

# Acute Calcific Tendinitis of the Hand: 2 Case Reports Involving the Abductor Pollicis Brevis

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**A**cute calcific tendinitis of the hand is an uncommon condition often excluded from the differential diagnosis and thus is misdiagnosed. A patient typically presents with pain, swelling, erythema, and decreased mobility secondary to pain. Premenopausal and perimenopausal women seem to be affected 5 times more frequently than men,<sup>1</sup> and the most common sites involved are the flexor carpi ulnaris tendon near the pisiform bone, followed by long finger flexors, and then long finger extensors.<sup>1-4</sup> Many of the cases reported in the literature were initially misdiagnosed and treated as infection.<sup>2,4-6</sup> This leads to unnecessary use of antibiotics, hospital admissions, and possibly even surgery. One might also consider avulsion fracture, gout, pseudogout, and arthritis in the differential diagnosis. Moyer and colleagues<sup>3</sup> reported an average of 13.1 days to make a correct diagnosis, with the delay caused by unfamiliarity with the entity and lack, or misinterpretation, of initial radiographs.

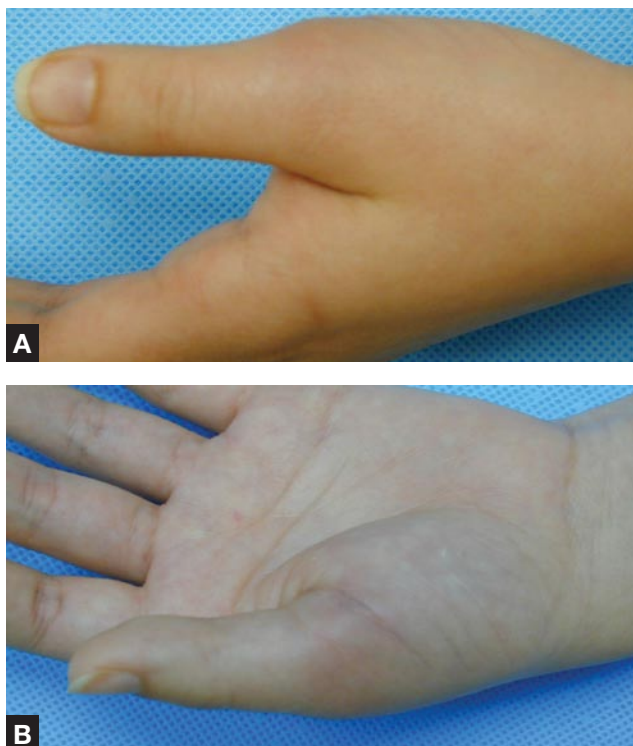
Two cases of acute calcific tendinitis affecting the insertion of the abductor pollicis brevis are presented to raise awareness of this infrequent, yet easily treatable cause of pain and swelling about the hand and wrist.

## Case 1

A right-hand-dominant woman in her mid 20s presented to our hand clinic for consultation regarding pain, swelling, and erythema of the left thumb. The patient awoke 11 days prior to presentation with progressive pain and swelling along the radial aspect of the metacarpophalangeal joint without antecedent trauma. She had a small laceration at the dorsum of the left long finger at the distal interphalangeal joint crease, which had been healing uneventfully with local wound care and without evidence of infection. She presented to the emergency room, where she received a diagnosis

of tendinitis and was discharged with a wrist splint and 800 mg tid of ibuprofen. She progressively worsened and returned to the emergency room 1 week later, and the same diagnosis was made; consequently, she was referred to a local orthopedist. She was given ketorolac 60 mg IM for pain, and laboratory samples were drawn showing a white blood cell count of 8.2/mm<sup>3</sup>, uric acid concentration of 3.5 mg/dL, erythrocyte sedimentation rate of 2 mm/hr, and C-reactive protein of 18.5 mg/L. At that time she was referred to our hand clinic with a presumptive diagnosis of a septic thumb metacarpophalangeal joint.

On physical examination the patient had much guarding, with swelling and slight erythema along the radial aspect of the thumb about the metacarpophalangeal joint in the area of the radial collateral ligament (Figure 1), which was her point of maximum tenderness. There did not appear to be a joint effusion, and she had a soft thenar eminence with no tenderness to palpation along the course of the flexor pollicis longus. Stabilizing the metacarpophalangeal joint and proximal phalanx allowed active flexion and extension of the interphalangeal joint with



**Figure 1.** Photograph of left thumb on presentation, swollen and mildly erythematous. (A) Volar view. (B) Dorsal view.

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**Figure 2.** A radiograph of the left thumb showing calcification along the course of the abductor pollicis brevis tendon.

minimal pain, and she had full wrist motion with a benign carpometacarpal examination. Any attempt at motion of the metacarpophalangeal joint was met with significant pain; therefore, stability could not be tested.

Radiographs were reviewed showing calcification in the area of the radial collateral ligament (Figure 2), and an ultrasound showed no evidence of any joint effusion that would be consistent with an infectious process. The C-reactive protein was rechecked and found to be 1.4 mg/L, suggesting that the previous value of 18.5 mg/L had been incorrect.

