Section: General Surgery

Case Series

ABDOMINAL TUBERCULOSIS: A CASE SERIES OF DIFFERENT PATIENTS WITH VARIABLE PRESENTATIONS

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Received *: 07/08/2026*
Received in revised form *: 08/09/2026*
Accepted *: 21/09/2026*

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DOI: 10.70034/ijmedph.2026.4.180

Source of Support: Nil,
Conflict of Interest: None declared

Int J Med Pub Health
2026; 16 (4); 1188-1191

ABSTRACT

Background: Abdominal tuberculosis remains a significant diagnostic and therapeutic challenge in developing countries due to its varied clinical presentations and nonspecific symptoms. It can involve the peritoneum, gastrointestinal tract, lymph nodes, and solid abdominal organs. Early diagnosis is essential to prevent morbidity and mortality.

Case Presentation: We present a case series of four patients diagnosed with abdominal tuberculosis with different presentations. Two patients presented with ascites and chronic abdominal pain and were diagnosed with peritoneal tuberculosis through diagnostic laparoscopy and biopsy, followed by successful management with anti-tubercular therapy (ATT). One patient presented with features of intestinal obstruction due to ileocecal tuberculosis and underwent right hemicolectomy with histopathological confirmation. Another patient presented with ileal perforation and peritonitis, diagnosed intraoperatively during diagnostic laparoscopy and managed surgically.

Conclusion: Abdominal tuberculosis can mimic several surgical and medical conditions. A high index of suspicion, combined with appropriate imaging, diagnostic laparoscopy, histopathology, and timely intervention, is critical for optimal outcomes.

Keywords: Abdominal tuberculosis, Peritoneal tuberculosis, Ileocecal tuberculosis, Ileal perforation, Diagnostic laparoscopy, Anti-tubercular therapy.

INTRODUCTION

Tuberculosis (TB) remains a major global health problem, particularly in developing countries such as India. Extrapulmonary tuberculosis accounts for a significant proportion of TB cases, with abdominal tuberculosis being one of the common manifestations. Abdominal TB may involve the gastrointestinal tract, peritoneum, mesentery, lymph nodes, or solid organs.

The disease often presents with nonspecific symptoms such as abdominal pain, fever, weight loss, anorexia, abdominal distension, and altered bowel habits. Due to its variable presentation, diagnosis is often delayed or confused with malignancy, inflammatory bowel disease, or other intra-abdominal pathologies.

Peritoneal tuberculosis usually presents with ascites and constitutional symptoms, whereas intestinal tuberculosis commonly affects the ileocecal region and may present with obstruction or perforation. Diagnostic laparoscopy plays an important role in establishing diagnosis when imaging and laboratory investigations are inconclusive.

This case series highlights patients with different presentations of abdominal tuberculosis managed at our institution.

CASE SERIES

Case 1 – Peritoneal Tuberculosis Diagnosed by Diagnostic Laparoscopy

Clinical Presentation

A 38-year-old female presented with complaints of dull aching abdominal pain, on & off low-grade fever since 1 months, complaint of loose stools X 4 days, generalised tiredness, nausea and weight loss for two months. There was no history of previous tuberculosis.

Examination

The patient was moderate built with mild abdominal distension and shifting dullness suggestive of ascites. No palpable abdominal mass was noted.

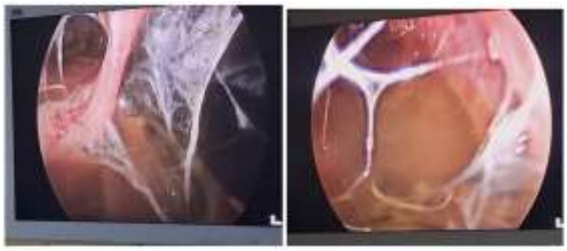
Investigations

- Hemoglobin: 10.2 g/dL
- ESR: Elevated
- Chest X-ray: Normal
- Ultrasound abdomen: Moderate ascites(Chronic), Bilateral traces of pleural effusion
- Colonoscopy: Normal Study
- Contrast-enhanced CT abdomen: Omental nodularity with ascites and peritoneal enhancement
- Ascitic fluid analysis: Exudative fluid with elevated ADA levels

Management

As the diagnosis remained inconclusive, diagnostic laparoscopy was performed. Intraoperatively

1. Cocoon abdomen noted.
2. Multiple inter bowel adhesion between small to small & small to large bowel noted.
3. Omentum & Small bowel adhered to parietal wall.
4. Ascitic Fluid of 2.5 L aspirated.



