

A case of multiple presentations of abdominal tuberculosis: A diagnostic challenge

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Abstract

Background: Abdominal tuberculosis (TB) is an uncommon form of extrapulmonary tuberculosis that presents with nonspecific clinical manifestations, often leading to delayed diagnosis and management. It can involve the gastrointestinal tract, peritoneum, lymph nodes, and solid abdominal organs.

Case Presentation: A 16-year-old female presented to the emergency department with abdominal pain, progressive abdominal distension, vomiting for three days, and absolute constipation for two days. Clinical

examination revealed abdominal distension, generalised tenderness, rigidity, and absent bowel sounds suggestive of intestinal obstruction. Radiological investigations, including abdominal X-ray and contrast-enhanced computed tomography (CECT), demonstrated closed-loop jejunal obstruction, gross ascites, and peritoneal thickening. Exploratory laparotomy revealed straw-colored ascitic fluid, multiple tubercles over the peritoneum, bowel loops, and omentum, along with dense adhesions between intestinal loops and the anterior abdominal wall. Histopathological examination of the

omental biopsy showed granulomatous inflammation with acid-fast bacilli, confirming abdominal tuberculosis. Ascitic fluid adenosine deaminase (ADA) level was elevated at 64 U/L. The patient was initiated on anti-tubercular therapy (ATT) and showed clinical improvement.

Conclusion: Abdominal tuberculosis should be considered in young patients presenting with intestinal obstruction, ascites, and peritoneal thickening, especially in endemic regions. Early diagnosis through imaging, histopathology, and microbiological confirmation is crucial for timely treatment and favourable outcomes.

Keywords: Abdominal Tuberculosis, Peritoneal Tuberculosis, Intestinal Obstruction, Ascites, Exploratory Laparotomy, Anti-Tubercular Therapy.

Introduction

Tuberculosis remains a major public health concern worldwide and is caused by *Mycobacterium tuberculosis*. According to the World Health Organization (WHO), tuberculosis continues to be one of the leading infectious causes of morbidity and mortality globally. Although pulmonary tuberculosis is the most common form, extrapulmonary tuberculosis accounts for approximately 15–20% of all cases, with abdominal tuberculosis representing about 3–5% of these cases¹.

Abdominal tuberculosis may involve the gastrointestinal tract, peritoneum, mesentery, lymph nodes, and solid abdominal organs. The ileocecal region is the most frequently affected site due to physiological stasis, increased fluid absorption, and abundant lymphoid tissue². Clinical manifestations are often nonspecific and include abdominal pain, fever, weight loss, anorexia, altered bowel habits, ascites, and intestinal obstruction. These variable presentations frequently mimic

malignancy, inflammatory bowel disease, and other intra-abdominal pathologies, making diagnosis challenging³.

Peritoneal tuberculosis is one of the common forms of abdominal TB and may present with ascites, peritoneal thickening, abdominal distension, and constitutional symptoms. Delayed diagnosis may result in complications such as bowel obstruction, perforation, fistula formation, and peritonitis requiring surgical intervention⁴.

We report a case of abdominal tuberculosis presenting with acute intestinal obstruction and ascites in a young female, highlighting the diagnostic difficulties and importance of maintaining a high index of suspicion in endemic areas.

Case Presentation

A 16-year-old female was admitted to the emergency department with complaints of diffuse abdominal pain, progressive abdominal distension, vomiting for three days, and absolute constipation for two days.

There was no significant history of tuberculosis or chronic systemic illness. On admission, the patient's vital signs were stable.

Clinical Examination

General Examination

- Conscious and oriented.
- Hemodynamically stable.

Abdominal Examination

- Distended abdomen.
- Everted umbilicus.
- No engorged superficial veins.
- Generalized abdominal tenderness.
- Rigidity present.
- Bowel sounds absent.

The clinical findings were suggestive of acute intestinal obstruction.

Per Rectal Examination

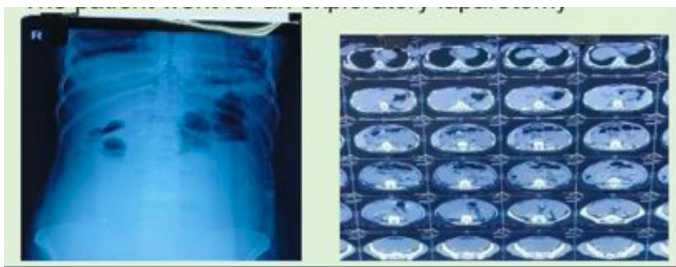
- Normal findings.

