

Rare Colonic Tuberculosis Impostoring as Colonic Crohn's Disease

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Received:  August 20, 2022

Published:  September 12, 2022

Abstract

Abdominal tuberculosis (TB) is not an uncommon entity in Bangladesh. Isolated colonic tuberculosis (TB) is rare. Colonic TB is reported in 2-3% of patients with abdominal TB. It is frequently misdiagnosed as Crohn's disease or carcinoma of the colon due to their shared clinical, radiographic, and endoscopic presentations. The symptoms are also nonspecific making early diagnosis and management difficult. We report a case of 65 years old elderly lady who presented with recurrent hematochezia and weight loss that was mistaken for colonic cancer during colonoscopy. The diagnosis was finally made when the histopathology report was received. The diagnostic dilemma of colonic TB is discussed.

Keywords: Abdominal Tuberculosis; Crohn's Disease; Colonic Cancer; Hematochezia

Introduction

Gastrointestinal tuberculosis (TB) is a diagnostic challenge, as the nonspecific features of the disease may lead to diagnostic delays and development of complications. Abdominal tuberculosis (TB) is not uncommon in the developing world. It is 11% of extrapulmonary TB cases [1], but isolated colonic TB is rare. It has been estimated that 2-3% of patients with abdominal TB have isolated colonic involvement [2]. It also accounts for 10.8% of all gastrointestinal TB, the commonest affected site being the transverse colon, followed by rectum and ascending colon [3]. It commonly presents with vague abdominal pain, fever, weight loss, diarrhea and abdominal mass. In more than two thirds of affected patients, there is no evidence of pulmonary TB [4]. It may mimic many other abdominal diseases, such as other infectious processes, tumors, peri appendiceal abscess, and Crohn's disease (CD) [5]. A high index of suspicion is an important factor for an early diagnosis [6]. In case of misdiagnosis of gastrointestinal TB, unnecessary antibiologic therapy poses a risk of toxicity and delays the treatment of the primary disease. In contrast, steroids, which are used for CD, can be disastrous for Mycobacterium tuberculosis diffusion [7]. We report a case of isolated transverse colon tuberculosis mimicking as colonic

carcinoma. It highlights the need for awareness of intestinal TB in the differential diagnosis of chronic intestinal disease.

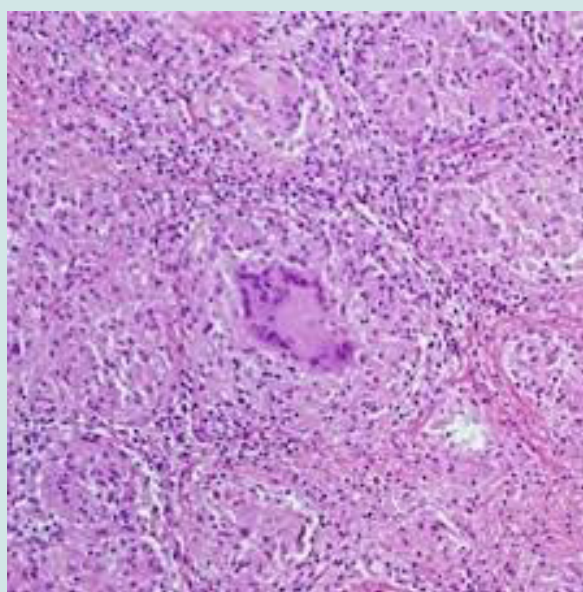
Case Report

A 65-year-old Bangladeshi lady not known to have diabetes, hypertension presented to us with the history of recurrent episodes of fresh per rectal bleeding, abdominal pain and weight loss of 6 kgs in last 3 months. But she denied any painful defecation, coming out of something per anus, tenesmus, fever, alteration of bowel habit or abdominal mass. She also had off and on vague abdominal pain unrelated with food. She lost about 6 kg weight along with worsening anorexia and malaise in the last 3 months. She had no history of night sweat, joint pain, rash, cough, shortness of breath, chest pain or bleeding from any site. Her past medical history was insignificant including no previous history of tuberculosis or was not aware of any TB exposure. There was no family history of inflammatory bowel disease or colon cancer. At the time of presentation, she had a blood pressure of 140/85mmHg, a heart rate of 78 bpm, a respiratory rate of 16 bpm, and an oral temperature of 37.10C. On physical examination, she appeared to be cachectic with weight 46 kg and pallor. Her chest and abdominal exams were within normal

limits apart from mild abdominal tenderness. The remainder of the examination was unremarkable.

