

Clinico-Pathological Profile and Treatment of Abdominal Tuberculosis- A One Year Experience in Rohilkhand Region

Shailendra Kaushik*, Alok Ranjan**, Sharad Seth***, S.M Sharma ****

* Junior Resident 3rd Year, ** Assistant Professor, *** Professor, Pg Deptt of Surgery, Rohilkhand Medical College and Hospital, Bareilly.

Abstract: Introduction: The World Health Organization aimed to dramatically reduce the global burden of tuberculosis by 2015 by ensuring that all tuberculosis patients benefited from universal access to high-quality diagnosis and patient-centered treatment. India accounts for 26% of all tuberculosis cases reported globally, and hence represent the largest affected population group in any country. Aim & Objective: To studies the clinical pattern of abdominal tuberculosis, diagnostic methods and various modalities of treatment of abdominal tuberculosis. Methods: A prospective study which includes clinically suspected case of abdominal tuberculosis during one year study period from November 2015 to October 2016. The data was analyzed using Statistical Package for Social Sciences, version 22.0. Chi-square test, unpaired sample 't'-test and ANOVA was used to compare the data. A "p" value less than 0.05 was considered to be statistically significant. Conclusion: Most patients could be managed conservatively and full compliance of anti-tubercular treatment led to complete cure and few relapses in our short follow up. [Shailendra K NJIRM 2017; 8(3):30-35]

Key Words: Abdominal Tuberculosis, Anti Tubercular Drug, Perforation.

Author for correspondence: Shailendra Kaushik, S/O Shri. L.R. Kaushik, 205, Vivekanand Gram Phase-1, P.O. - I.I.P. (Mohkampur), Dehradun 248005, Uttarakhand E-Mail: docshelly41@gmail.com M: 7579080625

Introduction: The World Health Organization (WHO) aimed to dramatically reduce the global burden of tuberculosis by 2015 by ensuring that all tuberculosis patients benefited from universal access to high-quality diagnosis and patient-centered treatment.¹ However, this seems to be a far reaching goal considering the fact that the deadlines fixed for eradication of tuberculosis and proposals in its marked reduction over the years have not been met several times during the last few decades. According to Global Tuberculosis Report (2014) in 2013 an estimated 9.0 million people developed tuberculosis and 1.5 million died from the disease.² Ninety-two percent of the cases occur in low and middle-income countries.³ India accounts for 26% of all tuberculosis cases reported globally⁴, and hence represent the largest affected population group in any country. The magnitude of the problem can be gauged by the fact that in 2011, out of the estimated global annual incidence of 9 million tuberculosis cases, nearly 2.3 million were estimated to have occurred in India.⁵

Interestingly, although tuberculosis affects both pulmonary as well as extra-pulmonary regions, it is the pulmonary tuberculosis that remains the mainstay of the diagnostic and controlling maneuvers and hence extra-pulmonary tuberculosis remains a less commonly attended part of tuberculosis diagnostic and management strategies.

Extra-pulmonary tuberculosis involves 11-16% of all patients of tuberculosis out of which 3 to 4% have

involvement of gastrointestinal system.⁶ Abdominal tuberculosis refers to tuberculosis of the gastrointestinal tract, peritoneum, omentum, mesentery and its lymph nodes and other abdominal organs such as liver, spleen and pancreas.⁷ it can have a varied presentation, frequently mimicking other common and rare diseases.⁸

In view of the vague and diverse nature of clinical profile, the diagnosis of abdominal tuberculosis in initial stages is difficult; moreover, there are no specific diagnostic tests for the same.^{9,10,11} In the absence of pulmonary infection, for which standardized diagnostic techniques are available, the diagnosis of abdominal tuberculosis is a challenging task.^{9,10} Robust criteria for evaluation and diagnosis of abdominal tuberculosis based on clinical features and simple pathological findings need to be established for early diagnosis and screening of the vulnerable population. The present study was undertaken to document the clinico-pathological profile, diagnostic dilemmas and management of abdominal tuberculosis in Rohilkhand region and to document changes that may have occurred over time in the presentation and treatment of this disease.

Aim & Objectives: The aim of present study was to study the clinico-pathological profile of patients with abdominal tuberculosis with keeping in mind objectives like

1. To study the clinical pattern of abdominal tuberculosis in Rohilkhand region.

2. To review the diagnostic methods in abdominal tuberculosis. 3. To study the various modalities of treatment of abdominal tuberculosis.

