

Impact of HIV Infection on Outcome of Abdominal Tuberculosis

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Abstract

A prospective study of 120 cases of abdominal tuberculosis presenting as acute or chronic conditions to the surgical services at a general hospital in Mumbai over a period of two years is done. The aim was to find out the modes of presentation and outcome of patients with abdominal tuberculosis. The incidence of immunocompromised status in these patients was studied and their morbidity and mortality as compared to immunocompetent patients with abdominal tuberculosis was analysed.

Introduction

Tuberculosis in India continues to be a major public health problem mainly because of poor nutrition, over crowding, unhygienic living conditions, poor patient compliance and an increasing incidence of HIV infection. Every year there are 40 lakh new cases throughout the world with 30 lakh deaths annually.¹

The incidence is highest in Asia followed by Africa, Latin America and Western Europe in that order. The prevalence rate of pulmonary tuberculosis in India varies between 13 to 25 per 1000 population.¹

Poverty, malnutrition, over crowding and increasing incidence of HIV infection in our country all contribute to this high prevalence. Tuberculosis is one of the important causes of morbidity and loss of working man hours in India.

Approximately one eighth of total cases of tuberculosis are extrapulmonary. In HIV positive patients, the incidence of extrapulmonary tuberculosis goes upto 50%

and abdominal tuberculosis accounts for 11-16% of these extrapulmonary cases.²

We conducted a prospective study of 120 cases of abdominal tuberculosis presenting to surgical wards as acute or chronic conditions at a general hospital in Mumbai.

Material And Methods

This is a prospective study of 120 cases of abdominal tuberculosis presenting as acute or chronic conditions to the surgical services at a general hospital in Mumbai from March 1999 to March 2001.

A detailed history was taken and a thorough clinical examination was performed. Baseline haematological and biochemical investigations were performed in all cases along with X-ray Chest and X-ray abdomen standing (AP). Barium study was performed in patients not having acute abdominal condition. Serological testing for HIV I and II was performed using ELISA technique in all the patients.

Patients received appropriate pharmacotherapy as well as surgical intervention as indicated. Whenever a preoperative diagnosis of abdominal tuberculosis was possible, intensive

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antituberculous treatment was started preoperatively. The standard four-drug regimen was used for initial 2 months from which Ethambutol and Pyrizinamide were discontinued after completion of initial 2 months. Administration of Isoniazid and Rifampicin was continued for next 8 months along with per-oral Pyridoxine. Other supportive measures such as high protein diet, haematinics and vitamin supplementation were provided. Parenteral (intravenous hydrocortisone) followed by per-oral (prednisolone) corticosteroids were used in the patients with miliary tuberculosis to prevent adrenal crisis and to reduce hypersensitivity reactions to drugs.

Patients presenting with acute surgical condition such as intestinal obstruction or perforative peritonitis underwent emergency laparotomy while patients with subacute intestinal obstruction were subjected to elective laparotomy. In this group of patients, the four drug anti-tuberculous treatment was started on resumption of oral intake.

The data was recorded on a case record form. All the patients were discharged on oral antituberculous treatment and instructed to report for follow-up weekly for the first month and monthly thereafter.

The data collected was analysed at the end of the study period.

Results

In our study of 120 patients with abdominal tuberculosis, 104 patients (86.7%) were in their third and fourth decade of life with a slight male preponderance (1.3 to 1). As seen in Table 1, 96 patients (80%), weighed below average for Indian reference adult man (60 kg) and woman (50 kg). As evident in Table 2 almost all the patients 116 (97%) suffered vague abdominal pain for more than a month before presenting to the clinician. Anorexia

was present in 88 (73%), weight loss in 77 (64%) and fever in 65 (54%) patients.

Markedly raised ESR (> 40 mm at the end of 1st hour) was observed in 108 (90%) of our patients (Table 3). Besides being underweight, the poor nutritional status of our patients was evident from serum albumin level which was less than 3.5 gm% in 101 (84%) of our patients. On chest roentgenogram, there was evidence of active or healed pulmonary tuberculosis in 40 (34%) of the patients (Table 4). These patients were subjected to sputum examination and 5 (4%) tested positive for acid fast bacilli.

