Study of Surgical Emergencies of Tubercular Abdomen in Developing Countries

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Abstract To study the various modes of presentation, diagnosis, and management of surgical emergencies of tubercular abdomen. This prospective study of surgical emergencies of tubercular abdomen was conducted in 50 patients who attended our surgical emergency from 2006 to 2008. Patients were evaluated thoroughly with history, physical examination, routine investigations, and special investigations such as ELISA, PCR, barium studies of gastrointestinal tract, and diagnostic laparoscopy as required and managed with medical and surgical treatment as necessary. The most of patients were from rural areas, in the third to sixth decades with slight male preponderance. Abdominal pain, vomiting, and constipation were commonest presenting symptoms. About 20 % patients had history of pulmonary tuberculosis and 16 % patients presented with ascites. PCR for blood and ascitic fluid was positive in 72 and 87.5 % patients, respectively. About 24 % patients were managed nonoperatively and responded to ATT. About 76 % patients needed surgery among which one-fifth of patients were operated in emergency. Procedures like adhesiolysis of gut (47.3 %), stricturoplasty (10.5 %), resection anastomosis (5.2 %), right hemicolectomy (5.2 %), and ileotransverse anastomosis (7.8 %) were performed in 30 patients and peritoneal biopsy and lymph node biopsy in the remaining 8 patients. Both medically and surgically managed patients were put on antitubercular therapy. Abdominal tuberculosis is a disease of middle-aged rural people, presenting commonly with abdominal pain and vomiting with right lower abdominal tenderness.

PCR (blood and ascites) for tuberculosis is much more sensitive than IgM ELISA (blood and ascites). The most of patients required surgical procedures and all patients responded dramatically to antitubercular therapy symptomatically with increase in the hemoglobin level and decrease in ESR.

Keywords Surgical emergencies · Tubercular abdomen · Adhesiolysis · Stricturoplasty · Extra-pulmonary tuberculosis

Introduction

Tuberculosis is a disease with worldwide distribution, despite the availability of highly effective drugs and vaccine making it a preventable and curable disease. This disease still continues to be one of major public problems in developing countries. Rising trend in HIV infection, together with emergence of multidrug-resistant strains of tuberculosis, poses additional threat, thus increasing the incidence and severity of tuberculosis, especially the extrapulmonary variety. Tuberculosis is the single largest infectious cause of death among adults in the world, accounting for nearly 2 million deaths per year. Tuberculosis of gastrointestinal tract is the sixth most frequent form of extrapulmonary site, after lymphatic, genitourinary, bone and joint, miliary and meningeal tuberculosis [1]. Abdominal tuberculosis is one of those diseases in which symptomatology and physical signs are nonspecific and the majority of patients present late and with complications [2]. Generalized or localized abdominal pain, weight loss, night sweats, fever, vomiting, weakness, diarrhea, constipation, and bleeding per rectum are common presenting symptoms. Abdominal tenderness is most frequent sign affecting 6.7 % patients and is usually in the right lower quadrant [3]. Any

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Table 1 Symptoms at the time of presentation

S. No.	Symptom	Number of Cases	Percentage (%)
1	Abdominal pain	43	86
2	Weight loss	41	82
3	Loss of appetite	38	76
4	Vomiting	28	56
5	Constipation	24	48
6	Fever	22	44
7	Diarrhea	5	10
8	Bleeding per rectum	1	2

portion of gastrointestinal tract may be affected by tuberculosis, but terminal ileum and cecum are most commonly involved. Tuberculous involvement of small intestine may lead to single or multiple areas of strictures or indurated mass in wall of gut, which may cause some degree of intestinal obstruction. Proximal gut may become hypertrophied and dilated, leading to perforation of gut and generalized peritonitis. The gross pathology is characterized by transverse ulcers, fibrosis, thickening and stricturing of bowel wall, enlarged and matted mesenteric nodes, omental thickening, and peritoneal tubercles. Hematological and immunological tests are nonspecific. Evidence of tuberculosis on chest X-ray supports diagnosis. Abdominal plain films may show dilated loops, fluid levels, ascites, calcified nodes, and enteroliths. Treatment for abdominal tuberculosis is medical with antitubercular drugs. Surgery is reserved for complications such as acute intestinal obstruction, perforation, and peritonitis [4].

Materials and Methods

A prospective clinical study of surgical emergencies of tubercular abdomen was carried out in 50 patients who attended the emergency section at Department of General Surgery, Govt. Medical College Srinagar, Kashmir, from 2006 to 2008. The present study was undertaken to study the various modes of presentation, diagnosis, and management of surgical emergencies of tubercular abdomen. Patients were evaluated with

Table 2 Physical signs at the time of presentation

S. No.	Signs	Number of Patients	Percentage (%)
1	Tenderness (abdominal)	38	76
2	Pallor	36	72
3	Abdominal distension	22	44
4	Lump abdomen	10	20
5	Ascites	8	16
6	Lymphadenopathy	6	12