With the presumptive diagnosis of calcific tendinitis, the insertion of the abductor pollicis brevis was injected with a local anesthetic and corticosteroid, allowing much improved metacarpophalangeal joint motion and decreased pain. The patient was placed in a well-padded thumb spica splint and was given indomethacin 25 mg tid and was asked to stop taking the ibuprofen. She returned 5 days later much improved with full pain-free motion of the metacarpophalangeal joint and no swelling or erythema around the thumb, and she requested to return to work. The indomethacin was stopped, and she has had no recurrence of her symptoms for 10 months of follow-up.

### Case 2

A right-hand-dominant man in his late 20s, who had a history of a treated minimally displaced avulsion fracture of the radial collateral ligament of the right thumb 14 months prior, presented with renewed pain in the thumb and tenderness over the insertion of his radial collateral ligament without a history of recent trauma. On examination, the patient had focal tenderness, no erythema, no instability with stress of the radial collateral ligament, and good range of motion of the metacarpophalangeal and interphalangeal joints with no locking. Radiographs revealed calcific deposits along his abductor pollicis brevis insertion or radial collateral ligament (Figure 3).

A right thumb metacarpophalangeal joint injection with corticosteroid and a local anesthetic was performed under sterile conditions with good relief of pain. He was instructed to use nonsteroidal anti-inflammatory drugs (NSAIDs) and was provided with a well-padded removable thumb spica splint for comfort. He did well with complete resolution of pain.

The patient returned to the clinic 6 months later with



**Figure 3.** A radiograph of the right thumb showing calcification along the course of the abductor pollicis brevis tendon.

management with the NSAIDs and to return if he continued to have problems, for consideration of another injection. Over 6 months of follow-up, the patient had 2 mild flare-ups treated with ibuprofen and is currently asymptomatic.

similar pain, and magnetic resonance imaging was done to rule out radial collateral ligament injury and instability as the cause of his symptoms. The magnetic resonance imaging revealed minimal soft tissue abnormality at the site of known calcifications seen on plain films, with the radial collateral ligament intact. The patient was started on a course of NSAIDs for recurrent calcific tendinitis and was instructed to use a removable thumb spica splint.

When the patient returned in 2 weeks for follow-up, the pain was much eased and he was advised to continue conservative

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### DISCUSSION

The value of radiographs in soft tissue infections is limited, but when a source of infection is not readily apparent, one must consider obtaining radiographs of the affected area. Calcification of the tendon on the roentgenogram coinciding with the site of maximal tenderness on physical examination is pathognomonic.<sup>3-6</sup> Selby<sup>4</sup> highlighted the value of serial radiographs in a case in which initial radiographs may have been misleading, and radiographs 48 hours later revealed the calcific deposits after the patient had undergone 2 days of intravenous antibiotic therapy for a presumptive diagnosis of septic arthritis.

Although the condition is self-limited, with untreated patients finding resolution of symptoms by 3 weeks,<sup>1-7</sup> there are several treatment options to shorten the duration of symptoms. Ali and Kelly<sup>1</sup> reported resolution of symptoms within 24 to 48 hours with splinting and a short course of oral NSAIDs, whereas Dilley and Tonkin<sup>2</sup> noted symptoms reduced by splinting alone to 12 days and

## Pathogenesis of Acute Calcific Tendinitis

**P**athogenesis of this rare condition is uncertain, but 2 hypotheses exist. There may be a local stress response due to local necrosis resulting from microtrauma, causing the deposition of calcium and a subsequent inflammatory reaction.<sup>2,3,5</sup>

Uhthoff and colleagues<sup>7</sup> showed, however, that neither inflammatory infiltrate nor scarring was ever seen in the calcifying tendinitis of 46 surgically treated cases. They propose that tendon hypoxia is the inciting event, with poor vascular perfusion caused by mechanical or metabolic factors, leading to transformation of the tendon into fibrocartilage where chondrocytes mediate deposition of calcium. Crystalline analysis has demonstrated the deposits to consist of hydroxyapatite. A significant association was found between the onset of symptoms and histological signs of calcium resorption by phagocytes, thus they propose that treatment should be aimed at treating the pain and promoting the removal of the calcium.

reported 3 cases to have this period further shortened to an average of 7 or 8 days by aspirin 300 mg qid. The most dramatic results seem to be with a local injection of a mixture of a corticosteroid and local anesthetic, providing almost immediate relief of symptoms.<sup>3-6</sup> Moyer and colleagues<sup>3</sup> reported 12 cases of acute calcific tendinitis of the hand and wrist comparing splinting, NSAIDs, corticosteroid injections, and a combination of the 3 with uniformly good results regardless of treatment, but with local injections providing the most immediate relief.

## CONCLUSIONS

Acute calcific tendinitis is a rare condition often misdiagnosed as infection because it is such an uncommon entity in the hand and because radiographic examination is usually overlooked. Two cases are presented to raise awareness of this condition—that it not be excluded from the differential diagnosis—and to encourage radiographic examination to look for calcium deposits with such acute presentations. Although a self-limited condition, the literature suggests that injection with a local anesthetic and corticosteroid, along with splinting the affected part, provides the most rapid relief and resolution of symptoms.

## AUTHORS' DISCLOSURE STATEMENT AND ACKNOWLEDGMENTS

The authors report no actual or potential conflict of interest in relation to this article.

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*This paper will be judged for the Resident Writer's Award.*

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