Reactive Arthritis Caused by *Clostridioides difficile* Enterocolitis

Morris Kim, MD[1]; Brandon Mauldin, MD, MHS[2]

[1]Department of Medicine, Oregon Health & Science University, Portland, OR

[2]Department of Medicine, Tulane University, New Orleans, LA

Introduction

- Reactive arthritis is an inflammatory arthritis that develops in response to an infection in a different part of the body.
- Though most commonly associated with infections caused by *Chlamydia, Salmonella, Shigella, Campylobacter,* and *Yersinia*, a small number of reports have shown association with *Clostridioides difficile*.

Case Description

- 40-year-old man with a history of gout presented to the ED with swelling and pain in his right knee and ankle.
- Earlier that day, he presented to the ED with five days of diarrhea and abdominal pain and was diagnosed with *Clostridioides difficile* enterocolitis by stool PCR.
- He was discharged on metronidazole only to return to the ED with sudden onset of right knee and ankle swelling and pain. He was admitted to the hospital a month ago for suspected cellulitis over his right knee and was treated with clindamycin. His joint pain felt different from past gout episodes.
- On physical exam, the patient was febrile and tachycardic with erythematous, warm, and swollen right knee and ankle, which were exquisitely tender to palpation.

Notable Initial Labs

CBC/BMP	Elevated WBC
C-reactive protein	Elevated
Urinalysis	Negative

Imaging

X-rays of right knee and ankle
Soft tissue swelling; no fractures

Hospital Course

- **Day 1** • Treated with metronidazole for *C. difficile* and possible septic joint
- **Day 3** • New onset pain and swelling of right elbow
- **Day 4** • New onset pain and swelling of left elbow, wrist, and knee
- **Day 7** • Right knee and ankle pain improving
- **Day 8** • Complete resolution of right knee and ankle pain
- **Day 9** • Right elbow pain improving
- **Day 11** • Discharged: diarrhea significantly improved; remaining joint pain improving

- Patient receive pain management and metronidazole throughout admission
- NSAIDs were not given due to a reported allergy
- Corticosteroids were not given due to concern for exacerbating enterocolitis

Synovial fluid

Yellow/hazy, 17,905 WBCs, 93% PMNs, no crystals or organisms, no growth on culture

Infectious workup

RPR	Non-reactive
HIV	Negative
Parvo-B19	Negative
Chlamydia	Negative
Hepatitis A/B/C	Negative
N. gonorrhoeae	Negative

Rheumatologic workup

Anti-streptolysin O	Within normal limits
Rheumatoid factor	Within normal limits
anti-CCP antibody	Within normal limits
ANA	Within normal limits
HLA-B27	Negative

Discussion

This case illustrates the importance of including reactive arthritis due to *C. difficile* in the differential diagnosis for a patient with otherwise unexplained acute inflammatory arthritis in the setting of recent antibiotic use and diarrhea. *C. difficile* reactive arthritis is often polyarticular and not related to the patient's underlying HLA-B27 status.[1] The most commonly affected joints are the knee and wrist.[1] Though uncommon, multiple cases of reactive arthritis due to *C. difficile* infection have been reported.

The hypothesized pathogenesis of reactive arthritis due to *C. difficile* is considered to be an immunological response in joints to bacterial antigens which gain access into the bloodstream via increased intestinal permeability.[2]

Early diagnosis and management focusing on eradication of *C. difficile* in addition to supportive therapy can reduce unnecessary hospital work-up and improve patient outcomes.

Teaching Points

- Internists should consider the diagnosis of reactive arthritis in patients with acute inflammatory arthritis in the setting of *C. difficile* infection
- Reactive arthritis due to *C. difficile* can occur in patients who are HLA-B27 negative

References

1. Jacobs A, Barnard K, Fishel R, Gradon JD. Extracolonic manifestations of *Clostridium difficile* infections. Presentation of 2 cases and review of the literature. Medicine (Baltimore).2001;80:88-101.

2. Putterman C, Rubinow A. Reactive arthritis associated with *Clostridium difficile* pseudomembranous colitis. Semin Arthritis Rheum. 1993;22:420-426.