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Abdominal tuberculosis: a clinical study in a tertiary care hospital

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ABSTRACT

Background: Abdominal tuberculosis is the sixth most common form of extrapulmonary site of infection after lymphatic, genitourinary, bone and joint, miliary and meningeal TB with a rising incidence in recent years. Tuberculosis can affect any part of the gastro-intestinal (GI) tract including anus, peritoneum and hepato-biliary system. The clinical manifestations of abdominal tuberculosis are non-specific and mimic various GI disorders and cause delay in diagnosis and management. The aim of this study is to study the incidence of abdominal tuberculosis, percentage of acute presentation, to study and analyse clinical presentation, various diagnostic modalities, role of surgery and to evaluate the spectrum of surgeries done for abdominal tuberculosis

Methods: Study was done by analyzing 108 cases in our tertiary care hospital, Chennai, India, during the period of June 2015 to January 2016. All suspected and diagnosed cases of abdominal tuberculosis were included in the study. The relevant clinical information, laboratory results, microbiological and radiological investigations were recorded. Histopathological examination of all the resected or excised specimens was done to detect tuberculosis in all the cases.

Results: Out of 108 cases with abdominal tuberculosis, the average age of presentation was between 21 and 40 years with a slight male predominance (male:female = 1.1:1). Abdominal pain (92%) was the most common presenting symptom followed by anorexia (70%), loss of weight (70%), and intestinal obstruction (13%). 29 cases underwent surgical management. All patients were put on anti-tubercular treatment and majority showed good response to therapy.

Conclusions: Abdominal tuberculosis should be considered as a differential diagnosis in patients with vague GI symptoms. To diagnose abdominal tuberculosis, high degree of suspicion is needed, and its incidence being common in people with lower socioeconomic status. This study gives a basic outline of presentation, diagnosis and management of abdominal tuberculosis in developing country.

Keywords: Abdominal tuberculosis, Abdominal pain, Gastrointestinal, Radiological investigations

INTRODUCTION

Tuberculosis is a chronic granulomatous disease caused by an aerobic bacteria *Mycobacterium tuberculosis*. It remains the world-wide problem despite the discovery of the causative organism for more than a century ago. Infections with atypical mycobacteria usually occur in immunocompromised hosts due to host immunity and resistance factors. Pulmonary tuberculosis is the most common form and it primarily involves the lung but any

part of the body can be involved by the disease.^{1,2} Abdominal tuberculosis (TB) constitutes a major public health problem in developing countries and associated with significant morbidity and mortality.^{3,4} It is the 6th most frequent site for the extra pulmonary involvement and it can involve any part of the gastrointestinal tract, peritoneum and hepatobiliary system. The mycobacterium reaches the gastrointestinal tract via hematogenous spread, ingestion of infected sputum or direct spread from infected contiguous lymph nodes and

fallopian tubes.⁵⁻⁹ The clinical manifestations of abdominal tuberculosis can mimic many other disease process, causing delay in diagnosis. 10 The most common site of predilection is the ileocaecal region, attributed to the minimal digestive activity, relatively increased physiological stasis, higher rate of fluid and electrolyte absorption and more lymphoid tissue at this site. 5,8,11 Peritoneal involvement may occur due to spread of the bacilli from mesenteric lymph node. However, one third of cases show abdominal lymph node and peritoneal tuberculosis without any evidence of gastrointestinal involvement.¹² Grossly, the abdominal tuberculosis presents in 3 morphological forms: ulcerative, hypertrophic and combination of both hypertrophic.^{6,11,13,14} Most common complication of intestinal tuberculosis is intestinal obstruction attributed too strictures or by adhesions and in India approximately 3-20% of all cases of bowel obstruction are due to the tuberculosis. 8,15,16 One of the serious complication of abdominal tuberculosis is perforation, causing high morbidity and mortality and it accounts for 5-9% of small intestinal perforations in India.^{6,8,17} Scant literature is available on the extra pulmonary tuberculosis in reference to its incidence and bacteria positivity.¹⁸ Surgical intervention is reserved only for complications such as obstruction, perforation, fistula, or a mass which does not resolve with medical therapy. In most cases a trial of medical therapy should be undertaken prior to surgical intervention.³ The surgical treatment of intestinal tuberculosis too has passed through many phases, from the bypass procedures of the pre-antibiotic era to the radical surgeries such as hemicolectomy and wideresection, followed by the more recent and more conservative, modified surgical procedures such as limited ileocecal resection, and stricturoplasties.⁵ This study aims at a fresh look in to abdominal tuberculosis and at a better understanding of its clinical manifestations, diagnostic modalities, management and its complications.

METHODS

The study was carried out in our tertiary care hospital, Chennai, India, during June 2015 to January 2016. The study included 108 patients with all suspected and confirmed cases of abdominal tuberculosis.

The following methods were used for the study which includes, patients detail history, clinical examination, investigations carried out in all patients are as follows: Polymerase Chain Reaction (PCR), Mantoux test, analysis of ascitic fluid, sputum AFB, X-ray chest PA view, X-ray abdomen, ultrasound abdomen, Contrast CT abdomen and pelvis, endoscopy and biopsy, pathological examination of specimen. All patients received antituberculous treatment as per DOTS. Conservative management was done for uncomplicated abdominal tuberculosis. Operative management was done for complications of abdominal tuberculosis.

