e-ISSN: 0976-822X, p-ISSN:2961-6042

Available online on http://www.ijcpr.com/

International Journal of Current Pharmaceutical Review and Research 2025; 17(8); 190-194

Original Research Article

Intestinal Obstruction Caused by Tuberculosis: A Clinical Analysis

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Received: 27-06-2025 / Revised: 25-07-2025 / Accepted: 27-08-2025

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Conflict of interest: Nil

Abstract:

Background: Intestinal tuberculosis (ITB) remains a significant cause of morbidity in developing countries, particularly in endemic regions like India. Obstruction is the most common complication of ITB and often necessitates surgical intervention. Despite advancements in diagnosis and therapy, delayed presentation and varied clinical features continue to challenge effective management.

Aim: To evaluate the clinical profile, anatomical distribution, management strategies, and outcomes of patients presenting with intestinal obstruction due to tuberculosis at a tertiary care center.

Methods: A prospective observational study was conducted in the Department of General Surgery, Darbhanga Medical College & Hospital, over 12 months. A total of 115 patients with confirmed tubercular intestinal obstruction were included. Data on demographics, clinical features, anatomical sites of involvement, treatment modalities, and outcomes were collected. Statistical analysis was performed using SPSS version 23.0, with continuous variables expressed as mean ± SD and categorical variables as frequencies and percentages. $p < 0.05$ was considered statistically significant.

Results: The mean age of patients was 34.6 ± 12.8 years, with a male-to-female ratio of 1.6:1. Abdominal pain (96.5%) and vomiting (87.8%) were the most common presenting symptoms. The ileocecal region (52.2%) was the most frequently affected site. Of the 115 patients, 43 (37.4%) were managed conservatively, while 72 (62.6%) required surgical intervention, predominantly resection and anastomosis (31.3%) and stricturoplasty (20.9%). Postoperative complications were observed in 24.3% of surgical cases, with wound infection being the most frequent (10.4%). Mortality was low (1.7%). Surgically treated patients had longer hospital stays (12.3 vs. 8.6 days, $p = 0.032$) but better symptom resolution (93.1% vs. 81.4%, $p = 0.041$).

Conclusion: Tubercular intestinal obstruction primarily affects young adults, with the ileocecal region being the most common site. While conservative management may benefit select cases, surgery is often required and offers better outcomes despite increased complication rates and hospital stay. Early diagnosis and timely surgical intervention are key to reducing morbidity and mortality.

Recommendations: Routine consideration of tuberculosis in intestinal obstruction cases in endemic areas is essential. Standardized diagnostic protocols should be implemented to reduce diagnostic delay. Surgical preparedness must be ensured in high-burden settings. Long-term follow-up is recommended to monitor recurrence and treatment adherence. Further multicentric studies are needed to optimize management guidelines.

Keywords: Intestinal Tuberculosis; Intestinal Obstruction; Ileocecal Tuberculosis; Surgical Management; Conservative Treatment.

Introduction

Tuberculosis (TB) continues to pose a significant global health threat, with gastrointestinal tuberculosis (GITB) representing a distinct yet often underrecognized manifestation of extrapulmonary disease. GITB accounts for approximately 1–3% of all tuberculosis cases worldwide, particularly affecting populations in endemic regions [1,2]. The terminal ileum and ileocecal region are commonly involved due to their rich lymphoid tissue and relative stasis, making them preferred sites for Mycobacterium

tuberculosis colonization and granuloma formation [3].

Clinical presentation of intestinal tuberculosis is frequently insidious and non-specific, which complicates early diagnosis. Patients often present with vague abdominal symptoms, including pain, altered bowel habits, and obstructive features that evolve gradually [3,4]. Constitutional signs such as fever, weight loss, and night sweats are common in high-burden settings, reported in up to 73% of cases in some cohorts. However, diagnostic delays are typical, with reported time to initiation of therapy ranging from 70 days to as long as 30 months from symptom onset [4]. This delay contributes significantly to complications like intestinal obstruction, perforation, and strictures—obstruction being the most frequently observed complication, affecting up to 75% of GITB cases in high TB prevalence areas [5].

The pathogenesis of intestinal TB involves several routes of infection. Predominant mechanisms include hematogenous spread from pulmonary foci, ingestion of bacilli through sputum, and contiguous spread from adjacent infected structures [2]. The intricate interplay of host immunity and Mycobacterium virulence mechanisms—such as macrophage evasion and granulomatous inflammation—drives tissue damage, fibrosis, and subsequent stricture formation [6]. Emerging studies also suggest the gut microbiome may influence susceptibility and disease progression, although this remains an area for future research [6].

