Maximal Recession for Exotropia Surgery

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INTRODUCTION

Initial maximal lateral rectus (LR) recession (during primary bilateral LR recession, or LR recession and graded medial rectus (MR) resection procedure) simplifies future surgical options for management of subsequent residual or consecutive exotropia by having already fully utilised that lateral rectus muscle component. This study examines the outcomes for Paediatric patients with intermittent or constant exotropia undergoing fornix-based strabismus surgery with maximal LR recession (-7.5mm).

METHOD

Method: 311 Children with Exotropia underwent surgery between February 2012 and October 2019 by the same Paediatric Ophthalmology Surgeon or trainees using the same technique under direct supervision. Procedures were unilateral or bilateral maximal LR recession, or unilateral LR recession (maximal) and graded MR resection. Pre-operative, 2 week and 3 month post-operative measurements, and patient feedback were recorded. Undercorrections and overcorrections were divided into those > 10 prism dioptres (PD), and those ≤10 PD.

RESULTS

Pre-operative characteristics of the individual groups of childhood exotropia

	Constant Exotropia	Decompensating Exophoria	Intermittent distance Exotropia	Residual XT	Sensory XT (poor vision)	Consecutive XT
Mean Pre-operative squint angle in dioptres	38.85	28.75	33.61	29.53	36.67	29.43

Operative characteristics of the individual groups of childhood exotropia

	Constant Exotropia	Decompensating Exophoria	Intermittent distance Exotropia	Residual XT	Sensory XT (poor vision)	Consecutive XT
Surgical procedure						
Bilateral LR recessions	31 (93%)	29 (90.6%)	23 (10.4%)	0	0	0
Unilateral LR recession	0	0	1 (0.5%)	0	0	0
Unilateral LR recession and MR resection	2 (7%)	3 (9.4%)	197 (89.1%)	15 (100%)	3 (100%)	7 (100%)

The range of pre-operative exotropia was 14$^{\Delta}$ to 60$^{\Delta}$ PD. Mean pre-op exotropia was 33.41 PD, reducing to 3.5PD 2 weeks post-operatively. Post-operative PD ranged from 25 PD esotropia to 30 PD exotropia. There were few overcorrections > 10$^{\Delta}$ PD (8.4%). The slight overcorrection rate (within 10$^{\Delta}$ PD) was 20.9%, the slight undercorrection rate (≤ 10$^{\Delta}$ PD) was 47.3%. 17.6% were undercorrected >10 PD. 5.8% of patients were exactly orthophoric. Overall, 74% were corrected to within 10PD of straight. Patient satisfaction was 97.7%. The vast majority of overcorrections recorded at 2 weeks post operatively had resolved at 3 months.

CONCLUSION

Maximal lateral rectus recession for exotropia simplifies subsequent surgery and maximises muscle availability when required in the event of residual or consecutive exotropia. Reported surgical success rates in exotropia are variable (literature reports range from 38% to 91.6%)[1-7]. This surgical approach demonstrated relative success when compared to outcomes reported within current literature, with high patient satisfaction. We therefore advocate routine full recession of lateral rectus (-7.5mm) during paediatric strabismus surgery for exotropia.

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