

Observational study to evaluate the clinical presentation, management, complications and outcomes in patients with abdominal tuberculosis

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Abstract

Abdominal tuberculosis (AT) is one of the common extra-pulmonary tubercular infections. Its clinical presentation is protean and it has diagnostic dilemma, as most of the investigations are non-specific and less sensitive. Therefore this study was undertaken to define the most suggestive clinical features of AT and to find out the efficacy of most commonly available investigations for effective management of AT. Hundred cases of AT of either sex were studied in the department of surgery, TNMC and Nair Charitable Hospital, Mumbai. All the patients were clinically evaluated with meticulous history and physical examination and were investigated by available tests such as blood counts including HB, ESR, AFB, HIV, ADA, chest X-ray, abdominal X-ray, abdominal ultrasonography (USG), barium X-rays, CT scan of abdomen and colonoscopy in selected patients. Depending on the symptoms that was observed in the study AT was managed by conservative and operative therapy for a specific duration of time. Our study revealed the most common symptoms were abdominal pain 79 (79%), weight loss 70 (70%) and abdominal distention 56 (56%) observed in AT patients. Moreover we observed more common signs of AT were abdominal distention 36 (36%), pallor 27 (27%), abdominal tenderness 26 (26%) and organomegaly 20 (20%) in AT patients. Our results also suggested the more common site of involvement in AT patients were omentum and peritoneum 57 (57%), small bowel 51 (51%), large bowel 47 (47%), caecum 41 (41%), liver, spleen, pancreas 18 (18%) and mesenteric lymph nodes 17 (17%). Diagnostic studies also suggested that about 50% patients were anemic, 8% were HIV positive and 3% were AFB positive. During our study, with the help of diagnostic parameters and the severity of disease about 54 patients were managed by conservative therapy while 46 patients need surgery. Out of 100 patients 61 patients were effectively managed and recovered whereas 30 patients got developed other complications. However 9 patients were reported dead during the study period.

Key Words: Abdominal tuberculosis, Abdominal X-ray, Surgery.

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INTRODUCTION

Abdominal tuberculosis (AT) is a most common type of extra-pulmonary tuberculosis, comprising of tuberculosis of gastrointestinal tract, peritoneum, omentum, mesentery and its lymph nodes and other abdominal organs such as liver, spleen and pancreas. The extra-pulmonary tuberculosis involves 11-16% of all patients of tuberculosis out of which 3 to 4% belong to abdominal tuberculosis (Sharma and Mohan, 2004). As per World health organization (WHO) report, about 1.3 million peoples were died in 2012, whereas approximately 8.6 million peoples were suffering from tuberculosis (TB) every year (WHO report 2013). India became the global centre for the TB. Near about 26% of cases of TB worldwide were found in India. Poor immune, malnutrition and multiple drug resistance are the reason

for the development of tuberculosis in India (Burzynski *et al.*, 2008). The incidence of AT and the severity of the disease are thought to be increased in immunocompromised, malnourished and poor patients (Maartens and Wilkinson, 2007). Abdominal tuberculosis tends to affect patients in their third and fourth decades of life. Females are slightly more commonly infected (Sharma and Bhatia, 2004). Diagnosis is usually delayed and challenging and less than 50% of patients are defiantly diagnosed as real cases of AT (Bolukbas *et al.*, 2005). The radiological examination and clinical diagnosis in AT are nonspecific therefore it is very difficult to diagnose it. AT is generally diagnosed in its late phase; this is the main reason for higher mortality and morbidity (Akhan *et al.*, 2002). Hence the aim of this study was to evaluate the clinical presentations, diagnosis and the treatment of 100 patients with AT.

MATERIAL AND METHODS

This study was a prospective observational study carried out in the department of surgery, TNMC and Nair Charitable Hospital, Mumbai during August 2011 to April 2013. Hundred patients with either sex with AT were enrolled in the study. All the patients were clinically evaluated with meticulous history and physical examination and were investigated by available tests such as blood counts including HB, ESR, AFB, HIV, ADA, chest X-ray, abdominal X-ray, abdominal USG, barium X-rays, CT scan of abdomen and colonoscopy in selected patients. Depending on the symptoms that was observed in the study AT was managed by conservative and operative therapy for a specific duration of time.

RESULTS

Observation of signs and symptoms

A total number of 100 patients (47 male and 53 females) were diagnosed to have AT. Age ranging from 18 to 80 years with maximum incidence in 20-40 years age group and mean age of presentation was 30.5 year. The Female:Male ratio was 1.12 (Table 1). Among the common presenting symptoms, abdominal pain, weight loss and abdominal distention were found in 79 (79%), 70 (70%) and 56 (56%) of patients respectively. Fever was found in 50 (50%), vomiting 47 (47%), Anorexia 40 (40%), alteration of bowel habits 32 (32%) and lump in abdominal 9 (9%) in patients. Moreover the common signs of AT were abdominal distention 36 (36%), pallor 27 (27%), abdominal tenderness 26 (26%), organomegaly 20 (20%), doughy feel 13 (13%), rigidity 7 (7%), guarding 6 (6%) and ascites 2 (2%) in patients as represent in Table 2.

