

ORIGINAL ARTICLE

**Clinical Presentation and Surgical Management of Intestinal Tuberculosis Presented as an Acute Abdomen**

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**ABSTRACT**

**OBJECTIVE:** To review the various clinical presentations and different surgical options in the management of intestinal tuberculosis at tertiary care hospital.

**METHODOLOGY:** This two years descriptive cross-sectional study was conducted at LUMHS. By using convenient sampling technique, all patients aged between 18-60 years, of either gender, presented with acute or sub-acute intestinal obstruction or peritonitis were admitted. Detailed history, thorough clinical examination and relevant investigations were performed. Only those patients in whom, per operative findings of intestinal tuberculosis and later on confirmed on histopathology were included in this study. Data was analyzed on SPSS version 22. Results were analyzed for mean, frequency and percentage.

**RESULTS:** A total 47 patients with intestinal tuberculosis were included. The mean age was  $27.01 \pm 4.88$  years. Male to female ratio was 1.6:1. Most common constitutional symptom was weight loss in 85.1% patients, followed by fever 51% and anorexia 57.4%. Common abdominal symptoms were pain 93.6%, distension 72.34%, nausea and vomiting in 55.31% and alternating bowel habits in 42.55% cases. 61.7% patients presented with signs of acute or sub-acute intestinal obstruction followed by peritonitis in 21.2% and abdominal mass in 17% patients. Ileostomy was the lifesaving procedure performed in 40.4% of cases. Other procedures were adhesiolysis, stricturoplasty, limited right hemicolectomy, segmental small bowel resection and end to end anastomosis.

**CONCLUSION:** Intestinal tuberculosis is still an endemic disease in low resource countries. Clinical presentation mimics with many other abdominal conditions results in delay in diagnosis. Differential diagnosis should always be kept in mind to diagnose this communicable disease.

**KEY WORDS:** Intestinal tuberculosis, Constitutional symptoms, Intestinal obstruction, Ileostomy.

**INTRODUCTION**

Tuberculosis (TB), especially in low resource countries is a major health burden and responsible for high morbidity and mortality rate. World Health Organization (WHO) has declared it as a global emergency and is the most important communicable disease. Across the globe, in 2018, about 10.0 million (range, 9.0-11 millions) people were affected with TB, out of which 1.5 million died. Eight countries responsible for almost two third of the total world burden of TB cases and Pakistan is among 4<sup>th</sup> of them<sup>1</sup>.

Previously it was thought that TB is a rare disease in the Western population but its incidence is rising because of increase in HIV positive cases. Among HIV positive patients 35-40% have concomitant extra-pulmonary manifestations of TB<sup>2,3</sup>.

Koch's abdomen or abdominal tuberculosis is one of the common site for extra pulmonary tuberculosis<sup>4</sup>. Tuberculous organisms reach the alimentary tract mostly by swallowing of infected sputum or some times by ingested raw milk. Disease can also spread through hematogenous route or direct spread from contagious lymph node or fallopian tubes<sup>5</sup>. Tuberculosis can affect whole gastrointestinal tract from lips to anal verge and intra-abdominal solid viscera. Terminal ileum and ileocaecal regions are the most commonly affected sites<sup>6,7</sup>.

Diagnosis of intestinal tuberculosis always kept in mind because the disease can present in many ways. The constitutional features of intestinal tuberculosis are low grade evening rise of temperature, weight loss, malaise and anorexia. The common abdominal features are pain, distension, mass, vomiting and altered bowel habits. If these patients are not treated in time, may end up in complications like intestinal obstruction, perforation with peritonitis and even death may occur<sup>8</sup>.

The Treatment of intestinal tuberculosis is mainly conservative and surgical options are reserved for the patients, who present late with the complications. Intestinal tuberculosis is very difficult to diagnose because of its variable clinical presentation and lack of definitive diagnostic tool, so the early diagnosis is often missed and patient usually present when complications had occurred.

Therefore, the rationale of this study is to evaluate, various clinical presentations and different surgical procedures in the management of intestinal tuberculosis. The results of this study will be helpful in early detection of disease and planning suitable management option with better outcome.

