

Case Report

Gastric tuberculosis with abdominal pain as the main symptom: A case report and review of the literature

Yanhua Yang¹ , Yinghuan Fu¹ 

¹Department of Gastroenterology, The Central Hospital of Enshi Autonomous Prefecture, Enshi, China.



*Corresponding author:

Yanhua Yang,
Department of
Gastroenterology, The Central
Hospital of Enshi Tujia and
Miao Autonomous Prefecture,
Enshi 445000, China.

1559287138@qq.com

Received : 14 February 2022

Accepted : 01 March 2022

Published : 20 June 2022

DOI

10.25259/MEDINDIA_1_2022

Quick Response Code:



ABSTRACT

Gastric tuberculosis is a kind of tuberculosis with lack of specific clinical manifestations. Patients often present with the upper abdominal discomfort or pain, and may also be accompanied by systemic symptoms of tuberculosis, such as fatigue, low fever, night sweats, and weight loss. Gastric tuberculosis is mainly diagnosed by gastric submucosal biopsy, but it is easy to be misdiagnosed due to differences in the selection of puncture sites and depths. As a rare type of tuberculosis, gastric tuberculosis often leads to a series of complications due to late diagnosis and delayed treatment. This article will report a case of gastric tuberculosis admitted to the literature in conjunction with the literature.

Keywords: Abdominal pain, Gastric, Tuberculosis

INTRODUCTION

Tuberculosis poses a great threat to human health. Although the rapid development of diagnosis and treatment technology has reduced the incidence rate in recent years by about 2% per year, there were still nearly 10 million new patients worldwide in 2019, and the death toll has reached 1.4 million.^[1] The reduction in morbidity and deaths cannot conceal the obstacles that people encounter in the prevention and treatment of tuberculosis, especially the present epidemic of COVID-19 has adversely affected the achievements already made.

CASE REPORT

The patient was a 21-year-old female with persistent dull pain in the upper abdomen with no obvious cause, accompanied by low-grade fever (37.7°C) and no discomfort such as night sweats, fatigue, hematemesis, and constipation. The patient denied a history of tuberculosis and related family history. On admission, the vital signs were stable, no weight loss, mild tenderness in the upper abdomen, and no rebound pain. Blood examination observation that White blood cells $11.94 \times 10^9/L$, percentage of neutrophils 86.70%, hemoglobin 95 g/L, procalcitonin determination (PCT) 0.26 ng/ml, C-reactive protein (CRP) 144.22 mg/L, erythrocyte sedimentation rate (ESR) 65.0 mm/hr, no abnormality in tumor markers and HIV. Gastroscopy found a raised lesion of the gastric body (irregular raised lesions can be seen on the posterior wall of the upper part of the gastric body near the cardia, about 2.0×2.5 cm in size, with unclear boundaries, and multiple ulcers on the surface) [Figure 1]. Gastric biopsy showed: Chronic granulomatous inflammation, ulcer formation was observed in the focal area of gastric mucosa under microscope, a small number of epithelioid cells and nodules formed by the aggregation of Langerhan's giant cells

This is an open-access article distributed under the terms of the Creative Commons Attribution-Non Commercial-Share Alike 4.0 License, which allows others to remix, transform, and build upon the work non-commercially, as long as the author is credited and the new creations are licensed under the identical terms.

©2022 Published by Scientific Scholar on behalf of Medicine India

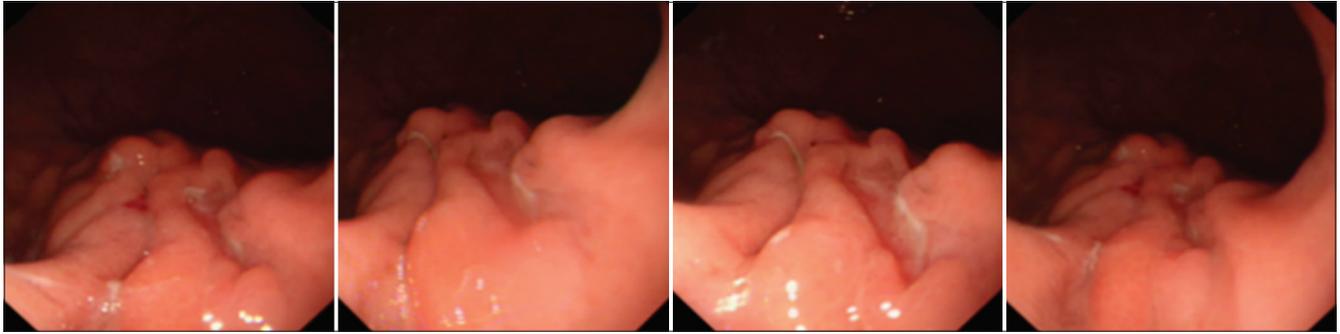


Figure 1: Irregular raised lesions can be seen on the posterior wall of the upper part of the gastric body near the cardia, about 2.0×2.5 cm in size.

in the mucosa, accompanied by more lymphocytes, a few plasma cells, eosinophils, neutrophil infiltration, and formation of lymphoid follicles [Figure 2]. This suggests that the possibility of gastric tuberculosis is extremely high.

