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Original Research Article

Study of Gastrointestinal Tuberculosis and Role of Surgery in Its Management

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Abstract:

Background: While abdominal TB is less frequent than its pulmonary cousin, this research will look at the clinical signs of Gastrointestinal Tuberculosis, the consequences of surgical therapies, and the anatomical distribution throughout the digestive system.

Materials and Methods: Prospective observational research was carried out at SCB Medical college and Hospital, Cuttack from August 2020 to October 2022. The trial group consisted of fifty individuals with confirmed gastrointestinal TB. The diagnosis was made based on the clinical history, symptoms, and investigations such as ultrasonography, endoscopy, and histology. Patients received a variety of therapies depending on their condition, including surgery and anti-tuberculosis medication.

Results: The prevalence of GI tuberculosis was virtually similar across sexes, with the majority occurring between the ages of 18 and 30. Presents major diagnostic and therapeutic obstacles. It is the sixth most common kind of extra-pulmonary TB, affecting the gastrointestinal system, peritoneum, lymph nodes, and solid organs.

Objective: Common symptoms were stomach discomfort, lack of appetite, and fever. The ileocaecal region was the most afflicted area. Surgical intervention was required in situations with complications such as blockage or perforation. Postoperative problems included surgical site infections and pulmonary issues.

Conclusion: The research found that GI tuberculosis is more common in younger persons, with a high incidence of concomitant pulmonary TB. Complications were often treated surgically, with resection and anastomosis being especially common. Anti-tuberculous therapy was a regular component of the treatment plan. The research emphasizes the need of increased awareness and early intervention in the treatment of gastrointestinal TB.

Keywords: Gastrointestinal Tuberculosis, Abdominal Tuberculosis, Surgical Management, Anti-tuberculous Therapy, Clinical Manifestations.

Introduction

Abdominal TB is the sixth most common kind of extrapulmonary tuberculosis, after lymphatic, genitourinary, bone and joint, miliary, and meningeal tuberculosis. Abdominal TB affects the gastrointestinal system, peritoneum, lymph nodes, and solid viscera.

Infection may occur by hematogenous spread from a primary lung focus that reactivates later or miliary TB, ingestion of bacilli from sputum or contaminated milk, lymphatic spread from infected nodes, or direct dissemination from neighboring organs. Gastrointestinal tuberculosis may have one of two forms: ulcerative or hypertrophic. Abdominal TB is characterized as: 1) Gastrointestinal TB 2) Peritoneal Tuberculosis 3) TB of the solid viscera. 4) Tuberculosis of the abdominal lymph nodes. [1] The proportion of instances with abdominal tuberculosis among all EPTB patients has been found to range from 2.7% to 21%. [2,3] According to research conducted in three Indian states and based on the national tuberculosis program, abdominal TB accounted for 12.8% of total EPTB cases. [3]

Clinically, it may appear as acute, chronic, or acute on chronic, and it may even be an accidental laparotomy discovery. It typically has a chronic course with non-specific symptoms such as fever (40-70%), pain (80-95%), diarrhea (11-20%), constipation, alternating constipation and diarrhoea, weight loss (40-90%), anorexia, and malaise. Acute presentation is caused by problems such as full or partial intestinal blockage owing to mass

development in the ileocaecal area or stricture(s) in the small intestine, as well as bowel perforation resulting in peritonitis, particularly of the terminal ileum. [4]

The diagnosis is generally confirmed after the histology investigation. For people who are identified with abdominal TB early in the disease and have little symptoms, treatment is mostly conservative with anti-tuberculosis medicine. The purpose of this research is to characterize the clinical profile and outcomes in the therapy of abdominal TB in a tertiary care center.

Aim and Objectives

1. Investigate and characterize the clinical manifestations of Gastrointestinal Tuberculosis, focusing on symptomatology and patient demographics.
2. Assess the implications of surgical interventions in the management of Gastrointestinal Tuberculosis.
3. Examine the anatomical distribution of Gastrointestinal Tuberculosis within the digestive system to identify prevalent sites of occurrence and their clinical significance.