ELISA technique detected 13 patients (11%) to be seropositive for HIV. Five (4%) of these patients developed faecal fistula postoperatively and all the seropositive

Table 1 : Weight distribution of patients

Weight in kg.	No. of patients	Percentage
< 30	04	03%
30-40	30	25%
40-50	66	55%
> 50	20	17%
Total	120	100%

Table 2 : Distribution of symptoms in patients

Symptoms	No. of patients	Percentage
Abdominal pain	116	97%
Vomiting	98	81%
Anoexia	88	73%
Weight loss	77	64%
Constipation	72	60%
Low grade intermittent fever	65	54%
Cervical lymphadenopathy	25	21%
H/o pulmonary Koch's	25	21%
H/o AKT taken	25	21%
Cough with expectoration	15	13%
Diarrhoea	12	10%
H/o Koch's contact	10	08%

Table 3 : Erythrocyte sedimentation rate

ESR (mm at the end of 1 st hour)	No. of patients	Percentage
< 40	12	10%
40-60	05	04%
60-80	48	40%
> 80	55	46%
Total	120	100%

Table 4 : Findings of chest X-ray

Chest X-ray findings	No. of patients	Percentage
Normal	80	66%
Pulmonary Koch's	40	34%
Healed	25	21%
Active	15	13%
Total	120	100%

patients subsequently succumbed to their illness (100% mortality).

Ninety-seven per cent (116) of the patients in our study were treated surgically of which 96 (80%) required emergency surgical intervention. Twenty (17%) patients presented in a more chronic form and underwent elective surgery. The remaining four patients (3%) settled with medical management only (Table 5). The terminal ileum 55 (44%) and ileocaecal region 40 (32%) were the commonest portions. 95 (76% combined) of GI tract involved in abdominal tuberculosis and stricture 89 (74%) either single 45 (38%) or multiple 44 (36%) was the commonest lesion detected at surgery (Table 6). Patients developed various postoperative complications, of which the commonest complication was wound sepsis. Five (4%) patients in our study developed faecal fistula following surgery. All of these patients were seropositive. Two per cent of patients in our study developed deranged hepatic function while on anti tuberculous treatment. The

Table 5 : Management of patients with abdominal tuberculosis in our study

Management	No. of patients	Percentage
Medical	04	03%
Surgical	116	97%
Emergency	96	80%
Elective	20	17%
Total	120	100%

Table 6 : Intraoperative findings

Intraoperative finding	No. of patients	Percentage
Strictures	89	74%
Single	45	38%
Multiple	44	36%
Mesenteric lymphadenopathy	81	67%
Perforations	33	27%
Proximal to stricture	30	25%
Perforation thru' tubercle	03	02%
Ileocaecal mass	35	29%
Peritoneum	30	25%
Tubercles	23	19%
Cocooning	07	06%
Adhesive bands	22	18%
Others	05	04%
Appendicitis	04	03%
Actively bleeding ulcer at IC junction	01	0.66%

overall mortality was 14% in our study (17 patients) of which 13 patients were HIV seropositive. So HIV seropositivity constitutes 76.47% of total deaths due to abdominal tuberculosis which is a significant observation (Table 7). And all 13 HIV seropositive patients in our study had 100% mortality whereas only 4 out of remaining (107) patients showed mortality (3.74%). The difference in mortality of both the groups in our study is highly significant (p=0.0001; test applied is Fischer's test).

On histological examination, eighty eight

Table 7 : Impact of seropositivity on mortality

No. of deaths	No. of deaths with HIV infection
17	13
100%	76.47%

Note: All 13 HIV seropositive patients had 100% mortality whereas only 4 out of remaining 107 patients (non-immunocompromised) had mortality (3.74%).

Table 8 : Histopathology

Histopathology	No. of patients	Percentage
Tuberculous enteritis	102	85%
Tuberculous mesenteric lymphadenitis	81	68%
Peritoneal tuberculosis	10	08%
Ascitic tuberculosis	04	03%
Tuberculous appendicitis	04	03%

patients had tuberculous enteritis and sixty eight patients had tuberculous lymphadenitis as seen in Table 8. It is important to note that 3% (4/120) of patients had tuberculous appendicitis.

