

Abdominal Tuberculosis: A Prospective Study of Pattern of Occurrence, Diagnosis and Treatment

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Abstract: Abdominal Tuberculosis includes tuberculosis infection of gastrointestinal tract, mesentery, lymph nodes, omentum, the peritoneum and related solid organs such as liver and spleen. This study aims to document the trend of different types of presentation, methods and findings for diagnosis and treatment approaches in Abdominal Tuberculosis. 46 patients of abdominal tuberculosis admitted in emergency as well as in outpatient department of People's college of Medical Sciences., Bhopal during the period of November 2014 to April 2016 were analyzed. Abdominal pain often chronic was the most common presenting complaint. Often detailed history or a lump on examination pointed to the diagnosis while in some cases investigations and operative procedures revealed it. Irrespective of surgery, all patients of abdominal tuberculosis require a full course of Anti Tubercular Treatment.

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I. Introduction

Abdominal tuberculosis includes tuberculous infection of gastro-intestinal tract, the mesentery, its nodes, omentum, peritoneum and solid organs related to gastrointestinal tract such as the liver and spleen. Tuberculosis caused by Mycobacterium tuberculosis is a disease of great antiquity and for a long time has been one of the greatest killer diseases of mankind. It still remains a major public health problem worldwide 75% of tuberculosis cases in developing countries are in the economically productive age group (15-50 years). Abdominal tuberculosis ranks 6th amongst the extra-pulmonary sites of infection. The symptoms of abdominal tuberculosis are generally vague and nonspecific. Disease may present with fever, abdominal pain, weight loss, abdominal mass, change in bowel habits and anorexia. It may mimic any intra abdominal disease and can challenge the diagnostic skills. Peritoneal tuberculosis occurs in three forms: Wet type with ascitis, Dry type with adhesions and Fibrotic type with omental thickening and loculated ascites.

Chest X-rays show evidence of concomitant pulmonary lesions in less than 25% of cases. Useful modalities for investigating a suspected case include small bowel barium meal, barium enema, USG, CT scan and colonoscopy. Ascitis fluid examination and fluid/tissue PCR are other diagnostic modalities. Laparoscopy is a very useful investigation in doubtful cases. Some patients will require immediate surgical intervention, whereas other will improve with conservative treatment. Mortality rate has come down to 6% from 20-50% after introduction of anti tubercular chemotherapy. Surgical management of abdominal tuberculosis has changed considerably from bypass operations, hemicolectomy to conservative resection and stricturoplasty. The present study intended to know the various modes of presentation of abdominal tuberculosis, different modalities of diagnosis and the role of laparoscopy and surgical treatment and prognosis thus helping to improve prognosis.

II. Material and Methods

- **Type of study:** Prospective Observational study
- **Source of Data:** All the patients admitted to the Department of Surgery, PCMS & RC Bhopal with the clinical diagnosis of abdominal tuberculosis.
- **Study Duration:** November 2014 to April 2016.
- **Study Location:** Department of General Surgery/People's College of Medical Sciences & Research Centre Bhopal/Peoples university, India
- **Sample size:** 46 patient

Inclusion criteria: All patients of age 13- 65 years with the diagnosis of abdominal tuberculosis.

Exclusion criteria:

1. The diagnosis of abdominal tuberculosis excluded during the course of management.
2. Patients those who dont want to be the part of study.
3. Patients with Miliary or Disseminated tuberculosis.
4. Pregnancy.

Procedure methodology:

After obtaining well informed written consent, all patients admitted to the Department of General Surgery with abdominal symptoms during study period were evaluated. A detailed history with specific attention to past or present history of tuberculosis, history of contact with open cases of tuberculosis and history of being treated with ATT was obtained. A thorough clinical examination with special attention to the abdominal examination was done and details recorded. After ruling out obvious causes like acid peptic disease, appendicitis etc the patients were further investigated. In addition to the routine haematological investigations, patients were also investigated with a chest X-ray, Abdominal X-ray, Ultrasonography and CT scan whenever necessary. Patients who were suspected to have small bowel pathology had a barium meal follow through and those suspected to have large bowel pathology underwent barium enema study or a colonoscopic examination with biopsy of any lesions found. Patients documented to have ascites were tapped and the fluid sent for cytological, biochemical and microbiological examination. The results of all these investigations were noted. Patients suspected to have pulmonary tuberculosis underwent sputum examination.

