

CLOSED RUPTURE OF BOTH FLEXOR TENDONS OF THE FIFTH FINGER DUE TO A CALCIUM HYDROXYAPATITE DEPOSIT IN THE CARPAL TUNNEL

L. DE SMET, Y. BAETEN

A closed rupture of both flexor tendons of the fifth finger is reported. The most probable cause was an amorphous deposit of calcium hydroxyapatite between the hamulus of the hamate bone and the pisiform bone. The flexor apparatus was reconstructed with a reinforced superficialis flexor tendon from the ring finger.

Keywords : flexor tendon ; hydroxyapatite ; hamate.

Mots-clés : tendon fléchisseur ; hydroxyapatite ; os crochu.

Closed ruptures of the flexor tendons other than distal avulsions in nonrheumatoid patients are exceptional, and usually subject to case reporting. They are frequently caused by intrinsic tendon pathology or bone deformities. We report a case in which both flexor tendons were ruptured by an amorphous deposit of calcium hydroxyapatite.

CASE REPORT

A 39-year-old healthy man consulted the hand clinic because he could not actively flex the little finger of his left hand. Passive mobility was normal. No trauma could be recalled in the past few months. There had been no previous problems with his left hand or arm. Sensibility and vascularity were normal. He mentioned nocturnal paresthesias, but provocative tests for carpal and cubital tunnel syndromes were negative. At the base of the hypothenar eminence, tenderness was revealed.

Mobility of the wrist, thumb and other fingers was normal.

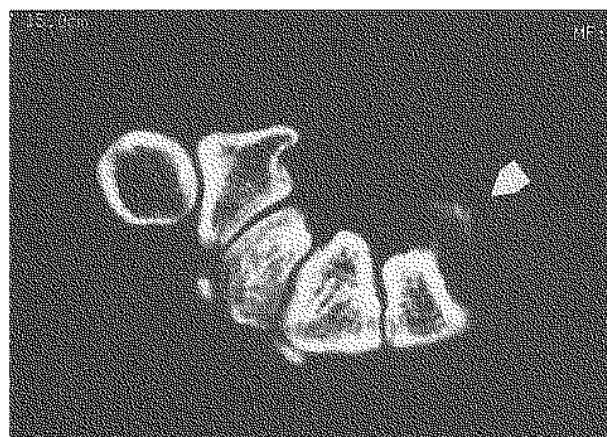


Fig. 1. — CT-scan of the wrist revealing a density (arrow).

Standard radiographs were also normal. A CT-scan of the wrist revealed an amorphous density between the pisiform bone and the hamulus of the os hamate (fig. 1).

The flexor apparatus was explored from the wrist crease down to the metacarpophalangeal crease of the fifth finger. A complete rupture of both flexors was seen (fig. 2), as well as a 50% rupture of the superficialis tendon of the fourth finger, all at the level of the hamulus. The tip of the hamulus was very sharp, and a dense mass next to it protruded into the carpal canal. Both

Department of Orthopedic Surgery, University Hospital Pellenberg, Universitaire Ziekenhuizen K.U. Leuven, Belgium, Weligerveld 1, B-3212 Pellenberg, Belgium.

Correspondence and reprints : L. De Smet.



Fig. 2. — Intraoperative view, demonstrating the ruptured flexor tendons (arrow).

the hamulus and the mass were removed. The superficial tendon of the fourth finger was reinforced with a strip from the palmaris longus tendon and transferred to the distal end of the deep flexor of the fifth finger. A Kleinert splint was applied for five weeks, protected mobilization was started from the first day, and unprotected motion was allowed after five weeks. Pathological examination determined the mass to be a deposit of calcium hydroxyapatite. In the immediate postoperative period the patient developed reflex sympathetic dystrophy. Treatment with physiotherapy and calcitonin injections was initiated but the recovery was very slow. At 6 months' follow-up, the range of motion was restricted: MCP 0° to 85°, PIP 15° to 40° and DIP 10° to 30° with a pulp to distal palmar crease distance of 3 cm.

