

Spontaneous rupture of Tuberculous epididymo-orchitis; a rare urological emergency

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ABSTRACT

Background: Tuberculosis (TB) remains a significant global health problem, with genitourinary involvement accounting for up to 40% of extrapulmonary cases. Spontaneous rupture of tuberculous epididymo-orchitis is extremely rare and often misdiagnosed.

Case Description: A 32-year-old HIV-positive man presented with painful left scrotal swelling and spontaneous rupture of a tuberculous orchitis. He underwent emergency orchidectomy. Histology confirmed necrotizing granulomatous inflammation consistent with TB.

Conclusion: The spontaneous rupture of tuberculous epididymo-orchitis is an uncommon and severe manifestation of genitourinary TB. Early recognition and multidisciplinary management are critical for a good outcome, especially in immuno-compromised patients.

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INTRODUCTION

Extrapulmonary tuberculosis (TB), which accounts for about 10% of TB cases worldwide with up to 20% of cases in developing nations, may be a diagnostic and therapeutic challenge as it can mimic other pathologies.(Figueiredo & Lucon, 2008; Wein et al., 2016; Sivasubramaniam, 2020) Urogenital TB may account for up to 40% of extrapulmonary TB cases.(Figueiredo & Lucon, 2008.

The epididymo-orchitis is the second most common manifestation of Urogenital TB and is difficult to differentiate clinically from a pyogenic infection, tumour, or infarction.(Wein et al.,2016; Sivasubramaniam, 2020) Despite the high burden of TB especially in developing regions, the spontaneous rupture of TB epididymo-orchitis is extremely rare and scarcely documented in literature.

We report a rare case of spontaneous rupture of TB orchitis in Federal Medical Centre Asaba, where a high index of suspicion and a timely surgical intervention in the referral facilities would have prevented sepsis and testicular loss.

CASE PRESENTATION

This is a report of a 32-year-old man who presented with left scrotal pain of 3 months duration. The pain was insidious, initially dull, but became sharp and

severe, two days prior to presentation. There was a left hemiscrotal swelling which progressively increased in size over 3 months. There was associated low grade fever, dysuria, chronic cough, weight loss and drenching night sweat.

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He is a known Human Immunodeficiency Virus (HIV) patient diagnosed 6 years prior to presentation but he was not regular on HAART. He was diagnosed with pulmonary TB 8 months prior to presentation where he was placed on medications but stopped after 6 weeks. He had different courses on antibiotics at peripheral centres prior to presentation.

Examination: He was chronically ill, febrile (38 °C), pale, and had cervical lymphadenopathy with a pulse rate of 108 bpm. The left hemiscrotum was swollen, tense, and tender, with focal thinning of the scrotal skin but no external sinus formation. The testis was firm and irregular. No inguinal lymphadenopathy was detected.

Investigations: Haemoglobin was 6 g/dl; electrolytes and renal function were normal. CD4 count was 280 cells/mm³ and the viral load > 200 copies/ml. Scrotal doppler ultrasound scan showed non-uniform echopattern in the left testis with

multiple irregular hypoechoic areas and mixed echogenic collection in the left hemiscrotum with septations (Figure 1). A diagnosis of left hemiscrotal abscess secondary to TB epididymo-orchitis was made.

The patient was transfused with two units of packed cells and commenced on broad-spectrum antibiotics. The infectious disease unit was invited, and he recommenced the HAART and Antituberculosis therapy.

Intraoperative findings: He had emergency left hemiscrotal exploration under spinal anaesthesia on account of left hemiscrotal abscess. Intraoperative findings revealed 30mls of pus and an enlarged testis with a 6cm laceration on the tunica albuginea (Figure 2). He had a left simple orchidectomy done.

Histopathology: The intra-operative scrotal aspirate was tested for Acid and alcohol Fast Bacilli (Aafb) and GeneXpert which confirmed Mycobacterium TB. Histology report showed multiple variably sized granulomas with central caseous necrosis, component multinucleated giant cells and associated areas of extensive necrosis (Figure 3). Features were in keeping with a chronic necrotizing granulomatous inflammation consistent with TB epididymo-orchitis.

The HAART and a 9-month Antituberculosis therapy were continued post-operatively by the infectious disease unit and the patient responded well and reported adherence to medication. There was complete wound healing and no evidence of recurrence in the contralateral testis.



Figure 1: Ultrasound scan of the left testis with multiple irregular hypoechoic areas.



Figure 2: Ruptured left testis noted on scrotal exploration.

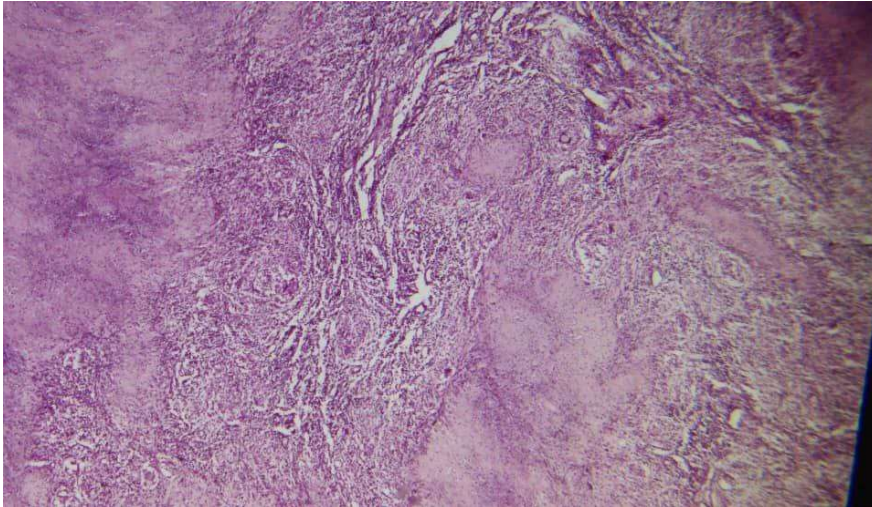


Figure 3: Histopathological section showing necrotizing granulomatous inflammation. (H&E)

