

# An isolated testicular tuberculosis mimicking testicular cancer in north-central Nigeria

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## SUMMARY

Testicular tuberculosis (TB) is a rare presentation of extrapulmonary TB. A 46-year-old man presented to our Urology clinic with a painless swelling of the right testis. Examination revealed a hard, non-tender swelling on the inferior pole of the testis that measured 3 x 2 cm. Scrotal ultrasound scan showed a complex mass with multiple hypoechoic lesions at the inferior pole of the right testis with dimension 2.4x1.7 cm.

Laboratory data showed elevated alpha fetoprotein and beta hcG and lymphocytosis. A diagnosis of

right testicular cancer was made and the patient had a right transinguinal radical orchidectomy. Histopathology result showed tuberculous granulomata with caseous necrosis surrounded by multinucleated giant cells (Langerhan's type).

The patient subsequently had anti-TB medications. The rarity of this condition makes these findings important to report.

*Keywords:* testis, tuberculosis, cancer.

## INTRODUCTION

Worldwide, tuberculosis (TB) continues to be the most important cause of death from a single infectious microorganism [1]. TB is caused by *Mycobacterium tuberculosis*, a tiny, aerobic, non-motile, and airborne bacterium that most often affects the lungs. Tuberculosis is curable and preventable [2]. Only a very small inoculum of the bacteria is required to cause infection [3]. The primary phase of *M. tuberculosis* infection begins with inhalation of the mycobacterium and ends with a T cell-mediated immune response that induces hypersensitivity to the organisms. Genitourinary tuberculosis (GUTB) is the second most common form of extrapulmonary tuberculosis after lymph node involvement [4]. Genitourinary tuberculosis is a common form of extrapulmo-

nary disease, it has been estimated to account for 6.5% of all cases [5]. Genitourinary TB may occur at any age, but it is more common between the third and fifth decade of life [6, 7]. Genitourinary tuberculosis (GUTB) usually results from the reactivation of old, dormant tuberculous diseases by pathogens of the *Mycobacterium tuberculosis complex* [3]. Testicular involvement is usually the result of local invasion from the epididymis, retrograde seeding from the epididymis, and rarely by hematogenous spread. Anti-TB chemotherapy comprising rifampicin, isoniazid, pyrazinamide, and ethambutol is the mainstay of treatment [7]. Although this is the first reported case of testicular TB in our institution, there have been a number of reports of testicular TB from other institutions in literature. In other regions within the country, Orakwe et al and Shugaba et al reported their cases stating need to differentiate testicular TB from other testicular lesions [8, 9]. In Mozambique, Namburete et al reported an uncommon testicular localization of disseminated TB in a HIV patient [10]. They went ahead to state that there are

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no well-defined clinical features suggestive of testicular TB, which makes the diagnosis difficult to establish, especially in low-income settings.

We report our first case of right sided isolated testicular TB mimicking testicular cancer in a 46-year-old male who had radical orchidectomy and anti-TB chemotherapy.

## ■ CASE REPORT

A 46-year-old government worker who was married with two children presented to our Urology clinic with a painless swelling of the right testis of six months duration. There was no preceding history of trauma to the testis, no weight loss or respiratory symptoms. He had no contact with a chronically-coughing adult in the past one year. He neither smoked cigarettes nor ingested alcohol. There was no family history of TB and cancer. The general examination was normal. Systemic examination was normal except for the right testis which revealed a hard, oval shaped, non-tender mass on the inferior pole of testis that measured 3x2 cm. It was not fixed with overlying scrotal skin, and able to get above the mass. There was no discharging sinus or scrotal ulceration. Scrotal ultrasound scan showed a complex mass with multiple hypoechoic lesions at the inferior pole of right testis with dimension 2.4x1.7 cm as



**Figure 1** - Ultrasound of the right testis showing complex mass with multiple hypoechoic lesions and reactive hydrocele.

seen in Figure 1. The laboratory investigations showed lymphocytosis and elevated tumour markers (alpha fetoprotein and beta human chorionic gonadotropin). The rest of blood and urine examinations were unremarkable. Chest x-ray, urea, electrolyte, creatinine and liver function tests were found to be normal.

