

CASE REPORT

PERITONITIS DUE TO TRANSVERSE COLON PERFORATION: A RARE PRESENTATION

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ABSTRACT: Abdominal tuberculosis is defined as infection of the peritoneum, hollow or solid abdominal organs with Mycobacterium tuberculi. TB can affect any part of the gastrointestinal (GI) tract including anus, peritoneum and hepatobiliary system. The peritoneum and the ileocaecal region are the most likely sites of infection. The clinical manifestations of abdominal tuberculosis are nonspecific and mimic various GI disorders and cause delay in diagnosis and management. This pathology has several complications, including free intestinal perforation.

KEYWORDS: Transverse colon, Perforation, Abdominal tuberculosis, Peritonitis.

INTRODUCTION: Tuberculosis is endemic in India, and involvement of the gastrointestinal tract is frequently encountered. Abdominal tuberculosis (TB) is the sixth commonest extra-pulmonary TB form after lymphatic, genitourinary, bone and joint, miliary and meningeal tuberculosis. TB may involve any site of the gastrointestinal tract, but the commonest site of involvement is ileocecal region.^[1] On the other hand, isolated extra-caecal colonic involvement of tuberculosis is uncommon. While perforation is a serious and uncommon complication of abdominal TB and the reported incidence of free perforation in patients with tubercular enteritis varies from 0-11%, perforation due to tubercular colitis is virtually unknown.^[2]

The authors present a case of colonic TB which was manifested by intestinal perforation.

CASE REPORT: 28 years old female patient XYZ presented to casualty. With chief complaints of pain abdomen since 1 month, insidious in onset, diffuse, gradually progressive, spasmodic in nature, severe since 3 days, no aggravating and relieving factors. Also complains distension of abdomen since 3 days, insidious in onset, gradually progressive.

Complains of fever since 2 weeks insidious in onset, moderate degree, intermittent, not associated with chills and rigors. History of not passing stools since 2 days.

No history of vomiting, no history of burning micturition. History of irregular menstrual cycle. Patient was nulliparous with married life of 9 years. No history of similar complains in the past, no history of diabetes, hypertension and tuberculosis.

On examination patient was conscious, oriented, vitals stable, anemic, not jaundiced, no lymphadenopathy. Per abdomen examination revealed distended abdomen, diffuse tenderness with guarding and rigidity, free fluid present, bowel sounds enhanced. Per rectal examination showed roomy rectum, no faecal impaction, normal faecal staining present. Respiratory system, Cardiovascular system and Central nervous system examination found normal.

The results of laboratory investigations showed Hb-7.5g/dl, Total count-19700cells/cumm, Neutrophils-74%, Lymphocytes-18%, HIV & HBsAg non-reactive. Other investigations like renal

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function tests, Serum electrolytes, Liver function tests, S.amylase & S.lipase were within normal limits. Erect x-ray abdomen showed air under diaphragm (Figure 1).



Fig. 1: Air under the right dome of diaphragm

Outside USG scan revealed Mild splenomegaly (? Infectious), Right ovarian 3.3x2.7cm and left ovarian 3.1x2.8 cm haemorrhagic cysts, Very minimal ascites and mild prominent bowel loops (correlate with erect abdomen X-ray to rule out hollow viscus perforation/ obstruction.)

Under the provisional diagnosis of Perforative Peritonitis patient was resuscitated and subjected to emergency Exploratory Laparotomy on 24/1/15 which revealed phlegminous mass with omental adhesions. Large mass around 10x10 cms arising from distal part of Transverse colon to the extent of splenic flexure with multiple perforations. (Figure 2) Perforation posteriorly formed an abscess in lesser sac of stomach with accumulation of frank pus. Multiple mesenteric lymph nodes enlarged, firm in consistency. Planned to go ahead with Left Hemicolectomy.



Fig. 2: Perforation in the transverse colon

Intra operatively mass was separated from omental adhesions then lesser sac accessed. Pus samples were taken and sent for culture sensitivity. Left Hemicolectomy and Transverse loop colostomy (Figure 3) followed by Hartmann's procedure done. Post-operatively patient was on ventilator support for 2 days. Treated with appropriate antibiotics, analgesics and supportive treatment. On post-operative day 2, Colostomy started functioning. On post-operative day 4, one

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stitch abscess let it out. Abdominal drains removed on post-operative day 6. Patient had fever for 1 day on post-operative day 7.



Fig. 3: Loop Colostomy

Culture sensitivity of peritoneal abscess sample: Klebsiella species isolated which was treated empirically by spectrum antibiotics.

