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An Enigmatic case of Duodenal tuberculosis: A Case Report

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Abstract

INTRODUCTION: *We here by present a case of duodenal tuberculosis in the absence of pulmonary involvement in an immunocompetent patient.*

CASE PRESENTATION*: A 29-year-old male patient of Indian origin has presented to us with a 3-month history of intermittent epigastric cramping abdominal pain and low-grade fever of 1 month duration. An Esophageal-gastroduodenal (EGD) endoscopic imaging confirmed a duodenal nodule. The biopsy of the nodule was the hallmark of the disease, revealing evidence of granulomatous inflammation consistent with tuberculosis bacilli.*

DISCUSSION: *Gastrointestinal tuberculosis presenting with an isolated duodenal nodule is a rare entity. This case proves to be unique, as our patient had experienced primary isolated duodenal tuberculosis in the absence of pulmonary tuberculosis.*

CONCLUSION: *This case has illustrated the importance of a prompt diagnosis of an unusual case of primary duodenal tuberculosis misdiagnosed as chronic peptic ulcer disease in an immunocompetent patient*

Keywords*: Duodenum, Extrapulmonary, Nodular lesion, Tuberculosis*

Introduction

About one third of the world's population is currently infected with Tuberculosis (TB) according to the World Health Organization, with 1% of new cases occurring each year.1 If left untreated, it can become a life-threatening disease. Nevertheless, tuberculosis is preventable and more importantly, treatable. Gastrointestinal tuberculosis can affect any region of the gastrointestinal tract, most commonly the ileocecal region. The duodenum is an unusual site for tuberculosis and typically occurs due to secondary spread from pulmonary disease. We present a case of primary gastrointestinal tuberculosis in an immunocompetent patient, who has presented as a nodule in the duodenum in the absence of any pulmonary involvement and was later treated successfully with antitubercular therapy emphasizing need of high suspicion and early initiation of antitubercular drug therapy.

Case Presentation

A 29-year-old male of Indian origin, has sought medical attention with complaints of dull upper abdominal pain for three months with no radiation of pain and low-grade fever for one month. He didn't have any complaints of cough, vomiting, melena or weight loss. He was treated with a possibility of peptic ulcer disease for several weeks and was referred to our centre in view of persisting symptoms. He had a past history of right supraclavicular tubercular lymphadenitis three years ago, for which he had underwent a surgical excision which revealed caseating granulomatous lymphadenitis and was put on anti-tubercular therapy. Patient had defaulted on anti-tubercular therapy after four months of therapy due to gastrointestinal adverse effects. Patient was restarted on antitubercular therapy for recurrence of cervical lymphadenitis fifteen months later and was treated for five months, post which he had a remission.

Currently on physical examination, he was hemodynamically stable and systemic examination was unremarkable. His laboratory parameters have revealed a normal blood count, liver and renal function tests. ESR was found to be elevated (60 mm/hour). Chest X-ray was normal. Hs viral markers screening was negative. He underwent an upper GI endoscopy which revealed grade A esophagitis with a 1 x 0.5 cm duodenal nodule in D1, scope could be passed till D3, there was no evidence of any duodenal obstruction (Figure 1). Biopsies were taken from the duodenal nodule and was sent for histopathology examination. He underwent a CECT abdomen which revealed retroperitoneal tubercular lymphadenitis with multiple enlarged lymph nodes along the celiac axis, portal region,

peripancreatic, pre-aortic, para-aortic, aortocaval, retro caval regions with a largest lymph node in the left para-aortic region measuring 28 x 18 mm with adjacent perinodal fat stranding. Few lymph nodes showed central non enhancing areas suggestive of necrosis (Figure 2).

Biopsies from the duodenal nodule done via endoscopy revealed epitheloid cell granulomas, giant cells, acid fast bacilli with areas of necrosis (Figure 3). With a suspicion of multi-drug resistant tuberculosis duodenal nodule samples were sent for CBNAAT (Cartridge Based Nucleic Acid Amplification Test) and LPA (Line Probe Assay), both of which turned out to be positive and were sensitive to standard antitubercular regimen. A colonoscopy has been performed and it was found to be normal till terminal ileum. Patient was started on anti-tubercular treatment regimen consisting of isoniazid 5mg/kg, rifampicin 10mg/kg, ethambutol 15mg/kg, and pyrazinamide 25mg/kg body weight for initial 2months followed by isoniazid and rifampicin in same dose for another 4months. He had tolerated the medications well with no adverse effects. A repeat upper GI endoscopy has been performed after completion of treatment which showed complete resolution of the duodenal nodule. He is asymptomatic and currently under regular follow-up.

