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Gastric Tuberculosis: A Case Report

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A B S T R A C T

Gastric tuberculosis is a rare form of extrapulmonary tuberculosis, and its clinical symptoms are often nonspecific, making it easily misdiagnosed as conditions like gastric ulcer or malignancy. This article presents a case of gastric tuberculosis in an elderly, non-autoimmune, non-TB patient, initially misdiagnosed and treated as peptic ulcer disease. The diagnosis was confirmed through biopsy of an endometrial lesion, and on the third gastroscopy, a specific tuberculous cyst was identified in the biopsy tissue. The patient responded well to treatment with anti-tuberculosis drugs. Gastric tuberculosis, although uncommon, can be diagnosed through gastric endoscopy and biopsy, with management following the national tuberculosis control program.

Keywords: Tuberculosis, gastric tuberculosis, gastroscopy, gastric disease

1. INTRODUCTION

Tuberculosis can affect any part of the body. While pulmonary tuberculosis was historically the most commonly discussed form, in recent years, extrapulmonary tuberculosis has been increasingly recognized, with gastrointestinal tuberculosis being the most common (from the mouth to the anus), particularly in the ileocecal region (Al-Zanbagi & Shariff, 2021). It has been noted that most cases of extrapulmonary tuberculosis occur after pulmonary tuberculosis or in patients with disseminated tuberculosis.

Gastric and duodenal tuberculosis is a rare form of gastrointestinal tuberculosis. In the past, gastric tuberculosis was seldom reported in the medical literature, with only occasional case reports. Today, gastric and duodenal tuberculosis accounts for approximately 2% of abdominal tuberculosis cases (Molla et al., 2023).

In Vietnam, no reports have been recorded in the medical literature, but a case of gastric tuberculosis was reported in the daily news of Vietnam Express on March 18, 2023, involving a patient with a history of pulmonary tuberculosis in 2007.

This report describes a case of gastric tuberculosis in an elderly female patient with a normal immune system and no history of pulmonary tuberculosis from the Can Gio District Health Center (Ho Chi Minh City, Vietnam). The patient had been monitored for an extended period as a case of excessive gastric acid secretion and had undergone gastroscopy three times. The diagnosis was confirmed through histopathological examination of a biopsy sample, which revealed a typical tuberculous cyst.

2. CASE REPORT

2.1. Patient history

The patient is a female, born in 1959, residing in Ho Chi Minh City.

2.2. The first examination and treatment

May 27, 2022:

- The patient presented with persistent epigastric pain and insomnia, leading her to seek medical attention.
- Colonoscopy and gastroscopy and were performed for further investigation.

May 28, 2022:

- Colonoscopy: No significant findings were noted.

- Gastroscopy: A 12mm ulcer was identified at the angle of the lesser curvature, with a clean base and raised edges. A biopsy was taken. The antral mucosa appeared smooth and pink, with normal motility. Clotest: negative. Pathological findings: acute gastric ulcer (see Figure 1).

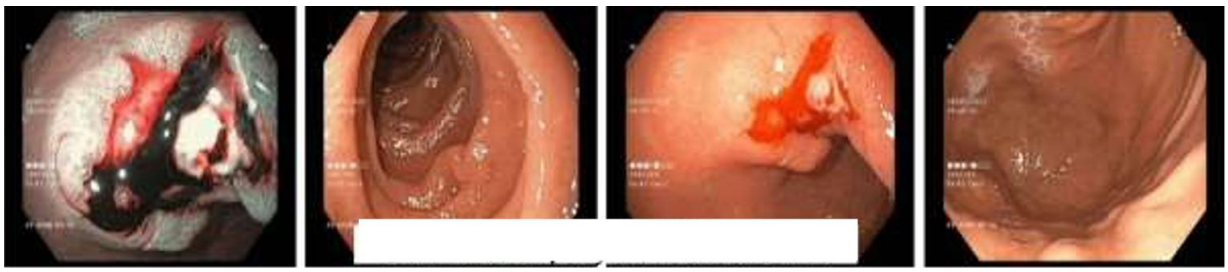

Figure 1- Gastroscopy images from the first examination

- Diagnosis: Lesser curvature ulcer, FORREST III (malignancy not excluded).
- Treatment: The patient was diagnosed with a FORREST III gastric ulcer and was treated with a 28-day regimen, consisting of Esomaxcare (1 tablet twice daily), Sumitrex (1g per packet, 1g three times daily), and Ayite 100mg (1 tablet three times daily).