Management of intestinal TB hinges on a combination of anti-tubercular chemotherapy and surgical intervention in complications such as obstruction. While anti-TB therapy remains the cornerstone, strictures often respond poorly; one cohort reported stricture resolution in only 23.6% of patients after 6 months of treatment, with many requiring surgical management [7]. Conversely, prompt surgical intervention in cases of obstruction can lead to favorable outcomes, particularly when accompanied by histopathological confirmation and postoperative anti-TB treatment.

In this context, the present study was designed to systematically evaluate 115 patients with tuberculous intestinal obstruction over 12 months at Darbhanga Medical College & Hospital. Emphasis was placed on delineating demographic and clinical features, anatomical involvement, management strategies, and outcomes. By providing comprehensive and contemporary insights, this study aims to refine diagnostic algorithms and guide timely, evidence-based interventions for this potentially serious presentation of intestinal tuberculosis.

Methodology

Study Design: This research was designed as a hospital-based prospective observational study.

Study Setting: The study was undertaken in the Department of General Surgery, Darbhanga Medical College & Hospital, Laheriasarai, a tertiary care center catering to a large population of Bihar and adjoining regions. The study was carried out over a period of 12 months, during which data were systematically collected, analyzed, and interpreted.

Participants: A total of 115 patients presenting with features of intestinal obstruction and subsequently confirmed to have tuberculosis as the underlying etiology were included in the study. All participants were evaluated clinically, radiologically, and histopathologically to establish the diagnosis.

Inclusion Criteria

1. Patients of all age groups and both sexes presenting with intestinal obstruction due to tuberculosis.
2. Patients willing to provide informed written consent.
3. Cases with radiological, intraoperative, or histopathological confirmation of tubercular intestinal obstruction.

Exclusion Criteria

- Patients with intestinal obstruction due to causes other than tuberculosis (e.g., malignancy, adhesions, hernia, volvulus).
- Patients with incomplete clinical data or lost to follow-up.
- Patients unwilling or unable to provide informed consent.

Bias: Selection bias was minimized by including all consecutive eligible patients within the study period. Diagnostic bias was reduced by confirming tuberculosis through standard investigations such as imaging, intraoperative findings, and histopathology. Observer bias was minimized by involving two independent surgeons in the evaluation and documentation process.

Data Collection: Data were collected using a predesigned structured proforma, which included demographic details, clinical presentation, laboratory investigations, imaging findings, intraoperative observations, treatment provided, and postoperative outcomes. Follow-up was done during the hospital stay and subsequent outpatient visits.

Procedure: All patients were initially evaluated with a detailed history and physical examination. Necessary laboratory and radiological investigations were performed to confirm the

diagnosis. Patients underwent operative or conservative management depending on the severity and nature of the obstruction. Intraoperative findings were documented in detail, and biopsy samples were sent for histopathological examination to confirm tubercular etiology. Postoperative outcomes, complications, and duration of hospital stay were recorded.

Statistical Analysis: The collected data were compiled and entered into Microsoft Excel and analyzed using SPSS version 23.0 (IBM Corp., Armonk, NY, USA). Continuous variables were expressed as mean ± standard deviation (SD), while categorical variables were presented as frequencies and percentages. Appropriate statistical tests such as Chi-square test for categorical variables and Student's t-test for continuous variables were applied. A p value of <0.05 was considered statistically significant.

Results

A total of 115 patients with intestinal obstruction due to tuberculosis were included in the study. The mean age of participants was 34.6 ± 12.8 years (range: 15–70 years). The majority of patients belonged to the age group of 21–40 years (46.9%). Males (60.9%) outnumbered females (39.1%), with a male-to-female ratio of approximately 1.6:1.

Table 1: Age and Gender Distribution of Patients (n = 115)

Age Group (years)	Male (n=70)	Female (n=45)	Total (%)
≤20	10	6	16 (13.9)
21–40	32	22	54 (46.9)
41–60	21	14	35 (30.4)
>60	7	3	10 (8.8)
Total	**70 (60.9%)**	**45 (39.1%)**	**115 (100)**

Nearly half of the patients were young adults, with a higher prevalence in males compared to females.

Clinical Presentation: Abdominal pain was the most common symptom (96.5%), followed by vomiting (87.8%), abdominal distension (75.6%), and constipation (64.3%). Fever and weight loss were seen in 40% and 35% of patients, respectively.