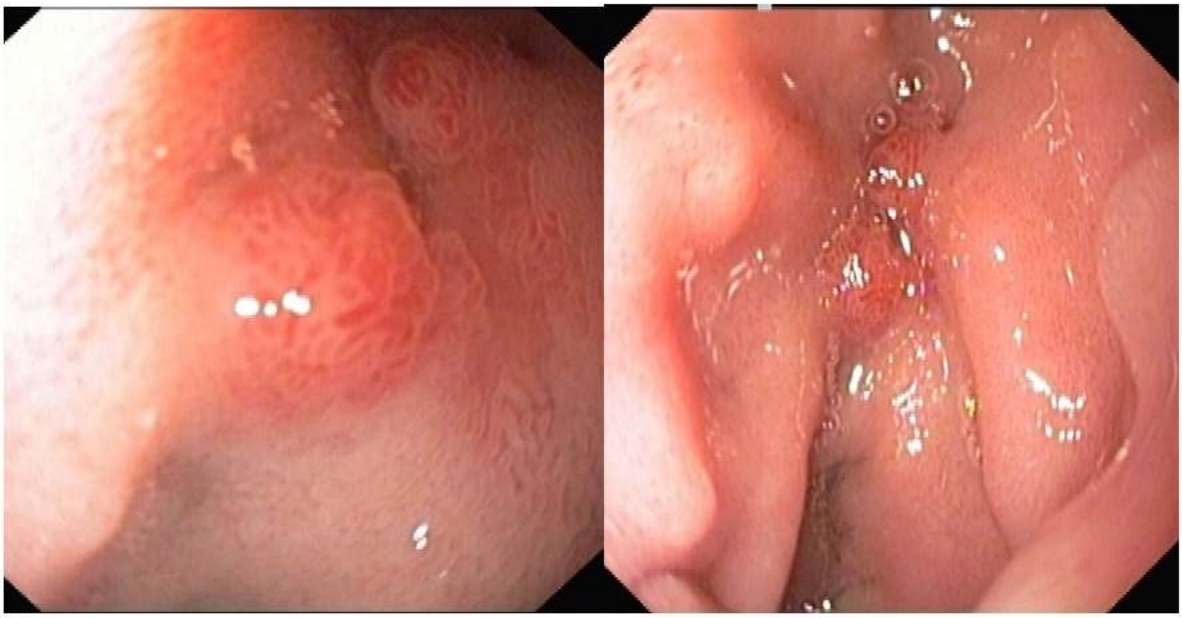

Figure 1: Endoscopic image of duodenal nodule

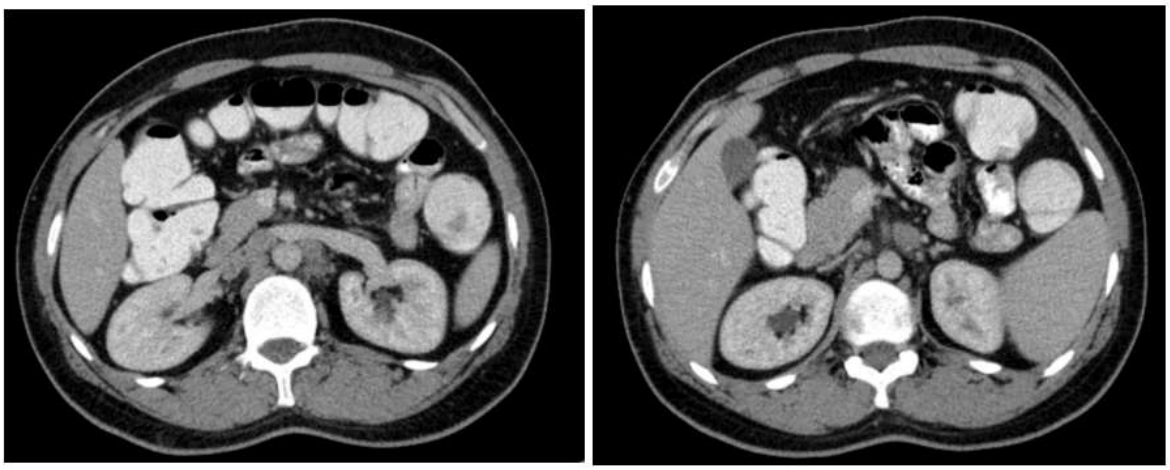

Figure 2: CECT abdomen imaging showing enlarged lymphadenopathy in paraaortic and celiac regions

