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# Isolated splenic tuberculosis in immunocompetent patient: A rare occurrence

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**ABSTRACT**

Globally millions of people are affected by tuberculosis (TB) each year and India has the largest number of TB cases both pulmonary and extrapulmonary. Extrapulmonary TB affecting spleen is quite rare and occurs mostly as a part of miliary tuberculosis in immunocompromised patients. In the Immunocompetent patients, isolated splenic tuberculosis is extremely rare. Herein, we present the case of an immunocompetent female with isolated splenic tuberculosis.

***Key words:*** *Extrapulmonary, splenic tuberculosis, miliary, immunocompetent*

## Introduction

Tuberculosis is preventable and completely curable disease yet about 710,000 people died of TB in 2015 [1]. Global burden of Tuberculosis was 10.4 million new cases according to 2015 statistics and India had the largest share of such cases at 2.8 million [1]. Tremendous efforts have been made by Indian Government towards control and prevention; still, TB continues to be a major health problem with incidence rate of 217 per 100,000 population per year contributing to mortality rate of 36 per 100,000 population per year [2].

In the Indian scenario, undiagnosed cases are estimated around 15% which include smear negative and Extrapulmonary (EP) cases [3]. Extrapulmonary sites which can be affected by TB are lymph nodes, bones, urogenital organs, ileocecal portion of the gastrointestinal tract, liver and spleen. Extrapulmonary sites are involved mostly in miliary type of the disease, and isolated TB of the spleen is rare [3-7].

## Case Report

A 54-years-old female presented with pyrexia of unknown origin since one year which was low grade and more towards evening which used to subside with medications. She also complained of the gradual decrease in appetite along with weight loss since three months which was associated with nausea and generalized weakness. There was no history of cough, abdominal pain, and bladder or bowel complaints.

Physical exam revealed mild tenderness in the left upper abdomen. Blood investigations revealed Hemoglobin 10.3, total count 8600 with mild lymphocytosis, ESR 25 mm/hour, Mantoux test had 20mm induration, and X-Ray Chest was normal.

Ultrasonography findings were hepatomegaly with

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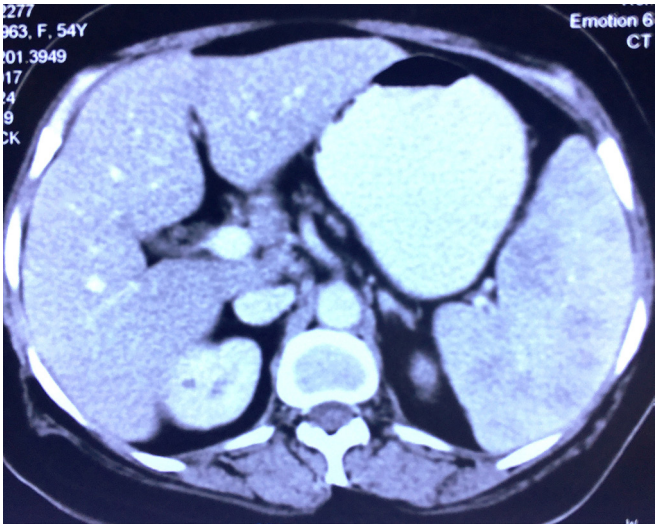


**Figure 1.** CT showing hypodense areas in spleen.

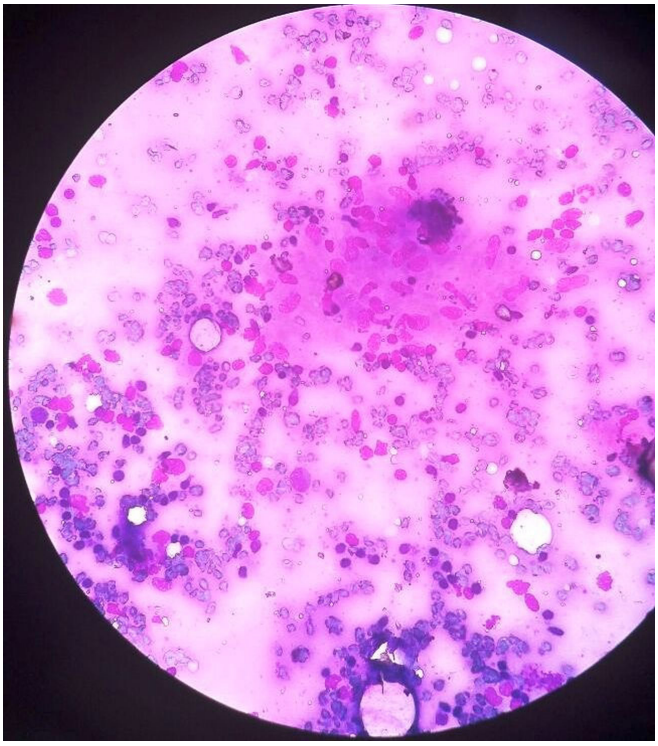

**Figure 2.** FNAC side showing Tubercular granuloma.

periportal and para iliac lymphadenopathy (10-12 mm) with splenomegaly with multiple tiny hypoechoic masses in the spleen.

Contrast CT imaging of abdomen and pelvis showed multiple ill-defined hypoattenuating foci within the spleen which was enlarged in size (16.2 cm). There were enlarged lymph nodes with internal hypo attenuating areas of necrosis predominantly in Paraaortic and paracaval regions with significant surrounding soft tissue fat stranding (Figure 1).

