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Case report

Disseminated tuberculosis with prostatic abscesses in an immunocompromised patient—A case report and review of literature

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ABSTRACT

We describe a case of disseminated *Mycobacterium tuberculosis* (mTB) with prostatic abscess in a newly diagnosed HIV patient in the United States. The patient is a 34 year-old male who presented with respiratory symptoms and was diagnosed with HIV/AIDS complicated by disseminated mTB infection of the lungs, liver, and prostate. His prostate showed abscess formation on imaging that required drainage however he did not present with any genitourinary complaints. Our literature review revealed that prostatic involvement in mTB in the form of granulomatous prostatitis is uncommon; however, abscess formation is extremely rare and only few such cases have been published. Nearly 50% of the patients with prostatic abscess formation present without symptoms and therefore a high level of suspicion should be maintained; imaging should be performed early and prophylactic antibiotics for non-specific urinary symptoms should be avoided as this may lead to drug resistance of mTB to flouroquinolones.

Introduction

Disseminated tuberculosis is defined as the spread of *Mycobacterium tuberculosis* complex (mTB) to one or more organs via hematogenous or lymphatic spread [12]. Even though pulmonary system involvement is most common, extrapulmonary involvement is seen in 10% of cases. Of which 30–40% of the patients with extrapulmonary involvement will present with genitourinary tuberculosis (GU TB) [9]. Amongst the GU organs, prostatic TB is less common (<5%). Overall, the largest study of prostatic TB prevalence was done by Sporer et al. where 100 cases of prostatic TB were identified out of 728 disseminated TB autopsy cases [28]. These cases included prostatic involvement in the form of granulomatous prostatitis and prostatic abscesses. Prostatic abscesses are less common and only 5 such cases have been reported in the United States [10,11,15,24,29,30]. In this case report, we present a case of disseminated TB, including a prostatic abscess, in a patient with new diagnosis of HIV. In addition, we review the literature on prostatic abscess formation by mTB to identify prevalence, symptomatology, treatment and prognosis of these patients.

Case report

A 34-year-old Indonesian male presented with a four week history of diffuse abdominal pain, nausea, vomiting, odynophagia, dyspnea on exertion, and a 20-pound unintentional weight loss. The patient had a past medical history significant for intravenous drug abuse, alcohol abuse and 15 packs per year smoking history. The patient had moved to United States from Indonesia 7 years ago. Physical exam revealed a cachectic male with oropharyngeal candidiasis and crackles bilaterally. Diffuse abdominal tenderness on palpation was also noted. Laboratory studies revealed a normal complete blood count (CBC), hyponatremia with sodium of 122 mEq/L, and abnormal liver function tests: AST 442 U/L, ALT 150U/L, and ALP 295 U/L. A fourth-generation HIV antigen/antibody test (Abbott Laboratories) was confirmed positive with a MultiSpot positive for HIV-1 antibodies. Hepatitis C antibody testing was also reactive. Additional testing revealed a CD4 count of 2 cells/mm^3 and a HIV-1 titer of 427,000 copies/ml determined by a Quantitative HIV-1 RNA PCR assay (COBAS AmpliPrep/COBAS Taqman Analyzer, v2.0, Roche Diagnostics). Chest imaging was concerning for either multifocal pneumonia and/or possible opportunistic infection (Fig. 1A). Abdominal CT revealed necrotic mesenteric lymphadenopathy (Fig. 1B), micro-abscesses in the

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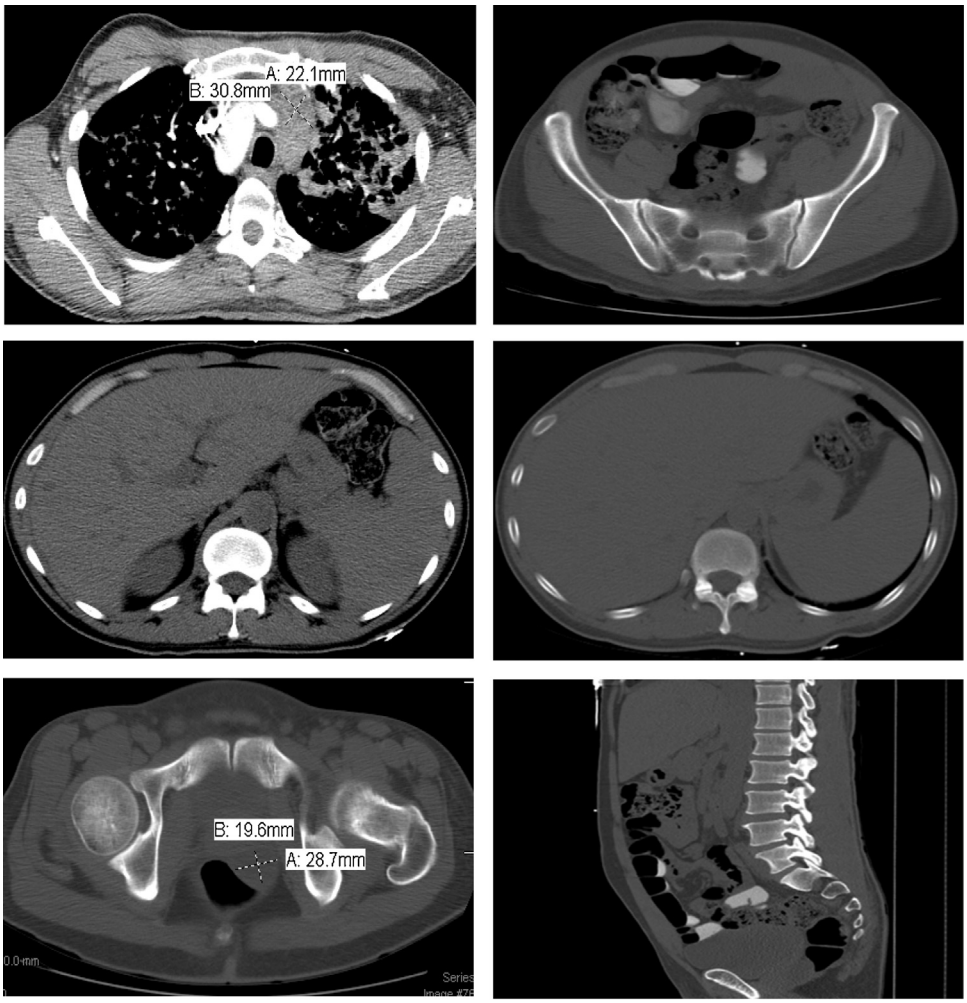

