IAET, left gaze 15IAET, up gaze 12IAET, down gaze 18IAET
- Worth 4 Dot (Manifest): 4 dots all distances
- No suppression
- Bagolini (Manifest): two lines crossed with light in the middle, no movement on UCT
  - Normal Correspondence
- Amblyoscope (Manifest):
  - 1st degree target
    - H=17BO, S=10BO, no movement on douse test inconclusive
  - 2nd degree target
    - H=16BO, S=16BO, no movement on douse test
    - Normal Correspondence
- Distance Fixation Disparity (Vectographic Slide in Projector)
  - sc-suppression OD
  - cc (old Rx)-uncrossed diplopia
  - Manifest-lower amount of uncrossed diplopia than with old Rx, when added prism patient suppressed

III. Differential diagnosis
- Divergence Insufficiency, OU
  - Concomitant
  - Nonconcomitant
    - Must rule out: neoplasm, trauma, inflammation
- Duane's Syndrome Type I
- CN VI Palsy
- Intermittent Alternating Esotropia, OU
- Hyperopia, OU
- Pathological causes

IV. Diagnosis and discussion
- Anomalies of Divergence, OU (378.85)-Divergence Insufficiency Esotropia
- Intermittent Esotropia, alternating, OU (378.22)
- Hyperopia, OU (367.0)

V. Treatment, management
- Treatment
  - Prescribe New Rx
    - Rx helps correct refractive error and also helps esotropia
    - Full cycloplegic Rx was not given
    - Discussed working patient up to full Rx
      - Correct with contact lenses-less expensive when Rx is changed often
      - Correct with glasses and change Rx periodically
Consider BO prism, if patient is still symptomatic in the future
Can decenter lenses to induce prism since patient is hyperopic and requires BO prism

VI. Conclusion

- Divergence Insufficiency is a rare strabismus characterized by an eso deviation that is greater at distance than near. When a child presents with Divergence Insufficiency, concomitancy must be evaluated to rule out a nonconcomitant deviation. Nonconcomitant deviations can have pathogenic underlying causes such as neoplasm, trauma or inflammation. Other differentials of this pattern are a cranial nerve VI palsy, which would be accompanied by restricted EOMs, or Duane’s Type I, which would be associated with lid closure and retraction upon adduction. Once all pathogenic causes are ruled out, a diagnosis if Divergence Insufficiency Esotropia can be made.

References