Case Report

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Intra-abdominal lymphatic tuberculosis as a rare case of small intestine volvulus

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Abstract

Tuberculosis used to be uncommon in the developed countries but seems to be still on rampant in developing countries. However, there seems to be an increasing occurrence in the developed countries too mainly due to low living conditions, increased migration, HIV immune-compromisation and inappropriate use of antitubercular drugs. Lymphatic tuberculosis is the second commonest extrapulmonary location of tuberculosis followed by genitourinary, bone and joint, miliary, meningeal and abdominal. Abdominal tuberculosis represents nearly 11%–16% of all extrapulmonary tuberculosis locations. Furthermore, abdominal tuberculosis co-exists with pulmonary tuberculosis in 10%–30% of patients. Abdominal tuberculosis remains difficult to diagnose due to non-specific symptoms, variable anatomical locations and lack of specific sensitive diagnostic tools. Diagnosis can be rarely suspected, especially in cases of isolated abdominal tuberculosis without clinical or radiological findings. We present a rare case of a patient with pulmonary tuberculosis combined with intra-abdominal lymphatic tuberculosis causing small intestine volvulus.

Keywords

Tuberculosis, abdominal, volvulus, small intestine, ileus

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Introduction

According to 2016 World Health Organization's (WHO) tuberculosis global facts, 10.4 million new cases of tuberculosis (TB) were diagnosed worldwide.[1] Seven countries account for 64% of the new cases (India, Indonesia, China, Philippines, Nigeria, Pakistan and South Africa).[1] The incidence of TB has increased in developed countries due to immune-compromisation from AIDS, increased immigration from developing countries, where the prevalence of the disease is higher,[2] and increased multi-resistant mycobacteria from inappropriate use of antitubercular therapy.[3] Several factors determine the probability of transmission including the infectiousness of the source patients, the host's susceptibility of contacts, the duration of exposure and the environment in which exposure takes place, especially small, poorly ventilated spaces.[4] TB involves abdomen as a secondary disease emerging from the reactivation of a dormant focus, acquired somewhere in the past, or as a descending disease when infection spreads to the abdomen via swallowed sputum, hematogenous spread, spread from an infected neighboring organ or ingestion of unpasteurized milk.[5,6] Abdominal TB may be *enteric* (intestine involved itself), *peritoneal* (as cocoon or ascites), *nodal* (caseating lymph nodes) and *solid visceral* TB like liver, spleen, kidney or pancreas or in any combination of these manifestations. The main infecting organism in abdominal TB is *Mycobacterium tuberculosis*. However, *Mycobacterium avium intracellulare* is becoming increasingly present in abdominal TB in HIV co-infection.[7] In gastrointestinal (GI) tract disease, ingested bacilli pass through Peyer's patches and are transported to mesenteric lymph nodes via macrophages.[7]

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Case report

A 27-year-old patient from the Republic of Congo presented to our emergency department with severe cramp abdominal pain, vomiting and diarrhea that lasted for 3 days, followed by respite of bowel movements. The patient's history included only coughing for the past month. Clinical examination revealed abnormal respiratory sounds on the right semi-thoracic area and cough. Mild abdominal distention was noticed on abdominal inspection. No surgical wounds were noticed. On palpitation, diffuse abdominal tenderness was recorded with diffuse guarding and rebound tenderness. Systemic symptoms and signs showed dehydration manifesting as tachycardia and dry mucous membranes. The patient's temperature was normal and the patient did not mention fever in the last days. Laboratory blood tests were obtained demonstrating the following abnormal test results: C-reactive protein (CRP)—11.2 mg/dL, erythrocyte sedimentation rate (ESR)—46, normal white blood cell count (WBC) but with 90.6% neutrophil count (NEU) and 4.22% lymphocyte count (LYM), hematocrit/hemoglobin (Hct/Hgb)—35.3/11.5, K^+—5.2 and lactate dehydrogenase (LDH)—305. A urinary catheter was placed and abdominal and chest X-rays were performed. On chest X-ray, consolidation of the upper zone of the right lung was diagnosed combined with cavities (Figure 1). On abdominal X-ray, in an upright position, typical small bowel obstruction signs were observed with multiple air-fluid levels and distended loops of the small bowel. A nasogastric tube was placed in the emergency department to drain the jejunum content. Per os feeding stopped and intravenous (IV) hydration and empirical antibiotic treatment were set. Contrast-enhanced chest and abdominal computed tomography (CT) was performed and revealed one large cavitation lesion and two smaller cavitation lesions in contact with the former on the upper lobe of the right lung with satellite consolidation lesions compatible with TB (Figure 2). Small bowel obstruction signs were confirmed with distended small bowel loops and diffuse multiple air-fluid levels. In addition, a mass possibly of lymphatic constitution with a proximately 3 cm diameter was demonstrated on the mesentery (Figure 3). Due to high clinical suspicion for specific pulmonary infection, a Mantoux test was performed while the patient's sputum was collected for smear microscopy. As HIV is a prognostic factor for extrapulmonary TB, a full virological blood test was sent for hepatitis B virus (HBV), hepatitis C virus (HCV) and HIV which came out negative.