Table 2: Clinical Symptoms in Patients with Tubercular Intestinal Obstruction (n=115)

Clinical Feature	Frequency (n)	Percentage (%)
Abdominal pain	111	96.5
Vomiting	101	87.8
Abdominal distension	87	75.6
Constipation/obstipation	74	64.3
Fever	46	40.0
Weight loss	40	34.8

Almost all patients presented with abdominal pain and vomiting, highlighting the acute nature of obstruction, whereas constitutional symptoms were less frequent.

Anatomical Site of Involvement: The ileocecal region was the most commonly affected site (52.2%), followed by the ileum (32.2%). Multiple sites of involvement were noted in 6.1% of cases.

Table 3: Site of Intestinal Involvement (n=115)

Site Involved	Frequency (n)	Percentage (%)
Ileocecal region	60	52.2
Ileum	37	32.2
Jejunum	11	9.5
Colon	6	5.2
Multiple sites	7	6.1

Explanation: More than half of the patients had ileocecal involvement, consistent with the known predilection of tuberculosis for this region.

Type of Obstruction: Out of 115 patients, 65 (56.5%) had acute intestinal obstruction, while 50 (43.5%) had subacute or chronic obstruction.

Management Approach: Of the 115 patients, 72 (62.6%) underwent surgical intervention, while 43 (37.4%) were managed conservatively. Among the surgical group, resection and anastomosis was the most frequently performed procedure (31.3%), followed by stricturoplasty (20.9%).

Table 4: Management Modalities (n=115)

Management Modality	Frequency (n)	Percentage (%)
Conservative	43	37.4
Surgery (total)	72	62.6
– Resection & Anastomosis	36	31.3
– Stricturoplasty	24	20.9
– Ileocecal resection	7	6.1
– Adhesiolysis	5	4.3

Nearly two-thirds of patients required surgical management, with resection and anastomosis being the most common procedure.

Postoperative Complications: Postoperative complications occurred in 28 patients (24.3%). Wound infection was the most common (10.4%), followed by anastomotic leak (5.2%) and paralytic ileus (4.3%).

Table 5: Postoperative Complications (n=72 surgeries)

Complication	Frequency (n)	Percentage (%)
Wound infection	12	10.4
Anastomotic leak	6	5.2
Paralytic ileus	5	4.3
Respiratory infection	3	2.6
Mortality	2	1.7

The complication rate was acceptable, with a low mortality rate (1.7%).

Statistical Analysis: On comparing outcomes between conservative and surgical groups, surgical patients had a longer hospital stay (12.3 ± 4.2 vs 8.6 ± 2.5 days, $p = 0.032$), but higher rates of symptom resolution at discharge (93.1% vs 81.4%, $p = 0.041$).

Summary of Findings

- Majority of patients were **young adults** with male predominance.
- **Abdominal pain and vomiting** were the most common presenting complaints.
- The **ileocecal region** was the most frequently involved site.
- **62.6%** required surgical management, with **resection & anastomosis** being the commonest procedure.
- Postoperative complications occurred in **24.3%**, with **low mortality (1.7%)**.
- Surgery was associated with **better symptom resolution** despite longer hospital stay.

Discussion

In the present study comprising 115 patients with intestinal obstruction due to tuberculosis, the majority of cases were found among young adults (21–40 years), with a mean age of 34.6 years. This finding reflects the high burden of tuberculosis in the productive age group in endemic regions. A male predominance (60.9%) was observed, which may be attributed to greater exposure, lifestyle factors, and healthcare-seeking differences between genders.

Clinically, abdominal pain (96.5%) and vomiting (87.8%) were the leading symptoms, followed by abdominal distension and constipation. Constitutional symptoms like fever and weight loss were present in about one-third of cases, highlighting the chronic nature of tubercular involvement. This indicates that while the majority of patients present with features of acute or subacute obstruction, a significant subset also demonstrates systemic manifestations of tuberculosis.

The ileocecal region (52.2%) was the most commonly affected anatomical site, consistent with the classical predilection of Mycobacterium tuberculosis for this region due to physiological stasis and abundance of lymphoid tissue. The ileum was the second most frequently affected site (32.2%). This distribution suggests that ileocecal tuberculosis continues to be the leading cause of obstruction in endemic settings.

Management outcomes showed that 62.6% of patients required surgical intervention, while 37.4% could be managed conservatively. Among surgical procedures, resection with anastomosis (31.3%) and stricturoplasty (20.9%) were the most frequently performed, indicating that fibrotic strictures and localized obstructive lesions were common intraoperative findings. Conservative treatment proved beneficial in selected patients with partial obstruction, but the majority ultimately required operative management.

