Journal of Cardiovascular Disease Research
ISSN: 0975-3583, 0976-2833 VOL 15, ISSUE 1, 2024

STUDY OF GASTROINTESTINAL TUBERCULOSIS AND ROLE OF SURGERY IN ITS MANAGEMENT

Dr.Sandip Haribhau Tayade[1], Dr. Gajanan Anilrao Pande[2], Dr. Manaswi Madhukar Ganvir[3], Dr. Sandeep Subhash Nagare*

[1]Assistant Professor, Padmashree Dr. D Y Patil Medical College and Hospital, Navi Mumbai, MH. drsandiptayade@gmail.com

[2]Senior Resident, Padmashree Dr. D Y Patil Medical College and hospital, Navi Mumbai, MH, gajup60@gmail.com

[3]Senior Resident, Navi Mumbai Municipal Corporation Hospital Vashi Navi Mumbai, MH. manaswi.ganvir@gmail.com

Corresponding Author: Dr. Sandeep Subhash Nagare, , Senior Resident, Shreemati Kashibai Nawle Medical College, Pune, MH. sandeepnagare12@gmail.com

Background: Abdominal tuberculosis, though less common than its pulmonary counterpart, This study aims to investigate the clinical manifestations of Gastrointestinal Tuberculosis, assess the implications of surgical interventions, and examine the anatomical distribution within the digestive system.

Methods: A prospective observational study was conducted at Dr. D.Y. Patil Hospital & Research Centre, Navi Mumbai, from August 2020 to October 2022. Fifty patients with proven gastrointestinal tuberculosis formed the study group. Diagnosis was based on clinical history, signs, investigations including Ultrasonography, Endoscopy, and histopathology. Patients underwent varied treatments based on their condition, including surgery and anti-tuberculous therapy.

Results: The incidence of GI tuberculosis was nearly equal among sexes, predominantly in the age group of 18-30 years. Poses significant diagnostic and therapeutic challenges. It represents the sixth most frequent form of extra-pulmonary tuberculosis, involving the gastrointestinal tract, peritoneum, lymph nodes, and solid viscera.

Objective: Common symptoms included abdominal pain, loss of appetite, and fever. The ileocaecal region was the most affected site. Surgical intervention was crucial in cases presenting with complications like obstruction or perforation. Postoperative complications included surgical site infections and pulmonary complications.

Conclusion: The study highlights the prevalence of GI tuberculosis primarily in younger adults, with a significant incidence of associated pulmonary tuberculosis. Surgical treatment, particularly resection and anastomosis, was often required for complications. Anti-tuberculous therapy was a consistent part of the treatment protocol. The study underscores the need for heightened awareness and early intervention in GI tuberculosis management.

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

INTRODUCTION

Abdominal tuberculosis represents the sixth most frequent form of extra-pulmonary tuberculosis after lymphatic, genitourinary, bone and joint, miliary, and meningeal tuberculosis. Abdominal tuberculosis includes affection of gastro- intestinal tract, peritoneum, lymph nodes, and solid viscera. The route of infection could be hematogenous spread from a primary lung focus that reactivates later or miliary tuberculosis, ingestion of bacilli either from the sputum or from infected milk, spread via lymphatics from infected nodes or by direct spread from adjacent organs. Gastrointestinal tuberculosis exists in one of the two main forms i.e. ulcerative, hypertrophic. Abdominal TB is classified into: 1) Gastrointestinal TB 2) Peritoneal TB 3) TB of solid viscera 4) TB of abdominal lymph nodes.[1]The number of cases of abdominal TB as a fraction of all EPTB cases has been reported to vary from 2.7% to 21%.[2,3] In a study from three states in India and based on the national tuberculosis program, abdominal TB constituted 12.8% of all EPTB cases.[3]

Clinically it may present in acute, chronic or acute on chronic form and sometimes may even be an incidental laparotomy finding. Commonly it runs a chronic course with non-specific symptoms of fever (40-70%), pain (80- 95%), diarrhoea (11-20%), constipation, alternating constipation and diarrhoea, weight loss (40-90%), anorexia and malaise. Acute presentation is secondary to complications like complete or partial intestinal obstruction due to mass formation in ileocaecal region or stricture(s) in small intestine, and bowel perforation causing peritonitis especially terminal ileum.[4]

Diagnosis is usually confirmed after the histopathology examination. For those cases having been diagnosed with abdominal tuberculosis early in the course of illness and minimal symptoms, treatment is mainly conservative with anti-tuberculosis therapy. The present study intends to describe the clinical profileand outcome in the management of abdominal tuberculosis at a tertiary care centre.