The patient was isolated in a single bed chamber and safety measures were taken by the personnel of the surgical ward. A sputum culture was sent to another hospital's lab due to lack of potentiality in ours. Within 24 h from the patient's admission, he developed clinical deterioration and rise in the inflammation measurements despite the conservative treatment. The nasogastric tube had drained 1.5 L of jejunum content. The abdominal tenderness intensified. The patient was led to the operating room where diagnostic laparotomy was performed. The small bowel was found dilated from the

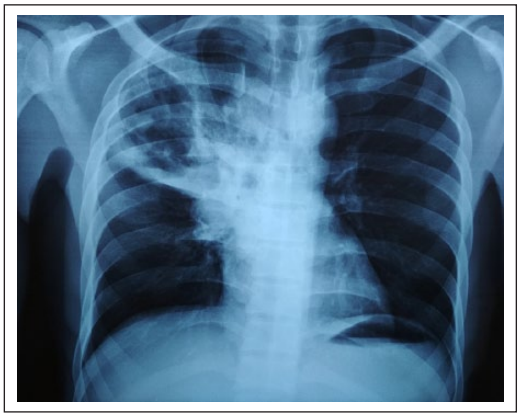

Figure 1. Patient's chest X-ray demonstrating consolidation of the upper zone of the right lung combined with cavities.

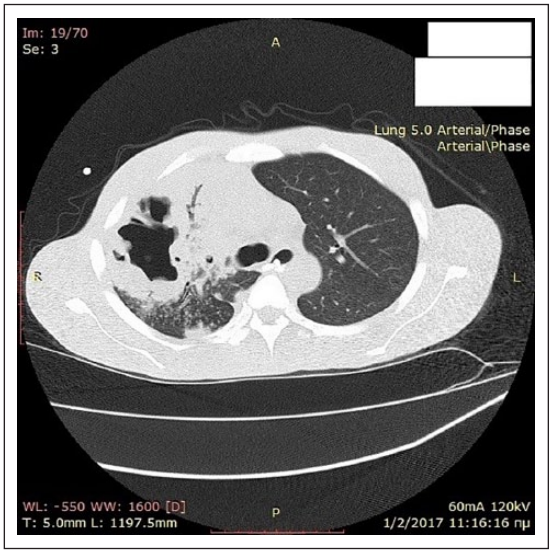

Figure 2. Contrast-enhanced chest CT revealing one large cavitation lesion and two smaller cavitation lesions in contact with the former on the upper lobe of the right lung and satellite consolidation lesions.

Treitz ligament until the middle of the jejunum where a small bowel loop was attached to the mesenteric mass, causing a small bowel volvulus. The loop was detached carefully with no need of enterotomy. The small bowel was recovered to its proper rotation. The mildly ischemic small bowel involved in the volvulus regained its normal complexion after 10 min in warm saline. The mass of the mesentery resembled a caseating necrosis of mesenteric lymph nodes (Figure 4). Material for biopsy and microbiological analysis was obtained from the mass (Figure 5). No other lesions were found although the whole peritoneal cavity was inspected thoroughly.

The result from Mantoux test suggested TB infection and antitubercular therapy with isoniazid (INH), rifampicin (RIF), pyrazinamide (PZA) and ethambutol (EMB) commenced immediately. The sputum smear microscopy was

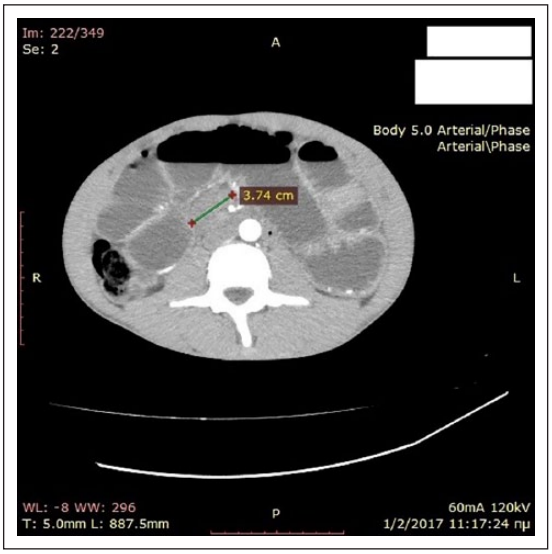

Figure 3. Contrast-enhanced abdominal CT demonstrating small bowel obstruction signs with distended small bowel loops and diffuse multiple air-fluid levels and a mass possibly of lymphatic constitution with a proximately 3 cm diameter on the mesentery.

