
ORIGINAL ARTICLE**Prospective study of emergency presentation of abdominal tuberculosis***Akhilesh R. Mishra¹, Dipak D. Thorat² and V. M. Deshmukh³**Lokmanya Tilak Municipal Medical College and Hospital, Sion Mumbai*

Abstract:**Background:**

In developing countries like India, where poverty, malnutrition and overcrowding prevail, tuberculosis continues to be one of the important causes of morbidity, mortality and loss of working man hours. Abdominal tuberculosis (TB) can affect the gastrointestinal tract, the peritoneum, lymph nodes of the small bowel mesentery or the solid viscera (e.g. liver, spleen, pancreas etc) Patient of abdominal Koch's can present as those with a chronic undulating course and those with an acute or subacute abdominal catastrophe. In emergency the patient may present with various presentations like stricture causing obstruction or with perforation and require a different management from those routine such cases

Aim and Objective:

To study the varied presentation of patients with Abdominal Tuberculosis as acute surgical abdomen presenting in emergency setting to those with a subacute course.

To evaluate the line of management whether operative or conservative, the operative

details, post operative course and the final outcome of the disease.

To study the incidence of HIV positivity in patients with abdominal tuberculosis.

Methods and material:

The study was designed as a prospective observational study conducted during a study period between June 2006 and June 2008 in a tertiary care centre in Mumbai. All patients with a clinical suspicion of abdominal tuberculosis were included in the study with confirmation on histopathological examination. Patient's written informed valid consent was taken after explaining the nature of study.

Result and Conclusion:

Age group commonly affected was between 21-30 years with male predominance. Amongst the various complications of abdominal tuberculosis intestinal obstruction was the most common mainly due to stricture and less commonly due to hyperplastic ileocaecal mass. Next common complication observed was free perforation of the intestine which occurs at a site proximal to a tight stricture. All patients were subjected to

operative intervention with local resection and anastomosis being the most preferred surgery performed. Terminal ileum and ileocaecal region was the most common site involved. The incidence of HIV positivity was 11 per cent. The incidence of mortality was 11 per cent. Sepsis was the main cause of mortality in all the cases. Duration of stay ranged from 2 to 60 days. A prolonged stay was seen in patients who developed post operative complications.

Keywords:

Intestinal, Tuberculosis, Emergency

Introduction:

Tuberculosis is one of the major public health problems in developing countries of the world in the present era. It has made its impact felt through ages. No other disease has so much social, economical and health significance.

In advanced countries, the incidence of tuberculosis had started to recede in the past century with the advent of excellent chemotherapeutic agents but is making its presence felt again with the upsurge of HIV-AIDS pandemic. In developing countries like India, where poverty, malnutrition and overcrowding prevail, tuberculosis continues to be one of the important causes of morbidity, mortality and loss of working man hours.

Abdominal tuberculosis (TB) can affect the gastrointestinal tract, the peritoneum, lymph nodes of the small bowel

mesentery or the solid viscera (e.g. liver, spleen, pancreas etc)

The gastrointestinal tract is involved in 66-75% of patients with abdominal tuberculosis; the terminal ileum and the ileocaecal region are the most common sites, followed by the jejunum and colon. Multiple sites are common, and most patients with gastrointestinal lesions also have peritoneum and lymph node involvement; multiple lesions often occur.

Primary lesions are often due to ingestion of milk from infected cattle. Because of the common practice of boiling milk before drinking, in India, the incidence of primary intestinal tuberculosis was less. But over the past decade, the incidence of abdominal tuberculosis presenting with complications has been observed to have increased.

Intestinal tuberculosis is known to be an extremely chronic disease process causing chronic obstruction so that symptoms are never significant. Hence, patients often neglect their symptoms or are misdiagnosed. The chronic obstruction eventually culminates in a variety of complications.

The advent and upsurge of HIV and AIDS in the past two decades has contributed a great deal in providing a more fulminant course to the disease. The increasing incidence of multi drug resistant tuberculosis has further amplified the problem. This has also resulted in putting a tremendous strain on health

resources of our country which aims to provide treatment free of cost to the community. Since the treatment of tuberculosis runs a long and protracted course, compliance of patients and a timely follow up remains a formidable challenge. All these have resulted in significantly increased morbidity of the disease in modern era.

In emergency the patient may present with various presentations like stricture causing obstruction or with perforation and require a different management from those routine such cases

The following is a study of serial 45 cases of abdominal tuberculosis which were admitted and treated in surgical wards of a general tertiary care hospital attached to a medical college in Mumbai.