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 Study on Gastrointestinal Tuberculosis is a Prospective observational study conducted at Dr. D.Y.Patil Hospital & Research Centre, Nerul, Navi Mumbai From August 2020 to October, 2022. About 50 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, Ultrasonography, Endoscopy &pre operative findings. In all cases, a definitive histopathological lesion 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.CT abdomen and colonoscopy was not performed in those who underwent surgical emergencies, as per requirement and depending on the mode of presentation.

Those presenting with acute obstruction or with signs of perforation were immediately operated upon, on emergency basis. Those presenting with Subacute obstruction or mass per abdomen or with atypical symptoms were subjected to further investigations. On clinical diagnosis of Gl tuberculosis, were treated with ATT (Anti-Koch's Treatment) 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 included in the study received ATT for 6 months short course chemotherapy as per DOTS regimen.All patients were followed up post-operatively for complications, for varied durations.

OBSERVATION AND RESULTS

During the period of July 2020 to October 2022 a total of 50 patients who were treated for Intestinal tuberculosis in Dr. D.Y. Patil Hospital & Research Centre, Nerul, Navi Mumbai were enrolled into the study. The results of this study have been analyzed and presented here. Incidence of GI tuberculosis was almost equal among both sexes with 28 males and 22 females. Ages of the patients ranged from 18 yrs to 60 yrs with majority of the patients in their 2nd decade (18-30 yrs) - 55% and 3rd decade (31-40 yrs) - 28%.

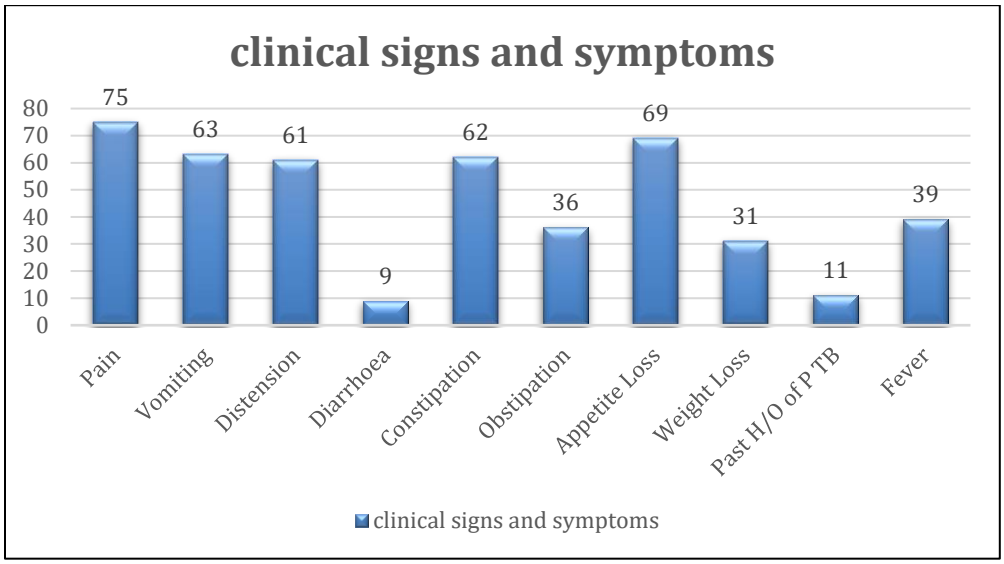

Figure 1: Distribution of patients according to Clinical History

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.

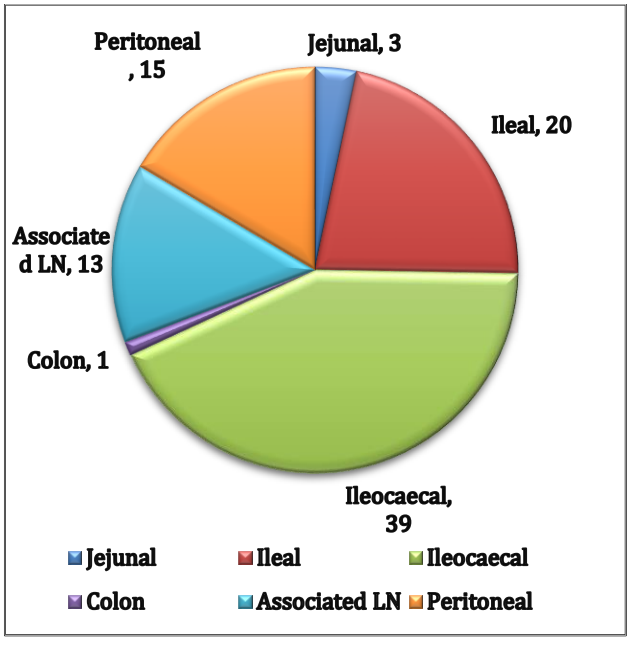

Figure 2: Site of abdominal tuberculosis

In the study, the ileocaecal junction was the primary site for abdominal tuberculosis in 52% of cases, with the terminal ileum also significantly affected. Ileocaecal tuberculosis was the most prevalent, followed by ileal (27%), mesenteric lymphadenitis (17%), and peritoneal tuberculosis (20%). Other gastrointestinal regions like the stomach, duodenum, jejunum, and colon were less commonly involved. Surgical treatment was essential, especially for acute cases presenting with obstruction or perforation. Of 20 emergency surgeries, half addressed acute intestinal obstruction, and the other half, small bowel perforation. Other surgical treatments included elective procedures and a range of interventions like resection, anastomosis, and ileostomy, tailored to each patient's condition.

