

# A rare case of isolated testicular tuberculosis and review of literature

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### ABSTRACT

Testicular tuberculosis (TB) is a rare form of genitourinary TB. It is usually presented as painful or painless testicular swelling with or without scrotal ulceration or discharging sinus. Infertility may occur. Epididymal involvement is usually seen in testicular TB. In most cases, genital TB is associated with TB involvement of kidneys or lower urinary tract. Ultrasound (USG) and USG-guided fine needle aspiration cytology of testicular swelling confirm the diagnosis. Anti-TB chemotherapy is the mainstay of treatment to ensure the complete resolution of the lesion. However, in very few cases, orchidectomy is required for both diagnosis and treatment. Here, we report a very rare case of left sided isolated testicular TB in a 20-year-old male who was completely cured with 6 months regimen of anti-TB chemotherapy.

**Keywords:** Fine needle aspiration cytology, genitourinary tuberculosis, testis, ultrasound

### Introduction

Pulmonary tuberculosis (TB) is the most common form of TB disease. Extra-pulmonary TB (EP-TB) is seen only in 10–15% cases and lymph nodes are the most common site for EP-TB in India. Genital TB is uncommon, and testicular TB is further rare, comprising only 3% of genital TB.<sup>[1]</sup> Commonly, it occurs during disseminated TB, but isolated testicular TB is extremely rare. In most cases, it clinically mimics other testicular lesions, such as testicular tumor, infarction, or even testicular torsion. Middle-aged males, especially of 20–40 years of age are most commonly affected, and presented with painful or painless scrotal swelling with or without discharging sinus. Infertility may occur. In elderly age group, diagnostic dilemma develops between testicular malignancy and testicular TB, as the first one is more common than the latter. USG of testes and USG-guided fine needle aspiration cytology (FNAC) confirm the diagnosis. Sometimes, testicular biopsy is needed, especially in the elderly age group as exclusion of testicular malignancy, in this age group

is main concern. Anti-TB chemotherapy comprising rifampicin, isoniazid, pyrazinamide, and ethambutol is the mainstay of treatment. Here, we report a rare case of isolated testicular TB in a 20-year-old male patient after getting the written informed consent from him.

### Case Report

A 20-year-old male presented with a painful, left-sided testicular swelling without any discharging sinus or scrotal ulceration for 2 months. There was no history of any respiratory symptom, fever, anorexia, and significant weight loss. The patient was nonsmoker and nonalcoholic.

On examination, the general survey revealed no abnormality, except there were multiple, matted, nontender, firm enlarged inguinal lymph nodes on the left side. His pulse rate was 80 beats/min, regular, respiratory rate, 20 breaths/min, temperature, 97°F, and blood pressure, 120/80 mmHg. Systemic examination revealed no abnormality. The right scrotum was normal; whereas the left sided testicular swelling was 3 cm × 2.5 cm in size which was

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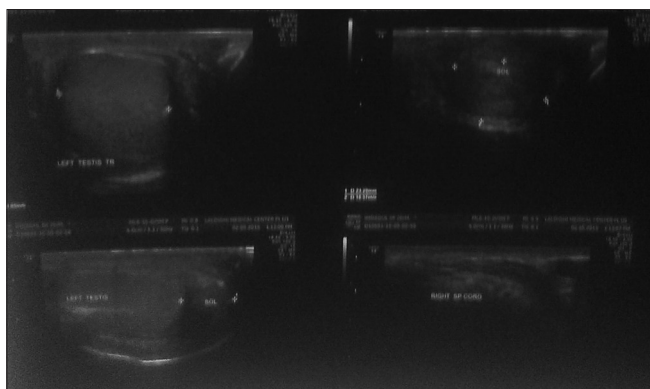
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gradually increasing. It was tender, hard, elliptical in shape, not fixed with overlying scrotal skin, and able to go above the mass. There was no discharging sinus or scrotal ulceration.

Complete hemogram and blood chemistry including fasting blood glucose were normal. Blood for anti-HIV types 1 and 2 antibodies was nonreactive. Chest X-ray – posteroanterior view was normal. Mantoux test (5 TU) was positive (16 mm induration after 72 h). USG of testes showed that the left testis was enlarged (4.8 cm × 2.6 cm). One 3.2 cm × 2.4 cm × 2.7 cm sized heteroechoic space occupying lesion with hypoechoic components and small cystic areas were seen at the lower pole of the left testis [Figure 1]. Testicular margin appeared ill-defined at the lower pole. On Doppler, increased blood flow was seen within and periphery of the lesion. There was no hydrocele. Left epididymis, spermatic cord, and scrotal skin were normal. Right testis was normal. Multiple, enlarged lymph nodes were noted in the left inguinal region on USG. USG of the abdomen revealed no abnormality. USG-guided FNAC of the left testicular swelling showed occasional ill-formed epithelioid cell granulomas in a background of large amount necrosis and mixed inflammatory cells. Ziehl-Neelsen staining of pus and blood mixed particulate obtained by fine needle aspiration revealed acid-fast bacilli (AFB) [Figure 2]. FNAC of enlarged inguinal lymph nodes on left side showed granulomatous inflammation with caseation. Microscopic and biochemical examination of urine was normal. Endoscopic examination of the lower urinary tract was normal. Hence, the diagnosis was left sided isolated testicular TB with ipsilateral inguinal lymphadenopathy. As the patient had no past history of anti-TB chemotherapy, category I anti-TB treatment regimen (thrice-weekly regimen comprising rifampicin: 450 mg/day, isoniazid: 600 mg/day, pyrazinamide: 1500 mg/day, and ethambutol: 1200 mg/day for first 2 months, followed by rifampicin and isoniazid for next 4 months) was given. Complete resolution of left testicular swelling and pain was documented at the end of 6 months of treatment.

