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Case Report

Tuberculosis of the gastric cardia mimicking gastric carcinoma ☆

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ABSTRACT

In this case report, a male patient in his 50′s presented with right-sided neck swelling for 2 months and an acute episode of hematochezia along with vague abdominal and systemic symptoms for 2-3 years. The clinical suspicion was gastric carcinoma.

Fine needle aspiration cytology (FNAC) from the neck swelling was inconclusive, and upper gastrointestinal (GI) endoscopy was normal. However, contrast enhanced CT neck, chest, and abdomen revealed focal, heterogeneously enhancing wall thickening in the cardia of the stomach with periportal and perigastric nodes showing peripheral rim enhancement; ascites and peritoneal thickening; a cold abscess in the right axilla; cervical and mediastinal lymph nodes with central hypodensity; and tree-in-bud opacities with sub-segmental consolidation in the lower lobe of the left lung. A diagnosis of disseminated tuberculosis was made, and the patient was successfully treated with empirical antitubercular therapy.

This case highlights an uncommon presentation of tuberculosis of gastric cardia and a need to have a high index of suspicion, even in the absence of positive microbiological confirmation of the disease.

Introduction

Approximately 12% of all tuberculosis cases are classified as extrapulmonary, and within this category, gastrointestinal tuberculosis constitutes 11%-16% [1]. Abdominal tuberculosis exhibits pulmonary involvement in 15%-20% of cases [1]. Stomach involvement is infrequent, representing 1%-2% of gastrointestinal tuberculosis cases, especially when occurring concurrently with pulmonary tuberculosis or immunodeficiency [1]. Even in regions with a high prevalence of tuberculosis, isolated gastric tuberculosis of the cardia is exceptionally rare [2–4].

☆ Competing Interests: The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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The swift evacuation of the stomach, high gastric acidity, lack of lymphatics [1], and thick gastric mucosa collectively hinder the establishment of infection by acid-fast bacilli (AFB) in the cardia. Gastric tuberculosis may arise from either a primary or secondary infection [5]. In cases of secondary gastric tuberculosis, extensive nodal involvement is typically observed, and the proposed route of spread is through the coeliac lymph nodes. Alternative mechanisms include direct mucosal invasion, hematogenous dissemination, extension from neighbouring structures, or superinfection of a pre-existing ulcer or malignancy [2].

The clinical manifestations of gastric tuberculosis lack specificity, resulting in a delayed diagnosis [1,2]. The challenge is exacerbated by the difficulty in demonstrating AFB on Ziehl–Neelsen staining or caseating granulomas in biopsy samples and the inability to obtain positive cultures from stomach tissue. Imaging techniques such as ultrasonography and CT may reveal nonspecific findings that suggest but do not definitively confirm the diagnosis. Maintaining a high level of suspicion is crucial, particularly in areas where tuberculosis is endemic, to ensure a timely and accurate diagnosis. Incorrectly diagnosing it as a malignancy may result in unnecessary surgery for almost 25% of patients with abdominal tuberculosis [1].

Gastric tuberculosis shows a positive response to a 6-month (short course) treatment regimen involving isoniazid, rifampicin, ethambutol, and pyrazinamide for the initial 2 months, followed by rifampicin and isoniazid for an additional 4 months [1].

Tuberculosis of gastric cardia is rare, even in endemic regions [2]. In gastroduodenal tuberculosis, surgery is usually required for diagnosis and therapy [6].

Case presentation

A male patient in his 50s presented with complaints of a painless swelling in the right supraclavicular region, which was gradually increasing in size for 2 months. He had low-grade fever off and on for the last 1 month and complained of weight loss, easy fatigability, and poor appetite. He also had a history of pain in the abdomen and fullness after meals for the last 2-3 years and vomiting on and off since 1 year. There was an episode of bleeding per rectum 2 days back. However there was no history of altered bowel habits, cough, jaundice, bleeding from any other site, hematemesis, petechiae, ecchymosis, or any other lump.

On general physical examination he was afebrile, and vital signs were normal. Local examination revealed a soft, lemon-sized swelling in the right supraclavicular region, which had a smooth surface and was nontender. There was fullness in the right axilla, but no redness. The local temperature was not raised, and the swelling appeared fluctuant but nontender. No significant cervical lymph nodes were palpated. The abdomen was soft and nontender. It showed a nontender, firm lump measuring 5.0 × 6.0 cm approximately, with a smooth surface and well-defined margins, in the epigastric region. There was no organomegaly or lymphadenopathy; no fluid thrill was seen. Per rectal examination was normal. Rest of the systemic examination were unremarkable.