Macroscopic specimen showed constriction at a distance of 6cm from one resected margin with an ulcerated lesion measuring 7x4cm. Another constricted segment noted measuring 4x2.5cm at 5cm distance from other resected end. 9 lymph nodes were isolated largest measuring 1x1cm.



Fig. 5: Macroscopic specimen showing growth in transverse colon

Microscopic examination revealed focally ulcerated mucosa and submucosa showing several confluent epithelioid cell granulomas. Granulomas showed central area of necrosis bordered by epithelioid cells, langhan's type of giant cells and lymphocytes. These granulomas were seen infiltrating up to the serosal surface. Lymphnodes showing confluent granulomas having central area of necrosis bordered by epithelioid cells, langhan's type of giant cells and lymphocytes.

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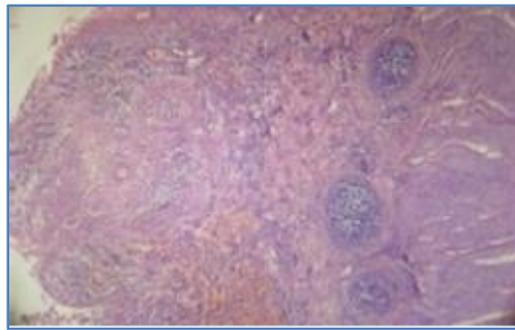


Fig. 6: Microscopy showing Granulomas

CATEGORY –I ATT was started on 06/02/15 on advice of RNTCP. Patient is currently doing well after follow up of 5 months.

DISCUSSION: Tuberculosis is a chronic granulomatous disease caused by aerobic bacteria *Mycobacterium tuberculosis*. It remains the worldwide problem despite the discovery of the causative organism for more than a century ago. Pulmonary tuberculosis is the most common form and it primarily involves the lung but any part of the body can be involved by the disease.^[3,4] Abdominal tuberculosis (TB) constitutes a major public health problem in developing countries and associated with significant morbidity and mortality.^[5,6] The incidence of abdominal TB is increasing in western and developed countries due to immigration from developing countries, aging populations, increasing incidence of human immunodeficiency virus (HIV) infection, and misdiagnosis with ineffectual treatment.^[7,8] For these reasons, abdominal TB represents an interesting challenge for surgeons in developed countries as well.

Tuberculosis (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 common and rare diseases.^[9] The clinician must look for tuberculosis, and confirm or exclude this treatable malady in any patient who presents with gastrointestinal disease.

Abdominal TB is a disease that predominantly affects young adults. Two-thirds of all cases involve patients between 21 and 40 years of age. There is no difference in the incidence rate between male and female subjects, although some studies suggest a slightly increased female predisposition.^[10]

The postulated mechanisms by which the tubercle bacilli reach the gastrointestinal tract are: (i) hematogenous spread from the primary lung focus in childhood, with later reactivation; (ii) ingestion of bacilli in sputum from active pulmonary focus; (iii) direct spread from adjacent organs; and (iv) and through lymph channels from infected nodes.^[10]

The earlier belief that most cases are due to reactivation of quiescent foci is being challenged with a recent study using DNA fingerprinting showing that 40 per cent cases are due to reinfection. In India, the organism isolated from all intestinal lesions has been *Mycobacterium tuberculosis* and not *M.bovis*.^[11, 12]

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Clinical presentation can be acute, chronic, or both acute and chronic. In the majority of cases, constitutional symptoms are present, including fever (40-70%), pain (80-95%), diarrhea (11-20%), constipation, alternating constipation and diarrhea, weight loss (40-90%), anorexia, malaise, ascites, abdominal distension, night sweating, and hematochezia.^[7,10,13] Despite a popular misconception that intestinal complications are often linked to pulmonary TB, only 15-20% of the patients with gastrointestinal tubercular complications have concomitantly active pulmonary TB. Thirty to 50% of patients with abdominal TB have a normal chest film.^[13]

Colonic tuberculosis can present in several forms. Segmental tuberculosis of transverse colon is a rare malady.^[14,15,16,17] The most common involvement is in the form of segmental ulcers and colitis, inflammatory strictures and hypertrophic lesions resembling polyps or masses.^[18,19] The hypertrophic form causes a diagnostic dilemma at the time of surgery because it mimics colonic carcinoma,^[19] a problem which was encountered in the present case.

