

## Case report

### May a prostate nodulation be tuberculosis: a case report



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#### Abstract

Tuberculosis (Tb) is not an exclusive disease of developing countries anymore. Actually, Tb infections began increasing in developed countries. Isolated prostate tuberculosis is rare and often it may mimic prostate cancer especially in the elderly. Diagnosis of prostate tuberculosis depends on histopathological examination and treatment is essentially antibacillary. A literature review showed that the recrudescence of this infection is due to the emergence of resistant bacilli, human migration and the AIDS epidemic. Greater knowledge of this infectious disease is relevant in both developed and developing countries. Authors report herein the case of 78-year-old immune-competent man who presented with lower urinary tract symptoms. Clinical examination revealed an enlarged prostate with firm consistency and one firm nodulation. Prostate cancer was suspected despite a normal PSA rate. The patient underwent a transrectal biopsy and histological examination showed tuberculosis lesions. No other location of tuberculosis was found.

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## Introduction

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Tuberculosis (Tb) is an infectious disease caused by *Mycobacterium tuberculosis*. It generally affects the lungs, but can also affect other sites [1]. According to the World Health Organization (WHO), one-third of the world's population is currently infected with *Mycobacterium tuberculosis* [2]. Recrudescence of this infection is due to the emergence of resistant bacilli, human migration and the AIDS epidemic [3]. Urogenital TB (UGTB) is the second most common form of extrapulmonary Tb in countries with severe epidemic situation and the third most common form in regions with low incidence of Tb [2]. We report the case of a 78-year-old immunocompetent male who presented an isolated prostate tuberculosis mimicking a cancer with normal PSA rate. We also analyzed the clinical data and reviewed the relevant published literature and present our findings. We performed a bibliographic search on different databases: PubMed, ScienceDirect using the following keywords and MeSH: "Tuberculosis, urogenital", "Prostate" and "Neoplasms". Afterwards a complementary search in Google Scholar was made.

## Patient and observation

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Mr AE is a 78-year-old male who consulted for progressive lower urinary tract symptoms involving dysuria, nocturia and frequency lasting for 8 months. During this period the patient lost 6kg. Digital rectal examination (DRE) revealed an enlarged prostate with firm consistency and one firm nodulation. Prostate specific antigen (PSA) concentration was: 2,87ng/ml. Urinalysis found no leukocyturia or pyuria. Urine culture with specific test for acid-alcohol resistant bacilli was negative. The prostate ultrasound showed an enlarged heterogeneous prostate and it weighs almost 45g. The rest of the clinical and biological examination was negative. Due to the age of our patient, DRE findings and the normal rate of PSA, three

diagnoses were raised: poorly differentiated prostatic adenocarcinoma, neuroendocrine tumor and chronic prostatitis. We performed a transrectal ultrasound-guided (TRUS) biopsy of the prostate. The histopathological examination evidenced the presence of epithelioid cell granulomas and giant Lang-Hans cells with foci of caseous necrosis, in favor of an evolutive caseo-follicular tuberculous prostatitis (Figure 1, Figure 2, Figure 3). The patient was vaccinated with *Bacillus Calmette-Guérin* (BCG) in childhood and had no personal or family history of tuberculosis. Human Immunodeficiency Virus (HIV) serology was negative and no other location of tuberculosis was found. The patient had received his antibiologic treatment according to the national anti-tuberculosis regimen: an intensive two-month phase (rifampicin, isoniazid, pyrazinamide and ethambutol) followed by a four-month phase (rifampicin, isoniazid).

## Discussion

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Tuberculosis has a worldwide distribution, it is estimated that 30% of the world's population are carriers of *Mycobacterium tuberculosis* [3]. The recrudescence of the infection is due to the emergence of resistant bacilli, human migration and the AIDS epidemic [3]. Extrapulmonary sites are involved in 50% to 70% of immunocompromised patients, especially HIV patients [4]. Prostate Tb is rare and often touches immunocompromised patients [5,6]. Jasmin was the first author to describe prostate tuberculosis in 1882 [7]. The isolated form remains rare even in countries where Tb is endemic, as evidenced by the rarity of observations published in the literature [7]. It seems that the prostate contamination is of haematogenous origin more than through the urinary system [3,6]. Recent studies have shown that Tb can even be sexually transmitted [2]. The bacillus of tuberculosis is present in the ejaculate of 0.08% of patients with pulmonary tuberculosis. This rate reaches 48.5% in patients suffering from tuberculosis, hepatitis and syphilis simultaneously [2,8].

Diagnosis of prostate tuberculosis is challenging because it is usually asymptomatic and found after a transurethral resection [2,3]. Nevertheless, sometimes it could present with nonspecific symptoms such as dysuria, frequency and nocturia [7].

