

# Isolated Testicular Tuberculosis Mimicking Testicular Cancer: A Case Report and Literature Review

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## Abstract

Isolated testicular Tuberculosis (TB) is a rare clinical condition. A 36-year old male patient presented to our clinic with an 8-month history of a painless mass in the right testis. No sign of tuberculosis was present and the physical examination revealed a solid mass arising from the upper pole of the right testis. The chest radiograph, urine examination, and tumor markers were normal, and lactate dehydrogenase was elevated. Scrotal ultrasonography and magnetic resonance imaging revealed a contrast-enhancing mass, 15x10 mm in size, in the upper pole of the right testis with normal epididymis and testicular blood flow. Due to the possibility of diagnosis of right testicular cancer, right inguinal partial orchiectomy was performed. The patient presented with tuberculous granuloma with caseous necrosis in histopathological examination. The purified protein derivative test was positive (20 mm). No Acid-Resistant Bacilli (ARB) was found in culture of sputum and no tuberculosis bacilli were found in smear and culture. To date, no clinical method has been defined for the definitive diagnosis of such cases and the definitive diagnosis is only achieved by surgical exploration and histopathological examination.

## Introduction

Testicular tuberculosis may mimic testicular cancers particularly in apparently healthy patients with no other clinical symptoms or signs [1]. Extra pulmonary tuberculosis is important because presentations in patients may simulate malignant tumours with diagnostic and treatment challenges [2]. Genitourinary Tuberculosis (GUTB) and lymph node tuberculosis are the most common forms of extra pulmonary tuberculosis. Epididymis is the most common genital site of tubercular involvement, but testicular involvement is an unusual clinical condition [3]. In this report, a case with isolated testicular tuberculosis is presented due to its rarity and diagnostic difficulty and, we reviewed the related literatures.

## Case Report

A 36-year old man was admitted to our clinic in September 2014 with an 8-month history of a painless swelling in the right testis. The examination revealed a solid mass, 20x10 mm in size, in the right testis. The tumour markers, Alpha-fetoprotein (AFP) and  $\beta$ -Human Chorionic Gonadotropin ( $\beta$ -hCG) were normal and the urine examination, and tumor markers were normal, and serum Lactate Dehydrogenase (LDH) was increased (256u/l). The urine examination and hemogram and biochemical parameters were normal. Scrotal Ultrasonography (USG) revealed a heterogenic hypoechoic mass, 15x10 mm in size, in the upper pole of the right testis with normal testicular blood flow. Scrotal Magnetic Resonance Imaging (MRI) showed a testicular mass with infiltrative reticular pattern, 15x8 mm in size, extending towards the parenchyma at the level of epididymal head in the upper pole of the right testis, which was enhanced after intravenous injection and hypointense on T1- and T2-weighted sequences (Figure 1). No pathology was detected in the left testis and both epididymides. In light of these findings, partial orchiectomy was performed via right inguinal incision due to the preliminary diagnosis of testicular tumor (Figure 2). Histopathological examination revealed the presence of tuberculous granuloma with caseous necrosis (Figure 3). Langhans-type giant cells were present in the center of granuloma (HEx400) (Figure 4). Upon these findings, the patient was reevaluated in the line of tuberculosis. The patient had no history of tuberculosis, but his mother and uncle had been treated due to tuberculosis. No Acid-Resistant Bacilli (ARB) was found in culture of sputum and no tuberculosis bacilli were found in smear and culture. The Purified Protein Derivative (PPD) skin test was considered positive since the induration diameter was 20 mm. The thoracic computerized tomography (CT) revealed multiple fibrotic bands and Lymphadenopathy (LAPs) with a diameter <1 cm. Subsequently, the diagnosis of tuberculosis was confirmed and the patient was referred for treatment at the local tuberculosis treatment centre. Anti-tuberculosis treatment was started to the patient for 6 month.

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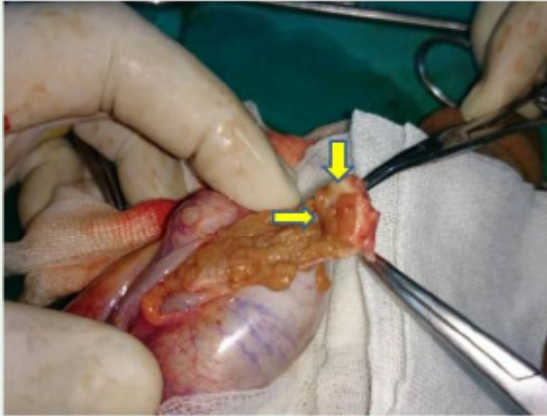


Figure 1: Partial orchiectomy was performed to take the Lesion.

