

Comparison of Three Flexor Tendon Suture Techniques. Influence of the Epitendinous Suture

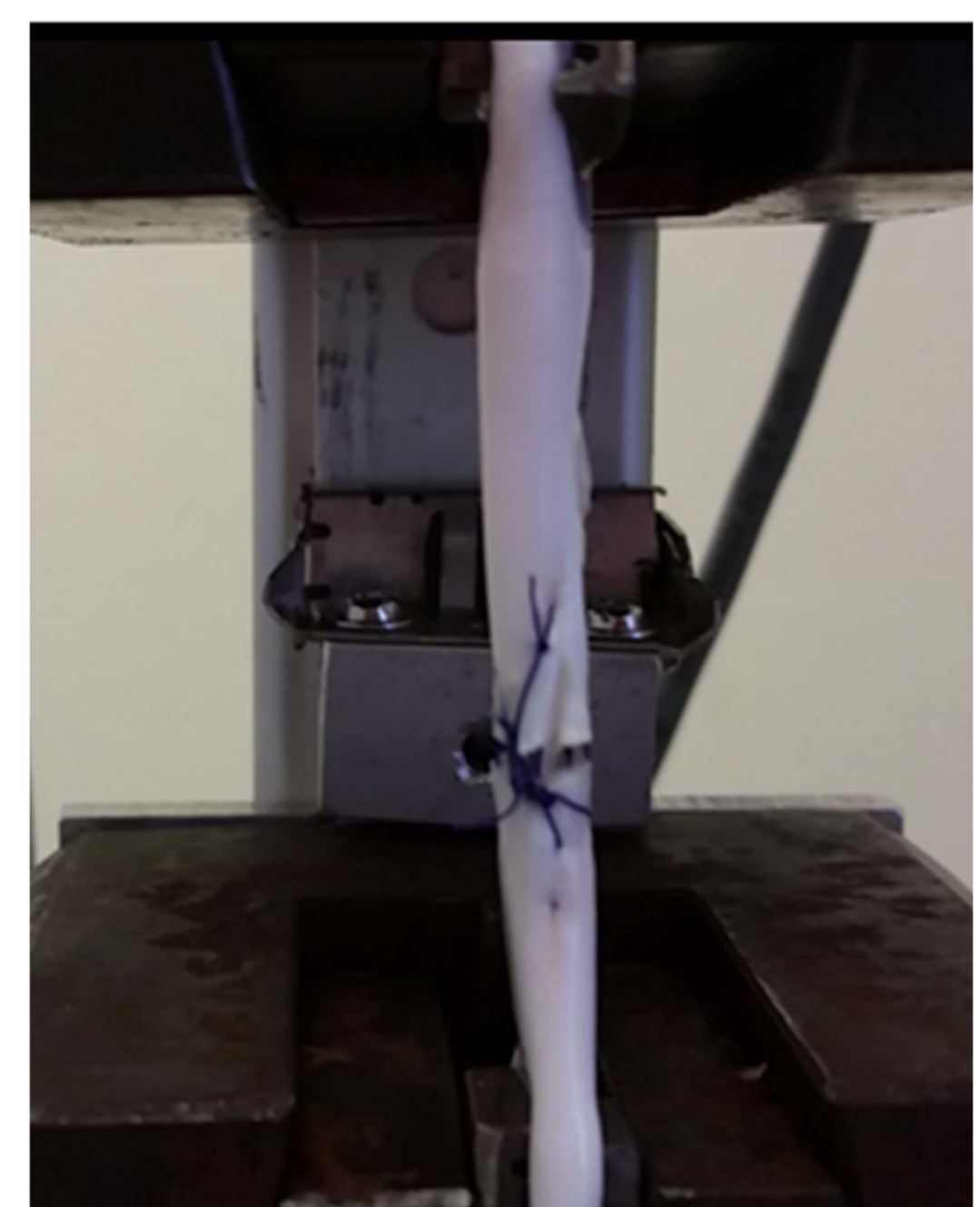
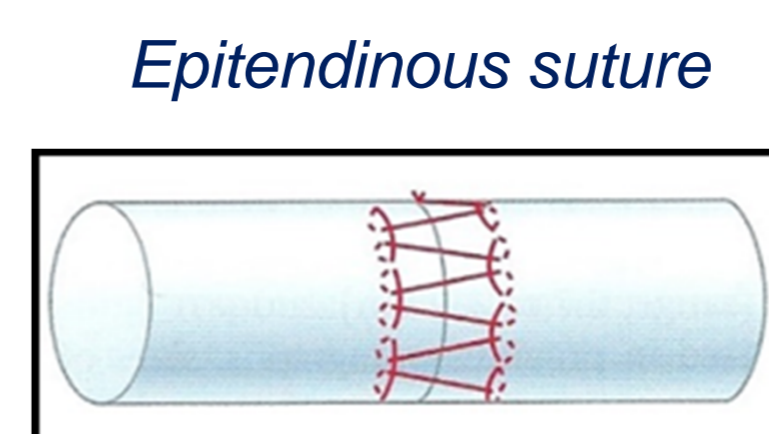