Histopathology

Peritoneal biopsy revealed caseating granulomatous inflammation suggestive of tuberculosis.

Outcome

The patient was started on standard anti-tubercular therapy (ATT) and showed significant clinical improvement during follow-up.

Case 2 – Peritoneal Tuberculosis Managed with Diagnostic Laparoscopy proceed Abscess drainage & ATT regimen

Clinical Presentation

A 43-year- Female presented with lower abdominal pain, abdominal fullness, evening rise of temperature, anorexia, complaints of cough since 7 days and weight loss for three months.

Examination

Diffuse abdominal tenderness with evidence of free fluid was noted.

Investigations

- Elevated ESR and CRP
- Ultrasound abdomen: Gross ascites
- CT abdomen: Peritoneal thickening with mesenteric lymphadenopathy
- Ascitic fluid ADA: Elevated

Management

Diagnostic Laparoscopy proceed right tubo-ovarian Abscess Drainage + Peritoneal Biopsy + Ascitic fluid drainage was performed due to persistent symptoms and uncertain diagnosis.

Intraoperative Findings

- Multiple Pearly Peritoneal Nodules and Plaques on parietal and visceral peritoneum
- Thickened omentum
- Straw-coloured peritoneal free fluid
- Intra abdominal adhesion
- Centric bowel studded with tubercular nodule & bilateral tubo-ovarian abscess along with bowel adhesions
- Peritoneal biopsies were obtained.



Histopathology

Histopathological examination showed granulomatous inflammation with central caseation consistent with tuberculosis.

CB NAAT – M. Tuberculosis detected

Outcome

The patient was initiated on ATT with gradual resolution of symptoms and ascites.

Case 3 – Ileocecal Tuberculosis Presenting with Intestinal Obstruction

Clinical Presentation

A 34-year-old male presented with colicky abdominal pain, abdominal distension, vomiting, constipation, and significant weight loss for one month.

Examination

The patient had abdominal distension with exaggerated bowel sounds and tenderness in the right iliac fossa.

Investigations

- X-ray abdomen: Multiple air-fluid levels

- CT abdomen: Thickening of ileocecal region with proximal bowel dilatation suggestive of obstruction
- Colonoscopy: Narrowed ileocecal region

Management

Due to features of acute intestinal obstruction, Diagnostic Laparoscopy was performed.

Intraoperative Findings

- Thickened ileocecal junction
- Dense adhesions
- Proximal bowel dilatation
- Mesenteric lymphadenopathy

Laparoscopic assisted Right hemicolectomy with Ileotransverse anastomosis was performed.



Histopathology

Histopathological examination confirmed ileocecal tuberculosis with granulomatous inflammation and caseous necrosis.

Outcome

The postoperative period was uneventful. The patient was started on ATT and remained symptomatically better during follow-up.

Case 4 – Ileal Perforation Due to Tuberculosis Diagnosed on Diagnostic Laparoscopy

Clinical Presentation

A 25-year-old female presented to the emergency department with severe abdominal pain, fever, vomiting, and abdominal distension for two days.

Examination

The patient was tachycardic with signs of generalized peritonitis including guarding, rigidity, and rebound tenderness.

Investigations

- Leukocytosis present
- Erect abdominal X-ray: Free air under diaphragm
- CT abdomen: Pneumoperitoneum with free fluid suggestive of hollow viscus perforation

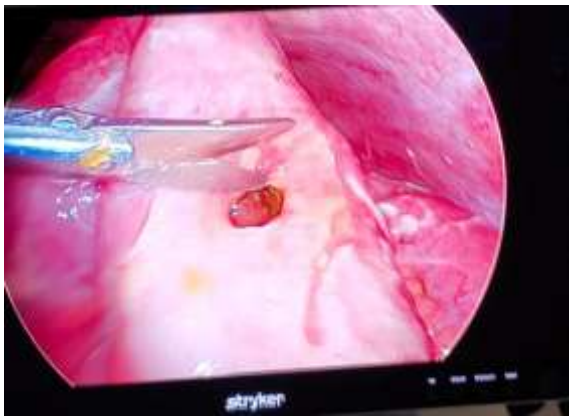
Management

Emergency diagnostic laparoscopy was performed.

