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A RARE CASE OF MASSIVE SPLENOMEGALY IN AN IMMUNOCOMPETENT ADULT: AN UNUSUAL MANIFESTATION OF TUBERCULOSIS

General Medicine

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ABSTRACT

Background: Tuberculosis (TB) remains a global health challenge with diverse clinical manifestations. While pulmonary TB is the most recognized form, extrapulmonary TB, particularly involving solid organs like the spleen, is less common and often overlooked in immunocompetent individuals. **Case Presentation:** We report a rare case of massive splenomegaly in a 38-year-old immunocompetent female without any prior comorbidities, presenting with intermittent fever, significant weight loss, and a palpable spleen extending to the umbilicus. Despite extensive diagnostic evaluations, typical infectious etiologies were ruled out, and initial tests for TB were inconclusive. Imaging studies, including contrast-enhanced computed tomography (CECT) of the thorax and abdomen, revealed patterns suggestive of disseminated TB, prompting a trial of anti-tubercular therapy. The patient showed significant clinical improvement with reduced spleen size and resolution of symptoms following treatment. **Conclusion:** This case underscores the importance of considering tuberculosis in the differential diagnosis of massive splenomegaly, even in immunocompetent patients, and highlights the challenges of diagnosing extrapulmonary TB. Early consideration and appropriate management can lead to favorable outcomes, stressing the need for heightened awareness among clinicians regarding atypical presentations of TB.

KEYWORDS

INTRODUCTION:

Tuberculosis (TB) remains a prevalent and complex infectious disease with a global distribution, impacting millions each year. In 2021 alone, approximately 10.6 million individuals were diagnosed with TB, with nearly 45% of these cases originating from Southeast Asia. (1) Extrapulmonary TB, which constitutes about 20-30% of all TB cases, predominantly affects immunocompromised adults, presenting in various forms including TB lymphadenitis, pleural TB, tubercular pericarditis, skeletal TB, cutaneous TB, as well as abdominal and genitourinary TB. (2) While TB affecting the genitourinary tract, peritoneum, lymph nodes, and solid viscera accounts for 12% of these cases, involvement of solid organs such as the liver is more typical. Splenic TB, however, is rare and seldom leads to massive splenomegaly, particularly in immunocompetent individuals. This report aims to draw attention to the rare occurrence of massive splenomegaly due to TB in an immunocompetent patient, underscoring the critical need for heightened clinical awareness and understanding of TB's diverse and often misleading manifestations.

Patient Background:

A 38-year-old previously healthy female, with no known comorbidities or history of substance abuse, presented with a year-long history of progressive, intermittent fever documented at 101-102°F occurring every 7-10 days. The patient also reported profound night sweats and significant unintentional weight loss of approximately 20 kg over the last six months. Additionally, she experienced a progressive dragging sensation and heaviness in her left upper abdomen, accompanied by early satiety for the past 3-4 months. The patient denied any symptoms of cough, shortness of breath, fatigue, palpitations, or jaundice. There was no history of palpable swelling in the cervical, axillary, or inguinal areas, no prior blood transfusions, hematemesis, abdominal distension, skin discoloration, or travel to endemic areas of Kala-azar or recurrent malaria infections.

Clinical Examination:

On examination, the patient appeared pale but vitally stable. There were no signs of icterus, lymphadenopathy, sternal tenderness, edema, skin rash, or bleeding diathesis. Notably, there was palpable splenomegaly extending up to the umbilicus, measuring 11 cm from the left costal margin, with a palpable splenic notch, smooth surface, and non-tenderness upon palpation.

Laboratory Parameters:

Initial laboratory investigations revealed anemia with a hemoglobin level of 9.4 gm/dL, total leukocyte count of 6,430/uL, and platelet count of 292 x 10^3 /uL. Peripheral smear analysis showed normocytic, normochromic red blood cells, normal white blood cell count and distribution, and adequate platelet numbers without hemoparasites or atypical cells. Renal function tests were unremarkable. Liver function tests showed slightly elevated alkaline phosphatase (ALP) at 299 U/L and reduced serum albumin at 3.1 g/dL. Routine urine analysis and viral serologies for hepatitis B, C, and HIV were negative. (Table 1)

Table 1- Illustrates The Patient's Hematological And Biochemical Profiles At Baseline

Investigations	17/03/2023	27/03/2023
Hb (gm/dL)	9.6	10.3
MCV (fL)	85	85
TLC (k/uL)	4.70	4.62
DLC (N/L/M)	62.5/24.9/9.6	71.3/24/2.8
Platelet count(k)	210	250
Total Bilirubin (mg/dL)	1.01	
SGPT (U/L)	15.0	
SGOT (U/L)	31	
ALP (U/L)	299.0	
GGT (U/L)	47.0	
TOTAL PROTEIN (gm/dL)	7.1	
S. ALBUMIN (g/dL)	3.1	
S. globulin (g/dL)	4	
Blood Urea (mg/dL)	25.0	
S. Creatinine (mg/dL)	0.36	
S. Na+ (mmo/L)	143.0	
S. K+ (mmo/L)	4.36	
S. Cl⁻ (mmo/L)	96.0	
Total calcium (mg/dL)	8.6	
Uric Acid (mg/dL)	4.6	
Phosphorus (mg/dL)	3.1	
ESR (mm/hr)	50	
Retic count	2.77%	