**METHODOLOGY**

This descriptive cross-sectional study was performed at Liaquat University Hospital Hyderabad and Jamshoro from July 2017 to June 2019, after approval from institutional research and ethical committee. The sample size was calculated with the help of raosoft software. Well informed and written consent for the study was obtained from the patients. By using convenient sampling technique, all patients age 18-60 years, of either gender, presented with clinical features of acute or subacute intestinal obstruction or suspected case of intestinal perforation were admitted in the ward. Detailed history was taken, thorough clinical examination was performed. Base line and specific investigations like X-ray chest and abdomen (erect and supine) and ultrasound of abdomen was carried out in all the cases. CT scan of abdomen and lower GI endoscopy was performed in selected cases where ever indicated. All patients underwent exploratory laparotomy. Patients were included in study after confirmation of diagnosis on histopathological examination. Except intestinal TB, all other patients operated as a case of acute abdomen were excluded from the study. Post operatively anti-tuberculous therapy (ATT) was started in all proven cases of abdominal tuberculosis. For initial two months (intensification phase) 4 drugs including Isoniazid, Rifampicin, Ethambutol and Pyrazinamide was used, later on patients were switched to Isoniazid and Rifampicin for seven months. Patients were followed-up till completion of ATT. Performa was filled and data was analyzed by using Statistical Package for Social Sciences (SPSS version 22.0. Chicago, Illinois, USA), stratified analysis was done and results were drawn.

**RESULTS**

This study comprises of 47 confirmed cases of intestinal tuberculosis. Total 18 females (38.29%) and 29 males (61.70%); with female to male ratio of 1:1.6. Mean age of patients was  $27.01 \pm 4.88$  years (range 18 to 60 years). Most common constitutional symptom was weight loss in 40(85%) patients, followed by fever and anorexia in 24(51%) and 27(57.4%) cases respectively. The most frequent abdominal symptoms were pain in abdomen in 44(93.6%) and abdominal distension 34(72.3%), followed by nausea and vomiting in 26(55.3%) cases and alternating bowel habits in 20 (42.5%) cases (Table I).

Chest radiograph suggestive of concomitant pulmonary TB was found in 13 (27.6%) patients. Twenty-nine patients presented with intestinal obstruction, 6(12.7%) with acute and 23(48.9%) with subacute intestinal obstruction, followed by peritonitis and abdominal mass in 10(21.2%) and 8(17%) patients respectively.

Operative findings revealed multiple strictures in 18(38.29%) and single stricture in 10(21.2%) cases, while single and multiple perforations were observed in 6(12.76%) and 2(8.51%) cases respectively, eight patients (17%) had ileocaecal TB and frozen or plastered abdomen was found in 3(6.38%) patients (Table II).

Covering ileostomy was performed in 19(40.4%) cases either after resection and anastomosis of the diseased part of the gut or after primary closure of the distal perforations. Other procedures were stricturoplasty, limited right hemicolectomy, segmental small bowel resection and anastomosis and adhesiolysis in 21.2%, 12.7%, 10.6% and 8.5% respectively (Table III).

Out of 47 patients, 7 (14.8%) patients expired in post-operative period, 5 patients developed enterocutaneous fistula in whom resection and anastomosis of the gut was performed and ended up with multiorgan failure and death. The other two patients expired due to pulmonary complications. None of the mortality was observed after covering ileostomy.

**TABLE I: CLINICAL FEATURES**

<b>Sign and Symptoms</b>	<b>No. of patients (n=47)</b>	<b>Percentage (%)</b>
<b>Constitutional</b>		
Weight Loss	40	85.1
Anorexia	27	57.4
Fever	24	51.0
Cough	13	27.6
<b>Abdominal</b>		
Abdominal Pain	44	93.6
Abdominal Distension	34	72.3
Nausea and Vomiting	26	55.3
Constipation	15	31.9
Diarrhea	13	27.6
Alternating bowel habits	20	42.5
Palpable bowel loops	15	31.9

**TABLE II: OPERATIVE FINDINGS**

<b>Operative findings</b>	<b>No. of patients (n=47)</b>	<b>Percentage (%)</b>
Multiple strictures	18	38.2
Single stricture	10	21.2
Ileocaecal hyperplastic tuberculosis	08	17.0
Single ileal perforation	06	12.7
Multiple ileal perforations	02	4.2
Frozen (Plastic abdomen) i.e Multiple adhesions between bowel loops and abdominal wall)	03	6.3

