



Osteomyelitis and extensor tenosynovitis- an unusual presentation of *Neisseria gonorrhoeae*

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ABSTRACT

Disseminated gonococcal infection (DGI) commonly presents with arthritis, flexor compartment tenosynovitis, and dermatitis. Osteomyelitis and extensor compartment tenosynovitis caused by DGI is rarely reported in medical literature. We describe one such case of extensor tenosynovitis and osteomyelitis of the wrist joint which symptomatically improved after arthrotomy and intravenous antibiotics.

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Introduction

Disseminated *Neisseria gonorrhoeae* infection may present with a spectrum of symptoms and non-specific signs including polyarthralgia, arthritis, tenosynovitis with or without the genitourinary or oropharyngeal tract symptoms. Extensor compartment of the disseminated gonococcal infection has not been described. The manuscript focusses on the unusual presentation along with intended treatment options.

Case report

A 24-year-old female with no significant past medical history presented to the emergency department with three weeks of sharp, persistent, non-radiating pain in the left wrist and forearm. The patient initially felt a popping sensation while carrying a baby stroller up a flight of stairs. No traumatic events were identified. The patient was intolerant of any left wrist and hand motion, both active and passive. Pain was elicited with the motion of the thumb, index, middle, and fourth finger to the dorsum of the left wrist. No erythema of the wrist was noted. The patient did not tolerate pronation and supination of the forearm. The range of motion at the shoulder and elbow joint was stable. The neurovascular

examination was intact. She did not have any constitutional symptoms upon presentation.

The patient's only medication was oral contraceptive pills. She denied intravenous drug use and smoking and reported social alcohol use. She reported being sexually active with a single male partner with no previous history of sexually transmitted infections (STIs). On initial investigation, the wrist and forearm radiographs were taken and revealed no osseous abnormalities, fractures, periarticular erosions, or osseous changes. Conservative measures with arm splinting and over the counter non-steroidal anti-inflammatory medications failed to provide symptomatic relief. On inpatient admission, given the increasing severity of wrist pain, the patient underwent magnetic resonance imaging (MRI) of the left arm (Fig. 1). The MRI demonstrated septic arthritis and osteomyelitis in the distal radius and ulnar, with abscess formation in the volar aspect of the distal ulna and tenosynovitis of extensor compartment most prominently along the second and fourth compartment. Based on the MRI results, the patient underwent arthrotomy and drainage of the septic joint.

The patient met sepsis criteria with tachycardia and leucocytosis (WBC 11,600 cells/ μ L), C-reactive protein (CRP) 2.01 mg/L, and erythrocyte sedimentation rate (ESR) 59 mm/hr. The patient was empirically initiated on intravenous vancomycin and ceftriaxone. The tissue culture from the septic joint grew *Neisseria gonorrhoeae* confirming disseminated gonococcal infection, sensitive to ceftriaxone, aztreonam, and resistant to ciprofloxacin. The patient was treated with a single dose of azithromycin 1-gram and discharged on intravenous ceftriaxone daily for 14 days followed by a prolonged oral antibacterial course depending upon the response of intravenous antimicrobial.

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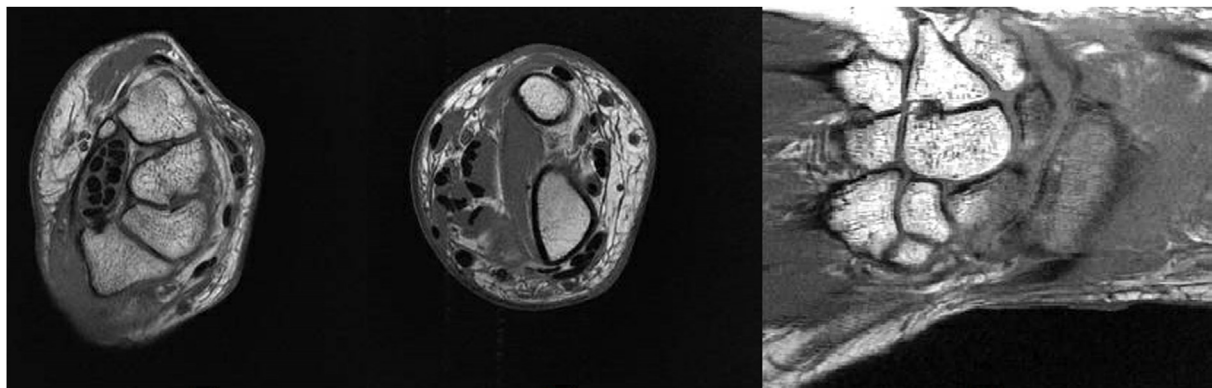


Fig. 1. MRI of the arm and hand.

Discussion

Neisseria gonorrhoeae is a bacterial infection primarily transmitted sexually and perinatally. In 0.5%–3% of cases, disseminated infection can occur which may present as polyarthralgia, tenosynovitis and dermatitis, endocarditis, meningitis and osteomyelitis [1,2].

Disseminated gonococcal infection (DGI) may present in two different spectrums of disease pattern. The more common form known as arthritis-dermatitis syndrome presents as non-purulent arthritis, tenosynovitis, skin manifestations (rashes) and polyarthralgia [3]. The other form consists of purulent arthritis with or without other associated symptoms [4].

Gonococcal tenosynovitis commonly affects the flexor tendon sheath of the muscles. The pathogenesis of tenosynovitis is believed to be due to immune complex deposition yielding an inflammatory response and usually multiple joints are involved including wrists, fingers, and toes [5]. Involvement of extensor compartment with tenosynovitis as seen in our clinical scenario is a rare presentation with only a few documented cases to date especially as an isolated symptom of DGI [6–8]. Diagnosis of DGI initially may be difficult as noticed in our clinical scenario given the absence of any symptomatic genital infection and often, genital cultures are negative. Once diagnosed, the recommended treatment of gonococcal tenosynovitis consists of surgical washout with drainage of any abscess formation and antimicrobial therapy. The choice of antimicrobials and duration is tailored upon the extent of disease and antimicrobials susceptibility. Frequently, third generation cephalosporin such as ceftriaxone is used intravenously for 7–14 days in septic arthritis, tenosynovitis, polyarthralgia and dermatitis. The precise duration of treatment is devised upon the response rate to antimicrobial and overall health status of the individual [9]. As our patient had evidence of osteomyelitis in both MRI and bone pathology, the patient is closely being followed for symptomatic improvement.

Conclusion

Neisseria gonorrhoeae is a sexually transmitted infection that may present with a spectrum of diseases when disseminated in the blood stream. Such disseminated infections may present with subtle and non-specific signs such a polyarthralgia, arthritis,

tenosynovitis without evident symptoms in the genitourinary or oropharyngeal tract. Disseminated gonococcal infection with progression to an unusual presentation with osteomyelitis and tenosynovitis in the extensor compartment has rarely been reported. Early recognition, close monitoring and prolonged treatment with antimicrobials is advised for complete recovery.

Authorship contributions

Category 1: Conception and design of study: S. Anwar, A. Glaser, A. Shahab.

Acquisition of data: S. Acharya, A. Shahab, A. Glaser.

Analysis and/or interpretation of data: S. Anwar, A. Glaser, S. Acharya.

Category 2: Drafting the manuscript: S. Anwar, A. Glaser, A. Shahab.

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