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Original article

Clinical Profile and Surgical Outcome of Abdominal Tuberculosis –A Retrospective Analysis

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ABSTRACT

Background and objectives: Tuberculosis can present in varied forms and clinical manifestations. The primary objective of this study was to understand the clinical profile, demography, presentations and complications of abdominal tuberculosis and review the literature regarding its surgical management, in our institution. **Materials and methods:** 50 cases of abdominal tuberculosis admitted from January 2011 to December 2012 in Shimoga Institute of Medical Sciences (SIMS)were included in the study group. All the cases were analysed in terms of epidemiology, clinical features, baseline and confirmative investigations, operative treatment, conservative and various surgical procedures employed. **Results:** The age group mainly affected in our study was found to be in 20-40 years range (55% cases). 46 patients were from the lower socioeconomic group. Out of total surgeries performed 43% were emergency and rest were elective operations.8 patients were tested positive for retrovirus. Obstruction was most common complication followed by malnutrition. Resection and anastomosis was done in 34.7% of cases. Ileotransverse bypass done in 32.6 % cases and stricturoplasty and release of adhesive bands performed in equal percentage (8.6%) of cases. Biopsy and closure carried out in 10% cases. In our study, 2 patients died of anastomotic leak and one developed faecal fistula after ileotransverse bypass procedure. **Conclusions**: Abdominal TB always forms part of differential diagnosis in any chronic pain abdomen with or without mass, especially in low income, poorly nourished females in young and middle age groups coming from unhygienic background. Bypass procedures have been largely replaced by limited resections with good results and also stricturoplasty for ileal lesions is the order of today.

KEYWORDS: Tuberculosis, Abdominal, Intestinal, Obstruction, Stricture.

INTRODUCTION

Tuberculosis (TB) remains a major global health problem. It causes ill-health among millions of people each year and ranks as the second leading cause of death from an infectious disease worldwide, after the human immunodeficiency virus (HIV).The latest estimates included in WHO Global Tuberculosis report states that there are 9 million new cases in 2011 and 1.4 million TB deaths (990, 000 among HIV negative people and 430, 000 deaths in HIV-associated TB)[1]. Abdominal tuberculosis constitutes a significant proportion of the differential diagnosis of patients with nonspecific abdominal complaints and weight loss over a prolonged period. Tuberculosis is an infectious or communicable disease caused by mycobacterium tuberculosis, characterised by formation of granulomas in the infected tissues.

In India, tuberculosis is still considered as a social disease, reflecting the standards of living in a community. The abdomen is involved due to ingestion of infected sputum, by haematogenous seeding or entry of bacilli from an abdominal lymphatic or genitourinary source. The diverse manifestations of abdominal TB like tuberculous peritonitis, intestinal obstruction, either sub acute or acute or tabes mesenterica formation etc., pose a definite challenge to the treating surgeon. The aims of surgery are mainly to remove the focus of the disease and treat the mechanical effects which are causing the presenting morbidity. This study reports the incidence, presentation, outcome of surgery in abdominal tuberculosis to elucidate factors that might help surgeon to treat the potentially curable disease.

MATERIALS AND METHODS

In the present study we have retrospectively analysed 50 cases of proved abdominal tuberculosis that were admitted in different surgical units of McGann hospital attached to Shimoga Institute of Medical Sciences during period from January 2011 to December 2012.

Patients chosen for this work were studied from the date of their admission to surgical wards and their course of stay in hospital and discharge with antitubercular treatment and

follow up. Clinical presentations of common and rare forms of abdominal tuberculosis were analysed. Stress was laid upon a thorough history taking and physical examination. A few cases were subjected to special investigations. The different surgical procedures and medical treatment were also evaluated in detail. All operated specimens were confirmed for tuberculosis by histopathological examination. The ensuing complications of treatment were studied and cases were followed up for period ranging from 6 months to one year.

RESULTS

Out of 50 patients included in the study population, 30 patients were females (60%) and rest 20 patients were males (40%). The age of patients in this series varied from 1 year - 65 years, mean age being 30 years. The age distribution is shown in Table 1. The disease showed a predilection to young adults and middle aged subjects, 56% of cases being in the range of 21 to 40 years.

Table 1:Age distribution of patients in study group.

Age in years	Number of cases	Percentage
0-10	01	02 %
11-20	11	22 %
21-30	19	38 %
31-40	09	18 %
41-50	06	12 %
51-60	03	06 %
61-70	01	02 %
Total	50	100%

All the patients, except 4 cases belonged to the lower socioeconomic groups. The average family income was Rs. 600/- per month. Caste wise classification was 41 were Hindus and rest 9 were Muslims in this study population. Significant past history of contact with a patient of pulmonary tuberculosis was elicited only in 2 patients, accounting to 4 % of the study group. The different modes of clinical presentation as emergency cases is depicted in Table 2 below.

