

Endoscopic Flexor Hallucis Longus Transfer with Interference Screw and Additional Tension Slide Cortical Button for Chronic Achilles Tendon Rupture

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Background

- Endoscopic flexor hallucis longus (FHL) tendon transfer can be used in the management of acute or chronic Achilles tendon rupture (ATR), including in elite sportspeople.
- A recent cadaveric study demonstrated that an increased ultimate load could be applied using an FHL tendon transfer with interference screw and cortical button applied using a tension slide technique compared with interference screw alone.

Aim

- The aim of this study was to explore patient-reported functional outcomes following this modified FHL reconstruction technique.

Technique

(A) The flexor hallucis longus tendon has been whipstitched and a 2.4 spade-tipped wire is drilled bicortically through the calcaneus. (B) Overdrilling with a cannulated flexible reamer matching the size of the tendon to a depth of 25 mm. (C) Whipstitched tendon threaded into cortical button and introduced into calcaneus. (D) Button detached and flipped on plantar aspect of calcaneus. (E) The tension slide technique has been used to fully dock the tendon and the interference screw is being inserted. (F) The final construct with cortical button and interference screw.

QR code link to surgical technique video



Figure 3. Postoperative radiograph of the flexor hallucis longus tendon transfer with interference screw and cortical button construct.

