A Woman With Worsening Hand Pain and Stiffness

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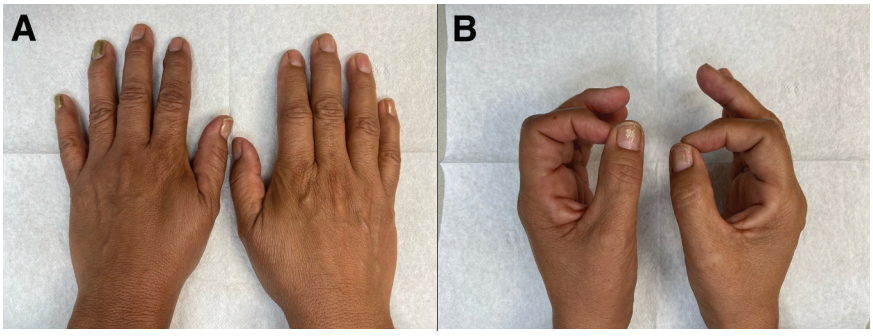

Figure 1. The patient's hands showed Heberden nodes (a), limited range of motion, and the inability to fully extend for second through fifth digits into an "OK" gesture (b).

A 64-year-old woman presented to our clinic with constant pain in her left hand that had been worsening over the past 3 months. She described the pain as sharp and has experienced stiffness with the inability to fully extend her fingers. She also reported associated hand and finger swelling.

History

The pain is aggravated by flexion of the fingers. She had been using diclofenac gel, with minimal relief. Otherwise, there were no alleviating factors. The patient denied a history of trauma. She is right-hand dominant. Her medical history includes uncontrolled type 2 diabetes, hypertension, hyperlipidemia, and depression.

Physical examination

Findings revealed Heberden nodes, diffuse swelling of the fingers, and limited range of motion of the fingers (Figure 1). She was also unable to fully extend her second through fifth digits into an "OK" gesture. Bilateral radiography scans of her hands were conducted for further investigation (Figure 2). Results showed that her left hand had narrowing of the distal interphalangeal (DIP) joints with central collapse or erosion of joint spaces and spur formation. The radiograph of her right hand demonstrated narrowing of the DIP joints and minimal central collapse.

Based on her presentation and the scans, what is your diagnosis?

A. Psoriatic arthritis
B. Reactive arthritis
C. Erosive arthritis
D. Rheumatoid arthritis
E. Chronic gout

Correct answer: Erosive arthritis

Differential diagnoses

Erosive arthritis is denoted by the arrows in Figure 2a. "Gull winding" of the DIP joint is a classic pattern of central joint collapse, with symmetric and sclerosing marginal osteophytes on either side of the joint. A lesser degree of this can be seen at the proximal interphalangeal (PIP) joints of the same digits.[1]

Dactylitis, or "sausage digits," as a finding of uniform soft tissue swelling can be a telltale sign of psoriatic arthritis. "Mouse ear" erosions of the peripheral interphalangeal joints are a classic finding.[1]

In reactive arthritis, or Reiter's syndrome, the knee, ankle, wrist, and sacroiliac joints are more commonly affected than the hands. A clinical history typically includes bacterial infection of the gastrointestinal or genitourinary tracts.[1]

In rheumatoid arthritis, the PIP and DIP joints are significantly more likely to be affected. As typical of inflammatory causes of arthritis, joint space changes

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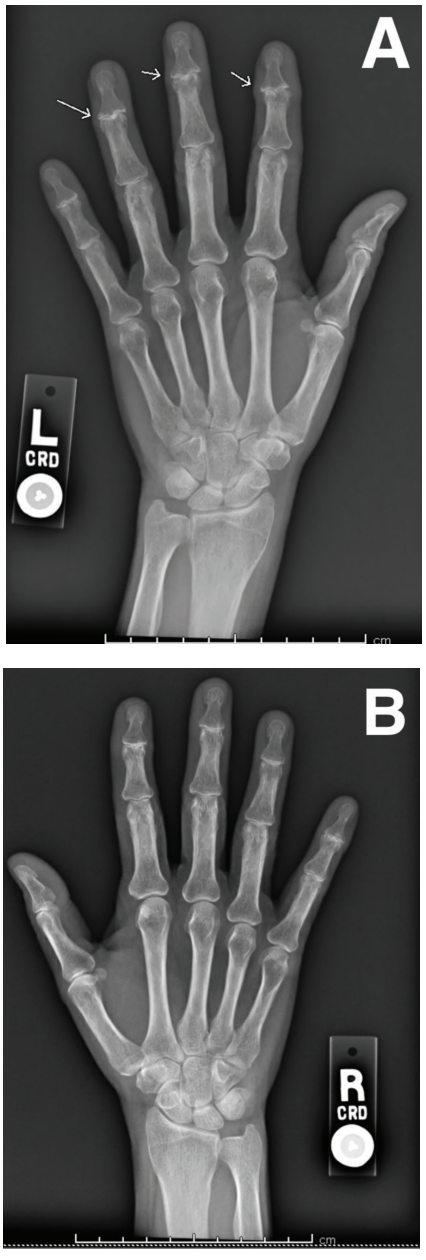

Figure 2. A radiograph of her left hand demonstrated narrowing of distal interphalangeal joints with central collapse or erosion of joint spaces with spur formation (a, arrows). A radiograph of her right hand demonstrated narrowing of the distal interphalangeal joints and minimal central collapse (b).

are typically uniform and symmetric.1

In chronic gout, tophaceous deposits and surrounding soft tissue appear radiopaque and are associated with soft tissue swelling. "Punched-out" or "mouse-bitten" erosions may be seen with sporadic asymmetric distribution without joint space narrowing.[1]

Treatment and management.