## Discussion

TB is a leading cause of death worldwide, especially in the developing countries which are TB endemic zone, like India.



**Figure 1:** Ultrasound of left testis showing a heteroechoic space occupying lesion

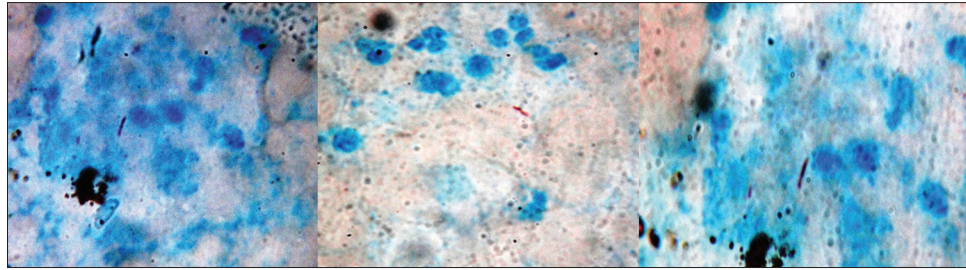
Emergence of drug resistance TB and rapid increase in incidence of HIV infection makes the world's scenario further critical. Genitourinary TB is an unusual presentation of TB and comprises 8–15% of EP-TB.<sup>[2]</sup> Isolated genital involvement is seen in 28% patients of genitourinary TB.<sup>[3]</sup> It is more common in males. The most common site of genital TB is the epididymis in men, followed by the seminal vesicles, prostate, testis, and the vas deferens.<sup>[4]</sup>

Mechanism of dissemination of tubercle bacilli into the scrotal sac structures is controversial. It is believed that, in most cases, TB epididymo-orchitis is developed from retrograde spread of tubercle bacilli from the affected urinary tract into the prostate via reflux, followed by canalicular spread to the seminal vesicle, deferent duct, and epididymis.<sup>[5,6]</sup> However, TB bacilli may also gain entry via the hematogenous and lymphatic spread. In most cases, testicular involvement is due to local spread or retrograde seeding from the epididymis, and rarely by hematogenous spread.<sup>[5,6]</sup> Hence, TB orchitis without epididymal involvement is extremely uncommon, which we present in this case report.

TB orchitis commonly occurs with TB involvement of lower urinary tract, even of kidneys. Hence, it presents with lower urinary tract symptoms, especially irritative voiding symptoms and hematuria. Epididymo-orchitis, prostatitis, scrotal swelling with or without discharging sinus are other manifestations. Garbyal *et al.* and Shugaba *et al.* reported cases of isolated TB orchitis presenting with scrotal ulceration.<sup>[7,8]</sup> In our case, initial presentation was only the left sided hard, painful testicular swelling without any discharging sinus, scrotal involvement, or urinary tract symptoms.

USG of testis is very useful investigation in the diagnosis of TB orchitis. TB involvement of the epididymis and testis may be classified into four types depending on the USG finding: (1) Diffusely enlarged, heterogeneously hypoechoic; (2) diffusely enlarged, homogeneously hypoechoic; (3) nodular enlargement, heterogeneously hypoechoic; and (4) miliary.<sup>[9]</sup> Seminoma and lymphoma are mostly homogenous while nonseminomatous tumors tend to be heterogeneous.<sup>[10]</sup> Color Doppler USG is useful to differentiate testicular TB from testicular torsion, as blood flow within the testis is reduced or absent, whereas it is increased in subjects with inflamed testis.<sup>[11]</sup> Finding of the epithelioid granulomas and AFB on Ziehl-Neelsen staining in the USG-guided FNAC materials obtained from the testicular swelling confirms the diagnosis of TB orchitis. However, the presence of AFB is again extremely uncommon, especially in an isolated TB orchitis in an immunocompetent male, which we report in our case. On the other hand, FNAC should be the first investigation where TB orchitis is suspected, especially in young individuals, as it is possible to confirm the diagnosis of TB orchitis without testicular biopsy or orchidectomy.

Six-month regimen of anti-TB chemotherapy comprising of rifampicin, isoniazid, pyrazinamide, and ethambutol for the first 2 months, followed by rifampicin, and isoniazid for



**Figure 2:** Ziehl-Neelsen staining of fine needle aspiration cytology materials obtained from left testicular swelling showing two acid fast bacilli ( $\times 100$ )

next 4 months is very much effective to ensure the complete resolution of the TB lesion of the testis. Sometimes, surgery may be required.<sup>[2]</sup>

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### Conflicts of interest

There are no conflicts of interest.

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