

Research Article

ABDOMINAL TUBERCULOSIS REPORT OF 5 PATIENTS AND LITERATURE REVIEW

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ABSTRACT

Each year, tuberculosis (TB) results in the death of 3 million people globally. In 2000-2020 - 200 million people will become sick, and 35 million will die from TB, if control is not strengthened. Tuberculosis is still common in the developing world, so common that it must be considered in the differential diagnosis of a majority of the surgical presentations. The disease is a diagnostic enigma and the management is still controversial. Surgical treatments, both radical and conservative, are being advocated. With the development of modern antitubercular drugs, the surgical management is with a view to overcome the deleterious effects of the disease, like obstruction, perforation and disorganization of the tissues.

Keywords: abdominal tuberculosis, bowel obstruction, lymph nodes.

INTRODUCTION

Tuberculosis can involve any part of the gastrointestinal tract and is the sixth most frequent site of extra-pulmonary involvement. Tuberculosis bacteria (*Mycobacterium tuberculosis*) reach the gastrointestinal tract via haematogenous spread, ingestion of infected sputum, or direct spread from infected contiguous lymph nodes and fallopian tubes. The gross pathology is characterized by transverse ulcers, fibrosis, thickening and structuring of the bowel wall, enlarged mesenteric lymph nodes, omental thickening and peritoneal tubercles.

PATIENTS AND METHODS

We report about 5 patients admitted in the Second Department of surgery as emergency cases between 2011 and 2019 (table 1). Diagnosis in all of the cases was confirmed surgically and pathohistologically. In 3 of these clinical diagnosis was other than tuberculosis on clinical evidence. 2 were female and 3 male at age from 24 to 62 years. Three of them present with a signs and symptoms of peritonitis, one with bowel obstruction and one with bleeding per rectum and palpable abdominal mass. The most serious case was a 62 year old man with clinic of peritonitis due to multiple intestinal perforations, more than 72 hours after the initial complaints. These patients were investigated with physical exams, laboratory tests, abdominal ultrasound scan, X-rays and CT scan. An emergent surgical intervention was performed in all of the patients – intestinal resection with primary anastomosis in that with the bowel obstruction (28 year old female), right hemicolectomy in the patient with the bleeding (29 year old male), intestinal resection and coecostomy in the patient with multiple intestinal perforations (32 year old male), lavage and drainage in the patient with the peritoneal tuberculosis (24 year old female), intestinal resection and ileostomy in the most severe case (62 year old male). All the cases were put on antitubercular drugs after the operation. 4 of the patients were discharged with normal postoperative period. The 62 year old male died on the second postoperative day due to toxemia and shock. The other patients were followed up for a period of 2 months to 1 year. All of the patients were in good health and free from symptoms.

The histological findings of abdominal tuberculosis presented in the intestinal lesions, lymph nodes and peritoneum - a tuberculosis granulomas with central caseation necrosis, Langhans epithelioid cells, lymphocytes, lymph nodes with caseous-productive tuberculosis.

Patient	Diagnosis admission	at	Operative procedure	Outcome
28 year old female	Intestinal obstruction		Laparotomy Intestinal resection Primary anastomosis	Normal postoperative period Discharged
29 year old male	Palpable abdominal mass		Right hemicolectomy	Normal postoperative period Discharged
32 year old male	Peritonitis diffusa (multiple intestinal perforations)		Intestinal resection Coecostomy	Normal postoperative period Discharged
24 year old female	Peritonitis		Laparotomy Lavage Drainage	Normal postoperative period Discharged
62 year old male	Peritonitis totalis >72h (multiple intestinal perforations)		Laparotomy Intestinal resection Ileostomy	Death on the second postoperative day with symptoms of multiorgan failure

Table 1

DISCUSSION

According to World Health Organization (WHO) nearly one-third of the world's population is under the risk of acquiring tuberculosis (TB) and more than 30 million deaths occurred due to tuberculosis every year. Abdominal tuberculosis accounts for nearly 2% of TB cases world-wide. TB can involve any part of the gastrointestinal tract from mouth to anus, the peritoneum and the pancreatobiliary system. It can have a varied presentation, frequently mimicking other abdominal diseases. Autopsies conducted on patients with pulmonary tuberculosis before the era of effective antitubercular drugs revealed intestinal involvement in 55-90% cases. TB of the gastrointestinal tract is the sixth most frequent form of extra-pulmonary site after lymphatic, genitourinary, bone and joint, military and meningeal tuberculosis. The postulated mechanisms by which the tubercle bacilli reach the gastrointestinal tract are: hematogenous spread from the primary lung focus, with later reactivation; ingestion of bacilli in sputum from active pulmonary focus; direct spread from adjacent organs and through lymph channels from infected nodes. The most