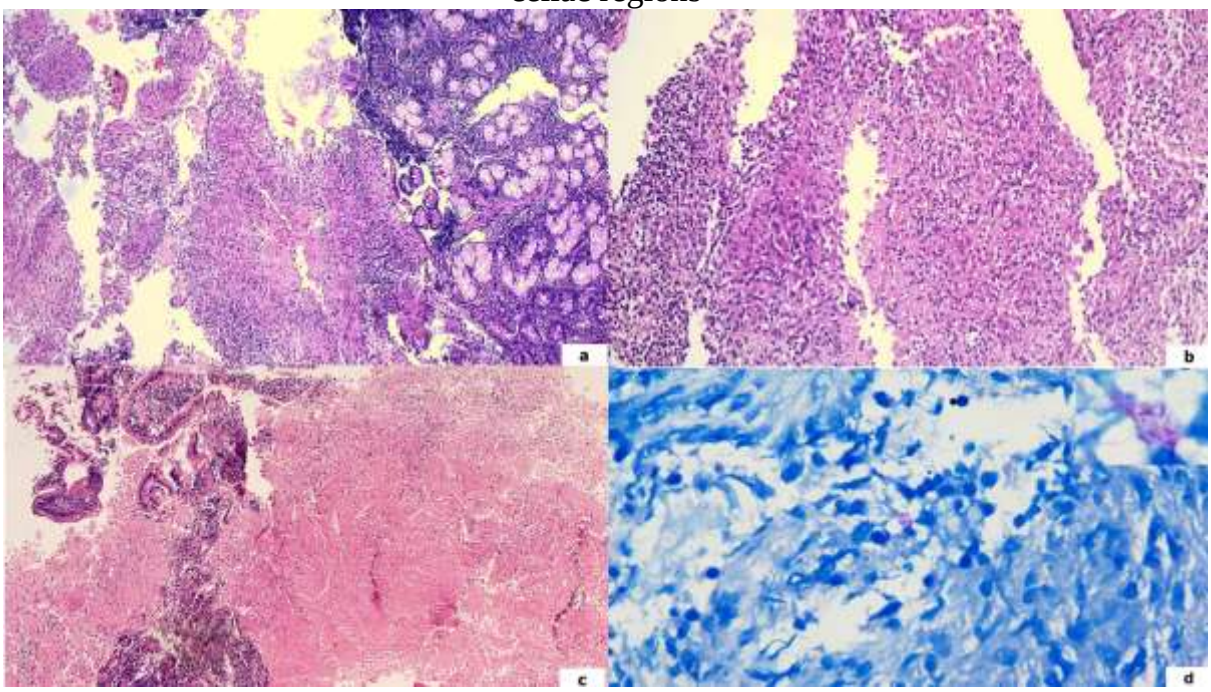

Figure 3. Histopathologic section (hematoxylin-eosin). (a). Duodenal mucosa with granulomas (H&E, X100) (b). Granulomas consisting of epithelioid histiocytes (H&E, X200) (c). Areas of necrosis (H&E, X200) (d). Acid fast bacilli (AFB stain, X1000)

Discussion

Tuberculosis (TB) is endemic in India. Pulmonary TB which is the predominant form of the disease; extra-pulmonary TB, in particular gastro-intestinal TB (GI TB), is relatively neglected. This is likely due to it being more difficult to diagnose and lacking the transmission potential of smear-positive pulmonary TB. Gastrointestinal tuberculosis is an unusual occurrence without preexisting pulmonary tuberculosis (2, 3). In the presence of untreated or partially treated tuberculosis, however, the incidence of gastrointestinal tract involvement is relatively high. In our patient, he was partially treated for cervical lymphadenitis and he has defaulted on his treatment regimen twice. Gastroduodenal involvement of tuberculosis is a rare entity which is often underdiagnosed and possibly treated as refractory peptic ulcer disease. (4) Our patient was treated at an outside centre with a similar differential before referring to our centre. GI TB is a relatively uncommon form of TB which is defined as infection of the peritoneum, abdominal organs or abdominal lymphatic system (5). The possible routes of infection could be as a result of swallowing tubercle bacilli which directly invade the mucosa, hematogenous spread, lymphatic spread or extension from neighboring tuberculous lesion. (6)

