

## Original Article

# Correlation between Clinical Diagnoses and Histopathological Findings of Intestinal Tuberculosis

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## ABSTRACT

**Background:** Intestinal tuberculosis remains a significant clinical challenge, particularly in regions where tuberculosis is endemic. It often presents with nonspecific symptoms and variable clinical signs, making early diagnosis difficult. **Methods & Materials:** This cross-sectional type of observational study was conducted in the Department of Surgery, Uttara Adhunik Medical College & Dhaka Medical College Hospital, Dhaka, from January 2015 to December 2015. A total of 30 patients were selected as study subjects by purposive sampling method. Statistical analyses were carried out by using the Statistical Package for Social Sciences version 20.0 for Windows. **Result:** The most common clinical presentation was chronic intestinal obstruction (60%), with abdominal pain (83.3%) and weight loss (76.7%) being the predominant symptoms. Pallor (86.7%) and abdominal distension (63.3%) were the most frequent physical signs. Laparotomy revealed multiple macroscopic nodules (70%) and enlarged mesenteric lymph nodes (53.3%) as the leading intraoperative findings, supporting the chronic inflammatory or granulomatous nature of the underlying pathology. **Conclusion:** Chronic intestinal obstruction was the most common pre-operative diagnosis and abdominal pain, weight loss, fever, malaise anorexia and constipation were mainly common presenting symptoms. Pallor, distended abdomen, abdominal tenderness and palpable mass in the abdomen were more frequent in the studied patients. Multiple macroscopic nodules, enlarged mesenteric lymph nodes and hyperplastic lesions were the numerous findings in laparotomy.

**Keywords:** Intestinal Tuberculosis, Intestinal Obstruction, Abdominal Pain, Macroscopic Nodules

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## INTRODUCTION

Tuberculosis has been declared a global emergency by the World Health Organization (WHO) and is the most important communicable disease worldwide. Approximately one-third of the world population is infected and about three million die each year from this disease [1]. It remains the principal cause of death in the developing countries [2]. The disease may involve any system of the body but the abdomen is one of the commonest sites of involvement after lungs [3]. Intestinal tuberculosis, a form of abdominal tuberculosis occurs either as a primary form due to ingestion of contaminated milk by *Mycobacterium bovis* or secondary to pulmonary tuberculosis in less than 1% of patients [4]. Less than 50% with intestinal lesions have co-existent pulmonary tuberculosis [5]. The worst situation in underdeveloped countries is because of poverty, overcrowding and unhygienic circumstances which are notorious factors for its spread [6]. Intestinal tuberculosis mostly occurs in the 3<sup>rd</sup> and 4<sup>th</sup> decades of life [7]. *Mycobacterium tuberculosis*, along with *Mycobacterium bovis*, *Mycobacterium africanum* and *Mycobacterium microti*

cause TB and are members of the mycobacterium TB complex. *Mycobacterium tuberculosis* is also the most common species causing TB of the GI tract [8]. *Mycobacterium bovis* is a major cause of TB in cattle and can be transmitted to humans through consumption of unpasteurized milk products from infected cows resulting in GI tract infection. The pathophysiology of intestinal TB has been attributed to four mechanisms: (1) haematogenous spread from active pulmonary or military TB, (2) swallowing of infected sputum in patients with active pulmonary TB, (3) ingestion of milk or food contaminated with *Mycobacterium bovis* and (4) contiguous spread from adjacent organs [9]. The pathologic reaction of intestinal TB is mainly of two types-hypertrophic or ulcerative. Hypertrophic tuberculous enteritis results in stenosis and the symptoms and signs are those of obstruction which may be in the form of acute or subacute intestinal obstruction which includes pain, vomiting, constipation and abdominal distension. These can be attributed to either mass (tuberculoma) or stricture formation (small gut and ileocaecal region) [10-12]. The ulcerative form causes abdominal pain,

alternating constipation, diarrhoea, and occasionally progressive inanition. Free perforation, fistula formation or haemorrhage may occur in severe untreated disease [13]. The systemic manifestations of the disease include chronic ill health, anorexia, fever, night sweats, dyspepsia and weight loss [14]. The diagnosis of intestinal TB is notoriously difficult, as its presenting signs and symptoms and laboratory abnormalities are non-specific and non-diagnostic [15-16]. Routine blood tests being normal cannot exclude intestinal TB. An important clue is the presence of concomitant active pulmonary TB. Confirmation of the diagnosis of intestinal TB requires isolation of *M tuberculosis* from affected tissue or evidence of TB elsewhere with caseating granulomas in intestinal tissue [8]. Traditionally, surgical exploration was used to obtain a tissue diagnosis. Although surgery may still be required in patients who present as emergencies, many cases of GI TB can now be diagnosed endoscopically. Colonoscopy with procurement of biopsy specimens is currently considered the most valuable diagnostic tool for identifying such lesions in the colon and terminal ileum [17-19]. Mucosal ulcers and nodules are the most commonly encountered endoscopic lesions and about half the ileocaecal valve is deformed [17,18]. Tubercular ulcers are characteristically aligned transversely along the intestine or are circumferential, however, none of these endoscopic features are diagnostic. Therefore endoscopic biopsy specimens should always be examined histologically for granulomas and AFB and cultured for mycobacteria [20]. This study aimed to assess the clinicopathological study of intestinal tuberculosis.