Our study indicates that in India abdominal tuberculosis mainly affects people in the productive age group i.e from 20-40 years with majority of them being undernourished. Pulmonary tuberculosis is co-existent in significant number of patients with abdominal tuberculosis (34%). Presence of HIV infection has emerged as a major factor influencing the outcome in patients with abdominal tuberculosis.

Discussion

We found that most of our patients with abdominal tuberculosis 104 (86.7%) were in the third and fourth decade of life thus affecting the young productive group of population. The disease results in loss of working hours, loss of manpower leading to decreased productivity of the nation.

According to Banerjee³ and Chuttani,⁴ incidence of intestinal tuberculosis is highest among young adults in third decade of life. Similar observation was made by Kapoor who found that two thirds of patients with abdominal tuberculosis were in their third decade of life.⁵ We found a slight male preponderance in our study (1.3 to 1).

In our study, chronic vague abdominal pain was present in almost all the patients 116 (97%) which compared well with the findings of Anand 100%⁶ Bhansali 100%⁷, Prakash 96.77%⁸. Constitutional symptoms such as anorexia and weight loss were present in 88 (73%) and 77 (64%) patients respectively. Anand⁶ and Prakash⁸ have described 64% incidence of right iliac fossa lump. However, it was present in only about 13% of patients in our study.

In our study, most of the patients 96 (80%) weighed between 30-50 kg which is below average for an Indian reference man (60 kg) or woman (50 kg). Erythrocyte sedimentation rate (ESR) was raised in 108 (90%) of patients in our study i.e above 40 mm at the end of 1st hour. Similar observations were made by Sharp⁹ 95%, Agarwal¹⁰ 88% and Bolukbas¹¹ 95.5% while Sharma¹² found raised ESR in only 43.3% of patients, Ge Y¹³ also found raised ESR in 59.6% of patients in his study.

Hypoalbuminaemia (serum albumin < 3.5 gm%) was found in 101 (84%) of patients in our study and it was present in all the five cases (4%) who developed faecal fistula and died postoperatively. Similar low levels of albumin were found by Sharma *et al*¹⁴ and Miller *et al*¹⁵ in 86% of patients.

In our study, pulmonary tuberculosis was present in 34% of patients, 21% having healed lesions on chest X-ray and 13% with active tuberculosis. Kapoor¹⁶ *et al* found 46% of the patients of abdominal tuberculosis had evidence of healed or active pulmonary Koch's.

Prakash *et al*⁸ found 39% of patients of abdominal tuberculosis with healed pulmonary Koch's. Berney *et al*¹⁷ found that 25% of patients of abdominal tuberculosis had healed or active pulmonary lesions of tuberculosis. Similar observations were made by Ibrahim *et al*¹⁸ (32%). As a corollary, gastro intestinal tuberculosis was diagnosed in 46% of patients with smear positive cavitary pulmonary tuberculosis and frequency of gastro intestinal tuberculosis increased with severity of pulmonary tuberculosis. This was observed by Pettengell *et al*.¹⁹

In our series, 11% of patients with abdominal tuberculosis tested HIV seropositive by ELISA technique. In another Indian study conducted by Rathi *et al*²⁰ HIV infection was detected in 16.6% of abdominal tuberculosis, 6.9% of pulmonary tuberculosis patients and in 1.4% of voluntary blood donors. This shows that significant number of patients with abdominal tuberculosis have HIV seropositivity .

The commonest site of involvement in abdominal tuberculosis in our study was terminal ileum in 55 (44%). Ileocaecal region in 40 (32%) patients was the second most common and both together accounted for 76%. This was endorsed by other studies by Tandon *et al* ,²¹ Wig *et al*²² and Prakash *et al* .⁸ This could be because of the physiological stasis and abundance of lymphoid tissue in this region.

