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Case Report

Localized tubercular ileal perforation in a retroviral disease patient: role of conservative management

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ABSTRACT

Human immunodeficiency virus (HIV) and tuberculosis coinfection are particularly dangerous and involve high morbidity and mortality in developing countries like India. When both pathogens are simultaneously present in the patient, they decline the immunological functions and can also cause premature death. It is imperative to treat the cases judiciously to avoid complications. We present a case of a 45-year-old male with a past medical history of retroviral disease and abdominal tuberculosis. He presented to the emergency department with abdominal pain for a few days. His computed tomography (CT) scan showed a large intercommunicating collection with an air-fluid level in the epigastric region. There was a contrast leak within the collection suggestive of perforation from the ileal loop. The patient underwent ultrasonography (USG)-guided drainage along with broad-spectrum antibiotics, anti-tubercular treatment (ATT), and anti-retroviral therapy (ART). The patient recovered completely and was discharged after 4 weeks on antiretroviral and antitubercular drugs. A brief case report with a review of the literature is presented.

Keywords: Tubercular perforation, Retroviral disease, HIV, Abdominal tuberculosis, Intestinal perforation, Acquired immunodeficiency syndrome

INTRODUCTION

According to the literature abdominal tuberculosis (TB) is the sixth most common form of extraintestinal form of TB mostly involving the ileo-caecal region, it can also involve the peritoneum, spleen, and liver.[1] The chances of acquiring the infection increase in immunocompromised states like malignancy, human immunodeficiency virus (HIV) infection, and diabetes mellitus. Abdominal TB is usually acquired secondarily from a pulmonary infection; it can also be acquired from an adjacent source of infection like Koch spine or renal TB. The tuberculosis bacteria can reach the abdomen by swallowing infected sputum, by hematogenous route, and also by adjacent involved nodes.

Abdominal TB presents diagnostic challenges due to nonspecific symptoms, and the unavailability of diagnostic tests in resource-limited settings. Abdominal TB mimics a lot of other pathologies like Inflammatory bowel disease, appendicitis, and peritoneal metastases.[2] Since the emergence of HIV infection, the number of active tuberculosis cases has increased tremendously.[3,4] Although involvement of the gastrointestinal system is common in retroviral disease patients, intestinal perforation is particularly rare and can be attributed to malignancies or opportunistic infections. Intestinal perforation due to abdominal TB is extremely rare.[5,6]

CASE REPORT

A 45-year-old male presented with abdominal pain in the left hypochondrium for 10 days. He was passing flatus and stools. He was diagnosed case of retroviral disease for 1 year and abdominal tuberculosis for 6 months, for which he was on irregular treatment. Clinical examination revealed a pulse of 96 beats per minute with normal blood pressure. Abdominal examination showed tenderness localized to the left hypochondrium region with sluggish

bowel sounds. Clinical examination of the chest and cardiovascular system was unremarkable. His CD-4 cell count was 107 cells/mm^3. The leucocyte count was 10,400/cmm. He underwent a computed tomography (CT) scan of his abdomen outside our institution which was suggestive of localized fluid collections with the thick enhancing wall in the peritoneal cavity measuring 800-900 cc on the left side of the abdomen extending to the right paracolic gutter, along the anterior abdominal wall, subhepatic and peri gastric regions. There was suspicious communication between the collection and one of the ileal loops, these findings were suggestive of small bowel perforation.

As the patient was stable and plates of his previous CT scan were not available, a repeat CT scan was done at our institute. His CT scan showed a large intercommunicating collection with an air-fluid level in the left hypochondrium extending into the epigastric region and bilateral paracolic gutters. In the oral contrast study, there was a minimal leak of contrast into the collection which was suggestive of perforation from adjacent small bowel ileal loops which were thickened and clumped up but without any evidence of stricture or bowel dilation.

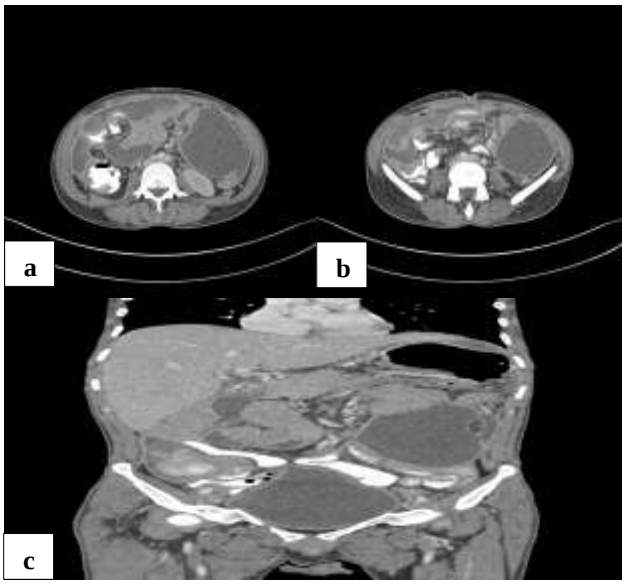

Figure 1: (a), (b) and (c) Images of opacification of oral contrast in the collection and small bowel entering into the collection.

