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Original Research Article

Clinico-pathological profile and surgical management of tubercular small intestinal obstruction

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ABSTRACT

Background: Small intestinal obstruction is one of the most common abdominal emergencies faced by surgery resident in emergency department. Diagnosis and management of tubercular intestinal obstruction is challenging as underlying pathology is usually obscure and disease is associated with significant morbidity and mortality. The aim of this study is to know the various clinical features; different types of treatment and prognosis of tubercular intestinal obstruction in adult patients in our setting. Our centre is the only tertiary care centre belongs to Kumauni region at present, most of our patient are from low socioeconomical strata of their region.
Methods: Our study was a retrospective analytic study. Medical record of all patients who were operated between 2011 and 2016 for intestinal obstruction due to abdominal tuberculosis at Surgery Department of Dr. Sushila Tiwari Government Hospital attached to GMC Haldwani were retrospectively analysed. The patients who were above 14 years of age and operated for obstruction of small bowel and whose complete medical record was available, were included in the study.
Results: There were total 59 patients operated during this time span, out of these, 19 were female and 40 were male. Patients from 3'rd decades (37.29%) of their life were most commonly affected. Abdomen pain was most common symptom found in all 59 patients. Ileal Stricture was most common gross finding. Resection anastomosis was done in 71.19%.
Conclusions: Most of the cases of abdominal tuberculosis presents with non-specific clinical features, inconclusive laboratory and radiography findings.

Keywords: DOTS, Dr. Sushila Tiwari, Haldwani, Obstruction, Resection Tuberculosis

INTRODUCTION

Tuberculosis has been consider as a global problem by the World Health Organization (WHO) and worldwide tuberculosis is one of the most common and fatal communicable disease.[1,2] Any part of the body can be affected by tuberculosis, lungs and abdomen are most commonly involved respectively.[3] Near about 3% tuberculosis patients have extra pulmonary pathology, abdominal tuberculosis has a load of around 10%-15% in this category.[4,5] Extra pulmonary tuberculosis has incidence of 40% to 50% in HIV positive patients.[5]

Small Intestinal obstruction due to abdominal tuberculosis is in emerging trend and many studies from the developing countries claims that abdominal tuberculosis was a leading cause in their studies.[6,7] In some studies from India, abdominal tuberculosis was among leading causes.[8] Low socio-economic status and poor delivery of health care facilities might be cause

behind this. Pattern of intestinal obstruction vary from country to country and even within smaller geographical areas, and it has definite relationship with the development and health care facilities available in that region.[9,10] Abdominal tuberculosis may has various types of presentation, like chronic, acute and acute-on-chronic, many time it can find as an incidental finding during surgery.[11] Diagnosis and management of these patients are challenging as underlying pathology is usually obscure and disease is associated with significant morbidity and mortality.

The treatment of abdominal tuberculosis is mainly conservative (non-operatively) with anti-tuberculous therapy and surgical treatment is reserved for complications.[12] Surgical management of intestinal tuberculosis has changed considerably from bypass surgery and hemi colectomy to conservative resections and stricturoplasty.

The aim of present study was to know the various clinical features; different types of treatment and prognosis of tubercular intestinal obstruction at our centre, as our centre is the only tertiary care centre in Kumauni region and mostly deal with patients from lower socio economical strata.

METHODS

Present study was a retrospective analytic study. Approval was obtained from the ethical committee of Government Medical College Haldwani. Medical record of all patients who were operated between July 2011 and June 2016 for intestinal obstruction due to abdominal tuberculosis at surgery department of Dr. Sushila Tiwari Government Hospital were retrospectively analysed.

The patients who were above 14 years of age and operated for obstruction of small bowel and whose complete medical record was available, were included in the study. The patient's particulars such as age, gender, pre-operative clinical examinations and investigations, post-operative morbidity and mortality were noted from files. Diagnosis of abdominal tuberculosis made by analysis of radiological and intra-operative findings, patient respond to anti-tubercular therapy, Histopathology and ascetic fluid examination reports obtaining from patient's records.

Statistical Analysis

The data were recorded, and descriptive analysis were made with SPSS v23 (IBM SPSS Statistics 2015). The data are defined in percent ratios.

RESULTS

Total 59 operated cases of small intestinal obstruction due to abdominal tuberculosis were recorded in this study.

Table 1: Age and sex distribution of patient.

Age in year	Female	Male	Total (%)
15-20	2	5	7(11.86)
21-30	7	15	22(37.29)
31-40	5	10	15(25.42)
41-50	3	6	9(15.25)
51-60	1	2	3(5.08)
61-70	1	1	2(3.39)
Above 70	0	1	1(1.7)
Total (%)	19(32.20)	40(67.80)	59(100)

Table 2: Profile of patients with Intestinal Tuberculosis (N=59).