**TABLE III: SURGICAL PROCEDURE PERFORMED**

<b>Surgical Procedure</b>	<b>No. of patients (n=47)</b>	<b>Percentage (%)</b>
Covering Ileostomy	19	40.4
Stricturoplasty	10	21.2
Limited right hemicolectomy	06	12.7
Segmental small bowel resection and end to end anastomosis	05	10.6
Adhesiolysis	04	8.5
Only keep the pelvic drain and take the omental biopsy	03	6.3

**DISCUSSION**

Abdominal Koch's is still endemic in Pakistan like other low resource countries of the world where poverty, undernutrition, overpopulation and poor hygienic conditions are prevalent. As the clinical accuracy to diagnose the disease is very low and there is no any reliable biochemical or imaging test is available which can diagnose the condition earlier<sup>9,10</sup>. Diagnostic laparoscopy or laparotomy and histopathological examination often required to make a diagnosis.

In our series of 47 cases of intestinal tuberculosis, 18 (38.3%) were female and 29 (61.7%) were male with a female to male ratio of 1:1.6. Male gender predominance was also observed by other researchers<sup>7,11,12</sup>.

Ages ranged from 18 – 60 years, majority were between 20-40 years with a mean age of 27.01±4.88 years. These results are comparable with other studies<sup>11,13,14</sup>.

As the disease has variable clinical features, the commonest presentation was abdominal pain of variable nature ranging from dull aching to colicky type, seen in 93.6% of patients. Abdominal distension, nausea and vomiting were other clinical features observed in 72.3% and 55.3% respectively. Associated symptoms like low grade pyrexia, loss of weight and irregular bowel habits were also common features in our study population. Similar signs and symptoms have been reported by other researchers with variable percentages<sup>12,14-17</sup>.

In this series 72.5% had primary intestinal tuberculosis, only 27.6% had concomitant pulmonary TB. Our findings correlate well with other national and international studies<sup>(18,19)</sup>. In contrast to our findings Joy et al reported more than 60% of patients having abdominal and pulmonary TB simultaneously, this difference may be because of very small number of patients included in their study<sup>20</sup>.

Multiple strictures involving the terminal ileum was the commonest intra-operative finding in 38.29% cases, followed by single stricture in 21.2% cases. Hyperplastic ileocaecal tuberculosis was noted in 17% patients, findings correlate with our study was carried out by Mukhopadhyay A 2014<sup>15</sup>. Other studies showed single or multiple bowel perforations were the common pathology followed by strictures and ileocaecal mass<sup>11,12,21,22</sup>.

The decision regarding the type of surgery was made on location and extent of disease, condition of the gut, co-morbidities and nutrition status of the individual patient. In our study, temporary stoma formation was the frequently performed procedure (40.4%) as primary repair / anastomosis of the gut was not suitable option in most of the cases because of delayed presentation. Omentum and lymph node biopsy was the only procedure performed in 3 patients because of frozen abdomen. As stoma formation is the safest surgical procedure specially in a patient with poor health status, advance disease and peritonitis is also supported by other studies<sup>7,15,21-24</sup>.

Emergency laparotomy in health compromised patients carries high mortality and morbidity. In our series, the mortality rate was 14.8%. The high mortality rate in a range of 14-50% in developing countries is also documented by other authors<sup>5,13,22,25</sup>.

## **CONCLUSION**

Abdominal kochs is a major health issue in under developed countries. Though, it is a curable disease but still there is high mortality and morbidity because of delay in presentation, when complications already had occurred. Disease surveillance plans need to be implemented to diagnose the disease at earlier stage. More randomized controlled trials are needed to establish an evidence based guidelines on surgical management of abdominal tuberculosis.

**CONFLICT OF INTEREST:** None to declare

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## **AUTHOR CONTRIBUTIONS**

Sushel C: Data collection & compiling

Abbas K: Data collection

Syed BM: Statistical analysis

Shaikh S: Data collection

Mallah Q: Data collection

Pathan MR: Data collection

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