

# CRYSTALLINE ARTHROPATHY vs. SEPTIC ARTHRITIS

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It is essential to rapidly differentiate the potentially limb threatening septic arthritis of the lower extremity from a monoarticular crystalline arthropathy, two separate clinical entities which may present with much the same clinical picture. Two illustrative cases are presented here.

## Case 1

July 1, 1986, an otherwise healthy 26 year old male presented to the emergency department with complaints of severe left foot pain. The discomfort began earlier that afternoon. The pertinent medical history was essentially negative. Physical exam revealed a swollen left ankle with slight erythema and color about the malleolar area.

X-rays were reported as negative (Fig. 1). Erythrocyte sedimentation rate was thirteen. WBC was 11.3 without left shift. Uric acid was 8.2. Oral temperature was 93.4 degrees.

A presumptive diagnosis of acute monoarticular arthritis was made. The patient was placed on Indocin 50 mg p.o., t.i.d., p.c. and told to follow with his general practitioner.

July 5, 1986, the patient reported back to the emergency department with a profoundly different clinical picture. He complained of severe left foot/ankle pain associated with chills and rigor for 24 hours.

The left foot was markedly edematous, cellulitic, and warm to touch (Fig. 2). Palpable inguinal lymphadenopathy was evident.

Oral temperature was 101.5 degrees. WBC was 7.1 with 21 bands. ESR was reported at 43 mm/hr.

X-rays revealed an unquestionable effusion and distension of the subtalar joint (Fig. 3).

At this juncture a presumptive diagnosis of acute septic arthritis of the subtalar joint was made.

Upon further questioning the patient reported several unfamiliar sexual contacts recently. He also faintly

recalled a thermal injury of his fifth digit over a month previously that had healed without incident.

Immediate subtalar joint aspiration was attempted. Approximately 10 cc of a purulent aspirate was harvested. This revealed gram positive cocci and many WBC's at gram stain (Fig. 4A, 4B).

An open subtalar, calcaneocuboid, and talonavicular joint arthrotomy was performed promptly. Intraoperative cultures were plated aerobically, anaerobically, and also for gonococcus. The patient was placed on parenteral Tobramycin and Ancef presumptively (Fig. 5A, 5B).

Twenty-four hours postoperatively the patient's total WBC fell to 6.4 with 37 band form cells. His oral temperature elevated dramatically to 104 degrees. A pronounced maculopapular eruption became manifest over his anterior thorax and groin suggesting toxic shock syndrome (Fig. 6).

Forty-eight hours postoperatively final operative cultures were identified as staphylococcus aureus. The parenteral antibiotic was alternated to I.V. Vancomycin for definitive therapy.

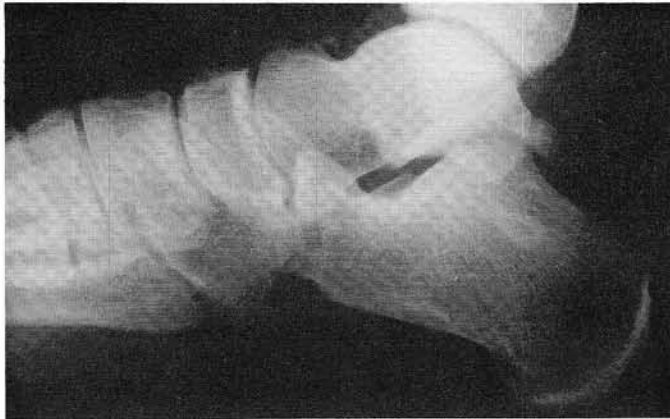
Over the following week the patient underwent a gradual defervescence. His WBC count normalized to 10. Blood cultures also grew staphylococcus aureus, a cardiac echo proved negative for subacute bacterial endocarditis.

Daily dressing changes consisting of Hibiclens flushes and Nu-Gauze packings were performed.

Four weeks postoperatively, after exuberant granulation of the operative incision sites, a delayed closure of the wounds was performed (Fig. 7). Longitudinal radiographic evaluation failed to reveal evidence of osteomyelitis (Fig. 8).