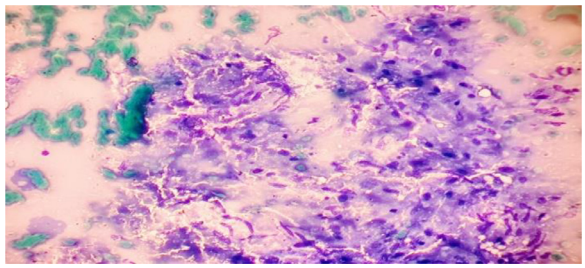

Fig. 1 – Photomicrograph showing ill-formed, epithelioid cell granuloma.

A clinical diagnosis of carcinoma of stomach was made with a possibility of metastasis to the right supraclavicular lymph nodes.

His haemoglobin was 10.0 g/dL, and his ESR was 56.0 mm in first hour; liver and kidney function tests were normal. Chest radiograph showed no abnormality. Neck ultrasound showed an ill-defined hypoechoic area (7.0 × 6.2 cm) showing mobile internal echoes in the right supraclavicular region and extending to the ipsilateral axillary region, suggestive of a cold abscess.

Fine needle aspiration (FNA) from supraclavicular swelling showed blood mixed necrotic background, and Ziehl–Neelsen stain for AFB was negative. A repeat FNA was advised, which revealed ill-formed, epitheloid cell granulomas [Fig. 1]. Staining for AFB was again negative, and no malignant cells were present.

In view of clinical suspicion of gastric malignancy, he was referred for contrast enhanced CT (CECT) neck, chest, and abdomen.

On CECT abdomen, stomach, and duodenum were distended; there was focal, irregular wall thickening measuring 4.8 × 3.0 cm along the cardia of stomach, showing heterogeneous enhancement with peri-gastric fat stranding. Few perigastric, peripancreatic, and periportal nodes showing peripheral rim enhancement, and central hypodensity were also seen, with fat stranding in the lesser omentum, along with gross ascites, smooth peritoneal enhancement, and thickening (Figs. 2 and 3). A small bowel faeces sign was present in the terminal ileum. The remaining small bowel loops and ileocecal junction were normal.

His CECT neck revealed a multiloculated, hypodense collection showing peripheral smooth rim enhancement extending upto ipsilateral axilla, along with multiple conglomerated centrally necrotic nodes in the right supraclavicular region (Fig. 4A and B).

His CECT chest revealed centrilobular nodules showing tree-in-bud configuration with an area of consolidation in the posteromedial segment of the left lower lobe and, a small, thin cavitary lesion in the right upper lobe. Multiple enlarged, discrete, heterogeneously enhancing necrotic mediastinal lymph nodes were seen in prevascular, right paratracheal, subcarinal, and bilateral retro-crural region (Fig. 5A–E).

A diagnosis of disseminated tuberculosis was made based on the CT findings in the abdomen, pulmonary tuberculosis, and a cold abscess in the neck and axilla.

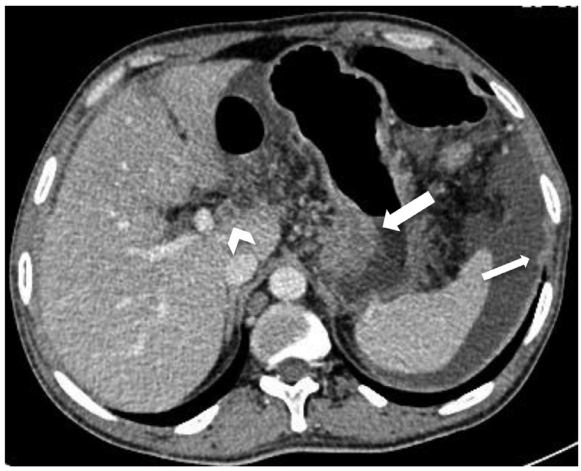

Fig. 2 – CECT abdomen (axial) showing heterogeneously enhancing mass in the cardia of stomach (thick arrow) associated with extensive fat stranding and increased vascularity in lesser sac. Nodular peritoneal enhancement (thin arrow), ascites and periportal necrotic node (arrowhead) also seen.

