

CASE REPORTS

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Is orchiectomy avoidable in testicular tuberculosis mimicking malignancy? A case report

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Abstract

Background: Isolated testicular tuberculosis (TB) is extremely uncommon. It has non-specific presentation; thus, diagnosis is challenging and is often discovered on pathology examination after orchiectomy.

Case presentation: We report herein the case of a 73-year-old male, with no significant medical or family history, who presented with left scrotal swelling, physical examination revealed a left testicular firm mass measuring 3 cm and ultrasound was suggestive of testicular tumor. Left inguinal orchiectomy was performed and the pathologic examination revealed testicular TB. The presentation was typically mimicking a testicular cancer with no evocative evidence of TB; this can lead to a dilemma and highlights the need to consider TB in differential diagnosis of testicular tumor, especially in areas endemic for the disease.

Conclusions: The aim of our presentation is to argue if orchiectomy was avoidable. It also illustrates the probable hematogenous or lymphatic spread of Mtb to the testicle.

Keywords: Genitourinary tuberculosis, Testicular tuberculosis, Testicular tumor, Orchiectomy

1 Background

Tuberculosis (TB) is an infectious disease caused by bacilli of the *Mycobacterium tuberculosis* (Mtb) complex [1, 2]. It has been considered a serious global public health emergency for the past 25 years [1].

Urogenital tuberculosis is the second most common form of extrapulmonary TB [3], but isolated testicular TB, as presented in our patient, is extremely uncommon [3, 4]. Moreover, the mechanism of spread of TB bacilli to the testis is still controversial [4]. Due to non-specific presentation of testicular TB, diagnosis is challenging and is often discovered on pathology examination after orchiectomy [2].

We report herein the case of an isolated testicular TB mimicking malignancy who had radical orchiectomy. The

aim of our presentation is to argue if orchiectomy was avoidable. It also illustrates the probable hematogenous or lymphatic spread of Mtb to the testicle.

2 Case presentation

A 73-year-old Moroccan man presented to our tertiary referral hospital after one week of left scrotal swelling. The patient had no history of tuberculosis or tubercular contact, no significant medical history, he denied trauma and other symptoms.

Physical examination found a left testicular firm mass measuring approximately 3 cm, with irregular surface; scrotal skin and epididymis were normal on palpation. There was no palpable inguinal lymphadenopathy.

Serum tumor markers were within normal limits, AFP: 3.3 ng/mL; HCG: < 2 mIU/mL; LDH: 203 U/L. Serology for human immunodeficiency virus (HIV) was negative.

Chest X-ray was within normal limits. Scrotal ultrasound of the left testis revealed a heterogeneous, hypo-echoic anterolateral mass measuring 28.9 × 14.7 mm

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in diameter (Fig. 1), with internal vascularity on color Doppler imaging suggesting testicular tumor (Fig. 2). Right testis and both epididymes were normal.

In light of these findings, left-sided high inguinal orchiectomy was performed (Fig. 3) after an informed consent due to the preliminary diagnosis of testicular tumor.

Histopathological examination of testicular tissue revealed the presence of large areas of tuberculous granuloma caseous necrosis (Fig. 4), multinucleated Langhans giant cells were present in the center of granuloma (Fig. 5), and the epididymis was histologically normal. There was no evidence of malignancy.

Acid-fast bacilli (AFB) sputum smear and cultures were negative. Urine smear for AFB was negative, and uroscan found no evidence of abnormality or urinary disorder, thereby eliminating an active site of genitourinary tuberculosis. Based on above findings, the patient was diagnosed as having isolated testicular TB.

The patient was referred at the local tuberculosis treatment center. Anti-tuberculosis chemotherapy was started for 6 months.

3 Discussion

Tuberculosis continues to cause considerable morbidity and mortality globally and is considered as a disease of poverty [1]. Risk factors for TB include malnutrition, HIV infection, diabetes, substance abuse, poor housing, smoking, immunosuppressive drugs, and chronic renal disease [1, 2].

