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Case Report

Urology Section

Isolated Testicular Tuberculosis in a Young Male: A Rare Case Report

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ABSTRACT

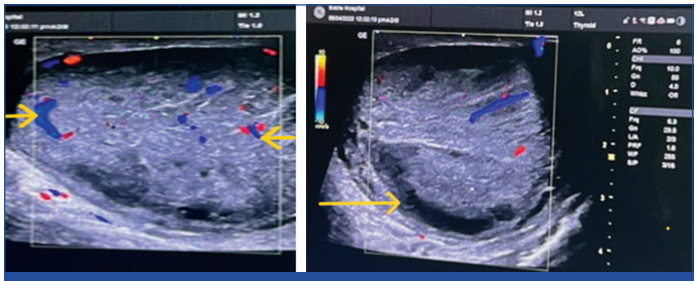
Tuberculosis (TB) is a preventable and usually curable disease. Although TB most frequently affects the lungs, it can affect any region of the body. History, physical examination, scrotal Ultrasonography (USG), and fine needle biopsy are important in the diagnosis of suspected cases of testicular TB. Anti-TB therapy is the mainstay of treatment to ensure complete resolution of the lesion. However, in a few cases, orchidectomy is required for both diagnosis and treatment. We report a case of a 24-year-old male who presented with right testicular pain and swelling. The patient also reported a history of low-grade fever with chills. He had a history of treatment with intravenous antibiotics for one week for the same complaint, with no resolution of symptoms. Physical examination revealed an enlarged, firm, and tender testis with a thickened epididymis. USG showed a 21×13×7 mm lesion in the posterior aspect of right testis with increased vascularity, suggestive of acute right epididymo-orchitis with testicular abscess. The patient was planned for a scrotal exploration and it revealed oedematous right scrotal layers adherent to the testis. Pus was drained from the testis. Signs of infarction were noted, and hence, right orchidectomy was performed with consent. Histopathology revealed granulomatous inflammation with abscess suggestive of TB. Patient was started on antitubercular treatment and is under regular follow-up. This case highlights the rare presentation of isolated testicular TB and the need for a high index of suspicion for diagnosis of the same.

Keywords: Abscess, Extra-pulmonary TB, Right orchidectomy, Scrotal exploration

CASE REPORT

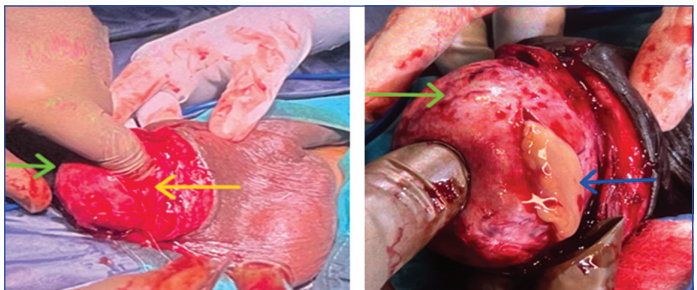
A 24-year-old male patient presented to the Outpatient Department (OPD) with complaints of right testicular pain and swelling for two weeks. The pain was acute in onset, gradually increasing with time. The swelling was also insidious in onset, initially the size of a grape, and gradually increased in size to that of a lemon. It was also associated with reddish discolouration of the overlying skin. He also reported low-grade fever with chills in the evening since 15 days. He had no urinary symptoms like frequency or dysuria. He had no history of comorbidities such as diabetes mellitus, or hypertension. He reported no history of genitourinary trauma, no history of pulmonary TB or TB contact, and no history of weight loss. The patient had taken treatment at an outside hospital with intravenous and oral antibiotics for symptomatic treatment, but had no resolution of symptoms and was hence referred to our hospital. On physical examination, boy was of average built. Pulse rate, respiratory rate, temperature and Blood Pressure (BP) were normal. The rest of the general examination was normal. Systemic examination revealed no abnormalities. On local examination, the left testis was normal. The right testis was uniformly enlarged, firm, and tender on palpation. There was no fixity to the overlying scrotal skin or discharging sinus. The transillumination test was negative. There was mild thickening of the right epididymis. Rest of the local examination was normal.