Table2:Modes of presentation of patients

Type of presentation	Number of cases	Percentage
Acute intestinal obstruction	10	20 %
Sub – acute intestinal obstruction	04	08 %
Acute peritonitis	06	12 %
Perforation	03	06 %

Duration of symptoms varied from 1 day to 10 years and less than a year in 95% cases. 38% cases had acute onset of disease. 98 % of patients presented with pain abdomen (intermittent and colicky) as primary complaint.36 cases had history of vomiting (72%).24 patients (48%) had abdominal distension. while 11 cases complained of constipation(22%) and 9 patients with diarrhoea (18%) as prominent presenting feature. In the present study group, 38% of cases had mild to moderate fever while 18 cases had significant loss of weight ($\geq$ 10%) in the past history. The various signs elicited in our patients are tabulated in Table 3 as follows:

Table 3: Physical Signs seen in study population.

Signs	Number of cases	Percentages
Distension of abdomen	20	40%
Tenderness	30	60%
Guarding	6	12%
Mass	16	32%
Ascites	7	14%
Doughy abdomen	7	14%
Visible gastric/intestinal peristalsis	5	10%
Anaemia/malnutrition	26	52%

Haematological investigations revealed Hb% ranging from 5.6 gm to 13 gm percent, of which 26 patients were grossly anaemic with Hb% below 9 gm%. ESR done in 28 cases ranged from 5mm to 80mm in 1 hour estimation, out of whom 22 had raised ESR. Sputum examination proved negative for AFB (acid fast bacilli) in all the 18 patients in whom the test was carried out. Ascitic fluid analysis was done in 2 patients, both of the cases showing high lymphocyte count above 100. Radiological findings of chest X-ray done in 31 cases revealed 2 patients having apical Koch's, one case had bilateral apical tuberculosis, 1 patient had military mottling and one chest x-ray demonstrated right sided pleural effusion. Plain X-ray abdomen in erect posture done as emergency in 23 patients showed 18 films with multiple air fluid levels, suggestive of intestinal obstruction, 2 cases had gas under diaphragm , one showing central ground glass appearance and rest 2 were normal study.

Contrast imaging in form of Barium meal was carried out in 4 patients, 2 of them showing obstruction at duodenojejunal junction, and another showed cupping with spill over deformity of stomach and third was normal study. Barium meal follow through done in 8 patients, showed 6 cases having pulled caecum and narrowing of terminal ileum. 1 case showed multiple ileal strictures and one case was normal study. Barium enema carried out in 3 cases demonstrated 1 patient with caecal stricture and another one having stricture extending from caecum till the ascending colon, the third being normal study.

Ultrasonography was done in 25 cases, 9 showed ascites, 2 cases demonstrated ascites with paralytic ileus, 2 patients had thickening of terminal ileum with mass formation, and one scan showed chronic intussusception in left lumbar and left iliac fossa. 2 cases had cholelithiasis as incidental finding, 2 patient's reports revealed caecal and ileal wall thickening. Out of 30 patients who were screened for HIV serology, 8 were found positive out of which 5 were males and rest 3 females. Classification regarding subtypes of abdominal tuberculosis after investigation and laparotomy are depicted in Table 4 and patterns of tuberculous peritonitis are displayed in Table 5 as follows:

Table 4:Depicting subtypes of abdominal tuberculosis involvement.

Type	Number of cases	Percentage
Peritoneal alone	12	24%
Intestinal alone	30	60%
Peritoneal and Intestinal	8	16%

Table 5: Types of Tuberculous Peritonitis (Total no. of cases=20)

	Number of cases	Percentage
Wet ascitic and plastic peritonitis	8	40
Wet ascitic type	3	15
Localised pelvic collection	2	10
Dry miliary peritonitis	4	20
Adhesive & miliary peritonitis	3	15

Among 38 cases of Intestinal involvement, the different parts of bowel involved in study group are depicted in Table 6 as follows:

Table 6: Region of affection in Intestinal Tuberculosis

Type	Number of cases	Percentage
Ileocaecal	20	53%
Ileal alone	11	29%
Colonic alone	04	10%
Duodenal	02	5.5%
Gastric	01	2.5%

Table 7: Types of Surgical Procedures performed in study population

Type	Number of cases	Percentage
Resection and anastomosis	16	34.7%
Bypass of obstruction	15	32.6%
Release of bands & adhesions	04	8.6%
Stricturoplasty	04	8.6%
Biopsy and closure	07	10%

Out of 50 cases in study group, 4 were managed conservatively, 20 of them underwent emergency surgery and rest 26 were electively operated after good bowel preparation and preoperative hydration and nutrition supplementation. Post-operative complications were common in emergency operated patients noted in6 patients(30%) with 8.4% developing wound infection, 9.7% developing burst abdomen.Mortality was observed in 2 cases, one being an anastomotic leak on 3rd post-operative day and other being faecal fistula developing after 20 days of surgery.

