

# A gastro-colic fistula secondary to high-grade B-cell gastric lymphoma in a patient with AIDS: a case report

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## Abstract

To the best of our knowledge, there are no previous reports of a gastro-colic fistula (GCF) secondary to primary high-grade B-cell gastric lymphoma associated with acquired immunodeficiency syndrome (AIDS). Here, we report a 37-year-old man who presented with paroxysmal abdominal pain for 4 months, diarrhea for 15 days and weight loss of 4 kg. He had a history of human immunodeficiency virus (HIV) infection and was diagnosed with AIDS in 2013. The patient was diagnosed with a GCF secondary to primary high-grade B-cell gastric lymphoma by gastroscopy and histopathological examination. Two weeks after diagnosis, he died in another hospital. This is an uncommon case in which the GCF occurred secondary to malignant gastric lymphoma in a patient with AIDS. Supported by the literature, patients with HIV infection who complain of abdominal pain or a mass, severe diarrhea, and weight loss should be assessed for a GCF secondary to lymphoma because of its worse prognosis.

## Keywords

Gastro-colic fistula, high-grade B-cell lymphoma, acquired immunodeficiency syndrome, human immunodeficiency virus, abdominal pain, abdominal mass, diarrhea

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## Introduction

A gastro-colic fistula (GCF) is an abnormal channel between the stomach and transverse colon that can occur secondary to various pathologies but is an uncommon condition directly caused by the invasion of primary gastric lymphoma. The incidence of lymphoma in patients with human immunodeficiency virus (HIV) infection is substantially higher than that of HIV-negative individuals.<sup>1-3</sup> Additionally, patients with HIV-related lymphoma have an increased risk of worse complications. These factors can influence the therapeutic outcome and prognosis of patients.<sup>4</sup> However, to the best of our knowledge, there is currently no report of a GCF complicated with primary high-grade B-cell gastric lymphoma in an acquired immunodeficiency syndrome (AIDS) patient.

## Case report

A 37-year-old man who complained of paroxysmal abdominal pain for 4 months, diarrhea for 15 days and weight loss of 4 kg was admitted to our hospital in April 2019.

In December 2018, he was admitted to another hospital with abdominal pain and hematemesis. Gastroscopy revealed a duodenal mass with bleeding, and pathological analysis of a biopsy showed inflammation and the presence of an ulcer. A computed tomography (CT) scan revealed thickening of the gastric antrum and duodenal bulb walls, with slightly enlarged perigastric and omental lymph nodes. Hematemesis stopped after 5 days of treatment, and a second endoscopy was performed. The second gastroscopy revealed a duodenal bulb ulcer (Forrest IIb) and chronic superficial gastritis. Pathological analysis of a biopsy showed chronic inflammation caused by *Helicobacter pylori* (HP) (++++) infection and no evidence of a tumor. A contrast CT scan showed diffuse wall

thickening of the gastric lesser curvature and antrum. Based on the presence of neoplastic lesions with the enlargement of multiple lymph nodes, lymphoma was suspected. He was then given quadruple therapy (unknown drugs) to eradicate HP for 2 weeks and continuous omeprazole treatment.

In 2013, he was found to be infected with HIV, then diagnosed with AIDS in 2016. He had been on combination antiretroviral therapy (cART) since July 2018. His latent syphilis was also cured by Penicillin injection in November 2016.

Physical examination showed normal vital signs but a slightly elevated heart rate of 102 beats per minute. His superficial lymph nodes were not palpable and the size of a palm, and the tough mass was touchable in the middle of the epigastric region with tenderness but no rebound pain.

