

## CASE REPORT

# Intestinal tuberculosis—the challenging mimicker—in a young Sudanese patient: A case report

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Email: [hayatabdoallah1997@gmail.com](mailto:hayatabdoallah1997@gmail.com)**Abstract**

This article reported a case of intestinal tuberculosis (ITB) in a young patient. ITB could mimic many other diseases such as inflammatory bowel diseases (Crohn's disease), abdominal lymphoma, and others which make it difficult to differentiate; hence, many ITB patients could get mis-diagnosed and suffer wrong treatment consequences.

**KEYWORDS**

intestinal tuberculosis, mimicker, Sudanese, young patient

## 1 | INTRODUCTION

Tuberculosis (TB) is a life-threatening disease that almost affects any part of the body.<sup>1</sup> According to the World Health Organization, 10 million people were infected with TB by 2020, with 1.5 million people died from the disease by the same year.<sup>2</sup>

Intestinal tuberculosis (ITB) is a major public health concern in certain parts of the world.<sup>3</sup> It is an uncommon disease that occurs in regions where tuberculosis is endemic. It accounts for 2% of all TB cases globally. Patients with ITB require a high level of suspicion as a delay in diagnosis or improper management may result in considerable morbidity and mortality. Misdiagnosis rate is 50–70% even in endemic areas.<sup>4</sup>

Intestinal tuberculosis can affect any portion of the GI tract. The ileocecal part is the most common involved site (44–93%) of cases, followed by the small bowel and colon. It rarely involves the esophagus and the stomach. About 15–25% of patients with ITB have concurrent pulmonary TB.<sup>5</sup> There are two main forms of ITB; it can be a primary infection caused by *Mycobacterium bovis* ingestion or secondary to pulmonary infection most commonly via

swallowed bacillary sputum. The most prevalent type of infection is secondary infection.<sup>6</sup> The disease has an increasing incidence in HIV positive patients.<sup>7</sup>

The disease primarily affects young adults because of the fact that they have a higher number of lymphoid Peyer's patches which facilitate entry of the pathogen into the mucosa. ITB has no specific clinical presentation and tends to resemble other abdominal conditions such as inflammatory bowel disease (IBD), intestinal infections, and malignancies, making it harder to provide an accurate diagnosis.<sup>8</sup>

Most physicians in the developing world have difficulty differentiating between Crohn's disease (CD) and ITB. While there are some clinical, endoscopic, histologic, microbiologic, radiologic, and serologic differences between CD and ITB, the only features that can distinguish Crohn's disease from intestinal tuberculosis are caseation necrosis on biopsy, positive smear for acid-fast bacillus and mycobacterial culture. However, these unique characteristics are limited due to low sensitivity making a definite diagnosis is a clinical challenge.<sup>9</sup> Our study aimed to present a case of intestinal tuberculosis in a young patient and to draw the attention of young

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physicians to the importance of high clinical suspicion for the proper diagnosis and treatment.

## 2 | ITB IS TYPICALLY DIAGNOSED VIA COMBINATION OF DIFFERENT DIAGNOSTIC METHODS

In colonoscopy, ITB is diagnosed if there are less than four intestinal segments involved, presence of transverse ulcers, a patulous ileocecal valve, pseudo-polyps, or scarring. Caseous granulomas and acid-fast bacilli have traditionally been considered the gold standard for the diagnosis of ITB in histology. However, only a few percent of patients have typical findings. The histological characteristics of granulomas in ITB typically include large size (>400 μm), caseation, confluence, over four sites, and synchronous localization in the mucosa, submucosal, or granulation tissues. Immunofluorescence or immunohistochemistry-detected surface markers can also aid in the diagnosis of ITB. According to the studies, the monoclonal antibody Anti-VP-M660, which targets the antigen of the *M. tuberculosis* complex, has a sensitivity of 73% and a specificity of 93% for the diagnosis of ITB. Interferon (IFN)-release assays (IGRA) are frequently used to assess the amount of IFN released by circulating T cells or mononuclear cells following in vitro stimulation by *M. tuberculosis* antigen. Ng et al. reported a sensitivity of 81% and a specificity of 85% for IGRA in the diagnosis of ITB in their systematic review. The polymerase chain reaction (PCR), which recognizes *M. tuberculosis* DNA in biopsy or fecal specimens, aids in the diagnosis of ITB. The PCR assay reduces the time needed for diagnosis to 48 h as opposed to the 2–8 week culture time. If the method is contaminated or the primer is not particular enough, it is possible to get misleading negative or positive findings. Because 25% of people with GI TB had a primary lung infection, a chest X-ray, or computed tomography (CT) scan should be done in every suspected case. ITB is characterized by focal involvements, which are consistent with endoscopic results.<sup>10</sup>

## 3 | CASE PRESENTATION

A 20-year-old male patient from western Sudan (Darfur district) presented with recurrent vomiting, abdominal distension, and features suggestive of intestinal obstruction, as well as fever and weight loss. Although the patient and his family denied pulmonary TB diagnosis, his medical history revealed recurrent hospital admission due to pleural effusion associated with fever and weight loss.



**FIGURE 1** Laparotomy findings of the intestinal tuberculosis patient; dilated small intestine with nodules all over the intestinal wall.

On examination, the patient looked cachectic and he had a dowry abdomen. His chest examination revealed that the two sides of his chest were unequal, the left side was clearly depressed.

