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Wrist gouty arthritis presenting as scaphoid erosions with scapholunate ligament disruption

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ABSTRACT

We report a 43-year-old man who presented with features of acute wrist inflammation with scapholunate dissociation. Radiologically, erosions were noted in the proximal pole of the scaphoid. The patient underwent wrist arthrotomy, exploration and washout with intraoperative bacterial cultures and histology specimens were obtained. Histological analysis revealed the diagnosis of gout. We discuss the clinical presentation and literature review of this topic. This case illustrates that gout may mimic infection.

Keywords: gouty arthritis, scapholunate dissociation, wrist arthritis, wrist gouty arthritis

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INTRODUCTION

Gout is a disease that is often seen in clinics. Gouty arthritis of the wrist is an uncommon site for an acute gout flare. We present a man who had features of an acute wrist infection with bony erosions noted in the scaphoid on radiographs. We discuss the clinical features, pathology of wrist gout and its management.

CASE REPORT

A 43-year-old male store supervisor presented with a gradual onset of right wrist pain over a period of one week. The pain worsened with activity. This associated with a wrist effusion and decreased range of motion. The patient was not able to carry loads of more than 5 kg with his right hand at time of presentation. He did not recall any recent injury to his wrist, but admitted to have sustained previous minor wrist sprains over the years. This was not associated with any significant persistent wrist pain, and he had never sought medical attention previously. The patient has no history of symmetrical joint pains, skin rashes, morning joint stiffness or chronic lower back pain suggestive of an undiagnosed inflammatory arthritis, such as rheumatoid arthritis. He did not have a previous history of tuberculous infection. He did remember having an isolated attack of left big toe gouty arthritis two years ago. He presented to a family practitioner for left big toe pain and his symptoms resolved with analgesics. He did not require treatment and uric acid levels performed then was normal. He has not had any further joint pains since.

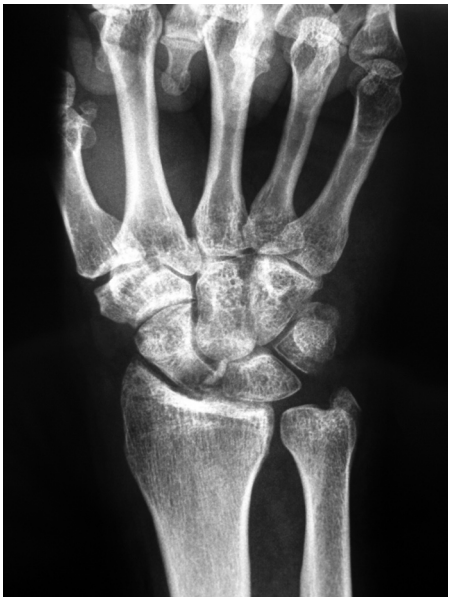

Fig. 1 Anteroposterior wrist radiograph shows a displaced fracture of the proximal pole of the scaphoid with erosions.

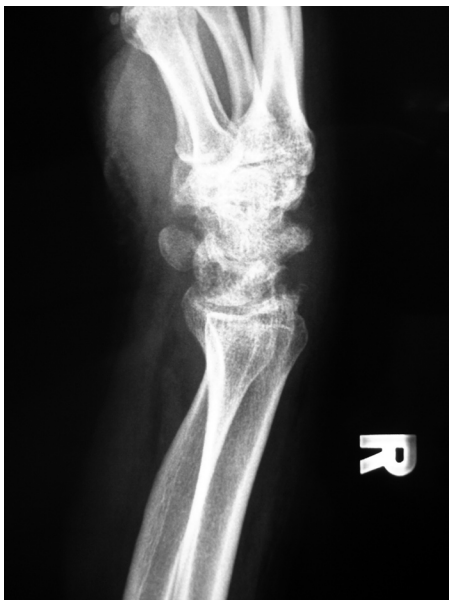

Fig. 2 Lateral wrist radiograph shows normal carpal alignment with evidence of radiocarpal arthrtis.

