

Hypermetabolic Diffuse Proximal Small Bowel Wall Thickening on Fluorodeoxyglucose Positron Emission Tomography/Computed Tomography? Consider Strongyloidiasis among the Differentials

Abstract

Strongyloidiasis is an emerging tropical/subtropical parasitic infection commonly encountered in immunocompromised patients and often accompanied by life-threatening gram-negative bacteremia. We presented an interesting image of a critically ill 66-year-old lady, an asthmatic on high dose steroids, presenting with unexplained fever and vomiting where fluorodeoxyglucose positron emission tomography/computed tomography and endoscopic biopsy revealed this often neglected pathogenic nematode.

Keywords: Fluorodeoxyglucose, positron emission tomography/computed tomography, small bowel, strongyloidiasis, wall thickening

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A 66-year-old female with a history of asthma on steroids and admitted in critical care unit underwent whole-body fluorodeoxyglucose positron-emission tomography/computed tomography (FDG PET/CT) for evaluation of unexplained loss of appetite, persistent fever, and vomiting for 1 month. PET/CT scan findings revealed diffusely increased FDG uptake in the nodular wall thickening in the antrum of the stomach (not shown here) and diffuse mucosal thickening involving the entire duodenum [white arrow, Figure 1b and c] and jejunum [black arrows, Figure 1a, d, and e]. Endoscopic biopsy and histopathological study from antrum and duodenum revealed eggs [Figure 2, short thin arrow] and larvae [Figure 2, long thin arrow] of *Strongyloides stercoralis* with dense infiltrates of lymphocytes and plasma cells in the lamina propria [Figure 2, wide short arrow]. The patient was started on ivermectin but eventually succumbed to treatment-refractory septic shock due to *Escherichia coli*.

Clinical diagnosis of this soil-dwelling pathogenic nematode is usually made from peripheral eosinophilia, observing larvae in stool or sputum samples or newly available serological

methods.^[1] However, single stool specimen may not be always sensitive given the variable excretion of larvae in stools and also eosinophilia may not always be present in chronic infection or disseminated infections.^[2,3] In immunocompromised patients, a symptomatic hyperinfective form often develops due to the amplification of the distinctive autoinfective cycle of *S. stercoralis*, causing increased in filariform larvae in stool and often accompanied with life-threatening gram-negative bacteremia.^[4] Hyperinfection of the intestinal tract can clinic-radiologically mimic peptic ulcer disease, Crohn's disease, lymphoma, or tuberculosis and a biopsy may be needed for diagnosis.^[1] There are several studies to demonstrate the utility of imaging in the diagnosis of this hyperinfection. Initial radiological reports based on barium studies described varied findings from mild edema of proximal small bowel mucosa (where the parasite usually resides) to grossly prominent valvulae conniventes, and in some instances, small bowel dilatation, strictures or reflux of barium into the pancreaticobiliary tree due to ampullary involvement.^[5,6] Subsequently, multiple CT reports in intestinal strongyloidiasis were reported, showing thickening of mucosal folds, edema, and atrophy of the mucosa

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Access this article online

Website: www.ijnm.in

DOI: 10.4103/ijnm.IJNM_96_18

Quick Response Code:



How to cite this article: Chandra P, Chakravarthy S, Jain D, Nath S. Hypermetabolic diffuse proximal small bowel wall thickening on fluorodeoxyglucose positron emission tomography/computed tomography? Consider strongyloidiasis among the differentials. Indian J Nucl Med 2018;33:368-9.

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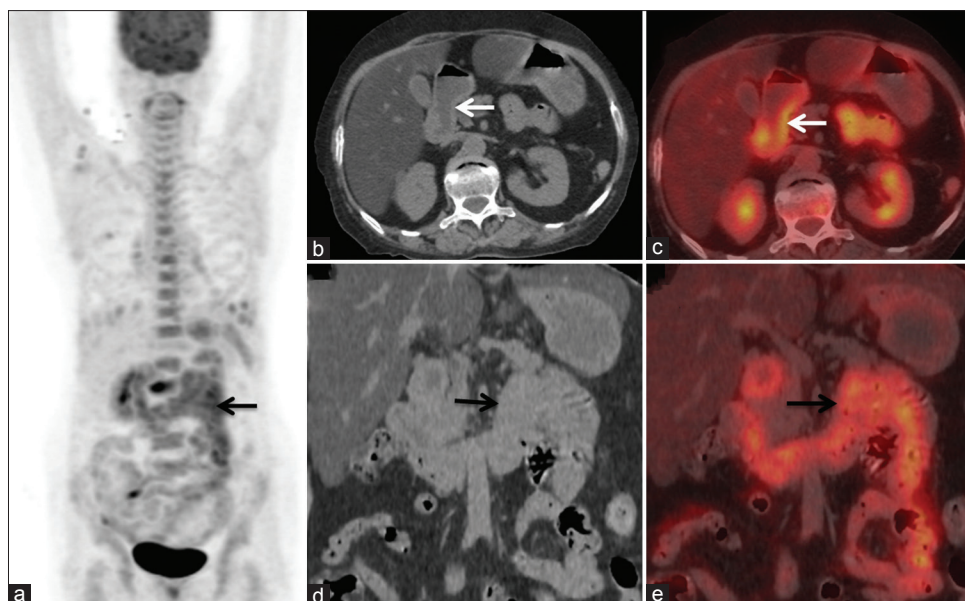


Figure 1: Maximum intensity projection positron emission tomography, coronal and transaxial computed tomography and positron-emission tomography/computed tomography images shows diffusely increased fluorodeoxyglucose uptake in the nodular wall thickening in the antrum of stomach (not shown here) and diffuse mucosal thickening involving the entire duodenum (white arrow, b and c) and jejunum (black arrows, a, d and e)

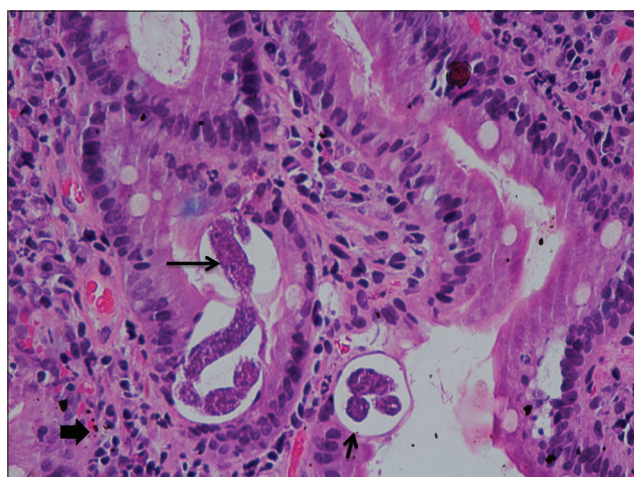


Figure 2: Histopathological study from biopsy of antrum and duodenum revealed eggs (short thin arrow) and larvae (long thin arrow) of *Strongyloides stercoralis* with dense infiltrates of lymphocytes and plasma cells in the lamina propria (wide short arrow)

of duodenum and jejunum. Colonic wall thickening, resembling ulcerative colitis, has also been described on CT.^[7,8]

With increasing use of FDG PET/CT in infection/inflammation imaging, strongyloidiasis should be considered in the differentials if hypermetabolic diffuse proximal small bowel wall thickening is noted, especially in critically ill patients in endemic regions with atypical clinical presentations, to avoid delay in diagnosis and treatment.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have

given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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