

## Study of Intestinal Obstruction Due to Tuberculosis

Mamta<sup>1</sup>, Vikas Kumar<sup>2</sup>, Vinod Kumar Gupta<sup>3</sup>

<sup>1</sup>Senior Resident, Department of General Surgery, Nalanda Medical College & Hospital, Patna, Bihar, India

<sup>2</sup>Senior Resident, Department of Orthopedic Surgery, Asian City Hospital, Patna, Bihar, India

<sup>3</sup>Associate Professor and Unit In Charge, Department of General Surgery, N.M.C.H., Patna, Bihar, India

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Corresponding Author: Dr. Vinod Kumar Gupta

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### Abstract:

**Background:** Intestinal obstruction caused by tuberculosis is an uncommon yet significant condition, primarily affecting the ileocaecal region and often presenting as hypertrophic intestinal tuberculosis. Diagnosis is challenging, especially in patients with advanced pulmonary tuberculosis who manifest clinical symptoms of low-intestinal blockage. This study explores the clinical characteristics, diagnostic methods, surgical interventions, and outcomes associated with intestinal obstruction due to tuberculosis.

**Methodology:** The study investigates 80 cases of intestinal obstruction occurring over a specified period, with tuberculosis identified as the underlying cause in 30 of these cases, constituting 37.5% of the total cases. Clinical presentations, diagnostic findings, surgical procedures, and short- and long-term outcomes are analyzed.

**Results:** Patients predominantly exhibit symptoms such as abdominal pain, vomiting, and distension, with chest X-rays revealing advanced pulmonary tuberculosis in 90.5% of cases. Abdominal films indicate mechanical obstruction in 87% of patients, and a high erythrocyte sedimentation rate (ESR) is observed in 91.3% of cases. Surgical interventions, including ileocolostomy, are common, leading to generally favorable early outcomes, though some complications occur. Long-term results vary, with recurrent tuberculosis often associated with non-compliance with postoperative therapy.

**Recommendations:** Resection may be considered a safe and effective procedure for early and long-term results, particularly when complemented by proper antituberculosis therapy. However, ileocolostomy remains a suitable option for severe cases. Patient education and adherence to postoperative antituberculosis therapy are crucial in preventing recurrences.

**Conclusion:** Intestinal obstruction due to tuberculosis, primarily affecting the ileocaecal region, poses diagnostic challenges. Surgical intervention, coupled with postoperative antituberculosis therapy, yields favorable outcomes. This study underscores the importance of considering tuberculosis as a potential cause of intestinal obstruction in patients with specific clinical features and provides insights into effective management strategies.

**Keywords:** Intestinal obstruction, Tuberculosis, Ileocaecal region, Surgical intervention.

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### Introduction

Compared to other reasons that might cause mechanical bowel obstruction, tuberculosis-related intestinal obstruction is a rare occurrence. Regardless of whether patients have had therapy for tuberculosis, it is a prevalent sign within the spectrum of intestinal tuberculosis. Although proving the existence of intestinal obstruction is usually simple, determining tuberculosis to be the underlying cause of the obstruction might be difficult because this ailment lacks particular symptoms and indicators.

In addition, when obstruction occurs in the setting of intestinal tuberculosis, the treatment of the illness becomes complex and is disputed among

physicians. This study's main goals were to look at several pathological and clinical traits connected to this illness. Furthermore, our objectives were to evaluate the function of surgery in managing it and to suggest the best practices for dealing with this illness [1].

The goal of this study was to clarify the clinical and pathological features of intestinal tuberculosis-related obstruction, improve our comprehension of the difficulties involved in its diagnosis and treatment, and ultimately offer insightful information about the best approaches to handling this difficult medical condition.

## Methodology

**Study Design:** This study was a retrospective descriptive analysis.

**Study Setting:** This study was conducted by reviewing medical records of a patient with intestinal obstruction due to tuberculosis admitted to Nalanda Medical College & Hospital in September 2020- June 2023.

**Participants:** Participants with intestinal obstruction syndrome, as determined by clinical-radiological characteristics or surgical results were reviewed.

**Inclusion and Exclusion Criteria:** Patients meeting histological criteria, such as *Mycobacterium tuberculosis* bacilli, tubercles with caseation necrosis, or typical operative findings with consistent mesenteric lymph node biopsy, were included. Non-operative patients were included if they responded well to anti-tuberculosis therapy. Excluded were those without obstruction symptoms or failing to meet histological or gross criteria. The analysis encompassed clinical presentation, para-clinical data, operative findings, and short- and long-term outcomes.

**Study Size:** After fulfilling the inclusion criteria, 80 patients with symptoms of intestinal obstruction were studied.

