Intestinal Co-infection of Tuberculosis and CMV can Cause Massive Lower GI Bleeding in a Patient with HIV

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Abstract—Tuberculosis (TB) and HIV are considered pandemic by the World Health Organization (WHO). It has been reported that HIV infection is one of the major risk factors for the development of TB, increasing the incidence by up to 1,000 times, but it often has an atypical presentation. The incidence of extrapulmonary TB is increasing, largely among HIV patients. The diagnosis of intestinal TB is a challenge because of its chronic and nonspecific presentation which often mimics other diseases, and requires a high clinical suspicion to timely diagnose. Massive lower gastrointestinal bleeding due to intestinal TB was once an uncommon complication of TB, but recent reports indicate an increased incidence especially in developing countries. We suspect that co-infection with cytomegalovirus colitis contributes to the massive hemorrhage from intestinal TB. Surgical intervention is the recommended management for intestinal TB complicated by lower gastrointestinal bleeding. Accordingly, it is important for HIV patients to be screened and treated for TB to prevent this complication. Although the diagnosis is a challenge, it is important to consider intestinal TB as a cause of gastrointestinal bleeding in the HIV positive patients.

Keywords — Tuberculosis, HIV, GI bleeding

I. INTRODUCTION

Tuberculosis (TB) and HIV are considered pandemic by the World Health Organization (WHO). It has been reported that HIV infection is one of the major risk factors for the development of TB, increasing the incidence by up to 1,000 times. There has been an increasing incidence of extrapulmonary manifestations of TB, especially in the HIV population. However, because of its atypical presentation which often mimics other diseases, it is a challenge to diagnose without a high clinical suspicion. Here, we report a case of a patient with intestinal TB who presented with massive lower gastrointestinal bleeding. This case highlights the importance of screening and treating TB in HIV patients to prevent such complications. Further, when they present with possible sequel of extrapulmonary TB, such as lower gastrointestinal bleeding, there must be a high clinical suspicion for TB associated complications to expedite the timely diagnosis and appropriate management of this disease.

II. CASE REPORT

Three days after being diagnosed as having acquired immunodeficiency syndrome (AIDS), a previously healthy 32 year-old male was admitted for abdominal distention, nausea, and vomiting for the previous 7 days. He reported concomitant fever, shortness of breath, and a dry, nonproductive cough with myalgias during the same time period. He also complained of a persistent headache with photosensitivity for 2 months, and light headedness, diarrhea, intermittent periumbilical abdominal pain, and a loss of 10 lbs for the past 1 month.

Upon admission, the patient was febrile to 101.8, with a leukocyte count of 8,300. An acute abdominal series demonstrated small bowel dilatation without air-fluid levels or free air, which resolved with nasogastric tube decompression. An abdominal CT scan demonstrated thickened bowel wall and intraabdominal free fluid, for which he underwent a diagnostic paracentesis. AFB was positive in both sputum samples and the free fluid, and the complete peritoneal fluid analysis was consistent with TB peritonitis. He was started on RIPE therapy (Rifampin, Isoniazid, Pyrazinamide, Ethambutol) for TB on the day of admission. On hospital day three, the patient developed a right-sided facial droop. An MRI obtained was consistent with toxoplasmosis at the base of the pons, which was treated with pyrimethamine and sulfadiazine.

On hospital day four, the patient had multiple massive bloody stools, and became hemodynamically unstable.
Colonoscopy revealed multiple ulcers varying in size from 5 to 20 mm and brisk bleeding from distal ileum and ascending colon (Fig. 1, 2). Due to the diffuse extent of the disease, it was not amendable to arterial embolization. The patient was given nine units of packed red blood cells, four units of fresh frozen plasma, and 1 dose of Factor VIIa in attempt to achieve hemostasis. However, the patient continued to bleed and surgery service was consulted for further management. The patient was taken immediately to the operating room.

Intaoperatively, multiple skipped pebble appearing granulomatous lesions were found throughout the intestine (Fig. 3). The worst of these lesions was noted to be at the terminal ileum, where the wall was thickened. Numerous enlarged mesenteric lymph nodes were observed (Fig. 4). Based upon the location of the bleeding ulcers seen on colonoscopy, a right hemicolectomy with an end ileostomy and mucous fistula was performed. Pathology revealed multiple ulcers with cytomegalovirus (CMV) inclusions (Fig. 5) and granulomas containing acid-fast bacilli (Fig. 6). Extensive caseous necrosis was also present in the mesenteric lymph nodes.