Sputum microscopy for acid fast bacilli was negative. Tuberculin skin test and quantiferon done were negative for tuberculosis. Retroviral screening and Venereal Disease Research Laboratory (VDRL) tests were non-reactive. A clinical diagnosis of right testicular cancer was made, and the patient subsequently had a right transinguinal radical orchidectomy.

Postsurgical histopathology showed tuberculous granulomata with caseous necrosis surrounded by multinucleated giant cells (Langerhans type). Patient was given 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 4 months. He had a remarkable outcome. The rarity of this condition makes these findings important to report.

## ■ DISCUSSION

Worldwide, TB is a leading cause of mortality, especially in the developing countries which are TB endemic zones, like Nigeria. Wildbolz was the first to introduce the term 'genitourinary tuberculosis' [3, 11].

Tuberculosis usually begins with inhalation of the mycobacterium and ends with a T cell-mediated immune response that induces hypersensitivity to the organisms. In secondary and disseminated TB, there is re-infection with mycobacterium or reactivation of dormant disease, or they progress directly from the primary mycobacterium lesion into disseminated disease [9].

The mechanism of spread of tubercle bacilli to the testis is controversial. It is believed that testicular involvement is due to local or 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 [7, 9]. However, TB bacilli may also gain entry to the testis via the hematogenous and lymphatic spread [9].

The diagnosis of testicular TB is challenging es-

pecially in poor resource setting like ours. There are no well-defined clinical features suggestive of testicular TB, which makes the diagnosis difficult to establish. In our case, the clinical presentation was only the left sided hard, painful testicular swelling without any discharging sinus, scrotal involvement, or urinary tract symptoms. In a reported case from Japan by Sensaki et al. in 2001, it was shown that the presentation and findings of tuberculosis of the testis were similar to those reported in our case [12]. Shugaba et al. and Garbyal et al. reported cases of isolated TB orchitis presenting with scrotal ulceration [9, 13].

Case reports from Chirindel et al and Abraham et al showed a similar finding of isolated testicular TB mimicking testicular cancer [14, 15]. Jumbi et al reported the same in a six-month-old baby [16].

Although ultrasound of testis is a useful investigation in the diagnosis of TB orchitis, it is non-specific and mimics non-specific infection, inflammation, tumour, trauma and infarct [17]. The ultrasound scan finding of our case revealed a complex mass with multiple hypoechoic lesions at the inferior pole of right testis with dimension 2.4x1.7 cm. There is associated hydrocele. This is consistent with finding by Das et al. [7].

Testicular fine needle aspiration cytology (FNAC) was not done for our patient because of the initial pre-operative diagnosis of right testicular cancer. FNAC is not a routine investigation for testicular cancer [18]. FNAC is usually contra-indicated, in order to avoid potential involvement of scrotal wall by testicular neoplasms. If a biopsy is indicated, it is usually obtained by inguinal exploration of the testicle. On the other hand, FNAC has a role in diagnosis of testicular TB thereby preventing unnecessary orchidectomy [13, 19, 20]. FNAC also has a role in bilateral testicular neoplasms and lesion in a solitary testis. FNAC is less traumatic and easy to carry out, but it requires considerable practice in its execution and in the interpretation of the aspirates [18].

The treatment of testicular TB is a six-month multidrug regimen including rifampicin, isoniazid, pyrazinamide, and ethambutol (RIPE) for an initial 2-month period followed by 4-month period of isoniazid and rifampicin [2]. Our patient was administered such regimen despite the radical orchidectomy to prevent further dissemination of disease.

In conclusion, although it is a rare disease, tuberculosis of the testis should be considered as a possible differential of a testicular cancer. This will help in prompt diagnosis and early management thus with good outcome.

#### Conflict of interest

None

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