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Clinical case

"Trigger finger at the wrist" due to anomalous *flexor digitorum superficialis* muscle belly within the carpal tunnel ☆

« Doigt à ressaut au poignet » dû à un muscle anormal du *flexor digitorum superficialis* au tunnel carpien

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Abstract

"Triggering of the fingers at the wrist" is a relatively unusual condition. It consists in a triggering at the wrist produced by finger motion. Its etiology and presentation may vary. This condition should be clearly differentiated from the other clinical entity called "trigger wrist", occurring on wrist movement. In the present article, we report the case of an anomalous *flexor digitorum superficialis* muscle belly, arising from the right ring finger at the carpal tunnel, in a 47-year old female patient, causing triggering of the right ring finger at the wrist and a carpal tunnel syndrome. Surgical excision of the muscle mass and carpal tunnel release relieved patient's symptoms and has led to the disappearance of the triggering phenomenon. To date, few cases of trigger finger at the wrist have been reported in the literature. These reported cases were reviewed. The clinical entity of "true trigger wrist" and its etiology are also discussed.

Résumé

Le « doigt à ressaut au poignet » est une pathologie relativement rare. Elle est caractérisée par un ressaut au poignet produit par le mouvement du doigt. Son étiologie et sa présentation clinique peuvent varier. Ce phénomène doit être clairement distingué de l'entité clinique appelée « poignet à ressaut », survenant au mouvement du poignet. Dans cet article, nous présentons le cas d'un muscle anormal du *flexor digitorum superficialis*, originant de l'annulaire droit au niveau du tunnel carpien, chez une femme de 47 ans. Cette anomalie causait un phénomène de « ressaut digital au poignet » associé à un syndrome du tunnel carpien. Une décompression du tunnel carpien avec exérèse de la masse musculaire anormale a entraîné la résolution complète des symptômes de la patiente avec disparition du phénomène de ressaut. À ce jour, un certain nombre de cas de « doigt à ressaut au poignet » a été rapporté dans la littérature. L'entité clinique distincte de « poignet à ressaut » ainsi que son étiologie sont révisées.

Keywords: Anomalous muscle; Carpal tunnel syndrome; *Flexor digitorum superficialis*; Trigger wrist; Trigger finger

Mots clés : Poignet à ressaut ; Doigt à ressaut ; Muscle anormal ; Syndrome du tunnel carpien ; *Flexor digitorum superficialis*

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1. Introduction

Trigger finger or stenosing tendovaginitis of the flexor tendon in the hand is a common pathology and one of the most common causes of pain and disability. It consists in a painful locking or clicking of the involved flexor tendon during flexion and extension of the affected finger. Triggering is usually caused by an enlargement of the tendon, by a swelling and thickening of the normally thin synovial covering of the tendon, or as a result of thickening and stenosis of the fibrous sheath through which the tendon glides. The site of finger triggering is usually at the level of the first annular pulley (A1 pulley) [1].

Triggering of the fingers at the wrist is an unusual condition. It consists in a triggering at the wrist occurring with finger motion. In 1961, Eibel [2] reported the first case of trigger finger at the wrist secondary to a mass in the flexor tendon at the level of the transverse carpal ligament. Several other cases of triggering at the wrist with finger movements have been reported in the literature thereafter [3–13]. Clicking or triggering at the wrist in association with movements of the fingers may be secondary to a tumor or a rheumatoid nodule in the flexor tendons [2,5,6,8,11–13], an anomalous muscle belly in the carpal tunnel [3,7], or a combination of both [4,9].

Trigger wrist is a general term for clicking of the wrist and triggering phenomenon around the wrist joint upon wrist movement. It is considered to be a rare condition. Several cases were reported in the literature as trigger wrist, but in most of these reported cases, triggering was unrelated to wrist motion but was produced at the wrist by finger flexion and extension [2,3,5,7,9,14–17].

A case of trigger finger at the wrist secondary to an anomalous flexor digitorum superficialis muscle belly of the ring finger within the carpal tunnel is described and the relevant literature is reviewed.