For our patient, her first treatment modality was diclofenac gel, 1% topical, which only slightly helped reduce her pain, and she occasionally took aspirin. Therefore, she was prescribed celecoxib, 200 mg twice daily as needed for pain and was recommended to continue using diclofenac gel.

At a 3-month follow-up visit, she was still having pain and stiffness in her hands and was also noted to have trigger finger of the third, fourth, and fifth digits on her left hand. Celecoxib was changed to naproxen, 500 mg twice daily as needed for pain. She was recommended physical therapy to preserve hand mobility, as well as home exercises involving a squeeze ball or play doh for strength and mobility. Chronic steroid use in the form of prednisone, 10 mg daily was considered, but the patient had uncontrolled diabetes and had not failed a scheduled oral nonsteroidal anti-inflammatory drug (NSAID) regimen.

At another follow-up visit 2 months later (5 months after her initial presentation), she reported some improvement while taking celecoxib and wanted to continue. She was referred to a rheumatologist for possible digit steroid injections but was not deemed a candidate for this regimen because of the number of joints involved. Therefore, celecoxib, 200 mg twice daily and diclofenac gel, 1% topical 4 times daily were prescribed rather than recommended on an as-needed basis. She was also provided hand stretching and strengthening exercises.

After this visit, the patient had 1 appointment of physical therapy 3 months later and was instructed and educated about home exercise programs for digit range of motion, as well as tendon gliding exercises and lumbrical/intrinsic strengthening. She has not had a follow-up visit since, and her current progress in alleviating pain and symptoms is unclear.

Treatment of erosive osteoarthritis for this patient did not differ much from the typical treatment for this disease process. Typical treatment involves a combination of a variety of therapies such as physical therapy, NSAIDs, and occasionally steroids. While there are no current guidelines for treating erosive osteoarthritis of the hand, the European Alliance of Associations for Rheumatology (formerly EULAR) has published guidelines for treating hand osteoarthritis. The guidelines suggest patient education, exercises, diclofenac gel, oral NSAIDs, acetaminophen, chondroitin sulfate, and arthrodesis.[2] Although the guidelines state that intra-articular injections of glucocorticoids should not generally be used in patients with hand osteoarthritis, they also note that injections may be considered for alleviating interphalangeal joint pain. The guidelines also recommend against conventional or biological disease-modifying antirheumatic drugs because of a lack of evidence, although they are occasionally prescribed for erosive osteoarthritis of the hand.[2]

There is active research in the field of erosive osteoarthritis treatment showing scattered results. Intra-articular corticosteroid injections have not been studied thoroughly, and research is sparse. One study pointed to a possible benefit, but the outcome was tangential, involving a decrease in mean temperature of interphalangeal joints after corticosteroid use.[3] However, another study did show evidence for the effectiveness of intra-articular corticosteroid injections for alleviating pain.[4] Chondroitin sulfate has shown some positive outcomes in slowing progression of the disease.[5] Many other small studies have shown findings of decreased pain with certain treatments, including fenofibrates and intra-articular infliximab injections.[6,7]

Discussion.

Erosive osteoarthritis predominantly affects the DIP and PIP joints of the hand and is characterized by abrupt onset with

inflammation. The disease is progressive and degenerative, and typically presents with bilateral, symmetrical distribution. Patients will frequently have joint pain, stiffness, and swelling that may limit their day-to-day activities.[8] The presence of Heberden and Bouchard nodes is variable. Bony proliferation and erosions noticed on plain radiographs are responsible for the "gull-wing" or "saw-tooth" deformities found on examination.[8]

There is a lack of specific laboratory testing to differentiate erosive osteoarthritis from other hand arthropathies. Erythrocyte sedimentation rate, C-reactive protein, antinuclear antibody, rheumatoid factor, and uric acid test results are classically negative among patients with erosive osteoarthritis.[9] Erosive osteoarthritis of the hand is characterized by joint inflammation; therefore, it can be assumed that patients with erosive osteoarthritis of the hand have higher levels of C-reactive protein than those with nonerosive disease.[10] However, other studies have reported no significant difference between erosive and nonerosive osteoarthritis of the hand and no correlation between C-reactive protein levels and radiographic or scintigraphic findings of the total count of positive hand joints.[11]

Conclusions

These laboratory tests can sometimes help differentiate this disease from more common interphalangeal arthropathies such as rheumatoid arthritis, psoriatic arthritis, or chronic tophaceous gout. As highlighted in this particular case, radiographic features are helpful for diagnostic purposes, along with clinical presentation of disease. Radiographic findings include space narrowing, subchondral sclerosis, marginal osteophytes, and erosions beginning at the central portion of the joint.

Treatment options are limited, but include analgesics, NSAIDs, and intra-articular corticosteroid injections. Slow-acting osteoarthritis medications, such as chondroitin sulfate, have been studied more recently, with some positive outcomes in slowing disease progression and reducing pain. A randomized clinical trial showed that hydroxychloroquine was no different than placebo for improving pain in patients with moderate to severe hand pain and radiographic osteoarthritis.[12] Disease-modifying and biologic agents are amongst the medication classes currently being studied as treatment options for erosive osteoarthritis.[9]

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