

## Case Report

# Primary gastric tuberculosis mimicking gastric cancer: a case report

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### Abstract

Gastric tuberculosis is an uncommon manifestation of extra-pulmonary tuberculosis infection. The clinical signs of this type of infection are nonspecific and misleading. Clinically gastric tuberculosis resembles peptic ulcer disease or malignancy. We report a case of gastric tuberculosis, which was treated as acid peptic disease, in an Iranian immunocompetent adult with no pulmonary tuberculosis, who received surgery for gastric cancer. Diagnosis was based on PCR despite the detection of negative acid-fast bacilli in the histopathologic specimen. We recommend PCR for *Mycobacterium tuberculosis* to be done when granuloma or caseation is detected on biopsy in patients who are suspected of having gastric malignancy or acid peptic diseases.

**Key words:** tuberculosis; gastrointestinal; immunocompetence; stomach, neoplasms

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### Introduction

Gastric tuberculosis is extremely rare [1,2], usually developing secondary to pulmonary tuberculosis or in association with an immunodeficient condition. Primary gastric tuberculosis in immunocompetent individuals has been reported. Clinically it resembles peptic ulcer disease or malignancy [3].

We report a case of gastric tuberculosis in an immunocompetent adult with no pulmonary tuberculosis. The patient was followed up for a long time as a case of acid peptic disease and underwent surgery for gastric cancer. Diagnosis was based on polymerase chain reaction (PCR) tests despite the detection of negative acid-fast bacilli in the histopathologic specimen.

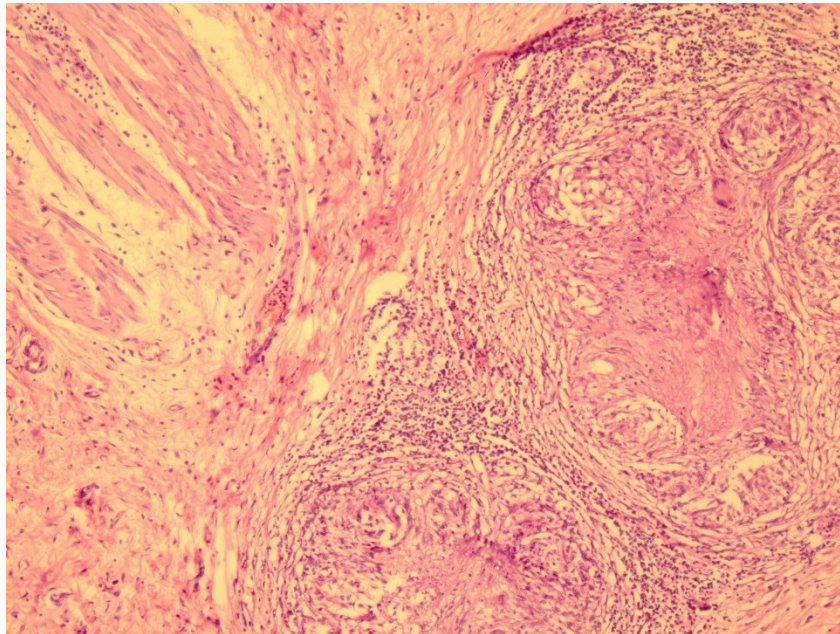
### Case report

A 43-year-old male presented with epigastric and periumbilical pain, anorexia, intermittent constipation, and nausea for one year. There were no specific aggravating factors. He exhibited significant weight loss in four months and denied having fever, cough, vomiting, or diarrhea or passing tarry stools. There was a family history of pulmonary tuberculosis in his brother five years previously, who was treated successfully. The patient was a heavy smoker for 10 years and did not show any response to repeated antisecretory medications. On physical examination,

he was pale and emaciated (weight = 47 kg). Chest X-ray, liver and renal function tests were normal. The patient was non-diabetic and seronegative for HIV. His hemoglobin level was low (9.5 mg/dl) and the erythrocyte sedimentation rate was elevated at 58 mm/h (Wintrobe). The total leukocyte count was 8800/mm<sup>3</sup> with neutrophils 50%, lymphocytes 45%, and monocytes 5%. His upper gastrointestinal endoscopy showed severe thickening of the antrum and distal body of the stomach, which was suggestive of malignancy. Gastric mucosal biopsy revealed severe acute inflammation, necrosis, ulceration, and granuloma tissue formation with a few highly atypical cells. Computed tomography scan of the abdomen showed thickening of the gastric antral wall, suggestive of a gastric antral mass indicative of an infiltrative process. The patient underwent a nearly total gastrectomy and omentectomy. Histopathological examination of the surgical specimens revealed chronic caseating granulomatous inflammation suggestive of tuberculosis (Figures 1 and 2). Acid-fast staining did not reveal any acid-fast bacilli, but a PCR test for *Mycobacterium tuberculosis* complex DNA was positive. The patient's tuberculin skin test was 10 mm in diameter. Accordingly, a diagnosis of gastric tuberculosis was made.