In the GI tract, ileocecal region is the predominant site of involvement, followed by the ascending colon, jejunum, appendix, duodenum, stomach, sigmoid colon, and rectum. (7) Among the cases of Gastroduodenal tuberculosis (GD TB) involvement of stomach and duodenum is seen in approximately 1% to 2% of patients. (8) Probable causes for gastroduodenal sparing include high acidity, a paucity of lymphoid tissue, and rapid transit of food in the stomach. A long-term therapy with H2 blockers or proton pump inhibitors there is an increase in incidence of GD TB; however, our patient had not given similar history. (9)

The clinical presentation of GD TB includes wide range of symptoms such as epigastric pain, vomiting, weight loss, hematemesis, perforations, gastric outlet obstruction or obstructive jaundice. (10) GI TB often represents the worst end of the TB disease severity spectrum, with poorer prognosis and treatment outcomes (11).

Tubercule bacilli produce inflammatory exudate which may spread along the mucosa or through the wall of the intestine with subsequent involvement of adjacent lymph nodes. The mucosa in the involved area becomes hyperplastic and thickened, but generally remains intact or may cause severe and potentially life-threatening complications of gastrointestinal TB include intestinal strictures, obstruction, perforation and bleeding (12).

Duodenal involvement may be exogenous, internal, or both (13,14). The exogenous type may have primary duodenal involvement or compression due to enlarged peri-duodenal lymph nodes, while the endogenous type may show ulcerative, hypertrophic, or ulcerative hypertrophic lesions. Our case is distinctive and unusual as our patient had primary isolated duodenal tuberculosis in the absence of pulmonary tuberculosis in an otherwise healthy individual. Having presented with chronic non-specific symptoms that suggested peptic ulcer disease, he was subsequently diagnosed with a duodenal nodule consistent, histologically with tuberculosis.

Gupta et al.(15) described a similar case report of a patient being treated for abdominal tuberculosis from histopathological diagnosis of a biopsy of the duodenum, defining it as the hallmark of the disease. There are no specific clinical, radiological, and endoscopic features to diagnose GD TB which poses a great challenge for the clinician. (16, 17).

Among patients with gastroduodenal tuberculosis, 60% to 70% of patients have evidence of TB elsewhere. Our patients had extrapulmonary involvement (Cervical tubercular lymphadenitis) and there was no colonic involvement. Chest imaging may show evidence of pulmonary TB in up to 20% of cases.(18) In our patient chest Xray was found to be normal. Thickening of the gastric or duodenal wall along with enlarged local lymph nodes, is often visible on CT scan and may be the only clue to the diagnosis, our patient had similar portal lymph nodes but there was no evidence of increased wall thickness.

Upper GI endoscopy may reveal wide variety of findings including nodularity, ulcerations, thickening, erythema, fistulous opening, and deformity involving the antropyloric region and duodenum.(7) Endoscopic biopsies are positive in approximately a third of cases; reasons being tubercular granulomas are sub-mucosal and endoscopic biopsies do not include sub-mucosa routinely.19 From the biopsy material, acid-fast bacilli (AFB) are seldom recovered, although fine-needle aspiration cytology (FNAC) may have a higher yield. (20)

However, in recent studies using a combination of multiple endoscopic biopsies and endoscopic mucosal resection (EMR), granulomatous inflammation was demonstrated in 90% to 100% of patients, although AFB were rarely demonstrated. (21,22) In our patient along with epitheloid cell granulomas, AFB was found to be positive. When diagnosis of TB is established, most lesions regress with appropriate antitubercular treatment and do not require excision. (23) Our patient has responded well to the timely treatment and had complete resgression of the nodule and resolution of symptoms.

Conclusion

Duodenal tuberculosis is infrequently seen in day-to-day clinical practise with very few cases reported in the literature. When it does occur, it is commonly mistaken for peptic ulcer disease, Crohn's disease, or neoplasm, both clinically and radiologically. There should be a high index of suspicion of duodenal tuberculosis among patients presenting with nodular lesions, ulcerative growth or gastric outlet obstruction features in countries endemic for tuberculosis. Once identified correctly, these patients can have good outcome with timely administration of antitubercular therapy and only few require endoscopic or surgical interventions.

Conflict of Interest:

The authors have no financial and personal relationships with other people or organizations' that could inappropriately influence (bias) this submission.

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Ethical Approval

Written informed consent was obtained from the patient for publication of this case report and its accompanying images.

Author Contributions

Dr. Rithesh Reddy G wrote the first draft of the manuscript. Dr. Deepak Suvarna contributed to the writing of the manuscript, agreed with manuscript results and conclusions, jointly developed the structure and arguments for the paper, made critical revisions, and approved the final version. Dr. Suchitha contributed to the diagnosis with histopathological support. All the other authors have analyzed the data, reviewed and approved the final manuscript.