The patient was maintained on a full six week course of parenteral Vancomycin prior to discharge.

Eight months postoperatively the patient is working



**Fig. 1.** Initial lateral radiograph reported as normal.

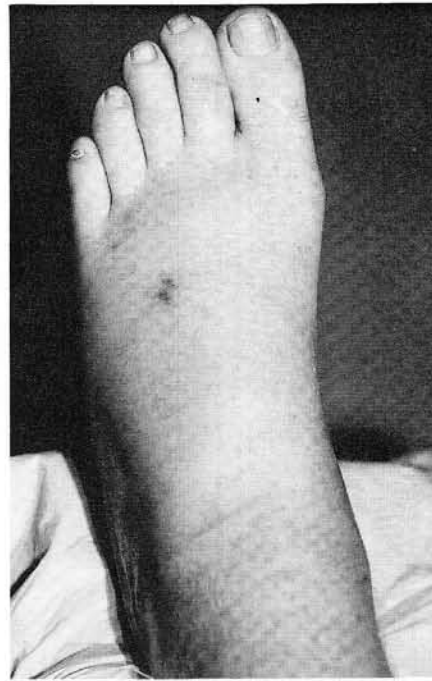
actively without limitation.

### Case 2

A 27 year old healthy white male presented to his local physician's office with a painful, red, swollen fifth digit on his right foot. The patient stated that the condition began approximately 48 hours earlier in the fifth digit and has progressively spread into his foot and leg. The patient admits to having three episodes of a swollen fifth digit which were not associated with pain in the past three years. After a brief examination the patient was sent to Doctors Hospital for admission. Upon admission a thorough history and physical examination was performed. Past medical history was essentially unremarkable except



**Fig. 3.** Lateral radiograph demonstrates effusion of subtalar joint.

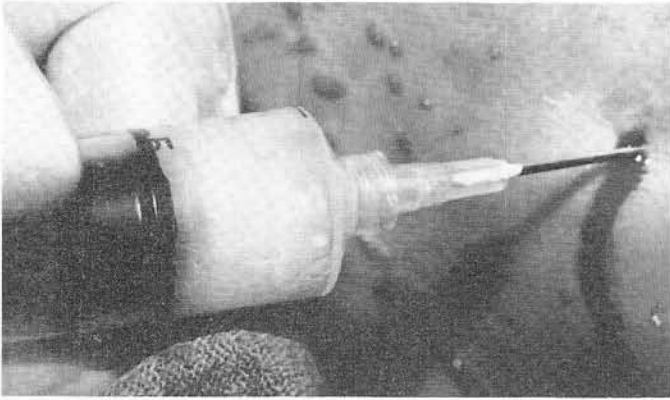


**Fig. 2.** Markedly edematous cellulitic foot 4 days after initial visit.

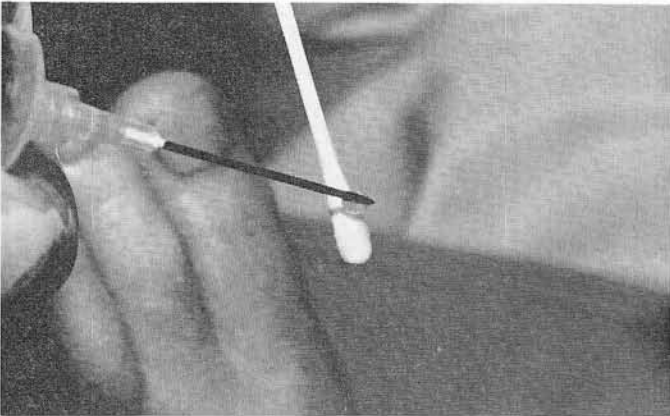
for a recent streptococcal throat infection for which he was hospitalized for four days. Patient's current medication included penicillin V 250 mg p.o., q. 4 hours. Patient related no allergies to any medications. Review of systems was significant only for his painful, red, swollen fifth digit of his right foot. He denied any history of chills, fever, nausea, or vomiting prior to this admission.

