

Case report

Splenic tuberculosis in a patient with newly diagnosed advanced HIV infection



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ABSTRACT

The extra-pulmonary tuberculosis (TB) constitutes to about 20% of all TB cases. Among extra-pulmonary form, splenic TB is very rare clinical condition especially as initial manifestation in a developed country. Diagnosis of splenic TB is challenging because it presents no specific symptoms or typical imaging findings and microbiological confirmation is not straight forward.

We describe the case of a 55 year old Italian female with advanced HIV infection whose first AIDS clinical manifestation was a TB splenic abscess. On CT, the lesion was multilocular, hypovascular, 34 mm large, and presented contrast enhancement and a spoke wheel pattern; it was initially considered a cystic formation of parasitic nature. In this patient clinical manifestations were nonspecific (nightly fever, weight loss, and fatigue); as diagnostic imaging could not pinpoint the underlying etiology, microbiological and molecular examinations of spleen abscess drainage proved pivotal for the diagnosis. The patient improved clinically with antitubercular therapy.

The rarity of splenic tuberculosis in an European patient coupled with the involvement of the spleen in isolation and outside the "miliary" setting prompted us to report this case.

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Introduction

In the 1980s, after a steady decline during former decades, there was a recrudescence in the rate of tuberculosis (TB) in developed countries that coincided with the beginning of the Acquired Immunodeficiency Syndrome (AIDS) epidemic [1]. While pulmonary TB is the most common manifestation, disseminated and extra-pulmonary diseases have recently increased in frequency [2]. Up to 70% of patients with tuberculosis and HIV infection develop extra-pulmonary disease, most of the times with renal, cerebral or osteoarticular involvement [3]. Abdominal dissemination is typically localized in the lymph-nodes. Among extra-pulmonary forms, splenic TB is a rare entity which usually occurs in developing countries. This form of TB is usually seen as a part of miliary TB, but is infrequently encountered as an isolated or initial manifestation [4–6]. Furthermore, it presents no specific symptoms or typical imaging findings.

Case report

We describe the case of a 55 year old Italian female with an AIDS diagnosed in June 2015. At diagnosis, CD4 cell count was 20/mm³ and plasma HIV-1-RNA was 796,000 copies/mL. Antiretroviral treatment with elvitegravir/cobicistat/emtricitabine and tenofovir disoproxil ([®] Stribild) was initiated.

The patient was subsequently hospitalized in our Department in September 2015 for fever, weight loss, and fatigue. Her blood tests at admission revealed pancytopenia, increased inflammatory markers: ESR 63 mm/h (normal <20), CRP 15.55 mg/dL (<0.75), procalcitonin 38.28 ng/mL (<0.05). Hepatitis C was also diagnosed (genotype 1a, HCV-RNA 500 IU/mL) with normal AST and ALT and slightly elevated alkaline phosphatase and gamma-glutamyl-transpeptidase. An abdomen ultrasound revealed two small liver lesions and one spleen lesion with an apparent hypoechoic/hypodense cystic appearance.

She denied any history of tuberculosis but a high-resolution chest CT revealed a nodular, centrally calcified lesion (10 mm in size) of the posterior-apical segment of the left upper lobe, attributable to the outcome of a tuberculosis Ghon complex, and absence of mediastinic lymphadenopathy. Brain CT was negative.

Abdominal CT revealed splenomegaly (15 cm in size) with the presence of multiple nodular formations. The largest formation

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was multilocular, hypovascular, 34 mm large, presented contrast enhancement and a spoke wheel pattern (Fig. 1a and b); it was initially considered a cystic formation of parasitic nature.

The CT also indicated the presence of two hypodense nodular lesions of 8 mm and 3 mm in the liver as well a cystic lesion. No abdominal lymph nodes were noted. Serology for *Echinococcus* and *Leishmania* proved negative. Quantiferon TB Gold interferon gamma release assay gave an undetermined result.

Since the lesions presented similar characteristics, a needle aspiration biopsy was attempted on the largest hepatic formation. The extracted material proved insufficient for a diagnosis.

The patient then underwent another needle aspiration biopsy, this time of the splenic lesion; the aspirated material was purulent in nature and routine bacterial and fungal cultures were negative.

Ziehl-Neelsen stain of smears prepared from the aspirated material revealed the presence of a huge number of clustered acid-fast bacilli (Fig. 2).

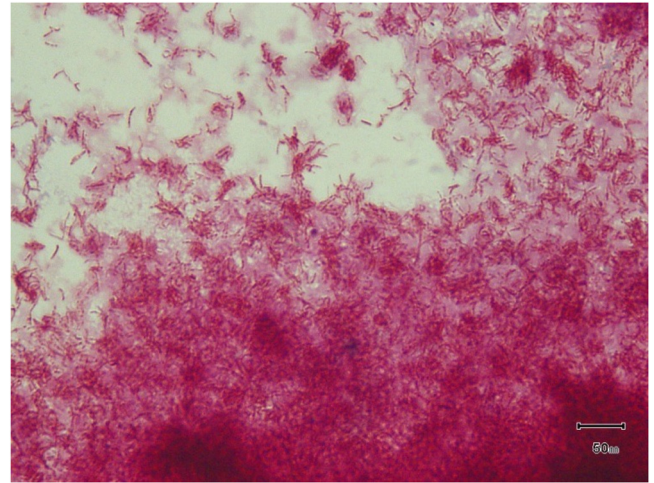


Fig. 2. Ziehl-Neelsen stain of splenic aspirated material.

