

A Study of Clinical Presentation and Management of Koch's Abdomen

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Abstract: *Background: Tuberculosis can affect any part of the gastro-intestinal (GI) tract including anus, peritoneum and hepatobiliary system. The clinical manifestations of abdominal tuberculosis are non-specific and mimic various GI disorders and cause delay in diagnosis and management. The present observational study was carried out with the aim to evaluate the various clinical presentations, diagnosis and various methods of management.*

Materials and methods: This study consists of 27 cases of abdominal tuberculosis, who were treated in various surgical units in Pandit Deendayal Upadhyay Medical College, Rajkot, Gujarat, India. The cases were included from September 2016 to September 2018. All patients who were diagnosed as abdominal tuberculosis, a detailed clinical history, through clinical examination and previous history of treatment for tuberculosis were taken; relevant laboratory, microbiological and radiological investigations were done. When operated, histopathological examination of specimens were carried out. The criteria used to establish the diagnosis were: Symptomatology with radiological evidences of tubercular lesion in GIT or histopathological evidence of tuberculosis from operated specimen or colonoscopic biopsy.

Results: Out of 27 patients, maximum number of cases were presenting between 2nd to 4th decades (62%) with male predominance (male: female=2.3:1). Abdominal pain (96%) was the most common presenting symptom followed by anorexia (60%). Overall, the patients were commonly presented with intestinal obstruction in 10 patients (37%) and perforative peritonitis in 9 patients (33%). 9 patients were treated conservatively and rest 18 patients were treated surgically.

Conclusions: High suspicion is required for early diagnosis and treatment which is the key to decrease the morbidity and mortality related with abdominal tuberculosis.

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I. Introduction

Tuberculosis is one of the earliest known diseases of mankind Hippocrates as early as 460 B.C., remarked about abdominal tuberculosis, "that the diarrhea attacking a person with chronic cough is a mortal symptom". The association of pulmonary tuberculosis with inflammatory intestinal lesions was however, recognized only as late as 1643 by Virdodt [1]. Tuberculosis is a chronic granulomatous disease caused by aerobic bacteria *Mycobacterium tuberculosis*. It remains the world-wide problem despite the discovery of the causative organism for more than a century ago. Infections with atypical mycobacteria usually occur in immunocompromised hosts due to host immunity and resistance factors. Pulmonary tuberculosis is the most common form and it primarily involves the lung but any part of the body can be involved by the disease. Abdominal tuberculosis (TB) constitutes a major public health problem in developing countries and associated with significant morbidity and mortality. It is sixth most common extra pulmonary involvement and it can involve any part of the gastrointestinal tract, peritoneum and hepatobiliary system. The mycobacterium reaches the gastrointestinal tract via hematogenous spread, ingestion of infected sputum or direct spread from infected contiguous lymph nodes and fallopian tubes [2]. Grossly, the abdominal tuberculosis presents in three morphological forms: ulcerative, hypertrophic and combination of both ulcero- hypertrophic [2]. Due to its varied presentation and its ability to mimic a variety of other abdominal conditions, a high index of suspicion is required to diagnose Abdominal Tuberculosis. The disease commonly presents insidiously with abdominal pain, fever, night sweats, weight loss, anorexia, nausea and vomiting, diarrhea or constipation. Rarer presentations are an acute abdomen, perianal abscess or fistulae, upper lower gastrointestinal bleeding and dysphagia, if the esophagus is involved. On examination, pallor, ascites, hepatomegaly or abdominal masses due to enlarge

lymph nodes, adherent bowel loops or a cold abscess may be noted. The classical doughy abdomen is considered non-specific. Common complications are obstruction, perforation, fistulae and malabsorption.

Management is with conventional antitubercular therapy for at least 6 months. The recommended surgical procedures today are laparotomy for intestinal obstruction, stricture and intestinal perforation. The surgical treatment of intestinal tuberculosis too has passed through many phases, from the bypass procedures of the pre-antibiotic era to the radical surgeries such as hemicolectomy and wide resection, followed by the more recent and more conservative, modified surgical procedures such as limited ileocecal resection, and stricturoplasty. This study aims at a fresh look in to abdominal tuberculosis and at a better understanding of its clinical manifestations, diagnostic modalities, management and its complications [2].

