

## EVALUATION OF CLINICAL PROFILE AND OUTCOME OF ABDOMINAL TUBERCULOSIS IN A TERTIARY REFERRAL CENTRE

Sharma A.C.<sup>1</sup>, Singla Mamta<sup>2</sup>, Gupta Shri Ram<sup>3</sup>, Jain Shaleen<sup>4</sup>

<sup>1</sup>Assistant Professor, Department of Surgery, MMC & H, Muzaffarnagar.

<sup>2</sup>Professor and HOD, Department of Surgery, MMC & H, Muzaffarnagar.

<sup>3</sup>Senior Resident, Department of Surgery, MMC & H, Muzaffarnagar.

<sup>4</sup>Junior Resident, Department of Surgery, MMC & H, Muzaffarnagar.

### ABSTRACT

#### BACKGROUND

Abdominal tuberculosis is a highly endemic entity. In our country, intestinal tuberculosis is the single largest cause of intestinal obstruction. It has an insidious course, therefore a high index of suspicion is required for an early diagnosis and treatment. Abdominal tuberculosis is managed non-operatively as well as by operative interventions along with ATT (Antitubercular Treatment).

Aim of this study:

To define most suggestive clinical features of abdominal tuberculosis.

To evaluate the usefulness of normally available investigations.

To see the response of ATT in abdominal tuberculosis.

To evaluate the usefulness of various operative interventions done for abdominal tuberculosis.

#### MATERIALS AND METHODS

This prospective descriptive study of 78 patients, who presented with a clinical diagnosis of abdominal tuberculosis, was conducted in Department of Surgery, Muzaffarnagar Medical College and Hospital, Muzaffarnagar, over a period of one year from May 2015 - April 2016. The criteria for diagnosis of abdominal tuberculosis were clinical suspicion, laboratory findings, operative findings, proven histopathology, demonstration of AFB in specimens and response to antituberculosis drugs. All patients were treated either surgically or non-surgically along with ATT. Patients were followed up for a period of six to twelve months or till death whichever was earlier.

#### CONCLUSIONS

The signs and symptoms of intestinal tuberculosis are nonspecific and there are no unequivocal diagnostic features either clinically or radiologically. The most common presenting complaint was abdominal pain (92%) and the most common sign was abdominal tenderness (69.2%). Most common age group being the 3rd decade of life contributing 35.89% of the total sample size. The most common mode of presentation was that of subacute intestinal obstruction (44%). The most common site involved was small intestine and ileocaecal region (71.8%). 48.7% patients were managed non-operatively and 51.3% patients were managed operatively. First-line antitubercular drugs were given to all patients for 6-12 months period. With the aim of saving maximum bowel length, limited resection was performed in 30% operative cases in the present study, which was second to adhesiolysis (35%), while only 5% cases underwent right hemicolectomy. All patients with abdominal tuberculosis responded well to ATT.

#### KEYWORDS

Abdominal Tuberculosis, ATT, Adhesiolysis, Right Hemicolectomy, Ileocaecal Region.

**HOW TO CITE THIS ARTICLE:** Sharma AC, Mamta S, Ram GS, et al. Evaluation of clinical profile and outcome of abdominal tuberculosis in a tertiary referral centre. J. Evolution Med. Dent. Sci. 2016;5(90):6675-6679, DOI: 10.14260/Jemds/2016/1510

#### BACKGROUND

Abdominal tuberculosis is a highly endemic entity. It is most common in areas where overcrowding and under nutrition predominate. In our country, intestinal tuberculosis is the single largest cause of intestinal obstruction. Primary tuberculosis of intestine without antecedent or associated pulmonary tuberculosis is fairly common. Abdominal

tuberculosis is one of the most prevalent forms of extra-pulmonary disease. After the development of specific drugs, gastrointestinal involvement has decreased from as high as 55%-90% to 25% in patients with active pulmonary tuberculosis.<sup>1</sup> Abdominal tuberculosis represents the sixth most frequent form of extra pulmonary tuberculosis after lymphatic, genitourinary, bone and joint, miliary and meningeal tuberculosis.<sup>2</sup> Abdominal tuberculosis denotes involvement of the gastrointestinal tract, peritoneum, lymph nodes, and solid viscera like liver, spleen, pancreas, etc. The gastrointestinal tract is involved in 65% to 78% of patients; associated peritoneal and lymph node involvement is common in these patients. Tuberculosis bacteria reach the gastrointestinal tract via haematogenous spread, ingestion of infected sputum or contiguous spread from adjacent organs.<sup>3-6</sup> Abdominal tuberculosis has an insidious course like any other chronic infectious disease without any specific

Financial or Other, Competing Interest: None.

