Original Research Article

Clinical profile of abdominal tuberculosis presenting to a tertiary care teaching hospital - A prospective observational study

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Abstract

Introduction: Tuberculosis was the major infectious cause of death in the world. Even though, in developing western countries it is less common the mortality rate of abdominal TB was because of less awareness, and lack of proper understanding

Aim: The study was aimed to study the clinical profile of abdominal tuberculosis presenting to a tertiary care teaching hospital in south India.

Materials and methods: The study was a prospective observational study. The study was conducted in NRI Academy of Sciences, a tertiary care teaching hospital in south India**.** All patients admitted to the Departments of Internal Medicine, General Surgery and Gastroenterology at NRI general hospital.

Results: In the current study, study population included 76 members. Males and Females were in equal distribution (50%). The mean age of the study participants was 37.0 (±13.59) years. Age wise majority of study participants were in between 21 to 40 years of age. Only few members were under 20 years and above 50 years. Abdominal pain, distension, and vomiting were the most common clinical symptoms. 88.2% were with abdominal pain, 46.1% were with abdominal distension and 43.4% were with vomiting. Other common symptoms were Fever, weight loss and anorexia were reported 39.5%, 27.6%, 25% respectively. Mass per abdomen, bleeding per rectum was few other rare symptoms. 60.5% were with abdominal tenderness. Hepatosplenomegaly was present in 3.9%. Abdominal distension, Ascites and mass per abdomen were reported in 46.1%, 17.1%, and 13.25% respectively. Obstruction was the most common finding observed in abdominal X-ray seen in 70% of

the 10 subjects, who underwent screening. Pneumoperitoneum and obstruction wit pneumoperitoneum were the other findings reported in 205 and 10% of the screened subjects. In 41 subjects, who underwent ultrasonography of abdomen, ascites was the most common finding reported in 65.9% of the subjects. Hepatosplenomegaly (21.9%), only splenomegaly (19.5%) and obstruction (17.1%) were the other common findings. Mass and lymph nodal enlargement were the other common findings observed. Mass and lymph nodal enlargement were the common findings reported in the CT abdomen.

Conclusion: Abdominal Tuberculosis is one of the major problems facing in developed countries. Among extra pulmonary tuberculosis cases abdominal tuberculosis is the major one.

Key words

Abdominal tuberculosis, Clinical profile, Extra pulmonary tuberculosis.

Introduction

Worldwide nearly 2 million deaths per anum are causing by tuberculosis. Tuberculosis is the major infectious cause of deaths in the world [1, 2]. Lymphatic, genitourinary, bone and joint, miliary and meningeal tuberculosis are the first five frequent positions of tuberculosis occurring, gastrointestinal TB is sixth most frequent form of extra pulmonary TB [3]. Abdominal tuberculosis (TB) although less common in western countries, constitutes a major public health problem in developing countries and associated with significant morbidity and mortality [4-6]. Grossly the abdominal tuberculosis presents in 3 morphological forms- ulcerative, hypertrophic and combination of both ulcer hypertrophic [7]. Most common complication of intestinal tuberculosis is intestinal obstruction attributed to strictures or by adhesions and in India approximately 3-20% of all cases of bowel obstruction are due to the tuberculosis [7, 8, 9].

As per evidenced by available literature some common symptoms of abdominal TB were localized abdominal pain, loss of weight, fever, vomiting, weakness, diarrhea, constipation, and bleeding per rectum [10-12]. Delay in diagnosis, lack of proper understanding and less experience about the disease, were the main reasons for increasing mortality rate due to abdominal TB worldwide [13]. Most of the past reported studies supporting that Abdominal TB is one of the common disease in developing south Asian countries like Pakistan and India [6, 14, 15] but the epidemiological data on Abdominal TB in INDIA were not available sufficiently in available literature [16].

Current study has focused to fulfil the gap of lacking evidence of epidemiological data in existing literature. This study is mainly aimed to study the clinical profile of abdominal tuberculosis.