Imaging and Further Diagnostics:

Abdominal ultrasound revealed massive splenomegaly measuring 19.8 cm and a borderline enlarged liver with normal texture and

hepatorenal blood flow. Persistent in-hospital fever spikes were noted, with all serial blood and urine cultures returning sterile. Autoimmune markers, including ANA and RF, were negative, as were tests for rK39 antigen and malarial parasites. Serum immunoglobulins were within normal ranges. Elevated ESR (50 mm/hr) and ferritin (430 mcg/L) suggested an inflammatory or chronic disease process, whereas normal LDH and negative direct and indirect Coombs tests ruled out autoimmune hemolytic anemia. Bone marrow aspiration and biopsy indicated normal cellular marrow with effective trilineage hematopoiesis.

Advanced Imaging:

CECT of the thorax showed centrilobular nodules with a tree-in-bud pattern and interlobular septal thickening, along with multiple enlarged mediastinal lymph nodes. (Fig 1) CECT of the abdomen displayed a markedly enlarged spleen and enlarged lymph nodes in the retroperitoneal and peripancreatic areas, raising suspicions of disseminated tuberculosis. (Fig 2) Despite comprehensive testing, including bronchoalveolar lavage, the microbiological evidence for tuberculosis was inconclusive.

Management and Outcome:

Given the high prevalence of tuberculosis in the region and the suggestive radiological findings, empirical Anti Tubercular Therapy (ATT) comprising Isoniazid, Rifampicin, Pyrazinamide, and Ethambutol was initiated. The patient was counseled about the risks associated with massive splenomegaly and the potential need for splenectomy, which she declined. She was discharged with instructions for close follow-up.

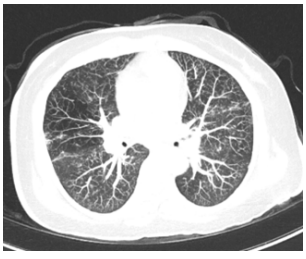

Fig 1- CECT thorax image, depicting centrilobular nodules with a tree-in-bud appearance

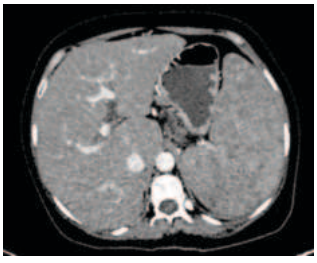

Fig 2- CECT abdomen image, revealing an enlarged spleen with diffusely scattered hypodense foci, suggesting splenic involvement.

Follow-Up:

The patient underwent close follow-up in the outpatient department (OPD). Serial ultrasound examinations of the whole abdomen were conducted as part of her routine follow-up. Two months post-discharge, ultrasound findings indicated a significant reduction in spleen size to 16 cm, with no noted heterogeneity. A subsequent ultrasound at four months showed a spleen of normal size along with clinical improvement in symptoms of fever and abdominal discomfort, suggesting a favorable response to the initiated therapy.

DISCUSSION:

Tuberculosis (TB) continues to be a major public health issue in India, characterized by its non-specific symptoms that complicate timely diagnosis. While TB can manifest in various forms, its role in causing massive splenomegaly is not commonly acknowledged. Differential diagnosis for such splenomegaly typically includes conditions like chronic myeloid leukemia, myelofibrosis, Gaucher's disease, lymphoma, hairy cell leukemia, Kala-Azar, and thalassemia. (4) In this case, extensive evaluations ruled out these common etiologies, and the patient declined an excisional splenectomy.

Historically, the first report of splenic TB dates back to 1846 by Coley, with its occurrence largely noted among immunocompromised individuals, particularly those with HIV infection. (5-6) However, our case presents an unusual instance of splenic TB in an immunocompetent patient, thereby challenging the conventional understanding. Although definitive microbiological confirmation was not achieved, radiological signs were strongly indicative of disseminated TB. The Montoux test, albeit limited in diagnostic value due to the high prevalence of TB in India, supported the diagnosis with a 12 mm induration.

This case underscores the necessity of considering TB in the differential diagnosis of massive splenomegaly, even in immunocompetent individuals. The successful management with Anti-Tuberculosis Treatment (ATT) in this patient without surgical intervention highlights the efficacy of conservative treatment approaches. The case adds to the body of evidence suggesting TB as a potential underlying cause for significant splenomegaly and calls for further research to elucidate the mechanisms of this unique presentation.

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