Ultrasound-guided fine needle aspiration was done from spleen and cytology revealed granulomatous inflammation with Langans giant cells suggestive of tubercular etiology (Figure 2). The patient was started on oral anti-tubercular medications, and she improved symptomatically within the first month with regained appetite and cessation of febrile episodes. The patient was followed up for three months. Repeat ultrasound after three months showed improvement. There was no evening rise of temperature and patient gained sufficient weight.

**Discussion**

Coley was first to describe isolated primary tuberculosis of the spleen in 1846 [8]. The incidence of extrapulmonary TB is approximately 15–20% of all cases [9] and about 3–11% are of abdominal TB [10]. Commonest risk factor for splenic tuberculosis is immunosuppression. Other less common risk factors are preceding pyogenic infections, prior trauma to the spleen and sickle cell disease. In immunocompetent patient, isolated TB of extrapulmonary site particularly of the spleen is rare and usually is accompanied by TB of another body site [3]. Various morphological forms of splenic TB are miliary, nodular, abscess, calcified or mixed type. Due to its size, the splenic abscess can become symptomatic at an early stage [2]. The incidence of isolation of Mycobacterium tuberculosis from the splenic abscess is about 41.1 % [4].

Splenic TB can be a diagnostic challenge for a clinician since it can present as either solitary cystic or solid lesion or as multiple lesions [4]. The solitary cystic splenic lesion can be post-traumatic, infectious (tubercular, hydatid), congenital cyst or lymphangioma whereas solitary solid lesion can be either benign such as hemangioma or malignant such as angiosarcoma.

Multiple splenic abscesses (as in our case) can develop in patients with Diabetes mellitus (DM), Sjögren syndrome, in previous abdominal surgery and prolonged steroid therapy [11]. There was no history of DM or previous surgery or chronic steroid therapy in our case.

Isolated involvement of the spleen in an immunocompetent patient (as in our case) is a rare entity [4]. From 1965 to1992 only six cases of isolated splenic TB in immunocompetent patients have been reported in English and French case reports. Adil A et al. [12] reported ten Immunocompetent individuals, Singh et al. [13] reported four cases whereas Suneed Kumar et al.

[2] and Sharma et al. [14] have reported single case each.

Due to the vague clinical picture, diagnosis is mostly delayed. Clinically, fever is the most common presenting symptom (82.3%) followed by fatigue and weight loss (44.12%), along with splenomegaly (13.2–100%). Such cases can also present as pyrexia of unknown origin (PUO). Rarely TB spleen can present as splenic rupture and hemorrhage. Splenic tuberculosis patients can also present with hematologic abnormalities [15].

The diagnosis of isolated splenic tuberculosis is a great diagnostic dilemma because of the vague clinical picture. High ESR and Mantoux test are often positive but have no specificity in endemic countries like India. Microscopy and culture confirmations are very important in the recent time of molecular medicine. The molecular technique of Polymerase Chain Reaction is useful in confirmation of diagnosis. However, due to surging of MDR and XDR tuberculosis cases world over, it is essential to carry out Tubercular culture and antibiotics sensitivity test along with histopathology examination. Nucleic acid amplification tests (NAA) have poor sensitivity in smear-negative pulmonary and extrapulmonary tuberculosis. A high index of suspicion is required while examining smears in tropical countries like India where tuberculosis is endemic.

Ultrasound is an important radiological tool to diagnose splenic TB and can differentiate between miliary tuberculosis, nodular, tuberculous abscess and calcified tuberculosis. On ultrasound examination, tuberculomas may present as hypoechoic lesions, well-demarcated with posterior enhancement and should always be differentiated from lymphoma, acute leukemia, angiomas, metastases, and fungal infections of the spleen [15].

Computerized tomography scan (CT) is also helpful in the diagnosis, especially for the splenic abscess [9]. However, it has its limitations. CT cannot be suggestive of the nature of lesions in spleen and also cannot pick up typical nodules on the splenic capsule [3]. Both ultrasound and CT or either of the two can be used for fine needle aspiration cytology (FNAC) [12].

Histopathological confirmation is essential to start the treatment in TB patients, and Fine needle aspiration cytology is a valuable tool, with the sensitivity of 88% and specificity of up to 100% [10]. It is always done with image guidance and should be done in all cases of splenomegaly presenting with pyrexia of unknown origin (PUO) [10]. The typical manifestation is caseation along with granuloma of epithelioid cells and Langhans cells. In case of non-conclusive FNAC report, Laparoscopy guided FNAC should be done for histopathological confirmation. It is recommended for all types of splenic biopsy [16].

Anti-tuberculous chemotherapy (ATT) is the first line of treatment. Triple or quadruple therapy is usually carried out for about for 12months. Repeated ultrasound should be used to review the success of medical therapy [16].

MRI and PET scans are useful in determining the amount of activity in splenic lesions and differentiating active vs. fibrotic scars [12].

In case of failure of medical therapy, Splenectomy should be performed to remove the tubercular focus in the body. Anti-tubercular therapy should also be given in post-splenectomy period as a full course of ATT.

**Conclusion**

In conclusion, isolated splenic tuberculosis is a rare entity in immunocompetent patients. It should be considered in the differential diagnosis of all cases of PUO, particularly with the enlarged spleen. Splenectomy should be reserved for cases refractory to medical treatment, and in splenic rupture.

**Conflict of interest statement**

The authors have no conflicts of interest to declare.

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