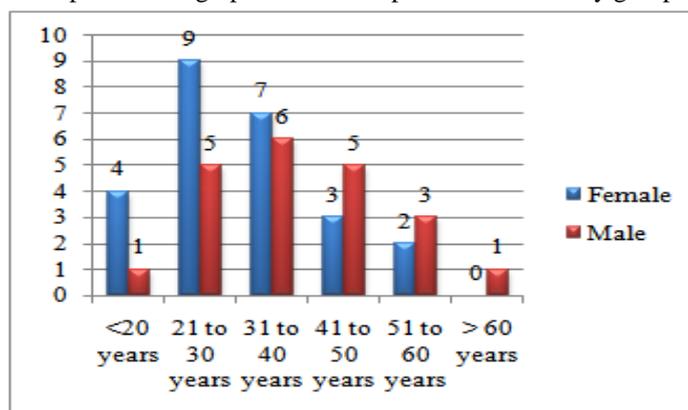
Some of the patients presenting with non-specific symptoms underwent diagnostic laparoscopy. In all patients who required surgical intervention, the indication for the surgery, the intra-operative findings, operative procedure performed and complications, if any were recorded. All lesions were biopsied and sent for histopathological examination. Anti Tubercular Therapy was initiated, and patients counselled for strict compliance. The patients were followed up both during hospital stay and after discharge and on an outpatient basis.

All data so obtained was compiled and analyzed. Follow-up was done till a period of 1 month after the completion of treatment and patients were asked to visit every month for clinical examination, and any drug or procedure related complications were recorded.

III. Results

Majority of the patients were young and in the age group of 21 to 40 years (68.9%). Youngest patient was 18 years old and oldest one being 75 years. The mean age group of the study was 34.1 years. Female were proportionately more than males (54.3% versus 45.7%).

Graph 1: Demographic Profile of patients in the study group



Abdominal pain was the commonest symptom 91% following by fever 78% and generalized symptoms of weight loss and anorexia were in 60.9% and 56.5% of patients respectively.

Table 1– Incidence of various clinical symptoms in patients of the study group

Symptoms	No. of patients	Percentage (%)
Pain	42	91.3
Fever	36	78.3
Vomiting	28	60.9
Weight loss	28	60.9

Anorexia	26	56.5
Mass	6	13.0

Among the clinical signs abdominal tenderness (61%) was the commonest, followed by abdominal distension (57%), and ascites (17.3%).

Table 2– Incidence of various clinical sign patients of the study group

Clinical Signs	No. of patients	Percentage (%)
Abdominal tenderness	28	60.9
Distension	26	56.5
Guarding and rigidity	6	13.0
Ascites	8	17.3
Abdominal lump	8	17.3
Hepato/splenomegaly	2	4.3

In USG, dilatation of bowel loop was observed in 48% of patients, which was mostly involving multiple loops and in few cases isolated bowel dilatation was seen. Ascites was seen in 34.7% of patients ranging from mild to gross. Enlargement of mesenteric lymph node detected in 17%. In 2 cases central clumping of bowel was seen suggestive of cocoon formation.

Table 3 -USG Findings in patients of the study group

USG finding	Frequency	Percentage
Dilated Bowel Loops	22	47.8%
Ascites	14	34.7%
Mesenteric lymphadenopathy	8	17.3%
Bowel wall thickening	8	17.3%
Omental thickening	2	4.3%
Central clumping of bowel	2	4.3%

Among the clinical presentations 22 out of 46 (47.5%) patients presents as emergency while 24 presented during routine hours. 28 out of 46 patients (60%) presented as intestinal obstruction, 18 out of which were acute and 10 were sub-acute/chronic obstructions.

