

SURGICAL TREATMENT FOR COMPLICATIONS OF ABDOMINAL TUBERCULOSIS

Azizollah Abbasi,* MD; Mojtaba Javaherzadeh, MD; Mehrdad Arab, MD; Mohammad Keshoofy, MD; Saviz Pojhan, MD; and Ghasem Daneshvar, MD

Department of Surgery, Shaheed Beheshti University of Medical Science, Tehran, Iran

Abdominal tuberculosis (TB) has been considered as a fatal and untreatable disease for years. Before the discovery of effective medical therapy for TB (TBMT) there was no hope for recovery of patients with abdominal TB. Even when such a patient recovered, it was ascribed to false diagnosis and not to true cure.¹ The underlying mechanisms for this disease has not yet been totally elucidated, but the probable route of infection is the involvement of other organs especially lungs and transmission of Mycobacterium TB (MTB) through blood or swallowed sputum. Direct invasion from adjacent structures might be another route of infection.²

In some patients, abdominal TB is a primary disease meaning that involvement of no other organ has been documented in the past or present. Also, it has been proposed that the severity of pulmonary infection has positive correlation with the extent of gastrointestinal involvement.³ Despite dramatic decrease in the prevalence of pulmonary TB after discovery of the antituberculous drugs, there are considerable rates of incidence of abdominal TB reported from a number of countries.⁴ Although any site of gastrointestinal tract could be affected, ileocecum and terminal ileum are most commonly involved.⁵ The specific histopathologic presentation of TB in gastrointestinal tract is similar to other organs, that is: "caseous granulomas with central necrosis." This specific appearance, however, could not be found in all parts of gastrointestinal tract and for this reason,

occasionally TB may not be distinguished from Chron's disease or other inflammatory conditions.⁶

Clinical presentation of the disease is also so much varied that there is relatively no specific sign or symptom for diagnosis of abdominal TB. Nonspecific and vague complaints may be present from one month to one year predominating initial presentation before diagnosis is made. Prevalence of the disease is approximately equal among males and females with a peak in 3rd and 4th decades. The majority of patients complain of abdominal pain, weight loss, fever, weakness, and other general symptoms. A considerable percentage of patients may present with acute signs and symptoms of abdomen and therefore, emergency laparotomy should be performed.⁷ Surgical operation in such cases may end in grave complications which require long and distressful hospitalization period for patients.

Nowadays, general surgeons have less chance to encounter tuberculous peritonitis during their residency period, so they lack adequate experience and knowledge for management of these patients and as a consequence, they might be involved in a series of postsurgical problems. Therefore, we present our experience on the management of these patients with abdominal TB and the complications of surgical treatment.

We enrolled all patients who were admitted in surgery department of Massih Daneshvari Hospital and underwent laparotomy for complications of abdominal TB in a 3-year-period (May 1997-April 2000). Data were extracted from questionnaires which in our department are completed exclusively for patients requiring operation for complications of TB. During this period, 90 patients underwent different operations for complications of TB, of which 10 cases needed laparotomy for abdominal complications of the disease. Characteristics of the patients and types of operation performed are summarized in Table 1.

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*Corresponding author:
Azizollah Abbasidezfouli, MD
General Thoracic Surgery Unit, Massih Daneshvari Hospital,
Shaheed Bahonar Ave, Darabad, Tehran, 19556, Iran.
Tel: +98-21- 2280161
Fax: +98-21- 2285777
E-mail: abbasidezfouli@nritld.ac.ir.