Histopathologic findings are very informative in diagnosis of intestinal TB. Characteristic histological features are submucosal and serosal caseating granuloma. Generally, it is recommended to interpret histopathologic findings in conjunction with culture or PCR results in order to enhance diagnostic accuracy.^[20, 21]

There are several complications involving intestinal TB, including bowel obstruction (31.7%), intestinal perforation (4.9%), enterocutaneous fistula (2.4%), and small bowel volvulus resulting from mesenteric lymphadenitis (2.4%).^[22] Different studies typically denote different percentages for these complications.^[23]

It accounts for 1-10% of abdominal TB cases and has a poor prognosis, with a mortality rate higher than 30%.^[24, 25, 13]

Even if a patient presents with all the appropriate signs and symptoms, there is little conclusive evidence that alludes to intestinal TB perforation. The percentage of intestinal perforation due to abdominal TB is very low, even in countries with high TB incidence. In 2006, Jhobta et al.,^[26] reported that 3.9% of peritonitis cases in a series of 504 consecutive intestinal perforations resulted from TB-induced intestinal perforation. Another article, considering a series of 204 consecutive patients, reported only 4 cases (1.9%) of intestinal perforation resulting from TB.^[27] It should be pointed out that incidence rates have decreased significantly in the past 20 years. In 1986, Kapoor et al.,^[28] reported a series of 6 cases with an incidence of TB-induced perforation of 13.3%. In those years, the percentages of TB-induced intestinal perforations ranged from 7.5% to 12.2%.^[26, 28, 29]

Tubercular perforations are usually ileal and are associated with distal strictures. In a study by Nagi et al.,^[30] only 10.8% of the 684 cases with abdominal TB had TB affecting the colon. Wig et al., previously described 10 such cases encountered over a period of 7 years.^[31] Localised perforation from the ileocaecal area, a common site of tuberculosis, was also encountered however free perforation due to tuberculosis has not been cited in the literature. Free intestinal perforation is an uncommon complication of intestinal TB which may be attributed to the usual slow progression of this disease which permits a reactive thickening of the peritoneum and subsequent adhesion formations with surrounding tissues.^[31]

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Patients with free perforation of a tuberculous colon are extremely ill, and immediate surgical intervention is essential after a brief period of intensive resuscitation. The principles of restoration of bowel continuity remain the same as those following colonic resection for any other disease. Anti-tubercular drugs remain the mainstay of treatment after histopathological confirmation of the diagnosis.

The diagnosis of intestinal perforation is not difficult in most cases. For the surgeon, the difficulty arises when trying to reach an intra-operative diagnosis and when subsequently planning appropriate treatment for the patient. Surgical treatment of tuberculous perforations is rather controversial. Although pharmacological treatment remains the central pillar of abdominal TB, emergency surgery is often required for its acute complications^[32] particularly for perforations. There is very little scientific evidence with which to base an argument for the best way to treat these complications of abdominal TB, and the noticeable lack of literature in this field certainly does not help.

The bulk of this topic's background is derived from a series of case reports and case series published in a 40-year period. In all, 119 cases have been described, with various means of treatment. In many of the reported cases, the surgical treatment and the outcomes were not adequately described. However, direct closure of the perforation with or without bypass is generally associated with poorer results.^[33] Resection and anastomosis is therefore recommended,^[34] especially if combined with postoperative anti-tubercular therapy.^[35,36,37] However, regardless of the surgical procedure, the mortality rate is relatively high, ranging from 30%^[33,34] to 60%.^[13] This high rate of mortality is principally due to the poor clinical perioperative conditions of patients undergoing surgery. In addition to already being a highly debilitating pathology, the peritonitis resulting from the perforation overwhelms the patient's capacity to bear surgical stress. In all the reviewed literature, very few reports are found that resembled our case. We believe that our course of action in this case was a safe and responsible way to approach the problem.

In the presence of extensive adhesions, no attempt should be made to locate the perforation, as injury to the adherent intestinal loops is likely and focal fistula may result in the postoperative period.^[28] In this case, it is possible to place drains and immediately begin an ex-juvantibus anti-tubercular therapy once the surgical intervention has been completed.

Surgical decision for patients with tubercular intestinal perforation depends upon general state of the patient, condition of the gastrointestinal tract and number of perforation. However, perforation may be fatal, even with surgical intervention. In conclusion, TB could be a potential cause of the acute abdomen in any individual and surgeons should be aware of tubercular intestinal perforation and give close attention to immediate management. In our experience, our approach resulted in a complete restoration of health within a reasonable recovery period, even in a very weak patient.

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