The patient was hemodynamically stable and was also passing flatus and stools, taking into account his immunocompromised status and considering increased mortality in these patients after operative intervention it was decided to manage the patient conservatively with ultrasonography (USG) guided aspiration of the collection and broad-spectrum antibiotics. USG guided aspiration was done for the collection, 210 cc of straw-coloured thick aspirate was obtained from the collection in the left hypochondriac region which showed that perforation had sealed. The patient was started on a soft diet on the 7th day of admission. Another attempt at USG-guided aspiration was made where 120 cc of straw-colored thick aspirate was obtained. The patient was started on antitubercular and antiretroviral (TLE regimen) therapy. The patient had an uneventful recovery without any operative intervention. Follow-up of 4 months has shown him to be symptom-free.

Figure 2: Straw coloured thick fluid aspirated from the collection.

DISCUSSION

HIV infection in a patient increases the chances of contracting active tuberculosis and it also modifies the clinical presentation. Extrapulmonary TB involvement in HIV-infected individuals varies from ranges from 45-60%.[7-9] After lymphatic, genitourinary, osseous system, military, and meningeal tuberculosis, abdominal TB is the sixth most common form of extrapulmonary TB with the ileocecal region being the most commonly involved.[10-12]

Intestinal TB can be divided into three forms: ulcerative, hypertrophic, and ulcero-hypertrophic.[10] These different types of lesions are influenced by the host's immune responses to the tubercular infection.

The ulcerative type of lesion occurs in decreased immunity and patients with a virulent course of infection whereas the hypertrophic type of lesion occurs in patients with the increased immune response to the tubercular infection.

When *Mycobacterium tuberculosis* enters the body through the respiratory tract, the bacilli infect macrophages, in response CD-4 lymphocytes of the body produce interleukin-2 and interferon-gamma, this in turn activate macrophages and other immune cells to destroy the bacteria. Immunosuppressed patients are unable to eliminate these bacilli and this leads to active tuberculous infection.[13,14] Interferon-gamma and CD-4 lymphocytes are reduced in number when the person acquires HIV infection, this in turn also increases the risk of TB.[15,16] The cytokines which are produced by the granulomas in TB help to increase the viral load in HIV, this further worsens the immunosuppression.[17] There appears to be increased chances of active TB infection in people living with HIV infection, this primarily occurs due to the reactivation of a dormant TB infection, and also the chances of acquiring

TB increase due to increased susceptibility. The exact mechanism by which this occurs is still under investigation.[13,14] The medical presentation varies consistent with the extent of immunity; the common pulmonary infection requires a CD4 count which is higher than 200 cells/mm.[3,14] Extrapulmonary infections arise in 9–40% of HIV patients and typically occur due to reactivation of a dormant infection.[17] Extrapulmonary TB is extremely difficult to control and diagnose as it presents with non-specific symptoms and also has a low prevalence.[18,19] Abdominal TB is arguably the most common type of extrapulmonary infection in HIV-positive patients and it also happens to be the sixth most common sort of TB infection.[20] TB infection is seen anywhere from the oral cavity to the rectum, it occurs due to hematogenous spread, and ingestion of respiratory secretions that are contaminated, it can also happen from contiguous spread from lymph nodes or infected organs. The mycobacteria after infiltrating the intestinal epithelium, invade the submucosa producing ulceration, inflammation, and bleeding, it can ultimately lead to intestinal perforation in some cases.[18,19] Due to the higher number of lymphoid tissues in the ileocecal region, it happens to be the most affected region.[17,18]

In retroviral disease, a distinguishing part of gastrointestinal complaints is opportunistic infections which affect the gastrointestinal tract of which TB is a classic example. The common symptoms when the small bowel is involved are vomiting, abdominal pain, and loss of appetite and weight. Abdominal tuberculosis can also lead to devastating complications like perforation and obstruction.[21,22] As rare as intestinal tubercular perforations in retroviral disease patients, the commonest site is the antimesenteric part of the terminal ileum.[23,24]

Laparotomy in patients with HIV infection is associated with very high morbidity reaching up to 50%. When emergency abdominal surgery is undertaken for retroviral disease-related issues it is associated with three-to-four-time mortality risk as compared to other conditions. These patients also don't present with classical signs and symptoms of the condition and many unique clinical scenarios and pathological processes can be seen.

CD4 percentage and CD4 count play a very important role in determining which retroviral disease patients develop immune reconstitution inflammatory syndrome (IRIS) after starting antiretroviral therapy. A CD4 percentage which is less than 15% is associated with a three times more chance of developing IRIS compared to the patients having a CD4 percentage of more than 15%.[25]

In present case the patient had come 7 days after his outside computed tomography (CT) findings were suggestive of intestinal perforation, hence operative intervention was deferred considering decreased chances of survival of the patient due to immunocompromised status, poor nutritional status, and hemodynamic stability of the patient. But even if there are increased chances of morbidity and mortality after emergency abdominal surgery in these patients, when it is indicated the surgery should never be deferred.[26]

CONCLUSION

Tubercular perforation in an HIV-infected individual is a very rare entity and can be managed conservatively in limited cases if the patient is hemodynamically stable and there are no obvious signs of peritonitis.

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