

Plication: How apt in application?

The standard procedure for strengthening/tightening the muscles is resection, which involves the muscle being disinserted and reinserted back at the point of original insertion, after a part being resected.^[1] This, however, makes it irreversible, vulnerable to muscle loss/slippage during surgery and, also compromises the anterior segment circulation. Another strengthening procedure involves the plication or the muscle tuck whereby the muscle is double breasted without disinsertion. However, the “muscle-to-muscle” tuck never acquired general interest probably due to the effect of “cheese wiring” leading to a loss of effect over time. Wright revived the interest by changing the technique from muscle-to-muscle to muscle-to-sclera and also demonstrating the relative preservation of anterior segment circulation and its immunity from getting lost in action.^[2] Wright^[2] insists on the muscle being folded “over the muscle” for better preservation of circulation but the muscle being folded “under the muscle” too has been described and to be safe in human subjects with the help of iris angiograms.^[3] Filling defects were seen in all cases of vertical rectus tenotomies (3/3) as compared to 1/4 in the case of vertical rectus plication surgery and none of the cases (0/5) of horizontal rectus plication surgery. This is possibly due to the role of long posterior ciliary arteries, indicating a relative safety of the procedure on horizontal recti.

Prabha, *et al.*^[4] describe the comparative outcomes of standard resection procedure with plication of rectus muscles. The authors have shown comparable outcomes of both the procedures. The inflammatory changes have also been found to be comparable among both the procedures in the study. However, they have followed up for a maximum 6–8 weeks and have not described the long-term effects of the procedure. A study comparing the outcomes of plication versus resection showed similar and maintained results on comparing medial rectus resection to plication, but the lateral rectus plication showed 37% loss of effect over time.^[5] Another recent study has shown plication to be less effective than resection procedure.^[6] The authors have reported a higher rate of undercorrections and reoperations in the plication group. The authors also report a higher association of postoperative drift with plication and blame the use of absorbable sutures for inferior outcomes as the effect of plication may decrease once the sutures dissolve.^[6]

The other advantage of this procedure is its reversibility in the early postoperative period, and it can be done on adjustable suture for more precision.^[7] This surgery can also be done as a minimally invasive strabismus surgery. A mini-plication of just the central 3–4 mm muscle fibers is also described and is easily adjustable too.^[8]

The current evidence points toward a slightly inferior outcome of plication surgery as compared to standard resection procedure. A long-term prospective study with a larger sample size and also an improved technique to prevent the postoperative drift and loss of effect would be needed to establish this procedure as an effective alternative to standard resections.

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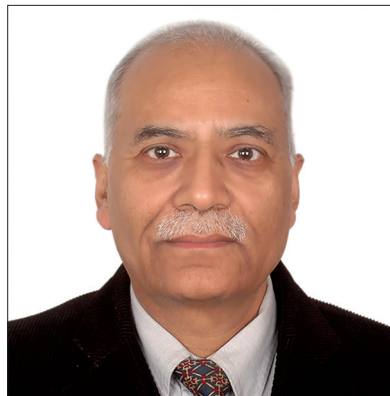
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