It can also lead to chronic pelvic pain and alter the quality of life [6,9]. DRE reveals an enlarged prostate, sometimes with nodulations and even hard consistency [10]. These characteristics are shared with prostate cancer and benign prostate hyperplasia (BPH). Only DRE abnormalities conducted us to perform the TRUS biopsy in our case. PSA may be increased in one third of cases [11]. Pyuria plus hematuria with sterile cultures are common urinary finding [4]. The bacillus can rarely be found in the urine [3]. Polymerase chain reaction (PCR) for mycobacterium tuberculosis identification in the urine, is a highly sensitive and specific technique [3], but it is still not totally accessible in developing countries. Isolated prostate tuberculosis is rare, so, it is necessary to make general clinical, biological and radiological examination to look for urogenital and pulmonary tuberculous localizations [2]. Imaging examination could help for the diagnosis. Transrectal ultrasound usually finds an irregular prostate with hypoechoic lesions in the peripheral zone [2]. Computed Tomography (CT) scan finds hypodense lesions with cavities of caseous necrosis, calcifications could sometimes exist [6].

In absence of calcifications, the appearance of these lesions is similar to pyogenic prostatic abscess [12]. It has the advantage of being able to analyze the rest of the urogenital tract and to be able to detect other tuberculous localizations. Magnetic Resonance Imaging (MRI) findings can be separated into two types: multiple nodular pattern represented by several small nodules in the peripheral zone and diffuse pattern where the whole peripheral zone is affected by hypointense bands in T2 [13]. MRI may be useful for follow-up of patients after anti-tubercular treatment [13]. The diagnosis is usually made by histopathological examination [3,12]. Tuberculous lesions

typically sit in the peripheral zone with often caseous necrosis and calcifications [3,6]. Treatment of prostate tuberculosis depends especially on antibacillar drugs [3,7]. Their protocols vary from a country to another depending on epidemiologic situations. Surgical treatment is indicated for patients with no favourable response to antibacillar drugs or with an obstruction in the low urinary tract [7]. Most authors recommend a 10-year follow-up period after pharmacological treatment, because of the possibility of late relapse [3].

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## Conclusion

Our case emphasizes once again the primordial role of digital rectal examination for the management of prostatic diseases. Despite the rarity of isolated prostate tuberculosis, it poses a problem of differential diagnosis with prostate cancer especially in the elderly even with normal PSA rate. The diagnosis depends on histopathological examination and the treatment is essentially antibacillary.

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## Competing interests

The authors declare no competing interests.

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## Authors' contributions

Study concept and design: Kharbach Y and Khallouk A; data analysis: Kharbach Y, Khallouk A; drafting of manuscript: Kharbach Y and Khallouk A; critical revision of the manuscript: Khallouk A. All the authors have read and agreed to the final manuscript.

## Figures

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**Figure 1:** microscopic examination showing granuloma and caseum

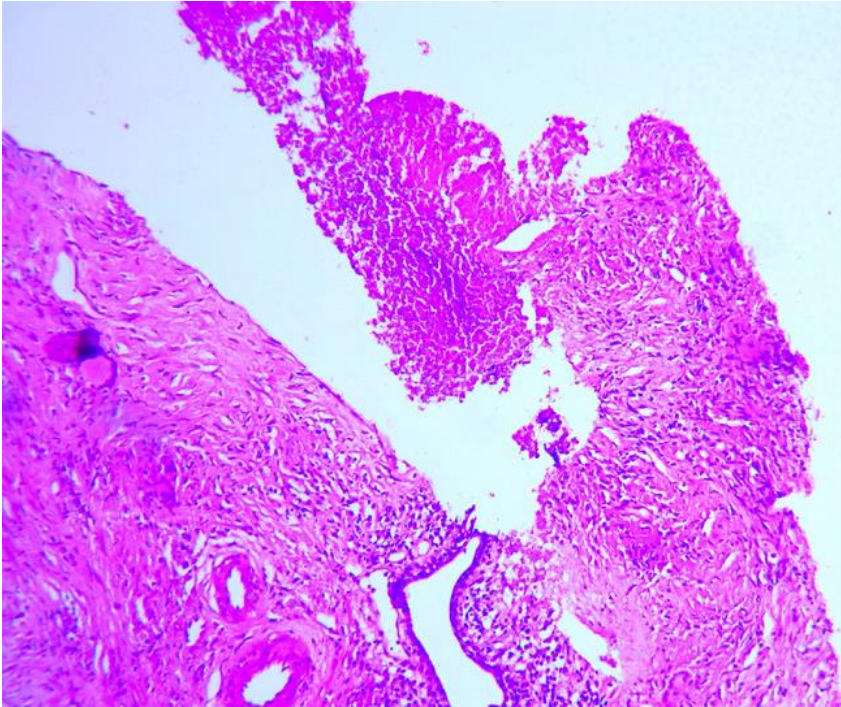
**Figure 2:** epithelioid cell granuloma and giant langhans cells with foci of caseous necrosis