Laboratory tests revealed a c-reactive protein level of 18.02 mg/L, erythrocyte sedimentation rate of 32 mm/hour and albumin level of 40.8 g/L. His Epstein-Barr DNA level was  $<4 \times 10^2$  copies/mL, and the patient was negative for cytomegalovirus (CMV)-IgM, CMV-DNA and *Aspergillus* antigens. Immunoglobulin and tumor biomarkers were normal. Fecal smear analysis revealed budding yeast (++), and smooth *Candida* colonies were found in fecal culture with a positive fecal occult blood test. Fecal *Rotavirus* antigen and *Clostridium difficile* glutamate dehydrogenase and toxin A/B tests were negative. The HIV screening test was positive, and the RNA-PCR showed  $<500$  IU/mL. T cell category detection showed CD3+ lymphocytes = 77.07%, CD3+CD4+ lymphocytes (helper T cells) = 18.59%, CD3+CD8+ lymphocytes (suppressor T cells) = 57.00%, CD4+CD8+ lymphocytes = 1.28% and B lymphocytes = 12.14%.

A contrast CT scan of the chest and abdomen showed a large mass located at the gastric body and antrum involving the

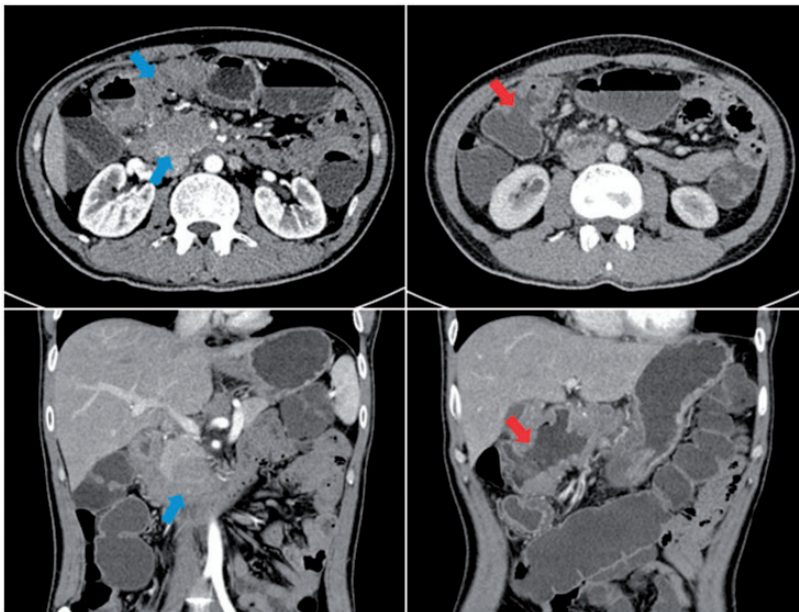
proximal duodenum and colonic hepatic curvature with obvious ulcer formation and an abnormal opening between the gastric cavity and colonic hepatic curvature considered to be a GCF. The mass was diagnosed as a malignant tumor (likely lymphoma) with multiple enlarged lymph nodes detected at the perigastric antrum and retroperitoneum, which was suspected to indicate tumor metastasis. Multiple osteopathic lesions at the pelvis were also suspected as tumor metastases (Figure 1).

Gastroscopy was performed for further evaluation and revealed multiple ulcers and lumps at the gastric antrum. Additionally, we detected a fistula roughly 3 cm in diameter between the gastric curvature and colon, which the gastroscope (Figure 2A) and colonoscope (Figure 2B) could easily pass through and to the transverse colon. Histopathological examination of the gastric biopsy (Figure 2C) confirmed the diagnosis of primary high-grade B-cell gastric