TB generally affects the entire male genital tract [3]. Prostate and epididymis tuberculosis occurs through hematogenous spread [3]. Genital TB can also occur through the urinary system to the prostate, and then, it spreads from the ejaculatory ducts to the seminal vesicles, vas deferens, and epididymis [3]. The testicles are affected by contiguity with the epididymis, because the blood-testis barrier plays a protective role [3]. However, this mechanism of spread of TB bacilli to the testis is controversial. Some reported cases of isolated testicular tuberculosis and our case suggest that patients may develop isolated testicular TB through hematogenous or/and lymphatic spread [4]. Hence, isolated testicular TB with no epididymal involvement is very rare, which we present in our case report.

The diagnosis of urogenital tuberculosis is presumptive and based on a patchwork of suggestive clinical,

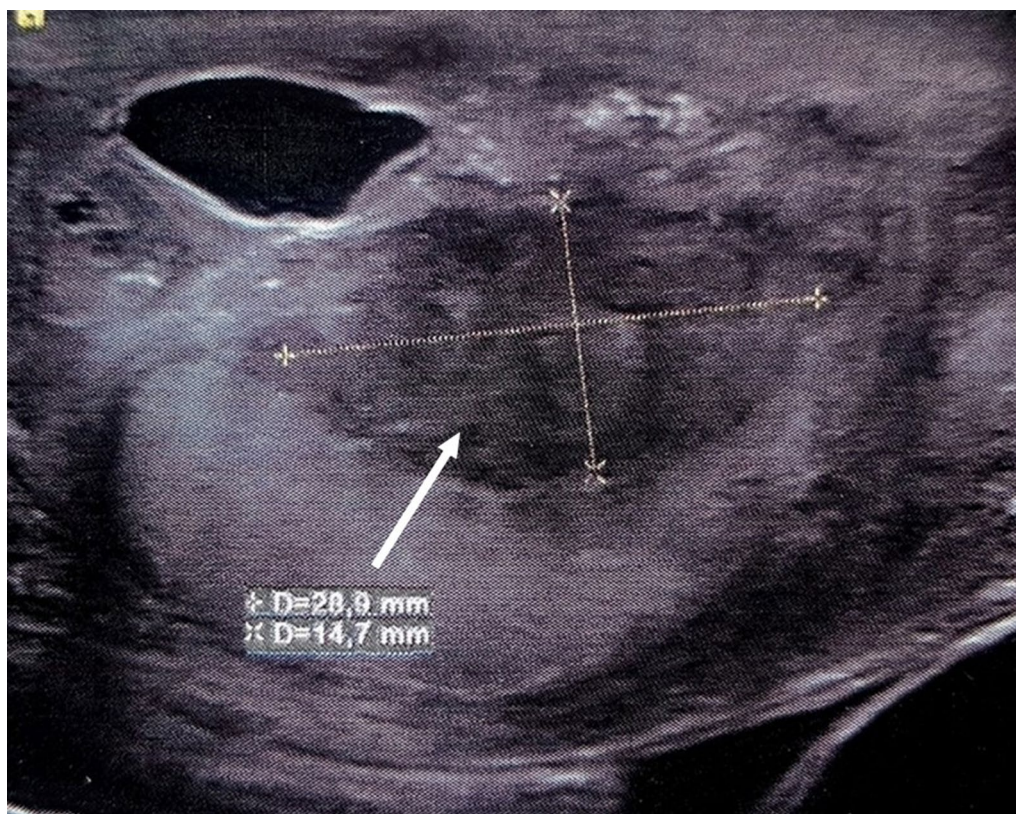


Fig. 1 Ultrasonography of left testis showing a heterogeneous and hypoechoic mass measuring 28.9 × 14.7 mm in diameter