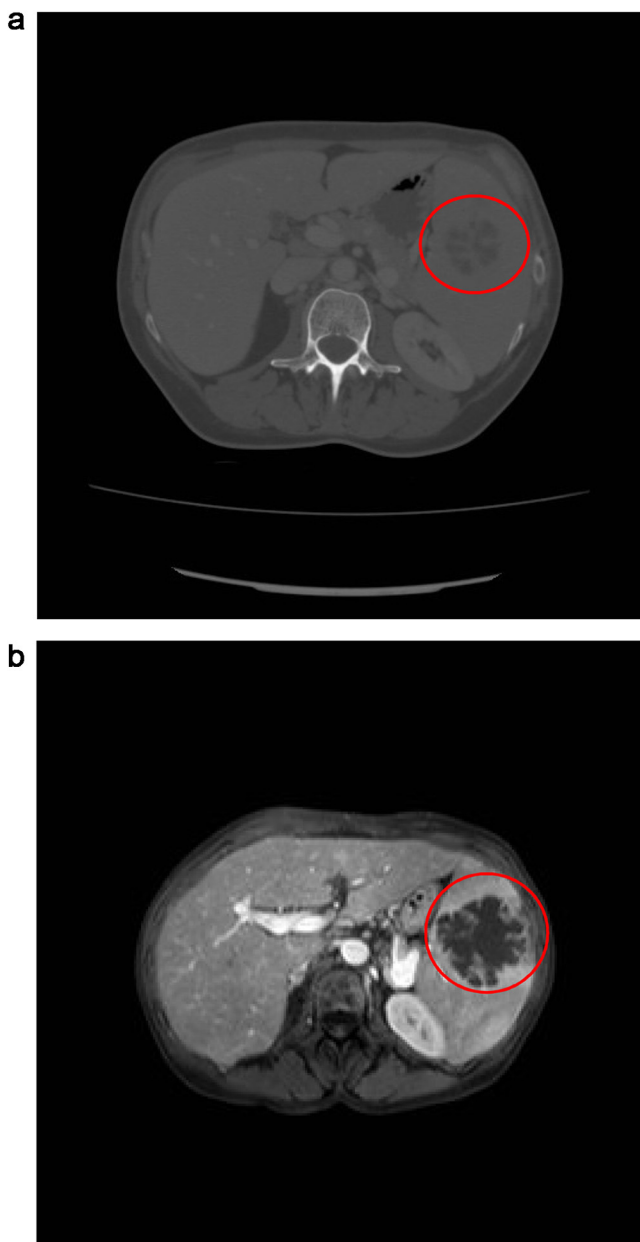


Fig. 1. (a) TB splenic abscess appearance on a noncontrast CT. (b) TB splenic abscess on abdominal MRI.

Mycobacterium tuberculosis complex was detected by the BD ProbeTec ET *Mycobacterium tuberculosis* Complex strand displacement amplification assay (DTB test, Becton Dickinson, USA), performed directly on the sample [7,8].

Continuous-monitoring cultures of abscess fluid in liquid Middlebrook 7H9 medium (BD MGIT™ 960 Becton Dickinson) flagged positive within 48 h, and molecular identification was performed by reverse hybridization multiple DNA probe assay (INNO-LiPA MYCOBACTERIA v2 Innogenetics, Ghent, Belgium). The isolate was sensitive to all first-line drugs for *M. tuberculosis*. Prior to the institution of anti-tuberculous therapy, the patient underwent a splenectomy for a suspected splenic rupture. Her postoperative progress was complicated by bilateral pleural effusions, more on the left, that required drainage. The pleural fluid cultures were negative including PCR and culture for *M. tuberculosis*.

Anti-tuberculosis treatment with four drugs (isoniazid, ethambutol, rifampin and pyrazinamide at full dosage) was started, with rapid reduction of the hepatic lesions and improvement of her general state. At the time of splenic TB diagnosis her CD4 cell count was $43/\text{mm}^3$ and plasma HIV-1-RNA was not detectable. Two months later, the HIV viral load remained undetectable and the CD4 cell count had risen to $108/\text{mm}^3$ without any symptoms attributed to IRIS.

Her general clinical conditions has greatly improved both subjectively and objectively with some weight gain and improvement in her mood and she has returned to work.

Conclusions

In this HIV-1 infected patient with low CD4 count, splenic and possibly hepatic tuberculosis were the first manifestations of AIDS. Splenic TB, especially as an abscess, is very unusual and even more so in developed world [5,9]. The diagnosis of splenic TB can be difficult and often delayed, as the clinical and radiologic features, as in this case, are nonspecific, presenting as evening fevers, weight loss and fatigue with diagnostic imaging that could not help in the diagnosis which required splenic abscess drainage for diagnosis [10,11]. Unlike other reports, in HIV negative patients [12,13], the microscopic examination in this case revealed a massive burden of acid-fast bacilli. Molecular assays continue to prove to be a valuable tool for rapid diagnosis of *M. tuberculosis* infections.

Conflict of interest

No conflict of interest to declare.

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