Physical examination at the time of presentation revealed a swollen, warm and erythematous right wrist joint. Wrist palmar flexion was 10°, wrist dorsiflexion was 20°, supination was 10° and pronation was 20°; with the range of movement of his wrist joint being limited by pain. He had a low-grade temperature of 37.6°C. He was febrile, but non-toxic. The white cell count was normal at 5.6×10^3 /uL (normal range 4–10×10^3/ UL), erthrocyte sedimentation rate was elevated at

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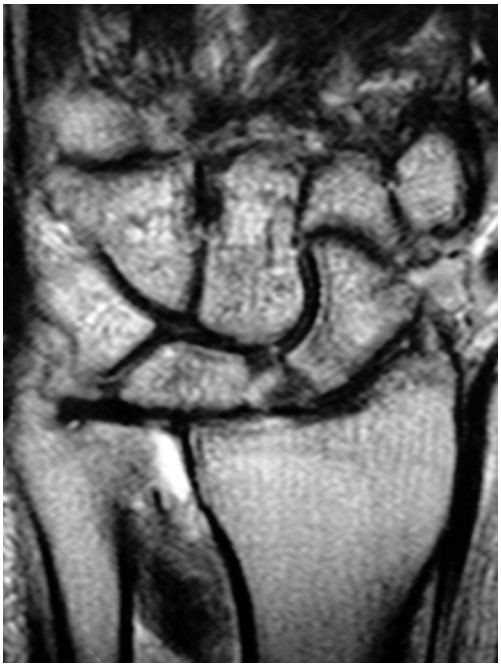

Fig. 3 MR arthrogram shows a minimally-displaced fracture of the proximal pole scaphoid.

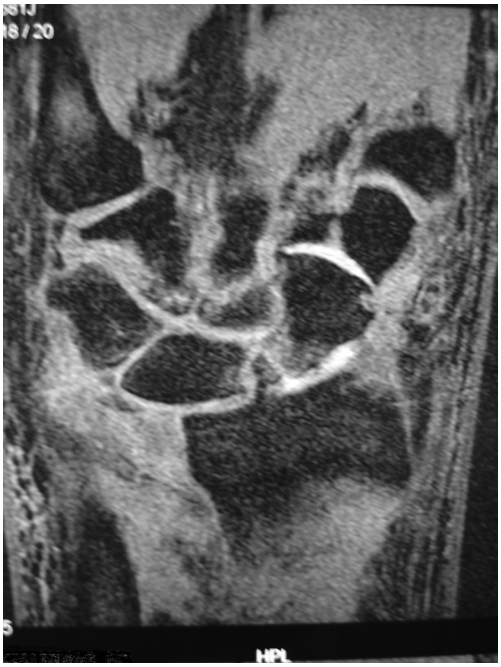

Fig. 4 MR arthrogram shows contrast agent in the scapholunate and midcarpal joint spaces suggestive of a scapholunate ligamentous tear.

31 mm/hr (normal range 1–10 mm/hr), and C-reactive protein was 4.5 mg/L (normal range < 5.0 mg/L). The uric acid was mildly raised at 384 umol/L (normal range 232–494 umol/L). Mantoux test was negative and chest radiograph was normal. Radiographs revealed a displaced fracture of the proximal pole of the scaphoid with erosions (Figs. 1 & 2) The proximal carpal rows were also osteolytic suggestive of an ongoing inflammatory or infective process.

Magnetic resonance (MR) arthrograms (Figs. 3 & 4) showed a minimally-displaced fracture of the proximal pole of the scaphoid. There was contrast agent noted in the scapholunate and midcarpal joint spaces suggestive of a scapholunate ligamentous tear. The clinical and radiological presentations were suggestive of inflammatory process in the radiocarpal joint. A wrist joint aspiration was performed under aseptic technique, which yielded minimal fluid aspirate. He was started on intravenous cloxacillin after the wrist joint aspiration. Differential diagnosis was a pyogenic or tuberculous infection of the wrist. The possible diagnoses and the need for a wrist arthrotomy was explained to the patient.

The wrist joint was explored via the dorsal approach between the extensor digitorium communis and extensor pollicis longus compartments. This revealed chronic synovitis of the radiocarpal joint. The dorsal and interosseous scapholunate ligaments were eroded away and replaced by fibrovascular tissue. The scaphoid and lunate were not held together and could move independently of the other. White chalky deposits were seen between both carpal bones with no pus noted intraoperatively. The articular cartilage of the proximal pole of scaphoid, lunate as well as on the radius, were eroded. Culture and histology specimens were obtained. The wrist joint was copiously lavaged and the wound closed primarily.

Postoperatively, the patient's wrist pain improved significantly and wrist swelling settled. He was discharged after two days. Bacterial cultures showed no bacterial growth. The intravenous cloxacillin was discontinued The intraoperative histology specimens revealed gouty tophi within his cartilage (Fig. 5). At one month after surgery, he was pain-free and his surgical wounds had healed well. The grip strength of his right hand had returned to near normal, when compared to his left hand. He had almost regained full range of pain-free wrist motion: 50° of palmar flexion, 80° of dorsiflexion, 80° of supination and 50° of pronation. He was allowed to return to work with lifting restrictions. He was informed of the cartilage erosions in his radiocarpal joint. He was also warned of the possible need for further surgery, such as a wrist fusion, if the secondary radiocarpal arthritis became symptomatic.