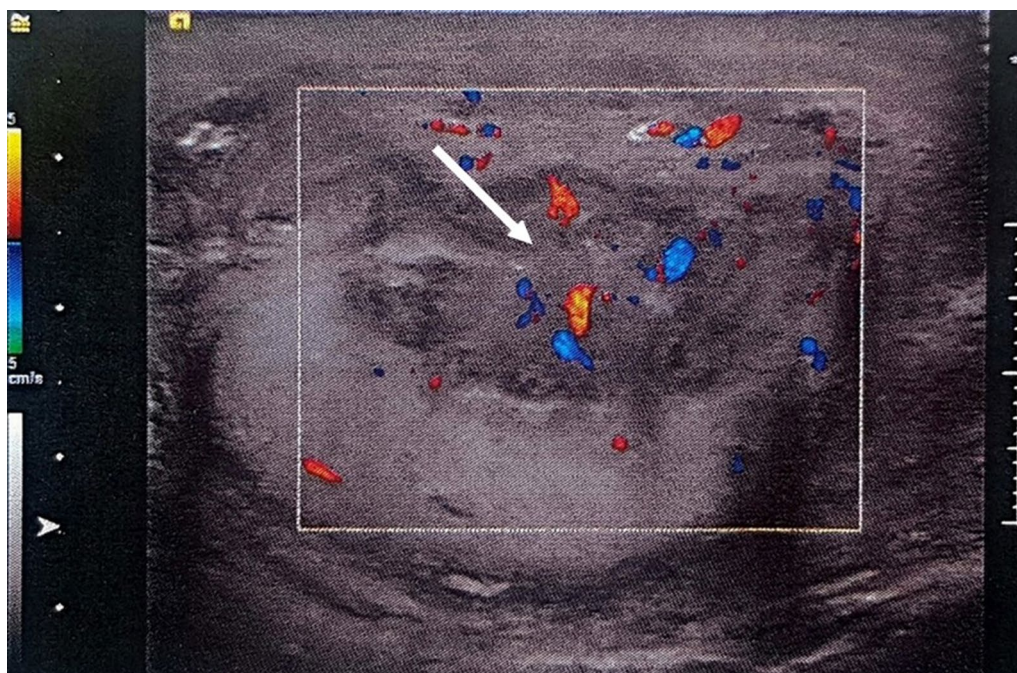


Fig. 2 Color Doppler image showing internal vascularity of the testicular mass



Fig. 3 Postoperative picture of orchietomy

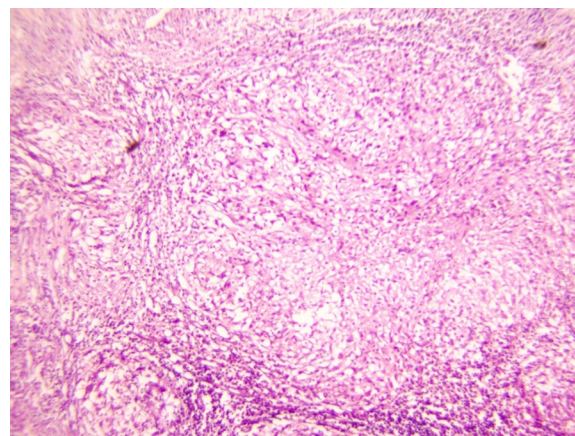


Fig. 4 Photomicrograph showing granulomatous inflammation in testicular tissue, featuring caseous necrosis (H&E stain, $\times 100$)

biological and radiological arguments, without microbiological or histological confirmation in approximately

10.4% of patients [3, 5]. Subsequently, diagnosis of epididymo-testicular tuberculosis is challenging and is discovered on pathology examination after orchietomy in up to one fifth of cases [2].