June 4, 2022:

- The patient reported improvement and did not attend the scheduled follow-up visit.

2.3. The second examination and treatment

June 26, 2023:

- The patient again experienced epigastric discomfort and bloating, prompting a return visit for further evaluation.
- Gastroscopy was performed for further investigation.

June 27, 2023:

- Second Gastroscopy: A 15mm ulcer was observed at the angle of the lesser curvature, with a clean base and edematous margins. Multiple biopsies were taken. The antral mucosa showed signs of atrophic gastritis, while other regions appeared normal. Clotest: negative. Pathological findings: Acute gastric ulcer (see Figure 2).

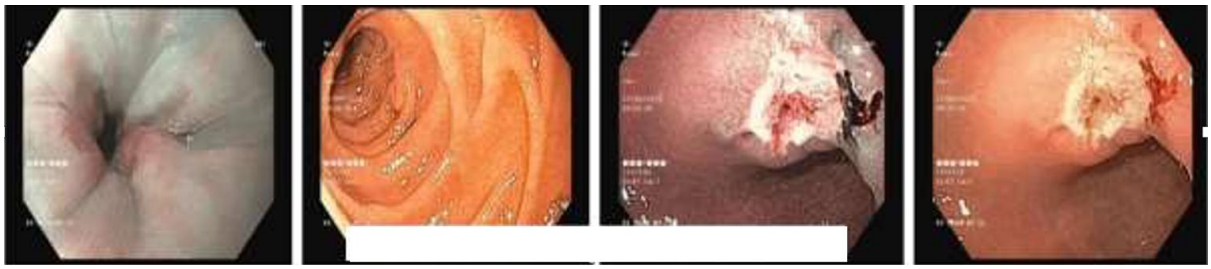

Figure 2- Gastroscopy images from the second examination

- Diagnosis: Lesser curvature gastric ulcer, FORREST III. Additionally, the patient was diagnosed with gastroesophageal reflux disease with esophagitis and atrophic antral gastritis, classified as KIMURA C1.
- Treatment: The patient was treated with a 7-day regimen consisting of Nexium Mups 20mg (1 tablet twice daily), Gellux 1g per packet (1g twice daily), and Mucosta 100mg (1 tablet three times daily). A follow-up gastroscopy was scheduled for July 11, 2023.

2.4. The third examination and treatment

July 11, 2023:

- The patient returned for a follow-up visit as scheduled.
- Gastroscopy, full-body X-ray, and gastric tissue biopsy were performed for further investigation.

July 11, 2023:

- Third Gastroscopy: A 15mm ulcer was again observed at the angle of the lesser curvature, this time with a pseudomembrane covering the base. Multiple biopsies were performed. The antral mucosa displayed atrophic changes, while other areas were unremarkable. Clotest:

negative. Pathological findings: Gastric tissue with benign mucosal layers showing granulomatous lesions containing caseous necrosis, degenerated cells, Langhans giant cells, and lymphocytes (see Figure 3).

Figure 3- Gastroscopy images from the third examination

- Gastric tissue biopsy: No malignancy was detected in the biopsy sample (see Figure 4).

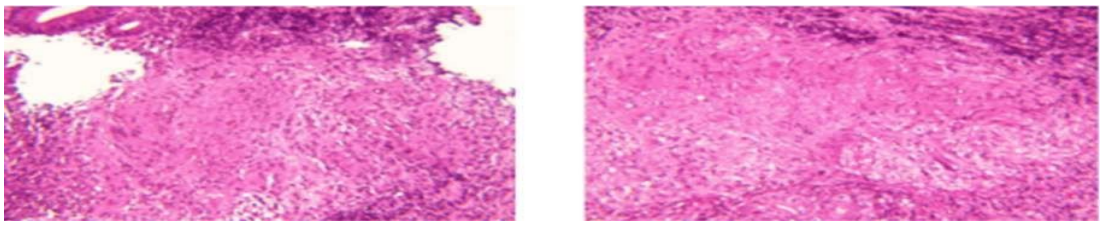

Figure 4- Histopathological biopsy images of gastric tissue

- Full-body X-ray: Chest X-ray was unremarkable, and no abnormalities were detected in other areas.
- Diagnosis: Gastric mucosal tuberculosis.
- Treatment: The patient was started on the 2RHEZ/4RHE regimen.