Characteristic				No. of patients	(%)
Female + Male				19+40	100
Clinical feature		Pain abdomen		59	100
		Obstructive symptoms		47	79.66
		Vomiting		41	69.5
		Evening rising temperature		36	61
		Anorexia		31	52.52
		Ascites		25	42.37
		Visible peristalsis		20	33.90
		Palpable mass		13	22.03
Intraoperative feature		Stricture		36 (12+24)	61.02
		Ileocecal mass		16 (5+11)	27.12
		Plaster Abdomen		7 (2+5)	11.86
Imaging studies	X-ray abdomen	MAF level		49	83
		Dilated Bowel		10	17
	CT Abdomen @	Stricture		12	28.81
		Ileocecal mass		5	
	USG Abdomen#	Ascites		25	42.37
		Dilated bowel		22	
Other Co-morbidity		Pulmonary Koch	Active	17	45.76
			History of Pulmonary Koch	10	
		HIV		5	8.47
		Diabetes mellitus		10	16.95

@ CT performed in 17 patients of Tuberculosis patients before operative intervention; # USG performed in 25 patients of Tuberculosis patients before operative intervention

Ages of patients ranged from 15 year the youngest one to 75 year the oldest with Mean Age 33.38±12.76 years. Out of 59 cases 19 (32.20%) were female and 40 (67.80%) were male with a male to female ratio of near about 2:1. Showing in Table 1. Most commonly affected age group

was belonging to 3'rd and 4'th decades of their life, 37 (62.71%) patients.

Table 3: Type of Surgery.

Procedure Plan	Procedure	Female	Male	Total (%)
Emergency	Laparotomy	12	26	38 (64.41)
Elective	Laparotomy	6	11	17 (28.81)
	Laparoscopy	1	3	4 (6.78)
Total		19	40	59 (100)

Pain in abdomen and Constipation were most common complaints (100% and 79.66% respectively) followed by vomiting 69.50%. Visible peristalsis and lump in Right iliac fossa were noted in 33.90% and 22% patients respectively (Table 2).

Table 4: Operative information of patients operated for tubercular small bowel obstruction.

Operative procedure	Intra operative findings	Female	Male	Total (%)
Resection anastomosis@	Ileocecal TB	2	7	16 (27.12)
	Jejunal / Ileal Strictures	2	5	
Resection anastomosis with proximal divergent Ileostomy	Ileocecal TB	3	4	26 (44.07)
	Ileal Strictures	7	12	
Strictroplasty	Strictures	3	7	10 (16.95
Release of adhesions	Plaster Abdomen	2	5	7 (11.86)
Total		19	40	59 (100)

@ RA most common Ileo-ileal, Ileo-Transvers followed by jejuno-jejunal respectivly.

Strictures followed by ileocecal mass were most common finding in these patients (Table 2). Abdominal CT was performed only in 17 patients out of total 59. Interestingly CT scan showed high sensitivity for abdominal tuberculosis. In 12 patients CT reported stricture and 5 it reported ileocecal mass which were found correct during exploration. USG abdomen was performed in 25 patients, all showing ascites.

Most common associated comorbidity was pulmonary tuberculosis (active and old) itself followed by diabetes mellitus (45.76% and 16.95%) respectively. HIV positive status was found in 8.47% cases (table 2).

Out of total 59 patient 38 patients (64.41%) were explored in emergency department, elective surgery was performed in 21 (35.59%) patients (Table 3). Resection anastomosis (RA) was performed in our maximum patients 42 (71.19%) out which 26 (44%) RA were covered with divergent proximal ileostomy. Strictroplasty was done in 10 (16.95%) patients (Table 4). In post-operative period all patients were given anti tubercular therapy.

Table 5: Major complications in postoperative period.

Post-operative complications	Female	Male	Total (%)
Anastomotic Leak	2	2	4 (6.78)
Burst abdomen	4	7	11 (18.64)
Chest Complications need ventilatory support	3	5	8 (13.56)
Death	6	2	8 (13.56)

Burst abdomen was noted as most common among major complications in 11 patients (18.64%). Mortality occurs in 8 patients (13.56%).

DISCUSSION

Male patients were found more affected in present study than the female patients with a sex ratio of 2:1 which was similar to Rajpoot MJ et al and Chalya PL et al.[11,13] Many other authors also claimed female majority in their studies.[14,15] We are unable to find any literature which can explains the reasons behind this gender differences. It is usually responsibility of male to earn for their family, this leads more interaction with society, make them vulnerable to expose towards communicable disease like tuberculosis, this may be an explanation for a greater number of male patients in present study. Poverty and overcrowding leads to make situation worse in underdeveloped areas of globe.