II. Material And Methods

This study consists of 27 cases of abdominal tuberculosis, who were treated in various surgical units in Pandit Deendayal Upadhyay Medical College, Rajkot, Gujarat, India. The cases were included from September 2016 to September 2018.

Study Design: Observational study

Study Location: This was a tertiary care teaching hospital based study done in Department of General Medicine, at Pandit Deendayal Upadhyay Medical College, Rajkot, Gujarat, India.

Study Duration: September 2016 to September 2018.

Sample size: 27 patients.

Subjects & selection method: All patients who were diagnosed as abdominal tuberculosis.

Inclusion criteria: All patients above age of 12 years with Koch's abdomen.

Exclusion criteria: All patients below age of 12 years with Koch's abdomen.

Procedure methodology

A detailed clinical history, through clinical examination and previous history of treatment for tuberculosis were taken; relevant laboratory, microbiological and radiological investigations were done. When operated histopathological examination of specimens were carried out. The criteria used to establish the diagnosis were:

1. Symptomatology, radiological evidences of tubercular lesion in GIT with histopathological evidence of tuberculosis.
2. Radiological investigations suggest abdominal tuberculosis.
3. Histopathological examination of operated specimens.
4. Colonoscopic examination and biopsy.

III. Result

During the study period total 27 patients were diagnosed as a case of abdominal tuberculosis with a male predominance of male: female ratio 2.3:1. The maximum number of cases were presented between second to fourth decades. In the present study, pain was the most common symptom present in 26 (96%) patients. Diarrhea was the least common presentation (4%). Other symptoms were anorexia (60%), abdominal distension (48%), fever (44%) vomiting (44%), weight loss (40%) and constipation (32%).

Abnormalities most frequently encountered on physical examination were abdominal tenderness in 21 patients (77.7%), distension of abdomen 14 patients (51.8%), low-grade pyrexia in 12 patients (44%), guarding and rigidity in 10 patients (37%), ascites in 2 (7.4%) and mass in right iliac fossa in 1 (3.7%) patients. Over all, the presenting signs in descending order were signs of intestinal obstruction in 10 patients (37%), perforative peritonitis in 9 patients (33%), ascites in 2 patients (7.4%) and lump in abdomen in 1 patient (3.7%). In this study, associated pulmonary TB was present in 7 patients (22%) and associated HIV was present in 2 patients (7%) (Figure 1).

All baseline blood investigations were done in all patients. But all blood tests were not useful in diagnosis of abdominal TB except ESR as it was increased in 22 patients (81.4%) (Although ESR is not specific to abdominal TB, it will support the diagnosis of abdominal TB) and 10 patients (37%) were anemic. The ADA was positive (>33IU/L) in 7 patients with sensitivity of 87%. The protein in the ascitic fluid were more than 2.5gm% in 5 patients with sensitivity of 62%. The total cell count is more than 250 cells/cumm and protein level more than 2.5 gm% in 3 patients with sensitivity of 37%. The CBNAAT was positive in 2 patients with sensitivity of 20%. On microscopic examination, AFB was not seen in all patients as AFB smears on ascitic fluid are rarely positive. Culture was not done in any patients in our study. Cultures require weeks to mature and are positive in a few as 20% of diagnosed cases in Darbari et al, 2014 study. Among ascitic fluid examination, ADA has the highest sensitivity rate (87%) and the histopathological examination has sensitivity of 83%. X-ray abdomen and USG abdomen were done in all patients. CECT abdomen and pelvis were done in 17 patients.