Additional CT scans of the chest and upper abdomen showed a few inflammatory lesions in the right lower lobe, which did not rule out the possibility of tuberculosis; micronodules in the left upper lobe; intrahepatic bile duct stones or calcifications; hepatogastric space was occupied with increased lymph nodes and partially increased calcification; the left adrenal gland is thickened; and there are more surrounding lymph nodes. At the same time, the enhanced CT of the abdomen showed that the gastric wall on the lesser curvature of the stomach was thickened, a small amount of fluid was accumulated in the hepatogastric space, and the lymph nodes in the hepatogastric space and retroperitoneum increased and enlarged; there was fluid in the pelvic cavity; the intrahepatic bile duct had stones or calcifications [Figure 3]. To determine whether there is tuberculosis, a bronchoscopy was performed, but no obvious abnormalities were found [Figure 4]; no acid-fast bacilli were found in the acid-fast staining of the bronchial brush. Microbiological examination of bronchial lavage fluid indicated that the oral cavity had grown normally. The brush film of the posterior basal segment of the right lower lobe showed more columnar epithelial cells and no malignant tumor cells [Figure 5]. The lavage fluid mycobacterium tuberculosis (MTB) X-pert MTB/RIF test did not detect MTB. T-SPOT test for tuberculosis: (T-N)/(P-N) 0.495, positive (+), suggesting a history of tuberculosis.

This can be diagnosed as gastric tuberculosis, but it cannot be ruled out that the patient is accompanied by tuberculosis and abdominal tuberculosis. She was given isoniazid (INH), rifampicin (RFP), pyrazinamide, and ethambutol for anti-tuberculosis treatments and discharged from the hospital after it was clear that there were no adverse reactions.

In the follow-up 3 months after discharge, the patient did not complain of discomfort. Gastroscopy review suggested multiple polyps of gastric body [Figure 6]. Moreover, the liver

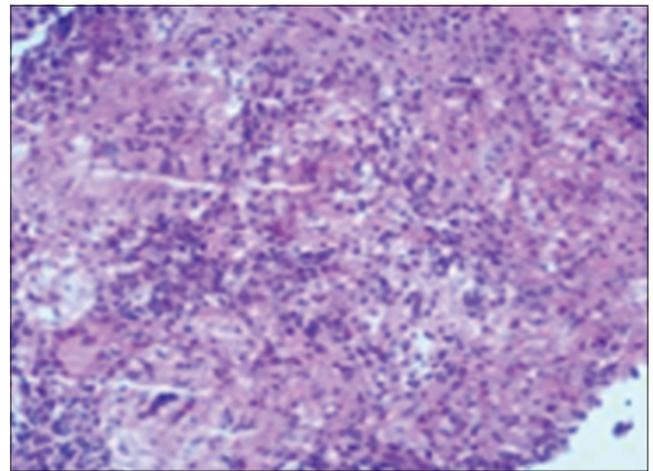


Figure 2: Gastric biopsy: Chronic granulomatous inflammation and ulcer formation were observed in the focal area of gastric mucosa under microscope, a small number of epithelioid cells and nodules formed by the aggregation of Langerhan's giant cells in the mucosa, accompanied by more lymphocytes, a few plasma cells, eosinophils, neutrophil infiltration, and formation of lymphoid follicles ($\times 100$).

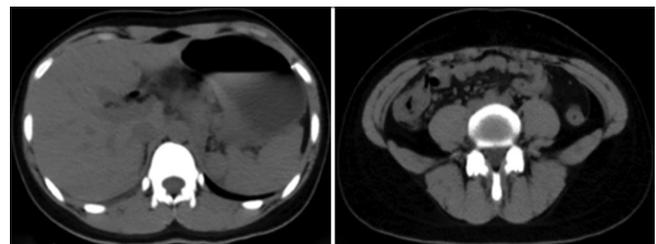


Figure 3: The gastric wall on the lesser curvature of the stomach was thickened, a small amount of fluid was accumulated in the hepatogastric space, and the lymph nodes in the hepatogastric space and retroperitoneum increased and enlarged; there was fluid in the pelvic cavity; the intrahepatic bile duct had stones or calcifications.

and kidney function during the recheck was not found to be abnormal, but the blood routine showed that the white blood cells decreased to $2.70 \times 10^9/L$, and after the Chinese medicine Diyushengbai Tablet was given to improve the immune function, the white blood cells gradually rose to $3.29 \times 10^9/L$.



