

# Diagnosing Abdominal Tuberculosis: A Retrospective Study From Nepal

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## Abstract

**Introduction:** Tuberculosis (TB) is a common problem in developing countries including Nepal. Abdominal TB accounts for nearly 2% of TB cases world-wide. Data regarding this disease is lacking in Nepal.

**Objectives:** To evaluate the clinical presentation, diagnostic and effectiveness of treatment methods of abdominal TB in Nepal.

**Methods:** 32 cases of abdominal TB (10.59% of the total extra pulmonary TB) were identified among the total 302 extra pulmonary TB patients at Manipal Teaching Hospital during April 2003 to December 2006. All the cases diagnosed as abdominal TB were selected for this study. The details of demographic information, clinical presentation, and co morbid conditions were recorded from the medical case files. The laboratory and imageological reports and other necessary information were also obtained and the information was recorded on a proforma designed for the purpose.

**Results:** From the 32 cases of abdominal TB, 17 (53.13%) were females. The Mean  $\pm$  SD age of the patients was  $39.62 \pm 21.18$  years. The common symptoms exhibited by the patients were weight loss [100% (n=32)], loss of appetite [100% (n=32)], fever [71.88% (n=23)]. The personal history revealed smoking in case of 40.63% (n=13) of the patients and alcohol intake in case of 37.5% (n=12) of the. The treatment was given as per the WHO guidelines with category I [46.88% (n=15)] and category III 53.13% (n=17)] drugs. Five cases were later diagnosed to be of unrelated aetiology and were removed from the study. One patient (3.13%) died due to drug toxicity.

**Conclusion:** The clinical presentations of abdominal TB appear not specific for the condition. Thus, careful approach and supportive results are required in order to issue the final diagnosis. Measures are to be taken not to misdiagnose other morbid conditions as abdominal TB. If diagnosed early, it can be treated successfully with the conventional anti-TB drugs.

## INTRODUCTION

According to World Health Organization (WHO) nearly one-third of the world's population is under the risk of acquiring tuberculosis (TB) and more than 30 million deaths occurred due to TB in the 1990's, especially in Africa and Asia.<sup>1</sup> In 1993, WHO declared TB as a global emergency and started Directly Observed Treatment Short course (DOTS) Programme in countries all over the world.<sup>2</sup> Nepal is a high-burden country for TB with an estimated 6,000-8,000 deaths annually.<sup>3</sup> The National Tuberculosis Programme (NTP) in Nepal was reviewed in 1994 and DOTS was adopted as national policy for TB control in 1995 and was implemented in early 1996.<sup>3</sup> TB can affect any part of the body and abdominal TB accounts for nearly 2% of the

total cases of TB.<sup>4</sup> Though *Mycobacterium tuberculosis* has been incriminated as the cause of abdominal TB in most countries, *Mycobacterium bovis* has also been reported from some countries.<sup>5</sup>

The clinical presentation of abdominal TB is non-specific and requires confirmatory evidence for accurate diagnosis.<sup>6</sup> A study from United Kingdom reported that laparoscopy may be an investigation of choice among patients from high-burden countries with a suspected abdominal TB clinical history.<sup>7</sup> However, a study from Turkey has reported that none of the diagnostic modalities used could be used as gold standard for diagnosis of gastrointestinal TB.<sup>8</sup> Insidious onset and non-specific clinical and radiological findings of abdominal TB mimics several diseases, such as crohn's

disease, carcinoma, sarcoma, amebiasis, *Yersinia* sp. infection, gastrointestinal histoplasmosis, and peri-appendiceal abscess.<sup>9,10</sup> A study from Bangladesh reviewed the clinical profile and treatment in 25 cases of abdominal TB.<sup>11</sup> In Nepal however, though a country with a high incidence of TB, there is a paucity of studies on abdominal TB. During our literature review, we could locate only one study from Nepal regarding abdominal TB.<sup>12</sup> The study evaluated the clinical features, diagnostic investigations, surgical treatment and pathology of abdominal TB. This study was conducted three decades back and hence cannot be extrapolated well to the current settings.<sup>12</sup> Hence, we performed a new study with the following objectives.

1. To describe the clinical presentation and the diagnostic and treatment methods of the patients diagnosed with abdominal TB in Nepal.
2. To determine the accuracy of abdominal TB diagnosis in Nepal.

### METHODOLOGY

**Study type:** A retrospective case analysis was carried out. As this study was retrospective, an ethical approval was not sought.

**Study site:** Manipal Teaching Hospital (MTH), tertiary care referral hospital of Manipal College of Medical Sciences, Nepal. DOTS clinic at MTH became operational in April 2003.

**Inclusion criteria:** All the cases of abdominal TB treated at MTH during April 2003 to December 2006 were included.

**Methods of data collection:** A list of all extra pulmonary cases was obtained from the DOTS clinic of Manipal Teaching Hospital (MTH). All the extra pulmonary cases diagnosed as abdominal TB during April 2003 – December 2006 were selected for the study. The medical case files of 302 extra pulmonary TB were reviewed. Only the files of the patients diagnosed and treated as abdominal TB were included and reviewed. The details of demographic information, clinical presentation, and co morbid conditions were recorded from the medical case files. The laboratory and reports were also reviewed including those of misdiagnosed abdominal TB cases. The information was recorded on a proforma designed for the purpose.

