

## Clinical Presentation and Surgical Management of Abdominal Tuberculosis: A Case Series Study

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### Abstract

**Background:** Abdominal tuberculosis (TB) continues to be a global health concern. The principal forms of abdominal TB are intestinal, peritoneal and nodal. The clinical symptoms and signs of abdominal TB are non-specific and diagnosis is delayed when the patient presents with surgical complications.

**Aims & Objective:** To study the various clinical presentations and surgical management options of abdominal tuberculosis.

**Material and Method:** In this case series analysis, 50 consecutive patients with abdominal tuberculosis from a government tertiary care centre in Ahmedabad were included. In the study population, the mean age of presentation was 31 years with no gender predisposition. The patients were notably poorly nourished with an average BMI of 19.9 kg/sq m.

**Result:** The presenting complaints in the patients were abdominal pain (100%), abdominal distension (76%) and features of subacute intestinal obstruction (72%). ESR was noted to be elevated in all patients with a mean of 54. Erect abdominal x-ray showed multiple air-fluid levels in 37(74%) and free air under the diaphragm in 6 (12%). CECT was the investigation of choice. 20 out of 50 underwent CECT with common findings being ascites (60%), lymph node enlargement (65%), and ileal stricture (25%). 20 patients (40%) were successfully managed conservatively, started on ATT and discharged with adequate weight gain at the end of six months. 30 patients (60%) required operative intervention in the form of adhesiolysis, resection of bowel segment with anastomosis or a diversion stoma. Postoperatively, three patients (6%) developed an anastomotic leak with an overall mortality of six patients (12%).

**Conclusion:** Abdominal tuberculosis continues to be widely prevalent in our society. Management involves a judicious combination of antitubercular therapy and surgery which may be required to treat complications such as intestinal obstruction and perforation.

**Keyword:** Abdominal Tuberculosis, Surgical Management, Intestinal Obstruction, Antitubercular Therapy, DOTS.

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### Introduction

Tuberculosis can involve any part of the gastrointestinal tract and is the sixth most frequent site of extrapulmonary involvement. Both the incidence and severity of abdominal tuberculosis are expected to increase with increasing incidence of HIV infection. Tuberculosis bacteria reach the gastrointestinal tract via haematogenous spread, ingestion of infected sputum, or direct spread from infected contiguous lymph nodes and fallopian tubes.

The gross pathology is characterized by transverse ulcers, fibrosis, thickening and structuring of the bowel wall, enlarged and matted mesenteric lymph nodes, omental thickening, and peritoneal

tubercles. Peritoneal tuberculosis occurs in three forms: wet type with ascitis, dry type with adhesions, and fibrotic type with omental thickening and loculated ascites. The most common site of involvement of the gastrointestinal tuberculosis is the ileocaecal region. Ileocaecal and small bowel tuberculosis presents with a palpable mass in the right lower quadrant and/or complications of obstruction, perforation or malabsorption especially in the presence of stricture.

Rare clinical presentations include dysphagia, odynophagia and a mid-oesophageal ulcer due to oesophageal tuberculosis, dyspepsia and gastric

outlet obstruction due to gastroduodenal tuberculosis, lower abdominal pain and haematochezia due to colonic tuberculosis, and annular rectal stricture and multiple perianal fistulae due to rectal and anal involvement. Tuberculosis (TB) of the abdomen presents in a variety of ways and is a great mimic. It can present as nominal as dull aching abdominal pain to a surgical emergency like an intra-abdominal abscess, acute intestinal obstruction or as a hollow viscus perforation. The abdomen is involved in 10%-30% of patients with pulmonary TB and accounts for between 5% and 10% of TB notifications in the United Kingdom. Greater than 75% of cases occur in immigrants, with most coming from the Indian subcontinent [2,3]. In the United States, among native-born white Americans, abdominal TB is primarily a disseminated disease of elderly, debilitated patients with chronic illnesses. Among foreign-born individuals, abdominal TB occurs in the young, immunocompetent patients from endemic areas [5].

In India though, tuberculosis continues to be a huge burden on the healthcare system. Though pulmonary and lymph nodal TB carry the bulk of the burden, abdominal tuberculosis is also frequently diagnosed and managed in the Indian set-up. The burden of tuberculosis in indoor patients was 1.3 cases per every 100 patients admitted to the department of gastroenterology, with 2 of the 58 cases requiring surgical intervention as per the study [1].