Reference

1. World Health Organization. Tuberculosis; 2002 http://www.who.int/en/ [online 13.03.14].

2.Marc S. Levine. Inflammatory Conditions of the Stomach and Duodenum 563-592.

3. Oscar Urbano B. Fernandez, Lenora L. Canizares. 1995. Tuberculous mesenteric lymphadenitis presenting as pyloric stenosis. Digestive Diseases and Sciences 40:9, 1909-1912.

4. Mukherji B, Singhal AK. Tuberculosis of the stomach and the stomach in tuberculosis: a review with particular reference to gross pathology and gastroscopic diagnosis. Am Rev Tuberc. 1950; 61:1163–1130.

5. Sheer TA, Coyle WJ. Gastrointestinal tuberculosis. Curr Gastroenterol Rep. 2003;5(4):273–8.

6. Gupta B, Mathew S, Bhalla S. Pyloric obstruction due to gastric tuberculosis— an endoscopic diagnosis. Postgrad Med J. 1990; 66:63–65.

7. Gorbach S. Tuberculosis of the gastrointestinal tract. In: Sleisenger M, Fordtran Jeds. Gastrointestinal Diseases. Vol 2, 4th ed. Philadelphia, PA: W.B. Saunders; 1989:363–722.

8. Tandon HD, Prakash A. Pathology of intestinal tuberculosis and its distinction from Crohn's disease. Gut. 1972; 13:260–269.

9. Marshall JB. Tuberculosis of the gastrointestinal tract and peritoneum. Am J Gastroenterol. 1993; 88:989–999.

10. Sharma BC, Prasad H, Bhasin DK, Singh K. Gastroduodenal tuberculosis presenting with massive hematemesis in a pregnant woman. J Clin Gastroenterol. 2000; 30:336.

11. Ohene S-A, Bakker MI, Ojo J, Toonstra A, Awudi D, Klatser P. Extrapulmonary tuberculosis: a retrospective study of patients in Accra, Ghana. PLoS One. 2019;14(1):e0209650-e.

12. Ha HK, Ko GY, Yu ES, Yoon KH, Hong WS, Kim HR, et al. Intestinal tuberculosis with abdominal complications: radiologic and pathologic features. Abdom Imaging. 1999;24(1):32–8.

13.Negi SS, Sachdev AK, Chaudhary A, Kumar N, Gondal R. Surgical management of obstructive gastroduodenal tuberculosis. Trop Gastroenterol 2003; 24: 39-41 [PMID: 12974217]

14 Rehman A, Saeed A, Jamil K, Zaidi A, Azeem Q, Abdullah K, Rustam T, Qureshi N, Akram M. Hypertrophic pyloroduodenal tuberculosis. J Coll Physicians Surg Pak 2008; 18: 509-511 [PMID: 18798590]

15. Gupta SK, Jain AK, Gupta JP, Agrawal AK, Berry K. Duodenal tuberculosis. Clin Radiol 1988; 39:159–61.

16. Lin YS, Huang YC, Lin TY. Abdominal tuberculosis in children: a diagnostic challenge. Journal of microbiology, immunology, and infection =. Wei mian yu gan ran za zhi. 2010;43(3):188–93.

17. Kentley J, Ooi JL, Potter J, Tiberi S, O'Shaughnessy T, Langmead L, et al. Intestinal tuberculosis: a diagnostic challenge. Tropical Med Int Health. 2017; 22(8):994–9

18. Mukherji B, Singhal AK. Intestinal tuberculosis. Proc Assoc Surg East Afr. 1968; 2:71–75.

19. Faylona JMV, Chung SCS. Abdominal tuberculosis revisited. Ann Coll Surg 1999; 3:65–70

20. Gilinsky NH, Marks IN, Kottler RE, Price SK. Abdominal tuberculosis. A 10-year review. S Afr Med J. 1983; 64:849–857.

21. Puri AS, Sachdeva S, Mittal VV. Endoscopic diagnosis, management and outcome of gastroduodenal tuberculosis. Indian J Gastroenterol. 2012; 31:125–129.

22. De A, Lamoria S, Dhawan S. Duodenal tuberculosis: dig deep to diagnose. Trop Doct. 2016; 46:172–174.

23. Anand BS, Nanda R, Sachdev GK. Response of tuberculous stricture to antituberculous treatment. Gut. 1988; 129:62–69.