An elderly woman with recent episodes of acute arthritis

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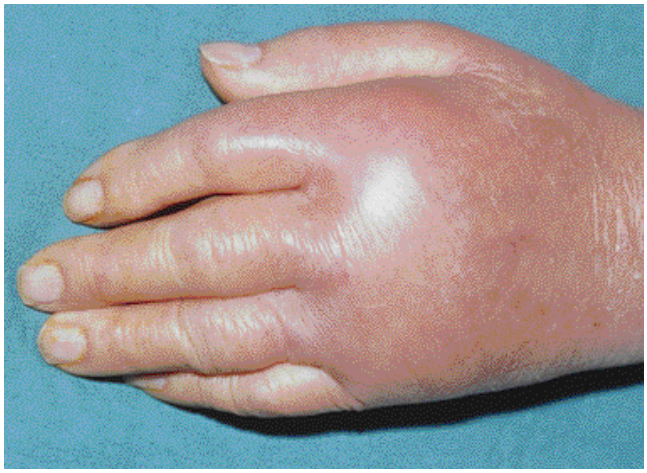
The differential diagnoses in an elderly female patient with acute transient monoarthritis include crystal-associated arthritis, palindromic rheumatism and septic arthritis.



PHOTOLIBRARY

Figure. Pseudogout affecting the joints of the hand.

Case scenario

Helen is a slim and active 72-year-old woman who is usually well. She has presented after two episodes of acute arthritis in the previous fortnight. The first episode involved her right wrist, lasted 48 hours and completely resolved. The second episode developed a week later in her left elbow, which also became hot and swollen and extremely painful to move but similarly had totally resolved after 48 hours. She remembers that she had been treated for about five years more than 20 years previously for an arthritis that was thought to be either lupus or rheumatoid. She has experienced absolutely no symptoms in the intervening years and had almost completely forgotten about the whole episode.

On examination, her joints are fully mobile and look totally normal. Blood tests are negative for lupus but positive for rheumatoid factor (RF), and show a markedly elevated erythrocyte sedimentation rate (ESR) and C-reactive protein (CRP) level.

What would be the most appropriate way to manage Helen?

Commentary

The history is of acute transient monoarthritis in the wrist and elbow in an elderly female patient. Further history should be clarified, particularly any similar past episodes, recent illness (including febrile episodes), any constitutional features and any other joint symptoms (including morning stiffness). The prior history of systemic lupus erythematosus (SLE) or rheumatoid arthritis should also be clarified, including previous clinical features, antibody profiles (in particular RF, anti-cyclic citrullinated peptide [anti-CCP], antinuclear antibodies [ANA], extractable nuclear antigen [ENA] antibodies and anti-dsDNA) and management.

Diagnoses to consider

Septic arthritis

With any acute monoarthritis, the possibility of infection should be considered. In this patient, however, the transient nature and spontaneous resolution of the described attacks would make a diagnosis of septic arthritis less likely than other diagnoses.

Crystal-associated arthritis

The described pattern of episodes sounds inflammatory in nature and would be consistent with a crystal-associated arthritis. The rapid onset and resolution of attacks, monoarticular and large joint involvement and age of the patient favour a diagnosis of an episode of pseudogout. This acute form of calcium pyrophosphate dihydrate (CPPD) deposition disease usually affects a single joint in most cases.

Pseudogout is the most common cause of acute monoarthritis in elderly patients and is often associated with osteoarthritis of the knee (Figure). Although any joint may be affected by pseudogout, the knee is the most common site of involvement, with other common sites being the wrist, shoulder, ankle and elbow. When the first metatarsophalangeal joint is affected, the condition mimics podagra (gout affecting the base of the hallux). Inflammatory markers such as CRP and ESR are usually raised in the setting of pseudogout, and in some cases may be extremely high. In younger patients (age younger than 55 years), metabolic associations of CPPD

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deposition disease should be considered, in particular haemochromatosis and primary hyperparathyroidism.

Gouty arthritis (caused by deposition of monosodium urate crystals) would be less likely given the joint distribution described, the absence of a prior history of gout and/or risk factors such as hypertension, obesity or diuretic intake, and there being no record of raised uric acid levels.

