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Intestinal Tuberculosis Revealed by Generalized Acute Peritonitis

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Abstract

Tuberculosis (TB) remains a worldwide problem. Intestinal TB (ITB) is a serious public health problem in developing countries and has been associated with significant morbidity and mortality. TB is challenging due to the lack of specific clinical and laboratory features. At present, a combination of clinical, endoscopic, radiological, and pathological features continues to be the key to diagnosing ITB. The surgical forms, in particular perforation, are mainly due to the delayed diagnostic. We report the case of a 27-year-old man admitted to a generalized peritonitis table. Surgical exploration revealed a perforation of the jejunum and the histopathological examination found a caseating granulomatous inflammation related to an ITB. Small bowel perforation due to tuberculosis is rare and consequent tendency to concentrate on other causes of viscus perforation. Even if treatment is based on anti-tuberculous quadri therapy.

Subject Areas

Infectious Diseases, Public Health, Respiratory Medicine

Keywords

Tuberculosis, Peritonitis, Intestinal Resection, Anti-Tuberculous Therapy

1. Introduction

Tuberculosis constitutes a global public health problem with considerable morbidity and mortality, particularly in developing countries [1].

The intestinal location is rare but not exceptional, especially in endemic countries such as Morocco. There are no specific clinical features, therefore, early diagnosis of ITB remains difficult and challenging [2].

Early diagnosis is essential, as ITB is completely curable if early and appropriate treatment is initiated.

In contrast, if ITB is misdiagnosed, improper treatment will result in a high rate of mortality associated with severe complications such as intestinal obstruction, perforation, and haemorrhage [3] [4].

We report here a case of intestinal tuberculosis fortuitously revealed by acute generalized peritonitis by intestinal perforation.

2. Case Report

In May 2021, a 27-year-old man chronic smoker without a past medical history. He presented to the Emergency Department of the University Hospital of Casablanca with acute abdominal pain at a periumbilical starting point. On a physical examination, he was noted to have a generalized abdominal defense.

The abdominal plain X-ray revealed bilateral pneumoperitoneum suggesting a perforation of a hollow organ probably peritonitis by perforation of ulcer seen in the context.

No other examinations were performed. The patient was admitted and after he gave his written consent, he was taken to the operating theatre and under general anesthesia; a midline laparotomy was performed.

At exploratory laparotomy, a generalized peritonitis and a perforation at the jejunum localized 180 cm from the duodeno-jejunal junction were found with no peritonial nodules and no mesenteric lymphadenopathy. The perforation was 10 mm in diameter with flexible banks. Wedge resection and ileostomy were realized. The cavity was subject to lavage and closure.

The collected sample was sent for histopathological examination. The postoperative course was uneventful, and the patient was discharged from the hospital after three days. The histopathological examination result was as follows: giant lymph node cell granuloma with caseous necrosis.

The patient was treated with isoniazid, rifampin, ethambutol, and pyrazinamide for 2 months, followed by isoniazid and rifampin for 4 months.

Restoring continuity was performed at the end of the ATT.

3. Discussion

Intestinal tuberculosis is a specific chronic intestinal disease caused by mycobacterium tuberculosis, a bacterium with a strong pulmonary tropism. 14% of tuberculosis cases reported worldwide are extra-pulmonary.

Tuberculosis may affect any part of the gastrointestinal tract from mouth to anus. It represents 3% to 5% of all visceral locations and intestinal TB (ITB) accounts for 2% of TB cases worldwide [5].

Intestinal tuberculosis (ITB) may be a primary infection, or secondary infec-

tion, usually following a primary pulmonary focus [6]. In case of suspected, chest X-ray or chest CT should be performed. The presence of active pulmonary TB helps in the diagnosis of ITB [7] [8] [9].

The gastrointestinal tract can be infected by hematogenousroutes, ingestion of infected sputum, or by contiguous lymph nodes [10].

The most commonly affected areas are the terminal ileum and the ileocaecal junction occurring in up to 90% of cases with intestinal tuberculosis [11].

This is thought to be due to the relative abundance of lymphoid tissue in this area and stasis of faecal matter, increased absorption and close proximity of bacilli to the mucosa [12].

ITB presents a diagnostic challenge, given its non-specific clinical presentation and tendency to mimic other abdominal pathologies such as IBD [13] [14] [15] and malignancy. Therefore, diagnosis is often delayed. The case presented here is representative of the diagnostic difficulties encountered, because it suggested peritonitis by perforation of an ulcer.

The clinical manifestations of ITB mainly abdominal pain often localized in the right iliac fossawitness to ileocecal involvement, with a palpable mass in 20 to 25% of patients, weight loss, abdominal distension, fever, malnutrition, blood in the stool, night sweats and diarrhea.

