Research Article

Comparative study between rectus muscle resection and tucking in horizontal strabismus surgery

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Abstract
Background: Extraocular muscle strengthening is a common treatment for strabismus. Tucking is an alternative procedure for strengthening muscles with less tissue trauma than resection. **Aim of the study**: is evaluating the muscle tucking technique and comparing it to the resection technique. **Patients and methods:** The study included 40 patients having horizontal deviations, they were divided into two groups; group I included 20 patients who underwent muscle tucking, and group II included 20 patients who underwent resection. The patients were followed for 3 months and the results of the 2 groups were compared and analyzed statistically. **Results:** The overall success rate of both groups at three months follow up was nearly the same. It was 80% for the tucking group and 75% for the resection group. The stability of both techniques was compared and they were found to be equally as stable. **Conclusion:** The tucking appeared to be safe, effective, and predictable alternative to resection with few complications. It reduces anterior segment ischemia and prevents muscle loss

Keywords: Anterior segment ischemia, modified rectus tuck, resection, tucking, strabismus surgery, muscles.

Introduction
Strabismus surgery serves to align the visual axes to provide binocular single vision, improve cosmesis, [1] restore normal eye contact,[2] or enhance the quality of life.[3] Strabismus surgery usually involves slackening an overacting extraocular muscle most often by recession, and tightening an underacting muscle (by resection, tucking, or plication), or altering the pull of the vector forces by changing the insertion site of a muscle, that is transposition.[4]

Patients and methods
Study design: 40 patients were included in our prospective study 16 males 24 females. The study was performed between May 2013 and September 2016 at Minia University hospital. All consenting strabismus patients qualifying for the first-time uniocular horizontal rectus surgeries underwent detailed ocular examination. For tucking, we folded the tendon-muscle strap the desired amount using 6-0 vicryl and suturing it to its insertion. We compared the groups for ocular alignment at 1 week, 1 month and 3 months and successful alignment (≤10 prism diopter of orthotropia). We used Mann-Whitney and Fisher's exact tests, with significance at $P \leq 0.05$. Main outcomes and measures: Postoperative binocular alignment at the first postoperative and last available examinations. The presence of a postoperative lump at the site of tucking was noted and the time the lump disappeared.

Results
Fisher Exact test revealed insignificant relationship between 2 groups as regard the postoperative correction (orthotropia or not), P value=1.

Table 1 : Comparison between results of resection and tucking groups.

	Resection group N=20	Tucking group N=20
Age (Year) Range **Mean± SD**	4 to 35 16.85±6.47	2 to 47 21±15.19
Male **Female**	8 (40%) 12 (60%)	8 (40%) 12 (60%)
EXO (number)%	16 (80%)	12 (60%)
Eso (number)%	4(20%)	8 (40%)
Preoperative angle (Degree) **Exo** **Range** **Mean± SD** **Eso** **Range** **Mean± SD**	 15 to 45 30.62 ± 9.81 20 to 30 26.25 ± 4.78	 20 to 40 30 ± 6.03 15 to 45 30 ± 11.33
Correction (%) Ortho **Under correction**	75% 25%	80% 20%

Discussion

In our study, there was no significant difference in the success rate, so tucking is as an alternative to resections offer comparable outcomes, in their post-operative surgical success. Tucking was cosmetically acceptable and did not produce conspicuous tissue elevations. The convenience and predictable effecti-veness of tucking recommends its application in routine horizontal muscle surgery. In addition, tucking is initially reversible,

We found another study, by Chaudhuri and Demer, in which the author compares the surgical outcomes of resection and plication.[5] Like us, they found no significant differences in the postoperative surgical outcomes between patients plicated and/or resected.

Conclusion

The muscle tucking technique is an easy alternative to resection that can be used on horizontal muscles especially when anterior ciliary vessels sparing is needed.

References

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