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Case Report

Splenic Abscess, a Rare Presentation of Extrapulmonary Tuberculosis

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Abstract

The splenic abscess is a rare entity, frequently associated with immunosuppression syndromes, and often to less common microorganisms. Tuberculosis affects mainly the lung, but it may present as a miliary form, spreading through other organs. There are a few cases of splenic tuberculosis reported in the literature worldwide, but because of the unusual evolution and method of diagnosis in this case (after splenectomy), we reporta female patient with multiple splenic abscesses as an extrapulmonary manifestation of tuberculosis.

ABBREVIATIONS

AIDS: Acquired Immunodeficiency Syndrome; HBV: Hepatitis B Virus; HCV: Hepatitis C Virus; ANA: Antinuclear Antibodies; ESR: Erythrocyte Sedimentation Rate; CECT: Contrast Enhanced Computed Tomography; PCR: Polymerase Chain Reaction; IGRA: Interferon Gamma Release Assay; WHO: World Health Organization; BCG: Bacillus Calmette-Guérin; FNAC: Fine Needle Aspiration Cytology; AARB: Acid-Alcohol Resistant Bacilli

INTRODUCTION

The splenic abscess is a rare entity, with an incidence of 0,7% described in autopsy series [1]. When associated to immunosuppressive syndromes, the associated mortality can be as high as 15-20% [2], when the abscesses are multiple. The ethiopatogenesis include malignant causes, pyogenic infections, anatomical variations of the spleen, haematologic diseases (policitemiavera, haemoglobinopathies), endocarditis, trauma in the left upper quadrant, intravenous administration of medications, or AIDS [2].

Up to 70% of the cases of splenic abscesses result from haematogeneous spread from another location, as in endocarditis, ostheomielytis, or intravenous drug use [1]. There are also reports of contiguous spread from nearby infections of the colon, kidney or pancreas. The most frequently involved microorganisms are Gram-positive (Staphylococus, Streptococus or Enterococus). Less frequently found are the Mycobacterium tuberculosis, Mycobacterium avium, and Actinomyces or Candida, usually associated to immunosuppressive conditions.

Tuberculosis is still a common infecto-contagious disease in underdeveloped countries. Lung is the most affected organ, but the infection may be extrapulmonay in a smaller number of cases, spreading to any organ, including the spleen.

The following case report describes the case of an immune-competent patient with a splenic abscess, as an extrapulmonary manifestation of tuberculosis.

CASE PRESENTATION

We hereby report a case of a 51-year-old female, with Brazilian nationality, living in Portugal for over 30 years, but returned to Brazil (Góis state) for the past two years. Five months ago she recurred to the emergency department with intermittent fever and abdominal pain in the left quadrants. The patient was diagnosed with multiple splenic abscesses (detected in CECT), and admitted to the hospital, starting intravenous antibiotics. As she experienced no improvement, she decided to return to Portugal. Despite of the antibiotics, the fever persisted, with an intermittent pattern, as she presented other constitutional symptoms such as malaise, asthenia, anorexia and weight loss (approximately 20Kg for the last five months, since the beginning of the symptoms).

No other symptomatology was reported. There was no previous family history of treated pulmonary tuberculosis. As past history the patient was hypertensive, had a toxoplasmosis infection 18 years ago, and left eye amaurosis.

Routine blood work up showed elevated erythrocyte sedimentation rate (ESR); the serology for HBV, HCV, AIDS, sífilis, and measles were negative; the ANA antibodies were also negative; toxoplasmosis IgG was positive, and IgM was negative; the cultural exam of respiratory secretions was negative for Mycobacterium tuberculosis.

The thorax imaging with Contrast enhanced Computed Tomography (CECT) was normal, but the abdominal imaging showed heterogeneity of the spleen parenchyma, with several

fluid collections and sub capsular septae (Figure 1), and a contiguous subphenic extra-splenic collection (Figure 2); it also showed oval and hypodense intra-splenic fluid collections near the hilum. These aspects altogether were suggestive of splenic abscesses, of unspecific origin (Figure 1, 2).

These abscesses were not punctured because of the high risk of iatrogeny, namely the pleural contamination.

The patient initiated another course of large spectrum antibiotics, again without clinical improvement, so that a surgical option was indicated due to medical management failure.