Aim

- To Study the clinical profile of abdominal tuberculosis presenting to a tertiary care teaching hospital in south India

Materials and methods

Study design: The study was a prospective observational study.

Study site: The study was conducted in NRI Academy of Sciences, a tertiary acre teaching hospital in south India.

Study population: All patients admitted to the Departments of Internal Medicine, General Surgery and Gastroenterology at NRI general hospital.

Study duration: The data collection for the study was done between November 2011 to September 2013 and diagnosed to have Abdominal Tuberculosis.

Inclusion criteria

- Patients showing histopathological, smear or microbiological proof of abdominal tuberculosis.

Exclusion criteria

- Any patient below 14 years of age
- Any patient who is HIV positive

Sample size and sampling methods: A total of 135 subjects were recruited sequentially in to the study after screening for compliance with inclusion and exclusion criteria, hence no sampling was done.

Ethical issues: Approval of the institute Human Ethics committee was obtained. Informed written consent was obtained from all the participants, after explaining the objectives of the study, risks and benefits involved. The personal details of the patients were kept confidential throughout the study.

Study procedure: During the study period all patients admitted to the Department of Internal medicine, General Surgery and Gastroenterology with abdominal symptoms 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 hematological investigations, patients were also investigated with a chest X- ray, abdominal X-ray, Ultrasonography and a CT scan whenever it was 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 colonoscopy 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 had their sputum examined for the presence of mycobacteria. Patients presenting with non-specific symptoms underwent a diagnostic laparoscopy. In all patients who required surgical intervention, the indication for the surgery, the intraoperative findings, operative procedure performed and complications, if any were recorded. All lesions were biopsied and sent for histopathological examination, smear preparation and mycobacterial culture. The patients were followed up both during hospital stay and after discharge, on an outpatient basis. Anti-Tubercular Therapy was initiated and patients counseled for strict compliance. All data so obtained was entered into the proforma and finally tabulated in a data sheet for analysis.

Statistical analysis: Presence or absence of depression or anxiety was the primary outcome variables variable. Various scoiodemographic, disease related parameters and presence of stressors were considered as explanatory variables. Descriptive analysis of the data was done by using frequency and percentage for categorical variables, mean and standard deviation for quantitative variables. The association between the explanatory and outcome variables was assessed by calculating the odds ratio and 95% CI. Chi square test was used to test the statistical significance of the association. Univariate logistic regression analysis was used to assess the association between various explanatory parameters and sleep pattern, Factors showing significant association were included in the multivariate logistic regression analysis. P value 0.05 was considered as statistically significant. IBM SPSS version 21 was used for statistical analysis.

Results

A total of 76 participants were included in the final analysis. The mean age of the study participants was 37.0 (±13.59) years. Males and females constituted equal proportion (50%) in study population. The age distribution showed majority of the participants to be between 21 to 40 years of age with very few subjects, below 20 years and above 50 years (**Table - 1**).

Table - 1: Socio-demographic profile of study population (N=76).

Age in years	Male	Female	Combined
<20	2 (5.3%)	4 (10.5%)	6 (7.9%)
21-30	10 (26.3%)	15 (39.5%)	25 (32.9%)
31-40	9 (23.7%)	7 (18.4%)	16 (21.1%)
41-50	11 (28.9%)	5 (13.2%)	16 (21.1%)
51-60	4 (10.5%)	5 (13.2%)	9 (11.8%)
>60	2 (5.3%)	2 (5.3%)	4 (5.3%)
Total	38 (100.0%)	38 (100.0%)	76 (100.0%)
Mean±SD	38.45±12.91	35.55±14.26	37.00±13.59

Pain, abdominal distension and vomiting were the most common clinical symptoms reported by 88.2%, 46.1% and 43.4% of the subjects respectively in study population. The other common symptoms were fever (39.5%), weigh loss (27.6% and anorexia (25%). The less common symptoms reported include, mass per abdomen, bleeding per rectum. Clinical examination showed abdominal tenderness in 60.5% of the patients. Abdominal distension, ascites and mass per abdomen were the other common signs reported in study population observed in 46.1%, 17.1% and 13.25 of study population. Hepatosplenomegaly was seen in 3.9% of study population (**Table - 2**).