DISCUSSION

Epididymo-orchitis is a common cause of testicular pain and can be of infectious or non-infectious origins (Chia *et al.*, 2016). Bacteria is the most common organism implicated in infectious epididymo-orchitis. In patients under 35 years, common bacteria are *Chlamydia trachomatis* and *Neisseria gonorrhoeae* while in men older than 35 years, it is commonly caused by *E. Coli*, *Proteus mirabilis*, *Klebsiella pneumoniae* and *Pseudomonas aeruginosa*. Viruses (such as mumps, HIV-1, SARS-CoV-2) may also be implicated in causing epididymo-orchitis. Rarer infective causes include *Mycobacterium Tuberculosis*, *Treponema pallidum*, *Brucella*, *Filariasis* and *Candida* (Chia *et al.*, 2016; Wein *et al.*, 2016).

Tuberculosis is the most frequent single infectious disease in the world and accounts for about 1.3 million mortalities yearly, making it the 13th overall cause of death globally with higher incidence rates in developing countries of Africa and Southeast Asia (Chakaya *et al.*, 2022; Roddy *et al.*, 2024). It is caused by a family of closely related aerobic, non-spore-forming bacterial organisms called *Mycobacterium tuberculosis* complex. (Wein *et al.*, 2016; Roddy *et al.*, 2024)

Extrapulmonary TB, accounts for about 10% of TB cases and can occur in any site. (Figueiredo & Lucon, 2008; Wein *et al.*, 2016; Sivasubramaniam, 2020; Mehboob & Khurram, 2022; Roddy *et al.*, 2024) It most commonly affects people with immuno-compromising conditions such as HIV. About 60% to 90% of patients with extrapulmonary TB test positive for HIV. (Roddy *et al.*, 2024) This is the case in our index patient who had tested positive for HIV 6 years prior to this presentation. He was not compliant with HAART,

making his immunosuppression worse and increased his risk of Extrapulmonary TB.

Urogenital TB may account for up to 40% of extrapulmonary TB cases. (Figueiredo & Lucon, 2008; Mehboob & Khurram, 2022) Epididymo-orchitis is the second most common manifestation of Urogenital TB after Renal TB. (Figueiredo & Lucon, 2008; Wein *et al.*, 2016; Sivasubramaniam, 2020; Mehboob & Khurram, 2022; Roddy *et al.*, 2024) TB epididymo-orchitis may be transmitted via blood-borne routes or transurethral reflux of *Mycobacterium tuberculosis*. Epididymal TB lesions first appear in the tail of the epididymis, owing to its rich blood supply then the body, then the head, finally affecting the entire epididymis before involving the testis. (Man *et al.*, 2020)

The diagnosis of TB epididymo-orchitis is clinically challenging as it may be confused with other bacterial causes of epididymo-orchitis or other pathologies of the testis such as pyogenic infection, tumour, or infarction. Also, due to its typical slow presentation, early diagnosis is difficult, further worsening the delayed diagnosis and frequent misdiagnosis. Hence, a high index of suspicion is required to diagnose this pathology (Wein *et al.*, 2016; Man *et al.*, 2020; Sivasubramaniam, 2020; Mehboob & Khurram, 2022) Our index patient had received several courses of antibiotics in different hospitals before the diagnosis was made in our facility.

Testicular rupture secondary to epididymo-orchitis is a rarely reported complication and may be difficult to differentiate from uncomplicated epididymo-orchitis clinically. Diagnosis is usually confirmed by ultrasound or intraoperatively (Chia *et al.*, 2016) Although the clinical diagnosis of TB epididymo-orchitis was made, the rupture was only

identified intraoperatively in our index patient. To the best of the authors' knowledge, no case of spontaneous rupture of TB orchitis has been reported in Nigeria prior to this report.

CONCLUSION

Spontaneous rupture of TB epididymo-orchitis is a rare but serious manifestation of genitourinary TB, which can lead to significant morbidity such as sepsis or sub-fertility from scrotal loss. A high index of suspicion, especially in susceptible individuals, and multidisciplinary approach leads to prompt diagnosis and treatment.

Declarations

Ethical approval was obtained from the Federal Medical Centre, Asaba Research and Ethics Committee with Reference Number: NHREC/TR/FMCASABA-HREC/317/24/84.

Written informed consent was obtained from the patient for publication of this case report and accompanying images.

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AVAILABILITY OF DATA AND MATERIALS

All data supporting the findings of this case are included in this published article. Additional information can be obtained from the corresponding author upon reasonable request.

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Conflicts of interest

The authors declare that they have no conflicts of interest.

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