RESULTS

During the study period total 108 patients were diagnosed as a case of abdominal tuberculosis with a slight male predominance of male:female ratio 1.1:1. These patients presented a wide age group of distribution 11 to 60 years with maximum number of cases presenting between 21 to 40 years Table 1.

Table 1: Distribution of cases according to age.

Age group (years)	No. of cases	0/0
< 20 years	17	16
21-40 years	59	55
41-60 years	22	20
> 60 years	10	9
Total	108	100

Only 16 cases had the past history of pulmonary tuberculosis while family history of tuberculosis was present in only 22 cases. The clinical manifestations of the patients are summarized in Table 2 which shows abdominal pain as the most common presentation followed by anorexia, loss of weight, nausea/vomiting, fever and intestinal obstruction.

Table 2: Clinical presentations of patients.

Clinical presentation	Number of cases	Percentage (%)
Abdominal pain	99	92
Anorexia	75	70
Loss of weight	76	70
Nausea and vomiting	68	63
Fever	43	40
Intestinal obstruction	14	13

The signs observed in the patients are summarized in Table 3 which shows tenderness localized to the right lower quadrant as the most common sign followed by mass abdomen, ascites, visible intestinal peristalsis and doughy abdomen.

Table 3: Clinical signs of patients.

Sign	Number of cases	Percentage (%)
Tenderness	62	57
Mass abdomen	29	27
Ascites	14	13
VIP	15	13
Doughy abdomen	11	10

The laboratory findings are summarized in Table 4 which revealed elevated ESR in 88 patients as the most common laboratory abnormalities. Mantoux skin test was performed in 93 cases and was found positive in 50 cases only. All patients received plain film chest radiographs

and 15 (14%) cases had abnormal radiological findings including cavitatory lesions, pleural effusion and lymphadenopathies.

Table 4: Investigations of patients.

		No. of patients	
Investigations	Done	Contributory	Percentage (%)
ESR	93	88	95
Mantoux	93	50	54
X-ray abdomen	108	44	41
Contrast CT abdomen and pelvis	95	95	100
X-ray chest	108	15	14
Laproscopy	15	13	86
Barium study	55	45	82
USG abdomen	108	43	40
Colonoscopy	15	11	73
UGI scopy	47	-	0

Ultrasound abdomen done in all patients, 43 (40%) cases had abnormal findings. Laparoscopy showed 86% of positive cases. All patients received plain film abdomen radiographs and 44 (41%) cases had abnormal radiological findings. Contrast CT abdomen and pelvis were done in 95 (88%) patients, all 95 (100%) patients had some positive features. Intestinal resection and anastomosis was the most common surgical procedure performed in the cases of abdominal tuberculosis Table 5, followed by hemicolectomy, stricturoplasy, ileotransverse colostomy and adhesiolysis. Out of 108 patients, 29 (27%) cases underwent surgical intervention, other cases were treated conservatively with anti-tubercular therapy. All the cases responded well to therapy.

Table 5: Type of surgical procedures done in patients.

Type of curgony	No. of cases	
Type of surgery	Acute	Chronic
Laparotomy and closure	4	
Resection and anastomosis		
Perforation	2	
Limited resection	3	6
Hemicolectomy		4
Ileotransverse colostomy	3	
Stricturoplasty		4
Adhesiolysis	3	
Total	15	14

DISCUSSION

Extra-pulmonary TB is a significant cause of morbidity and mortality and affect lymph nodes, intestine, bone, joints, meninges, genitourinary tract, etc.¹ Abdominal tuberculosis is the sixth most common form of extrapulmonary site of infection after lymphatic,

genitourinary, bone and joints, military and meningeal TB.¹¹ The incidence of abdominal tuberculosis is rising all over the world however very scant literature and knowledge has been updated. Abdominal TB can affect any age group. In a study conducted by Sharma MP et al, 19 most affected patients are between 21 to 45 years of age. This finding of involvement of slight younger population was also seen in many other studies. 20,21 Present study showed a slight male predominance than females with abdominal tuberculosis and similar results were seen in a study conducted by Rajput MJ et al.²¹ Although Indian studies have suggested a slight female predominance.⁶ The clinical manifestations of abdominal tuberculosis are quite protean. Similar to the previous reports abdominal pain (92%) was the most common clinical presentation in this study also, followed by anorexia (70%). 19 In a study conducted by Sharma MP et al, fever was recorded in half of the patients and in the present study about 40% of cases presented with fever. 19 Routine laboratory tests have limited value in the diagnosis of abdominal TB.22 In present study 15 cases were found to have abnormal findings on chest x-ray (CXR). Arif Au et al and Rajput MJ et al, observed preexisting pulmonary tuberculosis in 20% and 33.95% of their patients respectively.^{20,21} Majority of abdominal tuberculosis cases have been found in patients with HIV.²⁵ In the present study we aimed to investigate the incidence of abdominal tuberculosis, percentage of acute presentation, to analyse the clinical presentation, diagnostic modalities and role of surgery for abdominal tuberculosis. We conclude that the incidence of abdominal TB is common among people with lower socioeconomic status.

CONCLUSION

Abdominal tuberculosis should be considered as a differential diagnosis in patients with vague GI symptoms. To diagnose abdominal tuberculosis, high degree of suspicion is needed, and its incidence being common in people with lower socioeconomic status. This study gives a basic outline of presentation, diagnosis and management of abdominal tuberculosis in developing country.

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institutional ethics committee

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