

Concomitant Polyarticular Septic and Gouty Arthritis

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Although some clinicians believe that concomitant septic and gouty arthritis is rare, this phenomenon has been documented¹⁻¹⁰. Since both conditions cause redness and swelling of the affected joint, it is often difficult to distinguish them from one another¹.

We present a case of a 75-year-old diabetic African American man with end-stage renal disease and history of gout who presented to our inpatient internal medicine service from a nursing home with sepsis syndrome (hypotension, fever of 39°C, altered mental status, leukocytosis) and polyarthrititis.

His medical history was significant for a diagnosis of gout 30 years prior to our evaluation. He was largely symptom-free for 10 years prior to our evaluation but had repeated polyarticular, crystal-proven flares in the months before initiating hemodialysis. He did not take colchicine or allopurinol but was treated with several rounds of systemic corticosteroid therapy for his polyarticular gouty flares. He had had chronic renal insufficiency for years attributed to hypertension/diabetes mellitus and was started on hemodialysis (via tunneled internal jugular hemodialysis catheter) approximately 2

months prior to hospital presentation. The patient developed inflammatory polyarthrititis that was presumed to be polyarticular gout 6 days before development of sepsis syndrome.

On initial presentation, examination revealed a subcutaneous, large tophus with an ulcerative area over the right olecranon bursa; in addition, the following were swollen, tender, and warm: left elbow joint, left 2nd and 3rd proximal interphalangeal (PIP) joints, bilateral knee joints, and bilateral 1st metatarsophalangeal (MTP) joints.

Laboratory investigations revealed a leukocyte count of 15,000/mm³, hemoglobin 9.8 g/dl, serum creatinine 4.7 mg/dl, and serum uric acid 9.8 mg/dl. Blood cultures grew methicillin resistant *Staphylococcus aureus* (MRSA). On serial occasions, the above joints were aspirated; grossly, the synovial fluids (SF) were thick and tan colored, inflammatory (white cell count of 286,000/mm³ from left knee), and loaded with intra/extracellular monosodium urate (MSU) crystals with some sheets of long needles. Gram stains were positive for gram positive cocci (GPC) in clusters. Wright stains allowed visualization of the MSU crystals and the extracellular cocci (Figure 1). SF cultures from the left and right knees,

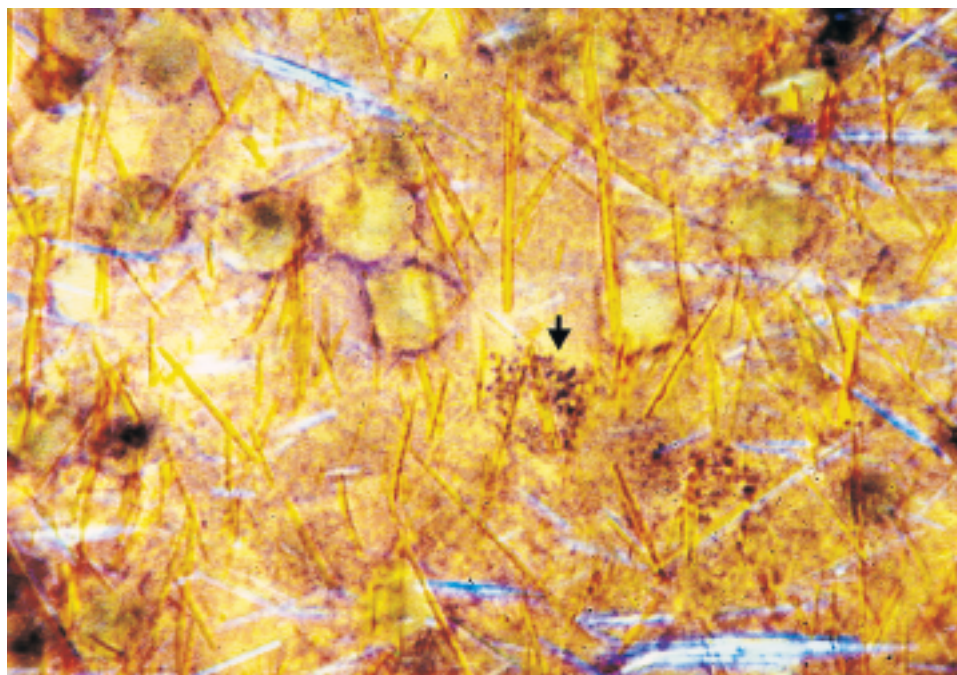


Figure 1. Wright stain of synovial fluid (original magnification $\times 600$, compensated polarized light) depicting cluster of *Staphylococcus aureus* cocci (arrow) as well as multiple monosodium urate crystals.

as well as left and right 1st MTP joints, grew MRSA in a similar susceptibility pattern to the blood MRSA. Although intra/extracellular MSU crystals were seen in the elbow and PIP joints, no organisms were identified within these joints. Radiographs of the joints were not performed.

Our patient had a complicated hospital course. Despite aggressive antimicrobial therapy (vancomycin, gentamicin, and rifampin) and removal of the hemodialysis catheter, the patient's blood cultures remained positive. Also, repeat SF cultures remained positive despite serial aspirations of infected joints. Echocardiogram did not reveal valve vegetations. Surgical consultation was obtained early in the patient's hospital course; irrigation and debridement of joints was not undertaken because of perceived risks of surgery and the polyarticular nature of infection. The patient had a cardiac arrest complicated by respiratory failure and eventually was provided with palliative care by family members, expiring 30 days after admission.

Although a rare occurrence, some patterns of concomitant septic and gouty arthritis have been observed. A retrospective analysis of 30 cases of concomitant septic and gouty arthritis by Yu, *et al* revealed that the knee joint was the most commonly affected by both conditions¹. Fever was quite common in this cohort and 90% of patients analyzed had monoarticular joint involvement; 10% had oligoarticular disease, with 2 joints involved¹. To our knowledge, our patient is the first reported case of concomitant gouty and septic arthritis involving 4 different joints.

No prospective randomized study has clearly shown surgery to be superior to repeated aspiration in the management of the infected joint, but some variables in our patient may have favored an invasive approach⁹. Two reported indications for immediate arthrotomy of an infected joint include thick, purulent material that cannot be removed completely by needle or an infection with loculations. Also, any joint not responding to multiple aspirations or antibiotics should be treated surgically⁹. As with our patient, studies of polyarticu-

lar septic arthritis showed that the most common organism was *Staphylococcus aureus*. As in rheumatoid arthritis, septic polyarthritis can be related to coexisting joint disease and risk factors for infection (age, hemodialysis, diabetes mellitus, indwelling catheter, and cutaneous ulceration in our patient). Despite appropriate therapy with antibiotics and surgery, pyogenic polyarticular septic arthritis carries up to a 30% mortality rate¹⁰.

Simultaneous occurrence of septic arthritis and gout, though unusual, has been described. The importance of appropriate SF studies including crystal examination and gram stain/culture cannot be overstated. Finally, although polyarticular joint involvement often favors a crystalline or inflammatory arthropathy, clinicians should always consider coexistent septic arthritis.

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