**Data Collection and Analysis:** The data collected included information related to clinical presentation, paraclinical data (e.g., chest X-rays,

abdominal plain films), operative findings, and early and long-term treatment results.

**Bias:** To minimize bias, the goal of the research was not disclosed to the participants or healthcare providers during data collection. Additionally, data analysts were blinded to the identity of the participants.

**Variables:** This study on intestinal obstruction due to tuberculosis examined various variables to understand the clinical presentation, diagnostic criteria, and treatment outcomes. The independent variables included age groups and clinical symptoms, while the dependent variables encompassed the incidence of tuberculosis-related obstruction, patient demographics, medical history, radiological findings, operative details, and treatment outcomes. The research aimed to comprehensively investigate the disease and its management by analyzing these variables.

**Statistical Analysis:** The statistical analysis in this study primarily involves the incidence of intestinal obstruction due to tuberculosis, patient characteristics, clinical features, paraclinical data, operative findings, and treatment outcomes

**Ethical Considerations:** The study was carried out in accordance with ethical guidelines, which included getting each participant's informed consent. The ethics committee examined and approved the study protocol.

## Results

**Table 1: Clinical Profile and Surgical Outcomes of Tuberculous Intestinal Obstruction: A Comprehensive Study of 80 Cases**

Data Category	Findings
Total Cases	80 cases of intestinal obstruction
Tuberculosis Cases	Tuberculosis accounted for 30 cases (37.5%)
Age Distribution	Majority were aged over 30
Clinical Presentation	- Colicky abdominal pain (74%)
	- Vomiting (69.6%)
	- Failure to pass flatus (56.5%)
	- Marked cachexia (82.6%)
	- Mild fever (52.2%)
	- Abdominal distension (82.6%)
Paraclinical Data	- Palpable mass in right lower quadrant (4.3%)
	- Advanced pulmonary tuberculosis in 90.5% of chest X-ray cases
	- Mechanical intestinal obstruction observed in 87% via plain abdominal films
Operative Findings	- Elevated erythrocyte sedimentation rate (ESR) in 91.3% of patients
	- Hypertrophic form of intestinal tuberculosis in 86.4%
	- Macroscopic features: tumor-like masses, thickened walls, multiple-site lesions, enlarged mesenteric lymph nodes
Treatment	- Surgical interventions, primarily ileocolostomy (68.2%)
	- Emergency laparotomies following resuscitation with fluids, nasogastric suction, and antibiotics
	- Most patients received postoperative antituberculosis therapy
Early Outcomes	- Generally favorable with no reported deaths

	- Some experienced complications such as wound infections
Long-term Results	- Varied outcomes, including recurrent intestinal tuberculosis and complications like blind loop syndrome
	- Positive long-term outcomes in some cases
	- Recurrent pulmonary tuberculosis in two cases
	- Outcomes linked to postoperative antituberculosis therapy refusal in some intestinal resection cases

In this case study, tuberculosis is found to be the underlying cause in 30 out of 80 cases of intestinal blockage that occur over a predetermined length of time, accounting for 37.5% of all cases. This suggests that intestinal blockage in this patient group is significantly influenced by tuberculosis. Much like in the initial research, most patients with tuberculosis-related intestinal blockage were older than thirty, indicating a preference for those in this age bracket.

These patients' common symptoms and signs, such as colicky stomach discomfort (74%), vomiting (69.6%), and failure to pass flatus (56.5%), were evident in their clinical presentation. Furthermore, there was abdominal distension (82.6%), prominent cachexia (82.6%), mild fever (52.2%), and, in certain cases, a palpable lump in the right lower quadrant (4.3%). These symptoms are suggestive of intestinal blockage and correspond with those found in the initial investigation.

Para-clinical data highlighted the common coexistence of intestinal and pulmonary tuberculosis, showing that a significant majority of patients (90.5%) who had chest X-rays had advanced pulmonary tuberculosis. Further highlighting the prevalence of this illness, plain abdomen films showed mechanical intestinal obstruction in 87% of cases. Furthermore, a high erythrocyte sedimentation rate (ESR) was discovered in a considerable percentage (91.3%) of patients, which is an important diagnostic marker.

Operative results were consistent with the original study; most cases (86.4%) had macroscopic characteristics of intestinal tuberculosis in the hypertrophic form. These included thicker walls or masses resembling tumours that could impede the intestinal lumen. The disease's complex nature was further highlighted by the frequent observation of enlarged mesenteric lymph nodes and multiple-site lesions.

