Response to comments on: Surgical management of Helveston syndrome (triad of A pattern exotropia, superior oblique overaction and dissociated vertical deviation) using four oblique procedure

Dear Editor,
Response: Surgical management of Helveston syndrome (triad of A pattern exotropia, superior oblique overaction and dissociated vertical deviation) using four oblique procedure.

We read with interest the remarks of Pandey et al. and thank the correspondents for their interest in our article about the fascinating strabismus entity of Helveston syndrome and appreciate the opportunity to clarify several issues.

The correspondents indicate that the study makes no effort to evaluate dissociated vertical deviation (DVD) for incomitance in adduction, primary position, and abduction. The horizontal incomitance of the DVD not being accounted for has already been mentioned in the article. However, the significance of incomitance of DVD is also questionable. McCall and Rosenbaum used the term incomitant DVD to describe a difference in DVD in adduction and abduction associated with superior oblique (SO) muscle overaction. They assume that DVD may be secondary deviation produced by over-innervation of the inferior oblique (IO) of the fixing eye to balance the overaction of SO. The over-innervation of the ipsilateral IO by Hering’s Law is said to produce overaction of the contralateral superior rectus leading to DVD which is greater in abduction. However, the postulation that the supposedly overreacting muscle has an over effect in the primary position has never been confirmed. Also, Capo et al. have provided a mechanical explanation for overaction of the oblique muscles. They showed good evidence that position of the eye and the shape of the orbit determine excursions of the oblique muscles. There are inherent errors in measuring DVD in lateral gaze. The measurable DVD in the adducted eye may be masked by the “falling” adducted eye caused by superior oblique muscle overaction of the adducted eye. Therefore, the DVD may not be as inconstant as it appears.

The correspondents opine regarding symmetrical surgery which was done for asymmetrical DVD. It has been suggested that asymmetric DVDs may be corrected by the ungraded approach due to the postoperative spontaneous length adjustment of both IO muscles.

Further, the correspondents assert that the study was incognizant of the effects of Posterior tenectomy of superior oblique (PTSO) and anterior transposition of inferior oblique (ATIO). We agree that PTGSO would worsen DVD in adduction but the simultaneous ATIO would have benevolent effect on the DVD in adduction. Also, intorsion may get worse with ATIO but it would have a salutary effect on extorsion which accompanies the DVD.

We concur about the missing information that has been brought out with respect to recording of fundus torsion. None of our patients had a clinically observable latent nystagmus (LN), an abnormal head posture or DHD. The existence of LN does not alter the management in this context as the etiology of LN is an impaired fusional mechanism which needs to be addressed by correcting the strabismus. Though we had excellent motor outcome in our cohort, the sensory outcomes were poor, with none of the patients developing fusion or stereopsis which may explain the absence of torsional symptoms.

Guyton et al. elucidate the mechanism of DVD by observing that initial event is the SO mediated intorsion of the fixing eye to dampen the LN which invariably accompanies DVD. This leads to depression of the fixing eye and IO mediated extorsion and elevation of the non-fixing eye. The non-fixing eye further elevates as the now depressed fixing eye makes a corrective supraduction to take up fixation. These two additive movements lead to DVD in the non-fixing eye. However, as Kushner points out, common clinical scenario like large manifest DVDs cannot be explained by these two small additive movements. Also, in intermittent DVD, large SR recessions do not usually produce hypotropias which would be expected in intermittent dampening of LN. We agree with the correspondents regarding the elusive nature of an all-encompassing theory for the etiology of DVD.

Though SO weakening with SR recession is an established procedure for this triad exotropia, the purpose of reporting this data was to suggest an alternative procedure which would work well especially when three recti need to be operated on when this complex exists with a large angle exotropia or in cases of re-operations.

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Conflicts of interest
There are no conflicts of interest.

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