

## ABDOMINAL TUBERCULOSIS: A REPORT OF 32 CASES

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### ABSTRACT

Abdominal tuberculosis is still a prevalent problem of underdeveloped countries. Although its incidence has been reduced in developed countries, it is still seen in immigrants and immunodeficient patients frequently. In Iran, even though its incidence has been reduced, we are still confronted with undesired mortality and morbidity. In this article we have evolved new management strategies for these patients and then we have performed a retrospective study of over 32 cases to evaluate the results on management of these patients during a 22 year period (1981–2003).

Females had more involvement, and the mean age was 27.8 years. Fever, abdominal pain, and weight loss were common findings. There were three mortalities (9.3%) and three morbidities (9.3%) including two intestinal fistulae and one obstruction.

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**Keywords:** Abdominal tuberculosis, enterolysis, fistulae, perforation.

### INTRODUCTION

There are some misconceptions that may render the diagnosis and treatment of abdominal tuberculosis difficult,<sup>8</sup> such as “abdominal tuberculosis is found in underdeveloped societies rather than developed ones”.<sup>8</sup> It has been proven that this is not the case.<sup>1-3</sup> “Negative tuberculin test rules out the disease, while it may be positive in 14-100%”,<sup>9-12</sup> “Negative smear and culture from ascites rules out the disease”<sup>8</sup> while it may be positive in 10-80%.<sup>1,5,15</sup> “There are no symptoms and signs indicating pulmonary tuberculosis”,<sup>8</sup> while this also is another misconception.<sup>4,9,12</sup>

In several studies including large and small series, different demographic, clinical and laboratory aspects and mortality and morbidity have been reported.<sup>2-6,8-12,15</sup> and they are comparable to our study.

Other than these aspects, we also focused on various

surgical approaches to our cases and its related mortality and morbidity are discussed.

Delayed diagnosis and treatment was the major cause of mortality and morbidity as are mentioned in the literature.<sup>8-10</sup> Small bowel perforation is one of the rare but serious complications that has been mostly discussed here.<sup>10,14</sup>

### MATERIAL AND METHODS

A retrospective study was done from hospital records of 32 cases hospitalized during a 22 year period (1981–2003) in several departments including general surgery, gynecology and obstetrics, pediatric, internal medicine and neurosurgery, and either had been discharged or had died and had TB granuloma at biopsy or autopsy specimens, and classified under abdominal tuberculosis according to ICD. Findings were extracted directly from documents. In some, findings like fever on the vital sign sheet

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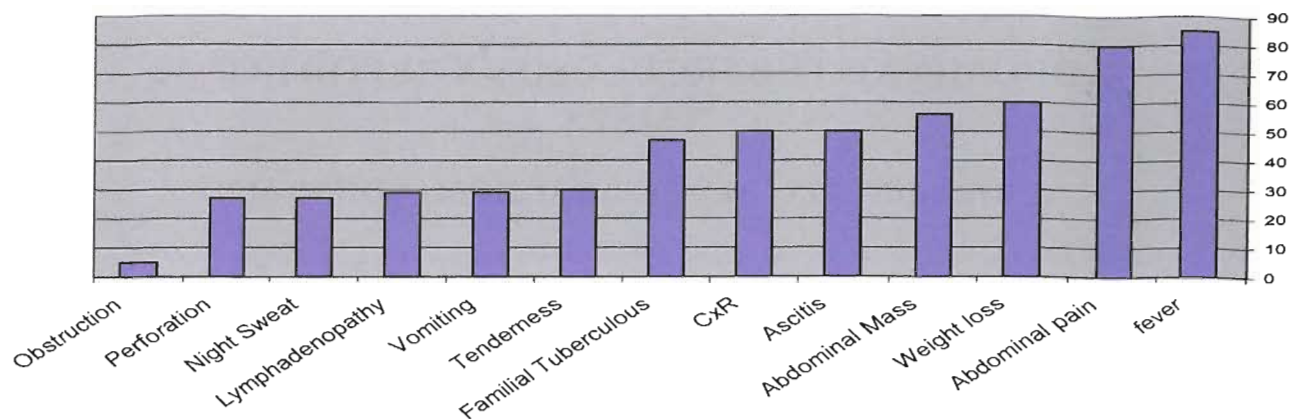