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common site of involvement is the ileocaecal region, possibly because of the increased physiological stasis, increased rate of fluid and electrolyte absorption, minimal digestive activity and an abundance of lymphoid tissue at this site. In Bhansali's series, including 196 patients with gastrointestinal tuberculosis, ileum was involved in 102 and caecum in 100 patients. Of the 300 patients in a study ileocaecal involvement was present in 162. Peritoneal involvement may occur from spread from lymph nodes, intestinal lesions or from tubercular salpingitis in women. Abdominal lymph nodal and peritoneal tuberculosis may occur without gastrointestinal involvement in about one third of the cases. Tuberculous granulomas are initially formed in the mucosa or the Peyer's patches. These granulomas are of variable size and characteristically tend to be confluent, in contrast to those in Crohn's disease. Granulomas are often seen just beneath the ulcer bed, mainly in the submucosal layer. Tubercular ulcers are relatively superficial and usually do not penetrate beyond the muscularis. These ulcers are usually transversely oriented in contrast to Crohn's disease, where the ulcers are longitudinal or serpiginous. Cicatricial healing of these ulcers results in strictures. Occlusive arterial changes may produce ischemia and contribute to the development of strictures. Enderteritis also accounts for the rarity of massive bleeding in cases of intestinal tuberculosis. Angiograms of patients with strictures had occlusions of the vessels, while ulcerated lesions had hypervascularity. Mesenteric lymph nodes may be enlarged matted and may caseate. Characteristic granulomas may be seen only in the mesenteric lymph nodes, especially common in patients who have taken antitubercular therapy for some time. The reverse – the presence of granulomas in the intestine and no granulomas in the draining lymph node is rare. The ileocaecal angle is distorted and often obtuse, because both sides of the ileocaecal valve are usually involved leading to incompetence of the valve, another point of distinction from Crohn's disease. Hoon et al. classified the gross morphological appearance of the involved bowel into ulcerative, ulcerohyperplastic and hyperplastic varieties. Ulcerative form has been found more often in malnourished adults, while hyperplastic in relatively well nourished adults. Peritoneal tuberculosis occurs in 3 forms – wet type with ascitis; encysted type with a localized abdominal swelling; and fibrotic type with abdominal masses composed of mesenteric and omental thickening, with matted bowel loops. Abdominal tuberculosis is predominantly a disease of young adults. Two-thirds of the patients are 21-40 year old (in our series only one over 60 years) and the sex incidence is equal (in our series 2 females and 3 males). The clinical presentation of abdominal tuberculosis can be acute, chronic or acute on chronic. The duration of symptoms vary from 2 days in acute case to 15 years in a chronic case. In large series duration is between 3 weeks and 3 years. Most patients have constitutional symptoms of fever (40-70%), pain (85-90%), diarrhoea (11-20%), constipation, alternating constipation and diarrhea, weight loss (40-90%), vomiting (50-60%), malaise. Pain can be either colicky due to luminal compromise, or dull and continuous when the mesenteric lymph nodes are involved.

Presenting complaints	Percent %
Abdominal pain	88
Weight loss	87
Fever/night sweats	55
Loss of appetite	69
Bowel disturbance	69
Other (cough, weakness, abnormal liver function tests)	22

Abdominal tuberculosis should be considered for patients who present with non-specific abdominal complaints and weight loss over a long period. There is no procedure, which can be considered as golden standard in diagnosis of abdominal tuberculosis. The differential diagnosis of TB includes many diseases of gastrointestinal

tract with similar clinical presentation – Crohn's disease, carcinoma, yersiniosis, amebiasis etc. Laboratory tests have only limited value. Elevated ESR, anaemia and raised C-reactive protein are the most consistent laboratory findings. The differential and total leucocyte counts do not reveal any abnormality. Mantoux test is positive in 42% of cases. At ultrasound scan and computer tomography can reveal a localized ascites, calcified lymph nodes, splenomegaly and abdominal mass. Often a laparoscopy is performed, because of the inadequate diagnostic value of other methods. All patients should receive conventional antitubercular therapy for at least 6 months including rifampicin, isoniazid, pyrazinamide and ethambutol. The surgical treatment has gone through three phases:

1. Bypassing the stenosed segment by enteroenterostomy or by ileotransverse colostomy was practiced when effective antitubercular drugs were unavailable and resectional surgery was considered hazardous in the presence of active disease. This practice produced blind loop syndrome, fistulae and recurrent obstruction in the remaining segments.
2. With the advent of antitubercular drugs, more radical procedures like right hemicolectomy with or without extensive removal of the draining lymph node and wide bowel resection became popular.
3. Modern surgical techniques – the patients are subjected to operative treatment under the following criteria: 1. perforation; 2. intestinal obstruction; 3. palpable abdominal mass; 4. enlarged abdominal lymph nodes, general weakness and low grade fever.

CONCLUSION

Abdominal tuberculosis is defined as infection of the peritoneum, hollow or solid abdominal organs with *Mycobacterium tuberculi*. The peritoneum and the ileocaecal region are the most likely sites of infection and are involved in the majority of the cases by hematogenous spread or through swallowing of infected sputum from primary pulmonary tuberculosis. The clinical presentation tends to be non-specific with abdominal pain and general complaints and the differential diagnosis will often include inflammatory bowel disease, malignancy or some other infection. The first country to eliminate tuberculosis will be the one which regards the disease as a serious problem, right to the end.

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