Figure 4: Bilateral bronchoscopy showed no obvious abnormalities.

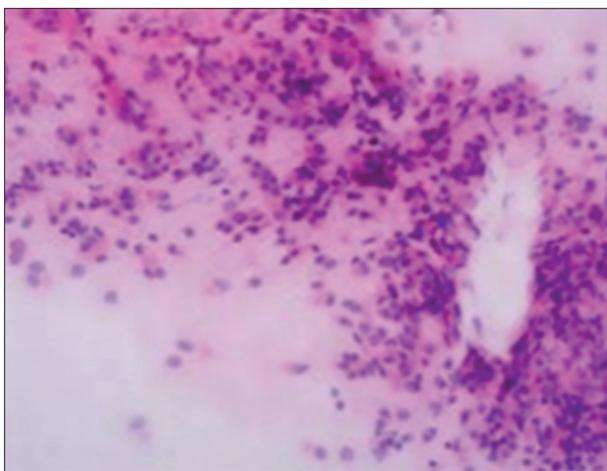


Figure 5: The brush film of the posterior basal segment of the right lower lobe showed more columnar epithelial cells and no malignant tumor cells ($\times 100$).

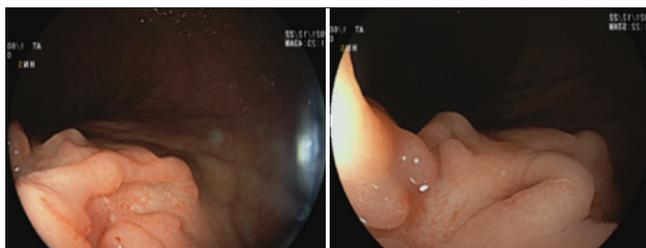


Figure 6: Multiple polyps of gastric body.

DISCUSSION

Gastric tuberculosis is rare clinical tuberculosis, which is prone to middle-aged people who suffer from HIV, diabetes, and other diseases that can damage the immune function.^[2,3] Gastric tuberculosis is mainly caused by secondary infection due to acidic environment, peristalsis, and lack of lymph tissue of gastric mucosa. The damage of the gastric mucosa

allows MTB to reach the lower gastric mucosa through blood or direct invasion. Therefore, the most common sites for gastric ulcers, namely, the gastric horn and small curvature of gastric antrum, are prone to gastric tuberculosis. The clinical manifestations of gastric tuberculosis lack specificity. Patients may experience loss of appetite, low-grade fever, night sweats, weight loss, and upper abdominal discomfort. As a result, it is easy to be misdiagnosed as peptic ulcer, Crohn's disease, gastric cancer, and other diseases in clinical practice.^[4]

The diagnosis of gastric tuberculosis requires a comprehensive analysis of multiple dimensions. The patient's clinical symptoms, epidemiological history, history, imaging examination, biochemical examination, and endoscopy play an important role in the diagnosis of gastric tuberculosis. Among them, imaging examination can check whether there are tuberculosis lesions, determine the scope of the disease, and whether there are concurrent tuberculosis and other extrapulmonary tuberculosis.^[5] Endoscopic ultrasound can observe the gastric wall and adjacent tissues to clarify the relationship between the lesion and the surrounding lymph nodes, assisting with histopathological examination at the same time, the examination of patients with gastric tuberculosis will find chronic granulomatous inflammation, with caseous necrosis tuberculous nodules (consisting of epithelioid cells, Langerhan's giant cells, lymphocytes, fibroblasts, etc.).^[6] It should be noted that the lesions of gastric tuberculosis are mostly located in the submucosa of the gastric angle and lesser curvature of the gastric antrum, deviations in the selection of biopsy specimens will affect the diagnosis; at the same time, for patients with relevant clinical manifestations, epidemiological history, or history, but the use of anti-infection, gastric protection, and other treatments are ineffective, you should also be alert to gastric tuberculosis.^[7] Anti-tuberculosis treatment should be given as soon as possible after diagnosis;^[2,8] however, many patients fail to receive effective treatment for various reasons in real life. In response, someone developed a gastric retention drug delivery system^[9] to extend the absorption time of drugs; there are also studies use the 3D printing technology to prepare personalized INH and RFP double-layer tablets, which realizes the control of drug release under different pH levels.^[10] However, these will be affected by multiple factors such as the patient's gender, age, and lifestyle especially in the promotion of difficulties Therefore, the best solution is to follow-up gastric tuberculosis and adjust the treatment plan in time. There is a long way to go in the global fight against tuberculosis and more efforts should be put into the prevention, diagnosis, and treatment of tuberculosis.^[11,12]