Postoperative complications were observed in 24.3% of surgical cases, with wound infection (10.4%) being the most frequent. Severe complications such as anastomotic leak were

relatively uncommon (5.2%), and overall mortality was low (1.7%). This demonstrates that surgery is relatively safe and effective when performed in a timely manner.

Comparative analysis revealed that surgically managed patients had a longer hospital stay (12.3 vs. 8.6 days) but significantly better symptom resolution at discharge (93.1% vs. 81.4%). This suggests that although surgery entails higher resource utilization, it ensures more definitive treatment and improved outcomes in tubercular intestinal obstruction compared to conservative management.

Intestinal tuberculosis (TB) continues to present significant diagnostic and therapeutic challenges in clinical practice. Recent reports highlight that abdominal TB can mimic malignancies, leading to diagnostic delays. For example, peritoneal tuberculosis was reported in a young Asian woman presenting with an abdominopelvic mass and ascites, initially mistaken for cancer before the correct diagnosis was made [8]. Similarly, duodenal tuberculosis can present as gastric outlet obstruction and is frequently misdiagnosed as malignancy until histopathological confirmation reveals TB [9].

A clinical review emphasized that abdominal tuberculosis often presents with strictures, obstruction, and occasionally perforation. However, its resemblance to Crohn's disease and other inflammatory bowel conditions contributes to diagnostic delays and sometimes inappropriate initial treatments [10]. The ileocaecal region remains the most common site for intestinal involvement, where strictures and obstruction are particularly frequent. In complicated cases, surgical intervention becomes necessary in addition to standard antitubercular therapy [11]. Collectively, these findings reaffirm that intestinal and peritoneal TB often present as intestinal obstruction or masses, commonly mimicking cancer or Crohn's disease, thereby complicating timely diagnosis and management.

Conclusion

Intestinal obstruction due to tuberculosis predominantly affects young adults, with the ileocecal region being the most common site. While conservative management is effective in selected cases, the majority require surgical intervention, particularly resection and anastomosis or stricturoplasty. Surgical treatment, despite longer hospital stay and moderate complication rates, provides better symptom resolution and favorable overall outcomes.

References

1. Kudu E, Danış F. Recognizing and addressing the challenges of gastrointestinal tuberculosis. World J Clin Cases. 2024;12(19):3648-53.
2. Feng J, Tang H, Zhang Z, Xu Z, Gong W. Advances in diagnosis and treatment of intestinal tuberculosis. Front Med (Lausanne). 2021;8:644853.
3. Ponnala S, Das K, Bhattacharjee R, Choudhury A. Gastrointestinal tuberculosis: A systematic review. Saudi J Gastroenterol. 2021;27(3):131-9.
4. Baloch N, Afridi F, Memon A, Soomro R. Diagnostic delay in abdominal tuberculosis: causes and consequences. Cureus. 2020; 12(6): e8432.
5. Kumari C, Narain NP. Intestinal obstruction caused by tuberculosis: unmasking a silent risk. Int J Res Med Sci. 2024;12(4):1075-9.
6. Patel N, Desai D, Udwadia ZF. Role of host immunity and gut microbiome in abdominal tuberculosis. JGH Open. 2022;6(10):722-9.
7. Makharia GK, Srivastava S, Das P, Goswami P, Singh U, Tripathi M, et al. Clinical, endoscopic, and histological differentiations between Crohn's disease and intestinal tuberculosis in India. Intest Res. 2019; 17(4): 486-95.
8. Asanad S, Ochoa L, Aristizabal JF, Karim N, Bhandari A, Sangster G, et al. The great mimicker: Peritoneal tuberculosis in a young Asian woman with abdominopelvic mass and ascites. J Investig Med High Impact Case Rep. 2021;9:2324709621992455. p. 1-4.
9. Tariq H, Ahmed S, Manzoor M, Pervez R, Ijaz M. Duodenal tuberculosis causing gastric outlet obstruction mimicking malignancy: a case report. Cureus. 2021;13(6):e15761. p. 1-4.
10. Khuroo MS, Khuroo NS, Khuroo MS. Abdominal tuberculosis: A clinical review. Ann Transl Med. 2020;8(17):1059. p. 1-13.
11. Sharma MP, Bhatia V. Abdominal tuberculosis. Indian J Med Res. 2019; 149(4):448-60. p. 448-460.