Complete haemogram showed an elevated Total Leukocyte Count (TLC) of 19,100 gm/dL (normal range 4000-11,000 gm/dL). Routine urinanalysis revealed the presence of 15-20 pus cells (normal range 1-2). The other routine blood investigations, including kidney function tests were normal and serology for HIV was negative. Ultrasound of the Kidney, Ureter and Bladder (KUB) region showed no abnormalities. Chest X-ray posteroanterior view was normal. Inguinoscrotal ultrasound showed mild enlargement and oedema of the right testicle and epididymis. A lesion of size 21×13×7 mm was noted in the posterior aspect of the right testis with increased vascularity, suggestive of acute right epididymo-orchitis with testicular abscess [Table/Fig-1,2]. Due to the non-resolution of symptoms and



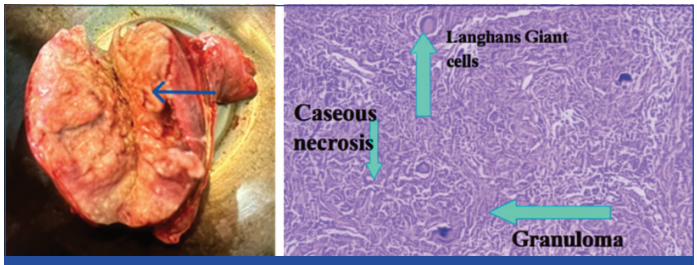
[Table/Fig-1]: USG of the right testis showing increased vascularity.
[Table/Fig-2]: USG of the right testis showing abscess in the posterior aspect - Yellow arrow. (Images from left to right)

a large abscess, patient was planned for scrotal exploration. Patient was counselled preoperatively regarding the condition and possible need for orchidectomy, and written consent was taken for the same. The right hemiscrotum was opened via paramedian incision. The scrotal wall was found to be oedematous and testis was adherent to the scrotal layers [Table/Fig-3]. On inspection, there was a bulging pus pocket in the testis, which was incised. Approximately, 50-70 cc of pus was drained and sent for culture [Table/Fig-4]. As the testis looked nonviable with signs of infarction and necrosis, decision was taken to proceed with orchidectomy. Right simple orchidectomy was performed by ligating the spermatic cord and



[Table/Fig-3]: Testis adherent to tunica vaginalis. Green arrow- Right testis; Yellow arrow- adherence to tunica vaginalis.
[Table/Fig-4]: Infarcted testis with pus. Green arrow - Right testis with signs of infarction; Blue arrow- Pus. (Images from left to right)

the vessels. Specimen was cut open revealing areas of caseous necrosis [Table/Fig-5]. It was sent for formal histopathological examination. Patient was discharged on the second postoperative day in stable condition. The histopathology report showed focal granulomas composed of caseous necrosis surrounded by epithelioid histiocytes, lymphocytes, and multinucleate Langerhans giant cells, suggestive of TB [Table/Fig-6].



[Table/Fig-5]: Cut open right testis with areas of caseous necrosis.
[Table/Fig-6]: Microscopic examination showing caseous necrosis, Langerhans giant cells and granulomas (100x H&E staining). (Images from left to right)

The patient is on regular follow-up at present. He has a well-healed surgical wound and no active complaints. Patient has been started on the intensive phase of anti-tubercular treatment which comprises rifampicin, isoniazid, pyrazinamide, and ethambutol for two months. This will be followed by maintenance course of rifampicin, and isoniazid for the next four months.

DISCUSSION

TB is an infectious disease caused by Mycobacterium tuberculosis, affecting approximately one-third of the global population and resulting in around three million deaths annually [1]. India bears the highest TB burden worldwide, accounting for nearly 27% of global TB incidence [1]. While pulmonary TB is the most prevalent form, Extrapulmonary TB (EP-TB) constitutes 10-15% of cases, with lymph nodes being the most commonly affected site in India [2].

Genital TB is relatively uncommon, comprising 8-15% of EP-TB cases. Within this subset, testicular TB is particularly rare, accounting for only 3% of genital TB cases [3]. In men, genital TB most frequently involves the epididymis, followed by the seminal vesicles, prostate, testis, and vas deferens [4]. It predominantly affects middle-aged men between 20 and 40 years of age and typically presents as either painful or painless scrotal swelling, with or without a discharging sinus. Infertility may also occur as a complication [5].

The pathogenesis of TB orchitis remains a topic of debate. It is generally believed that TB epididymo-orchitis arises secondary to retrograde spread of bacilli from the urinary tract. This involves reflux into the prostate, followed by canalicular extension to the seminal vesicles, vas deferens, and epididymis [6,7]. Haematogenous and lymphatic dissemination are also possible routes. In most cases, testicular involvement is due to local extension from the epididymis, with haematogenous spread being rare [6,7].