The presentation of abdominal tuberculosis is varied, difficult to diagnose either clinically or radiologically, requiring a high index of suspicion and frequently requiring operative intervention for acute emergency presentations, with an eventual diagnosis being made intraoperative. The purpose of this study was to study the disease, its complications, management, the morbidity and mortality associated with it.

### **Aim & Objective**

To study the various clinical presentations and surgical management options of abdominal tuberculosis.

To study morbidity and mortality associated with Abdominal Tuberculosis.

### **Patients and Methods**

It is a retrospective study with target samples being confirmed cases of abdominal tuberculosis. The study period was from October 2019 to March 2020. 50 patients with abdominal tuberculosis who presented to the Surgical Emergency at Civil Hospital, Ahmedabad (a tertiary care hospital) were included in the study.

The patient characteristics examined included age, sex, presenting medical complaints and clinical examination. Complete Blood counts, serum biochemistry for renal and liver function and erythrocyte sedimentation rate (ESR) were performed in all patients. Chest X-ray (PA view), Erect Abdominal X-ray (AP view), and Ultrasound Abdomen with Pelvis were performed on all patients presenting to the surgical emergency. Vitaly stable patients with an unconfirmed diagnosis underwent contrast-enhanced computed tomography (CECT) of the Abdomen and pelvis. Patients with unstable vitals or those with surgical emergencies were taken up for Emergency Laparotomy without further investigations.

A case was defined as a confirmed case of abdominal tuberculosis if it fulfilled one of the following criteria:

1. Microbiological evidence of the presence of acid-fast bacilli (AFB) in tissue or fluid
2. Presence of caseation necrosis in the tissue specimen
3. Histology showing characteristic granulomas and/or chronic inflammatory infiltrate with epithelioid cells.

A case was considered a clinically diagnosed case when clinical and radiological evidence was strongly in favour of abdominal tuberculosis, even in the absence of biochemical or microbiological evidence. Those not responsive to anti-tubercular therapy (ATT) were excluded from this set.

Patients with human immunodeficiency virus (HIV) positive status were excluded from the study.

### **Results**

Of the 50 patients studied, the mean age of presentation was 31 years (range - 16 years to 55 years) with no gender predisposition (26: male and 24: female). Most patients had a poor nourishment status with an average BMI of 19.9 kg/sq m.

The presenting abdominal complaints in the patients were abdominal pain (100%), abdominal distension (76%) and features of subacute intestinal obstruction (72%). Fever (46%), reduced appetite (44%) and weight loss (56%) were the other symptoms as part of the presentation.

Complete blood counts and serum biochemistry were essentially normal or related to the surgical complication they presented with. ESR was noted to be elevated in all patients (mean = 54 mm per hour). Erect abdominal x-ray showed multiple air-fluid levels in 37 patients (74%) and free air under the diaphragm in six patients (12%). 20 out of 50 underwent CECT of the abdomen and pelvis, with the common findings being lymph node enlargement (65%), ascites (60%), and ileal

stricture (25%). In our study, 20 of the 50 cases (40%) were managed conservatively, without the need for operative intervention. They were discharged tolerating a full oral diet and taking ATT. On a six-month follow-up, patients were doing well with adequate weight gain. Being a tertiary care centre, many of the cases were referred after the development of complications. This explains the increased number of patients requiring operative intervention in our study (30 out of 50 – 60%). Of the patients, small bowel obstruction was the most common indication for an emergency laparotomy, with intestinal perforation being the other common indication. The surgical procedures carried out in these patients included adhesiolysis

in nine patients (18%), Resection of bowel with anastomosis in six patients (12%), Resection of bowel with stoma formation in eight patients (16%) and closure with biopsy (without any bowel handling) in five patients (10%). Three patients had a postoperative fecal leak as the main complication, two of whom underwent re-laparotomy. All patients started IV anti-tubercular therapy initially and switched to oral anti-tubercular therapy before being discharged. Despite the appropriate preoperative resuscitation, intra-operative care for minimal bowel handling and supportive post-operative care, six patients expired with a mortality of 12%.