The laboratory workup showed a mild anemia (Hb 10.5 g/dl, Hct 32.8%, MCV 66.1 fl, MCH 22pg), without leukocytosis, but mildly with elevated CRP (28.5 mg/dL) and highly raised ESR (87 mm/h). Peripheral blood film revealed microcytic hypochromic anemia with pencil and target cells. Serum ferritin was low (8.51 normal, 12–237 ng/ml). Liver biochemistries, renal function tests, serum proteins, prothrombin time and thyroid hormones were within normal range. Serologic testing for HIV, HBV, HCV were negative. Stool samples were negative for infectious organisms. A chest x-ray examination presented no significant findings. Tuberculin test was negative. An abdominal ultrasound revealed circumferential parietal thickening of the transverse colon and increased echogenicity of the adjacent adipose planes. CT abdomen revealed concentric wall thickening confined to the transverse colon, luminal stenosis, extensive thickening of the mesenteric

folds, the peritoneum and great omentum, a small amount of high-density peritoneal fluid. There was an increased densification of adjacent adipose planes and multiple locoregional non necrotic lymph nodes. Colonoscopy revealed multiple ulcers at transverse colon (Figures 1 & 2). Rest of the colon as well the terminal ileum appeared normal. Multiple biopsies were obtained. Histology showed chronic inflammatory changes with cryptitis, crypt abscesses, and mild stromal lymphoplasmacytic inflammation and noncaseating epithelioid granulomas, a pattern consistent with Crohn's disease. But in the very next day biopsy for gene Xpert TB came positive. She was started treatment with conventional anti tuberculous treatment (ATT) as per weight. Over the next 10 days, general wellbeing of the patient was improved, and he was subsequently discharged from the hospital on 13th day of starting ATT in good condition with weight 51 kg. The patient was seen 1 month after discharge at which time she had gained weight and he was asymptomatic. There is a plan to continue ATT for total 6 months.



Figures 1 & 2: Colonoscopy showing multiple ulcers in transverse colon and histopathology of the biopsy from colonic ulcer showing non caseating granuloma.

Discussion

Tuberculosis affecting the gastrointestinal tract was recognized as early as the fourth century BC in texts by Hippocrates [8]. While TB of the gastrointestinal tract is not as common as pulmonary TB, it is an important cause for TB related morbidity and mortality. Abdominal TB continues to be a major health problem in the developing world. The incidence of colon TB is increasing with the rise in numbers of high-risk patients such as HIV-infected individuals, patients with chronic renal disease, and immunocompromised patients on immunosuppressive or prolonged steroid therapy. Most reported colonic TB cases in non-immunocompromised individuals come from the Indian subcontinent. The pathophysiology of this form of tuberculosis involves spread of mycobacteria to the gastrointestinal tract by number of means: hematogenous spread, swallowing of sputum contaminated with live *M. tuberculosis* bacilli, ingestion of contaminated food, or direct spread from adjacent organs [9]. The terminal ileum and the ileocecal valve are the most commonly affected parts, followed by the jejunum and ascending colon which is usually affected through continuous involvement extending from the caecum. The esophagus, stomach, and duodenum are rarely involved. This predilection for the terminal ileum has been attributed to the presence of large amounts of lymphoid tissue and the longer contact duration of gastrointestinal contents with the lumen [10]. Colonic TB may present as an inflammatory stricture, hypertrophic lesions resembling polyps or tumors, segmental ulcers and colitis or rarely, diffuse tuberculous colitis. The diagnosis can be quite difficult since there are no specific clinical symptoms of large bowel TB and only a quarter of patients have chest radiographs showing evidence of active or healed pulmonary infection [11-13]. The clinical, radiological and endoscopic picture is most likely to be confused with neoplasms or Crohn's disease, and infrequently with other considerations including amoeboma, *Yersinia* infection, GI histoplasmosis, and peri appendiceal abscess.