Materials and Methods:

The study was designed as a prospective observational study conducted during a study period between June 2006 and June 2008 at Lokmanya Tilak Municipal Medical and hospital Sion Mumbai. All patients with a clinical suspicion of abdominal tuberculosis were included in the study with confirmation on histopathological examination. Patient's written informed valid consent was taken after explaining the nature of study.

Inclusion criteria:

All cases of acute abdomen who presented in casualty suspected abdominal tuberculosis between age group of 13 to 60 yrs irrespective of gender.

Exclusion criteria:

Histopathology negative for tuberculosis and patient with Genito-urinary tuberculosis

Study design:

A Prospective study

Detailed history of the patient was recorded with emphasis on following points:

1. Duration of abdominal symptoms and their nature.
2. Past, present or family history of tuberculosis.
3. History of ingestion of anti tubercular therapy: category, duration.
4. History of low grade fever.
5. History of loss of weight and appetite.

Patients were subjected to a thorough physical examination taking into account the following parameters:

I) General Examination:-

- a) Built
- b) Nutritional status
- c) Pallor
- d) Pulse
- e) Blood pressure

II) Per Abdomen examination:-

- a) Signs of peritonitis: rebound tenderness, guarding, rigidity, distension
- b) Visible peristalsis

- c) Palpable lump
- d) Ascitis
- Haematological and Biochemical investigations were done with special attention to haemoglobin and serum albumin levels.
- HIV ELISA was done for all patients after appropriate pre test counselling.
- X-ray chest was done routinely for all patients to detect any active or old healed lesion of pulmonary tuberculosis.
- X-ray Abdomen in standing position was also done for each patient and the following points were noted
 - a) Presence of fluid levels and their number
 - b) Distended loops
 - c) Gas under diaphragm
 - d) Presence of colonic gas shadow

Special investigation like USG and CT were done in selected patients who presented with diagnostic dilemma.

Operative details were recorded which included intra operative findings and the type of procedure performed.

Post operative complications, if any were also noted.

Patients were examined at regular intervals after surgery to assess their general condition, nutritional status, to watch for

complications of anti tubercular therapy, if any.

All the above data was recorded in a specified case record proforma given at the end and analysed at the end of study period.

Discussion:

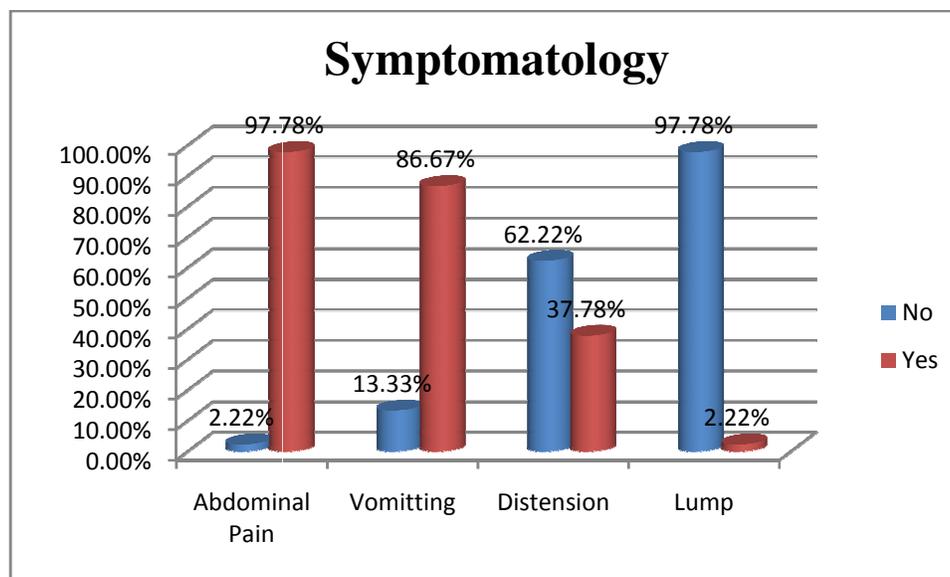
The incidence of intestinal tuberculosis is highest among young adults in the third decade of life, according to Banerjee and Chuttani which corroborates with this study in which the incidence between age of 21-30 years has found to be 46 %

The mean age in this series was found to be 29 years. Haddad⁽¹⁾ et al found the average age of presentation of patients of abdominal tuberculosis to be around 26 years amongst Indians whereas it was 46 years for rest of the world. According to them it may be due to high prevalence and earlier recognition of the disease in the Indian subcontinent.

A higher incidence is seen in male patients with a male: female ratio of 1.77:1. Various studies by several authors, Anand⁽²⁾, Banerjee, have quoted a female predominance with a male to female ratio of 1.3:12 and 1:9 which is not conformity with this study. This discrepancy may be due to the fact that patients with tuberculosis of genital tract who present to gynaecologists have not been a part of the study.