Figure 1: Ileal stricture due to tuberculosis

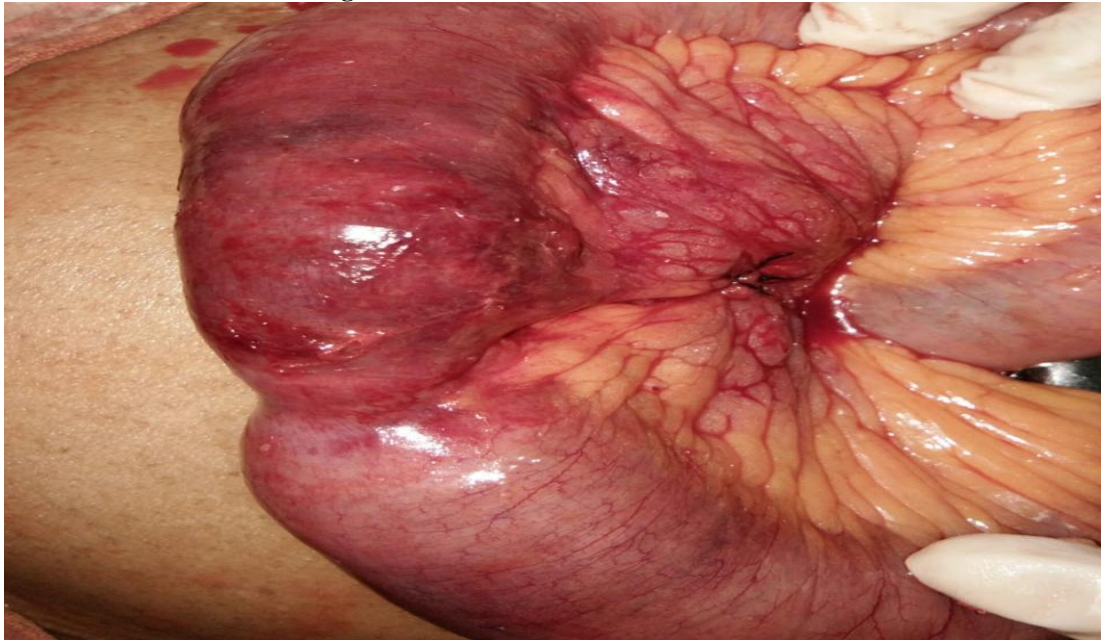


Figure 2: Resected specimen of ileocecal tuberculosis



Plain X-ray abdomen showed multiple air fluid levels in 6 patients (22%), gas under diaphragm in 5 patients (18.5%) and 15(55%) patients had normal findings. The CT and USG findings are given in the tables 1&2.

Table 1: Changes in USG abdomen& pelvis.

USG abdomen findings	Frequency(n=27)
Bowel thickening(terminal ileum, IC Junction, Ascending colon)	12(44.4%)
Intestinal obstruction	4(14.8%)
Intestinal perforation	4(14.8%)
Mesentric lymphadenopathy	4(14.8%)
Inter bowel ascites	3(11%)
Intra abdominal collection	2(7%)
Pseudo kidney sign	0

Table 2: Changes in CECT Abdomen & Pelvis

CECT abdomen findings	Frequency(n=17)
Bowel wall thickening	6(35%)
Intestinal obstruction	4(23.5%)
Mesentric lymphadenitis	4(23.5%)
Intestinal perforation	2(11.7%)
Ascites	2(11.7%)
Ileal Stricture	2(11.7%)
Spenomegaly	1(5%)
Pulled of cecum	1(5%)

Table 3: Comparison of investigations ^[2]

Investigations	In our study(n=27)			Krishnaswamy J et al,2017(n=108)		
	Done	Contributory	%	Done	Contributory	%
ESR	27	22	81.4	93	88	95
Mantoux	27	06	22	93	50	54
X-ray chest	27	07	26	108	15	14
X-ray abdomen	27	12	44	108	44	41
USG abdomen	26	23	88.4	108	43	40
CECT abdomen	17	17	100	95	95	100
Histopathology	18	15	83	Charokar K et al,2016		
				Done	Contributory	%
				72	59	82