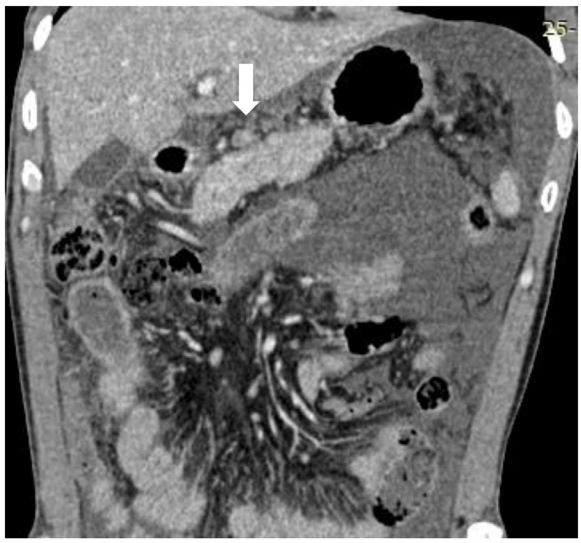

Fig 3 – CECT abdomen (coronal reconstruction) shows peripancreatic node (arrow) with moderate ascites.

However, an upper gastrointestinal endoscopy was advised by the surgeons to exclude gastric carcinoma. Endoscopy showed that the oesophageal mucosa was normal throughout its entire length, and the gastro-oesophageal junction was normal. Stomach was distended and showed normal appearance of the fundus, body, and antrum. Duodenum also appeared normal. No growth or ulcer was seen.

Imaging findings may mimic gastric carcinoma, but no mucosal abnormality was detected on endoscopy in our patient. Peptic ulcer could be excluded as there was no history of prolonged acid peptic disease. Clinically there was no any sign suggestive of syphilis. Sarcoidosis could be excluded on the chest CT findings. Another differential diagnosis could be gastric lymphoma, and Crohn's disease may be impossible to differentiate without a biopsy.

Based on the investigations, he was started on antitubercular treatment empirically (isoniazid, ethambutal, rifampicin, pyrazinamide) and was followed up clinically for 6 months. His abdominal pain, bloating sensation, and appetite improved steadily.

On follow-up, his supraclavicular swelling and abdominal lump gradually decreased in size and completely disappeared by the end of treatment. The patient showed complete recovery after empirical antitubercular therapy (ATT), confirming the diagnosis of gastric tuberculosis. He remains asymptomatic till 1 year after completing ATT.

Discussion

Gastroduodenal tuberculosis (GDTB) constitutes only 2% of gastrointestinal tuberculosis, even in regions where

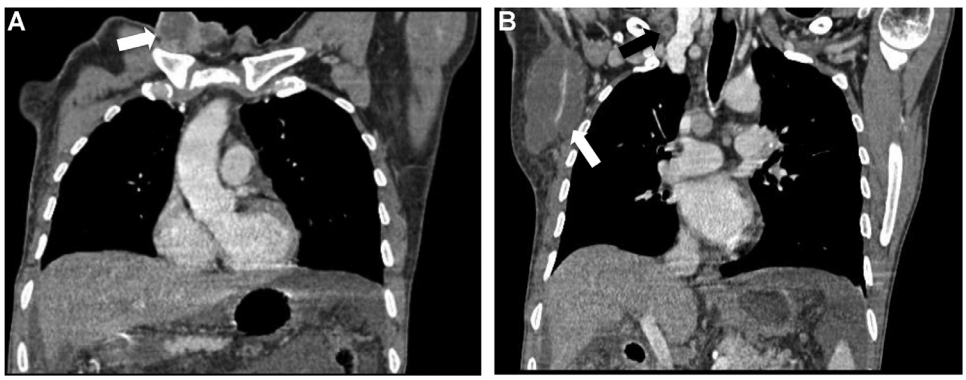

Fig. 4 – CECT chest (coronal reconstruction) on mediastinal window shows (A) multiloculated right supraclavicular collection with (B) right supraclavicular node showing peripheral rim enhancement (black arrow) and an ipsilateral large axillary fluid collection (white arrow).