CONCLUSION

As a rare disease, non-essential drugs and surgical treatment of gastric tuberculosis may threaten the lives of

patients. Therefore, early diagnosis of gastric tuberculosis is very important. Patients with non-specific clinical manifestations and a history of tuberculosis, family history, or from high-risk areas should be vigilant, blood biochemistry, imaging, and other examinations should be perfected, and the diagnosis should be confirmed through endoscopic biopsy. Multiple pathological examinations are required for those who have no abnormalities in the examination but are highly suspected. After diagnosis, anti-tuberculosis treatment and timely regular review should be carried out. If acute massive hemorrhage with perforation occurs, surgical treatment should be performed as soon as possible.

Ethics statement

This case report was approved by the Ethics Committee of the Central Hospital of Enshi Prefecture, Hubei Province, People's Republic of China in November 2020.

Authors' contributions

YY and YF wrote the manuscript, YY made strict revisions to the manuscript. All authors have read and approved the final manuscript for publication.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent.

Financial support and sponsorship

This study was supported by the 2021–2022 Guiding Scientific Research Project of the Hubei Provincial Health Commission (No: WJ2021F090).

Conflicts of interest

There are no conflicts of interest.

REFERENCES

1. World Health Organization. Global Tuberculosis Report 2020: Executive Summary, Licence: CC BY-NC-SA 3.0 IGO. Geneva: World Health Organization; 2020.
2. Tanoglu A, Erdem H, Friedland JS, Almajid FM, Batirel A, Kulzhanova S, *et al.* Clinicopathological profile of gastrointestinal tuberculosis: A multinational ID-IRI study. *Eur J Clin Microbiol Infect Dis* 2020;39:493-500.
3. Meintjes G, Brust JC, Nuttall J, Maartens G. Management of active tuberculosis in adults with HIV. *Lancet HIV* 2019;6:e463-74.
4. Sharma V. Differentiating intestinal tuberculosis and Crohn disease: Quo vadis. *Expert Rev Gastroenterol Hepatol* 2020;14:647-50.
5. Gupta P, Kumar S, Sharma V, Mandavdhare H, Dhaka N, Sinha SK, *et al.* Common and uncommon imaging features of abdominal tuberculosis. *J Med Imaging Radiat Oncol* 2019;63:329-39.
6. Zhu R, Zhou Y, Wang H, Zhao K, Tuo B, Wu H. Gastric tuberculosis mimicking submucosal tumor: A case series. *BMC Gastroenterol* 2020;20:23.
7. McBride JA, Lepak AJ, Dhaliwal G, Saint S, Safdar N. The wrong frame of mind. *N Engl J Med* 2018;378:1716-21.
8. Lowbridge C, Fadhil SA, Krishnan GD, Schimann E, Karuppan RM, Sriram N, *et al.* How can gastro-intestinal tuberculosis diagnosis be improved? A prospective cohort study. *BMC Infect Dis* 2020;20:255.
9. Verma M, Vishwanath K, Eweje F, Roxhed N, Grant T, Castaneda M, *et al.* A gastric resident drug delivery system for prolonged gram-level dosing of tuberculosis treatment. *Sci Transl Med* 2019;11:eaau6267.
10. Tabriz AG, Nandi U, Hurt AP, Hui HW, Karki S, Gong Y, *et al.* 3D printed bilayer tablet with dual controlled drug release for tuberculosis treatment. *Int J Pharm* 2021;593:120147.
11. Floyd K, Glaziou P, Zumla A, Raviglione M. The global tuberculosis epidemic and progress in care, prevention, and research: An overview in year 3 of the end TB era. *Lancet Respir Med* 2018;6:299-314.
12. Daley CL. The global fight against tuberculosis. *Thorac Surg Clin* 2019;29:19-25.

How to cite this article: Yanhua Yang, Fu Y. Gastric tuberculosis with abdominal pain as the main symptom: A case report and review of the literature. *Med India* 2022;1:8.