

Role of part muscle vertical rectus transposition following periosteal fixation of the lateral rectus in exotropic Duane's retraction syndrome

Dear Sir,

We read with interest the article by Sharma *et al.*^[1] Since Duane's retraction syndrome (DRS) is not garden variety strabismus, certain observations are in order. DRS can only be alleviated, not eliminated.

In exo DRS, abnormal with subnormal lateral rectus (LR) along with occasionally subnormal medial rectus (MR) innervation may occur. MR may be stretched out/elongated. Globe retraction and shoots may disappear in large Exo DRS, and both horizontals may be stiff in relatively immobile globes with marked limitation of adduction and abduction. Muscle function tests are core to DRS evaluation but find fleeting reference here. Needless to say that each case is unique and graded procedures are in order rather than un-titrated ones, as has happened here. Control group is lacking, inferences like efficacy may not stand scrutiny of statistical analysis.

Cohort is too diverse as both unilateral/bilateral cases have been included. Fixating eye in unilateral cases and whether bilateral cases are fusing or nonfusing DRS is not known. Fixation duress and deviation with either eye fixing are not known. Deviations in forced primary, abnormal head posture (AHP) and shoots are not quantified, but inferences

are drawn. Type II DRS has only adduction limitation with normal abduction, authors are likely referring to type III DRS.

Primary concerns in DRS are AHP, primary position (PP) deviation, globe retraction/narrowing of the palpebral fissure in adduction, shoots, A/V patterns, fixation duress, and decentration of binocular visual fields. Improvement in abductions/binocular visual fields is secondary as patients often suppress and do not complain of diplopia in side gazes.

Lateral rectus periosteal fixation converts DRS into total 6th nerve palsy with attendant muscle sequelae. For aforesaid reasons, 33% patients (2 out of 6) developed an esotropia with rest having residual XT of 6 PD or greater. Authors have to throw some light as to how abduction improved in Group 1. In fact, it should worsen which is also evident in Fig. 1.

In Group 2, most cases had undercorrected exotropia in PP, implying that ½ muscle vertical rectus transposition (VRT) adds to PP exotropia and may not have been indicated. Relearning of muscle function does not happen after transposition surgery as 3rd nerve nucleus is in the midbrain and 6th nerve nucleus in the pons, postulated innervational plasticity cannot occur.^[2] Following VRT in LR palsy, vertical rectus muscles do not recruit in abduction and change in direction of vector forces was minimal.^[3,4] Fig. 2 does not demonstrate improved abduction. Abducting force is generated in PP and improvement in abduction could only be due to relaxation of MR. VRT has been used in eso DRS with minimal abnormal LR innervation.^[5] The claims of better abduction in Group 2 as compared to Group 1 are not supported by tests of statistical significance.

Adduction improvement was not full in both groups implying that part of the problem lay with MR, which cannot be operated now, and surgery on the other eye is the only option. Under the circumstances, graded options other than periosteal fixation seem to be better.

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