

# Clinicopathological Study of Gastrointestinal Tuberculosis and Role of Surgery in its Management.

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## ABSTRACT

**Background:** Gastrointestinal tuberculosis is one of the commonest sites of extra pulmonary involvement. Most of the studies in the literature are on abdominal tuberculosis as a whole, which to a certain extent is responsible for confusion. Hence this study aims at a fresh look into Gastro intestinal tuberculosis as a separate entity. Aim and objectives: 1) to analyze the clinical features of Gastro Intestinal Tuberculosis. 2) To study the pathological features. 3) to evaluate the role of surgery and to choose procedures in management of this disease. **Methods:** A total of 32 patients were included into this prospective study and divided into 4 groups based on the type of presentation namely, Obstruction – 18, Mass- 4, Perforation – 4 & Atypical – 6. They were subjected to thorough clinical evaluation and appropriately investigated. **Results:** Pain abdomen was the commonest symptom, 94% of the patients. 56% of the patients with obstruction. Commonest abdominal sign was abdominal distension, 66% of the patients. Ileocaecal region was the most common site, 50% of the patients. Ulcerative form was the most common gross pathology, 59% of the patients. Patients were subjected to either conservative management – 5 patients, Or Surgery, emergency in 17 patients and elective in 10 patients, depending on the Mode of presentation. Limited Ileocaecal resection was done in 9 patients and Right Hemicolectomy in 4 patients. Stricturoplasty was done in 8 patients. Complications were more common in emergency surgery. **Conclusion:** Patients commonly present with complications as intestinal obstruction. Ileocaecal region is the commonest site of disease. Conservative mode of management is preferable in patients not presenting with complications. Patients presenting with acute obstruction or perforation need emergency surgery.

**Keywords:** Conservative Surgery, Gastro Intestinal Tract, Tuberculosis.

## INTRODUCTION

Tuberculosis is primarily affecting the lungs. However it is a systemic infection and may involve any organ. Gastrointestinal tuberculosis is 6th commonest form of extra pulmonary involvement. The symptoms and signs often quite vague and laboratory investigations and radiological findings are sometimes non-conclusive.

The Management of Gastrointestinal tuberculosis is still controversial. Surgical intervention is reserved for complications such as obstruction, perforation, fistula, or a mass which does not resolve with medical therapy.<sup>[1]</sup> The Surgical treatment of intestinal tuberculosis too has passed through many phases, from the bypass procedures to the radical surgeries followed by the more recent modified surgical procedures such as limited ileocaecal

resection and stricturoplasties.<sup>[2]</sup>

Most of the earlier studies have focused on the abdominal tuberculosis as a whole. It is likely that the current confused clinical presentation picture may become less so if the several conditions are sorted out and dealt with separately.<sup>[3]</sup>

This study aims at a fresh look into gastrointestinal tuberculosis as a distinct condition, and at a better understanding of its clinical manifestations, diagnostic modalities and its management.

## MATERIALS AND METHODS

This Study on Gastro Intestinal Tuberculosis is a prospective study conducted at S C B Medical College, Cuttack, Odisha, India from August 2015 to November 2017. 32 patients with proven gastrointestinal tuberculosis admitted during this period formed the material for the study.

The diagnosis of the patients for inclusion into the study was based on a detailed clinical history taking, clinical signs, investigations like ultrasonography, endoscopy, barium studies & intra operative findings. In all cases, a definitive histopathological lesion

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characteristic of tuberculosis in the diseased gastro intestinal segment or in the draining lymph node or a positive tissue biopsy culture for M. Tuberculosis was sought. Other forms of abdominal tuberculosis, without definitive involvement of GI tract were not considered into the study group.

All patients were clinically evaluated with history and physical examination and were investigated by available tests like CBC, ESR, Mantoux test, X-ray Chest and Abdomen & Abdominal Ultrasonography. Investigations such as Barium Contrast X-rays, Upper GI endoscopy, Colonoscopic study, abdominal laparoscopy and CT scan were carried out in selected patients, as per requirement and depending on the mode of presentation.

Most of the patients presented with features of obstruction, either acute or sub-acute, and the rest presented with features of peritonitis due to perforation or mass per abdomen or other Atypical features such as altered bowel habit, Chronic pain abdomen etc. Those presenting with acute obstruction or with signs of perforation were immediately operated upon, on emergency basis. Those presenting with Sub acute obstruction or mass per abdomen or with atypical symptoms were subjected to further investigations. On clinical diagnosis of GI tuberculosis, were treated with ATT and then were either operated on elective basis or managed conservatively with continuation of ATT. Patients operated on elective basis received ATT for a minimum of 2 weeks preoperatively and all patients (both postoperative & those on conservative management) included in the study received ATT for 6 months short course chemotherapy as per DOTS regimen. All patients were followed up postoperatively from 4 months to 2 years.