DISCUSSION

Tuberculosis can involve any part of gastrointestinal tract from mouth to anus, the peritoneum, and pancreatobiliary system. The most common site involved is ileocaecal region. Peritoneal TB is the most common form of abdominal TB and can involve the peritoneal cavity, mesentery, and omentum. Peritoneal TB can be of three types. A wet type with ascites orpockets of loculated fluid; a dry type with bulky mesenteric thickening and lymphadenopathy; and a third type with mass formation due to omental thickening. Usually the abdominal tuberculosis results from the reactivation of latent tubercular foci. These foci follow haematogenous dissemination from the primary disease in the lung and remain patent. Tuberculous peritonitis is the result of silent foci reactivation. The age group mainly affected is 20 years to 40 years in documented studies. In the present series 55% cases belonged to the above age group. However we found a slight increased incidence in age group 11-20 years (22 %). In this series the mean age was 30 years. AD Wells studied 30 cases of abdominal tuberculosis and found mean age to be 33years [2].

In India women are more commonly affected as documented in literature. This has been attributed to their relative increased exposure to children with tuberculosis who are the largest reservoirs of infection (Prakash et al) [3].In the west the disease was found to be more common in the male population, mainly occurring in immigrant Asian population. 98 % of patients presented with pain abdomen in our series, which is in comparable to studies of Bhansali SK et al [4] reporting pain abdomen as primary symptom in 94% cases.

Table 8: **Showing common sites of involvement in comparison to documented literature.**

Site	**Bhansali**[4]	**Prakash**[5]	**Tandon**[6]	**Singh et al**[7]	**Sharma et al**[8]	**Vij et al**[9]	**Present study**
Number of patients	300	300	186	145	110 (children)	99	50
Oesophagus				1		1	
Stomach	1			2		2	1(2.5%)
Duodenum		7		5		4	2(5.5%)
Small bowel	87	93	29	82	7	42	11(29%)
Appendix	1						
Ileocaecal	110	162	77	58	3	17	20(53%)
Colon	7	8	24	8		10	4(10%)
Anorectum				1		1	
Peritoneum						12	12(24%)
Adhesions				29	17		
Nodes						10	
Adhesions & Nodes					23		

Chest X-rays showed evidence of pulmonary tuberculosis in 36.1% which is comparable with study of Manohar et al of 40.8% [10] and Machado et al of 43.2%. [11]. Kapoor et al has reported evidence of tuberculosis (active or healed in 46% of patients [12]. Although radiological studies like Barium meal follow through and barium enema form the mainstay of diagnosis, they have their own limitations in terms of false positive and negative rates. They cannot accurately detect site of lesion and also fail to differentiate intestinal lesions from adhesive peritoneal pathology. Kedar et al have reported ultrasonographic findings in abdominal TB [13].

Therapeutic trials with antitubercular chemotherapy though recommended by some are not totally justified. Starting empirical antitubercular therapy in a suspected abdominal tuberculosis patient is a practice fraught with the danger of missing out or delay in the diagnosis of a more sinister pathology. Histopathological examination is an appropriate method both for diagnosing abdominal tuberculosis and for ruling out other pathology like malignancy. It is quite difficult because of suboptimal non-invasive access to intra-abdominal organs. Many different methods like peritoneal biopsy with small McBurney incision, blind percutaneous needle biopsy laparotomy biopsy have been tried in the past, but each having its own hazards and disadvantages [14].

Most of studies recommend surgical intervention as diagnostic tool and therapeutic measure for intestinal lesions. However Anand SS was pioneer in documenting resolution both clinically and radiologically in strictures and sub acute small bowel obstructions[15]. Similar observations have been reported by Balasubramanyam et al in colonic TB treated conservatively with ATT[16]. Resection and anastomosis and bypass of obstruction were commonest surgeries done in our patients with resulting overall complication rate of 30 %. This goes favourably well

with studies of M J Joshi reporting a complication rate of 21.67% [17].

Although the number of patients included in present study population is small compared to larger series' documented, our results are very much similar in terms of clinical presentation of pain abdomen and mass abdomen, vomiting as key factor, abdominal distension, site of bowel involvement detected by investigations and after laparotomy and justified application of surgical procedures described in literature in our patients with comparable complication rates.

