



HAEMOPHILUS INFLUENZAE EPIDIDYMO-ORCHITIS AND BACTERAEMIA IN AN IMMUNOCOMPETENT PATIENT

Abdelhadi Farouji¹, Ahmad W. Haddad¹, Nibras Yar Khan¹, Arwa Battah¹, Amaar S. Ahmad¹, Jihad Slim²

¹ Department of Internal Medicine, Saint Michael's Medical Center, New York Medical College, Newark, USA

² Department of Infectious Diseases, Saint Michael's Medical Center, New York Medical College, Newark, USA

Corresponding author: Abdelhadi Farouji **e-mail:** abdfarroujeh@hotmail.com

Received: 19/11/2023 Accepted: 22/11/2023 Published: 15/12/2023

Conflicts of Interests: The Authors declare that there are no competing interests.

Patient Consent: A written informed consent was obtained from the patient.

This article is licensed under a Commons Attribution Non-Commercial 4.0 License

How to cite this article: Farouji A, Haddad AW, Khan NY, Battah A, Ahmad AS, Slim J. *Haemophilus influenzae* epididymo-orchitis and bacteraemia in an immunocompetent patient. *EJCRIM* 2023;10:doi:10.12890/2023_004205.

ABSTRACT

Background: Epididymitis is a common cause of scrotal pain in adults, with coliform bacteria being the most common isolated organisms in patients older than 35.

Case presentation: A 51-year-old healthy patient presented with scrotal pain and swelling, and was found to have epididymo-orchitis and bacteraemia caused by *Haemophilus influenzae*, which has not previously been reported as a cause of epididymo-orchitis and bacteraemia in immunocompetent patients.

Discussion: Diagnostic studies can help confirm the diagnosis and detect the causative pathogen. In all suspected cases, a urinalysis, urine culture and a urine or urethral swab for nucleic acid amplification tests (NAATs) for *Neisseria gonorrhoeae* and *Chlamydia trachomatis* should be performed. Colour Doppler ultrasonography often shows an enlarged thickened epididymis with increased Doppler wave pulsation in epididymitis. *H. influenzae* are pleomorphic gram-negative rods that commonly colonise the human respiratory tract and are associated with a number of clinical conditions. *H. influenzae* has been reported as a cause of epididymo-orchitis in prepubertal boys, and in few cases were associated with positive blood cultures. In adults, *H. influenzae* has been isolated before from urine samples or urethral swabs in patients with epididymitis or epididymo-orchitis.

Conclusion: This case highlights the possibility of *H. influenzae* causing epididymo-orchitis and bacteraemia in immunocompetent patients. Healthcare providers should consider *H. influenzae* in the differential diagnosis of epididymitis and epididymo-orchitis in both immunocompetent and immunocompromised patients.

KEYWORDS

Haemophilus influenzae, epididymo-orchitis, immunocompetent

LEARNING POINTS

- *H. influenzae* can cause epididymo-orchitis and bacteraemia in immunocompetent patients. This has not been previously reported.
- *H. influenzae* should be considered in the differential diagnosis of epididymitis and epididymo-orchitis in both immunocompromised and immunocompetent patients.
- Healthcare providers should be aware of the increasing incidence of epididymitis and epididymo-orchitis caused by non-coliform bacteria in patients older than 35 years, especially in immunocompromised patients.



INTRODUCTION

Epididymitis is a very common cause of scrotal pain in adults, with around 600,000 cases per year in the United States. Epididymitis is more common than orchitis, however 58% of the cases present as epididymo-orchitis with testicular pain, swelling and tenderness^[1]. Here, we report on a 51-year-old immunocompetent patient who presented with scrotal pain and swelling, and was found to have acute epididymo-orchitis and bacteraemia caused by *Haemophilus influenzae*, which has not been previously reported in the literature.