Table 1. General information, type and outcome of operations performed on 10 cases who underwent laparotomy for abdominal TB.¹

Case	Age (yrs)	Sex	Short history	Reason for laparotomy	Findings at laparotomy and type of procedure	Reoperation	Description of reoperations	Outcome	Other remarks
1	16	F	Past hx of pulmonary TB and bronchopulmonary fistula	Peritonitis	Multiple intestinal perforation due to TB: multiple intestinal resections performed	—	—	Died after 3 days	Grave condition at the operation due to sepsis
2	26	M	Nonspecific symptoms plus abdominal pain for 2 months	Suspicion to tumoral lesion	Adhesions in terminal ileum were released and biopsies were taken from lymph nodes	—	—	Recovery	—
3	25	F	Fever, abdominal pain, weight loss for one month	Suspicion to tumoral lesion	Adhesions in terminal ileum were released and biopsies were taken from lymph nodes	—	—	Recovery	—
4	23	M	Eight months hx of abdominal pain and fever, past hx of pulmonary TB	Persistent abdominal pain, suspicion to splenic abscess	Spleen was adhered to intestines and omentum and contained abscess: splenectomy was performed	—	—	Recovery	Abdominal TB was confined spleen
5	20	M	Abdominal pain for one month, recent abdominal distension	Intestinal obstruction	There were sever adhesions: no enterolysis performed despite presence of obstruction, only biopsies were taken	1	Relaparotomy, enterolysis	Recovery	Obstruction was not relieved by TBMT3 after first operation, however, the patient remained stable
6	21	M	Abdominal pain for the past 4 months, hx of cervical tuberculous adenitis	Peritonitis	Intestinal adhesions, interloop abscess: enterolysis and suction of abscess	2	Intestinal resection for removal of fistula in 2	Recovery	It took 9 months to treat the patient with 3 operations
7	16	M	Hx of cervical TB adenitis, abdominal pain for 3 months	Peritonitis	Sever adhesions: enterolysis performed, inter loop abscess removed	2	Intestinal resection for removal of fistula in 2 stages	Recovery	It took 7 months to treat the patient with 3 operations
8	40	F	Abdominal pain for one year, change in severity of symptoms	Peritonitis	Sever adhesions : enterolysis and abscess evacuation	1	Resection of fistula and anastomosis	Recovery	Iatrogenic bladder perforation happened during the second operation which was repaired without complication
9	16	M	Abdominal pain for one month, change in severity of symptoms	Obstruction and abdominal abscess	No obstruction was present: a large seroma was evacuated	—	—	Recovery	No other procedure was done except for seroma drainage
10	12	F	Abdominal pain for 7 months, deterioration of general condition during last 2 weeks	Peritonitis	Sever adhesions: enterolysis with resection -anastomosis of ileal perforation	—	—	Died after 2 days	Grave condition at the operation due to sepsis

TB: Tuberculosis; hx: History; TBMT: Antituberculous medical therapy; F: Female; M: Male.

Two of the cases had been operated in other hospitals and were referred to us for management of postoperative problems; both were reoperated by the present authors.

Diagnosis of the tuberculosis was unequivocal in all patients and was based on pathologic reports (10 patients), positive smears (5 patients), clinical response to medical therapy (10 patients), and presence of tuberculosis in other organs (8 patients). The major reason for laparotomy was clinical diagnosis of peritonitis which compelled the surgeon to perform operation in 5 cases. Only in 2 of them, initial diagnosis was confirmed at the operation, which according to our criteria it was defined as: "visceral perforation subsequent to TB and secondary bacterial peritonitis". Both of these cases were severely ill before surgery and unfortunately, died in the first week after surgery, despite receiving all the necessary surgical procedures (peritoneal irrigation, abscess evacuation and intestinal resections). Smear and culture of specimens obtained from both of them showed MTB. In the remaining 3 patients, clinical diagnosis of peritonitis was erroneous and no intestinal perforation or frank peritonitis was identified at operation. The underlying reason for clinical manifestations was inflammatory reaction of intestinal walls due to TB. Microbiological examination of the specimens in these 3 patients revealed MTB in only one case, while histopathologic findings in all of them were consistent with TB. Enterolysis in these 3 cases resulted in multiple intestinal fistula that prolonged the duration of treatment and entailed surgical operation for intestinal resection to treat fistulae. All of these fistulae were eventually healed and no recurrence was seen after a mean follow-up of 2 years.

