CASE REPORT

Gastric outlet obstruction: an unusual case of primary duodenal tuberculosis

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ABSTRACT

Background: Tuberculosis is a major health problem worldwide. Gastrointestinal tuberculosis presenting as isolated involvement of the duodenum is a rare case.

Case Presentation: A 13 year male, presented with features of gastric outlet obstruction. CT enterography scan showed circumferential mural thickening in first and second part of duodenal junction causing luminal narrowing. Upper GI endoscopy confirmed the narrowing of D1-D2 junction. Duodenal biopsy showed duodenitis with negative result for AFB stain, *Helicobacter Pylori*. Patient underwent roux-en-y gastro-jejunostomy. Histopathological findings were consistent with tuberculosis. Patient was started on AKT and discharged. At 3 months follow up; patient asymptomatic.

Conclusion: The unusual location of gastrointestinal tuberculosis, lack of specific signs and symptoms, radiological studies and endoscopy findings makes diagnosis a challenge. The treatment of duodenal tuberculosis is still medical and surgery should be reserved for emergency like gastric outlet obstruction causing nutritional compromise.

BACKGROUND

Tuberculosis is a major health problem worldwide, and it is endemic in developing countries like India. Though the most common manifestation of tuberculosis is pulmonary, involvement of the gastrointestinal tract is not uncommon.¹ The gastrointestinal tract is the sixth most frequent site of extrapulmonary tuberculosis after lymphatic, genitourinary, bone and joint, miliary and meningeal tuberculosis.

Tuberculosis can involve any part of the gastrointestinal tract. Ileocaecal region is the most common site (85%) followed by the ascending colon, jejunum, appendix, duodenum, stomach, sigmoid colon and rectum.² Isolated involvement of the duodenum is uncommon (18%).³ In areas where tuberculosis is endemic, diagnosis of gastro-duodenal tuberculosis must be kept in mind, particularly in patients with upper gastrointestinal obstruction. When it does occur, it is commonly mistaken for peptic ulcer disease and neoplasm, clinically and radiologically. This case report briefly discusses gastrointestinal tuberculosis with particular emphasis on the findings in duodenal tuberculosis.

CASE PRESENTATION

A boy aged 13 years was admitted because of recurrent episodes of non-bilious, non-projectile vomiting containing recently ingested food. He

experienced repeated intermittent, non-radiating, vague epigastric pain 2 weeks before admission. The patient has a history of intermittent low-grade fever; however, there was no symptom of night sweats. This was accompanied by bloated sensation and feeling of abdominal fullness with early satiety despite small feeds. This further led to loss of appetite and weight loss. No previous Koch's contact or operative history was elicited.

On clinical examination, vital parameters were normal. The abdomen was diffusely distended with mild tenderness elicitable in the epigastric region. Other systems were within normal limits.

INVESTIGATIONS

Chest X-ray was normal. Abdominal radiograph was suggestive of abnormal distension of the stomach with air-fluid level associated with paucity of gas shadow in bowel loops. Ultrasound scan of the abdomen showed markedly distended stomach. CT of the abdomen (figures 1 and 2) showed distended stomach and first part of the duodenum with short segment circumferential mural thickening (1.6 cm length, wall thickness 6 mm) involving D1–D2 junction causing severe luminal narrowing

Figure 1 CT coronal view showing D1 D2 narrowing.

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Figure 2 CT transverse image showing D1 D2 narrowing with normal distal lumen.

Figure 3 Endoscopic view of oedematous duodenal lumen with narrowing.

at the transitional zone. The distal duodenum and small bowel loops were collapsed. Few subcentimetric homogenously enhancing lymph nodes were present along the common hepatic artery. Serum ADA level was normal and erythrocyte sedimentation rate was 70 mm at the end of 1 hour. TB interferon γ assay, which is performed routinely at our gastroenterology department as a screening and diagnostic method for tuberculosis in suspicious and doubtful cases, was positive (1.51). Viral markers for HBV, HCV and HIV were negative. Upper gastrointestinal endoscopy (figure 3) was carried out and showed mild antral gastritis. The gastric mucosa was smooth, shiny, pink with no mass, ulcer or polyp. The first part of the duodenum was oedematous. At the curve of the first and second part, a stricture with nodular, ulcerated overlying mucosa was seen. The scope could not be negotiated beyond. Duodenal biopsy was taken and sent for histopathology studies which showed moderate chronic non-specific duodenitis. The specimen was also negative for *Helicobacter pylori* and AFB.

DIFFERENTIAL DIAGNOSIS

Gastric outlet obstruction due to inflammatory stricture of the duodenum secondary to peptic ulcer disease was considered. Rare possibility of superior mesenteric artery syndrome, abdominal Kochs or duodenal neoplasm also was considered.