CASE PRESENTATION

A 51-year-old healthy male presented with right scrotal pain and swelling of four days duration. This pain was radiating to the right inguinal area and right flank, and was exacerbated with touch and movement. It was associated with subjective fever, nausea and vomiting. Additionally, he reported dysuria and urgency. He was sexually active with two female partners and used condoms consistently with vaginal sex but not during oral sex; he denied participating in anal sex. His last sexual intercourse was three days before his admission when he noticed blood-stained semen. He had never suffered from urinary tract infections or sexually transmitted diseases. He stated that he was seen in an urgent care centre two days prior to his admission, and was diagnosed with prostatitis and discharged on levofloxacin.

On physical examination, he was febrile with a temperature of 38.8°C. His scrotal examination revealed a markedly swollen right scrotum with an area of erythema and induration noted overlying the testicle and epididymis. A positive Prehn's sign was noted on the right side with intact cremasteric reflex. During manipulation of his right scrotum, the epididymis could not be distinguished from the testicle, and he complained of severe tenderness. There was no discharge at the urethral meatus, the left scrotum was normal and no inguinal lymphadenopathy was noted. Rectal examination revealed a normal-sized prostate without evidence of nodulation or inflammation.

Laboratory studies revealed an initial white blood cell of 13,900/ μ l (normal range: 4,400–11,000/ μ l). C-reactive protein (CRP) was elevated at 19.9 mg/l (normal range 0.0–8.0 mg/l). Urinalysis revealed >25 leukocytes per high power field, positive for leukocyte esterase and negative for nitrates. Scrotal ultrasonography showed increased colour Doppler flow to the right epididymis and testicle with complex hydrocele; there is associated scrotal oedema (Fig. 1). The patient was admitted and empiric treatment with ceftriaxone and doxycycline was started. Urine nucleic acid amplification tests (NAAT) for *Neisseria gonorrhoeae* and *Chlamydia trachomatis* were negative, HIV antibody was non-reactive and a rapid plasma reagin test was non-reactive. No organisms were isolated on urine culture; however, blood cultures showed growth of *H. influenzae*. Under this empiric treatment, his condition began to improve, and the CRP started to decline, therefore he was discharged on cefixime.

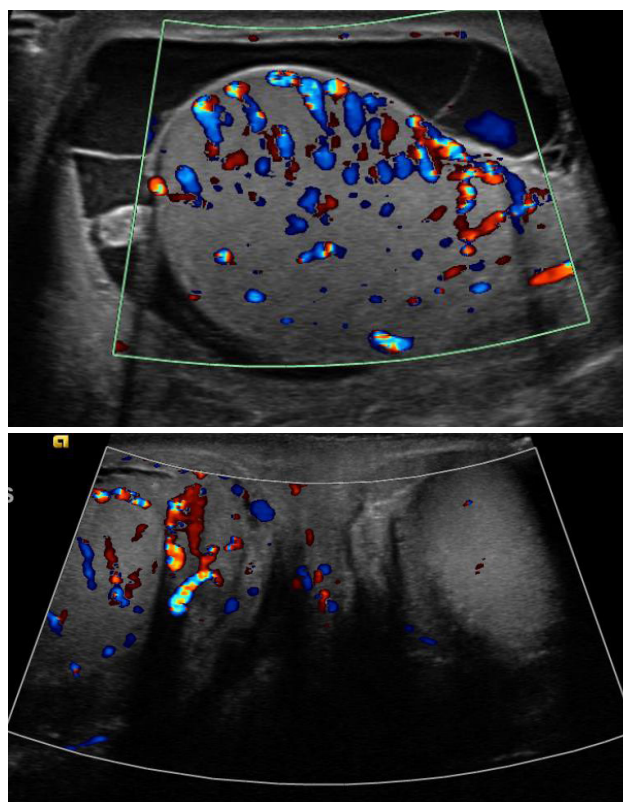


Figure 1. Scrotal ultrasonography showing increased colour Doppler flow to the right epididymis and testicle with complex hydrocele associated with scrotal oedema.