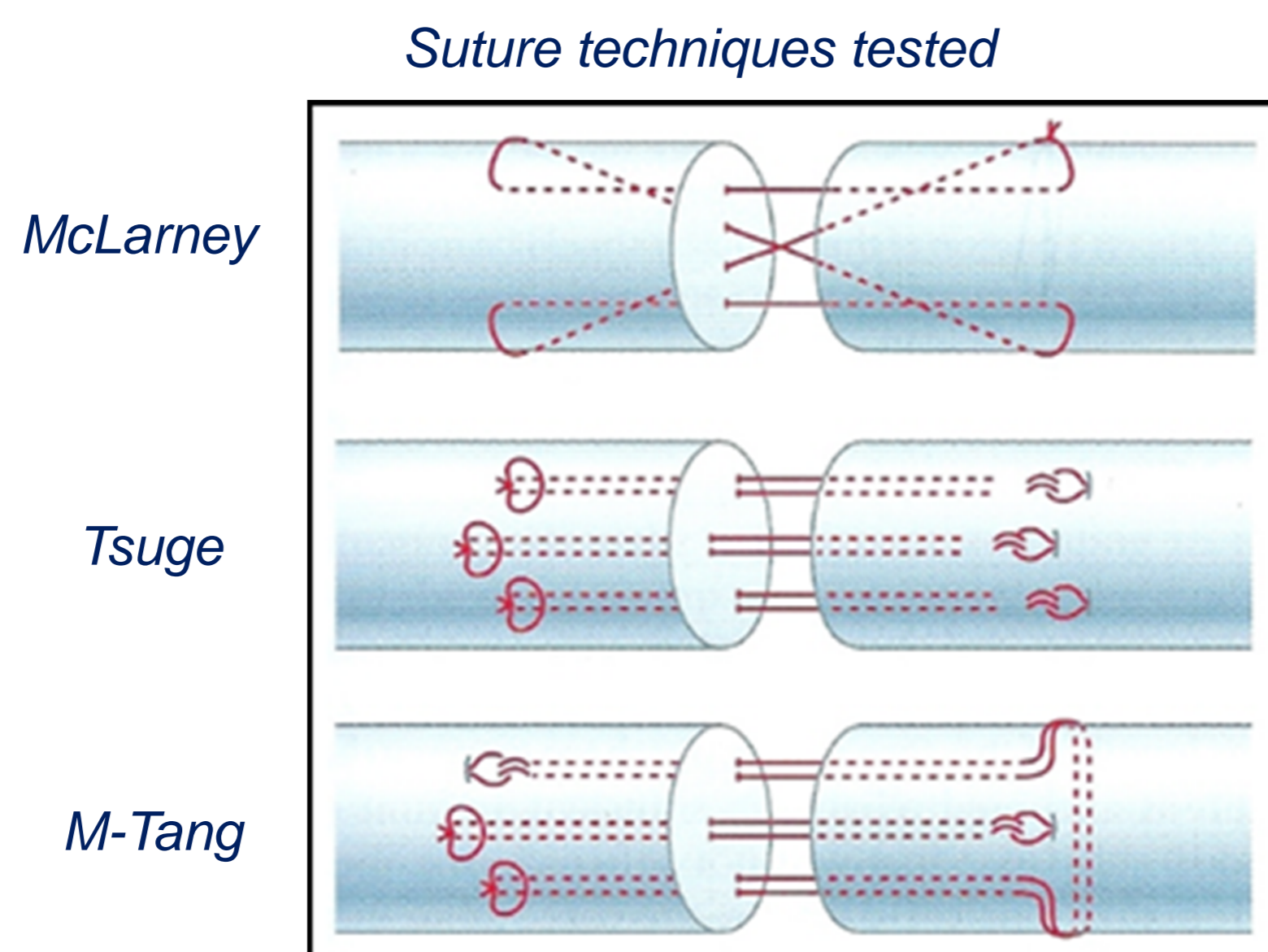
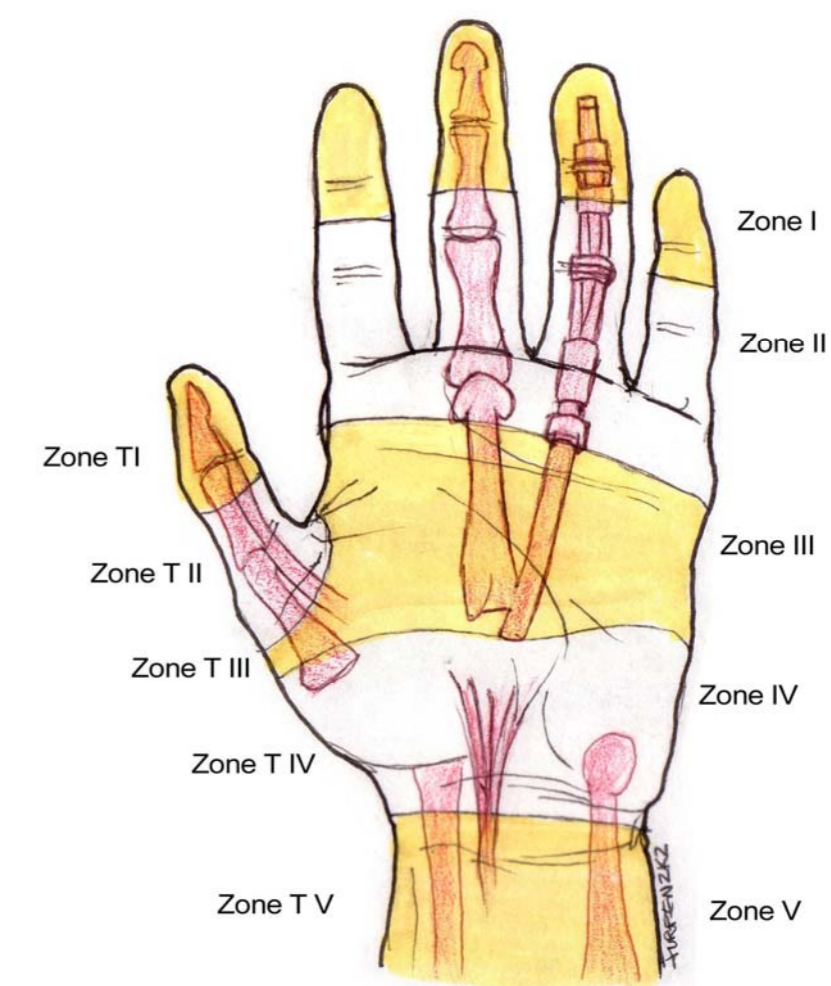
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Introduction