## METHODS & MATERIALS

This cross-sectional type of observational study was conducted in the Department of Surgery, Uttara Adhunik Medical College & Dhaka Medical College Hospital, Dhaka, from January 2015 to December 2015. Diagnosed cases of intestinal tuberculosis treated with UAMCH and DMCH were considered as the study population. A total of 30 patients were selected as study subjects by purposive sampling method. Data was collected by interview, physical examination, laboratory investigation and hospital documents using a structured questionnaire. Statistical analyses were carried out by using the Statistical Package for Social Sciences version 20.0 for Windows (SPSS Inc., Chicago, Illinois, USA). The mean values were calculated for continuous variables. The quantitative observations were indicated by frequencies and percentages. Informed written consent was taken from all patients.

### Inclusion criteria:

- All patients were diagnosed with intestinal tuberculosis by histopathology.
- Patients of all ages and both sexes were taken.

### Exclusion criteria:

- Patients with abdominal complaints diagnosed as another lesion other than tuberculosis were excluded.

- Intestinal TB with concurrent other diseases like malignancy.
- Intestinal TB not having any diagnostic evidence.
- Intestinal TB taking irregular anti-TB drugs.

## RESULTS

The most common presentation was chronic intestinal obstruction, observed in 60% of patients, followed by vague abdominal pain in 13.3%, and acute on chronic intestinal obstruction in 10%. Acute intestinal obstruction and cases initially diagnosed as appendicitis were each seen in 6.7% of patients. Pneumoperitoneum was the least common presentation, occurring in only 3.3% of cases. [Table I]

**Table – I: Clinical presentation of the study patients (n=30)**

Clinical Presentation	n	Percentage (%)
Vague abdominal pain	4	13.3
Initially diagnosed as appendicitis	2	6.7
Pneumoperitoneum	1	3.3
Acute intestinal obstruction	2	6.7
Acute on chronic intestinal obstruction	3	10.0
Chronic intestinal obstruction	18	60.0

Abdominal pain was the most frequently reported symptom, present in 83.3% of patients, followed by weight loss (76.7%), and fever, malaise, and anorexia (60%). Constipation was noted in 53.3% of cases, while a palpable lump in the abdomen was found in 40%. Less common symptoms included vomiting (26.7%), diarrhoea alternating with constipation (23.3%), diarrhoea alone (16.7%), and cough with expectoration (13.3%). [Table II]

**Table – II: Symptoms of the study patients**

Symptom	n	Percentage (%)
Cough with expectoration	4	13.3
Vomiting	8	26.7
Diarrhoea	5	16.7
Diarrhoea alternating with constipation	7	23.3
A lump in the abdomen	12	40.0
Constipation	16	53.3
Fever, malaise and anorexia	18	60.0
Weight loss	23	76.7
Abdominal pain	25	83.3

It was observed that 26(86.7%) patients had pallor, 19(63.3%) had distended abdomen, 17(56.7%) abdominal tenderness, 17(56.7%) had palpable mass in abdomen and 13(43.3%) had visible peristalsis. [Table III]

**Table – III: Distribution of the study patients by signs (Major physical signs in intestinal tuberculosis (n=30))**

Signs	Number of patients	Percentage
Pallor	26	86.7
Distended abdomen	19	63.3
Abdominal Tenderness	17	56.7
Palpable mass in the abdomen	17	56.7
Visible peristalsis	13	43.3
A doughy feeling of abdomen	3	10.0
Ascites	3	10.0
Cervical lymphadenopathy	2	6.7
Obliterated liver dullness	1	3.3

The most common intraoperative finding was the presence of multiple macroscopic nodules, observed in 70% of cases, followed by enlarged mesenteric lymph nodes in 53.3% and hyperplastic lesions in 46.7%. Ulcerative lesions and ulcero-hyperplastic lesions were noted in 33.3% and 20% of patients, respectively. Less frequent findings included ascites and gangrenous small gut (10% each), while inflamed appendix and perforation at the terminal ileum were the least common, each found in only 3.3% of cases. [Table IV]

**Table – IV: Laparotomy findings of the study patients**

Intraoperative Finding	n	Percentage (%)
Inflamed appendix	1	3.3
Perforation at terminal ileum	1	3.3
Gangrenous small gut	3	10.0
Ascites	3	10.0
Ultero-hyperplastic lesion	6	20.0
Ulcerative lesion	10	33.3
Hyperplastic lesion	14	46.7
Enlarged mesenteric lymph node	16	53.3
Multiple macroscopic nodules	21	70.0

