Not Everything that Glitters in the Terminal Ileum is Crohn’s: Primary Tuberculosis of the Appendix

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Abstract
Terminal ileitis (TI), an inflammation of the terminal ileum, is a presentation suggestive of Crohn’s disease. However, the differential diagnosis for terminal ileitis is broad. Gastrointestinal tuberculosis (GTB) is a rare form of extra pulmonary tuberculosis in the US. Involvement of the appendix is a rarer presentation reported in about 1% of cases.

A 46-year-old female presented to an outside hospital for right lower quadrant abdominal pain. CT scan showed non-specific inflammatory changes in the cecal region with mesenteric lymphadenopathy. Colonoscopy revealed a mass lesion in the cecum. Random biopsies of the cecal mass were reported as chronic inflammatory changes. Patient had a right hemicolectomy with ileocolonic anastomosis for diagnosis of Crohn’s disease (CD). In our hospital, review of the previous pathology slides revealed multiple epithelioid granulomas with Langhans giant cells in the cecum and appendicular lumen. Nucleic acid amplification testing showed tubercular mycobacteria in the specimen. Her Quantiferon Gold testing came back positive. Patient was referred to health department for further management of TB.

Although TI occurs in higher percentage in CD, a thorough diagnostic work up including complete colonoscopy with ileoscopy and TI biopsies should be performed. In case of granulomatous appendicitis, isolated appendicular involvement is rarely seen in Crohn’s disease compelling histopathological examination, appropriate staining, and molecular testing, along with the clinical presentation to establish a diagnosis.

Keywords: Terminal ileitis; Crohn’s disease; Granulomatous appendicitis; Ileoscopy; Cecum

Introduction
Inflammatory bowel disease, consisting of Crohn’s disease and ulcerative colitis, is a chronic inflammatory disorder of the gastrointestinal tract. Terminal ileitis, an inflammation of the terminal ileum, is a presentation suggestive of Crohn’s disease. However, the differential diagnosis for terminal ileitis is broad. Gastrointestinal tuberculosis (GTB) is a rare form of extra pulmonary tuberculosis in the US. It can present as terminal ileitis, cecal mass, or appendicitis. GTB occurs in 3% of all cases of tuberculosis worldwide. Involvement of the appendix is a rarer presentation reported in about 1% of cases [1]. Histopathologic examination and molecular testing is often the only way to confirm the diagnosis. We describe a case of TB appendicitis that presented as a cecal mass diagnosed on basis of clinical presentation, histopathological examination, and molecular testing along with literature review on terminal ileitis.

Case Presentation
A 46-year-old female presented initially to an outside hospital for right lower quadrant abdominal pain. She was found to have a mass lesion in the cecum during colonoscopy, on further workup of abdominal pain, as CT scan was reported to have non-specific inflammatory changes in the cecal region with mesenteric lymphadenopathy. Random biopsies of the cecal mass were reported as chronic inflammatory changes. Patient had a right hemicolectomy with ileocolonic anastomosis for diagnosis of Crohn’s disease. She had a complicated post-operative course, and was subsequently transferred to our facility for further care. On examination, she had right lower quadrant tenderness. Labs showed white count of 13.8 k/mm³ with left shift, platelet count of 507 K/mm³, creatinine of 1.19 mg/dl and C-reactive protein of 76 mg/dl. Liver enzymes were normal. CT abdomen showed post-operative...
changes in the right lower quadrant, with minimal fluid collection in the peri-anastomotic region. Otherwise, gastrointestinal tract was normal. Review of the pathology slides revealed multiple pseudo-polyps in the cecum and appendicular lumen. Nucleic acid amplification testing showed tubercular mycobacteria in the specimen. Interestingly enough, patient reported that she worked in a nursing home for the past 18 years prior to her current presentation. Her quantiferon gold testing came back positive. Patient was diagnosed with tuberculous appendicitis based on the pathology report, quantiferon gold test, and positive molecular testing. Primary focus was not detected on further investigations for tuberculosis involving other organs. HIV was also nonreactive. She was referred to health department for further management of TB.

Discussion

Inflammatory bowel disease (IBD) includes ulcerative colitis (UC) and Crohn’s disease (CD). Over the past few years, there has been a dramatic increase in the incidence of IBD. The presentation of terminal ileitis is somewhat characteristic to Crohn’s disease, though the differential diagnosis for terminal ileitis is broad including ulcerative colitis, infections, lymphoid hyperplasia, malignancies, infiltrative conditions and NSAID use [2].