In this series the commonest complaint which brought the patient to the hospital was abdominal pain seen in 98 % of

the patients which compared well with the findings of Anand⁽²⁾ (1956) 100%, Bhansali⁽³⁾ (1968) 100% and Prakash⁴(1978) 96.77%.



A rather rare finding in this series has been the presence of right iliac fossa lump with a incidence of only 4 %. Anand⁽²⁾ and Prakash⁽⁵⁾ have described a 64 % incidence of right iliac fossa lump.

The commonest site of involvement is terminal ileum as seen in 68 % of cases. This has been supported by studies of Tandon⁽²⁾, Bhansali⁽⁴⁾, Prakash⁽³⁾, possibly because of physiologic stasis and abundance of lymphoid tissue in this region.

Anaemia (haemoglobin <10 %) was seen in 22 % patients which was low in comparison to study conducted by Sharma⁽⁵⁾ et al where all his cases were reported to have anaemia.

Hypoalbuminemia i.e, serum albumin <3.5 g% was present in 78 % cases.

Hypoalbuminemia was a prominent feature in patients who developed post operative complications.

In our study x-ray features suggestive of pulmonary tuberculosis either healed or active were seen only in 16 % of cases. Evidence of pulmonary tuberculosis on x-ray chest included pulmonary infiltration, hilar lymphadenopathy, cavitary lesions and miliary mottling.

Sharma^(6,7) et al studied 70 cases of abdominal tuberculosis and found evidence of active or healed lesions on chest X-ray in 22 (46%). X-rays were more likely to be positive in patients with acute complications (80%). In Prakash's^(4, 5) series of 300 patients, none had active pulmonary tuberculosis but 39 per cent had evidence of healed tuberculosis. Tandon⁽⁸⁾

et al found chest X-ray to be positive in only 25 per cent of their patients. Hence, about 75 per cent cases do not have evidence of concomitant pulmonary disease.

Rendel and Richard stated that plain X-ray abdomen in an erect posture gives a good clue to the level of intestinal obstruction. Fluid and gas accumulates in the bowel above the site of obstruction and are trapped in a number of bowel loops. In erect posture gas settles on top of fluid giving a 'step ladder pattern'.

Number of fluid levels, their location, presence of gas in the ascending colon, mucosal pattern of the intestine above the fluid level gives an idea about the site of obstruction. This was seen in 28 % patients. 46 % patients had evidence of free gas under diaphragm.

Acute presentation of the disease accounted for 72 % of cases. The incidence of obstruction is 64 % followed by perforation in 44 % of patients.

Anand⁽²⁾(1956), Ohri and Agrawal(1964) reported the incidence of obstruction ranging from 12.5% to 60%. Bhansali⁽³⁾ quotes an incidence of 30%.

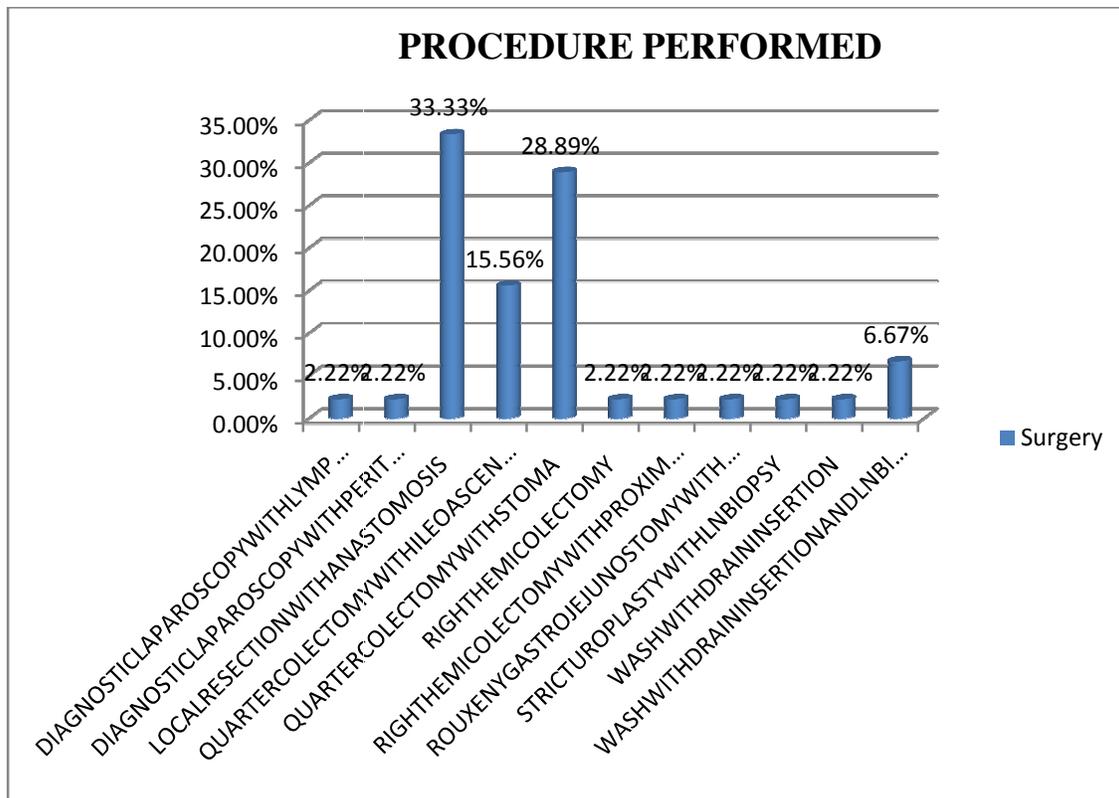
The incidence of perforation quoted by Bhansali⁷ (1968) is about 22%.