## DISCUSSION

This cross-sectional type of observational study was carried out to see the clinical presentations of intestinal tuberculosis, histological findings and the clinical features of different forms of intestinal tuberculosis. In this series, it was observed that the majority of patients 18(60.0%) had chronic intestinal obstruction followed by 4(13.3%) vague abdominal symptoms, and 3(10.0%) had acute on chronic intestinal obstruction. In our country, Rabbi et al. found the most common pre-operative diagnosis was chronic intestinal obstruction followed by subacute intestinal obstruction and acute intestinal obstruction [21]. In another study from Bangladesh Islam et al. found 60.0% of cases presented with chronic intestinal obstruction, 10.0% with acute on chronic intestinal obstruction, four 6.5% with acute intestinal obstruction and 3.3% presented with pneumoperitonium [22]. Chalya et al. found the most common mode of presentation was acute in 71.1% of patients, followed by sub-acute and chronic presentation in 18.4% and 10.5% of patients

respectively [23]. Almost fifty (49.6%) per cent of patients presented with intestinal obstruction, 41.4% with peritonitis, 6.6% with abdominal masses and 2.3% patients with multiple fistulae in ano. Almost similar types of presentation were also found by Leung et al. [24]. Regarding the symptoms of patients with intestinal tuberculosis it was observed in this study that most (83.3%) of the patients had abdominal pain followed by 76.7% weight loss, 60.0% fever, malaise and anorexia, 53.3% constipation and 40.0% abdominal lump. In Bangladesh, Miah et al. reported that abdominal pain was the most common presenting symptom in 88.68%, fever in 84.9% weight loss in 69.81% of cases and features of intestinal obstruction in 9.43% of cases [25]. In another study from Bangladesh, Rabbi et al. found pain in the abdomen 93.94% weakness 100.0%, weight loss 90.9%, fever 63.64%, constipation 60.60%, diarrhoea 12.12%, melaena 3.0%, ascites 3.0%, abdominal mass 66.67%, cervical lymphadenopathy 6.06% and cough 3.0% [21]. Similar findings were also observed by Islam et al. in the Bangladeshi population [22]. Chalya et al. found the commonest presenting symptom was abdominal pain in 93.8% of patients [23]. Leung et al. found the most frequent being abdominal pain 82.0% [24]. Others included diarrhoea, constipation, nausea and vomiting, and rectal bleeding. About half of them had fever, anorexia, and weight loss. Respiratory symptoms were noted in the four patients with concomitant active pulmonary TB. Regarding the symptoms, the above findings are comparable with the current study. Regarding the signs it was observed in this present study that 86.7% of patients had pallor, followed by 63.3% distended abdomen, 56.7% abdominal tenderness, 56.7% palpable mass in abdomen and 43.3% had visible peristalsis. In our country, Islam et al. found 86.6% of patients had pallor, 55.0% abdominal tenderness, 63.0% distended abdomen, 53.3% had a palpable mass in the abdomen, 45.0% visible peristalsis, 10.0% doughy feeling of abdomen, 10.0% ascites, 6.6% cervical lymphadenopathy and 3.0% obliterated liver dullness, which is comparable with the current study. About the laparotomy findings, it was observed in this current study that 70.0% patients had multiple macroscopic nodules, 53.3% enlarged mesenteric lymph nodes, 46.7% hyperplastic lesions, 33.3% ulcerative lesions 20.0% had ulcero-hyperplastic. Similarly, Islam et al. found multiple macroscopic nodules at 70.0%, enlarged mesenteric lymph node, ascites at 10.0%, ulcerative lesions at 33.3%, hyperplastic lesions at 48.3%, ulcero-hyperplastic 20.0%, perforation at terminal ileum 3.3%, inflamed appendix 3.3% and gangrenous small gut 8.3% [22].

## Limitations of The Study

1. The study population was selected from two hospitals in Dhaka city, so the results of the study may not reflect the exact picture of the country.
2. The present study was conducted in a very short period.
3. The small sample size was also a limitation of the present study. Therefore, further study may be undertaken with a large sample size.

## CONCLUSION

Chronic intestinal obstruction was the most common pre-operative diagnosis and abdominal pain, weight loss, fever, malaise anorexia and constipation were mainly common presenting symptoms. Pallor, distended abdomen, abdominal tenderness and palpable mass in the abdomen were more frequent in the studied patients. Multiple macroscopic nodules, enlarged mesenteric lymph nodes and hyperplastic lesions were the prominent findings in laparotomy.

## RECOMMENDATION

- The signs and symptoms of intestinal tuberculosis are protean and nonspecific and there are no unequivocal diagnostic features either clinically or radiologically.
- As a result, laparotomy and histopathological examination are frequently necessary to establish confirmatory diagnosis.
- Further studies can be undertaken by including a large number of patients.

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