**Figure 3:** prostate tuberculosis

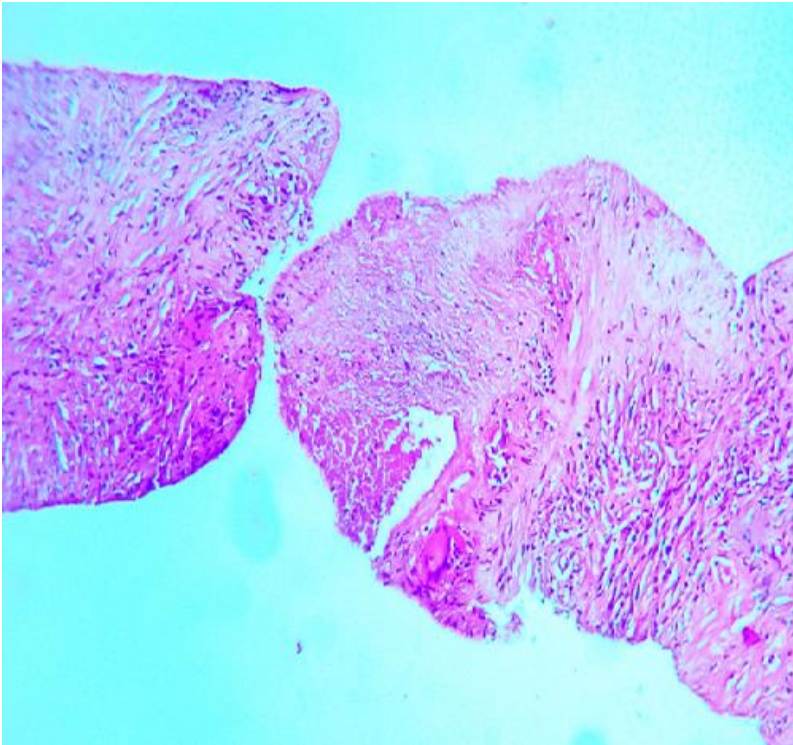
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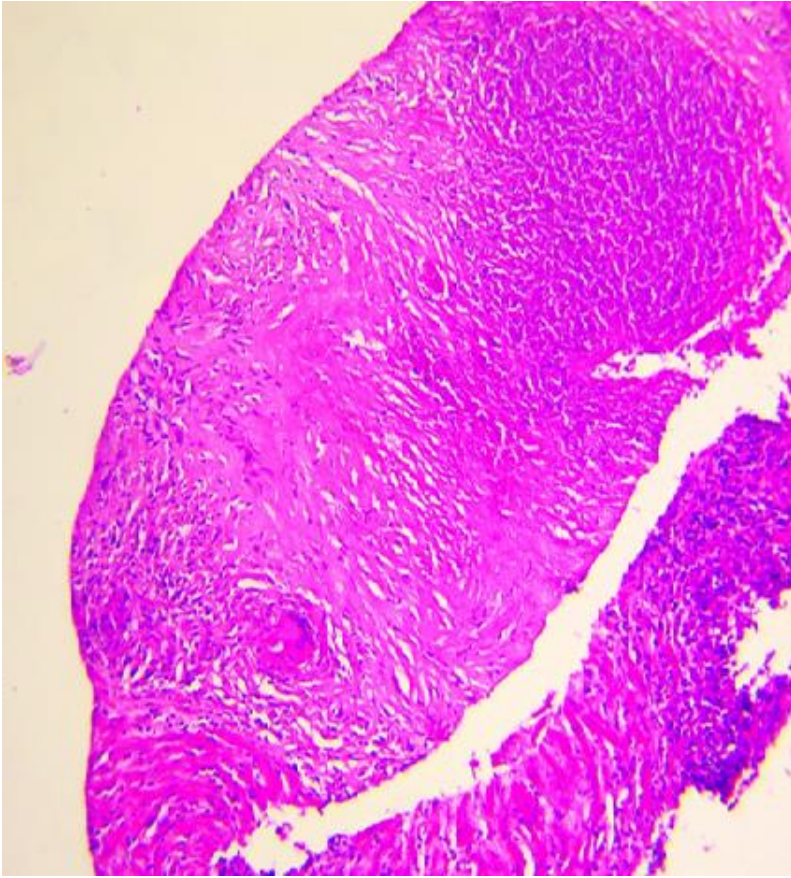


**Figure 1:** microscopic examination showing granuloma and caseum



**Figure 2:** epithelioid cell granuloma and giant lang-hans cells with foci of caseous necrosis





**Figure 3:** prostate tuberculosis