



CLINICAL PROFILE AND OUTCOMES OF PATIENTS WITH ABDOMINAL TUBERCULOSIS FROM A TERTIARY CARE CENTER IN SOUTH INDIA

Medicine

**Dr. Sultan
Nawahirsha***

Department of Medicine, Christian Medical college, vellore*Corresponding Author

**Dr. Karthik
Gunasekaran**

Department of Medicine, Christian Medical college, vellore

Ramya Iyyadurai

Department of Medicine, Christian Medical college, vellore

ABSTRACT

Introduction Abdominal tuberculosis accounts for 5% of all TB patients. Abdominal TB includes involvement of the GI Tract, peritoneum, lymph nodes and solid organs. The diagnosis of tuberculosis in a developing country like ours is difficult as the histology and culture proven diagnosis isn't available in all patients. Due to the varied clinical presentation, there is often a diagnostic dilemma. This study aims to describe the clinical profile and the various modes of presentation of abdominal tuberculosis and the outcomes. **AIM** To describe the clinical profile, diagnostic modalities, and treatment outcomes of patients with abdominal tuberculosis. **Methods** This was a retrospective study among patients who presented over the last 5 years (April 2014 to July 2018) to Medicine unit 5. A total of 83 patients were identified to have abdominal tuberculosis, among them 54 patients completed treatment. **Results** A total of 83 patients were included, with a mean age of 43.41 ± 15.5 years. There were 36 men and 47 women, the mean (SD) age was $43.41(15.5)$. 74(89.2%) patients had loss of appetite as the presenting symptom and 73(88%) patients had fever. 33 patients had ascites, 27 had hepatomegaly and 33 had splenomegaly. 15 patients had HIV infection and 12 patients had diabetes mellitus type 2. 65.99% of patients had lymphadenopathy on CT as compared to 27.1 on ultrasound. 45.9% of patients had peritoneal thickening on CT as compared to 9.4% on ultrasound. Nodal tuberculosis was the commonest form seen in 62(72.9%) followed by peritoneal in 41 (48.2%). Biopsy was done for 64 (75.3%) Definitive tuberculosis (culture positivity) was seen in 33 patients. 3 patients developed drug induced hepatitis. 49 patients are alive and have completed therapy, 14 patients were lost to follow up and mortality in our cohort was 15(18%). **Conclusion** Abdominal involvement is one of the common presentations of tuberculosis, presenting with loss of appetite, fever, ascites and hepatosplenomegaly. In our study only 39.7% of patients had microbiological evidence of tuberculosis. Nodal tuberculosis was the commonest type and CT abdomen was a better imaging modality for peritoneal and nodal tuberculosis.

KEYWORDS

INTRODUCTION

Tuberculosis (TB) remains one of the leading infectious causes of morbidity and mortality worldwide, with an estimated 10 million cases annually. India contributes nearly one-quarter of the global TB burden, making it a major public health concern (1). While pulmonary TB is the most common manifestation, extrapulmonary tuberculosis (EPTB) accounts for a significant proportion of cases, particularly in immunocompromised populations (2).

Abdominal tuberculosis is an important form of EPTB, involving the gastrointestinal tract, peritoneum, lymph nodes, and solid organs such as the liver and spleen. It accounts for approximately 5–11% of all TB cases and is the third most common form of extrapulmonary TB after pleural and lymph node involvement (3,4).

The disease is characterised by an insidious onset and nonspecific clinical features, often mimicking malignancy or inflammatory bowel disease. The paucibacillary nature of abdominal TB limits microbiological confirmation, making diagnosis challenging (5). Radiological imaging and histopathology therefore play a crucial role in clinical decision-making.

This study aims to describe the clinical profile, diagnostic challenges, and outcomes of abdominal tuberculosis in a tertiary care center in South India, with particular emphasis on radiological findings and treatment outcomes.

Materials and Methods

Study Design and Setting

This retrospective observational study was conducted in the Department of Medicine at a tertiary care teaching hospital in South India between April 2014 and July 2018.

Study Population

Adult patients (≥ 18 years) diagnosed with abdominal tuberculosis were included.

Diagnostic Criteria

Diagnosis was based on:

- Microbiological confirmation (culture/GeneXpert)

- Histopathological evidence of granulomatous inflammation

Clinical and radiological features consistent with TB with exclusion of other diagnoses

Data Collection

Data included demographics, clinical presentation, imaging findings, diagnostic tests, and outcomes.

Outcomes

- Treatment completion
- Mortality
- Drug-induced liver injury
- Loss to follow-up

Statistical Analysis

Descriptive statistics were employed for all the variables in the study. Categorical and continuous variables were compared for outcome using the Fisher's exact test and student t-test respectively. All continuous data were expressed as mean with standard deviation (SD) unless the data was not normally distributed. A p value of <0.05 was considered statistically significant. Statistical analysis was done using Statistical Package for Social Sciences for Windows (SPSS Inc. Released 2007, version 16.0. Chicago).

Ethics approval

This retrospective study protocol was approved by Institutional Ethics Review Board (IRB NO: 11665), Christian Medical College, Vellore, India. In this study, data was collected from the hospital database and the information collected was anonymised.

RESULTS

Baseline Characteristics

A total of 83 patients were included, with a mean age of 43.41 ± 15.5 years. Females constituted 56.6% of the study population. HIV infection was present in 18% and diabetes mellitus in 14.5% of patients.

Loss of appetite (89.2%) and fever (88%) were the most common presenting symptoms. Ascites was noted in 39.8% of patients, while

hepatomegaly and splenomegaly were present in 32.5% and 39.8%, respectively (Table 1).