The reasons for laparotomy in the other 4 patients were either persistent abdominal pain with suspicion for tumoral lesions or intestinal obstruction. Enterolysis was not undertaken for any of them, as on laparotomy, diagnosis of TB was assumed by the surgeon and enterolysis was avoided and accordingly, diagnostic biopsy was the only procedure done in 3 and splenectomy for splenic abscess in another one. None of these cases were affected by fistula or other remarkable complication and they improved uneventfully.

Our last case underwent laparotomy by initial diagnosis of intestinal obstruction. However, after the surgical diagnosis of TB, only a biopsy was taken and abdomen was closed without performing enterolysis, despite the presence of mechanical obstruction. Parenteral TBMT was prescribed

postoperatively, but persistence of obstructive signs and symptoms forced us to repeat laparotomy after 2 weeks. This time, enterolysis was chosen to eliminate intestinal obstruction. In this case no fistula or other postoperative complication ensued and the patient recovered completely.

In our experience the most significant complication of laparotomy in patients with abdominal TB was fistula formation. Three out of 4 patients who underwent complete enterolysis were affected by this complication. None of these 3 cases was under preoperative TBMT. The only patient who did not develop fistula despite complete enterolysis, had started receiving TBMT, 2 weeks prior to the surgery. Also no fistula was developed after 7 other operations with complete enterolysis and resections in patients who had been receiving TBMT drugs for one to several weeks before surgery. Two of them died due to diffuse peritonitis and septic shock which had been developed before laparotomy. If they had a chance to live, no fistula would probably develop. Other studies have reported high mortality rates for intestinal perforation due to TB.⁸

Also, no fistula was developed in 5 patients who underwent limited local procedures (three lymph node biopsies, one splenectomy for splenic abscess, and one seroma evacuation). So we believe that even, when the patient is not under coverage of TBMT, limited abdominal procedures will not result in enteric fistulae. Complete enterolysis causes some parts of intestinal serosa to tear off. The presence of a live MTB inside intestinal wall and adjacent lymph nodes prevents such small tearings from normal healing, resulting in fistula formation, while preoperative TBMT allows resumption of normal healing and prevents fistula formation. Therefore, we draw the conclusion that when a surgeon encounters tuberculosis at the laparotomy, it would be advisable to avoid any enterolysis and to confine the procedure to taking specimens for microbiological and histopathological studies (lymph nodes and peritoneal secretions are preferred rather than intestinal wall), then the incision would be closed and the patient would be put on appropriate TBMT. Thereafter, laparotomy would be performed again if needed. Even when the patient suffers from intestinal obstruction without any sign of bowel ischemia or gangrene, enterolysis should be avoided and the patient should be treated by TBMT. Enterolysis is allowed only when it is unavoidable, e.g., intestinal gangrene or free perforation and microbial peritonitis.

Clinical manifestation of abdominal TB is nonspecific and hence surgeons usually do not make

correct diagnosis before laparotomy.⁹ However, after abdominal incision has been made, most surgeons could easily recognize typical features of TB and if so, they are recommended to avoid enterolysis.

Here comes the question of what if a surgeon had impression of tuberculosis before surgery. Although diagnostic laparoscopy has been suggested in such cases,¹⁰ we have reached the conclusion retrospectively that, limited laparotomy is more advantageous than laparoscopy. Adhesion bands between intestine and abdominal wall exist in patients with tuberculosis. Release of these bands through a small laparotomy incision and taking biopsy from lymph nodes or peritoneal tissues will lead to less injury than doing so by laparoscopy. On the other hand, intraperitoneal direct examination either by laparoscopy or by laparotomy, should not be postponed in patients with clinical suspicion of TB. This delay, causes intestinal perforation to remain undiagnosed, in some cases resulting in high mortality rate.

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