Methods: The present study was carried out at Rohilkhand Medical College and Hospital, Bareilly. The hospital caters to the population from Bareilly and adjoining areas including the neighboring state of Uttarakhand. This is prospective study which includes clinically suspected case of abdominal tuberculosis. The Period of Study includes one year starting from November 2015 to October 2016 and due permission was taken from the hospital ethical committee to carry out this study.

The Inclusion Criteria includes patient Presenting with clinical features of abdominal tuberculosis i.e. fever, malaise, weight loss, anorexia, diarrhea, abdominal pain/distension, mass, lymphadenopathy. The exclusion Criteria includes patients with genitourinary tuberculosis and non-consenting patients. The subjects were enrolled after taking a written and informed consent. Demographic profile of the patients was noted. All the patients were evaluated with a meticulous history, physical examination and will be investigated by complete blood counts including hemoglobin, total leukocyte count, differential leukocyte count, erythrocyte sedimentation rate, liver function tests, serum creatinine, Mantoux test, chest X-ray PA view, abdominal X-ray AP view and abdominal ultrasonography. Investigations such as barium contrast studies, upper GI endoscopy, colonoscopic study, abdominal laparoscopy, ascitic fluid study, polymerase chain reaction, and enzyme linked immune-sorbent assay and computed tomography scan were carried out in select patients as per requirement, organ involvement and mode of presentation.

All the patients with abdominal tuberculosis were given anti-tubercular therapy for a minimum of 6 months and surgery was done in patients with complications. The data was analyzed using Statistical Package for Social Sciences, version 22.0. Chi-square test, unpaired sample 't'-test and ANOVA was used to compare the data. A "p" value less than 0.05 was considered to be statistically significant.

Results & Observations: The present study was conducted in the Post-Graduate Department of Surgery, Rohilkhand Medical College and Hospital

Bareilly to study the clinical pattern of abdominal tuberculosis amongst patients reporting to the same and to review the diagnostic methods and treatment modalities of abdominal tuberculosis. A total of 40 patients suspected of abdominal tuberculosis attending this institution for treatment were included in this study.

Table 1: Age and sex distribution of study population

Age Group	Females (n = 17)		Males (n = 23)	
	No.	%	No.	%
Upto 20 years	1	5.88	7	30.43
21-30 years	6	35.29	5	21.74
31- 40 years	4	23.53	7	30.43
41-50 years	3	17.65	1	4.35
51-60 years	2	11.76	1	4.35
61-70 years	1	5.88	2	8.70

$\chi^2 = 6.318$; $p = 0.277$ is non-significant

Out of 40 patients included in the study, 17 (42.5%) were females and rest 23 (57.5%) were males. Proportion of males was higher in age group up to 20 years, 31-40 years and 61-70 years while proportion of females was higher in 21-30 years, 41-50 years and 51-60 years but this difference was not found to be statistically significant ($p=0.277$).

Table 2: Presenting Symptoms of the Study Population

Symptoms	No. of cases (n=40)	(%)
Abdominal pain	39	97.50
Appetite loss	31	77.50
Alteration in bowel habits	23	57.50
Fever	21	52.50
Weight loss	20	50.00
Inability to pass flatus	18	45.00
Vomiting	17	42.50
Abdominal distention	9	22.50
Amenorrhoes / Oligo-menorrhoes	8	47.06
Mass in abdomen	4	10.00

The most common presenting symptom was abdominal pain (97.50%) followed by appetite loss (77.50%). Alteration in bowel habits (57.50%); fever (52.50%) and weight loss (50.00%) were present in a majority of the patients. Vomiting (42.50%), abdominal distension (22.50%), inability to pass flatus (45.00%), mass in abdomen were other presenting

features. Out of 17 females, 8 (47.06%) were suffering from amenorrhea/oligo-menorrhoea.

Table 3: Past History of Pulmonary Tuberculosis

	No. of cases	Percentage
History of PTB	8	20.00
No history of PTB	32	80.00

Out of 40 patients included in the study, 8 (20.00%) had history of pulmonary tuberculosis while 32 (80.00%) did not have any history of pulmonary tuberculosis.

Table 4: X-ray Abdomen erect view findings in Study Population

X-ray abdomen erect examination	No. of cases	%
Normal	6	15.00
Gas under diaphragm	8	20.00
Multiple air fluid level	11	27.50
Dilated bowel loop	15	37.50

No abnormality was detected in X-ray abdomen of 6 patients (15.00%). Most common finding was dilated bowel loops (37.50%) followed by multiple air fluid levels (27.50%) and gas under diaphragm (20.00%).

