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Original Research Paper

General Surgery

FROM LUNGS TO LOINS: A TUBERCULOSIS CASE WITH A TWIST

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ABSTRACT Genitourinary tuberculosis (TB) is a rare but well-described form of extrapulmonary TB. Tuberculous epididymitis is an infection of the epididymis due to Mycobacterium tuberculosis. We present the case of a 31-year-old Indian male who reported a 20-day history of swelling in the right scrotal region. Clinical evaluation and diagnostic investigations revealed a hydrocele. However, an incidental finding of necrotic tissue over the epididymis was noted during the intraoperative procedure. Subsequent histopathological analysis demonstrated necrotizing granulomatous inflammation, with the presence of acid-fast bacilli, indicating tuberculous involvement of the epididymis on the right side. The patient was initiated on anti-tubercular therapy (ATT) and has been referred to the infectious disease for complete management and patient care.

KEYWORDS : Hydrocele, Mycobacterium tuberculosis, Infection, Scrotal swelling, Necrotic tissue, Epididymis.

INTRODUCTION

Tuberculosis (TB) remains a significant global health challenge, contributing considerably to morbidity and mortality across both high- and low-income countries.[1] Worldwide, people of all ages are affected by tuberculosis. This infection caused by Mycobacterium tuberculosis can affect any part of the body, even if its primary manifestation is pulmonary. Thankfully, there are preventive and therapeutic measures available, in the field of health care medicine.

According to the recent World Health Organization (WHO) 2023 report, approximately 7.5 million new and relapse cases of tuberculosis were noted globally. Of these, around 83% were diagnosed with pulmonary TB, while the remaining 17% had extrapulmonary manifestations. [2] Within the spectrum of extrapulmonary TB, genitourinary tuberculosis represents, a significant proportion, accounting for 20-73% of cases as reported by Ali A, et al.[3] Notably, 20% of genitourinary TB cases involve the epididymis.

Epididymal tuberculosis primarily affects young adults [4] and poses a significant diagnostic challenge due to its rarity and capable to mimic more common causes of epididymitis.[5] In resource-limited settings like India, where TB is endemic, the misdiagnosis or delayed diagnosis of epididymal tuberculosis can lead to severe consequences, including the destruction of the epididymis, surrounding genital tissues and organs.[6,7] This destruction can result in complications such as infertility and other serious complications to male reproductive system.[5] Therefore, it is crucial for healthcare providers to maintain a high index of suspicion, especially in young adults showing symptoms suggestive of epididymitis. Therefore, this case demonstrates, the importance of routine diagnosis and antituberculous treatment in improving the disease prognosis and preventing severe complications in the male reproductive system through prompt intervention.

Case Presentation

A 31-year-old male carpenter from Saswand, Palghar, Maharashtra, presented to the Surgery Outpatient Department at VIMS, Saswand, with a 20-day history of a progressively enlarging right scrotal swelling. The patient, married with two children, reported that, the swelling was insidious in onset, initially measuring approximately 2 × 1 cm, and had gradually increased to its current size of 6 × 5 cm. The patient reported, a dragging sensation associated with the swelling, although there were no specific aggravating or relieving factors. The patient was conscious and well-oriented to time, place and person. The examination was conducted in a well-lit room with adequate exposure and informed consent. The patient appeared to be in fair general condition, well-built, and well-nourished. There were no signs of pallor, icterus, cyanosis, clubbing, lymphadenopathy, or edema. The patient's height was 166 cm, weight was 50 kg, and body mass index (BMI) was 18.1 kg/m^2. The patient was afebrile, with a pulse rate of 84 beats per minute. Blood pressure was measured at 110/80 mmHg, and respiratory rate was 18 breaths per minute. Oxygen saturation was 98% on room air.

On inspection, the right-sided inguinoscrotal region revealed, normal skin over the swelling, with no visible skin changes noted over the scrotum. A right-sided scrotal swelling, measuring approximately 6x5 cm, was observed, accompanied by a loss of rugae. There was no evidence of dilated veins over the swelling, nor any signs of engorged veins. Additionally, no visible cough impulse was detected over the swelling or at the hernial orifices. The swelling exhibited no local rise in temperature and was not tender. The right-sided scrotal swelling was cystic in consistency, fluctuant, transilluminant, freely mobile within the scrotal pouch and not fixated to the scrotal skin. The getting above the swelling was possible and the bilateral spermatic cord was also palpable. During the examination, all findings from the inspection were confirmed through palpation. There was no local rise in temperature over the swelling, which was non-tender. The right-sided scrotal swelling measured 6 cm by 5 cm and exhibited cystic consistency. The swelling was noted to be fluctuant, transilluminant, and freely mobile within the scrotal pouch, showing no fixation to the scrotal skin. It was also possible to palpate above the swelling, and both spermatic cords were discernible. Furthermore, the left-sided testis was examined and found to be normal in size, contour, sensation, and consistency. The lymph node examination revealed no lymphadenopathy was detected in the groin region, and there was no evidence of left-sided supraclavicular lymphadenopathy.

During the systemic examination, the genitalia appeared normal, with the penis centrally positioned and without any abnormalities. The urethral meatus was also found to be normal, with no evidence of discharge. The patient was fully conscious and well-oriented to time, place and person, demonstrating intact central nervous system (CNS) function. The respiratory system (RS) examination demonstrated equal and clear air entry bilaterally, with no adventitious sounds.