Submission 06-10-2016, Peer Review 31-10-2016,

Acceptance 05-11-2016, Published 09-11-2016.

Corresponding Author:

Sharma A. C,

C-36, Faculty Residences,

Muzaffarnagar Medical College Campus,

Begrajpur, Muzaffarnagar-251203.

E-mail: dracsharma@gmail.com

DOI: 10.14260/Jemds/2016/1510



laboratory, radiological or clinical findings. Due to this non-specificity, there is great difficulty in its diagnosis. Therefore, a high index of suspicion needs to be maintained for an early diagnosis and timely treatment. Abdominal tuberculosis is managed non-operatively as well as by operative interventions.

Antitubercular drugs are given for prolonged periods to all such patients. Perforation is a serious complication of abdominal TB associated with high morbidity and mortality.<sup>7-9</sup> The low incidence of tubercular perforation is due to reactive fibrosis of the peritoneum<sup>10-13</sup>. However, in recent years, intestinal perforation, which was relatively rare in the past, has been reported more frequently. The cause of this remains unknown. The role of surgery in abdominal tuberculosis is:

1. **Diagnostic:** For aetiopathological and microbiological diagnosis.
2. **Therapeutic:** For complications like intestinal obstruction, perforation and peritonitis.

## MATERIALS AND METHODS

This prospective descriptive study was conducted in Department of Surgery, Muzaffarnagar Medical College and Hospital, Muzaffarnagar, over a period of one year from May 2015-April 2016. 78 patients, who presented with clinical diagnosis of abdominal tuberculosis, were enrolled into the study. The criteria for diagnosis of abdominal tuberculosis were clinical suspicion, laboratory findings, operative findings, proven histopathology, demonstration of AFB in specimens and response to antituberculosis drugs. Patient's assessment was done by detailed history, physical examination and relevant investigations. Preoperative investigations included Haemoglobin levels, TLC, DLC, ESR, RBS, LFT, serum electrolytes, urea and creatinine, blood grouping and cross-matching. Patients were also screened for HIV. Radiological investigations included chest x-ray, abdominal x-ray and abdominal ultrasonography. Patients with normal chest x-rays but who had symptoms and signs of abdominal tuberculosis were considered to have primary abdominal tuberculosis. Abdominal ultrasound and CT scan were done in some patients suspected to have associated abdominal collections or masses. All patients were treated with Antituberculosis therapy with or without surgery. Intraoperative tissue biopsy was taken for histopathological studies. Final diagnosis and postoperative treatment was dependent on the operative findings and histopathological confirmation. The antituberculosis therapy included Isoniazid, Rifampicin, Pyrazinamide, Ethambutol, with or without Streptomycin. Patients were followed up for a period of six to twelve months or till death whichever was earlier.

## RESULTS

### Demographic Profile

#### Age Incidence

Age of patients ranged from 7 to 70 years. Most of the cases were in 3rd decade of life making up 35.89% of the total. Mean age in the present study is 30.57 years  $\pm$  16 yrs.

#### Gender Incidence

Out of 78 cases, 36 (46.15%) were males and 42 (53.85%) were females. M:F ratio was 1:1.16, showing slight preponderance of females which was insignificant.

## Symptomatology

Abdominal pain was the most common presenting symptom in 92% of cases. Lower abdominal pain was the commonest, followed by periumbilical and generalised abdominal pain. In most cases, pain was described as colicky and intermittent. Other common symptoms were abdominal distention (62%), altered bowel habits (59%), fever (67%), vomiting (56%), loss of appetite 38% and weight loss (59%). Altered bowel habits were found in 59% of patients, constipation being more common present in 53.84% cases while diarrhoea was present in 5.12% cases. Vomiting was present in 56% of cases and it was followed by relief of pain. Fever was present in 67% of cases; fever was mild to moderate with evening rise of temperature present in 23% of cases. Anorexia and weight loss was found in 38% and 59% of cases respectively. Most of the cases were having subacute intestinal obstruction with duration of more than one month of complaints. History of night sweats was present in 10% of cases. Menstrual abnormalities were present in 10.25% of cases.

