

PLICATION – AN ALTERNATIVE TO RECTUS RESECTION IN STRABISMUS SURGERY

Strabismus surgeons commonly perform resection as a standard method to strengthen a rectus muscle, but an old approach – muscle plication – has been gaining advocates in recent years.

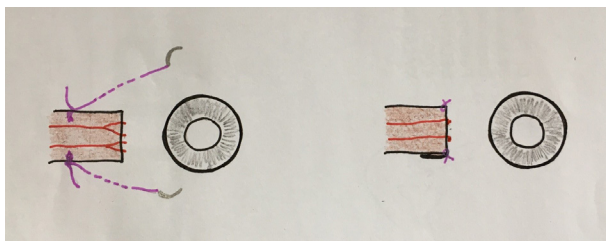
The currently prescribed technique of muscle-to-sclera plication is equal to resection in its effect per mm shortening.¹ However, muscle-to-muscle rectus plication (tuck) is not recommended as gradual stretching of the elastic muscle fibres negates the initial tightening effect.

Plication has some salient advantages over resection; it is less traumatic, carries no risk of a lost muscle, is reversible within the first few days, and may be accomplished through small conjunctival incisions (MISS, minimally-invasive strabismus surgery.^{2,3}). And significantly, it is less likely to induce anterior segment ischaemia given that the anterior ciliary vessels are not severed in the process. This factor is particularly relevant in vertical rectus surgery (compared with the horizontal recti, since the horizontal meridians receive some blood supply from the long posterior ciliary arteries as well) and in older individuals with poorer circulation.⁴ Nevertheless, plication can

also disrupt the anterior ciliary vessels if the plicated segment is not manipulated carefully. Contrary to expectation, there is typically no visible bulge or thickening over a plicated muscle.⁵ One report suggested that long-term results may be less stable with plication than with resection⁶, but this has not been noted elsewhere to be an issue.

TECHNIQUE

The same surgical dosage numbers as for resection are used to determine the amount of shortening desired¹. A locking suture (polygalactin 5/0) is placed on each edge of the muscle at the required distance, incorporating about 1.5 – 2 mm of the muscle edge and sparing the anterior ciliary vessels. The muscle is drawn forwards on itself, with the redundant muscle either folded over using a suitable instrument like a cyclodialysis spatula or left on the surface.^{1,5} Each muscle edge is then sutured to the sclera at the corresponding muscle pole.



Video <https://www.youtube.com/watch?v=D38NZpOIgEM>

Slides https://aapos.org/client_data/files/2014/922_wright.pdf

In my practice, I have found plication to be less fussy, the operated eye more comfortable, the conjunctival cosmesis indistinguishable and the correction outcomes not inferior to resection. Unless further evidence establishes that the success rate of stable realignment is lower, plication may be considered to be the preferred technique for rectus muscle strengthening.



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