Table 4 – Modes of Presentation in patients of the study group

Primary Mode of presentation	No. of cases	Percentage (%)
EMERGENCY		
Acute Intestinal Obstruction	18	39
Perforation Peritonitis	04	8.5
ROUTINE OPD		
Chronic /Sub-acute Intestinal Obstruction	10	21.7
Abdominal Mass	08	17.3
Ascites	06	13
Total	46	100

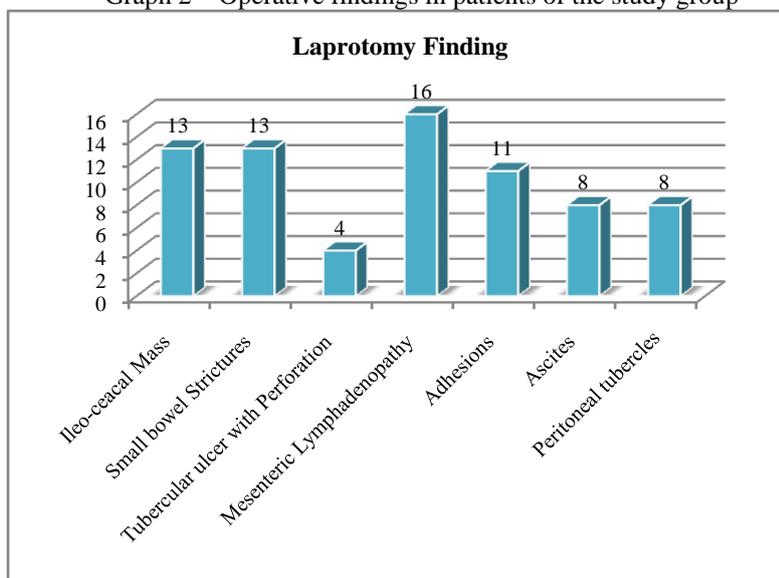
While 10 patients were managed conservatively, 36 were treated surgically. Diagnostic Laparoscopy was done in 7 of the patients out of which 3 patients were converted to laparotomy for definitive surgery. In other 4 patients, it could establish the diagnosis either by gross macroscopic findings or as histopathological examination. 16 patients were operated in emergency and 13 patients electively.

Table 5- Distribution of patients according to type of treatment

Treatment	Frequency	Percent
Conservative	10	21.7
Diagnostic laparoscopy alone	4	8.7
Diagnostic laparoscopy converted to open surgery	3	6.5
Elective open surgery	13	28.2
Emergency open surgery	16	34.7
Total	46	100

In this study, most of the patients were operated for intestinal obstruction. Cause of obstruction was found to be ileo-caecal mass, strictures or inter-bowel adhesions. Mesenteric lymphadenopathy was found in 16 patients. Ascites was presented in 8 patients as a concomitant finding.

Graph 2 – Operative findings in patients of the study group



Operative Procedures: Most patients (10) underwent Ileocecal resection with anastomosis while ileostomy was done in total 3 cases, 2 out of which were after ileocecal resections. Primary perforation repair was done in 3 pts, and 2 had ileo-transverse bypass.

Table 6: Procedures Performed in patients of the study group

Operative Procedures	Total
Ileo-caecal resection with primary anastomosis	10
Ileo-caecal resection with stoma formation	02
Stricturoplasty	06
Adhesiolysis	08
Small Bowel segmental resection with primary anastomosis	04
Segmental bowel resection with stoma formation	01
Primary perforation closure	03
Ileo-transverse Bypass	02

Complications: There was no mortality. Surgical site infection was seen in 36.6% of patients. Bowel leak with fistula formation was observed in one case operated in emergency. One third of the cases developed chest

complications which was treated successfully with appropriate antibiotics and supportive care. 2 of the emergency cases landed in sepsis but recovered completely.

