Diagnostic dilemma: acute calcific tendinitis of flexor digitorum profundus

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Case Report

A 51-year-old right-hand-dominant farmer presented to the emergency department complaining of pain, swelling and restricted movements in his right index finger. The symptoms had been present for 2 days and were gradually increasing in severity. He did not report any trauma to the finger but had been working on his farm. He had no significant past medical history.

On examination, he was afebrile without lymphadenopathy. He had a fusiform swelling over the finger with some redness, and the finger was held in slight flexion at inter-phalangeal joints. He was tender over the volar aspect of the distal inter-phalangeal (DIP) joint and, to a lesser extent, over the rest of the finger as well. He had pain on passive extension of the finger. He could actively flex his finger at both inter-phalangeal joints with minimal discomfort.

Clinical examination suggested the diagnosis of tendon sheath infection, but inflammatory markers showed a WBC count of 9,400/ μ l and CRP of 10 mg/l. AP and lateral radiographs showed calcification over the volar aspect of DIP joint near the flexor digitorum profundus (FDP) insertion (Fig. 1).

A tentative diagnosis of an avulsion fracture of the base of distal phalanx was made, and therefore, antibiotics were withheld. The finger was splinted, and the patient was referred to the fracture clinic on a course of anti-inflammatory medication.

Upon review in the fracture clinic after 5 days, it was noticed that the swelling and pain had subsided significantly,

and he was only tender over the volar aspect of the DIP joint. No radiographs were taken at this stage. At his second follow-up visit 3 weeks later, he was found to be completely pain free, without swelling over the finger, and he had full range of movements at inter-phalangeal joints. Fresh radiograph taken on the day showed almost complete disappearance of the calcification (Fig. 2).

Discussion

Calcific tendinitis is a condition characterised by calcium hydroxyapatite deposition in the substance of the tendon [8, 11]. The supraspinatus tendon is commonly affected, but the condition can occur at other sites including the hand.

Cohen first described acute calcific tendinitis in the hand in 1924 [3]. There have been few case reports of calcific tendinitis of the hand in the English literature [4, 6], even fewer involving the digital flexor tendons and none at the FDP insertion.

Calcific tendinitis can present in three different ways. It can produce chronic symptoms, lead to an acute inflammatory crisis or can be completely asymptomatic [5]. The symptoms of acute calcific tendinitis are not thought to be due to the calcification. It is the rupture of this calcific deposit into the adjacent soft tissues that results in an acute inflammatory response causing pain, oedema and, occasionally, erythema [2].

The pathogenesis of calcification remains unknown but may be related to local hypoxia within the tendon with subsequent metaplasia, formation of fibro-cartilage and deposition of dystrophic calcification [4, 15]. The histopathological features of this disease process include the deposition of hydroxyapatite into psammoma-like bodies which are surrounded by inflammatory cells [7]. This disease has also been associated with other

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Fig. 1 AP and lateral views of the right index finger on first presentation

autoimmune conditions such as thyroidism, rheumatoid arthritis, systemic sclerosis as well as metabolic conditions including diabetes, gout and pseudogout [10].

Acute calcific tendinitis in the hand is frequently misdiagnosed. It has been mistaken for an acute fracture, septic arthritis, tenosynovitis and gout [2–4]. Serological tests are generally not helpful in making the diagnosis. Radiography and ultrasound examination would allow one to differentiate this condition from an infective process, but ultrasonography is very subjective, and expertise is not always available. Magnetic resonance imaging may detect calcification on all imaging sequences [1], but its availability and cost may be an issue.

Periarticular and soft tissue calcification can be seen in an infective process, but it usually takes 4 to 12 weeks to appear after the onset of symptoms [14]. Therefore, calcification seen at first presentation with normal inflammatory markers should alert the observer to the possibility of acute calcific tendinitis.

Acute calcific tendinitis is a self-limiting process and often resolves without treatment over the course of several weeks [2]. Immobilisation along with non-steroidal anti-inflammatory drugs may shorten the duration of symptoms to roughly 7 days [13]. The calcification found on radiographs

Fig. 2 AP and lateral views of the right index finger 3 weeks later

tends to disappear over the course of several weeks [2]. Radiation and surgical evacuation were treatment options used in the past but are no longer advocated. Local steroid injection, oral colchicine and prednisone have also been used with variable success [12].

Acute calcific tendinitis at the FDP insertion, due to its rarity, is likely to be misdiagnosed as infection or a fracture. Therefore, when faced with acute inflammation in the digits, associated with calcification seen on radiographs or ultrasound examination, one should consider a possibility of calcific tendinitis. This would avoid unnecessary treatments such as surgery, use of antibiotics and long-term immobilisation [9].

Conflict of interest The authors declare that they have no conflicts of interest, commercial associations or intent of financial gain regarding this research.

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