Fig. 1. Percent of clinical manifestations of 32 cases of abdominal tuberculosis at Shohada-e-Tajrish Medical Center from 1981-2003.

was the base, and in regard to weight loss, the statement of patients themselves or their relatives, or the pediatrician, had been considered and recorded. For clinical manifestations, the observation of the senior physician was taken into consideration (Fig. 1).

Laboratory findings were classified and recorded. Diagnosis was based on finding TB granulomas at biopsy or autopsy. Laparotomy findings and surgical approaches were extracted from operation notes (Tables I, II).

In regard to mortality and morbidity we tried to consider its relationship with surgical approaches (Tables III, IV).

Table I. Frequency of laparotomy findings in 32 cases.

Findings	No.	Percent
Ascites	14	43
Nodules	13	40
Small bowel adhesion	10	31
Abdominal mass	7	21
TB Abscess	4	12
Mesenteric adenopathy	4	12
Bacterial peritonitis	3	9
Splenomegaly	1	3
Calcification	1	3

Table II. Types of operation.

Types of operation	No.	Percent	Mortality	Morbidity
1. Drainage of ascites, cysts, without drains	8	24.8	0	0
2. Drainage of ascites, cyst or abscess with drains	6	18.6	0	0
3. Mass excision (Table IV: First case)	4	12.4	0	1
4. Biopsy	4	12.4	0	0
5. Hysterosalpingo-oophorectomy	2	6.2	0	0
6. Cyst drainage, curettage of vertebra and bone graft	1	3.1	0	0
7. Appendectomy	1	3.1	0	0
8. Resection and anastomosis of small bowel and enterocutaneous fistula, after medical treatment	1	3.1	0	0
9. Small bowel resections and anastomosis due to perforation + OMSA (Table IV, case 2)	1	3.1	0	0
10. Enterotomy of normal segment and extraction of bezoar	1	3.1	0	0
11. Enterolysis, after a full course of TB treatment	1	3.1	0	0
12. Enterolysis, debridement, freshening of perforation, repair in two layers (Table III - case 1)	1	3.1	1	0
13. Enterolysis, anastomosis (Table IV - case 2)	1	3.1	0	1

**Table III.** Mortality.

Cases	Finding	Approach	Cause of mortality	Confirming the diagnosis with
A 25 year old female	Small bowel perforation during delivery	Two layer repair with chromic and silk, insertion of drains, closing the abdomen	Leak? Septic Complication?	Small bowel biopsy: TB granuloma
A 15 year old female	Ascities	Laparotomy not performed	Delay in diagnosis waiting for culture results of ascites	Closed peritoneal biopsy: TB granuloma post-mortem
A 2.5 year old child	Fever, abdominal pain, infiltrative lesions in the lungs	Laparotomy and biopsy performed too late	Delay in diagnosis waiting for culture results of ascites	Liver and ileal serosal biopsy: TB granuloma

**Table IV.** Morbidity

Cases	Findings	Approach	Morbidity and approach	Confirming the diagnosis with
A 23 year old female	Small bowel as a mass matted together	Enterolysis and mass excision	Umbilical fistula, resected with anastomosis after a full course of medical treatment	Pathologic examination of resected bowel and mass
A 22 year old female	Tenderness, bowel adhesion and interloop abscess	Laparotomy, enterolysis and abscess drainage	Enterocutaneous fistula, treated by resection and anastomosis and OMSA	Pathologic examination of resected bowel adhesions

\* Open Management of Septic Abdomen

**RESULTS**

There were 32 cases, 23 females and 9 males from 2–67 years with median age of 27.8 years. In 82% of the cases the course of the disease was insidious with a median of 7.6 months. Fever, abdominal pain, weight loss, abdominal mass and ascites were common clinical manifestations. Obstruction occurred in one and perforation in 5 cases (Fig. 1).