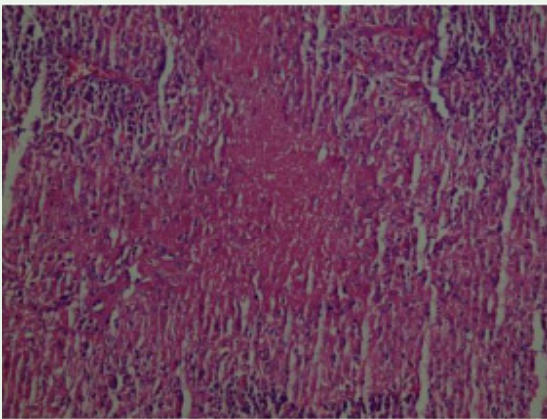


Figure 2: Tuberculous granuloma with caseous necrosis (Hex100).

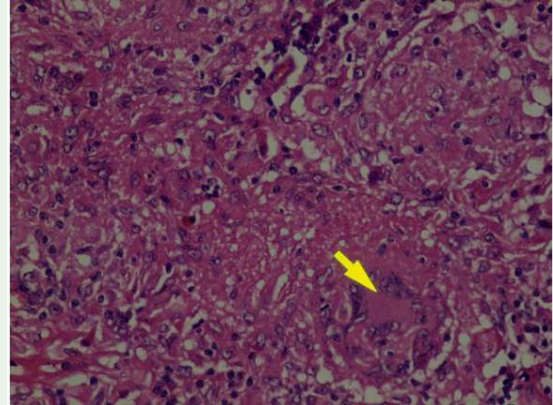


Figure 3: Langhans-type giant cells were present in the center of granuloma (HEX400).

## Discussion

Tuberculosis (TB) is an infectious disease which can attack any tissue or organ in the body. Extra pulmonary involvement is a common manifestation of tuberculosis, but it may rarely lead to atypical clinical pictures by the involvement of other organs. Tuberculosis with multiple organ involvement is more commonly seen in children, in the patients with immunosuppressive diseases such as AIDS, and rarely, as in our case, in the adults with normal immune system [4,5]. Cases of GUTB present with unusual manifestations. Although GUTB was the most common subtype of Extra Pulmonary Tuberculosis (EPTB) in the past, it was recently reported to account for less than 0.5% of all patients with EPTB and 1.5% of all patients with pulmonary tuberculosis. The mode of spread of TB to the scrotum is controversial, but is believed to occur by one of several mechanisms: hematogenous, retro urethral, lymphatic, and direct extension [3]. The most common presentation of GUTB in male patients is a scrotal or testicular mass, whereas the rarest presentation is a painful intra scrotal mass with a chronically discharging sinus [2]. These patients are diagnosed after the surgical excision of the mass [6,7]. In the treatment of GUTB, antibiotic therapy should be considered at the initial stage and a six-month regimen is reported to be effective and adequate in most cases [8]. Isolated TB orchitis is a rare manifestation of TB, which is difficult to diagnose because there is no pulmonary or renal involvement.

Therefore, the initial step in the diagnostic process is to investigate the history and background of the patient. For definitive diagnosis, positive culture and histopathological examination suggesting the presence of TB are needed [8]. TB orchitis may be diagnosed by fine-needle aspiration cytology of the testis [9], but this procedure may lead to the distribution of the disease to the scrotal skin and to the inguinal lymph nodes. Imaging techniques including USG and MRI can be effective in the diagnosis of TB. In USG, nonspecific signs of TB orchitis including tumors or infarctions can be viewed [10]. MRI, on the other hand, visualizes the epididymo-orchitis generally with heterogeneous areas of low signal intensity on T2-weighted images and may also visualize the hyper enhancing on contrast-enhanced T1-sequences and the heterogeneous enhancement of the testis with hypointense bands [11]. In the differential diagnosis of TB epididymo-orchitis, bacterial epididymo-orchitis as well as testicular torsion and sarcoid and testicular cancer should be kept in mind [10,11]. In the case presented, right inguinal partial orchiectomy was performed since the patient presented with a testicular mass suggestive of cancer, the scrotal USG and MRI confirmed the presence of tumour, and the tumour was <2 cm in size. Moreover, partial orchiectomy is suggested in the literature for the patients with a testicular tumour <2 cm in size [12,13]. In our patient, the diagnosis of isolated testicular TB was confirmed depending on the background of the patient which included a history of TB in his mother and uncle, positive PPD (20mm), and the presence of caseous necrosis in histopathological examination.

## Conclusion

Isolated testicular tuberculosis is a rare clinical condition. Investigating the background and performing a PPD in the patients, particularly in the patients with suspected epididymal lesion, may facilitate the diagnostic process. Clinical diagnosis of this situation is important to prevent unnecessary orchiectomy. But definitive diagnosis of isolated testicular tuberculosis is only achieved by surgical exploration and histopathological examination. Thereby we suggest partial orchiectomy for the patients with a testicular tumour <2 cm in size.

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