

# A study of 150 cases of intraperitoneal tuberculosis

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## Abstract

**Background:** Tuberculosis caused by *Mycobacterium tuberculosis* is a disease of great antiquity and for a long time it has maintained its evil reputation and being one of the greatest killer diseases of mankind. The symptom of intraperitoneal tuberculosis is generally vague and nonspecific. It may mimic any intra-abdominal disease and can challenge the diagnostic skills. Tuberculosis of the ileocecal region ranks first in the incidence among intestinal/intraperitoneal tuberculosis.

**Objective:** To know the various modes of presentation; different modalities of diagnosis with special reference to role of laparoscopes and treatment and prognosis in our setup, which helps in better management of these cases thus helping to improve prognosis.

**Materials and Methods:** This is a clinical study of 150 cases of intraperitoneal tuberculosis admitted to Civil Hospital, Ahmedabad in the year 2006–2009. This study included selection of patient with intraperitoneal tuberculosis on a prospective basis.

**Result:** Of 150 patients in our study, majority of the patients fall within the middle age group. Ascites and bowel disturbances are the most common symptoms. All patients were either given anti-Koch's treatment (AKT) only or given AKT along with the surgery (before or after). Majority of the patients who responded to AKT alone were those with pure ascitic forms of tuberculosis. Patients treated with primary surgery included those who presented in the emergency and with complications of surgery or with significant obstructive symptoms. Majority undergo the knife in the form of either right hemicolectomy/ileo-ascending anastomosis or resection and anastomosis of the small intestine for intestinal stricture. Mortalities were 12% in this study, most of the patients who died were coming late stage with septicemia, perforation, peritonitis and associated pneumonia, and respiratory failure.

**Conclusion:** Majority of the patients who required surgery were diagnosed as intraperitoneal tuberculosis primarily or after given primary AKT trial. All the patients must be given AKT full course as per directly observed treatment short-course under Revised National Tuberculosis Control program to cure the disease.

**KEY WORDS:** Intraperitoneal Koch's, different treatment strategies, results, complications

## Introduction

Intraperitoneal tuberculosis is defined as tuberculosis infection of the abdomen including gastrointestinal tract, peritoneum, omentum, and mesentery and its nodes. It is one of the most common forms of extrapulmonary tuberculosis.

Plain radiograph of abdomen and abdominal ultrasonography were the initial imaging investigations. Computed tomography (CT) scan, endoscopy, and barium studies were used as specialized imaging studies. Ascitic fluid examination and serological studies were of only supportive value.

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## Materials and Methods

This is a clinical study of 150 cases of intraperitoneal tuberculosis admitted to general surgery and gastrosurgery department of Civil Hospital, Ahmedabad, from May 2007 to June 2010. This study included selection of patient with intraperitoneal tuberculosis on a prospective basis.

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All the patient were diagnosed as intraperitoneal tuberculosis on the basis of detailed history and good physical examination, all investigations were carried out, including the routine basic investigation, that is, Hb%, total count, erythrocyte sedimentation rate, and special investigations, such as chest X-ray, abdominal X-ray, barium studies, abdominal ultrasound sonography, abdominal CT scan, and laparoscopy. Patients were treated with medicine as well as various surgical procedures.

Those patients who were intraperitoneal tuberculosis and confirmed by all modalities of investigations were included in this study. All the patients were operated and put on anti-Koch's treatment (AKT) accordingly with directly observed treatment short-course (DOTS) under Revised National Tuberculosis Control program (RNTCP) and patients were followed up regularly.

## Results

Of 150 patients in our study, majority (70%) fall within the age group of 21–60 years [Table 1]. There were 118 men and 32 women. Among the patients, 46% were laborers by occupations [Tables 2 and 3].

Ascites and bowel disturbances were the most common symptoms followed by pain, fever, weight loss, mass in abdomen, lymphadenopathy, vomiting, and organomegaly [Table 4].

In our study, we found that an ultrasound was carried out in each case of Koch's abdomen, whereas the newer techniques are still not as frequently used as elsewhere in particular laparoscopy [Table 5].

Of 150 patients, all were given either AKT only or AKT along with the surgery (before or after). Of 61 patients, only 10 responded and cured alone with AKT and 51 offered a surgery, who are on primary AKT trial. Primary surgery was carried out in 89 patients who were given AKT according to DOTS criteria afterward [Table 6].

### Treatment Modalities

The majority of the patients who responded to AKT alone were those with pure ascitic forms of tuberculosis.

The patients treated with surgery included those who presented in the emergency and with complications of surgery or with significant obstructive symptoms.

Majority of the patients who were electively operated after a few months trial of AKT where those the lesions did not resolve with treatment and thus resulted in incomplete symptom improvement.

Majority undergo the knife in the form of either right hemicolectomy/ileo-ascending anastomosis or resection and anastomosis of the small intestine for intestinal stricture.

Mortalities were 12% in this study, most of the patients who died were coming late stage with septicemia, perforation, peritonitis, and associated pneumonia and respiratory failure [Tables 7–9].