Physical exam revealed a temperature of 101 degrees, pulse of 96, respirations of 20, and blood pressure of 126/84. Neurovascular status was normal to both lower extremities. Severe erythema was present from the digits to the midfoot. Moderate to severe edema was noted at the digits extending to the distal one-third of the leg with an absence of skin lines. An increase in temperature was present throughout the right foot. A *hella* molle was found in the fourth interspace of the right foot. Palpable nodes were detected in the popliteal fossa but there was no inguinal lymphadenopathy present.

Laboratory studies were drawn and noted. The WBC was elevated at 11,600 with 66% polys, 1% bands, 25% lymphocytes, 1% atypical lymphocytes, and 7% monocytes. Erythrocyte sedimentation rate was 50 mm/hour. The biochemical profile was within normal limits except for an elevated glucose of 132 mg/dl. Urinalysis was essentially within normal limits. Ancef 2 grams, IVPB q 8 hours was initiated after blood cultures were drawn, which were subsequently negative. X-ray examination revealed soft tissue swelling of the fifth digit with irregular changes involving the proximal phalanx. Osteomyelitis could not be ruled out.

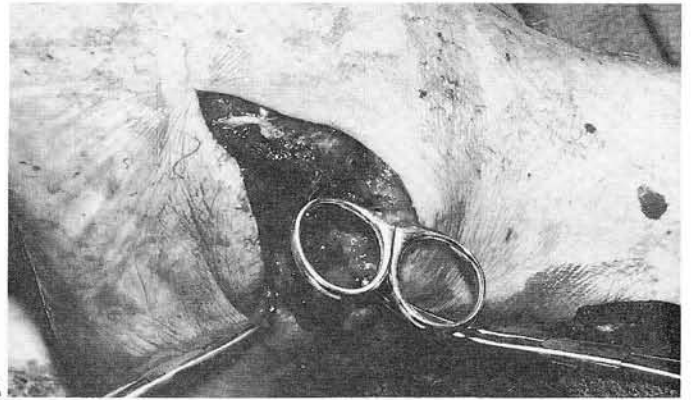


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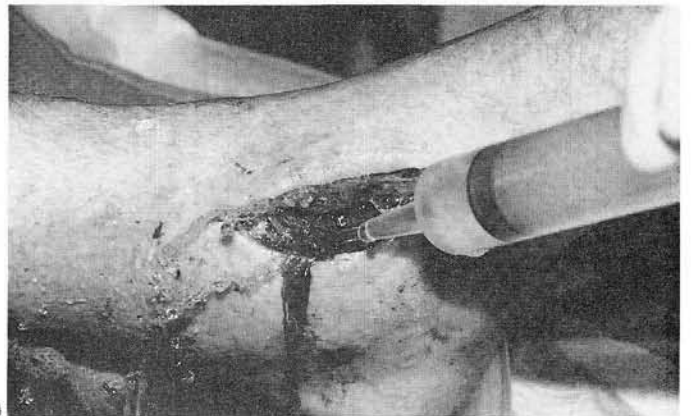


B

**Fig. 4.** A, B, Aspiration of subtalar joint yielded 10cc of purulent exudate. Aspirate examined by gram stain, C and S, anaerobic C and S, and microscopic examination.

