Inflammation and infection

Pauci-symptomatic disseminated tuberculosis revealed by an increase in the specific antigen of the prostate

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ABSTRACT

Tuberculosis remains a leading cause of morbidity and mortality in developing countries, including my country. It usually affects the lungs, but it can also affect other parts of the body. Its prostatic location is very rare, described for the first time by Jasmin in 1882. The diagnosis of certainty requires positive cultures, Ziehl - Nielsen staining, PCR and/or histological examination. Therapeutically, antituberculous chemotherapy has radically transformed the management of tuberculosis, and is currently the basis of treatment for this condition. We report an original observation of pauci-symptomatic disseminated tuberculosis revealed by an increase in the prostate specific antigen (PSA).

Introduction

Tuberculosis is a real public health problem in developing countries. Its prostatic location is very rare, described for the first time by Jasmin in 1882. Its incidence is estimated at 6.6% of UGT according to Scoth of the Brady Urological Institute of Baltimore. It can be associated with other known localizations of the disease or more exceptionally be isolated.

We report an original observation of pauci-symptomatic disseminated tuberculosis revealed by an increased PSA level.

Case presentation

Mr A.Y aged 73, was referred to our department for an increased PSA to 14.78ng/ml. His past medical history included a triple-bypass surgery and seronegative rheumatoid arthritis treated with Adalimumab and corticosteroids. He was followed up by the infectious diseases department for a persistent fever which motivated the prescription of a CAT-Scan that led to the discovery of multiple diffuse pulmonary nodules and mediastinal adenopathies. Following these findings, the patient underwent a bronchoscopy that found no evident etiology. The cytology was negative and the bronchoalveolar lavage smears for acid-fast bacillus (AFB), yeast and aspergillosis were also negative. Viral and bacterial PCR and aspergillus serology were negative. Following these investigations, the diagnosis retained was either Adalimumab-induced interstitial pneumonia or pulmonary involvement of rheumatoid arthritis.

Our patient reported during the medical interview urinary hesitancy and urinary urgency which were improved by taking alpha-blockers. The DRE found an enlarged prostate with the presence of a firm nodule in the right lobe of the prostate ranked as T2b. The multiparametric MRI showed a nodular image which measures 13 mm in the right peripheral zone, without capsular effraction, classified PI-RADS 4 (Fig. 1).

Prostate cancer was suspected based on the clinical and radiological findings as well as the increase in PSA. A transrectal prostate biopsy was performed. Histology invalidated the existence of any neoplastic formation with the presence of caseous necrotizing granulomatous inflammation accompanied by multinucleated giant cells and lymphocytes characteristic of prostatic tuberculosis (Fig. 2).

A general assessment looking for other associated tuberculosis locations was requested. Urine and sputum were tested for AFB and remained negative. The CT urogram was normal and the thoracic CAT-scan showed persistent multiple bilateral nodules (Fig. 3). The interferon-γ release assay was positive. A second bronchoscopy with bronchial biopsy was performed and the samples were tested for AFB and remained negative.

The patient case was assessed in a multidisciplinary concertation meeting that recommended prescribing a treatment regimen including rifampicin, isoniazid and pyrazinamide. The mandatory declaration was made according to the usual procedures. A few weeks later, the patient reported neck pain without any particular irradiation or sensory motor
deficit. Cervical MRI had shown a large C4–C5 infiltration centered on the disc, which could evoke tuberculous spondylodiscitis given the context.

The diagnosis of disseminated tuberculosis (prostatic, pulmonary and osteoarticular) was made after discussion in a multidisciplinary concertation meeting, where the decision to continue the initial treatment regimen for 4 months then relay by the association of rifampicin and isoniazid for 5 months was made.

Discussion

Tuberculosis is an ancient disease that has affected humanity for more than 4000 years. It is a chronic disease caused by the bacillus *Mycobacterium tuberculosis*. It usually affects the lungs, but it can also affect other parts of the body. Its genitourinary location represents 5–10% of extrapulmonary TB cases in developed countries and 15–20% of cases in developing countries. However, isolated prostatic tuberculosis is extremely rare, as evidenced by the scarcity of observations published in the literature, especially in immunocompetent patients, and most cases are detected incidentally. Prostatic involvement is often secondary to tuberculosis of the upper urinary tract. But it can also be primary or secondary to epididymal or bladder tuberculosis. Prostatic tuberculosis secondary to treatment by intravesical instillations of BCG immunotherapy for superficial bladder cancer has also been reported.

Diagnosis of prostatic tuberculosis is often difficult because patients are initially asymptomatic or have non-specific signs of lower urinary tract obstruction such as dysuria, pollakiuria and pelvic gravity. Sometimes the disease spreads rapidly and glandular destruction reduces the volume of sperm causing hematospermia. Advanced cases may present perineal fistulae. DRE can find irregular prostatic nodules, tense and bumpy seminal vesicles. However, the DRE data are of no specific character and can lead to confusion with adenoma or prostate cancer.

The examination of the external genitalia must be attentive to the search for an epididymal nodule, a scrotal fistula, a mass or a moniliform vas deferens. Urinalysis and urine culture are generally negative. PSA can be normal or increased.

Ultrasound often finds an enlarged heterogeneous prostate with sometimes areas of calcification and necrosis. Endorectal ultrasound gives a clearer image and guides the biopsy. As for CT, it can reveal multiple hypodense lesions in spontaneous contrast with peripheral enhancement after intra-venous contrast injection. However, non-tuberculous prostatic abscesses may present similar features.

The diagnosis of certainty requires positive cultures, Ziehl - Nielsen staining, PCR and/or histological examination. However, staining has a low sensitivity, especially in extrapulmonary tuberculosis, and cultures...
require up to 8 weeks for maximum sensitivity. PCR allows rapid identification of the bacillus by detecting DNA fragments in the urine with a sensitivity and specificity of 95.59% and 98.12% respectively.

Therapeutically, anti-tuberculosis chemotherapy has radically transformed the management of urogenital tuberculosis and is currently the basis of treatment for this condition. Surgical treatment finds its indications in cases where there is an obstruction of the urinary tract or the occurrence of complications.

Conclusion

TB remains a leading cause of morbidity and mortality in developing countries. Its prostate location is rare, difficult to diagnose and often poses a problem of differential diagnosis with benign prostatic hyperplasia and prostate cancer. The treatment is mainly medical and is based on antibacillary chemotherapy. The originality of our observation lies in the mode of revelation of this pauci-symptomatic disseminated tuberculosis, from an increased PSA contrasting with negative results of cytological, bacteriological and serological explorations.

Author contribution

All authors have contributed to this work and have read and approved the final version of the manuscript.

Declaration of competing interest

None.

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