2.5. The fourth examination and treatment

January 17, 2024:

- The patient returned for a follow-up visit after six months of treatment with the 2RHEZ/4RHE regimen.
- Gastroscopy was performed for further investigation.

January 17, 2024:

- Fourth Gastroscopy: Revealed mild mucosal congestion in the stomach, with other areas appearing stable (see Figure 5).

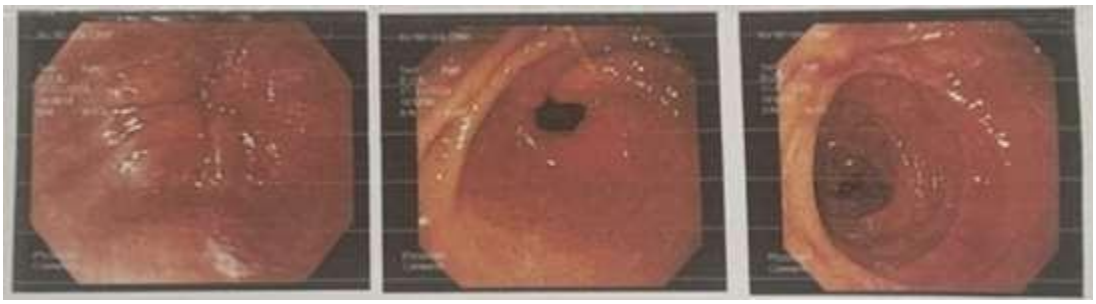

Figure 5- Gastroscopy images from the fourth examination

- Diagnosis: The patient showed significant weight gain and was assessed as having had a complete response, with no further abnormalities noted.

3. DISCUSSION

3.1. Overview

Tuberculosis (TB) can affect any part of the body. Previously, pulmonary tuberculosis was the most commonly discussed form; however, in recent years, extrapulmonary tuberculosis has been increasingly diagnosed, with gastrointestinal tuberculosis (ranging from the oral cavity to the anus) being

one of the most frequently reported forms, particularly in the ileocecal region (Al-Zanbagi & Shariff, 2021). It is noted that most cases of extrapulmonary tuberculosis occur secondary to pulmonary tuberculosis or as part of systemic tuberculosis.

Gastro-duodenal tuberculosis is a rare condition, with limited case reports in the literature. Currently, it is estimated that gastric and duodenal tuberculosis accounts for approximately 2% of abdominal tuberculosis cases (Molla et al., 2023), and it can be categorized as either primary or secondary gastric tuberculosis. Primary gastric tuberculosis constitutes approximately 10% of all gastric tuberculosis cases. Three factors contribute to the rarity of tuberculosis infection in the stomach: (1) The presence of gastric acid, (2) The continuous motility of the stomach, (3) The stomach wall contains very few lymphoid follicles (Subei et al., 1987).

Similar to other forms of extrapulmonary tuberculosis, most gastric tuberculosis cases are secondary to pulmonary tuberculosis or are associated with immunosuppression. However, primary gastric tuberculosis in immunocompetent individuals has also been documented (Subei et al., 1987). The most common route of gastric tuberculosis infection is through the spread from tuberculous lymph nodes adjacent to the stomach. The second pathway involves direct mucosal infection after ingestion of Mycobacterium tuberculosis or Mycobacterium bovis-contaminated food, such as sputum or milk (Kim et al., 2005).

According to Bezabih et al. (2003), gastric and duodenal tuberculosis is exceedingly rare, even among patients with pulmonary tuberculosis. Autopsy series have reported an incidence rate of 0.5%, with most cases being secondary in nature. Primary cases are extremely rare, with only a few reports in the literature (Bezabih et al., 2003). The case presented in this report is likely primary gastric tuberculosis, as no other tuberculous lesions were identified, and the patient had no prior history of tuberculosis treatment. To date, no published reports on gastric tuberculosis have been found in Vietnam.

A crucial point to highlight is the acidic nature of gastric secretions, which makes it difficult for tuberculosis bacteria to survive in the stomach. In this case, prolonged treatment with acid-suppressing medications may have facilitated the survival of tuberculosis bacteria, leading to primary gastric tuberculosis. However, further studies involving more cases are necessary to confirm this hypothesis.