Table 5: USG Findings in Study Population

USG Examination	No. of cases	%
Ascites	6	15.00
Dilated bowel loops (DBL)	8	20.00
Dynamic intestinal obstruction (DIO)	7	17.50
Ascites + DBL	2	5.00
Ascites + DIO	3	7.50
Ileo-caecal mass	5	12.50
Sub acute intestinal obstruction (SAIO)	3	7.50
Pelvic mass	1	2.50
Thickened transverse colon	1	2.50
Thickened ileum and ascending colon	1	2.50
Thickened ileo-caecal region + mesenteric lymphadenopathy	1	2.50
POD collection communicating with umbilicus	1	2.50
Not done	1	2.50

Most common Ultrasonographic finding was dilated bowel loop (20.00%) followed by dynamic intestinal obstruction (17.50%) and ascites (15.00%).

Table 6: Special investigations done in study population

Special investigations	No. of cases (n=10)	(%)
Barium studies	3	30.00
Contrast enhanced computed tomography (CECT) whole abdomen	3	30.00
Diagnostic laparoscopy	2	20.00
Adenosine de aminase (ADA) in ascites	2	20.00

Barium meal test was performed in only 3 subjects. Irregular filling defects were found in 1 patient. Stricture was found in mid-transverse colon in 1 patient. Ileal and Ileo-caecal stricture was found in 1 patient. Diagnostic laparoscopy was done in only 2 patients. Findings suggested ascites in 1 patient and in another patient thickened ileum was found.

CT abdomen was done in 3 patients. Findings suggested dilated bowel loops with dynamic intestinal obstruction in 1 patient, Ileo-caecal mass with mesenteric lymph node was seen in 1 patient and thickened ileum, ascending colon and proximal-transverse colon in 1 patient.

Table 7: Treatment and Procedures in the study Population

Treatment and procedure	No. of cases (n = 40)	(%)
Conservative	23	57.50
Adhesiolysis	10	25.00
Ileostomy	4	10.00
Resection and anastomosis	3	7.50

Table 8: Histo-pathological findings in study population

Histo-pathological findings	No. of cases (n = 15)	(%)
Caseating granulomatous lesion	8	53.33
Non - Caseating granulomatous lesion	2	13.33
Chronic non- specific inflammatory pathology	3	20.00
Reactive hyperplasia of lymph node	1	6.67
Tubercular lymphadenitis	1	6.67

Histopathology of 15 patients was done. Eight specimens revealed caseating granulomatous lesions,

two were with non-caseating granulomatous lesion, and three were with chronic non-specific inflammatory pathology, one with reactive hyperplasia of lymph node and one showed tubercular lymphadenitis. Conservative management (57.50%) was most preferred modality, followed by lysis of adhesions (25.00%), ileostomy (10.00%) and resection and anastomosis was performed in (7.50%).

Discussion: Tuberculosis remains one of the major problems in the world. WHO estimates that each year 8 million new cases of tuberculosis occur and approximately 3 million people die from the disease (WHO 1996).¹² Abdominal tuberculosis is still prevalent in developing countries (Tandon and Prakash, 1972; Bhansali, 1977; Kapoor, 1998).^{13,14,15} There is confusion regarding the actual incidence of abdominal tuberculosis in such countries due to problems of actual reporting, difficulty in diagnosis, and inability to separate tuberculosis from Crohn's disease, which can closely resemble it in its clinical manifestations.

Abdominal tuberculosis was the cause of most cases of small intestinal obstruction and stricture. However, by the middle of the century all forms of tuberculosis had declined dramatically. This decline was caused by a number of factors, which included an increased standard of living, pasteurization of milk, control of bovine tuberculosis, and introduction of anti-tubercular treatment (O'Reilly and Daborn 1995).¹⁶ with the change in scenario, the pattern of clinical presentations of abdominal tuberculosis has also changed. The bovine form of the disease is almost non-existent (Daniel & Thomas, 1994).¹⁷