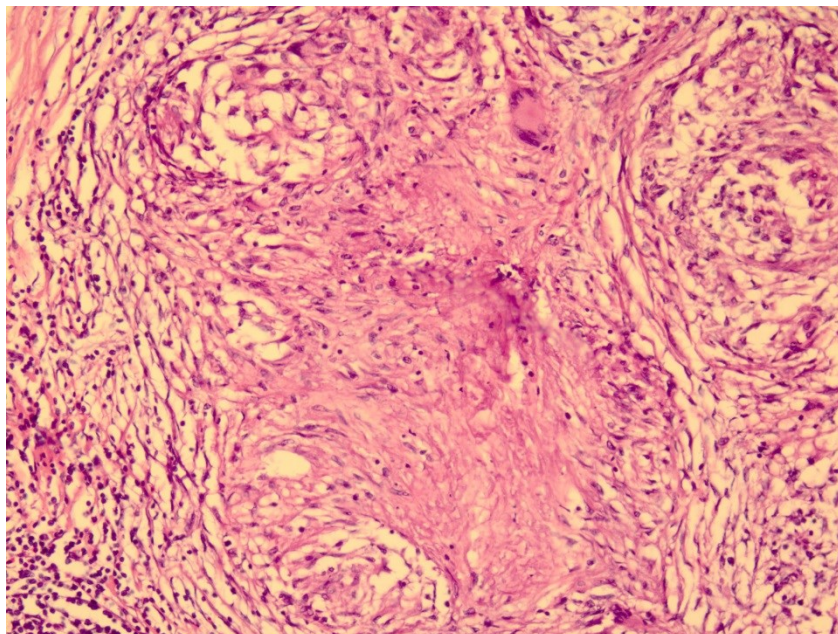
The patient was put on an antituberculous treatment regimen consisting of isoniazide, rifampicin,

**Figure 1.** Histopathologic examination of a section from stomach



Muscularis propria of gastric wall is seen in upper left. Two well-formed granulomas surrounded by lymphocytes are seen in low right (Hematoxylin and eosin 100)

**Figure 2.** Higher view of the same field in Figure 1



Well-formed granuloma with langhans type of multinucleated giant cell (Hematoxylin and eosin 250)

ethambutol and pyrizinamide for two months followed by isoniazide and rifampicin for another four months. At follow-up after one year, he had made a full recovery with his weight stabilizing at 65 kg.

## Discussion

The gastric tract is an uncommon site of extra-pulmonary tuberculosis infection [4]. Gastric tuberculosis is rare because of the presence of gastric acid, the continuous motor activity of the stomach, and the scarcity of lymphatic follicles in the gastric wall [5]. It develops usually secondary to other tuberculous lesions, most commonly pulmonary, or is associated with an immunodeficient condition [1,2]. Primary gastric tuberculosis with no evidence of lesions elsewhere, especially in immunocompetent individuals, is uncommon. [3,6]. In English literature, gastric tuberculosis has not been reported recently from Iran [7,8].

The clinical manifestations of this type of infection are nonspecific and misleading. There are reports of gastric tuberculosis presenting as fever of unknown origin, gastric carcinoma, gastric outlet obstruction, benign peptic ulcer, and stomach perforation [4]. On biopsy, granulomas are either caseous or non-caseous. When granulomas are non-caseating, small and discrete, the differential diagnosis on histology includes Crohn's disease, sarcoidosis, syphilis, mycotic lesions, and exposure to beryllium, silicates or reserpine [5,9]. Staining for acid-fast bacilli is frequently negative, and the diagnosis is either by culture, or by confirming tuberculosis elsewhere [4]. If gastric tuberculosis is clinically suspected, PCR test of the biopsy specimen provides a faster alternative route for the diagnosis, while excluding other diagnoses with 100% specificity and 27% to 75% sensitivity [10-12]. In our case, endoscopic biopsy showed caseating granuloma but acid-fast bacilli was negative, and the diagnosis was confirmed definitely by positive PCR assay. Treatment was successful.

Lack of accurate clinical diagnosis and no suspicion for tuberculosis are causes for surgical interventions in most patients, who are consequently operated on as cases of gastric cancer, and the diagnosis of gastric tuberculosis is made after surgery [3,4].

## Conclusion

Our case illustrates that a high index of suspicion is required to diagnose this rare condition. When granuloma or caseation is detected on biopsy in patients who are suspected of having gastric

malignancy or acid peptic diseases, we recommend PCR for *Mycobacterium tuberculosis* to be done.

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