Intraoperative Findings

- Ileal perforation with surrounding inflammatory changes
- Purulent contamination of the peritoneal cavity

The patient underwent surgical management with perforation closure and thorough peritoneal lavage.



Histopathology

Biopsy from the lesion demonstrated granulomatous inflammation suggestive of tuberculosis.

CBNAAT – M. Tuberculosis detected

Outcome

The patient improved postoperatively and was started on ATT after stabilization.

DISCUSSION

Abdominal tuberculosis (ATB) presents with diverse clinical manifestations, ranging from chronic abdominal pain and ascites to intestinal obstruction and perforation. Its nonspecific presentation frequently mimics peritoneal malignancy, Crohn's disease and other inflammatory conditions, making diagnosis challenging, particularly in tuberculosis-endemic countries such as India.[1-4]

Peritoneal tuberculosis is commonly classified into wet-ascitic, dry or plastic, and fibrotic-fixed forms. **Wet-type peritoneal tuberculosis** is characterized by predominant ascites, usually accompanied by abdominal distension, pain, fever and weight loss. The dry or plastic form presents with peritoneal tubercles and adhesions, whereas the fibrotic-fixed form is associated with omental thickening, matted bowel loops and occasionally an abdominal cocoon.[2,4] In our series, the patients with ascites and chronic abdominal symptoms illustrate the wet-ascitic presentation, while extensive adhesions and a cocoon-like appearance indicate an associated fibroadhesive component. Ascitic fluid adenosine deaminase (ADA) is a useful supportive investigation; however, histopathological and microbiological confirmation should be pursued whenever feasible.[6-8,13]

Diagnostic laparoscopy plays an important role when imaging and fluid analysis remain inconclusive. Typical findings include multiple peritoneal tubercles, thickened peritoneum, omental involvement, adhesions and ascites. Laparoscopy permits targeted biopsy for histopathology, mycobacterial culture and molecular testing, helping

distinguish tuberculosis from malignancy and other granulomatous disorders.[5,9,13] Nevertheless, dense adhesions and matted bowel loops increase the risk of bowel injury, necessitating careful patient selection.

Ileocaecal tuberculosis is the most common form of gastrointestinal involvement and may cause ulceration, mural thickening, fibrosis and luminal narrowing, resulting in intestinal obstruction. In our third case, obstructive symptoms and ileocaecal thickening necessitated right hemicolectomy with Ileotransverse anastomosis, with histopathology confirming tuberculosis. Although uncomplicated intestinal tuberculosis is primarily treated medically, surgery is indicated for complete or persistent obstruction, perforation, significant bleeding or suspected malignancy.[3,10,11,13]

Ileal perforation is a life-threatening complication of tuberculous ulceration that may lead to generalized peritonitis and sepsis. The fourth case highlights the importance of prompt resuscitation, antimicrobial therapy and emergency surgical source control. Primary repair or segmental resection should be selected according to bowel viability, tissue quality, extent of disease and physiological stability. Diagnostic laparoscopy may be appropriate in selected stable patients, but it should not delay definitive treatment in patients requiring urgent source control.[10,11,16,17]

Overall, these four cases demonstrate the variable presentation of abdominal tuberculosis and the complementary roles of diagnostic laparoscopy, histopathology, ATT and selective surgery. The small, descriptive nature of this series limits conclusions regarding diagnostic accuracy or comparative treatment outcomes. Nevertheless, a high index of suspicion, timely tissue diagnosis and individualized management are essential to optimize outcomes in abdominal tuberculosis.[4,10,13]

CONCLUSION

Abdominal tuberculosis should always be considered in the differential diagnosis of chronic abdominal symptoms, ascites, intestinal obstruction, and bowel perforation, especially in endemic regions. Diagnostic laparoscopy plays a vital role in obtaining tissue diagnosis in uncertain cases. Early diagnosis and prompt initiation of anti-tubercular therapy significantly improve patient outcomes.

Learning Points

- Abdominal tuberculosis has varied clinical presentations.
- Peritoneal tuberculosis commonly presents with ascites and constitutional symptoms.
- Diagnostic laparoscopy is highly useful for definitive diagnosis.
- Ileocecal tuberculosis is the most common intestinal site involved.
- Intestinal obstruction and perforation are important surgical complications.
- Early ATT with timely surgical management improves prognosis.

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