A splenectomy was performed, and the spleen approached via laparotomy due to the pre-operative evidence of splenomegaly. Intra operatively, peritoneal cavity, GI tract and liver appeared normal, without evidence of ascites or mesenteric lymphadenopathy. The spleen showed evidence of two large superficial abscesses, so that the splenectomy was performed.

The post-operative period was complicated with a large subphrenic abscess, treated with percutaneous drainage and antibiotics. After stabilization, the vaccination for *Haemopylus influenzae*, *Streptocco pneumoniaee Neisseria* Meningitis meningococos was performed. Until the definitive histopathologic results, the fever sometimes relapsed, without apparent cause

The microbian analysis of the abscess was negative, but the histopathology of the spleen revealed numerous granulomatous lesions with epithelioid macrophages in the splenic parenchyma; in the hilum there were focal lesions of granulomatous lymphadenitis with Langerhans giant cells (Figure 3); the immune-histochemical study for CD38 was positive in the splenic and ganglionar granulomas (Figure 4). All these features were highly suggestive of extra-pulmonary tuberculosis.

The study was complement with polymerase chain reaction (PCR), which as negative, and the Interferon Gamma Release Assay (IGRA) was positive.

After these results, the patient was prescribed anti-tuberculous treatment, and the fever ceased. She was discharged 38 days after splenectomy, 42 days after admission.

DISCUSSION

Tuberculosis incidence is facing a decline in Europe, with an incidence of 4,4% in the WHO European Region, between 2015-2016 [3]. Approximately 15–20% of all cases of TB are extrapulmonary [3] and of these, 3–11% with abdominal presentation [4,5].

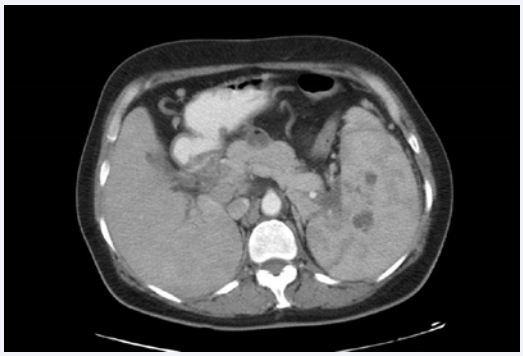

Figure 1 Abdominal CECT, heterogeneity of the spleen parenchyma, with several fluid collections and sub capsular septae.

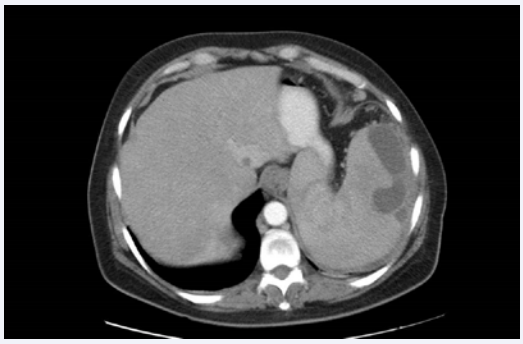

Figure 2 Abdominal CECT, extra-splenic contiguous sub phenic collection.

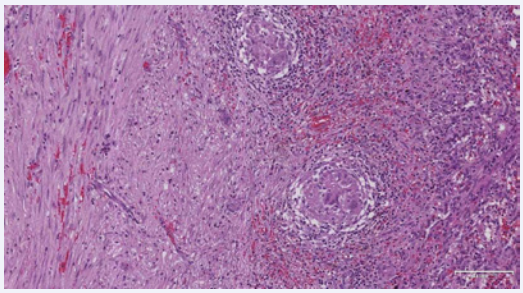

Figure 3 Histopathologic analysis, with numerous granulomatous lesions of the splenic parenchyma, with epithelioid macrophages.

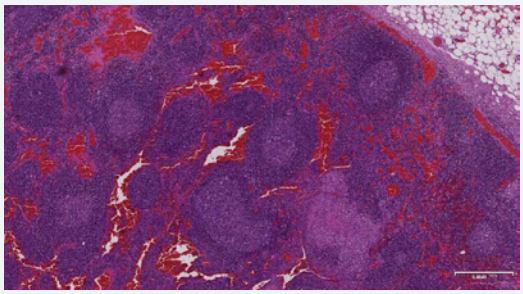

Figure 4 Histochemical study, CD38 positive in the splenic and ganglionar granulomas, highly suggestive of extra-pulmonary tuberculosis.