TB orchitis is often associated with lower urinary tract involvement, including renal TB, and may present with irritative voiding symptoms and haematuria. Other clinical manifestations include epididymo-orchitis, prostatitis, and scrotal swelling with or without discharging sinuses [8]. Garbyal RS and Sunil K and Shugaba AI et al., have reported isolated TB orchitis presenting with scrotal ulceration [9,10]. In our case, the initial presentation was a firm, painful, right-sided testicular swelling, without scrotal skin involvement, discharging sinus, or urinary tract symptoms.

USG of the scrotum plays a crucial role in the diagnosis of TB orchitis. The involvement of the epididymis and testis can be classified into four types based on USG findings:

1. Diffusely enlarged, heterogeneously hypoechoic;
2. Diffusely enlarged, homogeneously hypoechoic;
3. Nodular enlargement, heterogeneously hypoechoic;
4. Miliary pattern [11].

Testicular malignancies such as seminomas and lymphomas usually appear homogenous on imaging, whereas non-seminomatous tumors tend to be heterogeneous [12]. Colour Doppler USG aids in differentiating TB orchitis from testicular torsion- blood flow is reduced or absent in torsion, while it is increased in inflamed testicular tissue [13].

Even though a rare form of the disease, testicular TB may have varied demographic, clinical and radiological presentations. Hence, it should always be kept as a differential diagnosis in patients presenting with testicular swelling, especially in TB-endemic region like India. Recent case reports on isolated testicular TB by Gurubacharya RL and Gurubacharya SM, Das A et al., Shugaba AI et al., Hadadi A et al., Harya SA et al., and Kharbach Y et al., highlight these variations [Table/Fig-7] [4,5,10,14-16].

Definitive diagnosis is established by demonstrating epithelioid granulomas and Acid-Fast Bacilli (AFB) on Ziehl–Neelsen staining. However, AFB positivity is seen in only about 60% of cases, and its presence is rare in isolated TB orchitis in immunocompetent individuals [17], which we report in our case. Hence, orchidectomy may sometimes be necessary for definitive diagnosis. It is also a necessity in patients with testicular abscess and patients not responding to medication as in our case.

S. No.	Author	Age	Clinical findings	Radiological (USG) findings	Intraoperative findings
1	Das A et al., [5]	20	Left testicular swelling 3×2.5 cm no discharging sinus or scrotal ulceration	3.2×2.4×2.7 cm lesion with hypoechoic components and a small cystic area in the lower pole of the left testis	Conservative management
2	Hadadi A et al., [14]	58	Right testicular swelling no discharging sinus or scrotal ulceration	Hypo-echoic mass in the right testis	Orchidectomy done – findings not mentioned
3	Gurubacharya RL and Gurubacharya SM [4]	14	3×2 cm extra testicular hard mass and arising from the upper and lower pole of right testis	3.9×3.1×2.5 cm size complex hypoechoic mass in the caudal and posterior aspect of the right testis abutting the tail of the epididymis. The extra testicular mass showed solid component in the cranial aspect and cystic component in the caudal aspect	Conservative management
4	Shugaba AI et al., [10]	45	Swollen left scrotum with two foci of discharging ulcers, 3×2 cm and 2×1 cm	-	Tract found connecting the proximal and distal ulcer foci. Fistulectomy and orchidectomy done
5	Harya SA et al., [15]	45	Right round, erythematous, movable scrotal lump measuring between 5 and 8 cm in diameter, no discharging sinus, and no swelling of the inguinal lymph nodes	Right heterogenous testicular mass with avascular areas of necrosis and septated fluid collections in tunica vaginalis	Testicular mass with pus pockets and caseous necrosis occupying the whole testis
6	Kharbach Y et al., [16]	73	Left testicular firm mass 3 cm, with irregular surface	Heterogeneous, hypoechoic anterolateral mass measuring 28.9×14.7 mm with internal vascularity on Doppler	Orchidectomy done - findings not mentioned

[Table/Fig-7]: Summary of clinical, radiological findings and outcomes of few reported cases from the literature [4,5,10,14-16].

The standard treatment includes a six-month anti-TB regimen: an initial two-month intensive phase with rifampicin, isoniazid, pyrazinamide, and ethambutol, followed by a four-month continuation phase with rifampicin and isoniazid. This regimen is highly effective in achieving complete resolution of TB [14].

CONCLUSION(S)

Testicular TB is a curable disease, but its diagnosis remains challenging. It is often missed owing to its non- specific symptoms. This case emphasises the importance of considering TB in differential diagnosis of scrotal and testicular enlargement in young children in an endemic area despite the absence of systemic, pulmonary, and urinary manifestations.

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