2. Case presentation

A 47-year-old, right hand-dominant, white, female teacher was referred to our outpatient hand clinic because of a 3 year history of intermittent paresthesias involving the radial three digits of the dominant right hand. These paresthesias were mostly present and worse during her usual activities such as writing. This was later associated with a painful clicking or triggering at the right wrist occurring with flexion of the fingers as well as a history of frequent locking of the right ring finger in flexion. Finger unlocking was only possible with assistance from the other hand and was associated with an uncomfortable click at the wrist. The patient presented similar, but mild symptoms on the contralateral side for which she did not seek any medical attention. Her past medical history was noncontributory with no history of previous trauma. The patient mentioned a transient relief of her symptoms with a carpal tunnel steroid injection.

Physical examination of the right hand and wrist revealed the presence of a Tinel sign and a positive Phalen test with no other signs of proximal median nerve compression neuropathy. Active and passive ranges of motion as well as grip strength were normal, except for the right ring finger, which became locked in the flexed position. This was associated with wrist pain, numbness, and paresthesias in the median nerve distribution. The unlocking of the ring finger was accompanied with a palpable painful click at the volar aspect of the right wrist. The range of motion of the wrist joint was normal. There was no triggering upon wrist movement.

X-ray examinations revealed no abnormalities. Nerve conduction studies of the median nerve demonstrated a right carpal tunnel syndrome. Ultrasound examination of the right wrist revealed focal thickening of the flexor retinaculum with thickening of the tendon synovial membranes, causing a triggering phenomenon demonstrated at the wrist when it passed proximal to the flexor retinaculum with finger flexion. Magnetic resonance imaging of the right wrist showed a slight thickening of the flexor retinaculum; the median nerve appeared slightly increased in volume just before entering the carpal tunnel with a flattened aspect within the carpal tunnel, suggesting median nerve compression.

Surgical exploration was performed through a longitudinal carpal tunnel incision, under a median nerve block at the right wrist and pneumatic tourniquet control (Fig. 1).

Following palmar aponeurosis division, the transverse carpal ligament was divided. Thickened synovium within the carpal tunnel revealed chronic synovitis; however, the median nerve was found to be normal. On passive flexion of the ring finger, with retraction of the flexor tendons, an anomalous muscle belly arising from the flexor digitorum superficialis (FDS) tendon to the ring finger was found to extend proximally into the carpal tunnel, deep to the transverse carpal ligament (Fig. 2). Upon extension of the patient's ring finger, the anomalous muscle mass moved with the FDS tendon and was caught by the proximal edge of the transverse carpal ligament, producing the triggering phenomenon. Carpal tunnel decompression was then completed. The abnormal muscle belly was

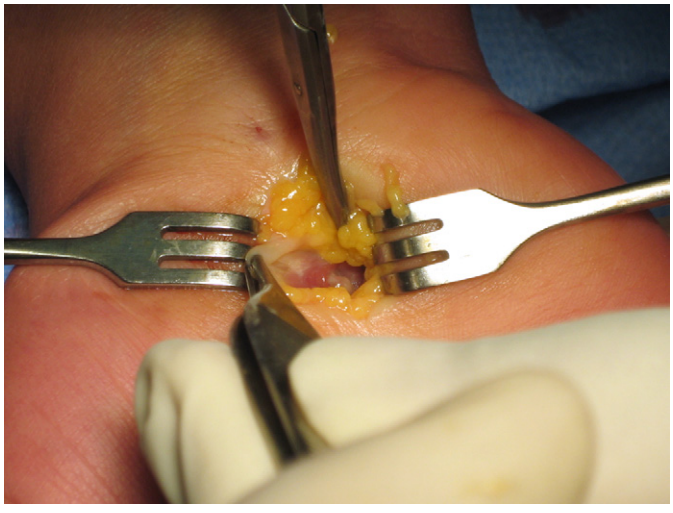

Fig. 1. Surgical approach: a longitudinal carpal tunnel incision was used.