J Clin Exp Ophthalmol 2016, 7:3 (Suppl)
http://dx.doi.org/10.4172/2155-9570.C1.034

Evaluation of adjustable partial vertical rectus transpositioning in incomitant strabismus (exoduane and lateral rectus palsy)

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Introduction: Cases of Exo Duane and severe Lateral rectus palsy can be difficult to handle because of diplopia and limitation of movements. This study evaluates adjustable partial Vertical Rectus Transpositioning (ApVRT) as a treatment modality to correct Exo-Duane retraction syndrome (Exo DRS after periosteal fixation of lateral rectus, LRPF) and severe Lateral rectus palsy (LRP).

Methods: A total of Forty one patients of which 21 of Exo Duane underwent LR PF and were randomized into two groups 1&2 of Conventional partial VRT and Adjustable pVRT. Similarly 20 patients of LR palsy randomized into two groups 3 & 4 operated by Conventional partial VRT and Adjustable partial VRT. Medial rectus recession was done as indicated by passive ductions in the LR palsy group only. Adjustment done after 5 hours of surgery. Assessment involved prism bar cover test, abduction and adduction grading and extent of binocular single visual field. The tests were repeated at 1 week, 1month, and 3 months post operatively and data analyzed.

Results: In Exo Duane, mean change of horizontal deviation was from -21.36+ 5.57 prism dioptre (PD) to -9.36±5.14 PD in group 1 and from -20.2 ± 7.28 PD to -5.6± 6.05PD in group 2. Orthotropia (<8pd) was achieved in 4/11cases in group 1 vs. 8/10 in group 2(p=0.04). Percent improvement in BSV was 85.01±61.67 vs. 153.9±88.80 in group 1 and 2. In LR palsy Mean change of esodeviation was from 49.4+13.62 prism diopter (PD) to 1.3± 2.66 PD in group 3 and from 45.8 ±9.56 PD to 4.3±4.47 PD in group 4.The inter group difference was significant, p value=0.016. Orthotropia (<8pd) was achieved in 9/10cases in group 1 vs 5/10 in group 2(p=0.04). Percentage improvement in BSV was 560 ±381.22 vs. 246±131.04 in group 3 and 4 (p value=0.047). The grade of abduction improved significantly. No vertical deviations and evidence of anterior segment ischemia noted.

Discussion: Periosteal anchoring of LR alleviates the effects of paradoxical innervations of LR in Exo Duane and makes it like LR palsy. Partial VRT was done to improve abduction results in variable deviation which is best corrected by keeping the surgery adjustable.

Conclusion: Adjustable pVRT is more predictable in correcting postoperative deviation and improving abduction in exo-DRS and severe LR palsy.

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