**Data analysis:** The data was recorded using a Microsoft Excel. The Statistical Package for Social Sciences (SPSS) version 9.0 was used to carry out the descriptive statistics.

### RESULTS

Based on 2003-2006 records retrieved from MTH-DOTS clinic, 32 cases of abdominal TB were identified out of the 302 cases of extra pulmonary TB.

**Demographic details:** The Mean SD age of the abdominal TB patients was 39.62 21.18 years. The demographic distribution of the patients is shown in Table 1.

#### Figure 1

Table 1: Demography distribution

Parameters		Number (%)
Sex	Male	15 (46.88)
	Female	17 (53.13)
Age (in years)	Up to 20 years	7 (21.88)
	21-30	6 (18.75)
	31-40	5 (15.63)
	41-50	5 (15.63)
	61-60	4 (12.50)
	More than 60	5 (15.63)

**Clinical Symptoms:** The clinical symptoms of the patients at the time of admission were categorized. The most common symptoms were: weight loss [32 patients (100%)] and loss of appetite [32 patients (100%)], followed by fever [23 patients (71.88%)], ascites [21 patients (65.63%)], vomiting [18 patients (56.25%)], abdominal pain [16 patients (50%)] and diarrhoea [11 patients (34.38%)].

**Personal history:** The personal history of the patients was retrieved and the most common one was smoking observed in 13 patients (40.63%), followed by alcohol intake 12 (37.5%), chronic obstructive pulmonary disease (COPD) 6 (18.75%), jaundice 3 (9.38%), hypertension 2 (6.25%), past history of TB 1 (3.13%) and family history of TB 1 (3.13%).

**Investigations:** The various lab investigations done at the time of admission and their results are listed in Table 2.

Figure 2

Table 2: Lab investigation and radiographic status of the patients

Investigations	Parameters	Values	Number (%)
Lab investigation	Haemoglobin	Above 13	7 (21.88)
		Below 13	23 (71.88)
		Not done	2 (6.25)
	ESR	Below 20	9(28.13)
		Above 20	20 (62.50)
		Not done	3(9.38)
	Urea	Normal (below 40)	17 (53.13)
		Not done	15 (46.88)
	Albumin	Up to 3	11(34.38)
		Above 3	10(31.25)
		Not done	11(34.38)
	SGOT	Up to 40	16(50.00)
		Above 40	9 (28.13)
		Not done	7 (21.88)
	SGPT	Up to 40	18(56.25)
		Above 40	7(21.88)
		Not done	7 (21.88)
	ALP	Up to 200	3 (9.38)
Above 200		11(34.38)	
Not done		18(56.25)	
HIV	Positive	1 (3.13)	
	Negative	12 (37.50)	
	Not done	19 (59.38)	
HBASg	Positive	1(3.13)	
	Negative	8 (25.00)	
	Not done	23 (71.88)	
Chest X-ray finding	Normal	18 (56.25)	
	Abnormal	14 (43.75)	

Ascitic fluid and abdominal ultrasound finding of the patients: The details are listed in Table 3.

Figure 3

Table 3: Ascitic fluid and abdominal ultrasound finding of the patients

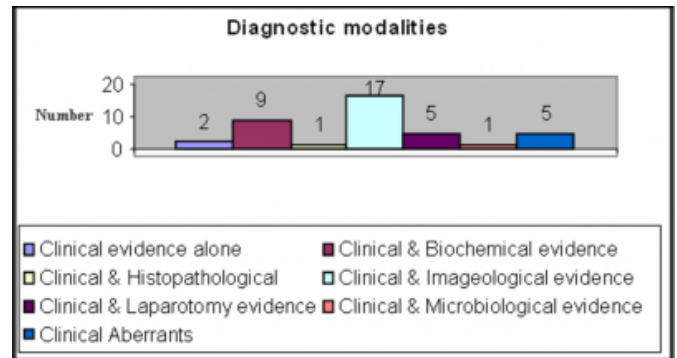
Ascitic fluid	Cell count	Values	Number (%)
	Lymphocytes	Below 250	
Above 250			11(34.37)
Not done			17 (53.12)
Protein	2.5 to 3		0
	Less than 2.5		2 (6.25)
	More than 3		10 (31.25)
	Not done		20 (62.5)
ADA	Up to 40		3 (9.37)
	More than 40		3 (9.37)
	Not done		26 (81.25)
Abdominal ultrasound finding *	Peritoneum		15 (46.88)
	Liver		11 (34.38)
	Lymphadenopathy		7 (21.88)
	GI tract		4 (12.50)

\*= Some might have had more than one ultrasound finding

Diagnostic methods: Patients with abdominal TB evaluated in our study were divided into seven groups according to the method of diagnosis. Cases which were misdiagnosed and confirmed otherwise later, were also included. The analysis revealed that most of the cases were diagnosed on the basis of clinical presentation along with radiological evidence. The diagnostic methods used in this study are listed in Figure 1.

