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GONOCOCCAL TENOSYNOVITIS DIAGNOSED WITH THE AID OF EMERGENCY DEPARTMENT BEDSIDE ULTRASOUND

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☐ **Abstract—Background: Gonorrhea is the second most common sexually transmitted infection. Disseminated gonococcal infection (DGI) consists of gonococcal infection plus one or more of the triad of arthritis, tenosynovitis, and dermatitis. Diagnosis in the emergency department (ED) must be suspected clinically, as confirmatory tests are often not available. Point-of-care ultrasound (POCUS) can aid in diagnosis and appropriate management by identifying tenosynovitis and excluding arthritis. Case Report: A 26-year-old man with multiple recent sex partners presented to the ED with slowly progressing right wrist pain and swelling over 5 days. His dorsal right wrist was swollen, with slightly decreased range of motion owing to mild pain, and no warmth, tenderness, erythema, or drainage. Multiple hemorrhagic, gray-purple blisters were noted over both hands. Serum white blood cell count was 12 × $10^3/\mu$L; C-reactive protein was 30.3 mg/L. POCUS of the dorsal right wrist found no joint effusion; the extensor tendon sheath contained a large anechoic space with clear separation of the extensor tendons, suggesting a tendon sheath effusion/tenosynovitis. DGI was suspected, without septic arthritis. The patient was admitted and treated with ceftriaxone and azithromycin. Gonococcus grew from blood cultures and pharyngeal swabs. Why Should an Emergency Physician Be Aware of This?: DGI must be suspected clinically, as confirmatory tests are often not available in the ED. Not all patients present with arthritis, tenosynovitis, and dermatitis. It is often difficult to differentiate tenosynovitis from arthritis. POCUS can aid in diagnosis by identifying tenosynovitis (vs. arthritis or simple soft-tissue swelling), allowing timely appropriate DGI diagnosis and management, and, importantly, averting unnecessary arthrocentesis.** © **2018 Elsevier Inc. All rights reserved.**

☐ **Keywords—gonorrhea; disseminated gonorrhea; disseminated gonococcal infection; tenosynovitis; POCUS; point-of-care ultrasound**

INTRODUCTION

Gonorrhea is the second most common sexually transmitted infection in the United States. Disseminated gonococcal infection (DGI) complicates 1–2% of patients with gonorrhea and presents with one or more of the triad of arthritis (3/4 of patients), tenosynovitis (2/3 of patients), and dermatitis (1–3). Early diagnosis is important, as gonococcus can additionally cause endocarditis, meningitis, and death (4). In this case report, early diagnosis was aided by point-of-care ultrasound (POCUS), which led to appropriate diagnosis and, importantly, averted unnecessary arthrocentesis.

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CASE REPORT

A 26-year-old man presented to the Emergency Department (ED) with slowly progressing right wrist pain and swelling over the previous 5 days. He also reported multiple blood blisters on both hands that began a few days after the wrist started to swell. He denied trauma, fevers, chills, dysuria, urethral discharge, or genital sores. He had no past medical or surgical history and took no medications. He lives in the northeastern United States and traveled to the Bahamas 1 month prior to presentation, but could not recall any insect bites. The patient reported having two current female sexual partners, 8–10 partners within the last year, and inconsistent condom use. He never smoked cigarettes, but used alcohol two to three times per week and marijuana monthly. There was no family history of gout, rheumatoid arthritis, lupus, or other autoimmune disease.

ED vital signs were: oral temperature 37.1°C (98.8°F), heart rate 80 beats/min, blood pressure 118/74 mm Hg, respiratory rate 18 breaths/min, and room air oxygen saturation 99%. He was well-appearing and in no apparent distress. His right wrist demonstrated dorsal swelling, with slightly decreased range of motion owing to mild pain, and no warmth, tenderness, erythema, or drainage; the flexor surface was normal. Multiple hemorrhagic, gray-purple blisters were noted over both hands (Figures 1 and 2). Cardiac, pulmonary, abdominal, and neurologic examinations were unremarkable. There were no genital lesions, penile discharge, or testicular abnormalities.

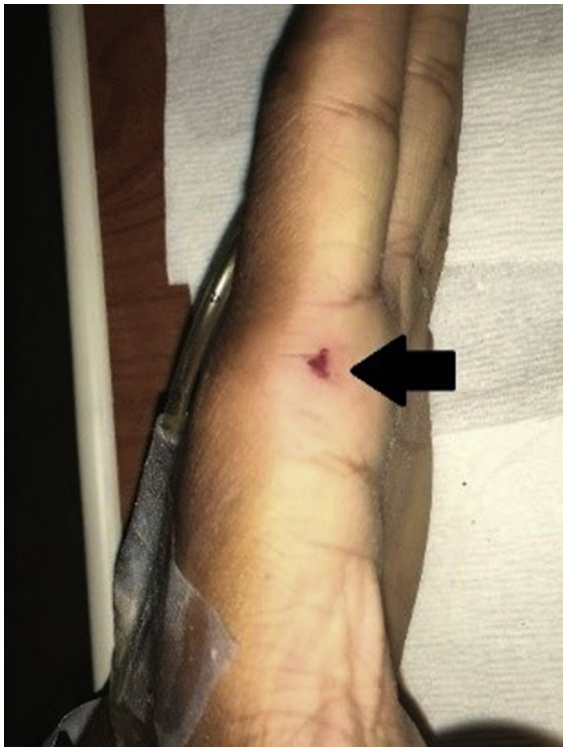

Figure 1. Healing, hemorrhagic, gray-purple blisters visualized on both hands. Photo taken 3 days after presentation to the Emergency Department.

Figure 2. Healing, hemorrhagic, gray-purple blisters visualized on both hands. Photo taken 3 days after presentation to the Emergency Department.

Laboratory analysis was significant for a serum white blood cell count of $12 \times 10^3/\mu L$, erythrocyte sedimentation rate of 19 mm/h, C-reactive protein of 30.3 mg/L, and uric acid of 5.5 mg/dL. The right wrist radiograph and comprehensive metabolic panel were unremarkable.

Sonographic evaluation of the patient's dorsal right wrist was performed, using a Zonare Z.One Pro system (ZONARE Medical Systems, Inc. Mountain View, California) and a high frequency (10-MHz) linear transducer (Zonare L10-5 array). Although no joint effusion was identified, the extensor tendon sheath contained a large anechoic space with clear separation of the extensor tendons, suggesting a tendon sheath effusion (Figure 3A, B). Color Doppler imaging of the tendon sheath revealed no significant flow within the sheath; however, there was increased signal in the surrounding tissue, indicating hyperemia (Figure 3C, D). These findings suggested extensor tenosynovitis.

The combination of hemorrhagic blisters, with physical examination and ultrasound findings of tenosynovitis, raised suspicion for DGI. The patient was admitted to the hospital for intravenous ceftriaxone and azithromycin. Blood and pharyngeal cultures grew Gram-negative diplococci consistent with *Neisseria gonorrhoeae*; the species was sensitive to all antibiotics tested. Human immunodeficiency virus (HIV), rapid plasma reagin, and urine chlamydia and gonorrhea amplification studies