## RESULTS

During the period of August 2015 to November 2017 a total of 32 patients who were treated for Intestinal tuberculosis in S C B Medical College Cuttack were enrolled into the study. Of these 32 patients, 27 patients underwent surgery and the rest were managed conservatively. Based on the Mode of presentation and the chief presenting complaints, patients were subdivided into four groups. The largest group consisted of 18 patients who presented with Obstruction, of these 12 patients being acute and subacute in 6 patients. 4 patients presented with complaints of Mass per abdomen, 4 patients with perforation and 6 patients with Atypical symptoms such as pain abdomen, altered bowel habit, wt loss etc.,. The results of this study have been analyzed and presented here [Table 1]. Pain abdomen was the most common symptom seen in about 93.75% of patients. The next common symptom was loss of appetite 78.12%, Fever was seen in about 56.25% of patients. There was a wide variation in duration of symptoms, ranging from 2 days to 1 year [Table 2]. Abdominal distension, seen in 66% of the Pallor was

another common sign seen in about 59% of patients [Table 3]

### Investigations

**Haemoglobin:** About 60% of the patients were anaemic with most of them having an Hb of about 8-10 gm%. Anaemia was more common among females to the range of about 80%.

**ESR:** elevated in 29 of 32 patients (91%)

**Chest X ray:** was done in all patients

**Barium Contrast studies:** Barium follow through or Barium enema were done selectively in patients chosen for elective surgical & conservative management i.e. in 12 patients. These were sensitive in case of Ileocaecal pathology.

Colonoscopy: was done in about 11 patients. Gross pathologic changes were consistent with tuberculosis in all of them. Multiple (6-8) biopsies were taken.

### Mode of management

Out of 32 patients who formed part of the study, 27 patients were operated upon, 17 patients (53%) on emergency basis and 10 patients (31%) electively. Rest of the 5 patients were managed conservatively with ATT. All the patients who were operated electively were subjected to thorough bowel preparation and received ATT preoperatively for a minimum of 2 wks. All the patients both postoperative & those on conservative management) included in the study received short course chemotherapy for 6 months as per DOTS regimen. [Table 4 & 5]. Among the 27 patients, who underwent surgery, the most common gross pathological findings included Ileocaecal masses and Strictures. [Table 6] A total of 27 patients underwent surgery, of these 10 were elective and 17 were emergency procedures. Some of these patients underwent more than 1 procedure and biopsy of Mesenteric lymph nodes draining the diseased segment was taken in almost all cases. Of the 16 cases with Ileocaecal TB 9 underwent LIR, 4 underwent RHC and 3 underwent ileo transverse anastomosis. Adhesiolysis was usually carried out as a secondary procedure in about 8 patients. [Table 7] The commonest site of disease in this study is the Ileocaecal region constituting 50% of the cases. [Table 8]

**Table 1: Mode of Presentation**

Mode Of Presentation	No Of Cases	Percentage
Obstruction (Acute-12, Subacute- 6)	18	56.25%
Mass	4	12.50%
Perforation	4	12.50%
Atypical	6	18.75%
Total	32	100%

### Complications:

Surgical site Infection was seen in 11 Patients (40.7%), out of which 9 had undergone emergency surgery. Most were superficial infections except for 1 case of deep seated infection in the form of pelvic

abscess. Mortality was seen in 2 patients (11.6%) operated on emergency basis. Both were cases of perforation and had gone segmental resection. 1 of these had developed anastomotic leak and died of

severe sepsis on POD 8. Second patient died on POD 2 due to aggravation of Pre op sepsis and pulmonary complications. No mortality was seen in patients undergoing elective surgery.

**Table 2: Clinical history and Symptomatology**

	Obstruction	Mass	Perfora Tion	Atypical	Tot	Tot-%
Pain	18	4	4	4	30	93.75%
Appetite loss	12	3	4	6	25	78.12%
Abdominal distension	16	1	4	0	21	65.62%
Vomiting	16	2	1	1	20	62.50%
Fever	8	3	3	4	18	56.25%
Weight loss	8	4	0	5	17	53.12%
Oligo/ Amenorrhea*	3(8)	1(2)	1(2)	3(3)	8(15)	53.33%
Altered Bowel habits	6	3	1	5	15	46.87%
Inability to pass flatus	12	0	0	0	12	37.50%
Past h/o Pulm TB	4	0	1	0	5	15.60%
Mass per Abdomen	0	4	0	0	4	12.50%

(\* No within brackets indicate the total no of women in that category.)