Obstruction was the most common finding observed in abdominal X-ray seen in 70% of the 10 subjects, who underwent screening. Pneumoperitonium and obstruction wit pneumoperitonium were the other findings reported in 205 and 10% of the screened subjects. In 41 subjects, who underwent ultrasonography of abdomen, ascites was the most common finding reported in 65.9% of the subjects. Hepatosplenomegaly (21.9%), only splenomegaly (19.5%) and obstruction (17.1%) were the other common findings. Mass and lymph nodal enlargement were the other common findings observed. Mass and lymph nodal enlargement were the common findings reported in the CT abdomen (**Table - 3**).

Out of the 9 patients, who underwent barium meal study, jejunal stricture (22.2%), Ileal stricture (22.2%) and combined ileal and jejunal stricture (22.2%) were the most common findings. Jejunal Mucosal thickening and pulled up caecum were observed in 1 subject each. Out of 20 subjects, who underwent endoscopy, ulcers, nodules and deformed IC valve were the most common findings, reported in 50%, 20% and 15% of the subjects respectively (**Table - 4**).

Table - 2: Clinical presentation of abdominal tuberculosis in study population (N=36).

Parameter	Frequency	Percent
1.Presenting Symptoms		
Pain	67	88.2%
Distension	35	46.1%
Vomiting	33	43.4%
Fever	30	39.5%
Weight loss	21	27.6%
Anorexia	19	25.0%
Others (Mass, Bleeding Per Rectum etc.)	4	5.2%
II. Clinical examination		
Abdominal tenderness	46	60.5%
Distension	35	46.1%
Ascites	13	17.1%
Mass Per Abdomen	10	13.2%
Hepatosplenomegaly	3	3.9%
III.Present and past history of TB		
Pulmonary TB	11	14.5%
Abdominal TB	9	11.6%
IV.Treatment history (n=20)		
Completed	8	40.0%
Defaulted	6	30.0%
On Treatment	6	30.0%

Table - 3: Radiological profile of abdominal tuberculosis in study population.

Parameter	Frequency	%
I. Abdominal X-Ray Findings (n=10)		
Obstruction	7	70.0%
Pneumoperitonium	2	20.0%
Obstruction with Pneumoperitorium	1	10.0%
II.Ultrasound Findings (n=41)		
Ascites	27	65.9%
Hepatomegaly	9	21.9%
Splenomegaly	8	19.5%
Obstruction	7	17.1%
Mass	6	14.6%
Lymph nodes	5	12.2%
Others	5	12.2%
III.CT scan Findings (n=6)		
Mass	3	50%
Lymph nodes	2	33.3%
Ascites	1	16%
Bowel Loop Adhesions and Omental Thickening	1	16%
Pneumoperitoneum	1	16%

Table - 4: Endoscopy and barium meal findings in study population.

Parameter	Frequency	%
I. Barium Findings (n=9)		
Jejunal Stricture Only	2	22.2%
Ileal Stricture only	2	22.2%
Jejunal +Ileal Stricture	2	22.2%
Jejunal Mucosal thickening	1	11.1%
Pulled up Caecum	1	11.1%
II. Endoscopy findings (n=20)		
Ulcers	10	50.0%
Nodules	4	20.0%
Deformed IC Value	3	15.0%
Mass	1	5.0%
Strictures	1	5.0%
Erosions	1	5.0%

In majority of cases disease is located in peritoneal position (39.6%) and 18.6% is in Lymph nodal and 15.4% is in lleo-caecl position. In colonic position 9.9% of the cases are reported (**Table - 5**).

Table - 5: Location of the disease in study participants (N=91).

