

**Case Report****Splenic Tuberculosis in an Immunocompetent Young individual: A Rare Case Report****Lohit Kumar Kalita<sup>1\*</sup>, Chayanika Kalita<sup>2</sup>, Ahmed Ali<sup>3</sup>, Umesh Ch. Sarma<sup>4</sup>**<sup>1</sup>Assistant Professor, Department of Oncology, Gauhati Medical College & Hospital, Guwahati, Assam, India<sup>2</sup>Assistant Professor, Department of Dermatology, Gauhati Medical College & Hospital, Guwahati, Assam, India<sup>3</sup>Assistant Professor, Department of Pathology, Gauhati Medical College, Guwahati, Assam, India<sup>4</sup>Vice-Chancellor, Srimanta Sankaradeva University of Health sciences, Narakasur Hill Top, Guwahati, Assam, India**\*Corresponding author**

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**Abstract:** Splenic tuberculosis per se in an immunocompetent individual is extremely rare. Splenic tuberculosis is occasionally encountered in severely immunocompromised individuals and delays in diagnosis are frequent. It presents as pyrexia of unknown origin. Patients all over the world are given antibiotics with necessary laboratory investigations as prophylaxis till the diagnosis is confirmed. When patients do not respond, the possibility of splenic tuberculosis should always be sought. Diagnosis is a challenging task because of non-specific symptoms. Patients usually present with low-grade fever, weight loss, anaemia and rarely splenomegaly. CT scan is an important investigation which shows hypoechoic lesions suggestive of granuloma. Here is a case of a 28-year-old boy who presented with a history of intermittent low-grade fever, pain in the left hypochondriac region occurring after vomiting, evening rise of temperature, weakness, loss of appetite, pain in the lower back and weight loss for about 3 months. He did not complain of cough or any other respiratory complaints. Ultrasonography and computed tomography of the abdomen revealed multiple hypoechoic lesions in the spleen. After the diagnosis of splenic tuberculosis, the patient was started on combination of antitubercular drugs under category two of the Revised National Tuberculosis Control Programme. He had a favourable response with antitubercular chemotherapy. Follow-up ultrasonography of the abdomen after two months of antitubercular therapy showed significant resolution of splenic hypoechoic lesions. We report this case of tuberculosis of the spleen in a young individual with no signs of immunocompromise. Moreover, we recommend that splenic tuberculosis should be considered as a diagnostic possibility in patients belonging to endemic areas for tuberculosis, with splenic involvement, especially in those having a past history of tuberculosis or prolonged contact with a tuberculosis patient, even though the individual is immunocompetent. The case highlights that these types of patients can be diagnosed by non-invasive imaging and managed by medical treatment effectively in a setting with limited resources.**Keywords:** Splenic tuberculosis, Immunocompetent, Extrapulmonary, Antitubercular.

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**INTRODUCTION**

Tuberculosis is one of the most common and most suspected diseases in India. The average prevalence of tuberculosis is estimated to be 5.05 per thousand with a prevalence of 2.27 per thousand smear-positive cases. On average, annual incidence is reported to be 84 per 1,00,000 smear-positive cases annually in India [1]. The immunodeficiency conditions identified in these patients include HIV infection, hematologic abnormalities, chronic steroid therapy, diabetes mellitus, and organ transplantation [2]. It most commonly presents as primary pulmonary tuberculosis, but can also present in other forms such as extrapulmonary tuberculosis- miliary tuberculosis. Spleen has been reported to be the third most common organ involved in miliary tuberculosis followed by lungs and liver (lung 100%, liver 82%, spleen 75%,

lymph nodes 55%, bone marrow 41%) [3]. Virtually all organ systems may be affected. Due to hematogenous dissemination in HIV-infected individuals, extrapulmonary tuberculosis is seen more commonly at present than in the past. Splenic tuberculosis is a rare clinical condition, normally seen as part of miliary tuberculosis. It is rarely present as an isolated entity. The diagnosis is often delayed due to its non-specific clinical presentation and difficulties in the confirmation of the diagnosis. Radiologic examination was used for the diagnosis in almost all the reported cases followed by pathologic examination of fine needle aspirate, splenic biopsy or splenectomy specimen. Although there are different modalities available for the investigations, still the diagnosis is usually delayed. Ultrasonography, CT scan and MRI are sensitive investigations but CT scan has been preferred for the

abdomen. CT scan characteristic of splenic tuberculosis include solitary / multiple nodular or saccular foci or hypodense areas in the spleen [4]. It also has a lot of differential diagnosis because of which diagnosis is often delayed. Moreover typical nodules on the splenic capsule are usually too small to be detected [5]. In differential diagnosis of CT findings, lymphoma, hydatid disease and metastases must be considered [6].

Here, we report a case of tuberculosis of spleen where diagnosis was made on clinical grounds and other non invasive investigational modalities, without having to resort to splenectomy and treated with antitubercular therapy alone.