## Physical Signs

Abdominal tenderness was the most common finding, found in (n=54, 69.2%) of cases. Abdominal distention was seen in 48 (62%) cases, which was generalised in 50% of cases and lower abdominal in 50% of cases. Guarding, rigidity and rebound tenderness were present in 17 (21.8%) cases, these were cases of hollow viscus perforation. Mass was found in 14 (17.9%) cases, in 10 cases it was found in right iliac fossa, and in 4 cases in right lumbar region. Hyperperistalsis was found in 14 (17.95%) cases. Active pulmonary tuberculosis was found in 6 cases, one of them had extensive miliary mottling.

## Mode of Presentation

In the present study, the most common mode of presentation was that of intestinal obstruction, contributing 67% to the total. Out of these - 23% cases had acute intestinal obstruction, and rest 44% had subacute intestinal obstruction, making it the single most common mode of presentation. Mass in abdomen was the mode of presentation in 17.9% cases. Peritonitis secondary to small bowel perforation, was the diagnosis in 21.8% of cases. 8% of cases had pre-op diagnosis of acute appendicitis. The preoperative diagnosis was more accurate in cases with ileocaecal mass and subacute obstruction than in cases that underwent emergency laparotomy for acute intestinal obstruction or perforative peritonitis.

## Management

### Non-operative Management

Out of 78 cases, 38 cases were managed non-operatively. All responded well to currently used first-line anti-TB drugs. Treatment strategies were based on the guidelines proposed by the CDC of India and the therapeutic regimen consisted of Isoniazid, Rifampicin, Ethambutol, Streptomycin and Pyrazinamide in various combinations for 6-12 months. The mean duration of treatment was 225 $\pm$ 56 days (range 180-360 days). Patients were regularly followed up at our outpatient clinic. The median duration of follow-up was 120 days (range 28-365 days). No relapse was detected during

the follow-up period. During treatment, four patients experienced adverse drug effects such as jaundice, gastrointestinal upset, skin rashes and peripheral neuropathy. Out of these patients, two died and one was lost to follow-up.

### Operative Management

#### Operative Findings

In the present series of 40 operated cases, most of the cases had multiple findings. Enlarged mesenteric lymph nodes was the most common finding present in 20 cases, ileocaecal thickening was present in 12 cases, caecal thickening with or without ascending colon strictures were present in 5 cases. Pulled up caecum with narrow ileocaecal valve was present in 2 cases. In 6 cases appendicectomy was done and was later diagnosed to be tuberculosis. Small bowel strictures were found in 12 cases, all were in ileum. Small bowel perforation was found in 17 cases, adhesions of small and large intestine were found in 18 cases. Omental thickening was found in 4 cases.

#### Operative Procedures

The indication for surgery in most cases was either failure of conservative management, persistent pain with suspicion of tumoural lesion, intestinal obstruction or preoperative diagnosis of intestinal perforation & generalised peritonitis or preoperative diagnosis of appendicitis. The type of surgical procedure depended upon the site of involvement, severity of pathology, condition of patient and expertise available. Obstructed ileocaecal region was managed by limited resection, right hemicolectomy or a bypass procedure (ileotransverse anastomosis). Strictures, which usually occur in small intestine, were managed by resection and anastomosis or bypass (for tight and scarred strictures). In cases of perforation, usually with distal strictures, resection and primary repair or resection and ileostomy was performed. In case of adhesions, lysis was done. Biopsy was taken when abdomen was plastered. Most common procedure that was done was adhesiolysis (35%). Limited (Segmental) resection and anastomosis, including only 5 cm of ascending colon, was done in 30% of cases. One case underwent limited resection for sigmoid colon tuberculosis. Right Hemicolectomy was done for 5% of cases. Small bowel resection and anastomosis was done in 5% cases due to tight and scarred multiple strictures. Only bypass procedure was done in 20% cases. In two patients (5%), only biopsy was taken due to plastered abdomen.