Banerjee(1950), Ahmad (1962), Ohri and Agrawal(1964) also quote a lower percentage. Thus, according to literature obstruction is the most common complication followed by perforation. The present study corroborates this fact.

Mesenteric lymphadenopathy was seen in 20 % of patients. Certain rare complications like enlarged lymph node at root of mesentery causing duodenal obstruction and formation of gastropancreatic fistula secondary to pancreatic tuberculosis were also seen in this series.

The type of surgery performed was dependent on intra operative findings. Local resection of stricturous segment followed by primary anastomosis was the most common surgery done in 50 % patients. Cases where perforation was situated close to ileocaecal junction, a more extensive resection in the form of quartercolectomy was required.

Stricuroplasty is a well documented modality in various studies {Katariya et al (1977), Eggleston (1983)}⁽⁹⁾. However, in present series most of patients were subjected to resection anastomosis as they were tight strictures. Stricuroplasty was done only in 2 % patients.

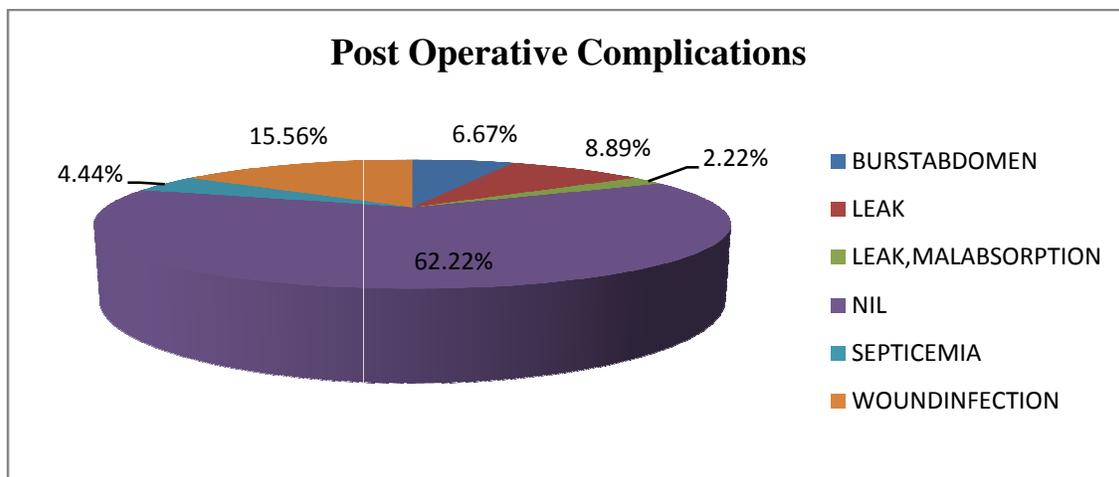


About 14% of patients were subjected to diagnostic laparoscopy with either lymph node or peritoneal tubercle biopsy.

A positive histopathological report was obtained in 100 % patients.

Wound infection was a common complication seen in 20 % cases of which 14% patients had

superficial infection and complete wound dehiscence was seen in 6 % patients which in corroboration with a study conducted by Khan et al in which the incidence of wound infection has been reported as 24 %.



Anastomotic leak with resultant faecal fistula was seen in 10 % patients.