DISCUSSION

The wrist joint is not often involved in gouty attacks. Gout attacks in the wrist lead to a warm, red, painful and tender joint. When the attack recurs, destructive

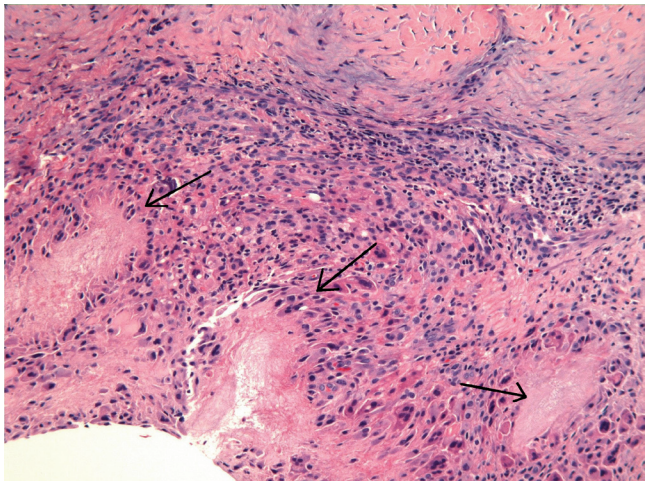

Fig. 5 Photomicrograph shows three foci (arrows) of topaceous deposits rimmed by multinucleated giant cells and histiocytes (Haematoxylin & eosin, × 100).

synovitis may develop, with deposition of tophi in the synovium and within the carpal bones. The absence of the enzyme, uricase, in humans leads to an inability to oxidise uric acid (the end-product of purine catabolism) to allantoin. This results in the tissue deposition of urate. Clinically, supersaturation within the extracellular fluids by monosodium urate crystals results in recurrent attacks of articular and periarticular inflammation. Management consists of medical therapy with colchicine and nonsteroidal anti-inflammatory drugs in an acute attack, and prophylactic therapy with allopurinol and probeacid subsequently. Splinting of the wrist during an acute or chronic attack is often helpful.

Scapholunate dissociation in wrist pseudogout or calcium pyrophosphate depositional disease has been described.[1] However, scapholunate dissociation or tears of the scapholunate ligament have been described previously in only three case reports by Helfgott and Skoff (2 cases)[2] and Ohishi et al.[3] The presentation of our case report is similar to that of Ohishi et al's. However, his patient had a prolonged clinical course of longer than a month. His patient's initial radiographs at presentation were normal, and it was the repeat radiographs one month later that revealed scaphoid erosions. The other two earlier case reports by Helfgott and Skoff also presented patients with chronic wrist pain, and likewise, had a more protracted clinical course. They also had more advanced radiographical features with multiple erosions and a widened scapholunate interval. Scapholunate dissociation occurs after rapid degeneration or disruption of the scapholunate interrosseous ligament by precipitation of monosodium urate on the ligament. In all three previous case reports, the authors also found chalky white deposits on the carpal bones, like what we encountered intraoperatively.

We presented this case report to highlight various educational points. Firstly, gout is an "old disease" that often mimics infection. Gouty arthritis should be considered as a differential diagnosis in patients with atraumatic wrist pain and swelling with features of inflammation. In this case, in the absence of fever and a white cell count within the normal limits, gout or pseudogout is more likely than infection. Secondly, gout should also be considered as a differential in all erosive lesions seen on radiographs and MR imaging. In current practice, where gout is well-managed with medical therapy, it is infrequent to see gout presenting with erosions on radiographs. In this case, the radiographs and MR images from this case report showed bony and cartilaginous erosions that resulted from crystal arthropathy.

During the management of this case, it was necessary for us to perform the arthrotomy in view of the clinical, biochemical and radiological findings to confirm the diagnosis and exclude an infective process, especially indolent infections such as tuberculosis. In other cases, an arthrocentesis with fluid examined by polarised light examination can help to diagnose wrist gout. Finally, we also wish to highlight that crystal-induced synovitis can lead to rupture of the scapholunate ligament (in rare cases such as this). This can result in carpal instability. From our literature review, it appears that this is only the fourth published case of scapholunate dissociation from gouty arthritis. We plan to follow-up this patient, and have warned him that because of his pre-dynamic form of scapholunate dissociation, he may develop progressive wrist pain and stiffness.[4]

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