CBC revealed low hemoglobin; so, blood transfusion was made pre-and post-operative. Chest X-rays showed infiltration of both lungs, features suggestive of pulmonary TB yet he was not previously diagnosed and his gastrointestinal problems were his only presentation. CT showed right-sided intra-abdominal mass and dilated small intestine. The decision was made by the consultant surgeon to go for laparotomy, the findings during laparotomy were the whole intestine was covered by small nodules as shown in [Figure 1](#), the small intestine was dilated, and the right side of the large colon was hugely inflamed, the decision was an inevitable right hemi-colectomy with lymph nodes removal. The differentials were: (1) Crohn's disease, (2) Abdominal lymphoma, or (3) ITB. The specimen was sent for histopathology, and it returns positive for *Mycobacterium tuberculosis* and the diagnosis of intestinal TB was made.

The patient has no history of surgical intervention, or allergy, and is not on any chronic medications. He was not previously diagnosed with pulmonary TB but has severe weight loss, intermittent fever, and repeated pleural

effusions. The patient was referred to a TB center and was established on Directly Observed Treatment (DOT) therapy according to WHO guidelines<sup>11</sup> and our local Sudan National TB Management Guideline 2018.<sup>12</sup>

## 4 | DISCUSSION

We reported a case of a young adult who presented with recurrent vomiting symptoms suggestive of intestinal obstruction and abdominal distension, he underwent laparotomy with right hemi-colectomy. The differential was Crohn's disease, abdominal lymphoma, and ITB. Imaging and laboratory investigations were non-conclusive; so, a specimen of colon and lymph nodes after surgery was sent to histopathology. It was diagnostic for ITB.

Reaching this point of diagnosis was difficult because ITB is mimicker of other intestinal diseases, especially Crohn's disease,<sup>1</sup> both occur at the terminal ileum or other parts of the intestine, but histopathology could reveal caseating granuloma in ITB and non-caseating granuloma in Crohn's disease.<sup>3</sup>

The decision for the right hemi-colectomy was made by the consultant surgeon. The same decision was made for 8.1% of 37 surgical patients with ITB having intestinal adhesion, enlarged mesenteric lymph nodes, intestinal stenosis, abdominal mass, or peritonitis.<sup>3</sup>

Differentiating between ITB, Crohn's disease, abdominal lymphoma, and other clinically mimicking diseases is essential as the treatment options are different and misdiagnosis is prevalent. Because of their non-specific manifestations, patients with ITB frequently experience delays in diagnosis and anti-tuberculous therapy, resulting in considerable morbidity and death, particularly when immunosuppressive therapy is used for suspected IBD. Furthermore, they have been misdiagnosed at rates as high as 50–70% even in TB-endemic countries.<sup>4</sup> A study investigated 85 ITB patients found that only 20% of them were initially correctly diagnosed as ITB while 80% were misdiagnosed as Crohn's disease, ileus, appendicitis, and other different intestinal diseases.<sup>3</sup> Although Sudan is an endemic area with TB, with around 114 cases/100,000 population in 2012,<sup>13</sup> ITB was an unfamiliar condition for us as young medicals. ITB specifically accounts for 1–3% of all TB cases and 11% of extra-pulmonary TB cases, mostly in areas where TB is endemic.<sup>10</sup> Through the years the incidence of ITB is increasing in both developed and developing countries due to the increased prevalence of HIV infections, use of immunosuppressive drugs, and the emergence of drug-resistant TB strains.<sup>3</sup>

Stigma associated with tuberculosis is a significant social factor of health. Individuals and communities can be affected by stigma in a variety of ways, including delay in

diagnosis, delays in seeking medical help, and in finishing treatment.<sup>14</sup> Social stigma is still a significant and under-appreciated factor that contributes to under-reporting of TB cases to the healthcare system and treatment by unregistered healthcare professionals. Additionally, people are more likely to spread the illness if they delay seeking treatment due to stigma.<sup>15</sup> And it is due to high level of stigma associated with TB in Sudan that we faced a lot of troubles regarding family denial of the patient pulmonary tuberculosis and the loss to follow-up.

## 5 | CONCLUSION

Intestinal tuberculosis is a commonly frequent disease, particularly in locations where tuberculosis is endemic. The dilemma is always about reaching the diagnosis as ITB is a mimicker of many diseases and patients usually present with non-specific symptoms. The delay in the diagnosis usually leads to delayed treatment and perhaps even wrong treatment that can make the situation worse. Because the diagnosis of intestinal TB depends largely on high clinical suspicion,<sup>6</sup> we need to continuously report these cases, stressing on the existence of this old disease and increasing the awareness among medical students and junior doctors so as not to miss the diagnosis of ITB.

### AUTHOR CONTRIBUTIONS

All the listed authors contributed equally to this research work, hence all first authors are only ordered alphabetically: HA participated in the conception of the idea, drafting the manuscript, and approving it for submission. HO participated in the conception of the idea, reading, and approving the manuscript for submission.

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### CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

### DATA AVAILABILITY STATEMENT

Data supporting this case with all investigations will be available upon request from the corresponding author.

### ETHICAL APPROVAL

Ethical clearance for this report was obtained from the responsible stakeholders of the hospital in correspondence to the Declaration of Helsinki.

## CONSENT

Written informed consent was obtained from the patient to publish this report in accordance with the journal's patient consent policy.

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