**Table 3: Clinical Signs**

	Obstruc Tion	Mass	Perfora Tion	Atypical	Tot	TOT%
Distension	15	1	4	1	21	66.0%
Tenderness	11	2	4	3	19	59.0%
Increased Bowel sounds	17	0	0	1	18	56.2%
Guarding	4	0	4	0	8	25.0%
Visible Peristalsis	6	0	0	0	6	18.7%
Mass per Abdomen	2	4	0	0	6	18.7%
Rigidity	0	0	3	0	3	9.4%
No abdominal findings	0	0	0	2	2	6.3%
Pallor	11	3	1	4	19	59.4%
Lymphadeno pathy	1	0	0	1	2	6.3%

**Table 4: Mode of Management**

	Obstruc Tion	Mass	Perfora Tion	Atypical	Tot	Tot%
Elective Surgery	4	4	0	2	10	31%
Emergency Surgery	13	0	4	0	17	53%
Conservative	1	0	0	4	5	16%

**Table 5: Laparotomy Findings**

Laparotomy Findings	Obstruc Tion	Mass	Perfora Tion	Atypical	Tot
Ileocecal Mass	7	4	0	2	13
Strictures	12	0	0	1	13
Perforation With Strictures	0	0	4	0	4
Enlarged Mesenteric LN	10	3	1	2	16
Adhesions	8	1	2	0	11
Peritoneal Tubercles	3	0	1	0	4
Ascitis	1	0	0	0	1
Abscess	0	0	1	0	1

\*Many of the patients had more than one finding.

**Table 6: Surgical Procedures**

Procedure	Obstruc tion	Mass	Perfora tion	Atypical	Tot
Limited Ileocecal Resection	3	4	1	1	9
Hemicolectomy	3	0	0	1	4
Segmental Colon Resection	1	0	0	0	1
Stricturoplasty	6	0	2	0	8
Small Bowel Segmental resection	2	0	3	0	5
Ileotransverse anastomosis	2	0	0	0	2
Adhesiolysis	6	1	1	0	8

(\*some of the patients underwent more than one procedure)

**Table 7: Site Of Disease**

Site Of Disease	No.	Percentage
Gastroduodenal	0	0%
Jejunal	7	21.90%
Ileal	12	37.50%
Ileocaecal	16	50%
Colon	3	9.40%
Associated Nodal	16	50%
Associated Peritoneal	11	34.40%

(\* Many cases had more than 1 site of involvement.)

**Table 8: Gross Pathology**

Gross Pathology	No.	Percentage
Ulcerative	19	59.40%
Hyperplastic	4	12.50%
Ulcer-hyperplastic	9	28.10%

## DISCUSSION

This study is an attempt to focus exclusively on the tuberculous affliction of the Gastrointestinal tract as it was reasoned appropriate, that the old and popular term, 'Abdominal Tuberculosis' should be phased out of usage, because it comprises several conditions such as tuberculosis of gastrointestinal tract, tuberculous peritonitis including tuberculous omentum and mesenteric tuberculous lymphadenitis. In this study, patients were divided into four groups based on the mode of presentation for a better analysis and interpretation of the data. 56% of the patients presented with obstruction, 12.5% with mass, 12.5% with perforation and 19% with atypical presentation.

Symptoms depended on the type of presentation. Pain abdomen was the most common complaint, seen in 94% of patients. Symptoms of Abdominal distension, vomiting and inability to pass flatus, seen in 66% of patients. Increased Bowel sounds and visible peristalsis were almost exclusively seen in those presenting with obstruction. Similarly rigidity and guarding were seen in almost all cases presenting with perforation.

Routine investigations revealed varying degrees of anaemia, with haemoglobin % reduced in about 60%. Anaemia is a common finding in all studies on Gastrointestinal TB about 64%.<sup>[4]</sup>

According to many authors, Intestinal tuberculosis most commonly occurs in the Ileocaecal region 5 and Ulcerative or ulcero-constrictive form is the commonest gross pathological type. In this study too, Ileocaecal TB was the commonest type accounting for 50% of the cases. Ileal lesions were seen in 37.5% of the cases & no cases of gastroduodenal TB were seen. The ulcerative type was the most frequently seen gross pathology, in about 59% of the patients.

