Calcium pyrophosphate dihydrate deposition disease: a forgotten common arthritis in the elderly

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DESCRIPTION

An 88-year-old Chinese woman presented to rheumatology clinic for recurrent, intermittent wrists pain and swelling for the past 3 months. The arthritis usually lasted for a week and improved after taking non-steroidal anti-inflammatory drugs given by general practitioner. On examination, her bilateral wrists appeared mildly swollen and tender, but not warmth (figure 1A). The ranges of movements of bilateral wrists were good. Her thyroid function, calcium, magnesium, phosphate and iron level were normal. X-ray of her hands revealed chondrocalcinosis of bilateral metacarpo-phalangeal, proximal inter-phalangeal joints and triangular fibrocartilage complex (figure 1B arrows). Subchondral sclerosis of the bilateral radial ends were seen. Ultrasound evaluation revealed depositions within triangular

Figure 2 (A and B) Sonographies of bilateral triangular fibrocartilage complexes showed hyperechoic punctuate depositions with increased in power Doppler signal.

Figure 1 (A) Patient's hands and wrists on clinical examination. (B) Chondrocalcinosis (white arrows) of bilateral metacarpo-phalangeal, proximal inter-phalangeal joints and triangular fibrocartilage complex. Subchondral sclerosis of the bilateral radial ends were seen.

fibrocartilage complex. Power Doppler signal over wrist joints demonstrated inflammatory in nature (figure 2A and B). Intra-articular aspiration to the left wrist was done; material obtained was examined under polarised microscope revealed rhomboidal-shaped crystal with positive birefringent, consistent with calcium pyrophosphate dihydrate (CPPD) crystal deposition disease. Patient had complete recovery from acute pain episode after short course of colchicines. The subsequent attack of arthritis was notably reduced in frequency and severity after taking colchicines on pro-re-nata basis.

CPPD is one of the crystal arthropathies. It is caused by the deposition of CPPD crystals mainly at the knees, wrists and hands joint. The prevalence for CPPD was 4.5% in UK, with a higher prevalence in the elderly.¹ Despite the high prevalence, CPPD still remained under-diagnosed, likely due to diagnostic challenges and lead to ineffective treatment.² Conventionally, plain radiograph provides important information in diagnosing CPPD. Presence of chondrocalcinosis is a useful finding as shown in our case.^{2,3} Ultrasound evaluation has been studied extensively and has been proposed as

Learning points

- ▶ Calcium pyrophosphate dihydrate (CPPD) is common among the elderly.
- ▶ Diagnostic modalities include plain radiography, ultrasound examination and demonstration of CPPD crystal under polarised microscope.
- ▶ Appropriate treatment may result in complete resolution of arthritis.

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a diagnostic method by the European League against Rheumatism (EULAR) task force.^{3 4} These ultrasound studies described the shape, echogenicity and location of CPPD crystals, with sensitivity as high as 80% in hyaline cartilage and high specificity ranging 93%–100%.⁴ In our case, hyperechoic depositions within triangular fibrocartilage complex based on ultrasound were characteristics of CPPD crystal. Coupled with synovial fluid and radiographic findings, this established the diagnosis of CPPD beyond a shadow of a doubt.

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