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Case Report

An Uncommon Manifestation of a Common Disease!!!

Sakshi Ram Kulkarni[1], Aniket Nandkumar Zarkar[2] and Vikram Uttam Patil[3]*

[1]*Department of Internal Medicine, Vishwaraj Superspecialty Hospital, India*

[2]*Department of General Surgery and Laparoscopic Surgery, Vishwaraj Super specialty Hospital, India*

[3]*Department of Gastroenterology, Vishwaraj Super Specialty Hospital, India*

Abstract

Intestinal Tuberculosis (TB) is seldom seen as a primary manifestation in an immunocompetent person. Rarely, perforation peritonitis is its presenting manifestation. Intestinal TB often presents with complaints of abdominal pain, constipation, low-grade fever, weight loss, and loss of appetite. We hereby report an immunocompetent case of a 33-year-old gentleman who rushed to the emergency room with complaints of abdominal pain and bilious vomiting of acute onset. Upon assessment, the patient exhibited guarding and rigidity of the abdomen. Radiological analyses indicated a possible intestinal perforation. Hence, the patient was immediately taken to surgery. Clinical, imaging, histopathological, and biochemical analyses showed features suggestive of intestinal TB. The patient was initiated on anti tubercular therapy post-surgery, and he responded dramatically. Thus, TB is no longer just a disease of immunocompromised people; a prompt diagnosis with medical and surgical intervention can improve the outcome.

Introduction

Tuberculosis (TB), which has the highest burden in developing countries, is caused by the *Mycobacterium tuberculosis* bacteria. Every year, ten million people contract TB. Despite being a preventable and curable disease, TB kills 1.5 million people each year, making it the world's leading infectious killer [1]. It mainly affects the lungs. The most common sites of extrapulmonary TB include lymph nodes, pleura, bone and joints, urogenital tract, meninges, and abdomen [2]. Abdominal TB is a rare form of extrapulmonary TB. Abdominal TB can present as TB lymphadenopathy, peritoneal TB, gastrointestinal TB, and visceral tuberculosis. Although relatively rare, abdominal TB manifesting as perforation should be considered in patients with relevant symptoms. There are cases reported of tubercular intestinal perforation in immunocompromised patients. However, we hereby, report a case of intestinal perforation as an initial manifestation of intestinal TB in an immunocompetent patient.

Case Presentation

A 33-year-old gentleman resident of Pune, chef by occupation rushed to casualty with complaints of acute severe pain in abdomen especially right lower abdomen and one episode of non-projectile bilious vomiting for last 12 hrs. He also gave history of intermittent lower abdominal pain, loss of appetite, evening rise of temperature and unquantified significant weight loss since last 1 month. On examination in casualty, patient was toxic looking, tachycardiac, hypotensive with signs of dehydration. Per abdominal examination showed diffuse guarding, rigidity and tenderness. A possibility of intestinal perforation with peritonitis due to infective, inflammatory or neoplastic etiology was considered. Immediate abdominal X-ray erect had done, showed air under the diaphragm and multiple air fluid levels in the bowel (Figure 1A). Ultrasound whole abdomen revealed dilated and fluid filled bowel loops, small air pockets under the dome of diaphragm. The findings were suggestive of perforative peritonitis likely due to hollow viscus perforation.

Ryles's tube was placed showed bilious secretions. Contrast enhanced Computed Tomography (CT) scan whole abdomen was done on emergency basis which showed pneumoperitoneum, signs of jejunitis with intestinal perforation suggesting perforation with venous congestion with a possibility of venous bowel ischemia. Possible inflammatory stricture in the distal ileum leading to small bowel obstruction and dilatation (Figure 1B).

Blood investigations revealed neutrophilic leucocytosis, normal liver function and renal functions. Viral markers-HBsAg, Anti HCV and HIV were non-reactive. ESR was raised (55 mm/hr). Patient immediately underwent exploratory laparotomy. Intraoperative findings revealed adhesive band causing constriction of distal ileum, distal ileum stricture with approximately 30 cm to ileocecal junction, peritoneal fluid with food particles and perforation of distal ileum proximal to the stricture. Patient underwent resection and anastomosis and resected specimen sent for histopathology. The surgery went uneventful. The patient was vitally stable in the postoperative period. He was managed in Intensive Care Unit (ICU) for post procedure monitoring and after symptomatic improvement and hemodynamic stability; patient was shifted to the ward. Patient tolerated liquids followed by soft diet. He was treated with Intravenous (iv) broad spectrum antibiotics, iv analgesics and supportive care.

Histopathology of small resected intestinal segment showed acute necrotizing inflammation with perforation peritonitis on a background of granulomatous inflammation, morphologically favouring Tuberculosis (Figure 1 C,D) Peritoneal fluid examination revealed low SAAG with elevated ADA levels (156.6 U/L). Mantoux test was negative and Gene Xpert of specimen came non-reactive. Serum Immunoglobulin levels were within normal range. He was initiated on anti tuberculosis medications for which he started improving gradually. At the two-month follow-up, the patient regained weight, was afebrile, and had no abdominal pain.