Surgery is indicated in GI tuberculosis only in case of complications. Our series consisted predominantly of such cases presenting with various complications, chiefly influenced by the nature of cases referred to us, ours being a tertiary referral centre. Management of perforation is definitely surgical however, management of intestinal obstruction due to tuberculosis is controversial. If the obstruction does resolve after ATT, elective surgery is performed after 2-4 wks.

In our series, out of 32 patients, 17 patients underwent emergency surgery because of an unresolved acute obstruction or a perforation. 10 patients were operated on elective basis. This group chiefly consisted of those whose obstruction had resolved and those presenting with mass. 5 patients were treated conservatively on ATT.

The surgical treatment of tuberculosis has gone through many phases. Bypassing the stenosed segment either by enteroenterostomy or by enterocolostomy was practiced in the pre antibiotic

era. This practice has 2 main disadvantages; it is likely to produce a blind loop syndrome and the strictures in the remaining segments may produce fistulas or recurrent obstructions.

With the advent of the specific antituberculous drugs, tuberculosis of the intestine was treated in a more radical fashion either by right hemicolectomy with or without extensive removal of lymph nodes or by wide resection for intestinal tuberculosis. These procedures had the advantages of eradicating the disease locally.

The extensive and often multiple procedures may not be tolerated by a patient, who is hypoproteinemic, anaemic and toxæmic, or by a patient presenting with perforation. These patients may not tolerate a single resection.

Limited resection of the Ileocaecal region is safe quick and relatively easy procedure, suitable for use in an emergency.

In this study emphasis was laid on modified surgical procedures such as limited ileocaecal resection and enteroplasties, however radical and bypass procedures too were carried out in a few patients as per the demands of the clinical situation and per operative findings. Limited Ileocaecal resection was carried out in 9 patients -33.3%. Right hemicolectomy was carried out in 4 cases. Decision for right hemicolectomy was to some extent influenced by the involvement of ascending colon in a couple of cases. Perforation was treated by segmental resection in 3 cases as there was associated stricture and by stricturoplasty in 1 case after excising the perforation with a rhomboid incision. Stricturoplasty was done in 8 cases. Ileotransverse anastomosis was done in 2 cases as it was considered appropriate in view of the poor general condition and dense bowel adhesions.

Conservative mode of treatment with ATT was adopted in 5 patients, 4 presenting with atypical symptoms and 1 with Sub acute obstruction. All these patients have had complete recovery and are being followed up. Though Medical management in tubercular affliction of GI tract is controversial, many studies have shown upto 50% response to medical management in the absence of obstruction or an acute abdomen.

## CONCLUSION

Thirty two cases of Gastro intestinal tuberculosis have been studied in detail. An analysis of the data has enabled this study to arrive at the following conclusions.

- Tuberculosis of the GI tract is still very much a reality. Incidence of GI tuberculosis is almost the same in either sexes, with a slight male predominance.
- Patients commonly present with one of the complications and the most common among them is intestinal obstruction. Patients who present with a

mass are of slightly a higher age group and those presenting with a perforation are relatively younger.

- Clinical symptoms and signs vary with the mode of presentation. Abdominal pain is the most common complaint and abdominal distension is the most common finding.
- Patients commonly present with a poor general condition with anaemia and hypoproteinemia, hence preferably radical and prolonged surgeries are better avoided in emergency set up and in elective surgeries these deficiencies should be adequately corrected prior to surgery for a better outcome.
- Though accurate diagnosis of GI Tuberculosis still poses a problem, a combination of thorough clinical examination, serology, newer imaging modalities and especially endoscopy and diagnostic laparoscopy can increase the chances of arriving at a proper diagnosis.
- Ileocaecal region is the commonest site of tubercular affliction and the ulcerative and ulcero-constrictive type of lesion is the commonest type of gross pathology.
- Conservative mode of management is preferable in patients of GI involvement, not presenting with a acute abdomen, mass or significant luminal obstruction. Patients presenting with acute obstruction or perforation need emergency surgery, however if obstruction resolves by conservative management it is advisable to operate electively as the patients undergoing emergency surgery have significant long term as well as short term mortality and morbidity.
- Modified conservative surgical procedures are tolerated well, and suitable for both emergency as well as elective setup, with lesser operating time, tissue dissection and fewer complications. These when followed up with post op ATT give good disease cure rates. The incidence of fecal fistula is low despite the presence of active tuberculosis in the area of anastomosis, probably attributable to specific antibiotic therapy. Bypass procedures should be limited to patients in poor general condition in whom stricturoplasty is not possible and resection is deemed inadvisable. When done, two stage resection should be contemplated.

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