Materials and Methods

This research on Gastrointestinal Tuberculosis is prospective observational research undertaken at SCB medical college and Hospital, Cuttack. From August 2020 until October 2022. The research included data from around 50 patients with confirmed gastrointestinal TB who were hospitalized throughout this time.

The patients were diagnosed for inclusion in the research based on a complete clinical history, clinical symptoms, investigations, ultrasonography, endoscopy, and pre-operative results. In all instances, a TB-specific histopathological lesion in the sick gastro intestinal segment or draining lymph node, as well as a positive tissue biopsy culture for M tuberculosis, were sought.

Other kinds of abdominal TB that did not impact the GI tract were excluded from the research. CT abdomen and colonoscopy were not done in individuals who had surgical emergency, if needed and based on the pattern of presentation.

Those who presented with severe blockage or symptoms of perforation were promptly operated on as an emergency. Those who presented with subacute blockage or bulk in the abdomen, as well as unusual symptoms, underwent further testing. Following a clinical diagnosis of Gl TB, patients were treated with ATT (Anti-Koch's Treatment) and subsequently either operated on electively or managed conservatively with the continuation of ATT. Patients who had elective surgery got ATT for at least two weeks before to surgery, and all patients in the trial received ATT for six months of short-course chemotherapy according to the DOTS protocol. All patients were monitored for problems for varying lengths of time after surgery.

Observation and Results

The research included 50 patients treated for intestinal TB at SCB medical college and Hospital, Cuttack between July 2020 and October 2022. The findings of this investigation were examined and given here. The incidence of GI tuberculosis was practically similar across the sexes, with 28 men and 22 females. The patients' ages varied from 18 to 60 years, with the majority of them in their second decade (18-30 years) (55%), and the third decade (31-40 years) (28%).

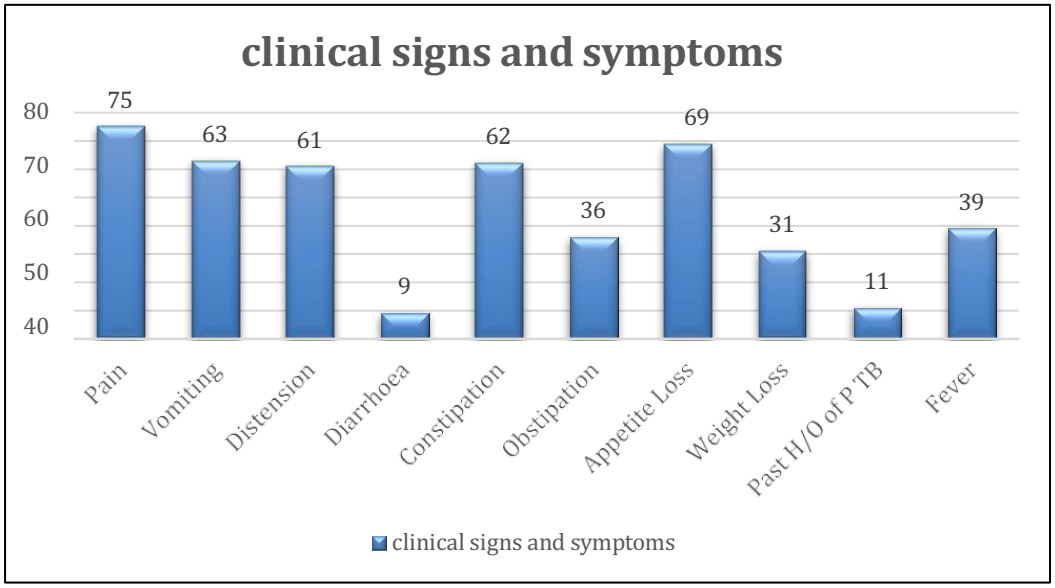

Figure 1: Distribution of patients according to Clinical History

In the study, abdominal pain was universally reported (100%), varying from dull to colicky. Loss of appetite (92%) and low-grade fever (52%) were also common.

Symptom duration ranged from 2 days to a year. Among the patients, 17% (11 out of 75) had concurrent pulmonary tuberculosis, while 85% (64 out of 75) had isolated gastrointestinal tuberculosis. In the study, emergency X-rays showed air fluid levels in 27 patients and air under the diaphragm in 10.