A high incidence of malabsorption was seen in studies conducted by Tandon⁽¹⁰⁾ et al (ranging from 40 % to 75 %) and Pimparkar and Dhonde⁽²⁾. The present study does not confirm to this observation where the incidence of malabsorption is very low i.e 2 %.

Pimparkar and Donde⁽¹¹⁾ studied 40 patients with malabsorption and divided them into those with and without bowel stricture. They performed glucose and lactose tolerance tests, d-xylose test, faecal fat and schillings test for B12 malabsorption and found them to be abnormal in 28, 22, 57, 60 and 63 per cent respectively in patients with stricture compared to 0, 0, 8, 25 and 30 per cent respectively without strictures.

Tandon^(12,13) *et al* also reported biochemical evidence of malabsorption in 75 per cent of patients with intestinal obstruction and in 40 per cent of those without it. The cause of malabsorption in intestinal tuberculosis is postulated to be bacterial overgrowth in a stagnant loop, bile salt deconjugation, diminished absorptive surface due to ulceration, and involvement of lymphatics and lymph nodes.

The present study has comparatively lower mortality of 10 % of which 4 % were during the immediate post operative period due to fulminant septicaemia. Mortality

reported by Bhansali⁽³⁾(1978) was 24 % and Eggleston and Madhu was 18 %.⁽¹⁴⁾ Since the mortality was low it was not possible to apply methods of statistical significance to analyse factors causing mortality.

A new dimension has been added to the problem of tuberculosis due to the emergence of HIV infection. In the present series 5 (10 %) cases tested positive for HIV by ELISA technique. In a study from Mumbai conducted by P M Rathi, Amrapurkar⁽¹⁵⁾ et al the seroprevalance was found to be 16.6 % in patient with abdominal tuberculosis.

References:

1. Haddad FS, Ghossian A, Sawaya LE, Nelson AR. Abdominal Tuberculosis. *Dis Colon Rectum* 1987; 30: 724-3511.
2. Anand BS. Distinguishing Crohns disease from intestinal tuberculosis. *Natl Med J India* 1989; 2 : 170-5. 10.
3. Bhansali SK. Abdominal tuberculosis. Experiences with 300 cases. *Am J Gastroenterol* 1977; 67 : 324-37.
4. Prakash A. Ulcero-constrictive tuberculosis of the bowel. *Int Surg* 1978; 63 : 23-9.
5. Tandon HD, Prakash A. Pathology of intestinal tuberculosis and its distinction from Crohn's disease. *Gut* 1972; 13 : 260-9.
6. Shah P, Ramakanlan R. Role of vasculitis in the natural history of abdominal tuberculosis - evaluation by mesenteric angiography. *Indian J Gastroenterol* 1991; 10 : 127-30.

7. Vij JC, Malhotra V, Choudhary V, Jain NK, Prasaed G, Choudhary A, et al. A clinicopathological study of abdominal tuberculosis. *Indian J Tuberc* 1992; 39 : 213-20.
8. Tandon RK, Sarin SK, Bose SL, Berry M, Tandon BN. A clinico-radiological reappraisal of intestinal tuberculosis – changing profile? *Gastroenterol Jpn* 1986; 21 : 17-22.
9. Gill SS, Eggleston FC. Acute intestinal obstruction. *Arch Surg* 1965; 91 : 589-91.
10. Tandon RK, Bansal R, Kapur BML, Shrinivas. A study of malabsorption in intestinal tuberculosis : stagnant loop syndrome. *Am J Clin Nutr* 1980; 33 : 244-50.
11. Pimparkar BD. Abdominal tuberculosis. *J Assoc Physicians India* 1977; 25 : 801-11.
12. Kapoor VK. Abdominal tuberculosis. *Postgrad Med J* 1998; 74 : 459-6.
13. Dorairajan LN, Gupta S, Deo SV, Chumber S, Sharma L. Peritonitis in India – a decade's experience. *Trop Gastroenterol* 1995; 16 : 33-8.
14. Bhargava DK, Shrinivas, Chopra P, Nijhawan S, Dasarathy S, Kushvvaha AK. Peritoneal tuberculosis: laparoscopic patterns and its diagnostic accuracy. *Am J Gastroenterol* 1992; 87 : 109-12.
15. Rathi PM, Amarapurakar DN, Parikh SS, Joshi J, Koppikar GV, Amarapurkar AD, et al. Impact of human immunodeficiency virus infection on abdominal tuberculosis in western India. *J Clin Gastroenterol* 1997; 24 : 43-8.

Address for correspondence:

Dr. Dipak D Thorat,
Department of General Surgery,
Lokmanya Tilak Municipal Medical College and Hospital,
Sion, Mumbai, India
Email: deepakdthorat@gmail.com