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**
CLINICAL HISTORY	Pain	**34**	**20**	**21**	**75**
	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**

	Right (Ileo-transverse colon anastomosis)	**0**	**9**	**0**	**9**
	Limited ileocecal resection (Ileo-Ascending colon anastomosis)	**0**	**11**	**0**	**11**
	Ileostomy (Exteriorization of perforation)	**5**	**0**	**6**	**11**
	Resection and anastomosis	**12**	**0**	**9**	**21**
	Strictureplasty	**10**	**0**	**0**	**10**
	Open Adhesiolysis	**6**	**0**	**0**	**6**

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%

In the study, 20% of patients experienced surgical site infections, primarily following emergency surgeries. Pulmonary complications such as atelectasis and bronchopneumonia were observed in 23% of cases. Paralytic ileus, particularly significant if persisting after the third postoperative day, was noted in 20% of patients, mostly in emergency situations. One patient had recurrent obstruction due to adhesions, despite resolved tubercular lesions. Sepsis was seen in four patients, with one case escalating to severe preoperative sepsis and multi-organ dysfunction syndrome. Mortality occurred in 3% of patients, notably in a case of perforative peritonitis with late presentation.

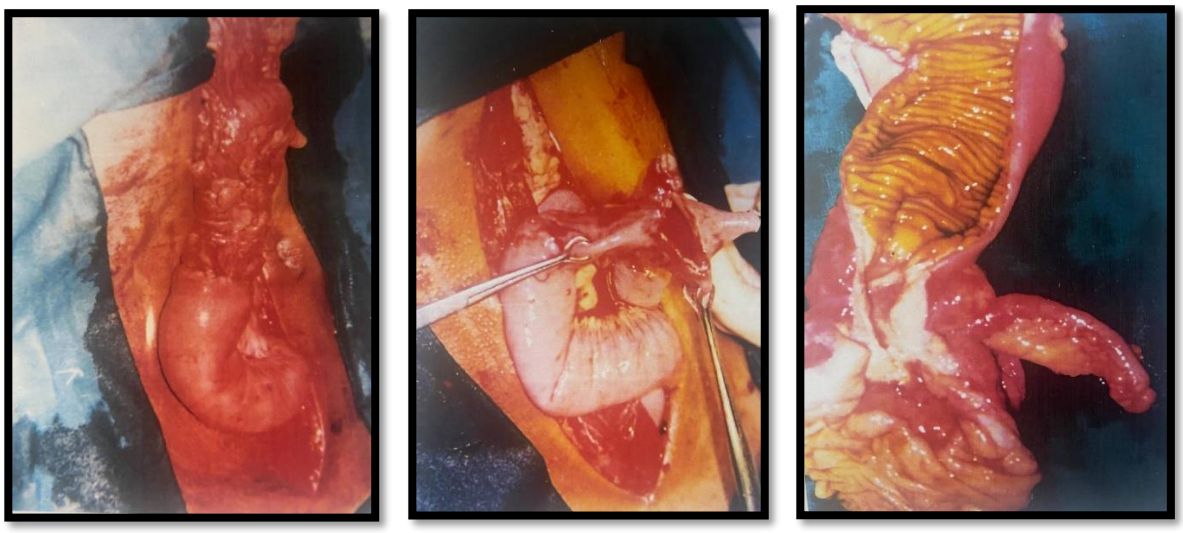

Figure 3: Intra-operative images of a. Ileo ascending colon anastomosis b. Stricturoplasty c. Ileocecal mass

DISCUSSION

When the results of this study are analyzed against the backdrop of the available literature, few disparities are noticeable, which are attributable probably to the fact that most of the available data in the literature encompassed the abdominal tuberculosis as a whole and very few on GI tuberculosis in specific.

In our present study, most of the abdominal tuberculosis presented in the age group of 18-30 and 31-40 which were 55.0% and 28% respectively. Age incidence of the present series is similar to that reported by J.D. Wig et al[5] and Ramesh c. Bharathi et al.[6] Other studies by Sharma et.al 1972 and Biswalet.al[7] also reported similar age incidence. Male to female ratio is 1.17:1. 28 patients (56%) were male and 22 patients (44%) were female with slight male preponderance. Addison et al[8] reported high incidence in males. Awasthi et al[9] reported equal incidence in both male and female.

