

Surgical Stabilization of Traumatic Subluxation of the Extensor Tendon of the Hand with an Extensor Digitorum Communis Tendon Slip: Mini Review



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Abstract

Treatment of traumatic sagittal band injury and subluxation of the extensor tendon at the metacarpophalangeal joint is often conservative but can also require surgical intervention if conservative treatment fails. Surgical stabilization of the extensor tendon subluxation resulted from a disruption to the extensor retinacular system and/or the sagittal band at the metacarpophalangeal joint using the extensor digitorum communis (EDC) slip technique is simple and effective.

Keywords: Sagittal Band; Extensor Tendon Subluxation; Reconstruction

Introduction

Traumatic extensor tendon dislocation at the metacarpophalangeal (MP) joint results from a rupture of the transverse fibers of the extensor hood on its radial side, allowing ulnar dislocation of the extensor tendon at the level of the MP joint. It is comparatively rare, and occurs most frequently in the middle finger [1,2]

Subluxation of the extensor tendon at the metacarpophalangeal joint is a rare condition can lead to joint pain and limit the range of motion in fingers. Upon the injury mechanism, other causes (spontaneous or degenerative, congenital, and focal epileptic dislocations) except rheumatoid arthritis are relatively uncommon [1,2]. Acute injuries that are not initially treated with timely splinting are associated with degenerative insufficiency of the sagittal bands.

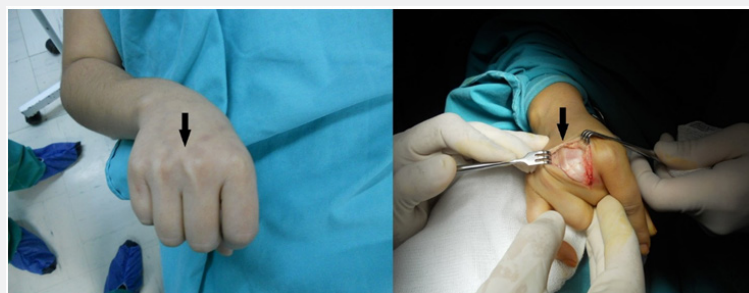


Figure 1: Pre and trans operative photograph show ulnar subluxation of the extensor tendon over the MCP joint with active flexion of the right middle finger (black arrows).

When conservative treatment is insufficient to correct the subluxation, surgical treatment is necessary and various surgical techniques exist. A technique using an extensor digitorum communis (EDC) tendon slip to stabilize the dislocated extensor tendon is presented. Surgical technique [3]. Under general anesthesia, the ulnar subluxated extensor tendon is exposed using a dorsal curved incision over the metacarpophalangeal joint. Through an incision on the same side of the tear in the sagittal band, a distally based extensor digitorum communis

(EDC) tendon strip 1/3 width on same side of tear is looped around the EDC to prevent migration of slip (1st. loop), passed under the deep transverse intermetacarpal ligament (DTML) on the radial side (2nd. loop) and woven back to into extensor hood /remaining EDC tendon and sutured after adjusting the tension. In the cases involving the index finger the tendon slip was passed under the radial lateral band instead of the deep transverse intermetacarpal ligament (Figures 1-3).

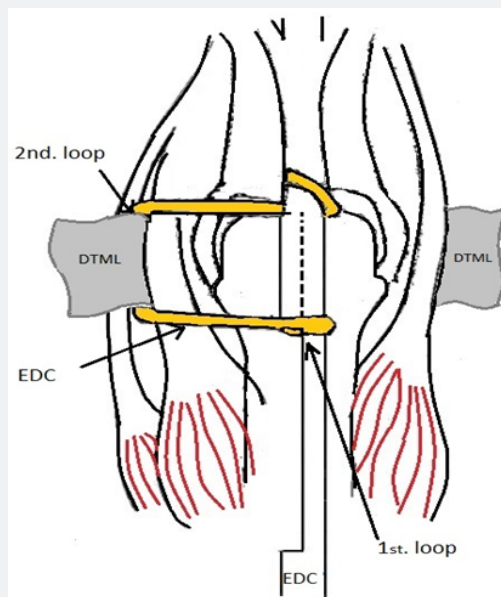


Figure 2: Distally based EDC tendon is looped around EDC (*1st.loop) and passed under deep transverse intermetacarpal ligament (DTML) (**2nd.loop). The tendon slip is woven back into extensor hood/remaining EDC tendon and sutured.



Figure 3: Postoperative photograph, reveals that extensor tendon maintains a central position over the MCP joint (black arrow).

After surgery, the hand is immobilized with a short-arm orthosis for 6 weeks with the metacarpophalangeal and proximal interphalangeal joints extended allowing active range of motion of the distal interphalangeal joint. When the short-arm orthosis is removed the patient begin active motion of the metacarpophalangeal and proximal interphalangeal joints.

Discussion

Extension of the finger involves the simultaneous actions of both intrinsic and extrinsic extensor muscles. The tendons of the extrinsic extensor muscles act as the principal extensors at the metacarpophalangeal joint (MCPJ). The first report of this condition was published in 1868 by Legouest [4] followed by further reports and discussion of this pathology and its treatment.

The extensor tendon at the dorsum of the MCP joint is formed by a complex retinacular system named the dorsal hood [5] and their sagittal bands offers the stability of the extensor tendon at the metacarpophalangeal (MCP) level. The ulnar slope of the metacarpal heads and the anatomical difference

between the radial and ulnar sagittal bands induce vulnerability to injury causing ulnar instability of the involved extensor tendon [6,7]. Traumatic extensor tendon dislocation at the metacarpophalangeal (MP) joint occurs most frequently in the middle finger [8].

Acute traumatic sagittal band and/or juncturae tendinum tears and/or ruptures in the non-rheumatoid hand can be successfully treated using closed methods but if extensor tendon instability persists and chronic EDC tendon dislocation surgical treatment is necessary. Several surgical techniques have been described in the literature to achieve stability of the EDC. Restoration of sagittal band stability and extensor tendon centralization at the metacarpophalangeal joint by the extensor slip loop technique recreate the physiologic biomechanical forces. This surgical technique is relatively simple, shortens the surgical time and only a single skin incision is necessary.

Declaration of conflicting interests

The author(s) declared no potential conflicts of interest.

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