**Table 1:** Age distribution in patients with abdominal Koch's

Age group (years)	Number of patients	%
<20	21	14
21–40	51	34
41–60	54	36
61–80	22	14.66
>80	2	1.33

**Table 2:** Sex distribution in patient with abdominal Koch's

Sex	Number of patients	%
Male	118	78.66
Female	32	21.33

**Table 3:** Occupation among patients with abdominal Koch's

Occupation	Number of patients	%
Laborer	69	46
Student	23	15.33
Housewife	26	17.33
Others	32	21.33

**Table 4:** Symptom profile among patients with abdominal Koch's

Symptoms	Number of patients	Present study	FM Sanai
Pain/tenderness	93	62	64
Ascites/Abdominal distension	137	91.33	73
Weight loss	73	48.66	61
Fever	78	52	59
Bowel disturbances	142	94.66	33
Organomegaly	11	7.33	42
Others (vomiting, mass, lymphadenopathy, etc.)	102	68	—

**Table 5:** Associations in patients with abdominal Koch's

Association	Number of patients	%
Hypertension	52	34.66
Diabetes mellitus	5	3.33
HIV	4	2.66
Alcohol consumption	27	18
Tobacco consumption	66	44
Others	62	41.33

**Table 6:** Modalities used to diagnose abdominal Koch's

Investigation	Number of patients	%
Ultrasonography	150	100
CT scan	36	24
Contrast studies	33	22
Laparoscopy	49	32.66
Tissue or fluid diag	146	97.33
Others	50	33.33

**Table 7:** Primary mode of treatment

	AKT only	Primary surgery followed by AKT	Primary AKT trial on which surgery offered
Number of patients	10	89	51

AKT, anti-Koch's treatment

**Table 8:** Surgical procedure carried out in patients with abdominal Koch's

Modality	Patients	%
Hemicolectomy	44	31.42
Resection and anastomosis for strictures	40	28.57
Stomy followed by delayed closure	19	13.57
Adhesiolysis only	9	6.42
Primary closure of perforation	21	15
Strictureplasty	7	5

**Table 9:** Pre-op findings in patients operated of abdominal Koch's

Findings	Number of patients	%
Bands	30	20
Perforations	29	19.33
Ascites	112	74.66
Cocoon	5	3.33
Stricture	50	33.33

**Table 10:** Outcome analysis

Outcome	Number of patients	%
Expired	18	12
Fistulas and leaks	6	4
Cured	126	84

## Discussion

In our study, it was seen that a majority of the patients fall within the age group of 21–60 years, which was in accordance with the fact that tuberculosis is relatively less common in the age extremes. This could be attributed to the fact that the manifestations of the disease were due to the immune response of the host to the Bacilli and the fact that those at the extremes are either more immunotolerant or more immune deficient.

There was a majority in favor of the male sex in terms of incidence of abdominal Koch's in our study. This was against the general worldwide prevalence of a female majority in the ratio of 2:1 in the age group of 18–80 years. This could probably be due to a sampling error as hospital data were subject to biases (Berksonian bias).

Most of the patients were laborers. This supported the fact that Koch's is still rampant in the low socioeconomic classes due to lack of nutrition, health care, and overcrowding.

The percentage of abdominal tuberculosis who tested seropositive was far less than other national and international studies. This probably was due to the social stigma associated with PHLA (persons living with HIV AIDS), which results in such patients refraining to take medical care.

Those patients who presented with acute intestinal obstruction and perforation as well as those with stricture and hypertrophic forms of tuberculosis not responding to AKT were subjected to either emergency laparotomy while those who presented with subacute intestinal obstruction were subjected to initial bowel preparation and were followed up with laparotomy. The findings observed in this study included hypertrophic ileocecal lesion with or without ileal stricture, ileal perforation with ileal stricture. The surgical procedures performed included resection and anastomosis or strictureplasty. Either right hemicolectomy or limited ileocecal resection and ileo-ascending anastomosis for ileocecal mass.

## Conclusion

Intraperitoneal tuberculosis is still common in low socio-economic classes due to lack of nutrition, health care, and overcrowding. Early diagnosis with the different investigations and imaging studies are required to avoid mortality. Majority of the patients required surgery in form of hemicolectomy, resection and anastomosis for strictures and adhesiolysis, closure of perforations, strictureplasty, and stomy followed by delayed closure. The most common preoperative findings in patients operated are ascites, bands, adhesions, perforations, strictures, mass, and cocoon. The full course of medicine in the form of AKT as DOTS criteria under RNTCP is must for cure of disease.

