

Evaluation of distance and near stereoacuity and fusional vergence in intermittent exotropia

Dear Editor,

We read with interest the article by Sharma *et al.*^[1] The authors need to be complimented for their candid expositions on an intriguing entity like intermittent exotropia (XT).

The term "intermittent XT" is descriptive one, embedded are entities like dissociated horizontal deviations (DHD), decompensated monofixational XT (DME), and exotropia accompanying neurological disease including hemi-anopic field defects, as all may have an XT. The DHD kinship is so strong that some^[2] even apply the hybrid term "XT /DHD," implying that two conditions can coexist and may share some overlapping diagnostic ambiguity.

With the foregoing in the backdrop, we put forth following observations:

1. Visual acuity (VA) details, uniocular or binocular, of the cohort and controls are not known; as variability in VA can impact the results, there is often a relationship between VA and stereopsis. Subnormal VA can also compromise sensory and motor fusion. Binocular VA may be much worse than uniocular VA in XT as accommodative convergence is roped in to control the XT, impacting distance stereoacuity (DSA). Binocular VA evaluation as surrogate for DSA has been suggested in XT. Alternatively, XT may break down into XT of >8 prism diopters (PD) leading to loss of fusion and stereopsis, taking the oft traveled road to suppression. It is Hobson's choice indeed.
2. DHDs and DMEs can adulterate the results and need to be distinguished conclusively by reversed fixation test for the former and specific sensory tests for the latter. Dissociated vertical deviations could be fellow travelers both with DHD and XT meriting evaluation.
3. Accommodative convergence is a stronger vergence to overcome blur. Fusional vergences overcome binasal (divergence) or bitemporal (convergence) disparities (diplopia). While measuring vergence amplitudes, XT patients may suppress and not report diplopia or blurring, contaminating break and recovery points and objective methods have to be used.
4. As per Kushner's classification, used in the study, fusional convergence insufficiency with decreased fusional amplitudes accounts for less than 1% of cases with XT. Improving fusional amplitudes by orthoptic exercises benefits only this subset of patients, whereas minus lens therapy augmenting accommodative convergence shows far better results. Convergence exercises may temporarily improve tonic and proximal convergence, but they have little effect on fusional and accommodative convergence.^[3] The foregoing is not in concordance with the finding of reduced fusional vergence amplitudes in the present study and their subsequent improvement following surgery.

An objective method for assessing control or deterioration in XT still eludes us. Use of DSA for this purpose has been

rendered controversial. Variability of DSA in XT has been documented from nil to measurable in about half the children with XT within 24 hours.^[4] In another study using Frisby Davis distance stereo test (FD2), it was revealed that DSA in XT was either absent or normal rather than being reduced, making it into an "all-or-none" phenomenon.^[5]

XT and DHD fundamentally differ in the relative activation of binocular fusion, which functions as closed loop (with negative feedback?), all-or-none phenomenon in XT, and as open loop in DHD without feed back, in the form of dissociated esotonus.^[6] If that hypothesis was plausible, then improvement in vergences after strabismus surgery in the present study could imply improved efficiency of the feedback mechanism following surgery, or alternatively could be conceptualized as an epiphenomenon of surgical intervention.

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