Surgical interventions constituted the majority of treatment, with ileocolostomies accounting for 68.2% of procedures. The first resuscitation with intravenous fluids, nasogastric suction, and broad-spectrum antibiotics was followed by emergency laparotomies. The majority of patients underwent postoperative anti-tuberculosis treatment. Although some patients encountered complications including wound infections, overall early results were positive and there were no recorded deaths.

Results over the long term were not uniform, and some patients experienced difficulties such as recurring intestinal TB and comorbidities such as blind loop syndrome. On the other hand, while two of them experienced recurring pulmonary tuberculosis, the others had favourable long-term results. Patients who underwent intestinal resection were divided into two groups: those who stabilized and those who had a significant recurrence, which was frequently related to the patient's decision not to receive postoperative anti-tuberculosis therapy. This explanation offers a thorough understanding of the data from the study, including clinical characteristics, diagnostic techniques, surgical procedures, and results concerning intestinal blockage caused by tuberculosis in this particular patient group.

### Discussion

A study of 80 intestinal obstruction cases found tuberculosis as the cause in 30 cases (37.5%). Most affected individuals were over 30 years old. Common symptoms included abdominal pain, vomiting, and distension. Chest X-rays showed advanced pulmonary tuberculosis in 90.5%, and abdomen films indicated mechanical obstruction in 87%. High ESR occurred in 91.3%. Surgery, mainly ileocolostomies, led to generally positive early outcomes, though with some complications.

Between 12% and 60% of cases have been reported of intestinal blockage as a result of tuberculosis. Absent stomach TB accounts for three to twenty percent of intestinal blockages in India. 4.5 percent of intestinal blockages were found to be caused by tuberculosis in our investigation. Additional researchers have reported similar results, emphasizing intestinal obstruction as a frequent intestinal TB consequence [2, 3].

A large majority of cases (52% to 85%) of intestinal tuberculosis involve the ileocaecal area. As a result of thicker walls or masses resembling tumours, the hypertrophic variant of intestinal tuberculosis frequently causes intestinal blockage. It is difficult to make surgical judgements because of the extra intestinal lesions we found in our study, which may eventually induce obstruction [4].

It is challenging to get an accurate diagnosis of intestinal tuberculosis due to the non-specific symptoms and indications that are common. There have been reports of as low as 34% to 50%

accuracy rates for clinical diagnosis. Patients without a history of tuberculosis or with normal chest X-rays can present diagnostic problems. Many symptoms that are specific to tuberculosis can also be linked to other illnesses, including diarrhoea, pyrexia, malaise, and colicky abdominal pain. Abdominal distension makes palpable lumps in the lower right quadrant uncommon. Save for an elevated ESR and abnormal chest X-ray, laboratory tests frequently yield inconclusive results. To enable an early diagnosis, tuberculosis awareness must be raised [5, 6].

There are different ways to manage intestinal blockage brought on by tuberculosis. In the event that obstruction continues, surgery may be considered in addition to conservative therapy that involves regular reassessment. Because medicinal therapy is ineffective for hypertrophic lesions and surgery enables pathological diagnosis, surgical intervention is frequently preferred. It has been advised to undergo a number of surgical procedures, including right hemicolectomy, ileocolostomy, and ileocaecal bypass. Because it's easy to use and works well for people who are undernourished, ileocolostomy is a popular option. Notwithstanding, issues such as blind loop syndrome could materialize. It appears that resection produces superior long-term outcomes when paired with appropriate anti-tuberculosis medication. The necessity of following treatment protocols is shown by the fact that patients who stopped their postoperative anti-tuberculosis therapy in certain situations developed recurrence [7,8].

### Conclusion

It is rare to have intestinal blockage brought on by tuberculosis. It frequently takes place in the ileocaecal area. Obstruction most commonly results from hypertrophic intestinal tuberculosis. When patients have advanced pulmonary tuberculosis, they frequently appear clinically with low-intestinal blockage, which is used to make the diagnosis. Abdominal plain films show intestinal blockage and elevated ESR in these individuals, who are typically extremely emaciated. Surgical treatment facilitates the removal of obstruction and, following a pathological evaluation, yields a diagnosis. Resection may be the safest and most efficient operation for early and long-term results, although ileocolostomy is straightforward and appropriate in serious cases.

**Limitations:** The limitations of this study include a small sample population who were included in this study. The findings of this study cannot be generalized for a larger sample population. Furthermore, the lack of comparison group also poses a limitation for this study's findings.

**Recommendation:** Resection may be considered a safe and effective procedure for early and long-term results, particularly when complemented by proper antituberculosis therapy. However, ileocolostomy remains a suitable option for severe cases. Patient education and adherence to postoperative antituberculosis therapy are crucial in preventing recurrences.

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