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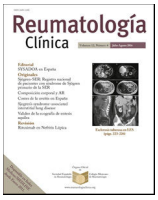

Images in Clinical Rheumatology

Mixed crystal arthropathy of the wrist: The contribution of imaging in the diagnostic approach

Artropatía cristalina mixta de la muñeca: la contribución de la imagen en el enfoque diagnóstico

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A 40-year-old man with a history of binge drinking and childhood right wrist fracture presented with acute pain, oedema and functional impotence of the right wrist. On physical examination, erythema and oedema of the distal forearm and wrist, and pain elicited by wrist pronation/supination were noted.

Ultrasound examination revealed distal radio-ulnar synovitis, a hyperechoic band within the distal cubital cartilage, and several hyperechoic spots of the triangular fibrocartilage complex (Fig. 1), compatible with calcium pyrophosphate dihydrate (CPP) crystal deposition (CPPD).

Plain radiography showed radio-carpal joint space narrowing, subchondral sclerosis of the joint margins, and linear calcifications of the distal radio-ulnar and radio-carpal joints (Fig. 2).

Ultrasound-guided joint aspiration was performed. Polarized microscopy of the synovial fluid showed numerous monosodium urate monohydrate (MU) and rare CPP crystals. The patient's uric acid level was 9.1 mg/dL. No other metabolic abnormalities were noted. Treatment with colchicine ensured rapid symptom relief and urate-lowering therapy with allopurinol was started four weeks later.

Up to 2.5% of patients with crystal induced arthritis may have coexistent CPP and MU crystals.[1] The identification of characteristic birefringent crystals remains essential for the diagnosis of CPPD or gout.[2,3] Ultrasonography is a valuable tool for performing guided intra or periarticular diagnostic and therapeutic injections.[4] Likewise, growing evidence on its utility in identifying crystal deposits has led to the incorporation of ultrasound findings in CPPD and gout classification criteria.[2,3] In gout, the deposits appear as an irregular hyperechoic enhancement over the surface of the hyaline cartilage – the double-contour sign.[3] In CPPD, the hyperechoic deposits are of variable shape and typically localized within the fibrocartilage or hyaline cartilage (parallel to the surface of the cartilage).[5] Moreover, ultrasonography showed higher sensitivity than radiography and similar accuracy to synovial fluid analysis for detecting CPPD.[6,7]

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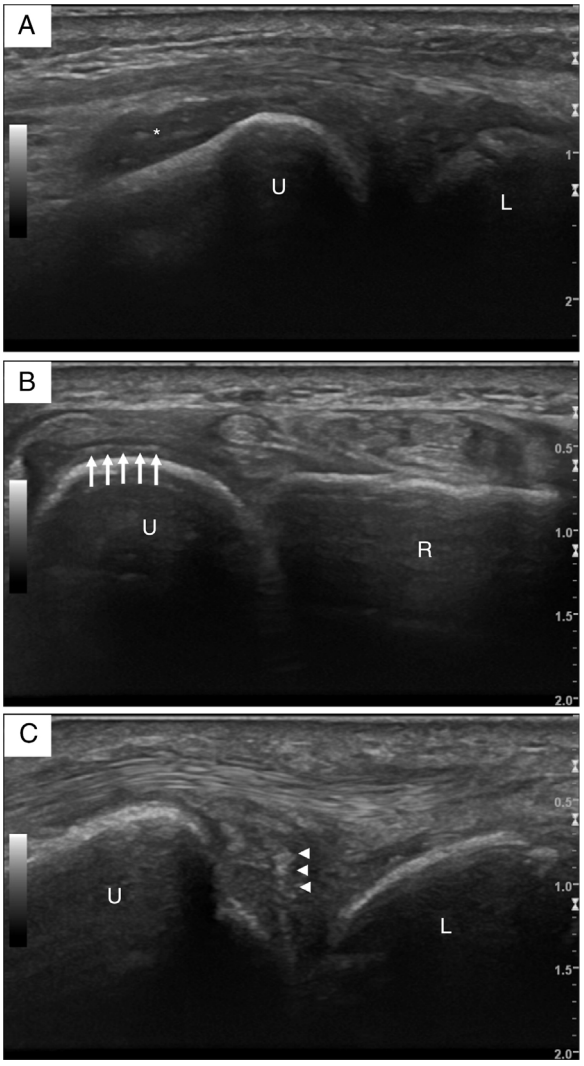

Fig. 1. Ultrasound images of the right wrist. (A) Longitudinal view of the distal ulna, with grey-scale grade 2 synovitis of the distal radio-ulnar joint (asterisk). (B) Transverse view of the distal radio-ulnar joint, with an intrahyaline hyperechoic band parallel to the surface of the distal ulnar cartilage (arrows). (C) Several hyperechoic spots with a "punctate pattern" of the triangular fibrocartilage complex (arrow heads). L – lunate; R – radium; U – ulna.

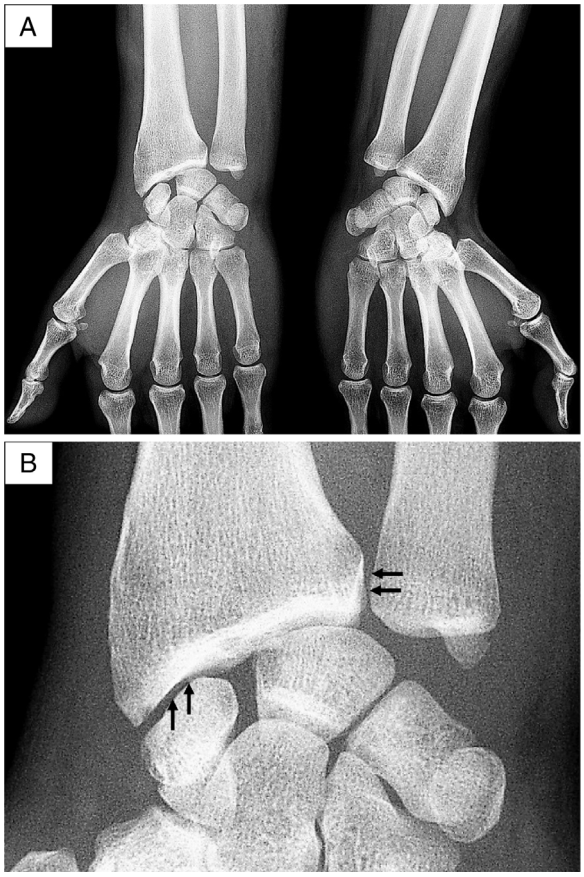

Fig. 2. Radiography images of the wrists. (A) Anteroposterior projection, with radio-carpal joint space narrowing and subchondral sclerosis of the radium of the right wrist. (B) Detail of the right wrist, with linear calcifications of the distal radio-ulnar and radio-carpal joints (arrows).

Conflicts of interest

The authors declare they have no conflicts of interest.

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