Colonoscopy should be performed in ITB as it provides direct visualisation of mucosal lesions and strictures, as well as allowing tissue biopsy for histology and TB culture [16] [17] [18].

Findings such as terminal ileitis with ulceration, pseudodiverticulae and atrophic mucosal areas should raise suspicions for ITB.

Culture on a biopsy specimen is only positive in 10% - 20% of cases and requires 1 to 2 weeks. The Polymerase Chain Reaction (PCR), for its part, allows a rapid response to be obtained but has both low sensitivity and specificity for this location [19] [20].

Kulkarni *et al.* identify pathological examination as the gold standard for the diagnosis of intestinal tuberculosis [21].

Four main pathological types of ITB are described: Ulcerative: most common form, Hypertrophic: inflammation causing a nodular pattern, Ulcero-hypertrophic: combination of ulceration and hypertrophy and the stenosing form [22].

In our patient, the macroscopic appearance of the intestinal lesions was ulcerative.

The classical histological features of ITB such as caseating granuloma or the presence of acid-fast bacilli are found in less than 30% of the cases.

When present and typical, the diagnosis is almost certain as was the case in our patient [23] [24].

Imaging has great orientation value but low specificity. Abdominal CT findings in ITB patients include bowel wall thickening, abdominal lymphadenopathy with central necrosis, intra-abdominal collections and peritoneal inflammation [16] [25] [26] [27].

Laparoscopy is a rapid, safe and effective technique with a sensitivity of up to 92% for diagnosis of abdominal TB, but there is no evidence as to its utility for

diagnosis of ITB without peritoneal involvement [28] [29].

Gamma interferon release tests (Quanti FERON® or ELISpot TB®) are often helpful in extrapulmonary tuberculosis in immunocompetent subjects. Their sensitivity varies from 40% in peritoneal forms to 100% in intestinal forms, for an overall specificity of around 80% [30].

Laboratory tests of plays an important role in the diagnosis of intestinal tuberculosis. The presence of lymphopenia associated with a biological inflammatory syndrome (VS and increased CRP) is suggestive.

Biological signs of malabsorption should be looked for even if they are not specific. If they are present, they should suggest an intestinal location.

It is necessary to look particularly for a deficiency anemia, a hypoalbuminemia, a hypocalcemia, a fall in the rate of prothrombin, a deficiency in lipo- and water-soluble vitamins.

Tuberculous obstruction is considered the most common complication (24%) and carries a high morbidity, particularly in developing countries [31] [32].

Perforation leads to high levels of mortality and is reported to complicate ITB in up to 11% of adult cases [33].

ITB perforation is difficult to diagnose before surgery. Therefore, specimen from surgical resection at the site of bowel perforation is essential in making the diagnosis.

ITB mimics other gastrointestinal diseases, including Crohn's disease, intestinal lymphoma, and intestinal Behcet's disease.

Differentiating between ITB and CD, especially in areas endemic to TB, is quite challenging since both can present as granulomatous inflammation. CD is an inflammatory bowel disease that is characterized by a progressive transmural inflammation with skip lesions throughout the GI tract. Although many presentations of ITB and CD are similar, certain clinical, radiological, endoscopic, and histological features can be helpful in distinguishing between ITB and CD [34] [35].

ITB typically responds to medical management. The Center for Disease Control (CDC) and the American Thoracic Society (ATS) agree on six months of treatment with anti-tuberculosis therapy (2RHZE + 4RH) except in cases of drug-resistant tuberculosis [36] [37].

Surgical approaches may be required to deal with complications including bowel perforation, intestinal obstruction from adhesions, fistula formation, or bleeding.

In ITB perforation, the surgical strategy depends on the extent of the disease and the condition of the patient. If the region involved is limited, the patient's condition is not toxic, and the residual bowel is relatively healthy, resection of the diseased bowel with primary anastomosis is usually feasible. Otherwise, a temporary enterostomy or colostomy with clearance of the sepsis would be preferred. Nevertheless, ITB perforation has a poor prognosis, with mortality greater than 30% [38].

4. Conclusions

ITB is the sixth most common site of extra-pulmonary involvement and usually

occurs in young adults.

Clinical presentation and test results are often non-specific. Therefore, early diagnosis is frequently difficult and clinical complications are common, resulting in a high rate of surgical treatment.

However, tuberculous peritonitis remains an exceptional mode of revelation. Surgical treatment retains its place in this complication, making it possible to make the diagnosis with certainty and subsequently institute anti-bacillary treatment until recovery.

Close collaboration between gastroenterologists, surgeons, TB physicians, radiologists, histopathologists, and microbiologists in a multidisciplinary setting is essential to identify patients with ITB and initiate early treatment to prevent surgical complications.

Conflicts of Interest

The authors declare no conflicts of interest.

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