

## Congenital extensor tendon dislocation causing pseudotriggering of the little finger



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### ABSTRACT

The main complaints in extensor tendon dislocations are pain, swelling, sense of discomfort, snapping and difficulty in writing and forceful flexion. However, congenital extensor tendon subluxations may present with triggering of the fingers due to tendon dislocations. Unnecessary A1 pulley release may be performed for pseudotriggering with unsuccessful results. Here, we report an unusual case of congenital extensor tendon subluxation of multiple digits with triggering of the left little finger and aim to attract notice to pseudotriggering of the digits due to tendon dislocations. An extensor hood reconstruction performed by an extensor digitorum communis tendon slip which is passed beneath the deep intermetacarpal ligament is a successful choice of treatment for these patients.

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### Introduction

Dislocation of the extensor tendons from their central position on the metacarpal heads is rare, especially in non rheumatoid patients. Four etiological factors are reported to be involved in extensor tendon subluxation. Dislocation of the extensor tendons can be traumatic (due to sagittal band rupture), congenital, spontaneous and degenerative.<sup>1–4</sup> The patients with extensor tendon dislocations usually complain of discomfort and snapping with active finger flexion. However, we could not find any study reporting extensor tendon subluxation with pseudotriggering of the digits. In this study, we report a case of congenital extensor tendon subluxation of multiple digits with pseudotriggering of the left little finger. We aim to attract notice to pseudotriggering of the digits due to tendon dislocations and to discuss tendon reconstruction surgery for extensor tendon dislocations.

### Case

This study is performed with an informed consent form signed by the patient and parents. A 16 year old female patient presented to our clinic with a complaint of triggering of her left little finger for

about 2 years. She had a history of two surgical A1 pulley releases about a year and 5 months ago respectively. During the first surgical intervention, ulnar tunnel release was also performed because of accompanying ulnar sided pain and tenderness in the hand. She did not have any history of previous trauma.

Physical examination revealed a “Z” shaped incision beginning in the flexion crease of the ulnar wrist and extending to the distal palmar crease over the ulnar tunnel. With grasping, extensor tendons of the middle, ring and little fingers were subluxating ulnarly on the metacarpal heads (Fig. 1). In addition, the little finger was pseudotriggering due to falling of the extensor tendon beyond the axis of rotation of the metacarpophalangeal (MP) joint and getting caught by the bony prominence. She also had asymptomatic extensor tendon subluxation of last 3 digits in her right hand. Wynne-Davies' ligamentous laxity criteria of flexion of the thumb to touch the forearm, extension of the fingers parallel to the forearm and hyperextension of the elbow more than 15° were positive in both upper extremities. A surgical reconstruction was advised and planned for pseudotriggering of the fifth finger. We did not plan any surgical intervention for the rest of the subluxating tendons, because they were fully asymptomatic.

### Surgical technique

The surgical exploration was performed through a longitudinal incision over the fifth MP joint. Two slips of extensor digiti minimi (EDM) and a slip of extensor digitorum communis (EDC) tendons

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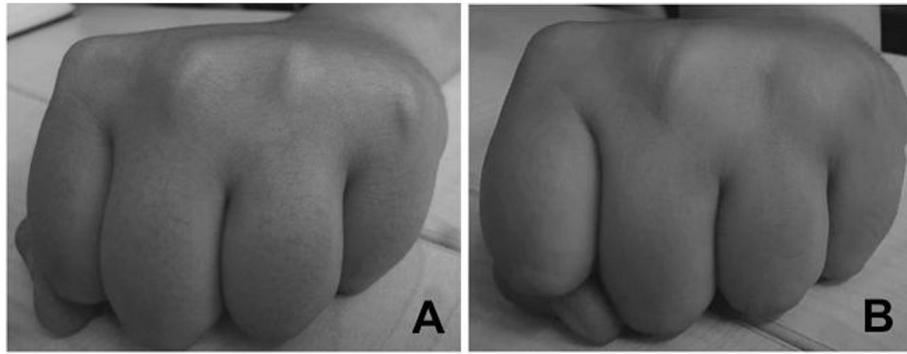


Fig. 1. With forcefull grasping centrally localised extensor tendons of the long, ring and little fingers (A) dislocated ulnarly (B).

were seen on the metacarpal head. After surgical exposure, we observed that the ulnar sided slip of EDM was dislocating with flexion and causing the pseudotriggering of the finger during extension (Fig. 2).

An extensor hood reconstruction by tendon transfer described by Watson et al<sup>5</sup> for the sagittal band reconstruction was performed for the ulnar slip of EDM. A distally based EDC tendon slip, consisting of one third of the tendon, was developed on the ulnar side of the tendon. The base of the tendon slip was at the level of the MP joint and it was about 4 centimeters in length. To prevent further unraveling of the tendon slip, it was passed through a tunnel in the remaining intact EDC tendon from ulnar to radial side. Then the tendon slip was looped under the deep transverse intermetacarpal ligament between the fourth and the fifth metacarpals. The free end of the tendon was sutured to the dislocating ulnar slip of EDM tendon in under appropriate tension which holds this tendon centralized during flexion (Fig. 3). A slight subluxation of the tendon was seen with passive flexion and extension of the MCP joint. After the release of the ulnar sagittal band, the subluxation disappeared and the tendon protected its central position with motion.