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***Corresponding author:** Vikram Uttam Patil, Department of Gastroenterology, Consultant Gastroenterologist, Vishwaraj hospital, Near Loni Railway station, Loni Kalbhor, Solapur, Pune Highway, Pune, 412201, Maharashtra, India, Tel: +91-9850817555

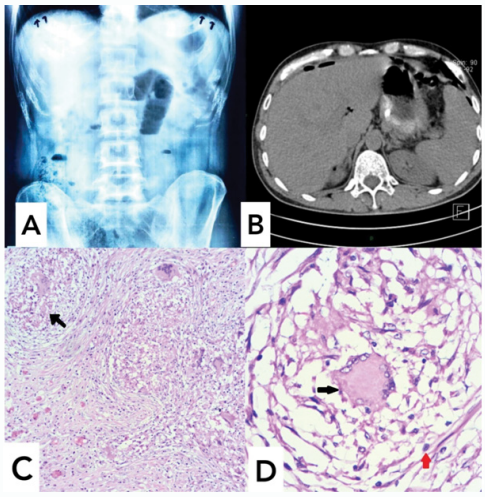

Figure 1: (A). X-ray erect abdomen showing air under the diaphragm (black arrows) and air fluid levels (red arrows). (B). Abdominal CT showing pneumo-peritonium. (C). Resected ileal specimen showing granuloma (black arrow) under low power view (10X). (D). Resected specimen showing granuloma (black arrow) with langhan gaint cell (red arrow) under high power view (40X).

Discussion

Tuberculosis (TB) is one of the greatest conundrums in front developing countries. A total of 1.3 million people died from TB in 2022 (including 167 000 people with HIV). Worldwide, TB is the second leading infectious killer after COVID-19 (above HIV and AIDS).1Even though about 1/4th of world's population is infected with TB, only few starts showing the symptoms of TB. TB spreads mainly *via* inhalation of aerosol droplets having M. TB bacteria. The tubercle bacilli invade the innate immune system. If it fails to defend, the bacilli proliferate inside the tissue and spread to other organs. A person with compromised immunity (patient with HIV infection, diabetes mellitus, malnourished, chronic steroid use, on immunosuppressant drugs, etc) is more prone to the infection as compared to immunocompetent.

Abdominal TB comprises around 5% of all cases of TB worldwide [3]. Abdominal TB can infect intestines, peritoneum, hepatobiliary system, lymph nodes, etc. Primary TB of the abdomen occurs either *via* ingestion of undercooked meat, unpasteurized milk or *via* reactivation of latent TB. Secondary TB can occur through either hematogenous spread of disseminated bacilli from lung or genital organs or *via* lymphatic channels. Intestinal TB manifests as ulcerative lesions, as seen in malnourished, hypertrophic or ulcerohypertrophic lesions, which is characteristically seen in well-nourished. Patients of intestinal TB present with intestinal colic, abdominal distension, diarrhoea, constipation, bleeding along with constitutional symptoms of chronic inflammation like fever, weight loss, night sweats, fatigue, etc.

The diagnosis of intestinal TB is suspected in patients with clinical manifestations and relevant epidemiologic findings like exposure to TB patients, past history of TB in the patient, etc. The definite diagnosis is elicited by a biopsy of involved part of bowel taken during colonoscopy, demonstration of acid-fast bacilli in peritoneal fluid in cases of ascites, *via* acid fast culture and/or nucleic acid amplification test. Histopathology shows caseating epitheloid granulomas with langhans cells with/without acid fast bacilli. The spread TB in the gut, can be determined with the use of abdominal CT scans. Abdominal TB can be diagnosed with high precision by measuring the ascites fluid's Adenosine Deaminase Activity (ADA). According to a meta-analysis, when a threshold value of 36 U/L-40 U/L was used, ADA levels demonstrated high sensitivity (100%) and specificity (97%) in the diagnosis of TB peritonitis [4].

Free intestinal perforation is an uncommon complication of intestinal TB because of reactive thickening of the peritoneum and formation of adhesion with surrounding tissues [5]. It accounts 1%-10% of abdominal TB cases and it has a poor prognosis with mortality rate higher than 30% [5]. Given its high absorptive rate, the close contact between the bacilli and mucosa, the abundance of lymphoid tissue, and its location in a zone of physiologic stasis, the terminal ileum is the most often perforated abdominal site [6].

The six-month Antitubercular Therapy (ATT) regimen, which combines rifampicin, isoniazid, ethambutol, and pyrazinamide, is the treatment of choice for intestinal TB. Surgery is recommended in accordance with the presentation of complications such as stricture, perforation, etc.

We hereby conclude that our case has few learning points, 1) Uncommon presenting manifestation of intestinal TB in the form of intestinal perforation in an immunocompetent patient. 2) Abdominal fluid and tissue gene Xpert has a very good sensitivity and low specificity, 3) Timely surgical interventions improve the prognosis of these patients, 4) ATT remains cornerstone in management of abdominal TB.

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