## References

- Sahoo SP, Sukla HS. Abdominal tuberculosis. In: *Tuberculosis*, Sharma SK, Mohan A (Eds.). New Delhi, India: Jaypee Brothers, 2004. pp. 187–98.
- Khan MR, Khan IR, Pal KM. Diagnostic issues in abdominal tuberculosis. *J Pak Med Assoc* 2001;51(4):138–42.
- JIMA- volume 101: Number 83-Mach 2003 ISSN00195842-136
- Eaders M, Zuber MA, Venzke T, Kohler M, Zeitz M, Duchmann R. [Abdominal tuberculosis: a rare differential diagnosis of pancreatic carcinoma.] *Dtsch Med Wochenschr* 2001;126(13):360–3.
- Moatter T, Mirza S, Siddiqui MS, Soomro IN. Detection of mycobacterium tuberculosis in paraffin embedded intestinal tissue specimen by polymerase chain reaction characterization of IS6110 element negative strains. *J Pak Med Assoc* 1998; 48(6):174–8.
- Suri R, Gupta S, Singh K, Suri S. Ultrasound guided fine needle aspiration cytology in abdominal tuberculosis, *Br J Radiol* 1998; 71(847):723–7.
- Aston NO, de Costa AM. Tuberculous perforation of the small bowel. *Postgrad Med J* 1985;61(713):251–2.
- Chen YM, Lee PY, Perng RP. Abdominal tuberculosis in Taiwan: a report from Veterans' General Hospital, Taipei. *Tuber Lung Dis* 1995;76(1):35–8.

9. Veeragandham RS, Lynch FP, Canty TG, Collins DL, Danker WM. Abdominal tuberculosis in children: review of 26 cases. *J Pediatr Surg* 1996;31(1):170–6.
10. Kuwajerwala NK, Bapat RD, Joshi AS. Mesenteric vasculopathy in intestinal tuberculosis. *Indian J Gastroenterol* 1997;16(4):134–6.
11. Wang HS, Chen WS, Su WJ, Lin TC, Jiang JK. The changing pattern of intestinal tuberculosis: 30 years' experience. *Int J Tuberc Lung Dis* 1998;2(7):569–74.
12. Horvath KD, Whelan RL. Intestinal tuberculosis: return of an old diseases. *Am J Gastroenterol* 1998;93(5):692–6.
13. Snell RS. *Grants Anatomy*. M.D. Phd. 1990. pp. 69–75.
14. Sinnatamby CS. *Last's Anatomy: Regional and Applied*, 10th edn. New York: Churchill Livingstone 2000. pp. 246–52.
15. Marshall JB. Tuberculosis of the gastrointestinal tract and peritoneum. *Am J Gastroenterol* 1993;88(7):989–99.
16. Rangabashyam N. Abdominal tuberculosis. In: *Oxford Textbook of Surgery*, Morris PJ, Wood WC (Eds.). Oxford University Press, 1994. pp. 2484–92.
17. Mann CV, Russel RCG, Williams NS (Eds.). *Bailey and Love's Short Practice of Surgery*. London, UK: English Language Book Society, 1995.
18. Sochocky S. Tuberculous peritonitis: a review of 100 cases. *Am Rev Respir Dis* 1967;95(3):398–401.
19. Singh MM, Bhargava AN, Jain KP. Tuberculosis peritonitis: an evaluation of pathogenetic mechanisms, diagnostic procedures and therapeutic measures. *N Engl J Med* 1969;281(20):1091–4.
20. Dineen P, Homan P, Grafe WR. Tuberculous peritonitis: 43 years' experience in diagnosis and treatment. *Ann Surg* 1976;184(6):717–22.
21. Manohar A, Simjee AE, Haffejee AA, Pettengell KE. Symptoms and investigative findings in 145 patients with tuberculous peritonitis diagnosed by peritoneoscopy and biopsy over a five year period. *Gut* 1990;31(10):1130–2.
22. Bhargava DK, Shrinivas, Chopra P, Nijhawan S, Dasarathy S, Kushwaha AK. Peritoneal tuberculosis: laparoscopic patterns and its diagnostic accuracy. *Am J Gastroenterol* 1992;87(1):109–11.
23. Hyman S, Villa F, Alvarez S, Steigmann F. The enigma of tuberculous peritonitis. *Gastroenterology* 1962;42:1–6.
24. Aguado JM, Pons F, Casafont F, san Miguel G, Valle R. Tuberculous peritonitis: a study comparing cirrhotic and noncirrhotic patients. *J Clin Gastroenterol* 1990;12(5):550–4.
25. Cheng IK, Chan PC, Chan MK. Tuberculosis peritonitis complicating long-term peritoneal dialysis: report of 5 cases and review of the literature. *Am J Nephrol* 1989;9(2):155–60.
26. Tribedi D, Gupta DM. Intestinal tuberculosis in Bengal. *J Indian Med Assoc* 1991;11:41.
27. Ukil AC. Early diagnosis and treatment of intestinal tuberculosis. *Indian Med Gaz* 1942;77:613–20.
28. Chuttani HK. Intestinal tuberculosis In: *Modern Trends in Gastroenterology*, Card WI, Creamer B (Eds.). London, UK: Butter Worth, 1970. pp. 309–27.
29. Bhansali SK, Seilina JR. Intestinal obstruction: a clinical analysis of 348 cases. *Indian J Surg* 1970;32:5770.
30. Bhansali SK. Gastrointestinal perforation: a clinical study of 96 cases. *J Postgrad Med* 1967;13(1):1–12.

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