Location of disease (n=91)	Frequency	Percentage
Peritoneal	36	39.6
Lymph nodal	17	18.6
Gastro Duodenal	4	4.4
Jejunal	9	9.9
lleal	2	2.2
Lleo-caecal	14	15.4
Colonic	9	9.9
Pancreatic	1	1.1
Splenic	1	1.1
Umbilicus	1	1.1

Discussion

As per available literature, among the extra pulmonary tuberculosis, abdominal tuberculosis is one of the common disease [3-6]. Few of the existing Indian studies also evidenced that abdominal tuberculosis was the common problem in India, Pakistan, Nepal like countries [6, 14-16].

Nearly 2% of cases were abdominal TB cases among the whole TB cases in worldwide [6]. High Mortality rates of abdominal TB were due to lack of proper knowledge on disease diagnosis and treatment [13].

In the current study, study population includes 76 members. Males and Females are in equal distribution (50%). The mean age of the study participants was 37.0 (±13.59) years. Age wise majority of study participants are in between 21 to 40 years of age. Only few members are under 20 yrs and above 50 years.

In this study abdominal pain, distension, and vomiting are the most common clinical

symptoms. 88.2% are with abdominal pain, 46.1% are with abdominal distension and 43.4% are with vomiting. Other common symptoms like Fever, weight loss and anorexia are reported 39.5%, 27.6%, 25% respectively. Mass per abdomen, bleeding per rectum are few other rare symptoms. 60.5% are with abdominal tenderness. Hepatosplenomegaly is present in 3.9%. Abdominal distension, Ascites and mass per abdomen are reported in 46.1%, 17.1%, and 13.25% respectively. Like the current study few other old studies by Tarcoveanu [17] and poyrazoglu, et al. [18], Khan, et al. [15] are supporting the current study. This study can be comparable with few Indian studies also like Mandal, et al [16], Miah, et al [6].

In the study of Miah, et al. [6] out of 53 patients,33 were males 20 were males. Mean age was 30.01±11.7 years. Abdominal pain was reported in 88.68%, fever in 84.9% and weight loss in 69.81% were present. Cachexia was reported in 37.74%, 26.42% were with abdominal mass and intestinal obstruction was found in 9.43% [6].

Like the current study in the study of Khan, et al. [15] abdominal pain was reported in 96% cases abdominal tenderness was in70% cases, abdominal mass was reported in 46% [15].

As per the current study Obstruction was the most common finding observed in abdominal X-ray seen in 70% of the 10 subjects, who underwent screening. Pneumoperitoneum and obstruction wit pneumoperitoneum were the other findings reported in 205 and 10% of the screened subjects. In 41 subjects, who underwent ultrasonography of abdomen, ascites was the most common finding reported in 65.9% of the subjects. Hepatosplenomegaly (21.9%), only splenomegaly (19.5%) and obstruction (17.1%) were the other common findings. Mass and lymph nodal enlargement were the other common findings observed. Mass and lymph nodal enlargement were the common findings reported in the CT abdomen. Our current study can be comparable with the study conducted by Basu, et al. [19]. In the study of Basu, et al.; Hepatomegaly, Splenomegaly, Hepatosplenomegaly was reported as 24.35%, 17.39%, 15.65% respectively [19].

In the current study, Out of the 9 patients, who underwent barium meal study, jejunal stricture (22.2%), Ileal stricture (22.2%) and combined ileal and jejunal stricture (22.2%) were the most common findings. Jejunal mucosal thickening and pulled up caecum were observed in 1 subject each. Out of 20 subjects, who underwent endoscopy, ulcers, nodules and deformed IC valve were the most common findings, reported in 50%, 20% and 15% of the subjects respectively. Comparing with current study In the study of Mandal, et al. [16] barium metal study was abnormal in 8 patients out of 18 patients [16].

In majority of cases disease is located in peritoneal position (39.6%) and 18.6% is in lymph nodal and 15.4% is in lleo-caecal position. In colonic position 9.9% of the cases are reported. In the study conducted by Miah, et al. [6]; 16.98% was with peritoneal TB and disseminated TB was found in 37.74% cases [6].

Conclusion

Abdominal Tuberculosis is one of the major problems facing in developed countries. Among extra pulmonary tuberculosis cases abdominal tuberculosis is the major one.

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