Table 1: Patient details as per the age and sex

Sr. No.	Age group	Number of patients		Total no. of Patient	% of patient
		Male	Female		
1	10-20	6	21	27	27
2	20-40	34	19	53	53
3	40-60	0	13	13	13
4	> 60	7	0	7	7
	Total	47	53	100	100

Table 2: Common sign and symptoms of patients suffering from AT

Sr. No.	Symptoms	No. of cases N= 100 (%)	Signs	No. of cases N= 100 (%)
1	Abdominal pain	79 (79)	Distension	36 (36)
2	Weight lost	70 (70)	Pallor	27 (27)
3	Abdominal distension	56 (56)	Tenderness	26 (26)
4	Fever	50 (50)	Organomegaly	20 (20)
5	Vomiting	47 (47)	Doughy feel	13 (13)
6	Anorexia	40 (40)	Rigidity	7 (7)
7	Alteration of bowel habits	32 (32)	Guarding	6 (6)
8	Lump	9 (9)	Ascites	2 (2)

Sites of involvement of AT

The sites of involvement of AT were omentum and peritoneum 57 (57%), small bowel 51 (51%), large bowel 47 (47%), caecum 41 (41%), liver, spleen, pancreas 18 (18%) and mesentric lymph nodes 17 (17%) as shown in Table 3.

Table 3: Details of sites of disease in the patients of AT

Sr. No.	Site of involvement	No. of cases N= 100 (%)
1	Omentum and Peritoneum	57 (57)
2	Small bowel	51 (51)
3	Large bowel	47 (47)
4	Caecum	41 (41)
5	Liver, Spleen, pancreas	18 (18)
6	Mesentric lymph nodes	17 (17)

Several diagnostic parameters

The laboratory investigations revealed that 50 (50%) patients were anaemic, 96 (96%) patients had raised lymphocytes counts, 80 (80%) had raised ESR, 3 (3%) were sputum smear positive for AFB. Out of 100 patients 8 (8%) patients were tested positive for HIV, serum ADA levels were raised in 21 (21%) patients while serum IgG/IgM level was 13 (13%). The AT patients subjected to chest X-ray, which reveals the fibro-cavitary changes 16 (16%), gas under diaphragm 8 (8%), infiltration 28 (28%) and normal chest X-ray in 48 (48%) patients. Whereas Abdominal X-ray of these patients shows dilated bowel loops 25 (25%), gas under diaphragm 8 (8%), multiple air fluid level 8 (8%) and normal abdominal X-ray in 59 (59%) patients. Barium meal and follow through x-ray was done in 14 patients and 7 (7%) of patients revealed suggestive lesions of tuberculosis as having ulceration, narrowing or deformity in intestine. The USG

of abdomen was performed in abdominal tuberculosis patients and it reveals that free fluid 59 (59%), dilated bowel loops 17 (17%), pseudo kidney sign 15 (15%), mesenteric lymph nodes 13 (13%), abdomen lymphadenopathy 10 (10%), bowel wall thickness 10 (10%) and thickened omentum in 10 (10%) patients. The

CT scan of abdomen was done in selected 57 patients, out of them 34 patients revealed ileocecal junction thickening and 13 patients showed omentum thickening (mass lesions) in abdomen. The colonoscopy was performed on 29 patients which shows ulcers in 15 (51.72%) of AT patients (Table 4).

Table 4: Diagnostic criteria for investigation of AT

Sr. No.	Diagnostic criteria	No. of cases N= 100 (%)	
1	Laboratory investigation	Anemia	50 (50)
		Lymphocytosis	96 (96)
		Raised ESR	80 (80)
		Sputum AFB + ve	3 (3)
		ELISA test for HIV	8 (8)
		Serum ADA level	21 (21)
		Serum IgG/IgM level	13 (13)
2	Chest X-ray	Fibro-cavitary changes	16 (16)
		Gas under diaphragm	8 (8)
		Infiltration	28 (28)
3	Abdominal X-ray	Normal	48 (48)
		Dilated bowel loops	25 (25)
		Gas Under diaphragm	8 (8)
4	Barium study	Multiple air fluid level	8 (8)
		Normal	59 (59)
		Ileocecal kochs	7 (7)
5	USG of abdomen	Ileal Stricture	7 (7)
		Not done	86 (86)
		Free fluid	59 (59)
		Dilated bowel loops	17 (17)
		Pseudo kidney sign	15 (15)
		Mesenteric lymph nodes	13 (13)
		Abdomen lymphadenopathy	10 (10)
6	CT scan of abdomen [#]	Bowel wall thickness	10 (10)
		Thickened omentum	10 (10)
		Ileocecal junction thickening	34 (59.6)
		Omentum thickening	13 (22.8)
		Ileal structure	11 (19.29)
7	Colonoscopy [§]	Ascites	8 (14.03)
		Multiple structure	4 (7.15)
		Ulcers	15 (51.72)
		Strictures	7 (24.13)
		Ulcers and nodules	7 (24.13)