Classically, gastrointestinal TB may present with fever, weight loss, anorexia, nausea, abdominal pain, vomiting, or diarrhea. Hematochezia is a less common presentation. The most common presenting symptom and abnormal physical sign are abdominal pain and abdominal mass (90% and 58% of patients, respectively) [14]. The most common symptom of jejunal and ileocecal TB is bowel obstruction, whereas abdominal pain and change in bowel habits are the most frequent symptoms in colonic TB. Physical exam findings are nonspecific but may include abdominal tenderness, ascites, and hepatomegaly. Unique to our patient was the lack of typical risk factors for TB infection. The patient had denied incarceration, homelessness, or exposure to infected individuals. It remains unclear where the patient may have contracted the infection; however, earlier exposure to infected individuals or family members that the patient does not recall is possible. Also unique in our patient's case is the presentation of colonic tuberculosis with hematochezia and weight loss. Rectal bleeding is a rare presentation of colonic TB; only a handful of case reports have documented this manifestation [15]. Varied and

nonspecific presenting symptoms make early diagnosis difficult and elusive with subsequent delays in management, as this form of tuberculosis is commonly misdiagnosed as Crohn's disease or carcinoma of the colon due to their similar clinical, radiographic, and endoscopic presentations. To avoid such a dangerous delay in management, some authors recommend a trial of anti-tuberculous chemotherapy in patients with high clinical suspicion on the basis of colonoscopic appearance alone, even in the absence of the classic features of TB, after ruling out other causes, especially cancer and Crohn's disease by histopathological examination. TB and colon cancer may, however, coexist [16]. This coexistence may be of high frequency necessitating the need for epidemiological and histopathological investigations into the aetiological relationship between the two diseases [17].

Laboratory testing is also nonspecific but may reveal anemia, leukocytosis, increased alkaline phosphatase, and hypoalbuminemia. A chest X-ray may demonstrate evidence of pulmonary TB; however, a normal reading does not exclude disease, as only 15-20% of intestinal TB is associated with active pulmonary TB. Such features are cecal amputation, ileocecal thickening and inflammation, shortening of the ascending colon, gaping of the ileocecal valve, mesenteric adenopathy, a misty mesentery, diffuse omental infiltration, loculated high-density ascites, an enhancing peritoneum with or without an omental line, nodularity of the surface of the mesenteric leaves, and transperitoneal permeation [18]. Lymph nodes larger than 1 cm favor gastrointestinal TB. Small bowel series and barium enema most often reveal a high-riding cecum with or without a string-like lesion of the terminal ileum. Colonoscopic examination with combined histopathologic and bacteriologic study of biopsy specimens is a powerful tool for the diagnosis of intestinal TB in 60% of patients without the need for resectional surgery [19]. Among the endoscopic features, the presence of longitudinal ulcers, aphthous ulcers, cobble stoning, and skip lesions are more common in Crohn's disease (CD), whereas the presence of transverse ulcers, nodularity, polyps, and luminal narrowing and patulous ileocecal valve are more common in gastrointestinal TB. Mukewaretal. found ulceration to be the most common lesion, found in 88% of patients. Ulcers were largely linear, transverse, or circumferential, covered with yellowish or whitish exudates and surrounding mucosa was inflamed with edema and nodularity. Other lesions found on colonoscopy include polyps which mimicked carcinoma of the colon, as well as unnegotiable luminal narrowing in a smaller subset of patients [20].

