Case Report

A Painful Swollen Joint in an Elderly Male

Urgent message: The patient had two recent bee stings. Did they cause his problem or were they red herrings?

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Introduction

Hot, swollen, tender joints are a common initial complaint in the urgent care setting. Depending on the patient's HPI and PMH, a definitive diagnosis can often be concluded. A systematic evaluation of infectious, inflammatory, and traumatic causes can help narrow the differential. Judicious use of the laboratory and radiology can further support the diagnosis.

Case Presentation

MS is a 75-year-old male who presented with five days of left wrist and hand swelling and tenderness. He stated that a day before the pain started, he twisted his left wrist while pushing himself out of the bathtub. He also had suffered two bee stings to his upper left arm two days prior to the current complaint. The redness and swelling gradually increased each day. On the day of presentation, the redness and swelling started in the distal third of his forearm and extended through the hand and wrist to the MCP joints of all digits. Pain was worsened to a 10/10 with any manipulation of the wrist.

Observations and Findings

Evaluation of the patient revealed the following:

- PMHX: osteoarthritis, HTN, HLD, MI 3 years prior, denies history of gout or other inflammatory arthritis
- MEDS: metoprolol (Lopressor), lisinopril (Prinivil), simvastatin (Zocor), clopidogrel (Plavix), aspirin
- Allergies: NKDA
- PSHX: bilateral knee replacement 15 years prior
- Social HX: no tobacco or alcohol
- FH: non-contributory
- ROS: no fever, no chills, no nausea, no vomiting, no numbness, no tingling, no weakness

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Physical exam revealed the following:

- Temp: 99.9° F
- P: 86
- R: 20
- BP: 90/56
- O_2 Sat: 97% RA
- Gen: well-appearing, alert and oriented x 3, no acute distress
- Heart: RRR, no M/R/G
- Lung: CTA bilaterally, no W/R/R

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Figure 1.

Figure 2.

Evidence for extensive chondrocalcinosis of the carpal joints, suggesting the presence of calcium pyrophosphate dihydrate (CPPD) deposition disease. Arrow identifies only an incidental finding.

- Skin: erythema and warmth beginning at distal third of left forearm extending to MCP joints of left hand. No evidence of wounds or abrasions. No red streaking up forearm
- Extremities: non-pitting edema L wrist extending one-third up left forearm and throughout metacarpals. Loss of full flexion and extension of left wrist both actively and passively secondary to edema. No pain out of proportion on passive motion of the digits. Cap refill 3 seconds. Tender to palpation directly over the wrist joint but not over the other areas of erythema
- Neuro: strength and sensation full in left hand

Diagnostics revealed the following:

- CBC: WBC 7.5
- ESR: 62
- Blood CX: negative

Radiology results revealed the following:

Wrist x-ray: There was no evidence of fracture or dislocation of the left wrist on x-ray . However, evidence for extensive chondrocalcinosis suggesting the presence of calcium pyrophosphate dihydrate (CPPD) deposition disease was seen in the carpal joints and confirmed by radiology (**Figures 1** and **2**). Severe osteoarthritic changes involving the first carpometacarpal joint were also seen.

Diagnosis

CPPD with an acute attack of pseudogout.

Course and Treatment

Initial evaluation of the patient by the resident considered infection to be the most likely diagnosis. The warm, erythematous, indurated skin, which extended much past the wrist, indicated a fast-growing cellulitis—not to mention that the patient had two bug bites further up the arm earlier in the week, indicating an entry site for infection. A septic joint also was high on the list;

however, the patient had no known risks or exposures.

On further examination by the attending physician, the clinical correlation for an infectious process did not fit. For one, the insect bites were too far up the arm and not within the area of suspected cellulitis. Furthermore, bee stings are rarely implicated in cellulitis. On exam, the patient was clearly tender along the joint line between the radius, ulna, and carpal bones. Also, with any manipulation of the wrist, be it in active or passive flexion, extension, adduction, or abduction, the patient had severe pain. However, no pain was elicited with any active or passive motion of the digits or on direct palpation of erythematous skin not directly over the joint.

An inflammatory process of the wrist now seemed more likely, and the patient did have minor wrist trauma at the onset. The patient denied any history of gout; however, he had had bilateral knee replacement just 15 years earlier. Supposedly this was just due to osteoarthritis and long-term wear and tear. He also denied any prior episodes such as the current one in any joint. Despite this, he was started on IV methylprednisolone (Solu-Medrol) and then sent for an x-ray of the wrist while we awaited lab results.

Over the next hour, while x-ray and lab results were pending, the patient was already experiencing relief of pain and swelling, supporting the inflammatory nature of this process. After confirmation of the diagnosis on x-ray, he was sent home on oral corticosteroids and did well.

Discussion

CPPD deposition disease affects the elderly, with a prevalence of 15% above age 65 and 50% above age 85. Most cases are idiopathic; however, this is evidence that joint trauma may be a precipitating cause. Other possible causes include an autosomal dominant familial chondrocalcinosis, hemochromatosis, and other metabolic and genetic conditions with unclear relation to the condition.

The pathogenesis of the disease is initiated in cartilage located near the surface of the chondrocytes. The active collagen and proteoglycan-producing chondrocytes produce excess calcium or pyrophosphate or both, which leads to a supersaturation of the crystals in the nearby matrix. The dysfunction in either mineral or organic metabolism leading to the excess crystal formation has several proposed mechanisms, some with more evidence than others but none absolute.

Precipitation of the crystals in joints will often be asymptomatic; however, an acute attack of the associated synovitis is termed "pseudogout." Most patients, however, will not experience these attacks that mimic gout, which happen to favor the knees, wrists, elbows, and MCP joints. "Chondrocalcinosis" refers to the actual radiographic crystal formations, and "pyrophosphate arthropathy" is another term for the joint disease.

The treatment of pseudogout attacks is relatively easy and there are multiple options, not to mention that cases can also be self-limited and mild. NSAIDS or colchicines can be used first-line, followed by oral or systemic corticosteroids. The European League against Rheumatism (EULAR) consensus panel prefers joint aspiration of crystals with intra-articular injection of corticosteroids for single-joint involvement.

In multiple joint involvement, medical agents, as stated above, are preferred. Ice, rest, and immobilization are always indicated. Colchicine can be used for prophylaxis in patients with multiple attacks per year.

Conclusion

Pseudogout can be an easily missed diagnosis due to its similar presentation to other conditions. Once recognized, it is an easily treatable condition that can be managed in the urgent care setting. ■

References

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