

Original Research Article

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A prospective study of surgical management of Koch's abdomen in a tertiary care hospital

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ABSTRACT

Background: Tuberculosis is a communicable disease that is a major cause of morbidity and mortality worldwide. Abdominal tuberculosis is the sixth most common form and is associated with serious complications like perforation and stricture formation.

Methods: Observational and prospective study conducted in Hamidia Hospital, Bhopal from September 2018 to September 2020 included 122 patients, between the age of 16 to 60 years who underwent surgical management of abdominal tuberculosis.

Results: The incidence of abdominal tuberculosis was higher in young age groups mostly belonging to male sex. The most common presentation was of subacute intestinal obstruction. On surgical exploration ileocecal tuberculosis was the most common finding which was managed most commonly by segmental resection with anastomosis followed by adhesiolysis and strictureplasty. Post-operative wound infection was the most common complication followed by pulmonary complication which was the most common cause of death.

Conclusions: Early diagnosis of abdominal tuberculosis with the help of newer diagnostic tools and early referral to higher centers is necessary to decrease the morbidity and mortality. Early start of anti-tubercular drug therapy along with surgical management can help us reduce the mortality and long-term complications associated with abdominal tuberculosis.

Keywords: Koch's abdomen, Abdominal tuberculosis, Anti-tubercular therapy

INTRODUCTION

Tuberculosis has been one of the oldest diseases known to mankind.¹ It is a communicable disease that is a major cause of ill health, and is one of top ten causes of death worldwide.² Globally, an estimated 10 million people fell ill and an estimated 1.2 million people died due to tuberculosis.^{1,2} Abdominal tuberculosis represents the sixth most frequent form of extra pulmonary tuberculosis after lymphatic, genitourinary, bone and joints, miliary and meningeal tuberculosis.^{2,4} Abdominal tuberculosis comprises the involvement of gastro intestinal tract, mesenteric lymph nodes, peritoneum and related solid

organs such as liver, spleen etc.^{5,6} The causative organism mycobacterium tuberculosis reach the gastro-intestinal tract through oral route after ingestion of sputum, or direct spread occurring from adjacent organs, or via the hematogenous spread.^{2,3} Perforation peritonitis and stricture formation leading to intestinal obstruction are serious complications of abdominal tuberculosis and they are associated with high mortality and morbidity.⁷⁻¹² The role of surgery in abdominal tuberculosis can be diagnostic or it can be therapeutic to treat conditions like perforation peritonitis, intestinal obstruction and abdominal abscess.

Aims and objective

To evaluate the surgical management of abdominal tuberculosis. To study the various clinicopathological forms of abdominal tuberculosis. To access the various surgical treatment modalities, their complications and their outcome in the management of abdominal tuberculosis.

METHODS

The design of the present study was Observational and Prospective, conducted in the period September 2018 to September 2020. This study was conducted in the general surgery department of Hamidia Hospital, Gandhi Medical College, Bhopal Madhya Pradesh. A total of 122 patients were included in the present study who underwent laparotomy for Koch's abdomen in both elective and emergency setup during the present study period.

Approval of institutional ethical committee was taken prior to start of this study and written consent was taken from all the patients who participated in this study.

Inclusion criteria

Patients between 16 to 60 years of age. Diagnosed case of abdominal tuberculosis. Patients requiring surgical management for abdominal tuberculosis.

Exclusion criteria

Patients not fit for surgical exploration. Patients not giving consent for surgical intervention.

Method of data collection

In this observational and prospective study, we included all patients during the study period (n=122), who reported either in emergency or in routine outpatient department of Hamidia Hospital who met the inclusion criteria of study i.e., patients between the age group 16-60 years and diagnosed with symptomatic intestinal tuberculosis requiring surgery.

All patients had a chest X-ray and an abdominal ultrasonography (USG), as well as a routine blood test that included the erythrocyte sedimentation rate (ESR). In the event of chronic intestinal obstruction, an abdominal computed tomography (CT) scan was conducted. We did not perform CT scans of the abdomen in all patients with obstruction because, in the event of acute intestinal obstruction, we believe that this delays the surgery needlessly and has no bearing on care. Based on the clinical presentation, laboratory, and radiographic results, we suspected abdominal tuberculosis. Laparotomy was performed on all of the patients. In all of the cases, histopathology was conducted, chronic granulomatous inflammation and caseation necrosis along with the presence of giant cells were our diagnostic criteria.

Detailed data of each patient including age, sex, clinical presentation, operative procedure, operative findings, histopathological report and post-operative complications was collected in a specially designed case recording form (crf).

The collected data were transformed into variables, coded and entered in Microsoft Excel. Data were analyzed and statistically evaluated using Epi Info software tool of CDC. Qualitative data were expressed in percentage. Statistical differences between the proportions were tested by chi square test or Fisher's exact test $p<0.05$ was considered statistically significant.

Stress was laid upon a thorough history taking and physical examination. The different surgical procedures were evaluated. The ensuing complications of the treatment were studied and the cases were followed up.