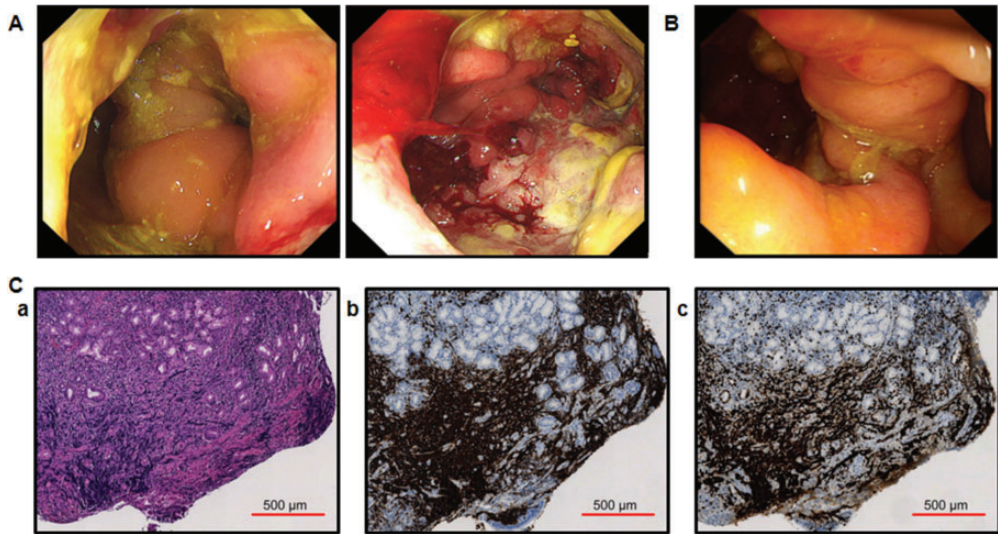
lymphoma and excluded the diagnosis of diffuse large B-cell lymphoma and Burkitt's lymphoma. In addition, the following tests were all negative: human herpes virus 8 by immunohistochemistry, Epstein-Barr virus-encoded RNA by in situ hybridization and MYC, immunoglobulin heavy chain (IgH)/MYC/centromere of chromosome 8, B-cell lymphoma 6 (BCL6) and IgH/BCL2 by fluorescence in situ hybridization. These results suggested that the subtype was high-grade B-cell lymphoma, not otherwise specified (HGBL-NOS).

Cerebral contrast magnetic resonance imaging and bone single photon emission CT images showed right parietal bone destruction, and the soft tissue mass was considered to indicate tumor metastasis and bone metastasis of bilateral sacroiliac joints (Figure 3).

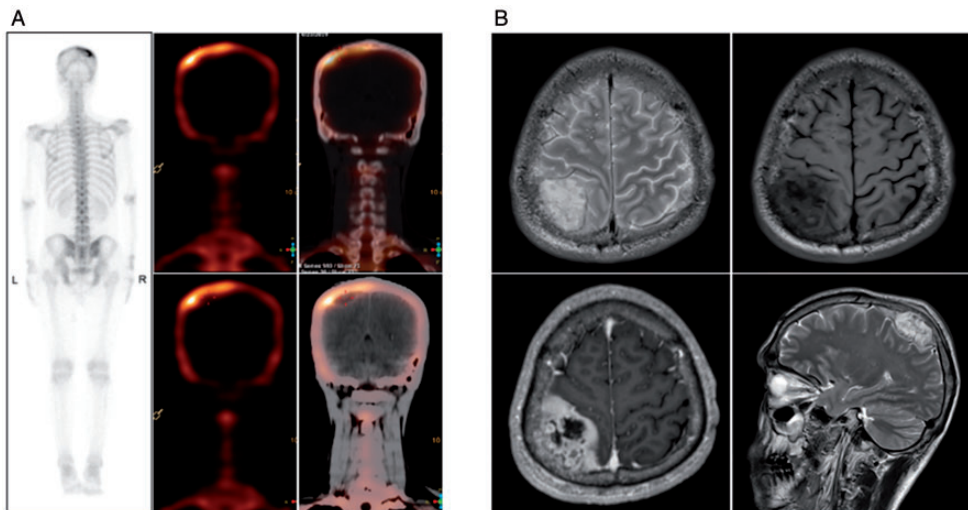
After diagnosis, he was discharged and went to another hospital voluntarily for



**Figure 1.** Contrast computed tomography scan of the abdomen. Transverse and coronal views demonstrate a large stomach mass (blue arrow) and gastro-colic fistula opening between the stomach pylorus and proximal transverse colon (red arrow).



