



Clinical case

Spontaneous flexor tendon rupture secondary to capitate non-union. A case report and review of literature

Rupture spontanée de tendons fléchisseurs sur pseudarthrose du capitatum : à propos d'un cas et revue de la littérature

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Abstract

Rupture of the flexor digitorum profundus and superficialis tendons of the index finger secondary to non-union of the capitate has not yet been reported to our knowledge. We describe the case of a 48-year-old man with rupture of both flexor tendons of the index finger that occurred 15 years after a capitate fracture. The patient was completely asymptomatic before the rupture. Tendon reconstruction was performed using the palmaris longus. One year after surgery, the patient had acceptable range of motion and was pain-free.

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Keywords: Capitate; Flexor digitorum profundus; Flexor digitorum superficialis; Non-union; Tendon rupture

Résumé

Un cas de rupture tendineuse des fléchisseurs profond et superficiel de l'index secondaire à une pseudarthrose de capitatum n'a, à notre connaissance, encore jamais été publié. Nous rapportons le cas d'un homme de 48 ans qui présentait une rupture des deux tendons fléchisseurs de l'index 15 ans après une fracture du capitatum. Le patient était complètement asymptomatique avant cette rupture. Nous avons procédé à une reconstruction tendineuse et, un an après l'opération, le patient présentait une mobilité acceptable et ne souffrait d'aucune douleur.

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Mots clés : Capitatum ; Fléchisseur profond des doigts ; Fléchisseur superficiel des doigts ; Pseudarthrose ; Rupture ; Tendon

1. Introduction

Due to its relatively protected location within the central bones of the carpus, capitate fracture is rare and only accounts for 1–2% of carpal fractures [1–3]. The mechanism of injury is debated. It most commonly occurs after a fall onto an extended wrist in ulnar deviation and more rarely after a direct axial load is applied to the third metacarpal base. Capitate fractures are

associated with complex, high-energy wrist injuries [4]. Yet they are often missed, because non-displaced fractures are usually not diagnosed on the initial X-rays. The most common complication is non-union, which typically results from the delay in diagnosis and treatment [5,6]. Other complications include post-traumatic arthritis and avascular necrosis of the capitate head [7,8]. To date, tendon rupture has not yet been reported as a complication of capitate fracture.

Here, we describe the case of a 48-year-old man with rupture of the flexor digitorum profundus and superficialis tendons of the index finger that occurred 15 years after capitate non-union.

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2. Case report

Our right-handed patient had no significant medical history. He came to our clinic because he was suddenly unable to flex his left index finger actively. He had suffered an isolated capitate fracture treated by immobilization 15 years prior to the consultation. The patient had no pain and no sensory dysfunction.

Physical examination revealed full passive range of motion (ROM) and but no active ROM of the proximal interphalangeal (PIP) and distal interphalangeal (DIP) joints of the left index finger. We concluded that he had a complete rupture of the flexor digitorum profundus (FDP) and superficialis (FDS) tendons. An ultrasonography exam confirmed our suspicion of rupture and revealed an associated large synovial reaction around all the flexor tendons. Standard X-rays revealed a transverse non-union of the capitate and good integrity of the index finger joints (Fig. 1). A computed tomography scan confirmed the transverse non-union through the middle of the capitate (Fig. 2 A, B).

We proposed surgery to our patient to treat the non-union with a non-vascularized bone graft from the iliac crest fixed with a headless compression screw and to reconstruct the FDP using a tendon graft. As the patient was self-employed and the non-union was not painful, he declined surgical treatment for non-union and instead chose to proceed directly with the surgical tendon reconstruction.

The surgical procedure was performed under regional anesthesia with a tourniquet. The approach involved a Brunner incision from the A1 pulley to the proximal side of the carpal tunnel. Exploration of the carpal tunnel revealed non-union of the capitate, a significant synovial reaction, and complete FDP



Fig. 1. Standard X-ray showing the transverse capitate fracture.



Fig. 2. A, B. Computed tomography showing a previous capitate non-union.

and FDS tendon rupture; the other visible tendons were in good condition (Fig. 3). We then performed an equalization procedure of the capitate area and covered it with a synovial sheath flap. Because the FDS was too short and in poor condition, tendon reconstruction was done with a palmaris longus tendon graft using the Pulvertaft weave technique at both ends. Three months of physiotherapy based on the Elliot active protocol [9] was performed.

One year after surgery, the patient was satisfied with the results (Fig. 4 A, B). He had full extension and 80° active flexion for the PIP and 20° for the PID. He returned to his regular occupation within 4 months without any restriction.

3. Discussion

Capitate fractures are rare, representing only 1–2% of carpal fractures [10], while isolated carpal fractures are particularly rare because of the relatively protected location in central bones

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