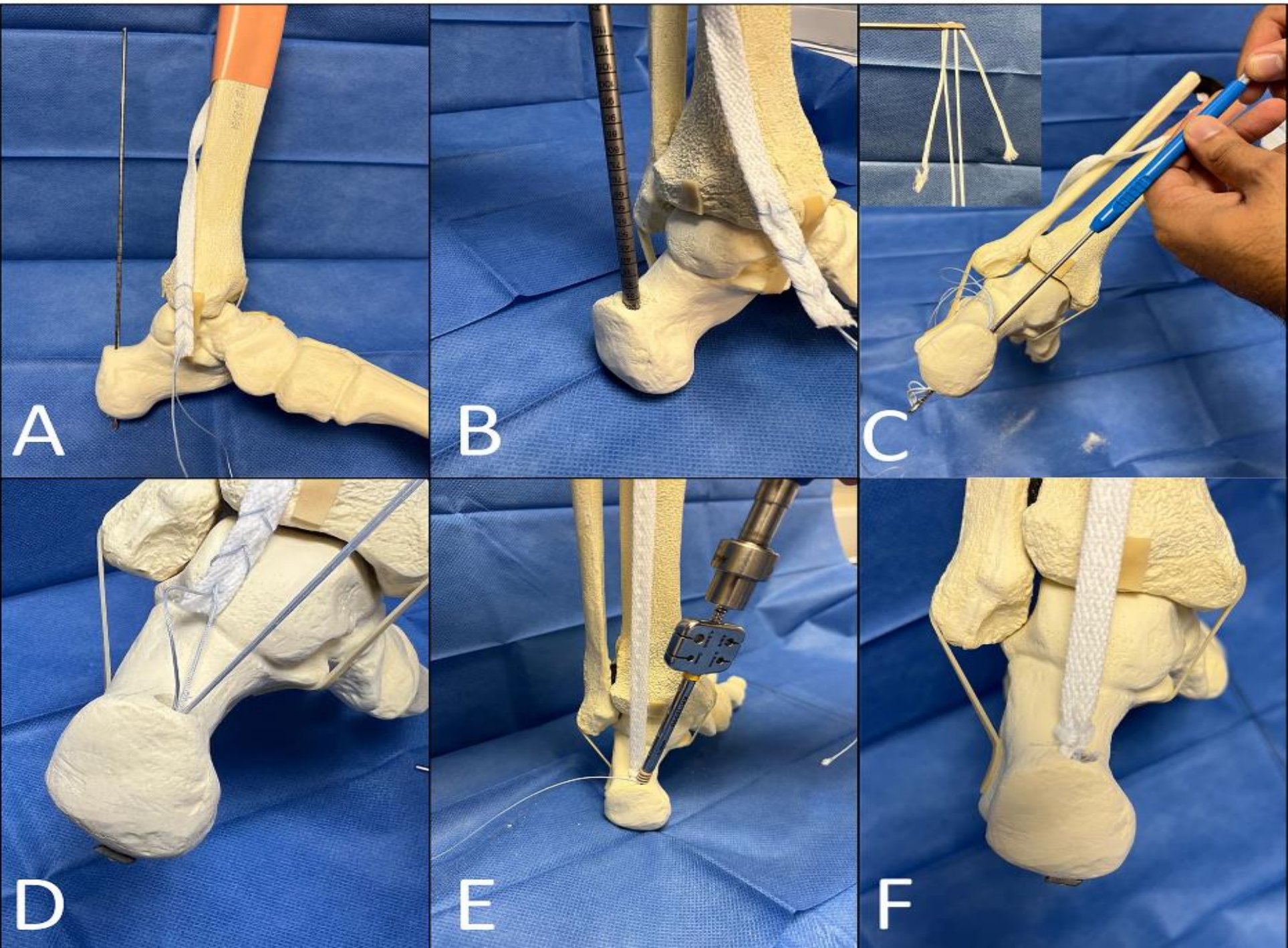


Figure 4. Flowchart demonstrating patient participation and follow-up rates in study.

Results

- 17 patients (11 male; 6 female)
- Mean (SD) age at time of surgery is 58.3 ± 16.1 years
- Mean follow up was 1.5 ± 0.7 years (min 10-month follow-up).
- A specific event in the history associated with the rupture was present in 13 of 17 patients (76.5%)
- Median (IQR) time between injury and surgery was 33 weeks (21-42)
- Sixteen surgeries were primary procedures for chronic ATR, and 1 surgery was a revision procedure after a failed open acute ATR repair
- MOxFAQ, EQ-5D, and VAS-pain scores all showed a statistically significant improvement postoperatively (minimum 10 months) when compared to preoperative scores
- There was 1 symptomatic complication of tibial neuritis (5.9%)

Table 1. Patient-Reported Outcomes Following Primary Endoscopic Flexor Hallucis Longus Tendon Transfer for Chronic Achilles Tendon Rupture.

		Preoperative	Postoperative	
Domain		Mean ± Standard Deviation		P Value
MOXFQ	Pain	45.3 ± 19.7	17.9 ± 27.6	<.001
	Walking/standing	68.4 ± 24.1	17.2 ± 27.3	<.001
	Social interaction	56.1 ± 26.5	12.9 ± 26.3	<.001
	Index	54.8 ± 22.8	15.5 ± 26.1	<.001
EQ-5D-5L	EQ-5D Index	0.552 ± 0.308	0.792 ± 0.265	.002
	EQ-5D VAS	67.2 ± 21.6	80.9 ± 18.1	.004
VAS pain		36.1 ± 25.4	13.2 ± 24.9	<.001

Abbreviations: EQ-5D-5L, EuroQoL-5 dimensions, 5 levels; MOXFQ, The Manchester-Oxford Foot Questionnaire; VAS, visual analog scale.