Fig. 1. (A) CT chest showing patchy involvement of the lung with nodules, one shown here measuring 3.1 cm in greatest dimension. (B) CT abdomen and pelvis showing multiple low attenuation left sided mesenteric lymph nodes measuring 2.5 × 2.4 cm suggestive of necrotic lymphadenopathy (C) multiple microabscess of the liver (D) Mild splenomegaly at 12.5 cm (E) Enlarged prostate with heterogeneous low attenuation area with 2.9 cm × 2.0 cm area of fluid attenuation at the left posterior aspect that appears to arise from the prostate concerning for abscess, axial plane (F) prostatic abscess, sagittal plane.

liver (Fig. 1C), and a 2.9 × 2.4 × 2.0 cm fluid attenuation collection posterolateral to the prostate suggestive of an abscess (Fig. 1D-E). Urine analysis showed 2+ protein, 1+ urobilinogen, 3 red blood cells, and 2 white blood cells. Multiple routine urinary cultures showed no growth. Three sputum samples were collected and all showed 4+ acid-fast bacilli (AFB) (> 36 AFB organisms per field of view at 400 × magnification) by auramine-rhodamine stain and grew pure *Mycobacterium tuberculosis* complex in less than 7 days post-collection in the BACTEC ™ Mycobacterial Growth Indicator Tube (MGIT). Following culture, drug sensitivity testing was performed, and the mTB isolate was susceptible to first line drugs, including isoniazid (MIC-0.2 mcg/mL), rifampin (MIC-1.0 mcg/mL), ethambutol (MIC-5.0 mcg/mL), pyrazinamide (MIC-100 mcg/mL) and streptomycin (MIC-2.0mcg/mL). The patient was started on rifampin–300 mg twice daily, isoniazid–300 mg daily, pyrazinamide–1500 mg daily and ethambutol–1200 mg daily (RIPE therapy). Antiretroviral therapy was not initiated at this time. Twelve days later, on follow-up imaging, the prostatic abscess remained unchanged and a CT guided approach was utilized to drain the abscess. Purulent fluid (2 mL) was drained and sent for AFB culture. The purulent fluid revealed 4+ AFB by auramine-rhodamine stain (Fig. 2A) and grew *mTB complex.* The direct Kinyoun stain is shown in Fig. 2B. Patient clinically improved on RIPE therapy and was discharged with isolation precautions. 3 weeks post discharge, antiretroviral therapy with dolutegravir and Truvada (HAART) was initiated. Post-discharge (28 days), the patient was brought to the emergency department with acute onset of drowsiness and incomprehensible speech. The patient had been compliant with his medications. At this point, differential diagnosis of Immune reconstitution inflammatory syndrome (IRIS), and a new opportunistic infection including toxoplasmosis were considered. MRI of the brain revealed multiple ring enhancing lesions with surrounding edema in the cerebral hemispheres bilaterally, the midbrain, and the cerebellar hemispheres bilaterally as well (Fig. 3A,B). The patient was started on steroids, empiric toxoplasmosis therapy with pyrimethamine, sulfadiazine, and folinic acid. HAART and mTB therapy were continued. A lumbar puncture was performed that showed cerebrospinal fluid glucose of 54, protein of 116, RBC count of 7, and WBC count of 0. The cryptococcal antigen was non-reactive. Toxoplasmosis IgG was >5; however, *Toxoplasma gondii* PCR was negative. The patient's hospital stay was also complicated by both hyponatremia and also hypertension attributed to SIADH. The patient gradually improved on the aforementioned therapeutic