

Mixed crystal-induced arthropathy – a rare finding

Sirs,
 Patients with an acute painful synovitis of a single joint and varying degrees of overlying redness represent a challenging subset in clinical rheumatology. Here we describe a case of crystal-induced monoarthritis. While arthritis induced by two different crystals has been described before (1-4), this case is, to our knowledge, the first description of the detection of three crystals in a single joint. We present the first image showing three coincidental crystals.

A 68-year-old woman was admitted with a first episode of a 1-day history of pain and swelling of the left knee. The patient's medical history did not suggest a predisposition to a specific musculoskeletal disorder. The clinical examination showed a swollen and red knee of normal temperature with a painful restriction of active and passive movement. Ultrasound imaging of the knee-joint revealed effusion in the suprapatellar recessus and thickening of the synovial membrane. Immediate arthrocentesis of the suprapatellar recessus was performed (5). No organisms could be detected by Gram's staining and cultures. The synovial fluid analysis under the polarised microscope revealed three types of crystals (Fig. 1): 1: needle-shaped urate crystals (parallel to the polariser axis appearing yellow), 2: rhomboid shaped calcium pyrophosphate dehydrate crystals (parallel to the polariser axis appearing blue) and 3: basic calcium phosphate (hydroxyapatite) as detected using alizarin red calcium stain.

The onset of monoarticular knee swelling in a 68-year-old woman without predisposition to a specific musculoskeletal disorder or trauma in the past medical history is most commonly due to crystal-induced arthritis, seronegative spondyloarthropathies such as a reactive arthritis, as well as septic arthritis or activated osteoarthritis. Blood tests alone never confirm a diagnosis, and radiographic studies are diagnostic only in selected conditions. Because of the possibility of septic joint, rapid assessment and treatment are required. A joint aspirate is needed for measurement of the total white-cell count, Gram's staining and cultures and assessment for crystals. A crystal induced inflammatory arthropathy shows a high total white-cell count. In our patient we detected three arthropathy-inducing crystals at the same time and all three in one image (Table I). This is a very rare diagnostic finding. In our case, we assumed the urate and the calcium pyrophosphate dehydrate crystals to be the cause of the arthritis. The detection of the calcium pyrophosphate dehydrate crystals was related to the presenting osteoarthritis. Acute crystal-induced synovitis is caused by the deposi-

Fig. 1. Synovial fluid analysis under the polarised microscope revealing three types of crystals. 1: needle-shaped urate crystals (not parallel to the polariser axis appearing blue). 2: rhomboid shaped calcium pyrophosphate dehydrate crystals (not parallel to the polariser axis appearing yellow). 3: basic calcium phosphate (hydroxyapatite) detected using alizarin red calcium stain.

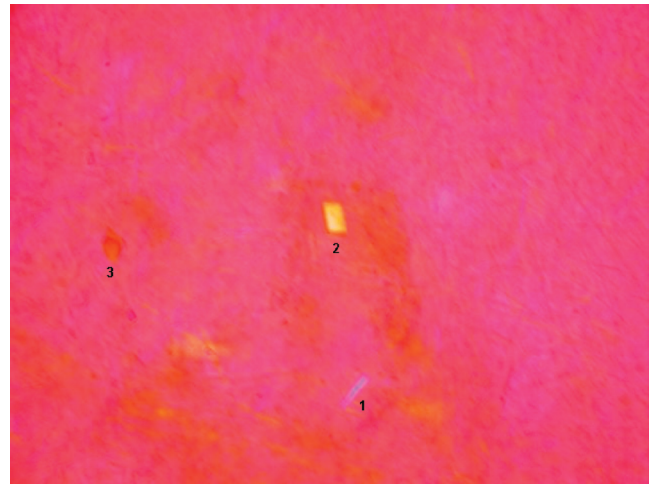


Table I.

Needle-shaped urate crystals, parallel to the polariser axis appearing yellow	
Rhomboid shaped calcium pyrophosphate dehydrate crystals, parallel to the polariser axis appearing blue	
Basic calcium phosphate (hydroxyapatite), detected using alizarin red calcium stain	

tion in joint tissue of the crystals and their subsequent acute release into the synovial fluid. Phagocytosis of these crystals in the joint stimulates a brisk, neutrophil-mediated inflammatory response. Intra-articular corticosteroid therapy and systemic administration of nonsteroidal anti-inflammatory drugs (NSAIDs) are used to obtain relief of joint swelling and reduce pain. In our case of acute monoarthritis, intra-articular triamcinolone with lidocaine was the effective treatment of choice.

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