Table 3 Site of involvement

S. No.	Site	Number of Patients	Percentage (%)
1	Ileocecal region	9	23.6
2	Enlarged mesenteric lymph nodes with matted gut loops near ileocecal region	7	18.4
3	Peritoneal tubercles	5	13.1
4	Both ileocecal region and mesenteric nodes	5	13.1
5	Stricture involving ileum	5	13.1
6	Mesenteric nodes	4	10.5
7	Ileal perforation	3	7.8
8	Cocooned abdomen	2	5.2
9	Uterus studded with tubercles	2	5.2
10	Right tubo-ovarian mass	2	5.2
11	Omental caking	1	2.6
12	Appendix grossly inflamed and gangrenous	1	2.6

thorough history, general physical examination, and systemic examination. Routine investigations such as complete blood counts, ESR, renal function tests, chest X-ray, abdominal X-ray, and ultrasonography were done in all patients. IgM ELISA (blood) and PCR (blood) for tuberculosis were done in all patients. Special investigations such as barium studies, CT scan abdomen, IgM ELISA, and PCR of ascitic fluid for tuberculosis, diagnostic paracentesis, diagnostic laparoscopy, and histopathological examination of specimens were obtained during diagnostic laparoscopy, and laparotomy were done when required. Patients were managed with medical and surgical treatment. Patients with features of subacute intestinal obstruction were managed conservatively. After confirmation of diagnosis of tuberculosis, they were put on antitubercular chemotherapy. Indication of emergency surgery included acute intestinal obstruction, gut perforation, and peritonitis, while elective surgery was performed in those patients where conservative treatment failed and gut obstruction was present. Adhesiolysis, stricturoplasty, ileotransverse anastomosis, right hemicolectomy, resection anastomosis, peritoneal, and lymph node biopsy were done as deemed necessary on the operating table. All patients

Table 4 Postoperative complications

S. No.	Complications	Number of Patients	Percentage (%)
1	Respiratory tract infection	8	21
2	Wound infection	3	7.8
3	Fecal fistula	1	2.6
4	Burst abdomen	1	2.6
5	Septicemia	1	2.6

were put on anti-tubercular therapy (ATT) after confirmation of diagnosis.

Observations There were 26 (52 %) males and 24 (48 %) females, with 84 % of patients from rural areas. The age of patients ranged from 9 to 68 years and majority being in the second to fourth decades of life. Association of pulmonary tuberculosis with abdominal tuberculosis was found in 20 % patients, with active pulmonary tuberculosis in 14 % patients. Symptoms and signs at the time of presentation are listed in Tables 1 and 2.

IgM ELISA and PCR (blood) for tuberculosis were positive in 38 % and 72 % of patients, respectively, while IgM ELISA and PCR (ascites) for tuberculosis were positive in 4 (50 %) and 7 (87.5 %) patients, respectively. Ultrasonography showed bowel mass, free fluid, and dilated gut loops in 8, 32, and 28 % patients. Of 50 patients, 12 were managed with medical treatment only while 38 patients required a surgical procedure followed by antitubercular therapy. Emergency surgical procedures included adhesiolysis of gut in 14 (36.8 %), peritoneal and lymph node biopsy in 5 (13.1 %), strictureplasty in 4 (10.5 %), ileotransverse anastomosis in 3 (7.8 %), peritoneal biopsy in 3 (7.8 %), resection anastomosis in 2 (5.2 %), and appendectomy in 1 (2.6 %) patient, while elective surgery included adhesiolysis in 4 (10.5 %) and right hemicolectomy in 2 (5.2 %) patients. Site of involvement/nature of lesions found on exploratory laparotomy is mentioned in Table 3.

Histopathology test confirmed diagnosis in 97.8 % patients, and all 50 patients were treated with antitubercular therapy using rifampicin, isoniazid, and pyrazinamide for the first 2 months and rifampicin and isoniazid for the next 4 months. Postoperative complications are listed in Table 4.

Before the start of ATT 84 % patients had hemoglobin level less than 12 gm%, but after the completion of ATT more than 60 % patients had hemoglobin level greater than 12 gm%. ESR >20 mm in the first hour was observed in 94 % patients, but after the completion of ATT more than 52 % patients had ESR less than 20 mm in the first hour.

Discussion

The incidence of abdominal tuberculosis as reported by various workers ranges from 15 to 20 %, with only 15–20 % of patients having concomitant pulmonary disease [5, 6]. It mostly affects young adults in the third and fourth decades of life [7, 8]. Most of patients belong to lower socioeconomic class and rural areas especially Gujjars. The most common symptoms in this study were abdominal pain, vomiting, constipation, diarrhea, fever, weight loss, distension abdomen, and loss of appetite as observed by Bhansali [7]. Abdominal pain was present in 86 % of patients, more commonly located in the right iliac fossa and umbilical region. Pain was more

commonly seen in patients with acute symptoms as compared to those with chronic symptoms. The incidence of vomiting, constipation, diarrhea, and fever in our study was in conformity with world literature. Abdominal tenderness has been reported as the commonest sign, which was present in 76 % of patients in our study; however, ascites was seen in only 16 % in our study as compared to world literature where it is reported in 37–67 % of patients [8, 9].

None of the patients in this study had history of extrapulmonary tuberculosis. Anemia was consistent finding in 84 % patients. PCR of blood and ascitic fluid is highly sensitive for tuberculosis as compared to ELISA of blood and ascetic fluid; however, even this highly sophisticated technique may remain negative. Diagnostic laparoscopy performed as the last resort in doubtful cases proved to be effective, yielding diagnosis in 75 % patients in whom it was done. Patients managed conservatively were put on ATT after confirmation of diagnosis. Signs and symptoms improved dramatically corresponding with observations made by other authors [10–13]. Majority of patients in our study (76 %) required emergency surgery for acute intestinal obstruction, peritonitis, and gut perforation. Adhesiolysis and peritoneal and lymph node biopsy were required in majority of patients. Ileocecal tuberculosis was the commonest site of involvement in 23.6 % patients which is in accordance with the literature. Fourteen patients (36.8 %) developed postoperative complications, commonest being respiratory tract infection (21 %). There was no death in patients studied.

Conclusion

Abdominal tuberculosis is a disease of middle-aged rural people presenting commonly with abdominal pain and vomiting with right lower abdominal tenderness. PCR (blood and ascites) for tuberculosis is much more sensitive than IgM ELISA (blood and ascites). The most of patients required surgical procedure, and all patients responded dramatically to antitubercular therapy with an increase in the hemoglobin level and decrease in ESR.

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