In the more developed nations, tuberculosis is often seen in the old, rather than the young, and more often at extra-pulmonary sites than lungs (Daniel & Thomas, 1994).¹⁷ The emergence of multi-drug resistant bacilli (Edlin et al., 1992)¹⁸ on the other hand, and the rapid spread of HIV-AIDS^{19,20} have posed newer threats and added a new dimension to the control of tuberculosis. In contrast, in developing countries like India, where pulmonary tuberculosis is still a major challenge yet to be tamed, chances of abdominal tuberculosis are quite high, however, these high chances often act as a predicament guiding the judgment of health professionals based on clinical presentation and initial investigations only resulting into a false positivity rate

misguiding the management of patient for other mimicking situations.⁸

Abdominal tuberculosis can affect an individual at any age and in general there is no particular difference in gender profile of patients. In present study we had a male to female ratio in favor of males, however, this gender difference could be indicative of population differences in gender or gender related difference in health seeking behavior. In present study, the most common presenting symptom was abdominal pain (97.50%) followed by appetite loss (77.50%), alteration in bowel habits (57.50%) and fever (52.50%) in a majority of patients. According to Lazarus the clinical presentation of abdominal TB may be acute or chronic. Patients often have fever (40–70%), weight loss (40–90%), abdominal pain (80–95%), abdominal distension, diarrhea (11–20%), and constipation. Fatigue, malaise, and anorexia are also seen.²¹

In present study, a total of 8 (20%) out of 20 patients had a history of tuberculosis. History of tuberculosis is not an essential feature yet it increases the risk of abdominal tuberculosis. There are few studies that report of a history of tuberculosis. Miah et al.²², in their study reported a history of tuberculosis in 5 out of 53 patients. In another study Saaq et al.²³, there were 9.87% patients with a history of tuberculosis. Thus X-ray chest finding to some extent provided a possible clue of tuberculosis as an etiology. Subsequently, abdominal X-ray provided more clues to establish a diagnosis of abdominal tuberculosis. In abdominal X-ray, three different types of anomalies were diagnosed in 34/40 (85%) patients. The most common finding was dilated bowel loops (37.50%) followed by multiple air fluid levels (27.50%) and gas under diaphragm (20.00%). USG findings were relatively more specific and revealed dilated bowel loop (20.00%) followed by dynamic intestinal obstruction (17.50%), ascites (15.00%) and colonic, ileo-caecal and mesenteric thickening (7.5%). Ultrasonography (USG) is beneficial in extra-intestinal (peritoneal, lymph nodes) tuberculosis.

The Ultrasound of abdomen may show a mass of matted loops of small bowel with thickened walls, rolled up or diseased omentum, and loculated ascites. Fine septae (complete or incomplete), echogenic debris (seen as fine strands and particulate matter) may be seen within tubercular ascites. In present study, specific investigations like barium studies (n=3),

CECT abdomen (n=3), diagnostic laparoscopy (n=2) and Adenosine deaminase (ADA) (n=2) were done in a total of ten patients. All these techniques are highly sensitive as well as highly specific techniques and provide a high level of accuracy in diagnosis of abdominal tuberculosis more so in screened population.⁷ Barium contrast studies are also useful for the diagnosis of intestinal tuberculosis. It has been documented that barium studies are useful in 75% patients with suspected intestinal tuberculosis.²⁴

Conservative treatment was given in twenty-three patients that includes four drug regimen i.e. rifampicin, isoniazid, pyrazinamide and ethambutol for a period of two months followed by rifampicin and isoniazid for next four months. Surgical treatment in the form of exploratory Laparotomy was performed in seventeen (42.5%) patients. On Laparotomy, adhesions (58.82%) was the most common laparotomy finding, followed by strictures with perforation (35.29%) and peritoneal tubercles on small bowel (5.88%). Khan et al. (2001)²⁵ in their study reported Laparotomy in all 29% patients with acute presentation.

As far as site of involvement was concerned, in present study ileo-caecal junction (42.50%) was the most common site of involvement followed by ileum (40%), appendix (7.50%), transverse colon (5%), jejunum (5%) and ascending colon (2.5%).

In the present study, a total of 23 (57.5%) patients could be managed conservatively whereas surgical intervention was needed in remaining 42.5% patients. Different surgical interventions included adhesiolysis (25%), ileostomy (10%) and resection and anastomosis (7.5%). In present study, out of 40 patients included in the assessment, only 25 (62.5%) completed full course of ATT without complications, a total of 7.5% were defaulters. A total of eight (20%) were lost to follow up and four (10%) underwent relapse. Lost to follow up and default are two main barriers in successful completion of anti-tubercular treatment in our environment.

The findings of present study thus provide a vivid spectrum of clinical, imaging and pathological profile of patients of abdominal tuberculosis and usefulness of individualized therapeutic management options. Although, lost to follow up and default rates were quite high in present study yet the fact that among all

those who did not default and completed the treatment, the recovery was excellent. Complications were also of mild to moderate order and were not life threatening.

