

Epididymo-orchitis with Epididymal Abscess in a Patient with Disseminated Tuberculosis: A Case Report

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Abstract

Tuberculosis (TB) remains a global health concern, and while primarily affecting the lungs, extrapulmonary manifestations such as genitourinary tubercular epididymitis are rare and diagnostically challenging. Accurate differentiation is crucial for appropriate treatment. This case study presents a 34-year-old man with left scrotal swelling, backache, and fever, highlighting the importance of considering TB in genitourinary conditions. High-resolution sonography revealed an edematous left testis with increased vascularity and hypoechoic nodules. Further imaging, including high-resolution computed tomography thorax and CEMRI dorso-lumbar spine, confirmed disseminated TB. Despite negative urine culture, aspiration cytology from the epididymal collection indicated tubercular etiology. Urogenital TB, especially isolated epididymal involvement without renal effects, presents diagnostic challenges, often occurring in immunocompromised patients. The case underscores the role of clinical, biochemical, and radiological evidence in establishing a correct diagnosis. High-resolution ultrasonography plays a crucial role in diagnosing scrotal pathologies, and when accompanied by an epididymal collection, further diagnostic steps involving biochemical parameters and aspiration followed by cytoanalysis and culture are essential. The diagnosis of TB epididymitis can be confirmed through acid-fast bacilli (AFB) identification, positive AFB culture, or granulomas seen in a biopsy specimen in the right clinical context. Radiological imaging aids in detecting local and disseminated disease forms, including complications such as hydrocele, testicular calcifications, scrotal abscesses, sinus tracks, and fistulous communications.

Keywords: Acid-fast bacilli culture, case report, disseminated tuberculosis, fistulous communications, genitourinary tubercular epididymitis, hydrocele, scrotal abscesses

INTRODUCTION

In the modern era of medicine, tuberculosis (TB) is still a global health concern, primarily affecting the lungs. It has been postulated that tuberculous epididymitis almost always results from a prostatic tuberculous lesion, secondary to a renal lesion.^[1] Isolated cases of tubercular epididymitis and epididymo-orchitis have also been reported. Isolated epididymal TB is defined as tuberculous infection affecting the epididymis without evidence of renal involvement.^[2] There is conflict about the existence of true ITE because the initial laboratory and radiological investigation may fail to identify the renal involvement due to their low sensitivity.^[3] Tuberculous epididymo-orchitis commonly spreads through hematogeneous route in children and direct spread from the urinary tract occurs in adults.^[4] TB epididymitis shows caudal involvement due to its high vascularity.^[5] However, extrapulmonary manifestations,

such as genitourinary tubercular epididymitis, are rare and can pose diagnostic dilemmas as clinically, TB infection of the scrotum is hard to differentiate from other neoplastic, infective, inflammatory, and ischemic conditions.^[6] Accurate differentiation is, however, important for proper treatment. In some specific cases, the surgical approach is needed to confirm the diagnosis.^[7] We present a case of tubercular epididymitis to highlight the importance of TB in the differential diagnosis of genitourinary conditions. High-resolution sonography is currently the best technique for imaging the scrotum and its contents.^[8] This pictorial essay aims to illustrate the sonographic appearances of tubercular epididymitis and epididymo-orchitis in a patient with disseminated TB.

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CASE REPORT

We present a case of a 34-year middle aged man with left scrotal swelling, lower backache, and fever. Biochemical parameters showed high C-reactive protein, erythrocyte sedimentation rate values, and leukocytosis. The urinalysis revealed few white blood cells. However, the urine culture was negative. On initial workup, ultrasonography (USG) abdomen and scrotum was done. USG revealed that the left testis was edematous and showing considerably increased vascularity both in the left testis and epididymis as well [Figure 1a]. Multiple small hypoechoic nodules were seen in the left testis [Figure 1c]. The left epididymis and spermatic cord were bulky with a heterogeneous collection involving the entire left epididymis consistent with an abscess [Figure 1b]. Tunica albuginea was relatively thickened on the left side. Minimal left tunica vaginalis sac collection was observed. In transabdominal sonography, a hypoechoic collection with internal debris was noted in the prevertebral region at the level of the umbilicus [Figure 1d]. A diagnosis of infective etiology suspicious of KOCH'S origin was made. For further follow-up, high-resolution computed tomography (HRCT) thorax and Contrast-Enhanced Magnetic Resonance Imaging (CE-MRI) dorso-lumbar spine were done for that patient. HRCT thorax revealed multiple miliary nodules (of size ~ 2-3 mm)

in bilateral lung parenchyma with few fibrocavitary lesions in the right upper lung [Figure 1e and f]. CEMRI D-L spine shows enhancing T2/STIR hyperintense soft-tissue thickening and collection at the D12-L1 vertebral level [Figure 1g]. The hydrocele fluid and heterogeneous collection in the epididymis were aspirated and submitted for cytology, culture, and CBNAAT. Epididymal tissue was submitted for histopathology, which revealed granulomatous epididymitis. Acid-fast bacilli (AFB) was positive and tissue culture grew *Mycobacterium TB* complex [Figure 1h].

