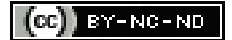


Radiological Findings in a Patient Presenting with Chronic Abdominal Pain as a Secondary Manifestation of Pulmonary Tuberculosis

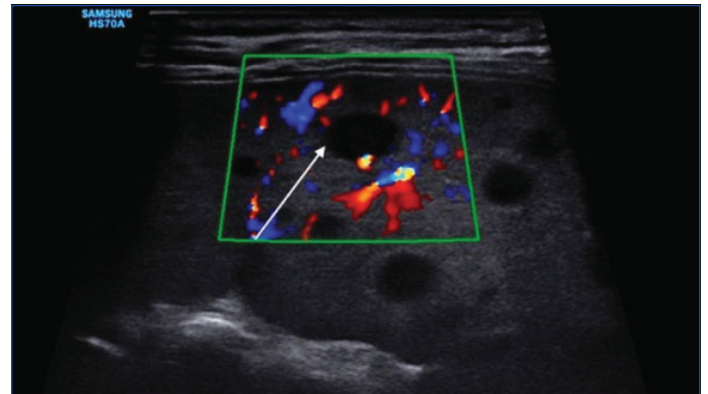
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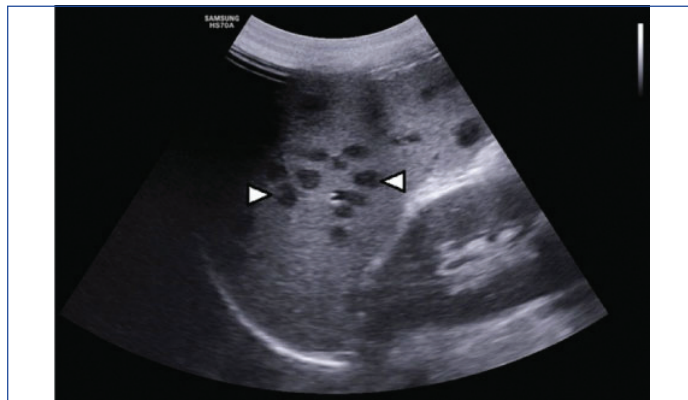
Keywords: Spleen, Splenic, Tubercular, Ultrasonography

A 32-year-old female patient presented with complaints of loss of appetite, weight loss (8-9 kg), and generalised weakness for three months. The patient also had a history of cough with expectoration for two months accompanied by abdominal pain, particularly on the left-side, and low-grade, intermittent fever for the last two weeks. The Erythrocyte Sedimentation Rate (ESR) was deranged, measuring 25 mm/hr. The Mantoux test was positive with an induration of 17 mm. The sputum study confirmed the diagnosis of tuberculosis by detecting acid-fast bacilli.

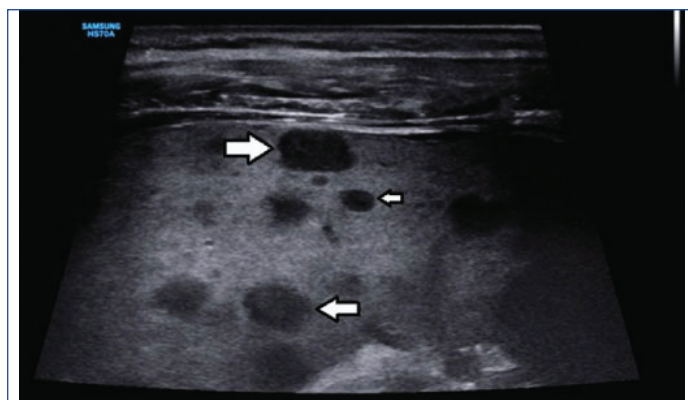
On ultrasound, multiple hypoechoic lesions were noted scattered throughout the splenic parenchyma [Table/Fig-1,2]. They showed no vascularity on colour Doppler and no evidence of calcification [Table/Fig-3]. Multiple enlarged lymph nodes were found in the preaortic, para-aortic, peripancreatic, and splenic hilum regions. Computed Tomography (CT) scan demonstrated a tree-in-bud appearance and patchy areas of consolidation in the left lung parenchyma along with multiple subcentimeter lymph nodes. Multiple variable sized hypodense areas (HU +25 to +35) were noted scattered throughout the splenic parenchyma [Table/Fig-4].