In our study, the patients were presented most commonly with intestinal perforation (9 patients, 33%) followed by acute intestinal obstruction (6 patients, 22%) sub acute intestinal obstruction and chronic non specific symptoms each in 4(14.8%), peritoneal TB in 2 (7%), lymphadenopathy and appendicular perforation each in one patient (3%).The common sites involved were ileum and ileocecal region, both includes 20 (64%) patients. In our study, out of 27 patients, 9 patients were treated conservatively with anti-tuberculous treatment alone and rest of 18 patients were treated surgically along with anti-tuberculous treatment. All the surgery were undertaken as emergency surgery which include resection & anastomosis 5 patients (27%),right hemicolectomy 4 patients(22%),ileostomy 3 patients (16.6%), colostomy, adhesiolysis and band division and appendicectomy each in 2 patients(11%),primary closure of perforation and stricturoplasty each in 1 patient(5%).So, abdominal TB don't have any single surgical procedure for its management and it is being treated by various above surgical procedures according to severity of involvement and site of involvement and type of involvement. In our study, the most common post operative complication was wound infection (5 patients, 18.5%) followed by fecal fistula and septicemia (3 patients, 11.1%) and two patients were expired (7%).

IV. Discussion

In developed countries, there is low incidence of tuberculosis, but now as there is a rise in HIV infection, the incidence of tuberculosis has also risen. In developing countries like India incidence of tuberculosis is very high because of low socio economic status, overcrowding, poor living conditions, poor hygiene and illiteracy.

In our study of 27 cases, 62% of patients were in the age group of second and fourth decade of life.Abdominal tuberculosis is more common in males than females. The male to female ratio comes to 2.3:1 similar to ratio reported by Veerabhadra Rao Sirigineedi et al,2017. However some authors have quoted female dominance in their studies. In literature, we could not find the reasons for this gender difference. In our study of 27 patients, pain was the most common symptom present in 26 (96%) patients. Diarrhea was the least common presentation (4%).Bleeding per rectum and abdominal lump were not present in any patient of our study. Other symptoms were anorexia (60%), abdominal distension (48%), fever (44%), vomiting (44%), weight loss (40%) and constipation (32%) comparable to a study of 50 cases of abdominal tuberculosis carried out by Darbari A et al, 2014. Abnormalities most frequently encountered on physical examination were tender abdomen in 21 patients (77.7%), distension of abdomen in 14 patients (51.8%), low-grade pyrexia in 12 patients (44%), guarding in 10 patients(37%), rigidity in 10 patients(37%), ascites in 2 patients (7.4%) and mass in right iliac fossa in 1 (3.7%) patients comparable to a study of 50 cases of abdominal tuberculosis carried out by Darbari A et al,2014.Comparison of investigations of our cases with other studies is showed in table 3.

In our study, ileum & ileocecal junction both each involved in 10 patients(both include 74%) were most commonly involved site followed by jejunum involved in one patient(3%) comparable to a study of 50 cases of abdominal tuberculosis carried out by Darbari A et al,2014. Out of 26 patients, 9 (33.3%) patients were treated conservatively with anti tuberculous treatment and management were done in 18 patients(66.6%).The

various surgical procedures done in our study compared with Darbari A et al, 2017. As this condition needs a wide range of procedures, an experienced surgeon is required for a better outcome.

V. Conclusion

Abdominal tuberculosis can occur in any age group, but mostly it occurs between 20-40 years. It has male predominance, but there are few authors who came with female predominance also. It is common in people with low socio-economic status, illiteracy, malnutrition. High suspicion is required to diagnose this condition and remains a diagnostic challenge as it has a wide range of nonspecific symptoms and signs and there are no specific laboratory tests. ESR, CT scan, histopathological examination were having high sensitivity to diagnose this condition. Terminal ileum and ileocecal junction were the most common sites affected. Most of the patients were presented with complications like intestinal obstruction or perforation and they required emergency laparotomy with a wide range of procedures according to the site, type and severity of the disease that will require an experienced surgeon for a better outcome. Anti-tuberculosis treatment should be given to all patients. We conclude that a good history, clinical examination, supported by blood investigations, radiological investigations and where applicable invasive investigations collectively can help an experienced clinician to diagnose abdominal tuberculosis and the morbidity and mortality due to abdominal tuberculosis can be reduced only by timely diagnosis and judicious treatment.

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