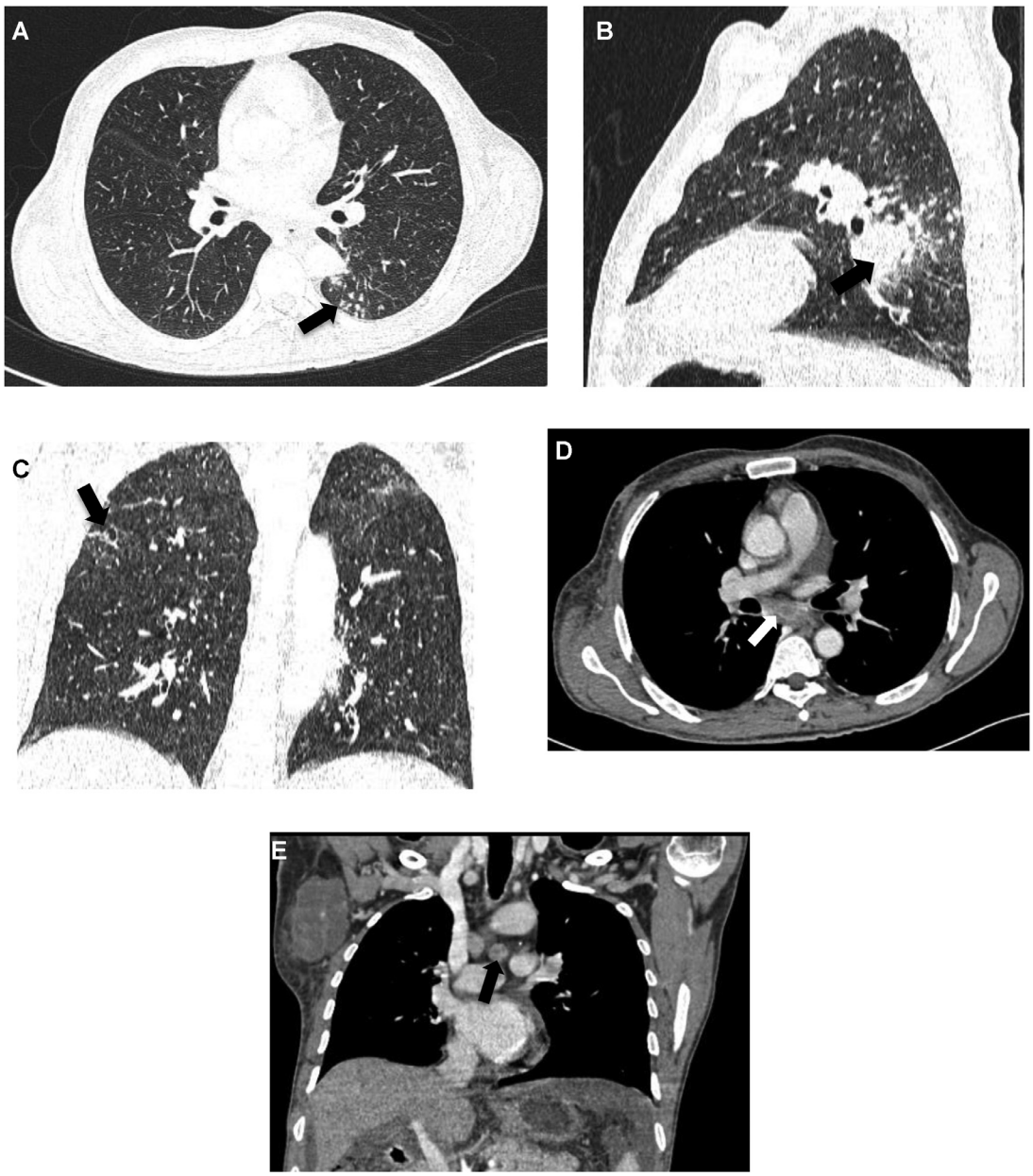

Fig. 5 – CT chest lung window (A) axial scan shows multiple centrilobular nodules with tree-in-bud configuration (B)Sagittal reconstruction showing confluence of centrilobular nodules forming a patch of consolidation, in posteromedial segment of left lower lobe (arrow). (C) Coronal reconstruction shows small thin-walled cavitary lesion in right upper lobe. (D) axial mediastinal window showing conglomerated subcarinal lymphadenopathy (E), coronal reconstruction (mediastinal window) shows precarinal node with central hypodensity; and right axillary fluid collection.

tuberculosis (TB) is endemic [7]. The diagnosis is challenging, as microscopy using Ziehl–Neelsen stain and cultures for acid-fast bacilli are frequently negative [7]. There are isolated reports of TB causing gastric outlet obstruction (GOO) from the West, which were mostly diagnosed postoperatively [7]. Many case series illustrated that postoperative diagnosis was also often based on criteria like the presence of caseating granulomas rather than the presence of AFB. There was usually a lack of supporting evidence, such as pulmonary TB on chest radiographs, in the majority of patients.