Splenic tuberculosis was first described by Coley in 1846, which described an enlarged spleen secondary to tuberculosis, without or limited involvement of other organs [6].

This presentation usually occurs after haematogenous spread of a primary infection [7], often associated to immunodeficiency. The reports of splenic tubercular abscess in the immune competent patient are rare, only six cases were reported in English, French and German literature from 1965 to 1992 [8].

The morphological classifications for splenic tuberculosis include five forms: miliary, nodular, spleen abscess, calcific and mixed type [9].

Clinically, the patients with splenic abscess present with unspecific symptoms, most commonly with diffuse abdominal pain, fever (82.3%), fatigue and weight loss (44.12%), and sometimes pleuritic pain; splenomegaly is not always present (13.2–100%) [10,11]. The presentation may also include symptoms related to splenic rupture [4], hyper splenism, portal hypertension with and without gastrointestinal bleed [12], and a fulminant form involving rapid progression of fever, cachexia, haemorrhage and sepsis [11].

For the diagnosis of splenic tuberculosis, the tuberculosis skin test (Mantoux) is usually positive, but this could be unreliable in endemic countries, immune compromised patients, and foreign-born patients who received BCG vaccine [12]. The most recent IGRA and PCR test have a much higher sensitivity and specificity [12,13].

Imaging exams can help on the better characterization of the abdominal tuberculosis. The tuberculomas detected by ultrasonogram appear as multiple hypoechoic lesions, well-demarcated with posterior enhancement; it can also help differentiate military tubercuosis, nodular, tuberculous abscess, calcific tuberculosis, and mixed type [14].On computed tomography, the tuberculomas are described as non-enhancing homogenous hypodensities [11,13].

This evaluation should be complemented with fine needle aspiration cytology (FNAC), when accessible. This technique adds a sensitivity of 88% and specificity of up to 100% [4,11], being able to detect the characteristic caseating granulomas composed of aggregates of epithelioid cells, lymphocytes and Langhans giant cells with variable degree of central caseous necrosis involving both the red and white pulps.

The differential diagnosis includes the infection secondary to Micobateria, bacterian abscess, lymphoma, and primary or secondary malignancies.

The diagnosis is sometimes made by exclusion, and in this case a therapeutic test with antituberculous medications may be initiated. Splenectomy should be a last resort for diagnosis, allowing in this case definitive histopathologic characterization and PCR.

The treatment of the splenic abscess depends on its characteristics, whether they are unilocular (about 33%) or multilocular. Antituberculous medications are the first line of treatment [4,10,11,12,14,16], with triple or quadruple therapy indicated for at least 12 months is indicated [4,14,16]. This modality of treatment, sometimes associated to percutaneous drainage along with other antibiotics is successful in about 75-90% of unilocular lesions [17]. For multilocular lesions, the treatment is usually the splenectomy and antibiotics [18]; other indications for splenectomy are the failure of medical treatment, cytopenia or polycythemia, tuberculous splenomegaly with gastrointestinal bleeding secondary to portal hypertension, failure of percutaneous abscess drainage. Laparoscopic splenectomy for abscess has been reported [19], since there is no significant splenomegaly. Antituberculous therapy should also be initiated in patients after splenectomy.

CONCLUSION

The isolated splenic abscesses secondary to tuberculosis are a rare manifestation of extrapulmonary disease. However, considering the high prevalence of some endemic regions as in this reported case, in Brazil, where the patient remained for 2 years, this diagnostic should be considered.

The diagnosis of pulmonary tuberculosis requires the demonstration of Koch bacilae. For extrapulmonary tuberculosis, the AARB test is often negative, so that more accurate tests as IGRA are needed for the diagnosis, or histopathologic findings compatible with the disease, obtained by fine needle aspiration cytology, or diagnostic splenectomy. After the diagnosis, or high suspicion of extrapulmonary tuberculosis, the treatment with antituberculous medications should be initiated.

In the reported case, the empiric medical treatment before the diagnosis of extrapulmonary was ineffective, so the patient went for splenectomy, which allowed the diagnosis for its histopathologic characteristic presentation, corroborated with a positive IGRA test, and a positive response after antituberculous treatment, and remission of the symptoms.

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