Non-specific constitutional symptoms of TB such as fever, weight loss, and night sweats are uncommon in testicular TB [2]. Patient could present acute or chronic, painful, or painless scrotal swellings [2]. Physical examination can find a non-tender testicular mass

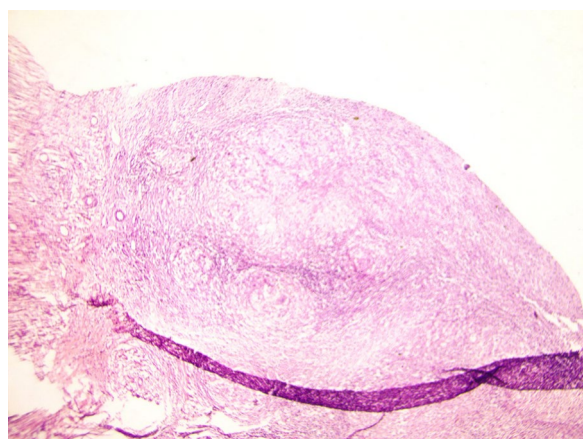


Fig. 5 Photomicrograph showing epitheloid granuloma with multinucleated Langhans-type giant cells (H&E stain, x 40)

[2]. Associated scrotal skin inflammation and fistulae discharging pus are suggestive of TB [2].

Ultrasound examination is useful, but it is non-specific [4]. It can show various patterns, depending on the pathologic stage of tubercular infection, including diffusely enlarged heterogeneously hypoechoic testis, diffusely enlarged homogeneously hypoechoic testis, and nodular enlarged heterogeneously hypoechoic testis [6]. Smooth peripheral calcification of tunica vaginalis (typical of TB), concurrent involvement of the epididymis and scrotal wall thickening are highly suggestive of testicular TB [7]. Color Doppler can help differentiate testicular TB from tumor in which generally shows central vascularity, whereas TB demonstrates peripheral vascularity due to granulomas and lack of central flow due to caseation necrosis [7, 8].

Microbiological diagnostic method for TB is usually not helpful in testicular TB. Smear microscopy diagnostic yields using urine are below 40% [2]. Culture in Lowenstein-Jensen medium is the diagnostic gold standard for urogenital tuberculosis [3], but it is not contributory in isolated testicular TB. PCR for *Mtb* identification in the urine is highly sensitive and specific and may contribute to the diagnosis [3].

In our case, the patient's presentation with only painful scrotal swelling and ultrasound findings prompted the diagnosis of testicular cancer even with the normal level of serum tumor markers suggesting non-seminomatous germ cell tumor of the testis for example. Fine-needle aspiration biopsy (FNAB) was not done to avoid causing local spread of tumor cells or to the inguinal lymph nodes.

Actually, FNAB is usually prohibited in testicular masses because of scrotal violation that can lead to neoplastic

cell dissemination [9, 10]. FNAB is especially helpful in young patients with testicular swelling and normal testicular tumor markers [10], especially if epidemiologic risk factors for TB are present [11].

Treatment consists of four drugs (isoniazid, rifampicin, pyrazinamide, and ethambutol) given for a total of 2 months followed by two drugs (isoniazid and rifampicin) given for an additional 4 months [1].

4 Conclusions

Testicular TB is a curable disease, but its diagnosis remains challenging. It is often missed owing to its non-specific symptoms. Thus, testicular TB should be suspected in patients with a notion of contagion or history of tuberculosis. Some ultrasound features are highly suggestive of TB.

FNAB could prevent unnecessary orchiectomy, but there is a lack of consensus on its use.

In our case, the presentation was typically mimicking a testicular cancer with no evocative evidence of TB. It seems to us that orchiectomy was not avoidable in this patient.

Abbreviations

TB: Tuberculosis; *Mtb*: *Mycobacterium tuberculosis*; HIV: Human immunodeficiency virus; AFB: Acid-fast bacilli; FNAB: Fine-needle aspiration biopsy.

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Authors' contributions

YK and AK were involved in concept, design, supervision, processing, writing the manuscript and critical analysis. AK revised the manuscript. YR was involved in data acquisition. All authors read and approved the final manuscript.

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Availability of data and materials

The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

Declarations

Ethics approval and consent to participate

Tangier University Hospital does not require ethical approval for reporting individual cases or case series.

Consent for publication

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

Competing interests

The authors report no competing personal or financial interest related to this work.

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