3.2. Clinical Symptoms

The clinical manifestations of gastric tuberculosis are nonspecific and often mimic other gastrointestinal disorders, including nausea, vomiting, epigastric pain, acid reflux, retrosternal burning, and fever. Imaging and endoscopic findings may resemble gastric cancer or peptic ulcer disease. Some reported cases of gastric tuberculosis have been initially misdiagnosed as fever of unknown origin, gastric carcinoma (due to gastric outlet obstruction), benign peptic ulcers, or perforated peptic ulcers leading to gastrointestinal bleeding requiring emergency surgery (Al-Zanbagi & Shariff, 2021; Subei et al., 1987).

3.3. Diagnosis

Diagnostic tools for gastric tuberculosis are not highly specific and include ultrasound, gastroscopy, and abdominal computed tomography (CT). However, endoscopic biopsy plays a crucial role in obtaining histopathological samples. It is recommended to biopsy small nodules and ulcerative lesions during gastroscopy. Pankaj Kumar and colleagues have suggested that non-fluorescent gastroscopy is a safe and effective method for diagnosis (Kumar et al., 2022).

Histopathological confirmation of tuberculosis is based on the presence of granulomas with caseous necrosis, epithelioid cells, Langhans giant cells, and lymphocytes. When granulomas are small and scattered, differential diagnosis with conditions such as Crohn's disease, sarcoidosis, syphilis, fungal infections, and exposure to beryllium, silica, or reserpine is necessary. Acid-fast bacilli (AFB) staining is often negative, and diagnosis can be confirmed by mycobacterial culture, repeat biopsy, or tuberculosis screening in other parts of the body. In cases where gastric tuberculosis is suspected, polymerase chain reaction (PCR) testing of biopsy samples is an alternative diagnostic tool with 100% specificity and a sensitivity range of 27% to 75% (Al-Zanbagi & Shariff, 2021).

In the reported case, the disease progressed over a year and was initially diagnosed as acute gastric mucosal inflammation. It was only upon the third biopsy that the diagnosis of gastric tuberculosis was confirmed.

3.4. Treatment

Medical management: The primary treatment for gastric and duodenal tuberculosis is pharmacological therapy once a confirmed diagnosis is established. Most patients respond well to anti-tuberculosis treatment following the national tuberculosis control program regimen (Vietnam Ministry of Health – Department of Medical Services Administration, 2024). Balloon dilation may be considered in cases of duodenal stricture, as reported in international studies (Al-Zanbagi & Shariff, 2021; Molla et al., 2023)

Surgical intervention: Surgical treatment is usually indicated in cases where diagnosis is challenging or to alleviate gastrointestinal obstruction. Surgical options include resection or bypass procedures. Typically, gastrojejunostomy is performed to manage pyloroduodenal obstruction (Al-Zanbagi & Shariff, 2021; Molla et al., 2023). However, surgery must always be followed by a full course of anti-tuberculosis treatment (Al-Zanbagi & Shariff, 2021)

Surgery is not recommended as the first-line treatment for chronic, uncomplicated cases, as gastrointestinal tuberculosis lesions often regress or resolve with appropriate anti-tuberculosis therapy. Selective surgical intervention is reserved for complications such as fistula formation or obstruction that does not respond to medical therapy (Subei et al., 1987).

3.5. Prognosis

Once tuberculosis is confirmed through histopathological or microbiological evidence, the overall prognosis is favorable, with good treatment response and minimal long-term complications, even in immunocompromised patients. However, diagnosing gastric tuberculosis remains challenging due to its insidious onset, often mimicking chronic gastritis or peptic ulcer disease. Delayed diagnosis may lead to disease progression, fistula formation, or peritoneal tuberculosis, complicating treatment.

In the reported case, no prior tuberculosis history or extrapulmonary tuberculosis lesions were identified, suggesting primary gastric tuberculosis. The patient was treated with a six-month anti-tuberculosis regimen (2RHEZ/4RHE) as per the national tuberculosis control program and demonstrated a favorable response (Vietnam Ministry of Health – Department of Medical Services Administration, 2024).

4. CONCLUSION

Gastric tuberculosis is a rare disease with vague symptoms that can easily be mistaken for peptic ulcer disease or gastric malignancy. Diagnosis is based on endoscopic biopsy and histopathological examination. Treatment follows the standardized regimen of the Vietnam National Tuberculosis Control Program and has a favorable prognosis with currently available anti-tuberculosis medications.

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