The MP joint was immobilized in 25°–30° flexion for 3 weeks postoperatively after which active motion is begun. The patient gained full range of motion about four weeks postoperatively. At last control, 12 months postoperatively, she had full range of motion and had no dislocation or subluxation of the extensor tendons in the fifth finger. We also did not see any other complication related with surgery.

## Discussion

Dislocation or subluxation of the extensor tendons of the digits may be traumatic, congenital, spontaneous and degenerative<sup>1–4</sup>

and is caused by the defect in the primary and secondary stabilizing structures of the EDC. The sagittal band which tightens with flexion and fixes the tendon over the MP joint is the primary stabilizing structure,<sup>6</sup> where intertendinous fascia and juncturae tendiniae behave as secondary stabilizers of the extensor tendons.<sup>4,7</sup>

Congenital dislocation of the extensor tendons is a rare problem which usually affects multiple digits bilaterally, especially in children and young adults.<sup>2,7</sup> In congenital dislocations, the absence of intertendinous fascia may contribute to the dislocation of the tendons in digits having more than one extensor tendon, which may be the explanation of dislocation of the ulnar slip of the EDM causing pseudotriggering of the finger in our patient. Generalized ligamentous laxity may also play a role in this form of tendon dislocation. This can be demonstrated with Wynne-Davies' criteria. Secondary sagittal band contracture may develop due the insufficiency of intertendinous fascia and ulnar displacement of the slip of EDM, which needs to be released to centralize tendon after the reconstruction procedure.<sup>8</sup> The protection of the structural integrity of the sagittal band on the radial side and the intertendinous fascia between the radial slip of EDM and EDC tendons explain why these two tendons did not dislocate.

In literature, the symptoms of extensor tendon subluxation are reported as pain, swelling, discomfort and difficulty in writing and forceful flexion.<sup>2,9</sup> However, our study underlines that, in addition to the symptoms listed in literature, pseudotriggering may also occur in little finger which have more than one extensor tendon. In this digit located at the edges of the hand, complete dislocation of the tendon behind the axis of flexion extension motion of the MP joint can be more painful and can cause more discomfort. As reported in this article, the tendon can be caught by the bony irregularities on the ulnar surface of the metacarpal head causing pseudotriggering of the finger. In addition to pseudotriggering of

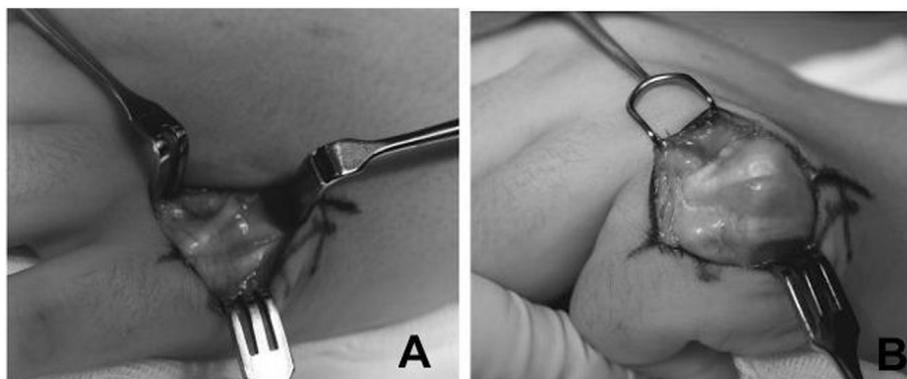


Fig. 2. The extensor digiti minimi tendon had two slips (A). Dislocation of the ulnar slip of the extensor digiti minimi tendon with full flexion of the metacarpophalangeal joint (B).



**Fig. 3.** Centralised position of the ulnar slip of extensor digiti minimi tendon with full flexion after the reconstruction is completed.

the finger, aggravated pain and discomfort in complete dislocations may be misdiagnosed as nerve entrapment syndromes or trigger finger deformity resulting in erroneous surgical interventions.

In review of the literature, we found that various techniques are reported for surgical stabilization of the extensor tendons, all with successful results. Direct repair of the sagittal band is reported in both traumatic and spontaneous dislocations.<sup>1,3</sup> Wheeldon reported a reconstruction technique with juncture tendinea from the opposite side of the defect of the sagittal band.<sup>10</sup> In their series, Inoue and Tamura<sup>2</sup> reported full range of motion and no symptoms in all their patients treated with a retrograde tendon slip anchored to the transverse intermetacarpal ligament. Watson et al<sup>5</sup> in a series of 16 patients with an average follow-up of 16.3 months, reported full range of motion, complete resolution of the symptoms and no

recurrence of the dislocation and without any complications in all patients using a tendon slip of the EDC. Although, postoperative follow-up of our patient is relatively short, we also did not see any complication and loss of range of motion. We believe that, reconstruction performed by a slip of tendon passed beneath the deep intermetacarpal ligament is a good surgical technique which can be used successfully in extensor tendon dislocations.

In conclusion, we would like to underline that, dislocation of the extensor tendons can cause pseudotriggering of the digits and can be misdiagnosed as nerve entrapment or trigger finger deformity resulting in unnecessary surgical interventions. Surgical reconstruction performed by an EDC tendon slip results in successful treatment with full range of motion, complete resolution of symptoms and without any complication.

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