PROCEDURE	NUMBER (n=40)	%
Resections and Anastomosis (RA)		
Limited (segmental) RA	12	30%
Right Hemicolectomy	2	5%
Small bowel RA	2	5%
Strictureplasty	0	0%
Perforation closure	0	0%
Adhesiolysis	14	35%
Only bypass	8	20%
Only Biopsy	2	5%

**Table 1. Operative Procedures**

### Pathological Consideration

In the present series of 78 cases of intestinal tuberculosis, 40 cases were operated and specimens of intestine (including appendix), lymph nodes and peritoneum were available for histopathological diagnosis. Most common pathological diagnosis was that of ulcerative type of intestinal tuberculosis in 26 cases (33.34%), of which 10 presented with features of intestinal obstruction and 2 presented with mass per abdomen. Ulcerohypertrophic type of intestinal tuberculosis was found in 14 cases (17.95%). 1 had jejunal stricture and 9 had ileal strictures. 2 cases presented as appendicitis. Peritoneal involvement was seen in 12 cases (15.39%), out of which 8 cases (10.26%) were of ascitic type and 4 cases (5.13%) were of fibrous type. Out of 8 cases of ascitic type of peritoneal involvement, 6 were associated with intestinal obstruction and two cases were associated with hypogastric lump. Out of 4 cases of fibrous type of peritoneal involvement, two were associated with intestinal obstruction and two with bowel perforation. 10 cases (12.82%) were associated with tuberculosis of mesentery and its contents, out of which 6 (7.69%) were of bowel adhesions and 4 (5.13%) were of mesenteric adenitis. All of them were associated with intestinal obstruction.

### DISCUSSION

In this series, 78 cases of abdominal tuberculosis with various symptoms and signs were studied. The main focus of this study was the epidemiological observation, clinical manifestation, diagnosis, non-surgical treatment, surgical treatment and outcome of patients with abdominal tuberculosis. The results are analysed in comparison to various studies done on abdominal tuberculosis.

#### Age Incidence

In our study, most of the cases were in 3rd decade of life contributing 35.89% of the total. 36% cases were in 3rd decade of life in the Shailesh C et al study<sup>14</sup>, while Ecgleston FC et al<sup>15</sup> reported 35% in the same age group. Bhansali SK<sup>13</sup> and MB Islam<sup>16</sup> et al reported 41% and 40% respectively in the same age group.

#### Symptomatology

In the present study, abdominal pain was the most common presenting complaint, present in 92% of cases. This is similar to the findings in a study by Shailesh C et al<sup>14</sup> in which pain in abdomen was the commonest symptom, present in 90% of cases. In Ecgleston FC et al series,<sup>15</sup> it was present in 86% of subjects while in MB Islam et al series,<sup>16</sup> it was present in 83.3% of subjects. Abdominal distention was the presenting complaint in 62% of our cases. Altered bowel habits was the third most significant complaint in the present series, 59% cases had it as presenting complaint. Ecgleston FC et al<sup>15</sup> reported it to be present in 50% of cases while MB Islam et al<sup>16</sup> reported this presenting symptom in 71.6% of cases. In both the studies, it was the second most common presenting complaint. The other common symptoms in the present series and series by Ecgleston FC et al<sup>15</sup> and MB Islam et al<sup>16</sup> were abdominal distension, vomiting, mass per abdomen, fever and anorexia with weight loss.

#### Physical Findings

In the present study, abdominal tenderness was the most common sign, present in 69.2% of cases which is similar to the

study done by Shailesh C et al<sup>14</sup> where it was present in 56% of cases, while in Egleston FC et al series<sup>15</sup> it was present in 28% of cases. Abdominal distension was the second most common finding in the present study, it being present in 62% of cases, while it was present in 41% cases in Egleston FC et al series<sup>15</sup>; distension was present in 48% cases in Shailesh C et al<sup>14</sup> study. Mass per abdomen in the present study was present in 12.82% of cases compared to 26% in study of Shailesh C et al<sup>14</sup> while it was present in 14% of cases in Egleston FC et al series.<sup>15</sup> Other findings like hyperperistaltic bowel sounds, rigidity, guarding, mass in RIF were 17.95%, 38.46%, 33.34% and 5.13% respectively in this study which are comparable to the 14%, 15%, 15% and 10% in Egleston FC et al<sup>15</sup> series and 18%, 14%, 14% and 2% in Shailesh C et al<sup>14</sup> series.