Apart from routine histology, appropriately stained slides should be prepared to look for acid-fast rods and biopsies should also be sent for culture. Biopsies should be taken preferably from the margins of ulcerations because granulomas are often submucosal [21]. However, granulomas with or without caseation are usually seen in less than 50% of patients, while clusters of epithelioid cells without well-formed granulomas have been reported to occur in 20-30% of the biopsies obtained. Similarly, in a considerable number of cases the biopsies have features of chronic inflammation but no

granulomas, caseation or clusters of epithelioid cells. Architectural abnormalities such as crypt distortion/branching/shortening and irregular mucosal surface, though more common in CD, are also seen in gastrointestinal TB. Granulomas are more frequently seen in gastrointestinal TB and are usually larger, confluent, dense, located in submucosa, and characterized by central caseation, which is almost pathognomonic of TB. Since intestinal TB is a paucibacillary disease, positive AFB staining in mucosal biopsies has a sensitivity of only 2.7–37.5%. The sensitivity of AFB culture varies from 19 to 70% and PCR for AFB in endoscopic biopsies is not exclusive for gastrointestinal TB.

Culture of the biopsy material may increase the diagnostic yield, however disappointing results with 0% detection of acid-fast bacilli have also been reported. Polymerase chain reaction analysis of biopsy specimens obtained endoscopically has been shown to be more sensitive than culture and acid-fast stains in diagnosing intestinal TB [22]. Other studies have suggested that an enzyme-linked immunosorbent assay using mycobacterial saline-extracted antigen may increase the yield of correct diagnosis of colonic TB. Our case illustrates not only atypical manifestation of isolated colonic TB, but also a case mimicking CD. Colonoscopic differentiation between TB and Crohn's colitis can be difficult taking into account that both entities may present themselves with mucosal ulcerations and nodularity, aphthous ulcers, oedematous mucosal folds, strictures and pseudo polyps and luminal narrowing [23]. To help differentiate CD from gastrointestinal TB, predictive scores have been suggested, although external validation for various populations is still lacking. However, these studies emphasize predictive features for each disease. Concerning clinical features, diarrhea, hematochezia, presence of perianal disease, and extraintestinal manifestations significantly favored CD, whereas fever, night sweats, lung involvement, and ascites significantly favored gastrointestinal TB. Inflammatory markers, such as CRP or ESR, are inconsistently included in these models due to the disparity of results. The endoscopic, radiologic, and pathologic findings previously discussed here are also included in these predictive models [24,25]. Although in our case endoscopic appearance was suggestive of a CD, histology showed chronic inflammatory changes and non-caseating epithelioid granulomas, a pattern consistent with either tuberculosis or CD. Finally with positive Gene Xpert in our biopsy specimens we were able to set the correct diagnosis thus avoiding unnecessary exploratory laparotomy. Correct diagnosis in such patients is extremely important taking into account that steroid treatment may have potentially disastrous effects. Complications noted were in the form of perforations and fistulae in less than 20% of cases.

Treatment of gastrointestinal tuberculosis is analogous to the treatment of pulmonary TB, with 2 months of conventional anti-tuberculous therapy (rifampicin, isoniazid, pyrazinamide, and ethambutol), followed by rifampicin and isoniazid for an additional 4 months [26]. Surgical resection may be required in cases of severe stricture causing high-grade intestinal obstruction. With resolution of gastrointestinal symptoms, an endoscopy to confirm

mucosal healing is not necessary. This case report evidences the importance of a high level of suspicion of gastrointestinal TB when evaluating a patient with colonic ulcers with which colonic TB may be mistaken for CD and the dilemma of diagnosing it radiologically and endoscopically. The clinical features of both these conditions are identical and, occasionally, only histopathology and Gene Xpert test may provide the final diagnosis.

Conclusion

In conclusion, colonic TB should be considered as a differential diagnosis in patients suspected of having a tumorous or ulcerative lesion on colonoscopy and in patients having chronic gastrointestinal symptoms. Treatment of the condition results in prompt improvement of patient's symptoms thereby lessens chance of complications.

Conflict of interest: None declared

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DOI: [10.32474/CTGH.2022.04.000176](https://doi.org/10.32474/CTGH.2022.04.000176)



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