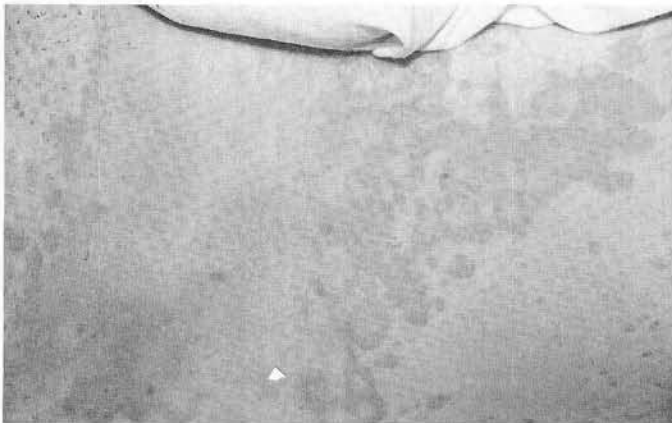


A

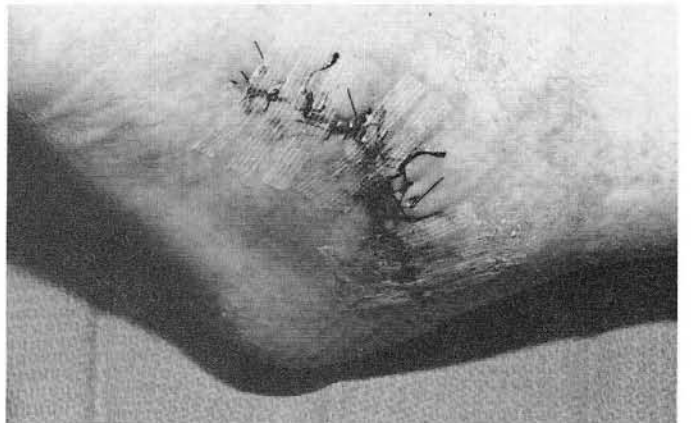


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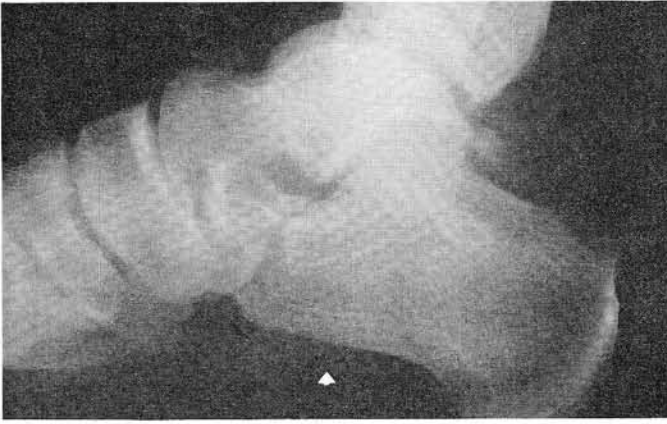
**Fig. 5.** A, B, Subtalar, calcaneocuboid, and talonavicular arthrotomies were performed.



**Fig. 6.** Pronounced maculopapular eruption developed with symptoms suggestive of toxic shock syndrome.



**Fig. 7.** Delayed primary closure of wounds was performed at 4 weeks after arthrotomy.



**Fig. 8.** Longitudinal radiographic evaluation failed to reveal any evidence of osteomyelitis.

On the following morning the patient was taken to the operating room for exploration of the fifth digit. After separation of the superficial fascia from the deep fascia, a crystalline material was noted to be exuding from the proximal interphalangeal joint and surrounding the extensor tendon. Specimens were sent for gram stain,

culture, and sensitivity as well as crystal analysis. On inspection the joint space was found to be destroyed. The head of the proximal phalanx was subsequently removed as well as the abundant crystalline material. The wound was packed with 1/4" Nu Gauze and partially coated with 4-0 Prolene. The crystals were identified as monosodium urate under polarized light. Gram stain and C&S were negative for bacterial organisms.

A rheumatology consultation was obtained on postoperative day one. A 24 hour uric acid as well as a repeat uric acid was ordered and the results were within normal limits. Despite the above the condition was diagnosed as an acute gouty arthropathy and the patient was placed on Indocin 50 mg t.i.d., p.o.

On postoperative day three the patient had an acute gouty attack in the right foot which was relieved by IV and p.o. Colchicine. On postoperative day four a dressing change was performed. The packing was removed and the remainder of the wound was closed. The patient was subsequently discharged on Indocin 50 mg p.o., t.i.d..