CASE DISCUSSION

Prevalence of urogenital TB is almost 8%–15% and out of them 28% involves epididymis.^[9] However, the diagnosis of isolated involvement of epididymis and testis without renal involvement is very challenging.^[10] Most of such infections occur in immunocompromised patients, usually compounding with HIV infections. With clinical and biochemical evidence with the addition of radiological findings, a correct diagnostic approach can be made.

In our case, the patient presented with painless scrotal swelling with backache and fever for a long duration with mild weight loss. USG of the scrotum and abdomen showed multiple hypoechoic testicular nodules and epididymal minimal collection with minimal prevertebral collection, respectively. For testicular nodules, differentials such as multiple granulomatous lesions, lymphoma, metastatic lesions, and evolving abscesses can be considered.^[11]

HRCT thorax was done for further work up which showed multiple pulmonary miliary nodules and CEMRI of dorso-lumbar spine revealed prevertebral minimal collection. Considering all these features, a diagnosis of disseminated TB was made. However, the urine culture report was negative excluding the renal involvement. Aspiration cytology from epididymal collection suggested tubercular etiology. The treatment regimen consisted of a 9-month course, beginning with an intensive phase lasting 2 months. During this phase, patients were administered a combination of isoniazid, rifampin, pyrazinamide, and ethambutol. This was followed by a continuation phase lasting 7 months, during which patients received isoniazid and rifampin. Some author suggests rifampicin as an intravenous injection in the case of ITE treatment.^[12]

CONCLUSION

High-resolution USG plays a significant role in the diagnosis of different scrotal pathologies. Whenever we get multiple hypoechoic nodules in the testis on USG, we have to think about differentials such as granulomas, lymphoma, metastasis, and evolving abscesses. However, in the presence of any associated epididymal collection, further diagnosis can be done in correlation with biochemical parameters and aspiration of the contents followed by cytoanalysis and culture study. The diagnosis of TB epididymitis also can be established

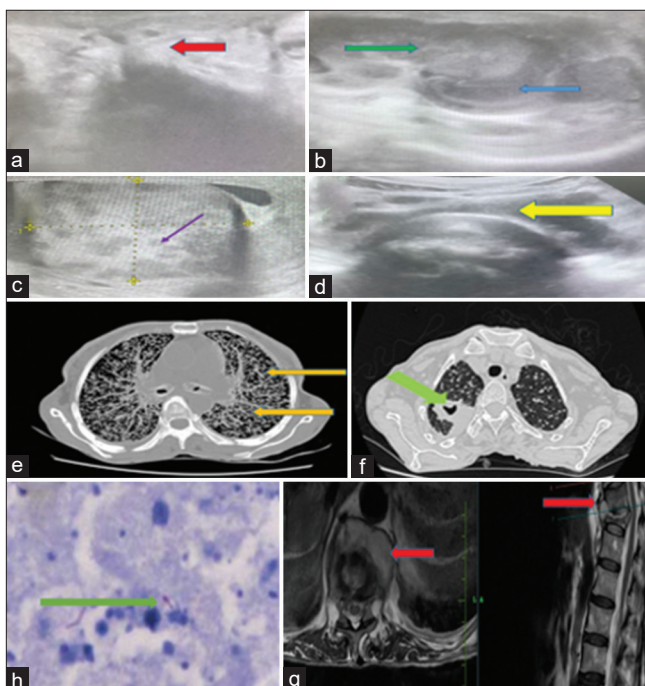


Figure 1: (a) Thickened Left Spermatic cord (red arrow). (b) Bulky and Edematous Left Epididymis (green arrow) With Internal Heterogeneous Collection (blue arrow). (c) Edematous left testis with multiple internal hypoechoic nodules (purple arrow). (d) Hypoechoic collection in the prevertebral region (yellow arrow). (e) Multiple miliary nodules in bilateral lung fields (yellow arrow). (f) Fibrocavitary lesion in right upper lobe (green arrow). (g) Enhancing T2/STIR hyperintense soft-tissue thickening and collection at D12-L1 vertebral Level with the collapse of adjacent vertebral body (red arrow). (h) Fine-needle aspiration cytology Smear demonstrating acid-fast bacilli in ZN Stain (green arrow)

by the identification of AFB on smear in a urine specimen, a positive AFB culture, or granulomas seen on a biopsy specimen in the right clinical setting, after confirming all tumor markers negative. Radiological imaging (USG, computed tomography, CEMRI) is helpful in detecting local and disseminated forms of the disease. Complications of tubercular epididymo-orchitis such as hydrocele, testicular calcifications, scrotal abscesses, sinus track formation, and fistulous communication can be detected on imaging modalities.

Ethics statement

This study was conducted in accordance with the ethical principles outlined in the Declaration of Helsinki and its amendments. The authors certify that they have obtained all appropriate patient consent forms. In the form the patient has given his consent for his images and other clinical information to be reported in the journal. The patient understands that his name and initials will not be published and due efforts will be made to conceal his identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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