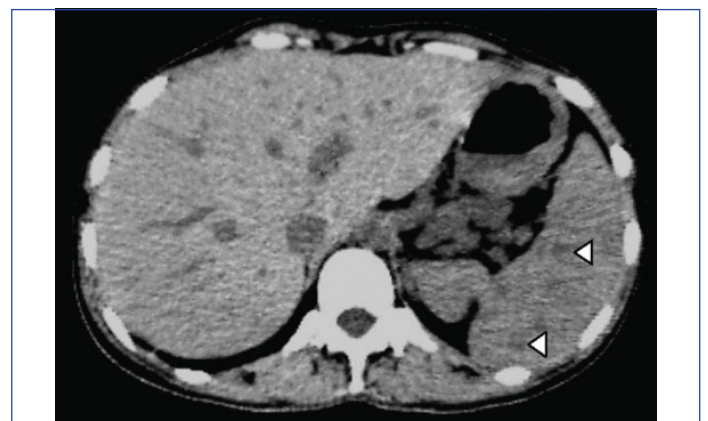
[Table/Fig-3]: Colour Doppler showing vascularity of normal splenic parenchyma and no vascularity in hypoechoic lesions. (White arrow).



[Table/Fig-1]: Ultrasound showing multiple hypoechoic lesions scattered throughout splenic parenchyma (white arrowheads).



[Table/Fig-2]: Magnified image of hypoechoic lesions in the spleen, with high frequency transducer (white arrows).



[Table/Fig-4]: Non enhanced computed tomography showing multiple hypodense lesions in the spleen (White arrowheads).

DISCUSSION

According to the World Health Organisation (WHO), approximately 10.6 million people worldwide fell ill with Tuberculosis (TB) in 2021. India, being a high TB burden country, contributes significantly to the total number of TB cases [1]. While the usual site of infection is the lungs (pulmonary), extrapulmonary tuberculosis accounts for about 16% of all cases. The spleen is the third most commonly affected organ in miliary or disseminated tuberculosis, following the lungs and liver [2]. Isolated splenic disease may present with only pyrexia of unknown origin, and some cases may even be asymptomatic, leading to diagnostic challenges [2,3]. Splenic tuberculosis is an even rarer occurrence among cases of disseminated tuberculosis. Transmission to the spleen can occur through various routes, such as the blood, lymphatic channels, or contiguous spread from adjacent infected organs or tissues [4,5].

Indicative laboratory investigations include elevated ESR, positive tuberculin test, leukocytosis, and anaemia [6]. Diagnostic imaging modalities such as ultrasonography and CT are used to identify

the lesions, which appear as hypoechoic microabscesses on ultrasound and hypodense lesions on CT scans, respectively. CT scans may also show splenic calcifications or isolated splenomegaly; however, these findings are non specific [7]. While histopathological evaluation is considered reliable for diagnosis, ultrasound evaluation alone is a viable diagnostic option in endemic areas, especially for Human Immunodeficiency Virus (HIV) patients. The detection of microabscesses on ultrasonography is likely sufficient to initiate TB treatment [8]. Gupta PP et al., reported similar hypoechoic foci in the spleen and hypodense lesions on CT scans in a case of splenic tuberculosis in a non immunocompromised patient [6]. Lonkar Y et al., also found similar findings, including multiple ill-defined hypoechoic areas in the spleen and peripherally enhancing hypodense lesions on CT scans [9].

Tuberculosis represents a significant burden among infectious diseases, particularly in developing countries. The spread of TB to extrapulmonary organs poses a threat to patients due to underdiagnosis and delayed treatment. Therefore, it is crucial to identify extrapulmonary spread, such as to the spleen. Ultrasonography and CT are effective imaging modalities compared to invasive diagnostic methods, particularly in endemic areas and among immunocompromised patients.

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