Investigations

Radiological Findings

- Plain abdominal X-ray suggested intestinal obstruction.
- Contrast-enhanced computed tomography (CECT) abdomen demonstrated:
 - Closed-loop obstruction involving the jejunum.
 - Gross ascites.
 - Peritoneal and omental thickening along the anterior abdominal wall.

Based on the clinical and radiological findings, an exploratory laparotomy was planned.



Surgical Findings

Exploratory laparotomy revealed:

- Significant amount of straw-colored ascitic fluid.
- Multiple tubercles scattered over:
 - Peritoneum
 - Omentum
 - Small bowel loops
- Dense adhesions between bowel loops and the anterior abdominal wall.
- Features suggestive of tuberculous peritonitis causing intestinal obstruction.

Adhesiolysis was performed and biopsy specimens were obtained from the omentum.

Histopathological Examination

Microscopic examination of the omental biopsy demonstrated:

1. Granulomatous inflammation.
2. Epithelioid cell granulomas.
3. Multinucleated giant cells.
4. Presence of acid-fast bacilli (AFB).

These findings confirmed the diagnosis of abdominal tuberculosis.

Additionally, ascitic fluid analysis revealed:

- ADA (Adenosine Deaminase): 64 U/L

The elevated ADA level further supported the diagnosis of tuberculous peritonitis.



Treatment and Outcome

Following confirmation of the diagnosis, the patient was started on standard anti-tubercular therapy (ATT) according to national tuberculosis treatment guidelines.

The postoperative period was uneventful. The patient showed gradual clinical improvement with resolution of abdominal symptoms and recovery from intestinal obstruction.

Discussion

Abdominal tuberculosis remains a diagnostic challenge because of its varied and nonspecific clinical manifestations. It may involve the gastrointestinal tract, peritoneum, mesenteric lymph nodes, or solid organs, either singly or in combination².

The peritoneum is among the most commonly involved sites. Tuberculous peritonitis may present as wet ascitic, fibrotic-fixed, or dry plastic forms. The present case demonstrated features of both ascitic and adhesive forms,

characterized by gross ascites, multiple tubercles, and dense intra-abdominal adhesions.

Intestinal obstruction is a recognized complication of abdominal tuberculosis and may result from strictures, adhesions, inflammatory masses, or bowel wall thickening. In our patient, dense adhesions and peritoneal involvement resulted in a closed-loop jejunal obstruction requiring surgical intervention.

Imaging plays an important role in diagnosis. CT findings such as ascites, smooth peritoneal thickening, omental caking, mesenteric lymphadenopathy, and bowel wall thickening are highly suggestive of abdominal TB⁵. However, these findings are not pathognomonic and may resemble peritoneal carcinomatosis or Crohn's disease. Measurement of ascitic fluid ADA is a valuable diagnostic marker. ADA levels greater than 39 U/L have been reported to possess high sensitivity and specificity for tuberculous peritonitis⁶. In the present case, ADA was elevated to 64 U/L.

Definitive diagnosis requires microbiological or histopathological confirmation. Demonstration of caseating granulomas and acid-fast bacilli remains the gold standard for diagnosis⁷. Histopathological examination of the omental biopsy in our patient established the diagnosis.

Medical management with ATT remains the cornerstone of treatment. Surgery is reserved for complications such as obstruction, perforation, abscess formation, or diagnostic uncertainty⁸. Early diagnosis and prompt treatment are associated with excellent prognosis and reduced morbidity.

Conclusion

Abdominal tuberculosis should be considered in the differential diagnosis of young patients presenting with ascites, intestinal obstruction, and peritoneal thickening,

particularly in tuberculosis-endemic regions. The disease can mimic various surgical and medical conditions, often delaying diagnosis. Histopathological confirmation, supported by imaging and ascitic fluid ADA estimation, remains essential for accurate diagnosis. Early initiation of anti-tubercular therapy, combined with surgical management when indicated, leads to favourable clinical outcomes.

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