

Short-to-Mid-term Outcomes Following Interosseous Membrane Reconstruction Using Tightrope Suture-Button Suspensionplasty

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Objective

- To describe our institution's experience with Interosseous Membrane (IOM) Reconstruction using a mini-Tightrope (TR) suture-button suspensionplasty device (*Arthrex, Inc., Naples, FL*) for treatment of forearm instability and related disorders.

Methods

- Retrospective review of patients who underwent IOM reconstruction using the mini-TR from 2011-4
- All surgeries performed by two senior surgeon-authors (ALO, RWC)
- Surgeries all performed in conjunction with an ulnar shortening osteotomy and arthroscopic TFCC repair.
- Data queried: Demographics, injury history, prior treatment(s), clinical exam values, QuickDASH scores, subjective satisfaction:
(1= highest; 5 = lowest)
- Secondary outcomes: complications, additional surgery
- Bivariate statistical analysis:
Paired t-test for comparison of pre- and post-operative ROM, grip strength, QuickDASH scores

Results

Study Cohort

- Ten patients (7 female, 3 men)
- Mean age: 45.3 years (range 22-59)
- Mean follow-up duration 30 +/- 17 months
- Underlying condition:
 - 8 patients with post-traumatic sequelae of Essex-Lopresti injuries
 - 1 patient with Madelung's deformity,
 - 1 patient with instability due to a prior failed lateral elbow reconstruction
- 8 TR used primarily, 2 as revision of prior failed surgeries
- Mean interval from initial injury to IOM reconstruction surgery: 26 +/- 18 months

Subjective Outcomes

- 10/10 patients satisfied
satisfaction = 1.4 +/- 0.7
- Improved QuickDASH (see Table I.)
- Significantly improved Elbow ROM

Table I. Comparison of Pre- and Post-Operative Outcome Measures

Outcome	Preoperative	Postoperative	P value
Elbow Flex/Ext Arc (deg.)	97 +/- 24	120 +/- 18	0.03*
Forearm Rotation (deg.)	124 +/- 39	130 +/- 36	0.75
Grip Strength (lbs.)	43 +/- 22	57 +/- 20	0.14
QuickDASH (scaled 0- 100)	71 +/- 19	26 +/- 24	0.001*

* Denotes statistical significance

Conclusions

- IOM Reconstruction using the Tightrope device is a promising surgical option for the treatment of forearm instability secondary to post-traumatic sequelae and other related deformities
- This technique may prove useful in the primary, secondary or revision settings of forearm reconstruction
- Further investigation is warranted to evaluate long-term patient outcomes, including comparison to other techniques of IOM reconstruction