### Diagnosis

Diagnosis is difficult because of vague symptoms and signs with no pathognomonic investigations. Das and Shukla working in an endemic area reported that diagnosis was made only in 50% of cases.<sup>17</sup> Egleston FC et al<sup>15</sup> reported that preoperative diagnosis was made in 69% of the cases. In the study by Shailesh C et al,<sup>14</sup> correct preoperative diagnosis was made in 60% of cases. In the present study, correct preoperative diagnosis was made in 54% of cases. Diagnosis was more often correct in subacute intestinal obstruction or mass per abdomen than in acute obstruction or atypical presentation.

### Morbidity and Mortality

In the present study, operative morbidity was 20%, most common complication being wound infection (15%). Wound infection is common (Pujari, 1979).<sup>18</sup> Egleston FC et al<sup>15</sup> reported a morbidity of 36%, while MB Islam et al<sup>16</sup> reported a morbidity of 8%. Mortality in the present study was 2.56% as compared to the Shailesh C et al<sup>14</sup> series where it was 8%. MB Islam et al<sup>16</sup> reported mortality lower than the present study, no cases died in their study. In Egleston FC et al<sup>15</sup> series, it was 3% in elective surgery and 18% in emergency, while Bhansali SK<sup>13</sup> reported it as 2% and 24% respectively. Followup with 6-12 months of antitubercular treatment gave excellent results in all patients after surgery in our study.

### Operative Management

When surgery is done, it must suit the pathological findings (Pujari, 1979).<sup>18</sup> Limited resection of an ileocaecal mass can be done rather than the classical hemicolectomy because extensive resection of bowel can lead to malabsorption (Prakash et al, 1975).<sup>5</sup> Strictures can be treated by stricturoplasty (Katariya et al, 1977)<sup>19</sup> and can be done even in emergency. Perforations are handled by resection rather than over sewing. In the present study of 78 cases, the approach to surgery was conservative. 40 cases underwent surgery of which 30% underwent limited resection and 5% underwent right hemicolectomy. As compared to the present study, in Egleston FC et al series<sup>15</sup> 18% of the cases underwent limited resection, while in MB Islam et al series<sup>16</sup> only 10% underwent limited resection. In Egleston FC et al series<sup>15</sup> and MB Islam et al series,<sup>16</sup> 12% and 63.3% respectively underwent right hemicolectomy. Stricturoplasty was not done in any patient in present series, while it was done in 36% cases in Egleston FC et al series,<sup>15</sup> while only 3.3% patients underwent the same

procedure in MB Islam et al series.<sup>16</sup> Only ileotransverse bypass was done in 20% cases in the present series, while it was done for 18% cases in Egleston FC et al series<sup>15</sup> and 16.6% cases in MB Islam et al series.<sup>17</sup> Bhansali SK<sup>13</sup> even suggested that bypass patient should be subjected to a secondary excisional procedure when conditions are favourable.

### CONCLUSIONS

**A Study was done on 78 Cases. The following Conclusions were Drawn from the Study**

1. The signs and symptoms of intestinal tuberculosis are nonspecific, and there are no unequivocal diagnostic features either clinically or radiologically. The most common presenting complaint was abdominal pain (92%) and the most common sign was abdominal tenderness (69.2%). As a result, laparotomy and histopathological examination were frequently necessary to establish confirmatory diagnosis.
2. Most common age group was the 3<sup>rd</sup> decade of life contributing 35.89% of the total sample size.
3. Diagnosis of abdominal tuberculosis is difficult in absence of active pulmonary disease. In present study, eight patients had active pulmonary disease and the accuracy of diagnosis was 60%. The most common mode of presentation was subacute intestinal obstruction (44%). Diagnosis was more difficult in cases of emergency laparotomy. The nature of the obstruction may go unrecognised, particularly in patients having acute symptoms, or caecal masses may be thought to be malignant.
4. The most common sites involved were small intestine and ileocaecal region, in 71.8% of cases.
5. 48.7% patients were managed non-operatively and 51.3% patients were managed operatively. First-line antitubercular drugs were given to all patients for 6-12 months period.
6. The approach to surgery should be conservative, with the aim of saving maximum bowel length, so limited resection was performed in 30% operative cases in the present study which is second to adhesiolysis (35%), while only 5% cases underwent right hemicolectomy.
7. All patients with abdominal tuberculosis responded well to antitubercular treatment (ATT), so all patients should be started on 6 months to 12 months of ATT postoperatively.

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