The most common intraoperative finding was stricture in 89 (74%) either single 45 (38%) or multiple 44 (36%) patients. Similar observations were made by Akbar *et al*²³ viz. 60% single stricture found in ileum (50% in terminal ileum and 10% in proximal ileum) and 40% multiple strictures in small bowel (20% in terminal ileum and 20% all throughout small bowel). Perforations were seen in 27% of cases. In 25% of these cases,

perforations were proximal to strictures. Similar incidence i.e. 30% was found in a study by Aston *et al*²⁴. Acute intestinal obstruction was seen in 74% of cases which correlated well with the incidence of strictures 76% found in our study. Anand,⁶ Ohri and Agarwal²⁵ reported the incidence of obstruction ranging from 12.5% to 60%. Bhansali²⁶ quotes an incidence of 30%.

Patients who underwent emergency or elective laparotomy were subjected to limited bowel resections . This was put forth by Pujari *et al*.²⁷ He also defined the principles of surgery in abdominal tuberculosis e.g. strictures which reduce the lumen by half or more or cause proximal dilatation / hypertrophy need to undergo stricturoplasty. Segment of bowel with multiple strictures or long tubular stricture needs resection with 5 cm margin. In tubercular perforation, resection anastomosis is to be preferred over simple primary closure as it is associated with high incidence of leak.²⁷ The indicators of need for resection were long strictures (> 12 cm in length) and multiple areas of involvement. This was cited by Dwivedi *et al*²⁸ and Balasubramaniam.²⁹

Post operative mortality in our study was 14% (17 patients) out of which 5% had septicaemia, 5% had pulmonary complications and 4% succumbed to faecal fistula. Similar mortality was reported by Bhansali.²⁶

Another important consideration here was that 13 out of 17 patients who died, had tested HIV positive by ELISA during their hospital stay. So, HIV positive patients constituted 76.47% of total number of deaths due to abdominal tuberculosis in our study. Another fact worth highlighting was that all seropositive patients with abdominal tuberculosis eventually succumbed to their illness (100% mortality). This underscores the fact that HIV impacts the morbidity and

mortality in patients with abdominal tuberculosis and this is a very lethal combination. This was also observed in another study by Fee *et al.*³⁰ Disseminated tuberculosis was seen in 93% of patients of abdominal tuberculosis with HIV infection and contributed to death in 23% of these patients. So, abdominal tuberculosis in setting of HIV is invariably a manifestation of disseminated disease and results in significant mortality. Also, all the five patients (4%) who developed faecal fistula postoperatively were HIV positive. So we can say, that seropositive patients with abdominal tuberculosis are at greater risk of developing fatal postoperative complications than those with only abdominal tuberculosis.

The anti tuberculous treatment was the same for HIV positive and negative cases of abdominal tuberculosis in our study.³¹ This is in accordance with the WHO manual on tuberculosis (1997). The only drug that is contraindicated in HIV positive cases is thiacetazone, and streptomycin has to be avoided as it can be given only as an injection which increases the risk of accidental needle prick injury to those administering it.

The chemotherapy was continued for a period of 10 months. Of the 103 cases (17 post operative deaths) who were discharged and followed up, 89 patients (87%) reported regularly for first month and 83 patients (81%) of our patients completed the follow-up period of 10 months. Various combinations over various time periods have been used by various people. Philip Abraham and Ferosh Mistry,³² Chuttani and Sarin³³ both had adopted long term chemotherapy for 12-24 months. 83 (81% of our patients responded to AKT with improvement in general condition, disappearance of symptoms and weight gain.

Conclusion

From our prospective study of 120 cases of

abdominal tuberculosis we conclude that –

1. We found high incidence of HIV infection in patients of abdominal tuberculosis in our study.
2. Seropositivity along with abdominal tuberculosis is associated with significantly increased mortality and morbidity.
3. High incidence of pulmonary tuberculosis was found in our study which was similar to that found by other researchers.

Thus it is important to investigate for HIV infection in patients of abdominal tuberculosis. Also in patients of abdominal tuberculosis one must investigate for pulmonary tuberculosis.

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QUALITY OF LIFE WITH DEFIBRILLATOR THERAPY OR AMIODARONE IN HEART FAILURE

The use of implantable cardioverter-defibrillators (ICDs) prolongs survival for some patients with heart failure. However, it has been suggested that ICD implantation may adversely affect the quality of life. In this trial, the evaluation of several quality-of-life measures disclosed no long-term effect, although a temporary adverse effect was evident within 1 month after an ICD shock.

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