Table 1: Baseline characteristics of patients with abdominal tuberculosis

Variable	Value
Age, mean(SD) years	43.41(15.55)
Gender ratio (female: male)	47:36
Co morbidities	
Diabetes mellitus	12(14.5%)
Hypertension	7(8.4)
Chronic kidney disease	4(4.8)
Chronic liver disease	7(8.4)
HIV infection	15(18.1)
Hepatitis B infection	2(2.4)
Smoking	6(7.2)
Alcohol	9(10.8)
Duration of illness, Median(min-max)	90(2-730)
Fever	73(88)
Loss of appetite	74(89.2)
Loss of weight	72(86.7)
Abdominal pain	33(39.8)
Ascites	33(39.8)
Loose stools	8(9.6)
Jaundice	2(2.4)
Hepatomegaly	27(32.5)
Spleenomegaly	33(39.8)
Respiratory system involvement	56(67.5)
Central Nervous system involvement	11(13.3)
Other nodal involvement	50(60.2)

Radiological Findings

CT scan demonstrated significantly higher diagnostic yield compared to ultrasound. Lymphadenopathy was detected in 65.9% of patients on CT compared to 27.1% on ultrasound. Peritoneal thickening was observed in 45.9% on CT versus 9.4% on ultrasound (Table 2).

Nodal tuberculosis was the most common subtype (72.9%), followed by peritoneal (48.2%), visceral (40%), and luminal disease (7.1%)

Table 2 : Ultrasonography and CT scan findings in patients with abdominal tuberculosis

Variable	Ultrasound	CT scan
Performed in	63(74.1)	65(76.5)
Ascites	31(36.5)	32(37.6)
Organomegaly	31(36.5)	31(36.5)
Intra abdominal lymph nodes	23(27.1)	56(65.9)
Bowel involvement	1(1.2)	12(14.1)
Peritoneum	8(9.4)	39(45.9)

Diagnostic Modalities

Mycobacterium culture, biopsy and on nucleic acid amplification (GeneXpert using CB NAAT) were the diagnostic method used in diagnosing tuberculosis (Table 3). Definitive tuberculosis (culture positivity) was seen in 33 patients. 36 patients were Gene Xpert positive, the commonest site was the sputum and ascitic fluid was positive in one patient. Biopsy was done on 64(75.3%) patients, omental biopsy done on 18(21.7%) was the commonest site. 20 patients had clinical, radiological or microbiological evidence of pulmonary tuberculosis. (Table 3)

Table 3 : Diagnostic methods in patients with abdominal tuberculosis

Diagnostic methods	Numbers (percentage)
Histopathology	64 (77.1%)
- Omentum	18 (21.7%)
MGYIT Culture	33 (39.8%)
- Sputum	8 (9.6%)
CB - NAAT	36 (43.4%)
- Sputum	16 (19.3%)

Treatment outcomes:

In our cohort of patients nodal tuberculosis was seen in 62(72.9%) patients, peritoneal 41(48.2%) visceral 34(40%), and luminal in 6(7.1). Only 3 patients had developed drug induced hepatitis. On telephonic follow up 49 patients are alive and have completed therapy, 14 patients were lost to follow up and mortality in our cohort was 15(18%) (Table 4)

Table 4 : Follow up of patients

YEAR	NO OF PATIENTS	ALIVE SEEN NOT SEEN	DEAD	UNABLE TO TRACE	ON RX
2014	11	5	4	2	
2015	19	105	3	1	
2016	18	6	5	2	
2017	20	8	4	3	
2018	15	4	2	3	1
5 YEARS	83	33	16	15	14

DISCUSSION

This study provides important insights into the clinical spectrum and outcomes of abdominal tuberculosis in a high-burden setting. The findings highlight the diagnostic challenges and emphasize the importance of imaging and composite diagnostic approaches.

The mean age and demographic profile are consistent with previous Indian studies, which show that abdominal TB predominantly affects middle-aged individuals (2,6). The female predominance observed in this study has also been reported in certain cohorts, though gender distribution varies (7).

The predominance of constitutional symptoms such as fever and anorexia reflects the systemic nature of TB and is consistent with earlier studies (5,8). The high frequency of ascites and organomegaly indicates advanced disease at presentation.

Radiological findings underscore the superiority of CT scan over ultrasound. CT imaging is known to detect characteristic findings such as necrotic lymph nodes and peritoneal enhancement, making it a critical tool in diagnosis (9,10). The low sensitivity of ultrasound limits its standalone diagnostic utility.

The predominance of nodal tuberculosis aligns with known disease patterns and supports lymphatic dissemination as a key mechanism (11). The relatively low proportion of luminal TB may reflect diagnostic overlap with other gastrointestinal disorders (12).

Microbiological confirmation rates remain low due to the paucibacillary nature of the disease (13). While GeneXpert improves detection, its sensitivity varies depending on sample type (14). Histopathology remains an important adjunct, although findings are not always definitive (15).

The coexistence of pulmonary TB in nearly one-fourth of patients highlights the importance of systemic evaluation (16). The observed mortality rate of 18% is significant and reflects delayed diagnosis and comorbid conditions (17,18).

Drug-induced liver injury was uncommon and consistent with previous reports (19).

Overall, abdominal tuberculosis continues to pose diagnostic challenges, and a multidisciplinary approach is essential for optimal management (20).

CONCLUSION

Abdominal involvement is one of the common presentations of tuberculosis, presenting with loss of appetite, fever, ascites and hepatosplenomegaly. In our study only 39.7% of patients had microbiological evidence of tuberculosis. Nodal tuberculosis was the commonest type and CT abdomen was a better imaging modality for peritoneal and nodal tuberculosis

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