Where # indicates N= 57 and § indicates N= 29

Final outcome of therapy

After the diagnosis of AT it was observed that 54 (54%) patients were managed by conservative therapy of 9 months, 16 (16%) patients managed by elective surgery while 30 (30%) patients need emergency surgery for the management of abdominal tuberculosis. It was observed that out of 100 patients 61 (61%) were recovered, whereas 30 (30%) were still have other complications which are related with abdominal tuberculosis. Moreover 9 (9%) patients were reported as death, results are shown in Table 5.

Table 5: Final outcome of patients after treatment

Sr. No.	Final outcome	Number of patients N= 100 (%)
1	Conservative management	54 (54)
2	Elective surgery	16 (16)
3	Emergency surgery	30 (30)
4	Recovered	61 (61)
5	Total complication	30 (30)
6	Death	09 (09)

DISCUSSION

One half of the world population is infected with Mycobacterium tuberculosis (MT) and it is the leading cause of infectious death, with approximately 2 million deaths annually. Up to 5 % of patients with MT have gastrointestinal (GI) involvement, and the GI tract is reported to be the sixth most common extra pulmonary site (Bernhard, 2001). AT is very difficult to diagnose in the early stage due to its non-specific sign and symptoms (Wani, 2013). Our study reveals the most common symptoms were abdominal pain 79 (79%), weight loss 70 (70%) and abdominal distention 56 (56%) observed in abdominal tuberculosis patients. Whereas others symptoms were fever 50 (50%), vomiting 47 (47%), Anorexia 40 (40%), alteration of bowel habits 32 (32%) and lump in abdominal 9 (9%) were also observed in patients. Moreover we observed more common signs of AT were abdominal distention 36 (36%), pallor in 27 (27%), abdominal tenderness 26 (26%) and organomegaly 20 (20%), while the less common signs were doughy feel 13 (13%), rigidity 7 (7%), guarding 6 (6%) and ascites 2 (2%) in AT patients.

The result obtained during our study regarding signs and symptoms was same as that of previously published several reports (Sharma and Bhatia, 2004; Kapoor, 1998). In AT patients multiple parts of GI track are involved, out of which intestine and peritoneum are the most commonly affected parts, whereas other parts like gastric, duodenum and colon are not affected due to AT (Lingenfelter *et al.*, 1993). Our results suggested that the more common site of involvement in AT patients were Omentum and Peritoneum 57 (57%), Small bowel 51 (51%), Large bowel 47 (47%), Caecum 41 (41%), Liver, Spleen, pancreas 18 (18%) and Mesentric lymph nodes 17 (17%). These features were closely related to findings of other workers (Sherman *et al.*, 1980; Paustian and Monto 1976). However gastric, duodenum and colon of AT patient didn't affect from tuberculosis.

As per the previous report anemia is the most common diagnostic parameters found in AT patients (Bashir *et al.*, 2015). In this study it was observed that 50 (50%) patients had anemia, where as 3 (3%) and 8 (8%) patients were AFB and HIV positive respectively. The abdominal X-ray of AT patients showed dilated bowel loops 25 (25%), gas under diaphragm 8 (8%) and multiple air fluid level 8 (8%). Moreover results of other diagnostic criteria such as chest X-ray, barium test, USG of abdomen, CT scan of abdomen and colonoscopy were helped in the diagnosis of AT. Depending upon the severity AT can be managed by either by operation or conservative therapy (Abbas *et al.*, 2013).

During our study, with the help of diagnostic parameters and the severity of disease about 54 patients were

managed by conservative therapy while 46 patients need surgery. Out of 100 patients 61 patients were effectively managed and recovered whereas 30 patients got developed other complications. However 9 patients were reported dead during the study period.

CONCLUSION

AT is one of the most common extra-pulmonary tubercular infections. The diagnosis of AT is often delayed due to non-significant symptoms. As per our study several number of most common signs and symptoms of AT were identified like abdominal pain, weight loss, abdominal distention, fever, vomiting, anorexia, alteration of bowel habits, lump in abdominal, organomegaly, doughy feel, rigidity, guarding and ascites.

However other tests were also performed such as HB, ERS, AFB, HIV, ADA, chest X-ray, abdominal X-ray, abdominal USG, barium X-ray, CT scan of abdomen and colonoscopy in selected numbers of patients. Base on the severity of disease, patients were treated by conservative or surgical methods for the effective management of disease.

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