RESULTS

Intra operative findings

In this study, of the total 122 patients, 115 cases showed features of intestinal tuberculosis (94%) and rest 7 cases were frozen (plastic abdomen) i.e., multiple adhesion between bowel loops and abdominal wall.

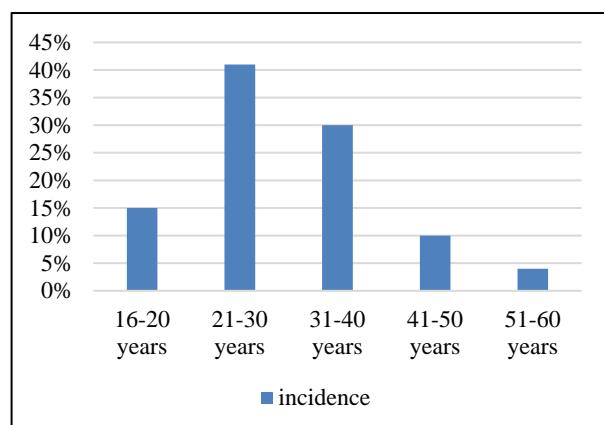


Figure 1: Age incidence of abdominal tuberculosis.

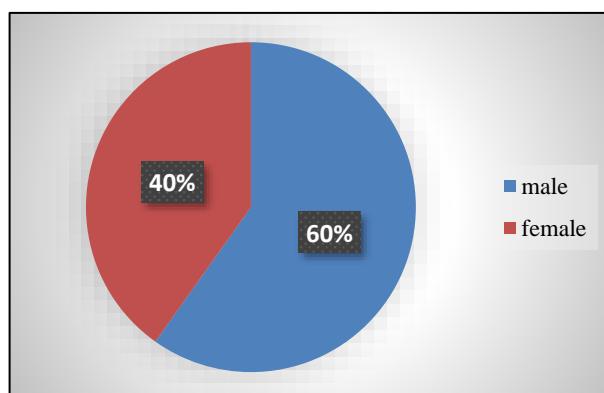


Figure 2: Sex incidence of abdominal tuberculosis.

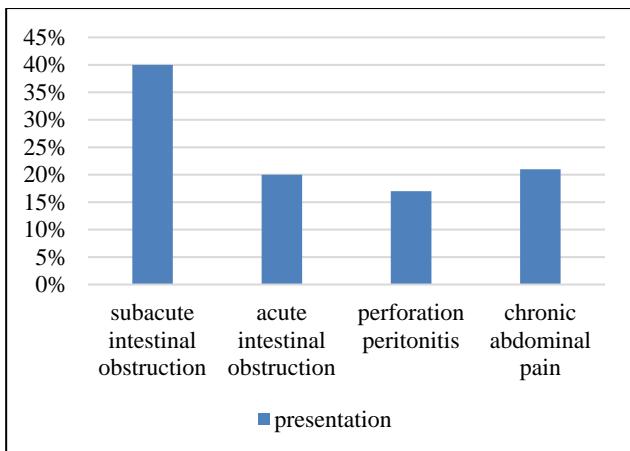


Figure 3: Mode of presentation in patients with abdominal tuberculosis.

Intra-operative findings in these patients are elaborated in Table 1.

Table 1: Intraoperative findings during exploratory laparotomy in patients with kochs abdomen.

Intraoperative findings	No. of Patient	%
Small bowel stricture (single)	11	9
multiple small bowel strictures	19	15
Ileocecal hyperplastic tuberculosis	49	40
Ileocecal hyperplastic tuberculosis with perforation	3	3
Single small bowel perforation (ileal)	15	10
Multiple ileal perforation	5	4
Multiple small bowel perforation (ileum and jejunum)	2	2
Cocoon abdomen (Plastic abdomen)	8	7
Acute tubercular peritonitis with ascites	5	4
Pulled up caecum with narrow ileocecal valve	7	6

DISCUSSION

Tuberculosis is still a very common disease in India, as it is in many other underdeveloped countries where hunger, overcrowding, and inadequate sanitation abound. Intestinal tuberculosis is a rather prevalent health issue as well.^{8,9} Because the symptoms and signs of intestinal tuberculosis are non-specific, and there are no unmistakable diagnostic markers, both clinically and radiologically, laparotomy and histological testing are frequently required to confirm the diagnosis.⁸⁻¹⁰

Table 2: Following operative procedures were performed in patients of abdominal tuberculosis in the present study.