Figure 4

Figure 1



Treatment and outcome: The patients were placed on anti-TB therapy (ATT) according to the national TB guidelines.<sup>3</sup> ATT was stopped for five patients as a different diagnosis than abdominal TB was confirmed at a later date. The other diagnoses were adenocarcinoma (3), carcinoma of the stomach (1) and rosai dorfman disease (1). One out of 27 ATT-treated patients died due to drug-induced fulminant hepatitis. The treatment outcomes of the patients are shown in Table 4.

Figure 5

Table 4: Treatment modality and outcomes

Parameters	Number (%)	
Treatment category	I	15 (46.88)
	II	0
	III	17 (53.13)
Outcomes	Death	1 (3.13)
	Improved	18 (56.25)
	No improvement	1 (3.13)
	Others *	12 (37.50)

\*= Few patients might have been referred to the nearest DOTS centres for follow up and in five cases the final diagnosis changed though they were treated as abdominal TB initially

DISCUSSION

Tuberculosis is one of the most common infectious diseases in developing countries like Nepal.<sup>3</sup> TB can affect any part of the gastrointestinal tract including anus, peritoneum and pancreato-biliary system. <sup>13</sup>Abdominal TB is the sixth most common form of extra-pulmonary site of infection after

lymphatic, genitourinary, bone and joint, miliary and meningeal TB.<sup>14</sup>

In our study, we found a slightly higher female preponderance in the number of abdominal TB patients. The male: female ratio was 1:1.13. A previous study from Nepal identified a slightly high male preponderance, male: female was 1.08:1. In a study from Turkey, the male: female ratio was 1.2:1.<sup>8</sup> In general, the sex distribution in abdominal TB is almost equal.<sup>15</sup> However, there is an evidence suggesting that the male preponderance in Britain and in third world countries a female preponderance.<sup>16</sup>

The mean SD of the age of the patients in our study was 39.62 21.18 years. In general it was reported that abdominal TB occurs in the fourth decade of life.<sup>17</sup> A previous study from Nepal reported 64% of the patients with in the age group of 12 to 35.<sup>12</sup> It is also known that two thirds of the patients with abdominal TB are 21-40 years old.<sup>18</sup> In our study we did not find such an observation.

The presenting symptoms of the patients with abdominal TB are not specific for the condition.<sup>11</sup> The common symptoms reported by our patients are weight loss, loss of appetite, fever, ascites, vomiting, abdominal pain and diarrhoea. In a study from Taiwan, the common symptoms reported by the patients were abdominal pain, distension, fever, general weakness, and progressive weight loss.<sup>19</sup> A previous study from Nepal reported the common symptoms to be abdominal pain (88%), anorexia (40%), vomiting (36%), diarrhoea or constipation (52%), weight loss (52%).<sup>12</sup> Moreover the clinical presentations may be acute, chronic or acute on chronic.<sup>15</sup> These observations made by different studies suggest that the symptoms of abdominal TB are not specific enough to issue the diagnosis.

Laboratory tests were suggested to have only limited value in the diagnosis of abdominal TB. Elevated ESR is seen in majority of the cases but may be normal in some histologically proven case of abdominal TB.<sup>4</sup> In our study we found majority of the patients with elevated ESR level. Since our study was a retrospective one, further laboratory testing was not possible.

Since the symptoms of abdominal TB are very general, one must be careful when issuing such diagnosis. A study from Turkey recommended the need for an algorithm of various diagnostic methods such as clinical signs, laboratory, radiological and endoscopic methods etc., to have a higher precision in the diagnosis of abdominal TB.<sup>8</sup> In our study,

we attempted to categorize the patients into different groups which aided in our diagnosis of abdominal TB. The ultrasonological abnormalities observed in our patients included peritonitis with ascites, hepatomegaly, mesenteric lymphadenopathy and intestinal

The management of abdominal TB requires conventional ATT for at least 6 months including initial 12 months of rifampicin, INH, Pyrazinamide and Ethambutol.<sup>15</sup> In our study though all the patients were diagnosed as abdominal TB, they differ in the treatment because 15 patients were considered to be severe extra pulmonary TB and started on Category I, the rest with category III as per the standard guidelines. A study from Bangladesh used conventional ATT with Isoniazid, Rifampicin and Pyrazinamide for 9 months and all the patients improved.<sup>11</sup> In our study, one patient died during the treatment due to drug toxicity.

### LIMITATIONS

Our study had following limitations: The number of the patients in the study was low. Moreover, our study being a retrospective one thus, it was not possible to corroborate original diagnosis.

### CONCLUSION

Since the clinical presentations of abdominal TB are very general and specific for the condition, diagnosis has to be supported by additional tests. If diagnosed early, it can be treated successfully with the conventional anti tubercular drugs. Similar studies done in different region of Nepal will provide more insights.

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