Unresolving Sepsis: When in doubt, consider gout.

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Introduction

Pseudosepsis describes a systemic inflammatory response due to a non-infectious etiology and can easily be misdiagnosed as sepsis.

While gout classically presents with acute monoarticular arthritis, it can rarely present as pseudosepsis, making the diagnosis challenging and potentially delaying treatment.

We describe a case of new onset polyarticular gout presenting as pseudosepsis.

Case Presentation

Brief history

78-year-old man with history of heart failure with preserved ejection fraction and CKD stage 3 presented to the emergency department with several days of malaise, weakness, diffuse arthralgias, fevers, and rigors. He denied any cough, shortness of breath, dysuria, abdominal pain, diarrhea, headache, or sick contacts.

Vital signs

BP 136/92, HR 109 bpm, T 101.1 F, SpO2 98% on room air

Physical exam

General: Ill appearing, uncomfortable
Heart: Regular rate and rhythm, no murmurs or rubs
Lungs: Clear to auscultation
Abdomen: Soft, non-tender

Left knee: tenderness to palpation of the superolateral aspect of the patella, small joint effusion, mild warmth, no erythema

Left elbow: tenderness to palpation of the lateral epicondyle, small joint effusion, mild warmth, no erythema

Labs

WBC	18.8 x10^6/uL
Creatinine	2.5 mg/dL (elevated from baseline 2.1)
Lacate	3.67 mmol/L
Procalcitonin	0.44 ng/mL

Hospital Course

HD 0: Due to concern for sepsis of unclear source, he was started on broad-spectrum antibiotics and given IV fluids.

HD1: Developed cough raising concern for pneumonia so antibiotics were narrowed to community acquired pneumonia coverage.

HD 2: Continued to have severe arthralgias and a persistent leukocytosis.

HD 3: Plain films of the right knee and bilateral elbows showed small joint effusions.

Inflammatory markers were elevated:
ESR 93 mm/hr
CRP >300 mg/L

HD4: Rheumatology was consulted due to concern for inflammatory cause of his arthralgias.

Right knee aspiration showed negatively birefringent crystals consistent with gout. Gram stain and synovial fluid cultures were negative.

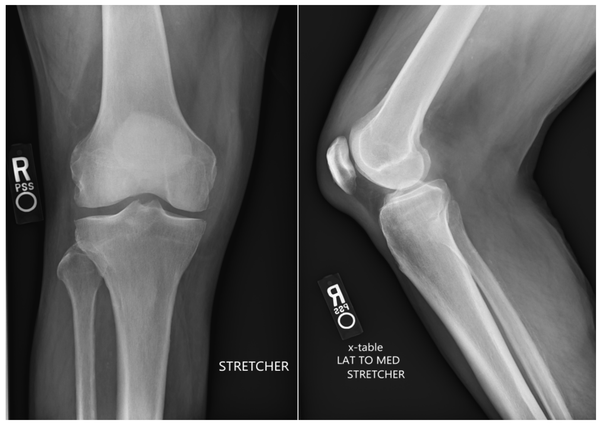
HD5: He was started on anakinra, allopurinol, and colchicine with rapid clinical improvement and normalization of his leukocytosis.

HD 6: Discharged home on allopurinol and colchicine.

Imaging and Diagnostic Studies

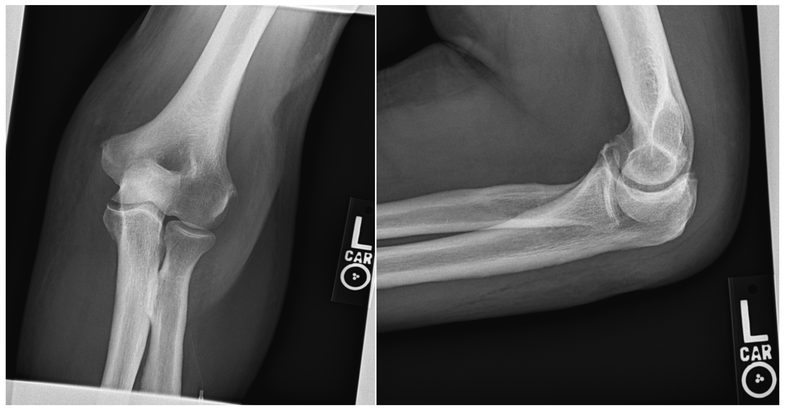
Right knee XR

Small joint effusion. No chondrocalcinosis.



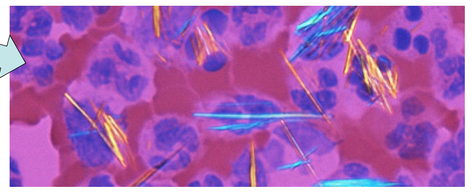
Left elbow XR

Small joint effusion. Mild to moderate soft tissue swelling.



Right knee joint aspiration

WBC count	12000 / uL
Segs	92%
RBC count	49 /uL
Uric acid crystals	Positive
Ca pyrophos crystals	Negative
Cholesterol crystals	Negative



Negatively birefringent crystals

WBC trend:

Hospital day	0	1	2	3	4	5	6
WBC	18.8	15.8	17.1	16.8	14.1	13.6	9.4

Joint aspiration done

Anakinra, cochicine, allopurinol started

Discussion

This case illustrates an atypical presentation of gout which was initially misdiagnosed as sepsis, leading to a delay in treatment of polyarticular gout. It highlights the importance of keeping a broad differential, especially when patients are not improving as expected.

Gout was especially challenging to diagnose in this case because the patient did not have a history of gout. Additionally, he did not have any involvement of his MCP joints. In this case, an earlier joint aspiration may have prevented the delay in diagnosis and allowed for more prompt treatment.

Clinicians should be aware of the atypical presentations of gout, including polyarticular involvement and pseudosepsis.

Take Home Points

- Gout can present as pseudosepsis, a systemic inflammatory response due to a non-infectious etiology.
- Polyarticular gout is challenging to diagnosis, especially in a patient without a history of gout.
- Clinicians should keep a broad differential, especially when patients aren't improving as expected.
- Consider early joint aspiration in patients with joint effusions to avoid a delay in diagnosis.

References

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Image of gout crystals: https://librepathology.org/w/index.php?title=Crystals_in_body_fluids