Any age group can be affected by Abdominal Tuberculosis, but younger population in developing countries are favourite for this disease.[16] Present study also showed similar findings as majority of our patients were in third decades of life, which is consistent with some other studies.[11,13]

Pain in abdomen and Constipation were most common complaints (100% and 79.66% respectively) followed by vomiting 69.50%. Other features are low grade fever, anorexia, ascites, visible peristalsis and right iliac fossa mass. Anand SS et al also find that all their patients were complaining about pain abdomen.[17] Similarly Abro et al found that more than 90% of their patients were suffered from abdominal pain.[18] We found lump abdomen as right iliac fossa mass in 22% of patient, very similar findings were recorded by Abro et al.[18]

Like many other studies most of our patients had a history of illness for more than 6 months before visiting to our centre.[19,20] Most of our patients were belong to low socioeconomical strata and came either from rural

background or remote hilly locations with very few healthcare facilities.

As the disease usually has vague sign and symptom that may lead to misdiagnosis at primary physician level at remote location with poor diagnostic facilities which further delays patients visit at tertiary centre.

Most of our patients came with features of acute intestinal obstruction (38 out of 59) and planed for emergency exploration (Table 3). Similar observations were noted by some other researchers in their studies.[15,21]

Most common gross finding in this study was strictures 61.02% mainly in the region of ileum followed by jejunum. Ileocecal disease and abdominal cocoon (plaster abdomen) was noted in 27.12% and 11.86% patients respectively. This finding was different from most of the present literature and many other studies which favours ileocecal disease as commonest one.[13,22] But in their studies Bhansali and Mukhopadhyay found ileum involvement as most common finding, similar to present study.[23,24]

Resection Anastomosis was most common procedure in this series performed in 42 (71.19%) patients out which 26 (44%) RA were covered with divergent proximal ileostomy. Ileo-ileal followed by ileo-transvers anastomosis were performed in maximum number of patients.

Strictroplasty was done in 10 (16.95%) patients (Table 4). Kumar R and Rajpoot M also reported RA as most commonly performed procedure.[25,11] In contrary with this studies Akbar et al reported stricturoplasty as the most common.[26] In post-operative period all patients were given anti tubercular therapy. Most common associated comorbidity in present study was pulmonary tuberculosis itself 45.76% followed by Diabetes mellitus (16.95%). Out of this twenty-seven, seventeen patients (28.81%) had active disease. This finding is in match with Chalya PL et al suggest that most our patients had primary abdominal disease.[13]

Prevalence of HIV sero positive status was 8.47% in our patient population. This prevalence seems very higher then national prevalence of HIV positive population which was estimated around 0.22% to 0.32% in adults.[27] Most common post-operative complication was surgical site infection. Burst Abdomen was noted as most common major complication in 18.64% cases similar to other studies.[15,19]

Mortality in over study was 13.56% lower than Chalya PL et al 18.8% and more then mortality reported by Baloch NA et al, Rajput MJ et al, Malik KA et al which were 2.3%, 3.57% and 10% respectively.[13,15,11,28] Absolute Diagnosis of abdominal tuberculosis is usually not possible before surgical interventions unless invasive technics (guided FNAC or guided aspiration of ascetic fluid) are involve. As most of the our patient had delayed presentation with acute symptoms and vague clinical features, exploration was usually decided on basis of presumptive diagnosis. Radiological investigation (x-ray abdomen and chest, CT scan of abdomen, USG abdomen) are very useful for making presumptive diagnosis in such patients.[29,30]

Most of our emergency exploration were planned only on the basis of x-ray abdomen findings (multiple air fluid level) and clinical aspects. CECT abdomen was done in only 17 patients and found highly sensitive, these patients were planned on elective basis.

Histopathology was performed in all patients and made basis of diagnosis in 84.75% cases but typical finding of tuberculosis (granuloma) was detected only in 23.73% cases similar to other studies.[13]

CONCLUSION

Re-emergence of tuberculosis in recent years might be a cause of change in pattern of etiology of small intestinal obstruction.

As patients can manage on conservative therapy in early course of their disease, tubercular intestinal obstruction needs high degree of suspicion for diagnosis. Most of the cases presents with non-specific clinical features, inconclusive laboratory and radiography findings that make it difficult to diagnose and only histopathological diagnosis is the most sensitive. Anti-tubercular therapy is mainstay of treatment for both types of patients who need surgery or not. In India DOTS (Directly observed Treatment Short course) Therapy consider as first line of medical management for any kind of Tuberculosis. Guidelines for DOTS is provide by RNTCP (Revised National Tuberculosis Control Program).

For confirmation of most appropriate surgical procedure, randomization trial needs to implicate. Younger age, delayed presentation, poverty and high morbidity and mortality are among the hallmarks of the disease.

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