Procedure	%
Limited resection (segmental)	33
Right hemicolectomy	10
Small bowel resection	6
Strictureplasty	12
Primary perforation repair	11
Adhesiolysis	23
Biopsy	5
Other	-

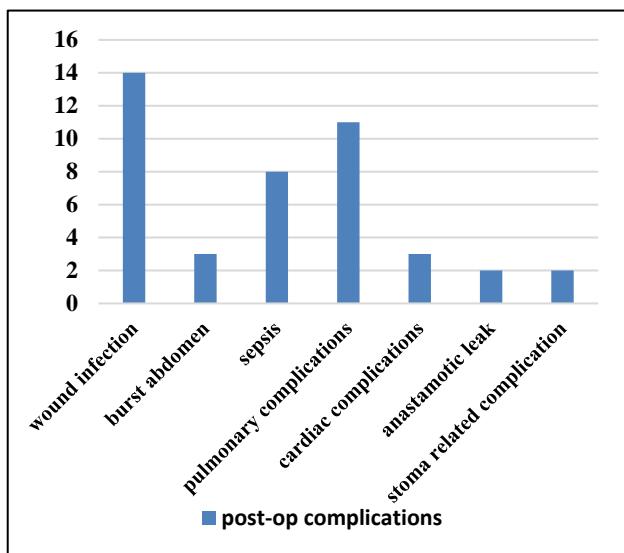


Figure 4: Post-operative complications encountered in patients operated for abdominal tuberculosis.



Figure 5: Abdominal tuberculosis on table picture showing tubercles on small bowel.

In this study, 122 cases of intestinal tuberculosis with various signs and symptoms are reported. The results are analyzed in comparison to various studies done on abdominal tuberculosis.



Figure 6: Abdominal tuberculosis on table picture showing small bowel perforation.

In the present study majority of the cases reported were young and adult age groups. Between the 21-30 years comprising 41% patients and 31-40 years age patients comprising 30% of the total patients. Similar findings were reported by Bhansali et al (40% patients between 21-30 years of age).⁹

Incidence among male patients was slightly higher than female patients with male: female ratio being 1.5:1, similar results were seen in series of Vij et al however Bhansali et al reported an equal incidence among both sexes.^{9,14}

Symptoms depend on the type of presentation, abdominal pain was the most common symptom seen in the present study with subacute intestinal obstruction being the commonest presentation followed by chronic abdominal pain, acute intestinal obstruction and perforation peritonitis.

Without histopathological examination, the diagnosis of abdominal tuberculosis is very difficult to make as the symptoms and signs are very vague.⁸ Das and Shukla reported that diagnosis can be made only in about 50% of the cases, and diagnosis is more accurate in cases of ileocecal mass and subacute intestinal obstruction cases.⁸ Postoperative histopathological examination provides a definitive diagnosis in cases of abdominal tuberculosis.¹³

Surgical exploration is an absolute indication in patients of abdominal tuberculosis presenting with acute intestinal obstruction and perforation peritonitis.⁹ Resection of ileocecal mass can be of limited extent (segmental resection) rather than classical hemicolectomy, as extensive resection can lead to malabsorption as reported by Prakash et al.¹⁰

According to many authors, abdominal tuberculosis most commonly occurs in ileocecal region with hyperplastic type being the commonest.⁷⁻¹⁰ Similar findings were reported in our study with 40% of the patients showing ileocecal hyperplastic tuberculosis, 15% showing

multiple small bowel strictures and 10% patients showed ileal perforation.

In the present study segmental resection was preferred over right hemicolectomy because of post-operative malabsorption concerns. Strictureplasty was also a preferred method over intestinal resection in cases of small bowel strictures, as it provides equivocal results as reported by Kapoor et al.⁶

In the present study, of the total 122 patients operated for abdominal tuberculosis, 32 patients developed post-operative complications, with wound infection being the commonest complication causing increased post-op morbidity and hospital stay. 11 patients developed pulmonary complications and was the most common cause of post-operative mortality in patients of abdominal tuberculosis. As most of the patients of abdominal tuberculosis suffer from comorbid conditions like anemia, malnourishment etc., post-op pulmonary and wound complications are very common among these patients as reported by Bhansali et al, and are a major cause of increased morbidity and mortality.⁹

Limitations

A limitation of this study was that it was of relatively small sample size. There could have been some selection bias because we included patients who presented to the surgical OPD and emergency department at a medical college hospital. Furthermore, for the logistical reasons mentioned above, we did not do CT scan abdomen in all patients with obstruction.

CONCLUSION

Due to nonspecific symptomatology and a lack of specific laboratory testing, abdominal TB is difficult to diagnose. A high degree of suspicion is required, and diagnosis is based upon clinical, radiological and histopathological investigations. Young adults are the most commonly affected. The most common symptom was intestinal obstruction and the most common site of involvement of abdominal tuberculosis is ileocecal region. The approach to surgery should be conservative, with the aim of saving maximum bowel length to avoid malabsorption in the post-operative period, so Limited resection was the most common surgery performed in the present series. Wound infection is common (10%), but most of them respond well to Anti Tubercular Treatment (ATT), so all patients should be started on 6 months of ATT, post operatively. The mainstay of treatment is still medical therapy in abdominal TB, but timely surgical intervention is necessary in a sizable number of patients. This study highlights the importance of new research and development of newer diagnostic modalities and treatment modalities to reduce the disease burden and also to reduce the morbidity and mortality associated with abdominal TB.

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Ethical approval: Not required

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