Palindromic rheumatism

The migratory pattern described could also represent an early form of palindromic rheumatism, which may be a prelude to rheumatoid arthritis, with about one-third to a half of cases evolving into chronic disease. However, as rheumatoid arthritis more commonly begins in younger patients (particularly females), the onset of palindromic rheumatism would seem less likely than other diagnoses, notwithstanding the possible past history of rheumatoid arthritis.

A high level of RF or anti-CCP would favour progression to rheumatoid arthritis. Factors such as wrist and hand joint (metacarpophalangeal and proximal interphalangeal) involvement as well as polyarticular involvement in attacks are also of prognostic significance in terms of rheumatoid arthritis development. Of note, RF may be raised in asymptomatic and healthy elderly patients and the titre of this antibody is therefore also of diagnostic importance.

In middle-aged patients in particular, vasculitic-associated arthritis may be migratory (e.g. Wegener's granulomatosis). In younger individuals, palindromic rheumatism is associated, albeit infrequently, with a multitude of inflammatory conditions (e.g. SLE). Medications may also be associated with the onset of migratory joint symptoms.

Physical examination and investigations

Examination should include assessment for fever, photo-distributed rash, mouth ulcers, alopecia or lymphadenopathy. Fever commonly accompanies crystal-associated arthritis, including pseudogout, as well as septic arthritis. Peripheral joints and periarticular regions should be examined for any inflammatory features as well as for the changes of osteoarthritis. Joint effusions are an important finding because they may yield diagnostic material for aspiration.

Initial investigations to consider include a blood profile for anti-CCP and CRP levels, ESR, renal function, full blood count, and calcium and uric acid levels. ANA, ENA and antineutrophil cytoplasmic antibodies (ANCA) testing and urinalysis should be performed if systemic features are evident.

X-rays of the hands/wrists, knees and pelvis would be useful to assess for chondrocalcinosis and changes associated with osteoarthritis. Chondrocalcinosis manifests as calcification in sites of fibrocartilage such as the triangular fibrocartilage of the wrist, the menisci of the knee and the pubic symphysis. Erosive changes in the hands and wrists would favour previous rheumatoid arthritis.

It is important to see the patient during a repeat attack if possible. Aspirating the involved joint during an attack will aid in diagnosis of crystal-associated disease, as well as assessing for infection. Synovial fluid crystal determination for CPPD crystals is generally more difficult than for urate crystals, and repeated aspirates may be necessary.

Management

The management of a patient with an episode of pseudogout depends on the joint distribution and the severity of the attack. Monoarticular involvement is ideally treated with aspiration; such treatment is often combined with an intra-articular corticosteroid injection (betamethasone, methylprednisolone or triamcinolone). Options when one or more joints are involved, allowing for comorbidities (e.g. renal impairment, diabetes mellitus), include the following:

- NSAIDs, including the COX-2 inhibitors
- low-dose oral corticosteroid (e.g. prednisone/prednisolone up to 20 mg daily)
- low-dose colchicine (e.g. 0.5 mg two or four times daily).

Concomitant analgesics may be necessary, and should be matched to the level of symptoms, starting with milder medications (e.g. paracetamol-based). Rest of the affected joint until swelling and pain subsides is a useful adjunct to pharmacological treatment.

If there is persistent joint swelling (i.e. swelling lasting six weeks or longer), especially if accompanied by raised inflammatory markers or by a lack of response to NSAIDs, then rheumatoid arthritis should be considered. Such patients should be referred early for a rheumatological opinion and possible disease-modifying treatment.

Summary

Pseudogout should be considered in episodic, transient acute monoarthritis in an elderly patient. Important differential diagnoses include gout, rheumatoid arthritis and septic arthritis. Joint aspiration is a crucial diagnostic and possible therapeutic intervention, if it can be performed in a timely manner. There are several treatment options, including NSAIDs, low-dose oral corticosteroids and low-dose colchicine, the selection of which should be made with consideration of other patient morbidities. MT

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