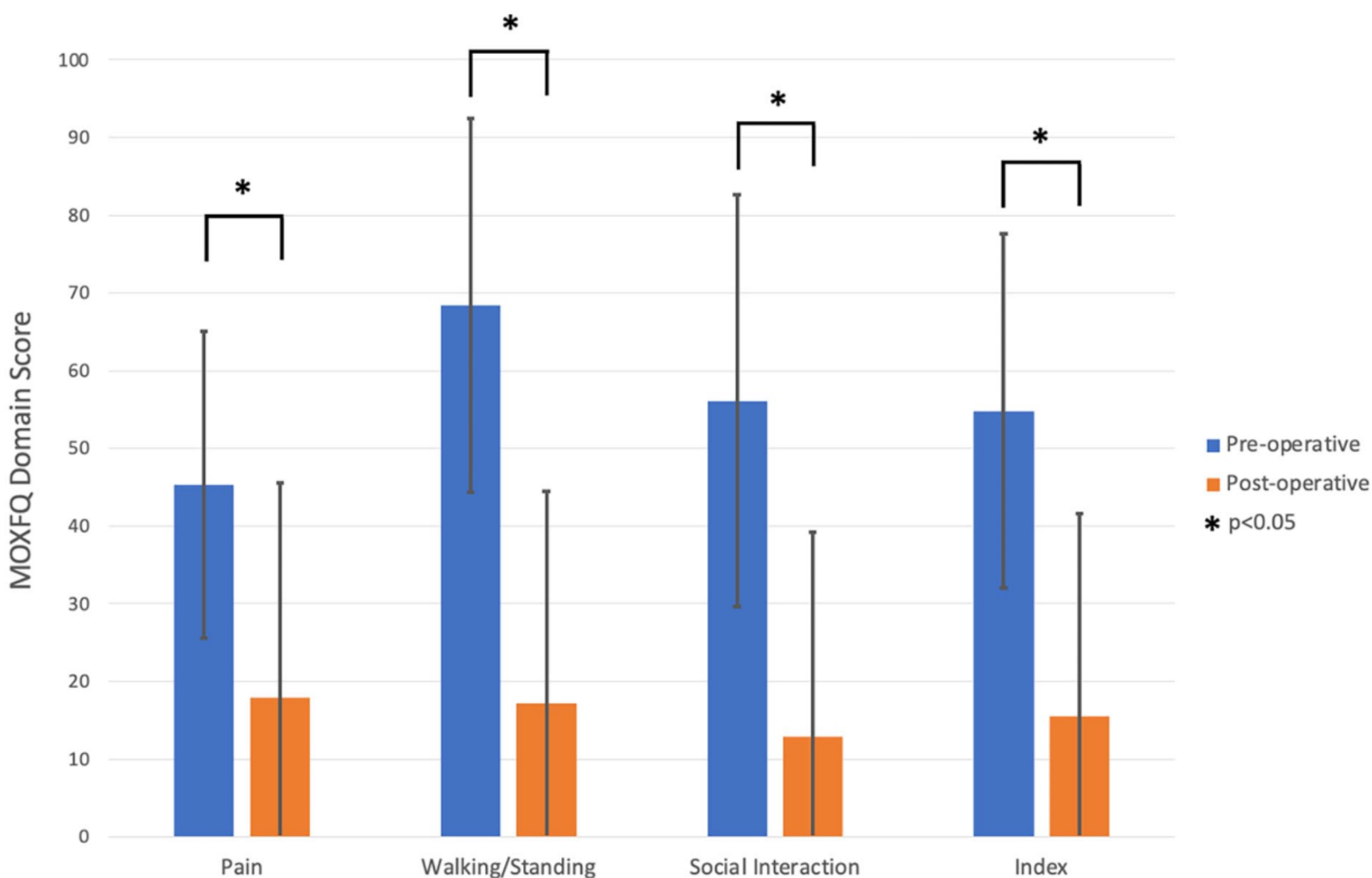


Figure 5. Graph demonstrating statistically significant improvement in pre- and postoperative outcomes in all MOXFQ domains following endoscopic flexor hallucis longus tendon transfer for chronic Achilles tendon rupture.

Methods

- We reviewed the imaging, history, patient-related outcome measures (PROMs), and complications of 17 patients who underwent endoscopic FHL tendon transfer for chronic ATR using the modified FHL reconstruction technique between Sep 2020 and May 2023.
- Primary outcome: Manchester Oxford Foot Questionnaire (MOxFAQ).
- Secondary outcomes: EuroQoL-5 Dimensions (EQ-5D) and Visual Analogue Score for Pain (VAS Pain).
- Results were collected via the BOFAS Amplitude registry.

Conclusions and Discussion

- Endoscopic FHL tendon transfer for chronic ATR augmented using a cortical button as well as an interference screw seems to be a safe and effective procedure, with patients reporting a statistically significant improvement in health-related quality of life, pain, and specific foot and ankle outcome.