CT scans of 30 patients revealed signs like bowel wall thickening and ileocaecal valve changes, typical of abdominal tuberculosis. Colonoscopies in 20 patients frequently identified caseating granulomas, confirming the diagnosis.

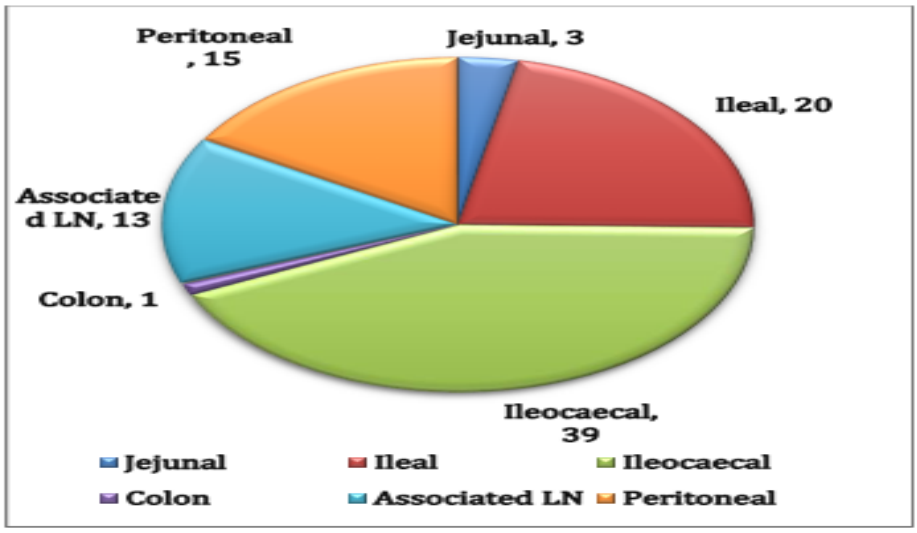

Figure 2: Site of abdominal tuberculosis

In the research, the ileocaecal junction was the major location of abdominal TB in 52% of patients, with the terminal ileum also being extensively impacted. Ileocaecal TB was the highest prevalence, followed by ileal (27%), mesenteric lymphadenitis (17%), and peritoneal tuberculosis (20%). Other gastrointestinal areas, such as the stomach, duodenum, jejunum, and colon, were less often affected. Surgical intervention was required, particularly for acute instances presenting with blockage or perforation. Half of the 20 emergency procedures addressed acute intestinal blockage, while the other half treated minor bowel perforation. Other surgical therapies included elective operations and interventions such as resection, anastomosis, and ileostomy, which were customized to each patient's specific situation. In the research, 20% of patients had surgical site infections, mostly after emergency procedures. In 23% of instances, pulmonary problems such as atelectasis and bronchopneumonia were detected. Paralytic ileus, which is especially relevant if it persists until the third postoperative day, was seen in 20% of patients, mostly in emergency cases. Despite the resolution of tubercular lesions, one patient had recurring blockage caused by adhesions. Four patients developed sepsis, one of which progressed to severe preoperative sepsis with multiorgan failure syndrome. Mortality occurred in 3% of patients, particularly in a case of perforative peritonitis with late presentation.

Table 1: Demographic, Clinical, and Surgical Profile of Patients with Gastrointestinal Tuberculosis

		Obstruction	Mass	Perforation	Total
Age Group (years)	18-30	**21**	**14**	**6**	**41**
	31-40	**9**	**6**	**6**	**21**
	41-50	**6**	**0**	**2**	**8**
	51-60	**5**	**0**	**0**	**5**
	Mean age	**35.8**	**28.4**	**31.7**	**31.9**
Sex	Male	**20**	**12**	**11**	**43**
		49%	**67%**	**69%**	**57%**
	Female	**21**	**6**	**5**	**32**
		51%	**33%**	**31%**	**43%**
	Total	**41**	**18**	**16**	**75**
	Pain	**34**	**20**	**21**	**75**