DISCUSSION

Most closed ruptures of the flexor tendons, other than distal avulsions, in nonrheumatoid patients are caused by degenerative changes in the tendon itself or by structural changes of bones, causing attrition and secondary rupture (1-4, 10). There have been however occasional reports of idiopathic ruptures. Most frequently flexor tendon ruptures of the fifth (and fourth) finger are caused by pathology in the ulnar compartment of the wrist: palmar dislocation of the distal radioulnar joint, pseudarthrosis of the hamulus and degen-

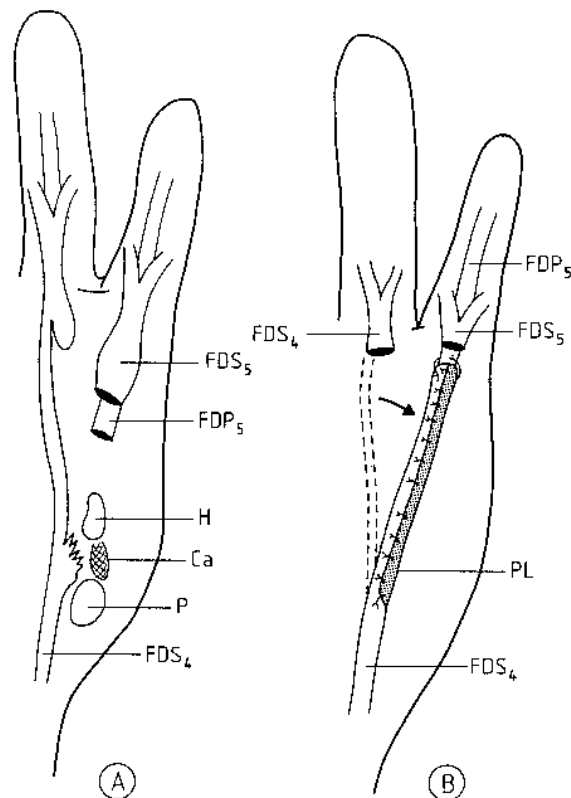


Fig. 3. — Schematic presentation of the intraoperative findings and the reconstruction: a) intraoperative findings; b) the superficial tendon of the fourth finger (FDS4) is reinforced with a free palmaris longus tendon graft (PL) and transferred to the distal stump of the deep flexor of the fifth finger (FDP5). H = hamulus, P = pisiform, Ca = calcified deposit.

erative osteoarthritis of the pisotriquetral joint (5-8).

In this patient we found this calcium hydroxyapatite and an eburnation of the tip of the hamulus; both could have been the cause of the rupture, and as far as we know no such cases have been published. We previously reported a similar deposit in the carpal canal with acute compression of the median nerve (9).

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SAMENVATTING

L. DE SMET, Y. BAETEN. Ruptuur van beide flexoren van de pink door een calcium hydroxyapatiet weerslag in de carpal tunnel.

Een gesloten ruptuur van beide flexoren van de pink wordt beschreven. De oorzaak lijkt een amorfe neder-

zetting van calciumhydroxyapatiet tussen de hamulus van het os hamatum en os pisiforme te zijn. Het flexorenapparaat werd hersteld met de oppervlakkige flexor van de ringvinger.

RÉSUMÉ

L. DE SMET, Y. BAETEN. Rupture sous-cutanée des deux tendons fléchisseurs de l'auriculaire, provoquée par un dépôt calcifié dans le tunnel carpien.

L'auteur rapporte un cas de rupture sous-cutanée des deux tendons fléchisseurs de l'auriculaire, vraisemblablement provoquée par un dépôt amorphe d'hydroxyapatite de calcium entre le crochet de l'os crochu et le pisiforme.

L'appareil fléchisseur a été reconstruit au moyen du tendon fléchisseur superficiel de l'annulaire, renforcé par une bandelette de petit palmaire.