Conclusion: Most patients could be managed conservatively and full compliance of anti-tubercular treatment led to complete cure and few relapses in our short follow up. Surgery was reserved for complications of the disease like intestinal obstruction, perforation of gut and also provided temporary evidence of the disease which was proved on histopathology. This coupled with a complete course of anti-tubercular treatment for six months resulted in 100% cure rate.

References:

1. Corbet EL, Watt CJ, Walker N, Maher D, Williams BG, et al. The growing burden of tuberculosis: global trends and interactions with the HIV epidemic. *Archives of Internal Medicine* 2003; 163(9): 1009–21.
2. World Health Organization (WHO). Global tuberculosis report 2014. World Health Organization, Geneva, Switzerland, 2014.
3. Lukoye D, Adatu F, Musisi K, Kasule GW, Were W, et al. Anti-Tuberculosis Drug Resistance among New and Previously Treated Sputum Smear-Positive Tuberculosis Patients in Uganda: Results of the First National Survey. *PLoS ONE* 2013; 8(8): e70763.
4. World Health Organization: WHO Report on Global Tuberculosis Control: Epidemiology, Strategy, Financing. Geneva: World Health Organization; 2011.
5. Government of India. TB India-2013. Revised National TB Control Programme, Annual Status Report. Central TB Division, Directorate General of Health Services, Ministry of Health and Family Welfare, Government of India. 2013.
6. Sharma SK, Mohan A. Extra-pulmonary tuberculosis. *Ind J Med Res* 2004;124:316-53
7. Chugh SN, Jain V. Abdominal Tuberculosis — Current Concepts in Diagnosis and Management. *APPI Medicine Update* 2007; pp. 600-608.
8. Sharma MP, Bhatia V. Abdominal tuberculosis. *Indian J Med Res* 2004; 120: 305-315.
9. Khan MR, Khan IR, Pal KNM: Diagnostic issues in Abdominal Tuberculosis. *J Pak Med Assoc.* 2001; 51: 138-140.

10. Shaikh MS, Dholia KR, Jalbani MA. Prevalence of intestinal tuberculosis in cases of acute abdomen. *Pakistan J Surg.* 2007, 23: 52-56.
11. Engin G, Balk E. Imaging findings of Intestinal Tuberculosis. *J Comput Assist Tomogr.* 2005, 29: 37-41.
12. World Health Organization. Groups at risk: WHO report on the tuberculosis epidemic. World Health Organization, Geneva, 1996.
13. Tandon HD, Prakash A. Pathology of intestinal tuberculosis and its distinction from crohn's disease. *Gut* 1972; 13:260–269
14. Bhansali SK. Abdominal tuberculosis: experience with 300 cases. *Am J Gastroenterol* 1977; 67: 324.
15. Kapoor VK. Abdominal tuberculosis. *Postgrad Med J* 1998; 74: 459.
16. O'Reilly L, Daborn C. The epidemiology of Mycobacterium bovis infections in animals and man: a review. *Tuberc Lung Dis* 1995; 76[Suppl 1]:1.
17. Daniel, Thomas M., Tuberculosis; In Harrison's Principles of Internal Medicine; 13th edition, Vol. I, New Delhi, McGraw-Hill Inc., 1994, 710.
18. Edlin BR, Tokars JI, Grieco MH, et al. An outbreak of multi-drug-resistant tuberculosis among hospitalized patients with the acquired immunodeficiency syndrome; *N. Engl. J. Med* 1992; 326: 1514.
19. Marshall JB. Tuberculosis of the Gastrointestinal Tract and Peritoneum. *The American Journal of Gastroenterology*; 1993; 88: 989.
20. Ahmed ME, Hassan MA. Abdominal tuberculosis; *Ann. R. Coll. Surg. Engl*, 1994; 76(2): 75.
21. Lazarus AA, Thilagar B. Abdominal Tuberculosis. *Dis Mon* 2007; 53:32-38.
22. Miah AR, Sharma YR, Rahman MT, Raihan A, Roy PK, Hasan M. Clinico-pathological profile of patients with abdominal tuberculosis. *J Nepal Health Res Counc.* 2011; 9(2):169-75.
23. Saaq M, Shah SA, Zubair M. Abdominal Tuberculosis: Epidemiologic profile and management experience of 233 cases. *JPMA* 2012; 62: 704-707.
24. Bhargava DK, Shrinivas, Chopra P. Peritoneal tuberculosis; laparoscopic pattern and its diagnostic accuracy. *Am J Gastroenterol* 1992; 87:109-12.
25. Khan MR, Khan TR, Pal KMI. Diagnostic Issues in Abdominal Tuberculosis. *JPMA* 2001; 51:138.

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