In the present study, the most common symptom is abdominal pain (100%) similar to results reported in Biswal. et al.[7] Other common symptoms are fever, diarrhoea, loss of weight and loss of appetite which are similar to the study of Shukla S.et al[10] and Biswal. et al.[7] The Ileocaecal region is the most commonly affected region in abdominal tuberculosis similar to reports from Chalya et.al.[11] about 52% of patients presented with ileocaecal tuberculosis.

In our present study, 11 out of 75 (15%) patients had associated pulmonary tuberculosis which is comparable to reports by Biswal et al[7] (24.8%) and Shukla S. et al[10] (27.8%).This indicates that abdominal tuberculosis is not always secondary to pulmonary tuberculosis.

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. Biswal[7] advised vigilant and cautious conservative management with 6- hourly reassessment of the patient. If the obstruction does resolve, elective surgery is performed after 2-4 wks. Sherman et al[10] suggested that surgery is needed only if an obstruction persists, because 50% of their cases responded to medical management. Nonetheless, many authors advocate surgical management because the obstructed lesion is often hypertrophic. This form. according to many authors, often responds badly to medical management. The other advantage of surgical intervention is the availability of specimens for exact pathological diagnosis.

CONCLUSION

The study primarily focused on middle-aged patients with Abdominal Tuberculosis, highlighting common symptoms like abdominal pain and appetite loss. The ileocaecal region was the most affected. Notably, 15% had associated pulmonary tuberculosis. Surgical treatment, especially resection and anastomosis, was often required for complications like intestinal obstruction. Diagnostic reliance was on CECT and colonoscopy-guided biopsy. Treatment consistently involved anti-tuberculous therapy, following RNTCP guidelines.

Limitations include the study's reliance on a single center's data, which may not represent broader demographics or varied clinical presentations. It also highlights the challenge of differentiating between tuberculosis and other abdominal conditions. Recommendations for future research include a larger, multi-center study for more comprehensive data, and exploring less invasive diagnostic and treatment approaches. This could enhance understanding and management of abdominal tuberculosis, particularly in regions with higher prevalence.

REFERENCES

1. Debi U, Ravisankar V, Prasad KK, Sinha SK, Sharma AK. Abdominal tuberculosis of the gastrointestinal tract: revisited. *World J Gastroenterol*. 2014;20(40):14831-14840. doi:10.3748/wjg.v20.i40.14831
2. Nath P. Epidemiology of gastrointestinal tuberculosis. In: Sharma V, editor. Tuberculosis of the gastrointestinal system. Singapore: Springer; 2022. https://doi.org/10.1007/978-981-16-9053-2_2.
3. Cherian JJ, Lobo I, Sukhlecha A, et al. Treatment outcome of extrapulmonary tuberculosis under Revised National Tuberculosis Control Programme. Indian J Tuberc. 2017;64:104–8.
4. Al-Zanbagi AB, Shariff MK. Gastrointestinal tuberculosis: A systematic review of epidemiology, presentation, diagnosis and treatment. Saudi J Gastroenterol. 2021 Sep-Oct;27(5):261-274. doi: 10.4103/sjg.sjg_148_21. PMID: 34213424; PMCID: PMC8555774.
5. Wig JD, KL, Bawa, YS. Abdominal tuberculosis unassociated with acute pulmonary tuberculosis. Ind J Tuber. 1988;1:6-12

6. Ramesh C Bharti, et al. Pattern of surgical emergencies of tubercular abdomen in IGMC, Shimla- An experience of ten years. IJS, 1996 Jul-Aug;213-17
7. Biswal JK, Kanhat K, Sebastian J, Soren JK, Kumar RN. Clinicopathologycal Study of Gastrointestinal Tuberculosis and Role of Surgery in its Management. Ann Int Med Dent Res [Internet]. 2018 Jun 24
8. AddisonN.V.&J.M.Findlay.AbdominalTuberculosis.Current Surgical practice vol. 3 page, 48-61(1982).
9. Awasthi S. Abdominal Tuberculosis: A Diagnostic Dilemma. J Clin Diagn Res [Internet]. 2015 [cited 2024 Jan 1]; Available from: http://jcdr.net/article_fulltext.asp
10. Shukla S, Kumar K. Spectrum of clinical presentation of abdominal tuberculosis and its surgical management. Int Surg J. 2018 Mar 23;5(4):1482.S
11. Chalya PL, Mchembe MD, Mshana SE, Rambau PF, Jaka H, Mabula JB. Clinicopathological profile and surgical treatment of abdominal tuberculosis: a single centre experience in northwestern Tanzania. BMC Infect Dis. 2013 Dec;13(1):270.