The patient’s condition stabilized dramatically after surgery without any evidence of further bleeding. In addition, ganciclovir was given for CMV colitis. Post operatively, chest x-ray revealed no evidence of tuberculosis in the chest. He was discharged 10 days after surgery in good condition. The patient developed an ileus seven days after discharge, was readmitted, and treated successfully with conservative management without any further recurrent bleeding or post-operative complications.

III. DISCUSSION

TB cases are decreasing in the United States because of improved TB control and changes in population demographics (1). However, TB still remains a serious threat, especially in the
HIV population. Worldwide, TB is one of the leading causes of death in the HIV population, and up to 50% of HIV patients will die during TB treatment (2). Most deaths occur within the first 2 months of TB treatment, likely because of a delay in diagnosis (2, 3).

The tuberculin skin test is the most sensitive test for the diagnosis of infection with Mycobacterium tuberculosis (4). In HIV-infected patients with disseminated disease, the result of the skin test is often negative and chest radiographic findings can be normal in >10% of patients (5). When infiltrates do occur, they are often nonspecific and involve the lower lobes. Despite these atypical features, if TB is suspected, the diagnosis can usually be established without much difficulty by visualizing or culturing the causative organism in the sputum or extrapulmonary sites.

Approximately 20% of all newly recognized cases of TB in the United States are extrapulmonary, such as intestinal TB (4). Although the frequency of pulmonary TB has been constant, the incidence of extrapulmonary disease is increasing largely in the HIV population (4). Intestinal TB usually develops from ingestion of infected milk, swallowing of expectorated sputum in the presence of active pulmonary TB, or hematogenous spread from pulmonary TB (6). It has been reported that over 25% of patients with cavitary pulmonary TB may also have documented intestinal TB (7), but only 20% of patients with intestinal TB will have an active pulmonary infection (8). The diagnosis of intestinal TB is a challenge because of its chronic and nonspecific presentation mimics other diseases.

Intestinal TB presents with abdominal pain, fever, intestinal obstruction, perforation, fistula formation, and/or malabsorption (6,9). The clinical symptoms of intestinal TB mimic several other diseases such as Crohn’s disease, carcinoma, and periappendiceal abscess. Massive lower gastrointestinal bleeding due to intestinal TB has previously been reported to be rare (10). Vimla et al reviewed 1617 cases of gastrointestinal TB in India published between 1957 and 1979, and reported that only two cases developed massive bleeding (11). Intestinal TB has been thought to be characterized by increased capillary vascularity with concomitant small arterial obliteratoritis, theoretically making significant bleeding an uncommon event (12,13).

In HIV patients, lower gastrointestinal bleeding may occur due to opportunistic infections, such as cytomegalovirus (CMV), which was also present in this case (14). Bleeding is reported to occur in 35-70% of CMV colitis (15,16), but hemodynamically significant hemorrhage is rare. HIV patients with CD4 counts less than 50, or stem cell transplant recipients and other immune compromised patients are susceptible to develop CMV colitis. It has been also shown that HIV and Mycobacterium tuberculosis have a synergistic interaction, and each accentuates progression of the other (17), which may partially explain the rapid deterioration of the patient described in this case. Taken together, the co-infection of CMV colitis and intestinal TB appears to contribute to the massive hemorrhage noted in our patient.

Surgical resection is usually not indicated for intestinal TB (11), however, mortality is high when intestinal TB is complicated with bleeding (10,18). Previous reports indicate that surgery remains the definitive management for the treatment of patients with massive gastrointestinal bleeding due to intestinal TB (10, 13). Indeed, timely resection dramatically improved the condition of our patient. Therefore, early surgical intervention is recommended for lower gastrointestinal bleeding with intestinal TB.

In summary, it is essential for people who are infected with HIV to undergo screening and prompt treatment of TB. In addition, because of the synergy of colonic co-infection with TB and HIV further complicated by CMV colitis, the HIV patient with gastrointestinal complications such as massive hemorrhage poses a difficult clinical challenge with the potential for rapid deterioration without appropriate treatment. Because the presentation of extrapulmonary manifestations of TB is atypical and mimics other common diseases, it is important to have a high clinical index of suspicion in order to timely diagnose and appropriately manage this disease, especially in patients with HIV.

Fig. 5. Cytomegalovirus inclusions were found in ulcers.

Fig. 6. Acid-fast bacilli were found in granulomas.
References


