



To report results of unilateral medial rectus recession in improvement of ocular alignment in patients with unilateral or bilateral esotropic duane syndrome

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Abstract

METHOD: The medical records of patients who underwent unilateral medial rectus recession for EsoDuane syndrome from (2016–2017) were retrospectively reviewed for head posture and motor alignment.

RESULTS : 12 patients with unilateral or bilateral Eso Duane syndrome underwent unilateral medial rectus. Mean age of patients was 8.08 years. Female (58.3%) was predominant. Left eye was involved in 83.3% of patients and 83.3 % (n=10) were unilateral. Mean Esotropia improved from 21.83 PD preop to 10.33 PD post op for near and 29.41 PD pre op to 11.3 PD post op for distance. Mean abnormal head posture decreased from 18.5 to 7.8 deg. 58.3% achieved good improvement of head posture post op. Of the unilateral cases esotropia improved in 70% and bilateral cases were orthotropic postop.

CONCLUSION: Study shows unilateral medial rectus recession resulted in significant improvement in deviation and abnormal head posture in patients with unilateral or bilateral esotropic Duane syndrome.

Introduction

¹Duane retraction syndrome is a congenital cranial dysinnervation disorder characterized by limitation of horizontal eye movement(s) with aberrant innervations causing globe retraction on adduction. ²It is present in 1-4 % of strabismic patients. ¹ Most common presentation include esotropia in primary gaze, limited abduction and head turn towards the involved side (type I DRS). Major indication for surgical correction in DRS is to improve ocular alignment and reduce abnormal head turn and correct significant deviation in primary position. Various surgical approaches include ^{3,4} ipsilateral medial rectus recession , vertical rectus muscle transposition⁵, lateral posterior fixation sutures⁶, simultaneous MR and LR recession ^{7,8} and surgery on normal eye ⁹.

In this article we review our own results of unilateral medial rectus recession in 12 patients with unilateral or bilateral, esotropic DRS.

Patients and Methods

Retrospective analysis of medical records of all patients with unilateral or bilateral esotropic DRS and underwent unilateral medial rectus recession for abnormal head turn was done.

Ocular examination of all patients included assessment of visual acuity by Snellen chart or E chart, fixation target, cycloplegic refraction and fundus examination. Involved eye was defined and pre operative amblyopia therapy was given. Ocular deviations were assessed by prism and alternate cover test in forced primary position of near and distance fixation. Head turn measurements were recorded at distance fixation. Forced duction test was performed intra operatively on Duane eye. Ductions were graded on a scale from 0 (full duction) to -4 (inability to move past midline) .The affected medial rectus was recessed as much as necessary to relieve any restriction of abduction ¹⁰. Surgical technique was recession through limbal approach. Evaluations were done at 4 weeks of post operative period and results assessed. Success was arbitrarily defined as correction of anomalous head posture to less than 5 deg.

Results

All patients had esotropic Duane syndrome (type I). The mean age of patients at time of surgery was 8.08 years (range, 4-19 years). Females sex was predominantly involved (58.3%, n=7). Left eye was involved in 83.3% (n=10) patients and 83.3% of patients were unilateral. Best corrected visual acuity in involved eye was 6/9 or more in all patients with central steady fixation.

Preoperatively, patients had mean esotropia of 21.83 PD (range, 5 -51 PD) for near and 29.41 PD (range, 12 -51 PD) for distance fixation. The mean abnormal head posture

pre operatively in degrees was 18.58 (range, 5 – 30 deg). Limitation of abduction in operated eye had mean value of - 3.58. There was no pre surgical limitation of adduction.

At one month of post operative follow up, 3 patients were orthotropic in primary position and residual mean esotropia in the remaining patients were 10.33 PD for near and 11.33 PD for distance vision. Abnormal head turn was completely eliminated in 7 patients with remaining having mean abnormal head position of 7.8 deg post operatively. The average of 5.2 mm (range, 4-6 mm) of medial rectus muscle recession was done. Comparative results of study are given in Table I and II. None of the patients developed synergistic divergence.

Table I. Comparison of Pre Operative and Post Operative Esotropia And Abnormal Head Turn In Study Group

VARIABLE	PRE OPERATIVELY	POST OPERATIVELY	OTHERS
Distance Esotropia, Pd	29.41	11.33 (N=9)	3- ORTHOTROPIC
Near Esotropia, Pd	21.83	10.33 (N=9)	3- ORTHOTROPIC
Abnormal Head Turn, Degrees	18.58	7.8 (N=5)	7- NIL AHP

Table II. Comparison of Results in Unilateral and Bilateral Groups

VARIABLE	NUMBER	POST OPERATIVE AHP		
		NIL	5 deg	10 deg
Unilateral	10	5	2	3
Bilateral	2	2	-	-

Discussion

Horizontal muscle recession was proposed by Duane in 1905 and has been used extensively with success³. Natan and Traboulsi reported that 22 patients of 24 patients with type I DRS who underwent unilateral medial rectus muscle recession had less than 10 deg head turn post operatively¹¹. In Duane's type I (no adduction deficit) the amount to recess the ipsilateral medial rectus is amount necessary to free forced ductions¹². In our study, all intra -operative forced duction done were positive and became free after disinsertion.

Most patients had pre operative version deficits in affected gaze of -3 or worse. This deficit improved in most cases but was never eliminated. Motility was not normalised,

but affected gaze showed betterment. Although versions were not full post operatively, strabismus and thus AHP improved. It is our conclusion that AHP is not result of version deficit, but of the need to obtain binocularity. This unilateral medial rectus muscle recession surgery decreased or corrected the deviation in primary position and thus alleviated the abnormal head turn.

Of the two bilateral cases results were excellent with complete elimination of head position in both. As with any retrospective study, there are certain limitations. Small number of study group, relatively short follow up period for assessing results, which could change with further follow up. There is inherent subjectivity of measurements of AHP and ocular alignment in patients with Duane syndrome.

Excellent outcomes of AHP were achieved in patients who had unilateral medial rectus recession for esotropic Duane syndrome. This method offers simple and effective surgical option and is our treatment of choice for patients with type I Duane syndrome.

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