Clinical History	Vomiting	**33**	**15**	**15**	**63**
	Distension	**30**	**15**	**15**	**60**
	Diarrhoea	**6**	**2**	**2**	**10**
	Constipation	**30**	**18**	**14**	**62**
	Obstipation	**16**	**8**	**12**	**36**
	Appetite Loss	**39**	**16**	**14**	**69**
	Weight Loss	**18**	**9**	**5**	**32**
	Past H/O of P TB	**11**	**2**	**0**	**13**
	Fever	**25**	**6**	**8**	**39**
Surgical Procedures	Diagnostic Laparoscopy with adhesiolysis	**7**	**0**	**0**	**7**

Table 2: Postoperative Complications in Gastrointestinal Tuberculosis: A Comparison between Emergency and Elective Surgical Cases

Complications	Emergency	Elective	Total	Percent
Surgical site infection (SSI)	12	3	15	20%
Pulmonary Complications	10	7	17	23%
Paralytic Ileus	12	3	15	20%
Sepsis	6	0	6	8%
Death	2	0	2	3%
Recurrent Obstruction	2	0	2	3%

Discussion

When the results of this study are compared to the available literature, few differences emerge, which are most likely due to the fact that the majority of the available data in the literature covered abdominal tuberculosis as a whole, with very few focusing on GI tuberculosis specifically.

In our current research, the majority of abdominal TB cases occurred in the age groups of 18-30 and 31-40, with 55.0% and 28%, respectively. The age distribution of the current series is comparable to that described by J.D. Wig et al5 and Ramesh c. Bharathi et al.6 Other investigations, such as Sharma et al. 1972 and Biswal et al. [7], observed comparable age incidence. The male-to-female ratio is 1.17:1, with 28 patients (56%) male and 22 patients (44%) female, indicating a small male predominance. Addison et al. [8] found a significant prevalence among men. Awasthi et al [9] observed an equal frequency in both males and females.

The most prevalent symptom in the current research was abdominal discomfort (100%), which is consistent with the data published by Biswal et al. [7] Other typical symptoms include fever, diarrhea, weight loss, and lack of appetite, which are consistent with the findings of Shukla S. et al10 and Biswal. et al. [7] According to Chalya et al. [11], about 52% of patients presented with ileocaecal TB.

In our current investigation, 11 out of 75 (15%) patients had concomitant pulmonary TB, which is consistent with data from Biswal et al [7] (24.8%) and Shukla S. et al [10] (27.8%).This suggests that abdominal TB is not necessarily linked to pulmonary tuberculosis. Surgery is only recommended for gastrointestinal tuberculosis complications. Our series comprised mostly of such patients presenting with varied difficulties, which was affected by the type of the cases submitted to us, since we are a tertiary referral center. Management of perforations involves definitely surgical.

The treatment of tuberculosis-induced intestinal obstruction, on the other hand, remains contentious. Biswal [7] recommended watchful and careful conservative treatment with 6-hourly review of the patient. If the blockage resolves, elective surgery is done after 2–4 weeks. Sherman et al. [10] proposed that surgery is required only if a blockage continues, since 50% of their patients responded to medicinal treatment. Nonetheless, several writers recommend surgical treatment since the blocked lesion is often hypertrophic. According to numerous writers, this type often fails to react to medical treatment. Another benefit of surgical intervention is the availability of specimens for accurate pathological diagnosis.

Conclusion

The research largely examined middle-aged individuals with stomach Tuberculosis, emphasizing typical symptoms such as stomach discomfort and appetite loss. The ileocaecal area was the most impacted. Notably, 15% of cases were related with pulmonary TB. Complications such as intestinal blockage were often treated surgically, particularly by resection and anastomosis. The diagnostic reliance was on CECT and colonoscopy-guided biopsies. Anti-tuberculous treatment was used regularly, in accordance with RNTCP standards.

The study's limitations include its dependence on data from a single facility, which may not reflect wider demographics or clinical presentations. It also emphasizes the difficulty of distinguishing between TB and other abdominal illnesses. Future research should involve a bigger, multi-center study to collect more thorough data, as well as an exploration of less intrusive diagnostic and therapeutic options. This might improve knowledge and therapy of abdominal TB, especially in areas with a greater incidence.

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