Cardiovascular system (CVS) assessment revealed normal heart sounds, with both S1 and S2 being clearly audible and no murmurs detected. The abdominal examination showed, a soft and non-tender abdomen, without any signs of guarding, rigidity, palpable masses, or organomegaly. Bowel sounds were present and normal. The per rectum (P/R) examination showed, a normal anal tone, with no external hemorrhoids or active bleeding. Ultrasonography revealed, a moderate right chronic hydrocele with necrotic tissue over the epididymis, as shown in Figure 1.

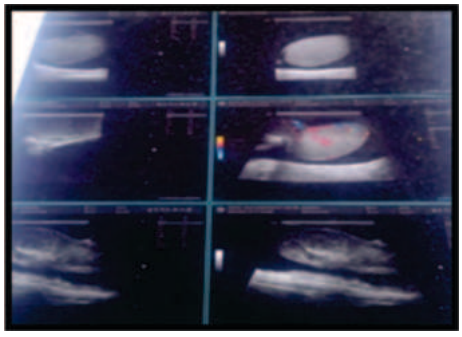

Figure 1: Ultrasonography Report Showing A Moderate Right Chronic Hydrocele With Necrotic Tissue Over The Epididymis.

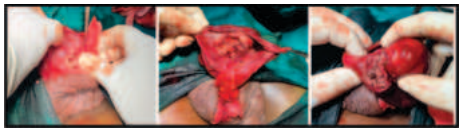

Figure 2: Showing Necrotic Tissue Over The Epididymis Notes So, I/o Necrotic Tissue Excised. Rest Tissue Left In Situ.

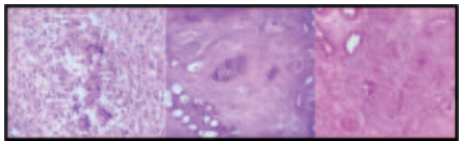

Figure 3: Showing Necrotising Granulomatous Inflammation.

The patient had been planned for the Jaboulay procedure, during which hydrocele fluid was drained and subsequently sent for analysis. A swelling had been observed over the epididymis, accompanied by evidence of necrotic tissue. Partial excision of the necrotic tissue was performed, while the remaining tissue was left in situ. Then, the excised tissue was sent for histopathological examination. The histopathological examination confirmed, necrotizing granulomatous inflammation (Figure 3) with acid-fast bacilli, indicative of tuberculosis, affecting the epididymis and involving the right side. Culture sensitivity results were sterile, but CB-NAAT testing of the excised tissue was positive for tuberculosis. The patient was subsequently started on ATT and referred to infectious diseases for further evaluation and follow-up care.

DISCUSSION

Tuberculous infection of the scrotum is an uncommon manifestation of tuberculosis, affecting roughly 7% of individuals diagnosed with this systemic disease.[2] The diagnostic tools available for accurately identifying epididymal tuberculosis are limited in both sensitivity and specificity, which poses significant challenges in clinical settings. Furthermore, the symptoms associated with this condition tend to be non-specific, making it difficult for healthcare providers to differentiate it from more common conditions, such as bacterial infections or neoplastic processes. [8,9] As a result, epididymal tuberculosis is frequently misdiagnosed, leading to delays in appropriate treatment and management. Therefore, prompt and accurate diagnosis of the disease is becoming more challenging to healthcare professionals.

We present a case of tuberculous epididymis in a patient with no identifiable risk factors or underlying immune compromise. The patient had no history of HIV infection, diabetes mellitus, or other significant comorbidities, nor was he on long-term immunosuppressive therapy that could impact immune function. Comprehensive clinical, radiological, and histopathological evaluations revealed necrotizing granulomatous inflammation, with acid-fast bacilli consistent with a diagnosis of tuberculosis, localized to the right-sided epididymis. Cesilia et al. (2024) reported a rare case highlighting the difficulties in obtaining biopsy and bacteriologic confirmation for TB epididymitis. They emphasized that epididymal TB should be considered in adolescent males presenting with chronic scrotal swelling and pain. A thorough clinical evaluation, including history, physical examination, and radiologic findings indicative of TB, can aid in achieving a timely and accurate diagnosis, which is crucial for optimal outcomes.

According to the present case report, rarely, genital tuberculosis occurs alone. Contrary to what was observed in this case, it is more frequently an undesirable consequence of urinary tuberculosis.[11] The infection in this case revealed by Yadav S, et al., (2023) [12] stated that, the high prevalence of tuberculosis in India and the likely transmission of the bacteria through the bloodstream which increases the chances of life-threatening complications psoas abscess, infertility and addison's disease. This was supported by another case report performed by Rajabi MH et al. (2021) emphasized the importance of rapid diagnosis and treatment of the disease to prevent epididymectomy and protect fertility.[13]

This case highlights, the diagnostic challenges associated with tuberculous epididymitis, a rare manifestation of genitourinary tuberculosis. Despite the absence of MT in the aspirated hydrocele fluid, histopathological examination confirmed, the presence of tuberculous infection in the epididymis. These findings highlight the importance of early diagnosis and accurate treatment planning, especially the timely initiation of ATT, which is essential for achieving optimal patient outcomes. This approach similar with previous case report done by Rajabi et al. [13], who emphasized, the critical role of early ATT in the management of tuberculous epididymitis.

CONCLUSION

The case reports highlighted that, the critical importance of considering tuberculous epididymitis as a differential diagnosis in patients presenting with scrotal swelling, particularly in settings with limited diagnostic abilities. Thereby, promptly recognizing and treating this condition, healthcare providers can significantly improve patient outcomes, emphasizing the need for more clinical awareness and interdisciplinary collaboration in managing challenging cases like the present case report.

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