We have not applied the latest techniques of laparoscopy in this study. SAFA(soluble antigen fluorescent antibody test), ELISA, PCR(polymerase chain reaction), ADA(adenosine deaminase activity) estimations were not done in our patients in this study, as our government setup was still not equipped in doing above investigations in study period. However we would like to further publish detail data once facilities are available.

The vital role in management of abdominal tuberculosis rests in hands of every clinician in developing country like ours, because the disease has been affecting young adults, in second, third and fourth decades of one's life, which are supposed to be the prime productive and economic growth years. Vigorous treatment of childhood tuberculosis and preventive steps taken as public health measure in checking the spread of pulmonary TB can go a long way in preventing the complications of abdominal tuberculosis and its surgical consequences.

CONCLUSION

Abdominal tuberculosis should be suspected in every patient coming from poor socioeconomic background, especially young and middle aged female malnourished and anaemic subjects and presenting with chronic history of sub acute obstruction on & off, with or without a past exposure of lung infection. Resection and anastomosis in form of right hemi colectomy or limited resection for ileocaecal lesions has been largely adopted in place of simple bypass of obstructive lesions with proven good results. Proper identification of symptoms and signs at primary care level and timely referral to an institution can save many lives. A fair trial of anti-tubercular treatment can relieve obstructive symptoms in radiologically proved strictures especially when the obstruction is sub-acute. Further studies to early diagnosis like laparoscopy biopsy and use of SAFA(soluble antigen fluorescent antibody test) ELISA and serum & peritoneal fluid ADA (Adenosine Deaminase levels) estimations should be made widely available in every district hospital setting.

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REFERENCES

1. WHO Global Tuberculosis Report 2012, Introduction ,Chapter 1: page 3.
2. A D Wells, J M Northover, E R Howard. Abdominal tuberculosis: still a problem today. Journal of Royal Society of Medicine. 1986 March; 79(3): 149–153.
3. Prakash A. Ulcero-constrictive tuberculosis of the bowel. IntSurg1978; 63: 23-9.
4. Bhansali SK Abdominal Tuberculosis. Experiences with 300 cases. Am J Gastroenterology. 1977; 67: 324-37.
5. Prakash, Sharma LK, Koshal A, Poddar PK. Ileocaecal tuberculosis. Aust NZ J Surg 1975; 45: 371-5.
6. Tandon RK, Sarin SK, Bose SL, Berry M, Tandon BN. A Clinico-radiological reappraisal of intestinal tuberculosis-changing profile? Gastrenterol Jpn 1986; 21: 17-22.
7. Singh V et al. Clinicopathological profile of abdominal tuberculosis.Br J Clin Pract 1995; 49 (1):22-4.
8. Sharma AK, Aggarwal ID, Sharma CS, Sarin YK. Abdominal tuberculosis in children; experience over a decade. Indian Paediatric. 1993; 30: 1149-53.
9. Vij JC, Malhotra V, Choudhary V, Jain NK, Prasad G, Chaudhary A, et al. A clinicopathological study of abdominal tuberculosis. Indian J Tubercul. 1992; 39:213-20.
10. Manohar, A., Simjee, A.E., Haffejee, A.A. and Pettengell, K.E. (1990). Symptoms and investigative findings in 145 patients with tuberculous peritonitis diagnosed by peritoneoscopy and biopsy over a five year period. *Gut*, 31: 1130-1132.
11. Machado N, Grant ST, Scrimgeour E Abdominal tuberculosis--experience of a University hospital in Oman. Acta Trop 2001 Oct 22; 80(2):187-90.
12. Kapoor VK. Abdominal tuberculosis-misconceptions, myths and matters of fact. Indian J Tubercul. 1991; 38: 119-22.
13. Kedar RP, Shah PP, Shirde RS, Malde HM. Sonographic findings in gastrointestinal and peritoneal tuberculosis. Clin. Radiol. 1994; 49: 24-9.
14. Rajiv Jain, Ravi Dosi. Diagnosis of Abdominal Tuberculosis in Chronic Abdominal Pain: Laparoscopy as an Effective Diagnostic Tool Journal of Evolution of Medical and Dental Sciences2013 April 22;16(2): 2756-2762.
15. Anand SS. Hypertrophic Ileocaecal tuberculosis in India with record of 50 hemicolectomies. Ann R Coll Surg Engl 1956; 19: 205-222.
16. Balasubramanyam R, Ramachandran R, Joseph P, Nagarajan M, Thiruvengadam KV, Tripathy SP, et al. Interim results of a clinical study of tuberculosis. Indian J tuberculosis 1989; 36: 117-21.
17. Joshi MJ. The surgical management of intestinal tuberculosis—a conservative approach. Indian J Surg 1978; 40: 78-83.

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