Table 7 – Table showing Complications in patients of the study group

Complications	Emergency	Elective	Total	Percentage(%)
Surgical site Infection	09	02	11	36.6
Chest Complications	06	05	11	36.6
Paralytic ileus	02	01	03	10.0
Intra abdominal Abscess	02	00	02	6.6
Anastamotic leak/ Fistula	01	00	01	3.3
Sepsis	02	00	02	6.6
Mortality	00	00	00	00

IV. Discussion

In our present study, most of the patients of abdominal tuberculosis presented in the age group of 21-30 years and 31-40 years which were 30.4% and 28.3% respectively similar to study done by J.D. Wig et al.⁶ and Ramesh C. Bhagti et al⁷, were majority of patient were 21-30 years and 11-20 years which were 38.6% and 21.2% respectively. This shows that the abdominal tuberculosis is more common in relatively younger age groups. In the present study male were 45.7% while 54.3% were female. Our finding is similar to the study of J.D. Wig et al⁶, which consisted of 32.87% males and 67.12% females, and Pritam et al⁸ which consisted of 72% female and 28% male. Abdominal pain was the commonest symptom present in 91.3% of patients same as observed in the study of Das *et al*⁴ (94%) and Bhansali *et al*¹(100%). Low grade fever was observed in 78.3% of patients similar to the study of Sharma et al³ and Prakash series² in which its 40-70% and 28%. Vomiting was present in 60.9% of patients as compare to 47.7% of Forrest c et al study.⁵ Abdominal tenderness was observed in 60.9% of patient similar to the study of Das P. Shukla H.S⁴ and Bhansali S.K.¹ which documented it 65.9% and 62.6% respectively. Similarly, distension of abdomen was observed in 56.5% patient same as instudy of Das *et al* who reported in 58.2% patients. Abdominal lump was found in 17.3% of our patients, which correlates with Forrest C et al⁵ series where it was in 14% of patients. Abdominal sonography revealed significant findings in most of the patients with 47.8% patients had significant dilated bowel loops, 34.7% of patients had ascites and 17.3% had mesenteric lymphadenopathy. In the study, 36 out of 46 patients i.e 78.2% were managed by operative intervention; where as in study by Forrest C et al⁵ surgery was done in 62% of patients. Result of our present study coincides with the study of J.D. Wig et al⁶ that is emergency open surgery in 34.2% of patients, elective open surgery in 50.2%, diagnostic laparoscopy alone in 10.9%, diagnostic laparoscopy converted to open surgery in 4.1% respectively. In our study, diagnostic laparoscopy was done in 7 cases, in a study conducted by Forrest C et al⁵ 30 % of patients had undergone laparoscopy for abdominal tuberculosis which was similar to our study. In our study, ileocaecal resection with primary anastomosis was the most common surgical procedure, performed in 10 cases. Anti-tubercular therapy was given to all patients postoperatively. The Forrest C et al⁵ study showed stricturoplasty as the most common procedure performed in 26.67% of the patients. The commonest complications were surgical site infection and chest complications, 36.6% in each category. Forrest C *et al* reported morbidity in 36% of the patients, a 3% mortality rate for elective surgeries and 18% for emergency surgeries. Bhansali SK² had a 2% mortality rate for elective and 24% for emergency conditions. 78.6% of the patients completed the anti-tubercular therapy with cure from the disease subsequent to effective and successful surgical outcome. The remaining 13.3% are continuing the course of the therapy. About 8.7% could not be followed up as they did not report to our centre for the follow-up.

V. Conclusion

Abdominal tuberculosis commonly presents as intestinal obstruction and should be suspected in patients especially young and middle-aged subjects with chronic history of pain in abdomen. While the primary disease may be managed conservatively. Laparoscopy is important diagnostic tool. Surgery is the only therapeutic option for the patients presenting with complications of the disease. Surgery treats the mechanical effects, pathophysiological effects, and removes the focus of the tubercular disease, all of which produce morbidity. Also, administration of anti-tubercular therapy is an important part of the surgical treatment and is necessary for complete cure.

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