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Anatomic origin of common flexor tendon for arthroscopic approach of medial epicondylitis

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Introduction and Background

The common flexor tendon (CFT) originates from the medial epicondyle and contributes to dynamic valgus stabilization of the elbow. Although arthroscopic treatment is well established for lateral epicondylitis, its use for medial epicondylitis remains limited. The purpose of this study was to quantitatively analyze the anatomic origin footprint of the CFT and to evaluate the feasibility of arthroscopic access to the medial epicondyle.

Material and Method

In Part I, twelve fresh-frozen cadaveric upper extremities were used to evaluate the footprint morphology of the pronator teres (PT), flexor carpi radialis (FCR), palmaris longus, flexor digitorum superficialis (FDS), and flexor carpi ulnaris. Length, width, and spatial relationships to the ulnar collateral ligament and trochlear cartilage were measured and normalized to ulnar length. Interobserver reliability was assessed using intraclass correlation coefficients. In Part II, arthroscopic accessibility was examined in eight additional specimens. After marking the PT–FCR origin with 18-gauge needles, arthroscopic release was performed through a proximal anteromedial portal, followed by open inspection to assess resection extent and injury to adjacent structures.

Results

The PT had the most proximal and elongated origin, followed by the FCR. The upper trochlear cartilage border corresponded to the proximal margin of the FDS, serving as a reliable arthroscopic landmark. Arthroscopic release of the PT (>90%) and FCR (~70%) was feasible in all specimens, with preservation of the ulnar collateral ligament and ulnar nerve. However, the superior portion of the FDS origin showed thermal injury in every specimen due to limited visualization and anatomical proximity.

Conclusions

The CFT exhibits a predictable origin morphology at the medial epicondyle. Arthroscopic release of the PT and FCR is anatomically feasible while avoiding major stabilizing structures, but the risk of iatrogenic FDS injury remains a technical limitation. These findings provide anatomical evidence supporting selective arthroscopic treatment of medial epicondylitis and may guide refinement of surgical strategies.

Figure & Table 1.

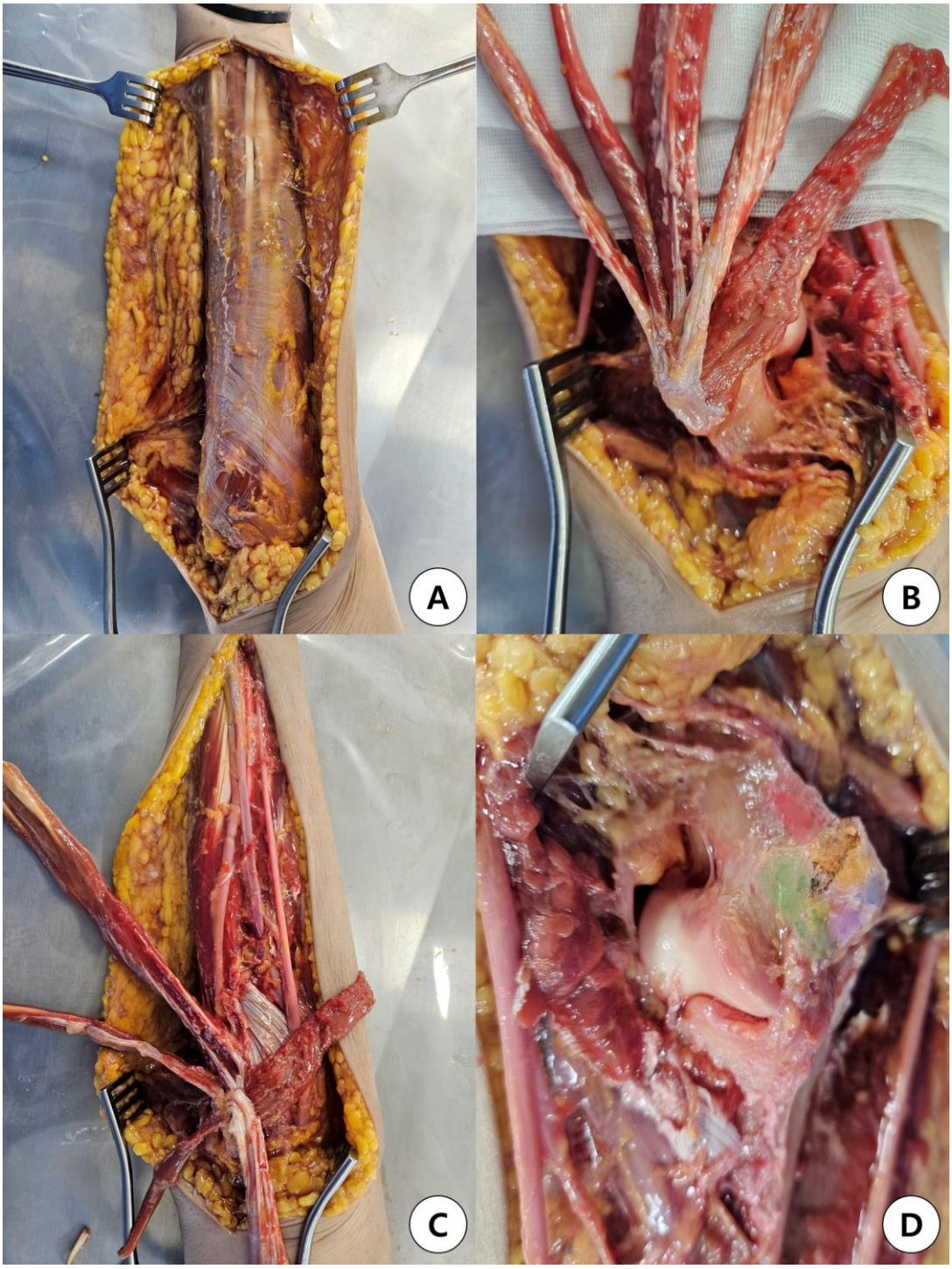

Figure & Table 2.