TREATMENT

The patient was then scheduled for surgery. He underwent exploratory laparotomy with Roux-en-Y gastrojejunostomy. The

mesenteric lymph node was sent for histopathological examination. On histopathological examination, chronic granulomatous inflammation with clusters of epithelioid histiocytes mixed with Langhan's multinucleated giant cell surrounded by dense lymphoplasmacytic cell infiltrates were noted. Caseation necrosis was also present. The patient was diagnosed as having gastric outlet obstruction secondary to duodenal stricture tuberculosis and was started on anti-Koch's treatment with 6 months of therapy using isoniazid and rifampicin-based combination. The patient has since shown improvement in appetite, weight gain of 5 kg in 3 months, decreased abdominal pain and no further episodes of fever.

OUTCOME AND FOLLOW-UP

Upper gastrointestinal endoscopy was performed after 3 months of starting anti-Koch's treatment which showed partial resolution of stricture in the second part of the duodenum with an effective lumen diameter of 0.8 cm. The patient will be further followed-up every 6–12 months to check for resolution of stricture with clinical examination and endoscopy. His siblings have been screened for tuberculosis and found to be negative.

DISCUSSION

Gastrointestinal tuberculosis is an unusual occurrence without pre-existing pulmonary tuberculosis.^{1 2} In the presence of untreated tuberculosis, however, the incidence of gastrointestinal tract involvement is relatively high. The common site of involvement is the ileocaecal region followed by the ascending colon and jejunum. The stomach, duodenum, distal colon and oesophagus are rarely involved.³ The rarity of gastroduodenal tuberculosis is due to the antibacterial property of gastric acid, continuous motor activity of the stomach and the rarity of lymphoid tissue in the gastric wall. The possible routes of infection are direct invasion through the mucosa.^{4 5} The most likely route in primary gastroduodenal tuberculosis is haematogenous spread, lymphatic spread and spread from the serosa by continuity from adjacent structures, especially the lymph nodes.^{6–8} Duodenal tuberculosis may also present as fistula formation with adjacent organs; there are isolated reports of bilioduodenal, aortoduodenal and mesenteric artery duodenal fistula.^{9 10} Most reported cases of duodenal tuberculosis come from areas where tuberculosis is endemic such as India and Africa. Another concern is the increasing prevalence of HIV infection. The risk

Learning points

- ▶ The most common manifestation of tuberculosis is pulmonary disease but involvement of the gastrointestinal tract is not uncommon.
- ▶ Tuberculosis commonly involves the ileum and ileocaecal junction. Gastrointestinal tuberculosis presenting as isolated involvement of the duodenum is a rare case.
- ▶ Duodenal tuberculosis is a diagnostic challenge. It must be considered in young patients with peptic ulcer-like symptoms not responding to medical therapy, especially from endemic area of tuberculosis. There are no specific sign and symptoms of duodenal tuberculosis. The findings on radiological studies and endoscopy are also non-specific.
- ▶ The main treatment of duodenal tuberculosis is still primarily medical and surgery should be reserved for the complications.

of developing active tuberculosis when coinfecting with HIV is 20–30 times higher than in non-HIV-infected individuals. There is high prevalence of HIV in India. HIV test may be of benefit for those patients with risk factors and those from areas with high prevalence of HIV infection. Owing to the lack of pathognomonic findings of duodenal tuberculosis on radiological studies (abdominal CT scan), diagnosis may be a challenge and intraoperative lymph node biopsy may be helpful. Abdominal CT enterography scan may reveal duodenal wall thickening. There are no specific guidelines for diagnosis of duodenal tuberculosis on endoscopy and biopsy performed during endoscopy may also show non-specific inflammation. Endoscopic biopsy is positive in only one-third of cases. This may be due to the fact that tubercular granulomas are submucosal and relatively deep for biopsy. Bacilli are rarely isolated from gastric and duodenal lavage. PCR amplification of mycobacterial DNA from biopsy material or duodenal lavage increases sensitivity. Duodenal tuberculosis is classified into ulcerative, hyperplastic, enteroperitoneal and infiltrative types. In this case, upper gastrointestinal endoscopy shows nodular, ulcerated overlying mucosa at the second portion of the duodenum. Endoscopic duodenal biopsy showed chronic non-specific inflammation with negative result of AFB stain and *H. pylori*. The diagnosis could be confirmed only postoperatively through histopathological findings consistent with tuberculosis infection.^{11 12} Though the mainstay of management of duodenal tuberculosis is primary medical with antituberculosis medication, surgical bypass may be required in the majority of the cases to relieve the obstruction, but rarely successful endoscopic balloon dilation of duodenal stricture has been possible. In this case, since the patient already presented with gastric outlet obstruction, surgery was indicated.

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