Anemia was present in 80% of males and 99% of females. WBC was normal in 73%, high in 13% (leukocytosis) and low in 13 (leukopenia); ESR was above 46 mm/h in 72% and between 15–40 mm/h in 16%; PPD was positive only in 15% of the cases.

In abdominal tap there was a clear or turbid yellow or yellow to green fluid with specific gravity greater than 1016 in 100% of cases.

Protein greater than 25g/dL was seen in 60% of cases, RBC less than 10000/μL in 100% of cases, WBC more than 1000/μL in 80% of cases with predominance of lymphocytes in 80% of cases and fluid sugar was between 70–100 mg/dL.

Protein electrophoresis was done in 9 cases, Albumin/globulin ratio was less than 1 with an average of 0.6. All types of globulins were elevated and there was more elevation with α1 and α2 than β and γ.

Laparotomy was performed 29 times (on 28 cases), 18

**Table V.** Comparison of mortality and morbidity between enterolysed and non-enterolysed patients in active abdominal tuberculosis.

Enterolysis	Mortality and morbidity	Without mortality and morbidity	Total
Performed	3	0	3
Not performed	1	28	29
Total	4	28	32

According to Fisher’s exact test P value equals 0.0008 which is significant.

for diagnostic purposes, 4 for excision of mass, and 7 as emergency treatment for acute abdomen (3 for perforation of ileum, one case of obstruction due to adhesion band and 3 for peritonitis). Laparoscopy was not done in any case. There were 3 mortalities and 3 morbidities (Tables II, III). Types of operation and their relation to mortality and morbidity are mentioned in Table I.

**DISCUSSION**

Clinical course and manifestations and laboratory findings are comparable to the findings of others<sup>1-4,6</sup> except we did not have low glucose in ascitic fluid.

Regarding mortality (Table II), delayed diagnosis was

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the main cause of mortality. In case 3, undue enterolysis done during laparotomy should be added to delayed diagnosis as a cause.

In regard to relation of surgical approaches with mortality and morbidity (Table I), laparotomy, drainage of ascites, abscess and cyst with or without insertion of drains is a safe procedure. From four masses excised two were retroperitoneal and one at the mesentery of the ileum, which were safely excised, but in one case which enterolysis was done for excision of mass (fimbria), perforation and small bowel fistula developed.

Hysterosalpingo-oophorectomy, appendectomy, enterotomy of normal bowel and removal of bezoar, enterolysis after a full course of medical treatment were not associated with mortality and morbidity, but enterolysis, and trying to suture a perforation or do resection and anastomosis were associated with two cases of mortality and one case of small bowel fistula in active abdominal tuberculosis.

There are two factors which can cause mortality and morbidity. One is undue enterolysis which can cause free perforation and fistula formation [It must be mentioned that the incidence of subclinical perforation reported on radiological examination (Barium contrast) is 7.6% although it has been reported overall from 1–33%<sup>14,15</sup>]. The second is customary management of peritonitis secondary to small bowel perforation. Closure of the abdomen after resection and anastomosis can cause late diagnosis of leakage from the anastomosis, abdominal compartment syndrome with associated kidney insufficiency and other organ failures (case 2). While leaving the abdomen open (see open management for septic abdomen) can be life saving. In our second case in which we performed OMSA, the patient survived.<sup>13</sup> The statistical analysis according to Table V shows a meaningful P value.

We again emphasize avoiding enterolysis in active abdominal tuberculosis and if it is necessary as in the case of resection - anastomosis, it must be very limited. In the case of bacterial peritonitis adequate drainage or OMSA should be done and other medical and surgical treatment of the offending organism plus medical treatment for TB should be attended.

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