### CASE REPORT

A 28 year old non-diabetic male patient from a low socioeconomic class presented with a history of intermittent low grade fever, pain in left hypochondriac region occurring after vomiting, evening rise of temperature, weakness, loss of appetite, pain in the lower backbone and weight loss for about 3 months. He did not complain cough or any other respiratory complaints. He did not complain of tuberculosis but one of his family members has been suffering from bone tuberculosis for last five years. His bowel and bladder habits were normal. On examination, he was febrile with slightly rise of temperature. Per abdomen there was mild splenomegaly and no other abnormalities were detected (Fig. 1). Haemoglobin was 12.8 g/dl and ESR 70 mm at the end of one hour. No primary pulmonary focus was found on chest X ray. Ultrasonography of abdomen and pelvis showed: Splenomegaly with multiple hypoechoic areas (largest one measures 28 mm x 22.6 mm) suggestive of Koch's lesion (Fig. 2). Liver, kidney and thyroid function tests were normal except mild hyperglobulinemia. CT scan thorax study revealed centriacinar nodular opacity few of them conforming to tree in bud pattern noted in right upper lobe and apico posterior segment of left upper lobe; fibroparenchymal band noted in right middle lobe and right lower lobe; focal areas of encysted minimal pleural effusion noted at places on right side and fissural thickening noted in right side. CT scan abdomen study revealed spleen is enlarged in size (13.5 cm) with normal shape and parenchymal attenuation. Multiple fairly well defined non enhancing lesion is noted throughout the splenic parenchyma, largest lesion measuring 2.3 x 3.5 cm. There is mild hepatosplenomegaly; minimal ascites and few prominent to enlarged necrotic abdominal lymphadenopathy. All these constellation of findings are suggestive of tubercular etiology (Fig. 3 & 4). Mantoux test was positive with area of induration measuring  $> 10 \times 10 \text{ mm}^2$ . Haemoglobin electrophoresis, Widal test and malaria test were negative. Sputum for acid fast bacillus was negative. Base on these finding patients was diagnosed as splenic tuberculosis. Person was not advised splenectomy. The patient was put on antitubercular drugs under category 2 of Revised

National Tuberculosis Control Programme (RNTCP) regimen. After 2 weeks of drug therapy, he became afebrile and gained weight with an improvement in general condition and at the end of 2 months ESR came down to 8 mm AEFH. A repeat ultrasound of abdomen (done after 2 months) showed significant resolution of splenic lesions (Fig. 5).



Fig. 1: Prominent spleen during deep inspiration



Fig. 2: USG of whole abdomen shows multiple small hypoechoic focal lesions (largest one measures 28 mm x 22.6 mm) of spleen (at the time of diagnosis)



**Fig. 3: CT Scan thorax-abdomen (longitudinal section) shows multiple hypointense areas at spleen (at the time of diagnosis)**



**Fig. 4: CT Scan thorax-abdomen (cross section) shows multiple hypointense areas at spleen (at the time of diagnosis)**

## DISCUSSION

Tuberculosis is a multi-system disease. 90% of it locates primarily in lung. Isolated splenic tuberculosis is a rare form of extrapulmonary tuberculosis [1]. Splenic tuberculosis is extremely rare in immunocompetent individuals. Splenic tuberculosis presents in two forms. First forms as a part of miliary tuberculosis. The second form is the primary involvement of spleen. Splenic tuberculosis occurs as a result of primary infection or secondary to the previous infection of tubercle bacilli in other organs. Patients with AIDS or otherwise immunocompetent are at high risk for splenic tuberculosis [6]. Some researchers have reported that all patients with splenic tuberculosis are secondary to the previous infection of tubercle bacillus in other organs [7].

In this case, the patient denied having a previous history of tuberculosis but one of his family members is suffering from bone tuberculosis where there is less chances of person to person contamination. The patient presented with intermittent left hypochondriac aching type of pain and vomiting after food, fever, weakness, loss of appetite and weight loss. The appropriate investigations that need to be done in this case are haemoglobin, Chest X-ray to rule out a primary of the lung. Ultrasound narrowed the lesion to be confined in the spleen and involvement of para-aortic lymph nodes. The common ultrasound findings suggestive of splenic tuberculosis are, multiple small (<1cm), round hypoechogenic images, which are frequently hypodense on abdominal CT. Other findings include splenomegaly which is considered to be the most common feature of splenic involvement. The ultrasound and CT abdomen of our patient also showed these findings. Histopathological examination is essential to confirm the diagnosis. The typical manifestation is caseation along with granulomas of epithelioid cells. So, for a final diagnosis, CT guided biopsy of splenic tissue which is an emerging method nowadays or splenectomy is needed. In the present case, due to lack of facilities at that point of time and the patient's reluctance to undergo CT guided biopsy, it could not be performed. In view of the patient's previous history of suspected exposure to tuberculosis, along with the present contributory clinical, laboratory parameters (elevated ESR, positive tuberculin test) and radiological features, the diagnosis of splenic tuberculosis was made. The first line of management is the antitubercular drugs. Surgery is appropriate in subjects having rupture of spleen or if antitubercular drugs fail. Our patient was started on antituberculosis treatment and monitored by serial imaging. The patient responded well in the form of disappearance of fever and abdominal pain and weight gain. There was a significant resolution of hypoechoic lesions of the spleen on subsequent ultrasound imaging. Abdominal Tuberculosis should be kept in mind if a patient comes with such a presentation. Splenectomy has been reported as the choice of treatment for splenic tuberculosis in the preantibiotic era. It resulted in a recovery rate of approximately 60% [8]. In a case of isolated splenic tuberculosis in an immunocompetent individual, six months treatment of the above mentioned drugs need to be given. There are a few case reports which support use of antituberculosis therapy in splenic tuberculosis, when diagnosis was made without splenectomy and other invasive procedures

## CONCLUSION

Although a rare entity, splenic tuberculosis must be invariably considered in patients with previous history of exposure of tuberculosis and hypoechoic lesions in the spleen, since tuberculosis is endemic in India for a long time. Even if tuberculosis cannot be confirmed, therapeutic trial of anti-tubercular drugs

may be life saving. The case being reported is one of the very few reported cases where diagnosis was made only by clinical features and radiological investigations. It highlights that a radiological imaging can replace the need for more invasive diagnostic surgical procedures and help in the planning of therapy. In addition, a good response to medication will indirectly help to confirm splenic tuberculosis.

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