UC involving the terminal ileum is quite similar to CD in presentation and is termed Backwash Ileitis (WBI). Skip regions of small bowel involvement along with other features of CD helps in differentiating it from UC. Infections that can involve the ileocecal region include infections caused by *Yersinia enterocolitica*, *Mycobacterium avium*-intracellulare complex, disseminated histoplasmosis, *Salmonella spp.*, cytomegalovirus, or *Clostridium difficile*. Lymphoid hyperplasia can also present as terminal ileitis, and can be physiological or secondary to infections like giardiasis or viral infections and immunodeficiencies [3]. Malignancies including malignant lymphoma, adenocarcinoma, leiomyosarcoma and carcinoid tumors can also present as terminal ileitis with nonspecific symptoms at time of presentation. Infiltrative causes include eosinophilic gastroenteritis (EG), systemic mastocytosis, sarcoidosis and endometriosis. Aspirin and NSAID use can cause ulcerations in the small intestine that can present as terminal ileitis [4,5].

According to WHO report of 2016, it was estimated that in 2015 about one third of the world’s population was infected with tuberculosis, with the burden mostly in underdeveloped countries. It also revealed that there were 10.4 million new TB cases globally and 1.4 million TB deaths [6,7]. Tuberculosis is a multisystem disease that can affect any organ system, particularly lungs. The most common extra-pulmonary organ systems involved are gastrointestinal tract, bones and urinary bladder. TB can present as a primary or a secondary infection of an organ system. Abdominal tuberculosis specifically points towards an infection of the intestines, solid organs, or urinary bladder [2,8]. Appendicular tuberculosis is a rare diagnosis that can present as acute or chronic appendicitis, mass in right lower quadrant, terminal ileitis or subacute intestinal obstruction [9].

Patients with gastrointestinal tuberculosis usually present with vague symptoms including weight loss, decrease in appetite, fever, night sweats, diarrhea alternating with constipation, and abdominal pain [2]. Physical examination usually shows tenderness, direct/indirect rebound tenderness and a mass. In case of tuberculous appendicitis, ultrasonography has been established as the diagnostic modality of choice, however computed tomography is more superior and can be used for more diagnostic clarity when ultrasonography is non-diagnostic but clinical suspicion is high [10].

Histopathologic examination is the only way to diagnose whether terminal ileitis or appendicitis is secondary to crohn’s disease or any other etiology. The diagnosis for intestinal tuberculosis is supported by the histopathologic findings of granulomas that tend to contain necrosis, but non-necrotizing granulomas may also be present, surrounding the epithelioid cells and the Langhans giant cells [8]. Though non-necrotizing granulomas can be seen in Crohn’s disease as well, it is usually accompanied by transmural inflammation, microscopic skipping lesions, cryptitis and crypt abscesses. The diagnosis can be supported by radiographic findings of pulmonary tuberculosis though gastrointestinal tract can be the only system involved. A positive quantiferon tuberculosis test can further help in supporting a diagnosis of abdominal tuberculosis. The use of colonoscopic parameters along with laboratory and radiographic findings should be used to distinguish IBD from intestinal TB to gauge management accordingly [11].

The management of intestinal tuberculosis depends on the presentation. In the presence of intestinal obstruction, intestinal ischemia, abdominal mass, massive bleeding, or peritonitis, emergent surgical exploration is needed for better outcomes [10]. As far as treatment of tuberculosis is concerned, intestinal tuberculosis is treated the same way as pulmonary tuberculosis with conventional anti tuberculosis medications rifampicin, isoniazid, pyrazinamide, and ethambutol for two months, followed by additional four months of rifampicin and isoniazid [6].

Conclusions

Although TI occurs in higher percentage in CD, a thorough diagnostic work up in cluding complete colonoscopy with ileoscopy and TI Biopsies should be performed for every patient to exclude all possible differential diagnosis. In case of granulomatous appendicitis, the differential is also broad including tuberculosis, Crohn’s disease or sarcoidosis and isolated appendicular involvement without small bowel, cecal or perianal involvement is rarely seen in Crohn’s disease compelling histopathological examination, appropriate staining molecular testing, along with the clinical presentation to establish a diagnosis.

Author Contributions

Taseen A. Syed M.D.; Case report writing, Literature review and discussion writing. George Salem M.D.; case report writing. Ralph Guild M.D.; Overview of the project and editing before submission. All authors reviewed the final manuscript before submission and Ralph Guild M.D.; article guarantor.
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Consent

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Conflict of interest

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References


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