Flexor tendons repair, especially in the middle area of the fingers (zone II), is one of the most complicated task in the daily practice of hand surgery. It consists in suturing the two-sectioned ends and a multitude of suturing techniques have been described. The most resistant repairs are achieved using sutures of a greater caliber and a greater number of branches in the suture, as well as an external suture, called epitendinous. However, this increases the risk of adhesion of the tendon to the surrounding tissue and therefore its poor clinical outcome.



Tendon tensile test

Methods

Sixty porcine flexor digitorum profundus tendons were used (n = 10 per case). Six types of reconstruction were performed, the three different techniques with and without epitendinous suture. Each reconstruction was tension tested and the force to create a 1 and 2 mm gap was recorded. A one-way ANOVA was performed with Tukey as post-hoc method.

Forces (N) achieved at 1 and 2 mm of gap

	<u>McLarney</u>	McLarney+Epi	M-Tang	M-Tang+Epi	Tsuge	Tsuge+Epi
Force 1 mm gap	3,6 ± 1,4	6,5 ± 3,6	4,8 ± 2,9	9,2 ± 6,7	7,5 ± 7,0	14,8 ± 9,7
Force 2 mm gap	7,3 ± 4,0	12,2 ± 5,8	10,6 ± 5,5	16,5 ± 7,3	12,5 ± 7,9	22,9 ± 11,1

Results and Discussion

The Tsuge technique with epitendinous suture provides statistically greater strength values compared to the rest of techniques (p = .002 and p < .001, at 1 and 2 mm gap, respectively). The three techniques without epitendinous suture show no significant difference (p = .15 and p < .17, at 1 and 2 mm gap, respectively), so any of the three can be used in case the surgeon find unnecessary or inadequate to perform an epitendinous suture.