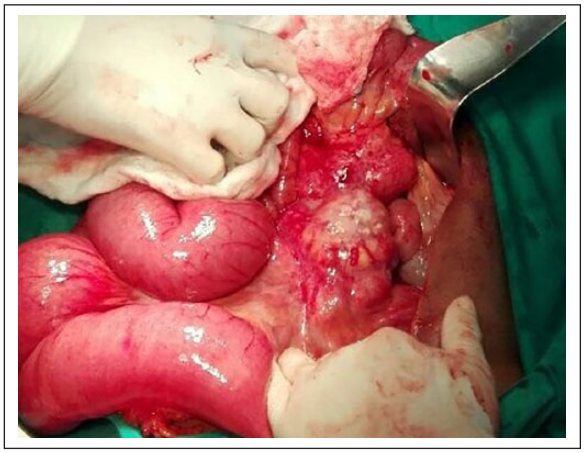

Figure 4. The mass of the mesenter resembling a caseating necrosis of mesenteric lymph nodes.

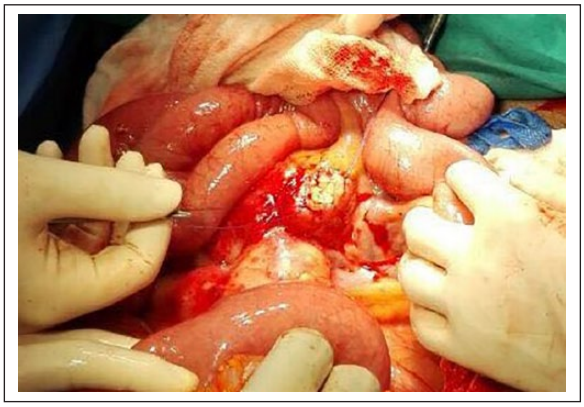

Figure 5. The mass of the mesenter resembling a caseating necrosis of mesenteric lymph nodes after biopsy was obtained.

also found positive for mycobacteria infection. The patient was transferred to another hospital due to lack of Pneumology ward in our hospital. He was discharged from the other hospital in 2 weeks, with antitubercular therapy for 6 months and normal bowel movement. The culture results of the sputum came positive for *M. tuberculosis* after a month. Lö wenstein–Jensen medium was used for the culture and the results were sent to us from the other hospital's lab. The biopsy of the mass revealed granulomatous inflammation with central necrosis and infiltration with Langerhans giant cells.

Discussion

A total of 17 million people died from TB in 2016 worldwide.[1] TB remains the main cause of death in HIV-positive patients. Both incidence and severity of TB are expected to increase with the increasing incidence of HIV infection. The first test for TB, recognized by the WHO, is Xpert MTB/RIF which is a sputum sample examination that simultaneously detects mycobacterium TB complex and resistance to RIF in less than 2 h.[1] Sputum smear microscopy and culture-based methods are still of important diagnostic value. Cultures are essential because (1) smears alone will miss up to 50% of active TB cases, (2) mycobacteria other than *M. tuberculosis* can produce positive smears and (3) cultures are necessary for drug susceptibility testing (DST).[4]

Abdomen is involved in 10%–30% of patients with pulmonary disease.[8] Acute and prompt diagnosis of abdominal TB remains challenging due to the extremely varied clinical presentation.[7] It tends to mimic other diseases that affect the GI tract, including Crohn's disease, tumors and other infectious diseases.[2] Abdominal TB presentations include pain (80%–95%), weight loss (40%–90%), fever (40%–70%), alternating diarrhea and constipation (11%–20%), malabsorption and malaise.[8] Clinical evaluation and radiologic examination give indirect evidence of the disease. Plain abdominal radiographs may show calcification within lymph nodes, liver, spleen and pancreas. CT of the abdomen can reveal hepatomegaly, splenomegaly, ascites, small bowel obstruction, mesenteric thickening of 15 mm or signs of perforation.[9] Invasive techniques such as colonoscopy are used only for colonic TB. The sensitivity is between 30% and 80% and obtaining 8–10 biopsy samples and 3–4 specimens for culture is advised.[9] The laparoscopic evaluation of the peritoneal cavity remains the final invasive diagnostic method. The treatment for extrapulmonary TB involves 6 months of quadruple antitubercular chemotherapy[3] with the exception of TB meningitis for which 9- to 12-month treatment is recommended.[4] The first 2 months of treatment are the intensive phase and the regimen consists of INH, RIF, PZA and EMB, followed by a continuation phase of 4 months of INH and RIF. However, if therapy is initiated after DSTs

and the patient's isolate is susceptible to both INH and RIF, EMB is not necessary and the intensive phase can consist of INH, RIF and PZA only.[10] Surgical treatment has its place in the therapy of TB's complications such as intestinal perforation, small bowel obstruction, enterocutaneous fistula or excessive hemorrhage.[7,11]

Conclusion

Abdominal TB is generally responsive to antitubercular treatment and early diagnosis can prevent surgical treatment. Abdominal TB should be considered a surgical problem in acute abdomen. With a number of 9.6 million new cases of TB worldwide, abdominal TB should always be kept in mind as a possible differential diagnosis of bowel obstruction, particularly in the high-incidence countries.[12]

Declaration of conflicting interests

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Ethical approval

Our institution does not require ethical approval for reporting individual cases or case series.

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Informed consent

Written informed consent was obtained from a legally authorized representative for anonymized patient information to be published in this article. Verbal informed consent was obtained from the patient for their anonymized information to be published in this article.

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