**Figure 2.** Gastroscopy (A) and colonoscopy (B) images showing the large stomach mass and gastro-colic fistula at the gastric antrum. Histopathological images of the gastric biopsy sample (C) stained with hematoxylin & eosin (H&E) (a) and CD20 (b) and Ki-67 (c) by immunohistochemistry (IHC) (original magnification  $\times 100$ , scale bar = 500  $\mu\text{m}$ ). (a) H&E of ulcerated gastric antrum mucosa shows that the lamina propria layer is invaded by atypical lymphocytes, and the normal glandular structure is destroyed. (b) IHC staining of CD20 confirms that the atypical lymphocytes originate from B-cell clones. (c) The high Ki-67 index demonstrates the abnormal hyperplasia and high malignancy of tumor cells.



**Figure 3.** Bone single photon emission computed tomography (A) and cerebral contrast magnetic resonance imaging (B) of tumor metastases.

chemotherapy but unfortunately died 2 weeks later.

## Discussion

A GCF is an uncommon opening between the stomach and colon that mainly occurs at the transverse colon. The etiology includes post-operation, trauma, peptic ulcers, Crohn's disease, and malignant tumors.<sup>5-7</sup> Malignant diseases are mainly related to gastric cancer and colon adenocarcinoma.<sup>8,9</sup> Colonic adenocarcinoma is the most common cause of malignant disease in Western countries, whereas gastric cancer is the primary cause in Japan and other Asian countries.<sup>10,11</sup> However, to our knowledge, there is no previous report of a GCF caused by primary high-grade B-cell gastric lymphoma in an AIDS patient.

Patients with a GCF present with the triad of diarrhea, nausea (with or without vomiting) and weight loss.<sup>5,12,13</sup> Other non-specific symptoms include abdominal pain, gastrointestinal bleeding, fecal halitosis and malnutrition.<sup>5,6</sup> Most cases are diagnosed by a barium enema, which is considered the cornerstone of detection and gold standard for diagnosis. A barium meal and CT are also recommended for diagnosis. Gastroscopy and colonoscopy are not the first-line examinations for GCFs but can be used to observe the fistula directly and collect biopsy samples for pathological diagnosis.<sup>7,13</sup> In this case, the patient presented with a 4-month history of paroxysmal abdominal pain without vomiting, and severe diarrhea with weight loss of 4 kg. Bacterial colonization at the gastric ulcer and fungal infection may have exacerbated the symptoms. The large opening between the gastric antrum and the initial part of the transverse colon was confirmed by CT scan and gastroscopy (Figure 1 and 2A). Histopathological examination revealed primary high-grade large B-cell gastric lymphoma and absent MYC expression and

BCL2 and/or BCL6 rearrangement (Figure 2C). Based on these results, primary gastric lymphoma was confirmed and classified as stage IV according to the Lugano staging system.

Lymphoma is one of the worst complications in AIDS patients. There are two main types: Hodgkin's lymphoma and non-Hodgkin's lymphoma (NHL). The gastrointestinal tract is the most common site of extra-nodal lymphomas, and the stomach is the most susceptible organ for primary NHL (about 60%–75%). Most NHLs are B-cell lymphomas.<sup>14,15</sup> Because of immunosuppression and opportunistic infections, the incidence of lymphoma in patients with HIV infection or AIDS is higher, and the prognosis is worse than that in the general population.<sup>1-4</sup> Diffuse large B-cell lymphoma and Burkitt's lymphoma are rather common pathological types among HIV-related NHLs.<sup>4,16</sup> In this reported case, the patient had a history of HIV infection for nearly 6 years and only underwent standardized cART for 10 months. The patient was also infected with HP for an unknown amount of time. These factors may have contributed to the formation of the nearly 3-cm GCF and disease progression.

The early diagnosis of gastric lymphoma or GCFs is challenging. When patients with HIV infection complain of abdominal pain or a mass, severe diarrhea and weight loss, doctors need to suspect the presence of a malignancy, such as lymphoma. Furthermore, they should perform some examinations to exclude a GCF.

## Declaration of conflicting interest

The authors declare that there is no conflict of interests.

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