DISCUSSION

Epididymitis is a common cause of scrotal pain in adults. Patients with acute epididymitis usually present with localised pain, swelling and tenderness on palpation of the affected epididymis. This pain occasionally radiates to the lower abdomen and can spread to the adjacent testis. Symptoms of lower urinary tract infection may be present. More advanced cases with epididymo-orchitis develop testicular pain and swelling, and often have fever and tachycardia. Additionally, scrotal wall erythema and a reactive hydrocele may be present. A positive Prehn's sign (manual elevation of the scrotum relieves pain) is commonly associated with acute epididymo-orchitis^[1].

In addition to careful history and physical examination, diagnostic studies can help confirm the diagnosis and detect the causative pathogen. In all suspected cases, a urinalysis, urine culture and a urine or urethral swab NAAT for *N. gonorrhoeae* and *C. trachomatis* should be performed. Colour Doppler ultrasonography often shows an enlarged thickened epididymis with increased Doppler wave pulsation in epididymitis^[2].

Coliform bacteria are the most common cause of epididymitis in patients older than 35, with *Escherichia coli* accounting for the majority of cases. However, in patients younger than 35, sexually transmitted organisms are the most common, with *C. trachomatis* and *N. gonorrhoeae* being the major pathogens. Men of any age who engage in insertive anal intercourse are at increased risk for acute epididymitis from exposure to coliform bacteria in the rectum. Other less common

organisms include *Mycoplasma genitalium*, *Corynebacterium* species, *Ureaplasma* species and *Mycobacterium tuberculosis*^[2]. *H. influenzae* are pleomorphic Gram-negative rods that commonly colonise the human respiratory tract and are associated with a number of clinical conditions such as meningitis, otitis media, epiglottitis, community acquired pneumonia, pericarditis, septic arthritis and cellulitis. *H. influenzae* has been reported as a cause of epididymo-orchitis in prepubertal boys, and in few cases were associated with positive blood cultures^[3]. In adults, *H. influenzae* has been isolated before from urine samples or urethral swabs in patients with epididymitis or epididymo-orchitis^[4].

CONCLUSION

In this case, we describe a 51-year-old immunocompetent patient who presented with acute epididymo-orchitis and bacteraemia caused by *H. influenzae*. In 1993, Cross et al. described a case of *H. influenzae* induced acute epididymo-orchitis and bacteraemia in a 33-year-old man infected with human immunodeficiency virus (HIV)^[5]. To our knowledge, this is the first case that describes acute epididymo-orchitis and bacteraemia caused by *H. influenzae* in an immunocompetent adult. Healthcare providers should consider *Haemophilus influenzae* in the differential diagnosis of epididymitis and epididymo-orchitis in both immunocompetent and immunocompromised patients.

REFERENCES

1. Khanna K, Liu DR. Epididymitis and orchitis. In: Hoffman RJ, Wang VJ, Scarfone RJ, Godambe SA, Pitetti R, editors *Fleisher and Ludwig's 5-Minute Pediatric Emergency Medicine Consult*, Philadelphia: Lippincott Williams & Wilkins 2012; p. 262–263.
2. Tracy CR, Steers WD, Costabile R. Diagnosis and management of epididymitis. *Urol Clin North Am* 2008;**35**:101–108.
3. Greenfield SP. Type B hemophilus influenzae epididymo-orchitis in the prepubertal boy. *J Urol* 1986;**136**:1311–1313.
4. Dingle TC, Clarridge JE. Clinical significance and characterization of *Haemophilus influenzae* type b genogroup isolates from urine samples in an adult male population. *J Clin Microbiol* 2014;**52**:1745–1748.
5. Cross JT Jr, Davidson KW, Bradsher RW Jr. *Haemophilus influenzae* epididymo-orchitis and bacteremia in a man infected with the human immunodeficiency virus. *Clin Infect Dis* 1994;**19**:768–769.