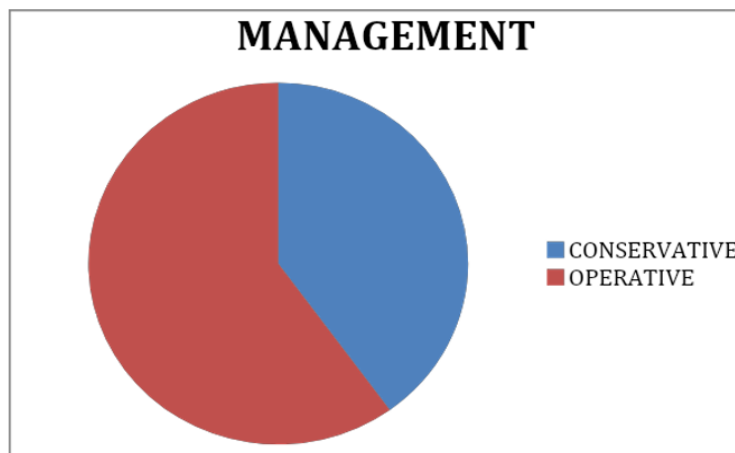


Figure 1:

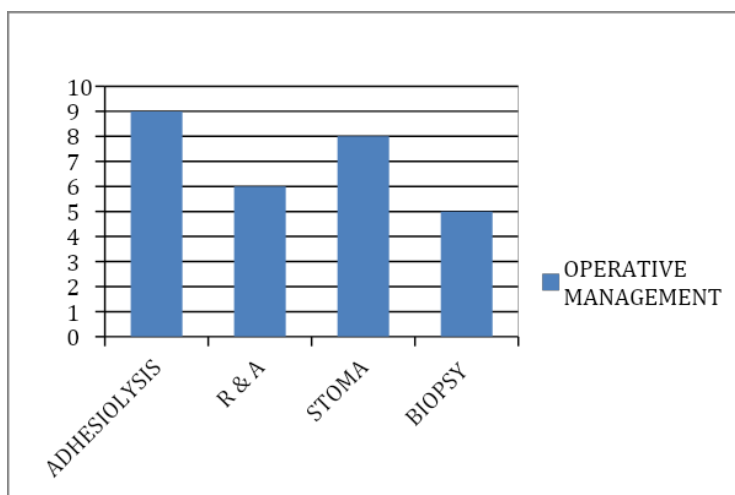


Figure 2:

**Discussion**

In our study, 20 of the 50 cases (40%) were medically or conservatively managed without the need for operative intervention. They were discharged tolerating a full oral diet and taking ATT. On a 6 month follow-up, patients were doing well with adequate weight gain. However, being a tertiary care centre, most cases were referred here with complications. This explains the increased

number of patients requiring operative intervention in our study (30 out of 50 – 60%). Of the patients, bowel obstruction was the most common indication for Exploratory Laparotomy with free perforation being the other indication.

The surgical procedures carried out at our setup included Adhesiolysis in 9 patients, Resection of bowel with Anastomosis in 6 patients, Resection of bowel with stoma formation in 8 patients and

closure with biopsy (without any bowel handling) in 5 patients. 3 patients had a postoperative faecal leak as the main complication, 2 of whom underwent re-laparotomy. All patients started IV anti-tubercular therapy initially and switched to oral anti-tubercular therapy before being discharged. Despite the appropriate pre-operative assessment, intra-operative care for minimal bowel handling and supportive post-operative care, 6 patients expired with a mortality of 12%.

This corroborates with the findings of Bhansali SK et al, who reported that the high mortality was partly associated with malnutrition, anaemia and hypoalbuminemia, the mortality being higher (12%-25%) in the presence of acute complication [14]. In our study, since we dealt only with patients in the emergency we noted that all the patients (100%) had abdominal pain as a common complaint. Intensity varied from dull aching pain to severe colicky pain.

It was associated with distension abdominal distension in 76% of cases, with features of acute/subacute intestinal obstruction with multiple dilated small bowel loops with air-fluid levels in 72% of cases. The burden continues to remain significant in India, despite advances in awareness, availability of short-course chemotherapy and robust government initiatives.

Neither clinical signs, laboratory, radiological and endoscopic methods nor bacteriological and histopathological findings provide a gold standard by themselves in the diagnosis of abdominal tuberculosis

### Conclusion

Abdominal tuberculosis is a fairly common disease with many varied presentations.. It is a medical condition requiring anti-tuberculous chemotherapy. However, surgical intervention including laparotomy for exploration is frequently needed in the management of abdominal tuberculosis, in view of delay in diagnosis and the presentation of patients with surgical emergencies.

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