Rao et al. reported a retrospective case series spanning 15 years at a major tertiary center in India, reporting 23 cases of GDTB [6]. Fourteen out of the 23 patients exhibited symptoms of gastric outlet obstruction. Preoperatively, there was a suspicion of GDTB in only 2 cases based on the observation of caseating granulomas in endoscopic biopsies. The authors did not provide any information regarding positive cultures in their patients. Pulmonary tuberculosis was evident in only 14% of the cases [6]. Except one patient who presented with a gastrointestinal bleed, all other

patients underwent surgery for both diagnosis and treatment [6].

Gupta et al. shared their 2-decade experience with 30 cases of duodenal tuberculosis, with 73% of them presenting with symptoms of gastric outlet obstruction [8]. The diagnosis of tuberculosis was established only after surgery in all the patients. Amongst the 30 cases, caseating granulomas were identified in lymph node biopsies for 18 cases, while in others, the diagnosis relied on suspected co-existence of ileo-cecal or pulmonary tuberculosis, along with a positive clinical response to ATT [8].

The 2 case series of Gupta et al. and Rao et al. highlighted several crucial aspects regarding GDTB, focusing on GDTB-related GOO [7]. Firstly, this entity is uncommon. Secondly, obtaining a microbiological diagnosis is a great challenge. Thirdly, the diagnosis is typically established postoperatively, relying on criteria such as presence of caseating granulomas rather than the direct identification of *M. tuberculosis*. Finally, the majority of patients lack supporting evidence of tuberculosis, such as abnormal findings in chest radiographs [7].

Isolated gastric tuberculosis is rare in the cardiac region. The low pH is bactericidal and thus unfavourable for the proliferation of tubercle bacilli [2,9]. Clinical manifestations of gastric TB are nonspecific, resembling peptic ulcer disease or gastric malignancy. Presentations include abdominal pain, discomfort, weight loss, fever, anemia, hematemesis, and malena [10]. Reported cases have shown a large variation from the initial presentation to the final diagnosis, ranging from 2 days to 15 years [1]. Physical examination findings, and laboratory abnormalities are usually nonspecific [2].

Our patient presented with a supraclavicular swelling, nonspecific symptoms, and an epigastric lump on examination. So a provisional clinical diagnosis of gastric carcinoma with supraclavicular lymph node metastasis was made. Palpable masses may occur in 50% of gastric TB cases, with gastric carcinoma being the differential diagnosis [11].

In our patient, the endoscopy was negative, possibly due to the submucosal nature of the focal lesion in the cardia, precluding biopsy. Endoscopic findings may include a hypertrophic submucosal mass with a nodular appearance. AFB identification from endoscopic biopsy samples is possible in only a small percentage of cases, due to the paucibacillary nature of GDTB. However, Puri et al. [12] employed endoscopic mucosal resection for large and deep tissue samples and reported a high positive diagnosis rate by histological demonstration of granulomas and positive cultures. They achieved a successful outcome with endoscopic dilation and antituberculous therapy (ATT), avoiding surgery in GOO due to TB [7]. Lin et al. reported a case similar to ours resembling a submucosal tumor with an upper GI subcardiac ulcer, diagnosed as TB on endoscopic forceps biopsy (showing caseating granulomata and acid-fast bacilli [2]. Endoscopic ultrasound in isolated gastric TB of the cardia typically reveals an origin of the lesion from the fourth layer of the gastric wall, resembling a gastrointestinal stromal tumor (GIST) [2].

CT chest showed tree-in-bud opacities and a small cavity in the right upper lobe, with mediastinal nodes showing peripheral rim enhancement, suggesting pulmonary tuberculosis. Abdominal CT also showed features suggestive of tuberculosis, eg, ascites, peritoneal enhancement and thickening, mesenteric and retroperitoneal nodes with central necrosis. CECT neck showed a cold abscess in the right axilla and conglomerated nodes with peripheral rim enhancement in the right supraclavicular region, consistent with tubercular lymphadenopathy. These lesions steadily decreased in size clinically after antitubercular therapy. The epigastric lump also regressed after treatment.

So the diagnosis of tuberculosis of gastric cardia was possible based on a high index of suspicion, and associated findings on the CECT chest (even though sputum could not be obtained). The surgeons started empirical ATT. The patient recovered completely after 6 months of therapy, and surgery was avoided.

Conclusion

In conclusion, in endemic areas, a high radiological suspicion of gastric tuberculosis based on imaging findings, can prevent unnecessary surgery in patients suspected to suffer from gastric malignancy.

Patient consent

I have taken well informed consent from the patient for publication of this case and Patient was happy to share his details for the same.

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