

## Acute carpal tunnel syndrome caused by calcific periarthritis of the wrist

Sirs,

Acute carpal tunnel syndrome is a rare condition (1-3), usually caused by trauma, burns, acute rheumatoid arthritis, spontaneous hemorrhage, pyogenic or viral infection and, rarely, by crystal deposits (4-8). We report two cases of acute carpal tunnel syndrome caused by a calcific periarthritis of the wrist.

**Case 1.** A 49-year-old right-handed man presented with acute pain in his left wrist with paresthesia of the fingers. The symptoms were exacerbated at night, with prolonged morning stiffness. Clinical examination revealed a swelling over the palmar aspect of the wrist which was very tender on palpation. Tinel's sign was positive. No sensory deficit or muscle wasting was noted. Laboratory tests showed: ESR 24 mm /1st hour; CRP 11 mg/L;  $13.0 \times 10^3$  leucocytes/mL with 80.8% neutrophils. Creatinine, uric acid, calcium and phosphate concentrations were within the normal range. X-rays of the hands were normal. CT scan revealed a large calcic deposit in the palmar aspect of the carpal tunnel (Fig. 1). The patient dramatically improved with diclofenac 50 mg t.i.d.

**Case 2.** A 31-year-old left-handed man presented with acute pain and swelling of the right wrist which rapidly appeared in the night with paresthesia in the 3 radial fingers. Clinical examination found a swollen joint with tenosynovitis of the flexor tendons of the fingers and limited range of motion. Tinel's sign was positive. No sensory deficit, muscle wasting or weakness was noted. Laboratory tests showed : ESR 22

mm /1st hour; CRP 37 mg/L;  $12.1 \times 10^3$  leucocytes/mL with 66.0% neutrophils. Creatinine, uric acid, calcium and phosphate concentrations were within the normal range. X-rays and CT scan of the hands showed a calcific mass in the palmar aspect of the right carpal tunnel. The patient improved rapidly with naproxen 500 mg b.i.d. Periarthritic deposition of calcific material is a common condition. These deposits are often asymptomatic. However, they may also be associated with a number of clinical syndromes. The most striking clinical presentation is acute calcific periarthritis. The shoulder is the most commonly affected site followed by the hip, knee, elbow, wrist and ankle joints. Calcifications are composed of apatite or calcium pyrophosphate dihydrate, or a combination of both (9).

Acute carpal tunnel syndrome caused by apatite deposits has rarely been reported and the literature consists almost entirely of case reports (1-3). X-rays are the easiest method to detect the calcific material. The appearance on x-ray may vary; dimensions ranging from millimeters to several centimeters across have been described. However, it is possible that small deposits may be missed, and revealed only by CT scan or MRI as was the case in our first patient. Radiographically, calcium deposits appear dense with well-defined borders prior to an attack. With the onset of an attack, these calcific deposits appear fluffy with poorly defined margins. Ultimately, there is a reduction in their size and they may disappear completely. The pathophysiology of calcific periarthritis is poorly understood. Acute calcific periarthritis appears to be induced by rupture of the deposit and the shedding of crystals into more cellular vascular areas. Apatite crystals have been shown to be intrinsically phlogistic.

Immobilization and treatment with NSAIDs or colchicine are usually very efficacious and sufficient to control the symptoms. Most patients have markedly reduced symptoms within 5 days and virtually complete resolution within 1 to 3 weeks (10). The use of steroid injections remains controversial. It can help to resolve the acute attack, but may possibly favour further calcifications and recurrent attacks are more likely. In certain patients the surgical release of the transverse ligament with removal of the calcific mass may be necessary.

A. EL MAGHRAOUI, MD, Asst. Professor  
S. LECOULES, MD

D. LECHEVALIER, MD

J. MAGNIN, MD

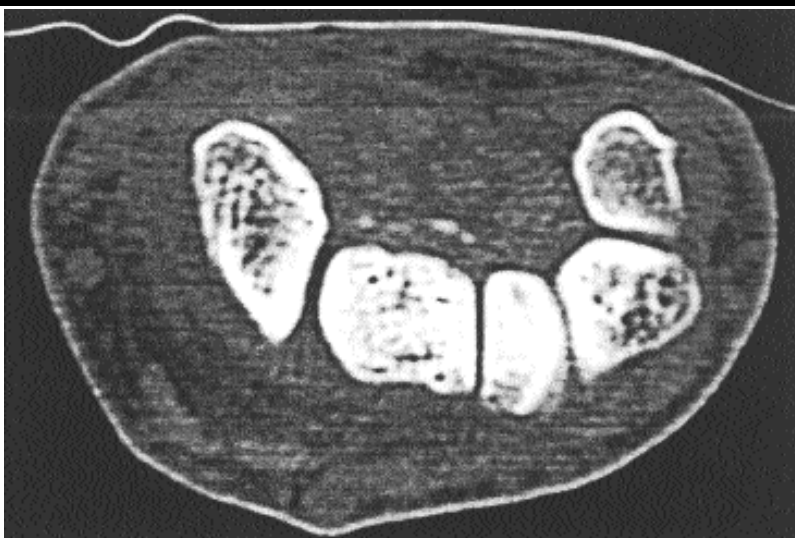
F. EULRY, MD, Professor

Rheumatology Department, Bégin Military Hospital, 69, avenue de Paris 94 163 Saint-Mandé, France.

Please address correspondence and reprints requests to: Dr. Abdellah El Maghraoui, MD, Internal Medicine Department, Military Hospital Mohamed V, Rabat, Morocco.  
e-mail: a\_elmaghraoui@elanonline.net.ma

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**Fig. 1.** CT scan of the left wrist (observation 1). Large calcic deposit in the carpal tunnel.