A Unique Case of Penile Injection Drug Use Leading to Orchitis

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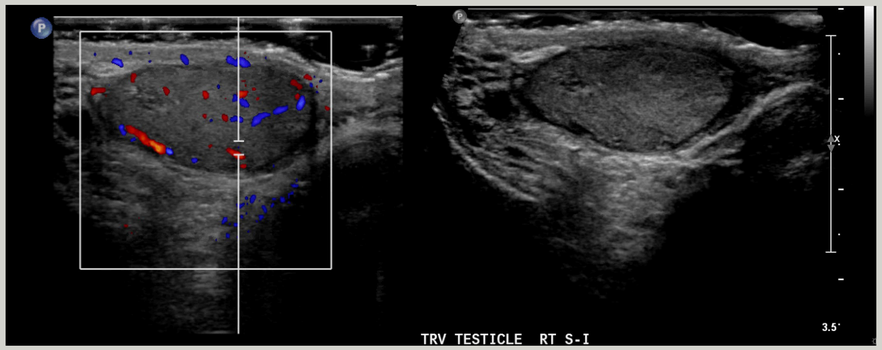
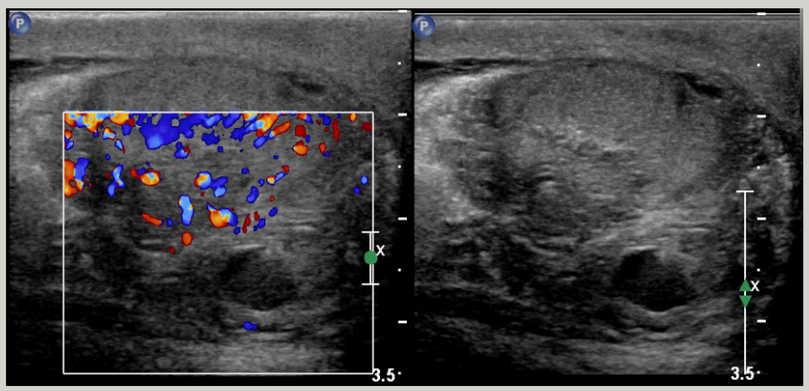
Background

- The opioid epidemic has been a rising phenomenon for over 20 years.
- Recreational opioid users often take either intravenous (IV) or oral opioids
- IV drug use is considered the highest risk for localized skin/soft tissue infections and systemic
- Local infections commonly are caused by S. aureus and Group A strep
- Systemic infections are commonly caused by HCV, HBV, and HIV, S. aureus and S. pneumoniae causing organ infections such as endocarditis, osteomyelitis, and pneumonia. Additional infections are often caused by oral flora like Viridans streptococci, HACEK organisms, and Fusobacterium due to the nonsterile practices of licking needles IV opioids are commonly injected into the veins of extremities however, any vein with blood flow can be utilized
- When peripheral venous access is lost, IV drug users may use any vein they have access to including veins in the neck
- The following case is a unique presentation of orchitis secondary to IV heroin use in the dorsal vein of the penis

Transverse view of Right Testicle with and without Doppler



Sagittal view of Left Testicle with and without Doppler



Clinical Case

- A 59-year-old man with a history of untreated HCV, hypertension, chronic kidney stage 3B, chronic homelessness, polysubstance abuse (opioids, K2, cocaine, benzodiazepines, and alcohol), and major depressive disorder presented to the emergency department for two days of fever, chills, cough and left testicular pain and swelling
- The patient was febrile to 101ºF, tachycardic to 118, tachypneic to 22, and hypertensive to 180/84 on presentation. Laboratory studies showed a leukocytosis to 20.4, and a urine toxicology screen positive for benzodiazepines and methadone. Chest x-ray was negative for pneumonia. The urinalysis was within normal limits
- The scrotal ultrasound demonstrated a hypervascular left testicle consistent with left testicular orchitis without abscess
- The patient reported using 10 bags of heroin daily through injection into his neck vasculature and more recently the penile dorsal vein 5 days prior to admission. While he reported new needles for each injection, he admitted to licking his needles and mixing heroin with tap water. He denied any recent sexual activity
- Examination showed diffuse tenderness and enlargement of the left testicle compared to the right as well as an intact cremasteric reflex
- The urine culture was positive for ESBL E.coli. Workup for mumps, gonorrhea, chlamydia, and bacteremia was negative. Transthoracic echocardiogram was negative for endocarditis
- Based on culture sensitivities, he was treated successfully with trimethoprim-sulfamethoxazole for 14 days. He was treated for alcohol, opioid, and tobacco withdrawal throughout his hospital course and was discharged to a shelter with follow-up in a methadone clinic

Conclusion

- This is the first documented case of orchitis secondary to ESBL E.coli resulting from injection heroin use into the dorsal vein of the penis
- This case emphasizes the importance of careful history taking, especially in patients with a history of injection drug use
- Needles used for IV drug use do not usually cause E. coli infections but rather tend to cause skin flora infections such as S. aureus or oral flora infections
- Epididymitis and orchitis may also be caused by E. coli in males over the age of 40, but the pathophysiology involves a urinary tract infection due to retrograde urinary flow or stasis rather than IV drug use
- Given this patient's psychosocial risk factors such as homelessness, and major depressive disorders, as well as an extensive opioid abuse history, optimized follow-up with a methadone clinic, psychiatry, and social work is crucial to reduce the risk of opioid use relapse

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