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A case of gastrocolic fistula secondary to adenocarcinoma of the colon

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ABSTRACT

INTRODUCTION: Gastrocolic fistula secondary to colon carcinoma is a rare entity. The common cause of gastrocolic fistula is different between eastern and western countries. Gastrocolic fistula may present many manifestations.

PRESENTATION OF CASE: We present a case report of gastrocolic fistula in a 59-year-old male patient with colon adenocarcinoma, diagnosed on digestive endoscopy, CT scanning and barium enema. Radical en-bloc surgery was undertaken based on patient's symptom, the size and the nature of the tumor.

DISCUSSION: The typical symptoms of gastrocolic fistula include abdominal pain, vomiting, diarrhea, emaciation, anemia, hypoalbuminemia, weight loss and ascites. There are many methods to diagnose gastrocolic fistula, but barium enema is the most accepted way nowadays.

CONCLUSION: It is rare for gastrocolic fistula case to be caused by colon adenocarcinoma, and has been rarely reported inside China. The best therapy of gastrocolic fistula remains radical en-bloc surgery.

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1. Introduction

Gastrocolic fistula is an abnormal communication between a portion of the stomach and the transverse colon. It is rare for gastrocolic fistula secondary to colon adenocarcinoma [1–3]. The common cause of gastrocolic fistula is different between eastern and western countries. It is reported that gastric cancer is the common cause of gastrocolic fistula in eastern countries, while in western gastrocolic fistula is often caused by colon cancer [4–6]. The most frequent manifestations of gastrocolic fistula are abdominal pain, vomiting with fecal odor, diarrhea, emaciation, anemia, hypoalbuminemia, weight loss and ascites [7]. Herein, we present a case of gastrocolic fistula diagnosed by gastroscopy and colonoscopy, abdominal CT scan and barium enema. The Colonoscopic biopsy proved gastrocolic fistula originated from colon, which was caused by colon adenocarcinoma. After comprehensively evaluated the condition of patient based on the examinations, a RO en-bloc tumor resection was taken.

2. Case presentation

A 59-year-old male complained of upper abdominal pain without obvious predisposing causes for nearly 11 months. At that time, the patient felt a mass of the size of an egg in his right upper

abdomen. About six months ago, he felt the mass grew bigger. Physical examination revealed a palpable right upper quadrant mass of a diameter of approximately 6 cm. The mass was fixed, with obscure boundary, firm texture, and light tenderness. Initial laboratory examination revealed a hemoglobin level of 9.1 g/L, a carcinoembryonic antigen level of 7.54 ng/ml (normal range 0–5 ng/ml), a carbohydrate antigen 19–9 level of 45.33 U/ml (normal range 0–27 U/ml) and positive fecal occult blood test. Abdominal Doppler ultrasound revealed multiple enlarged lymph nodes around the mass, suggesting digestive cancer with lymph node metastasis and high probability originated from colon cancer. Total abdominal plain contrast CT scan showed obviously irregular thickness between ascending colon walls and remote border with hepatic flexure of the colon wall, showing colon cancer invading outside the serosa, with omentum, lymph node metastasis, and a gastric antral fistula was formed between colon and stomach (Fig. 1). Then barium enema revealed a small fistula between the greater curvature and the ascending colon (Fig. 2). Next, gastroscopy showed fistula located at the greater curvature closed to posterior wall of stomach (Fig. 3), after we changed to a thinner fiberscope, which barely passed through the fistula into the colon. The colonoscopy demonstrated a large mass with a central hole surrounded by hyperemic, fragile mucosa, necrosis and obstructing the bowel lumen. It was difficult for the colonoscopy to pass through. Colonoscopic biopsy of the edge of mass showed colorectal adenocarcinoma (Fig. 4). Upper gastrointestinal contrast also proved that there was a fistula between the greater curvature and ascending colon.

Based on these examinations particularly the biopsy result, individualized operation was undertaken. Postoperative pathology

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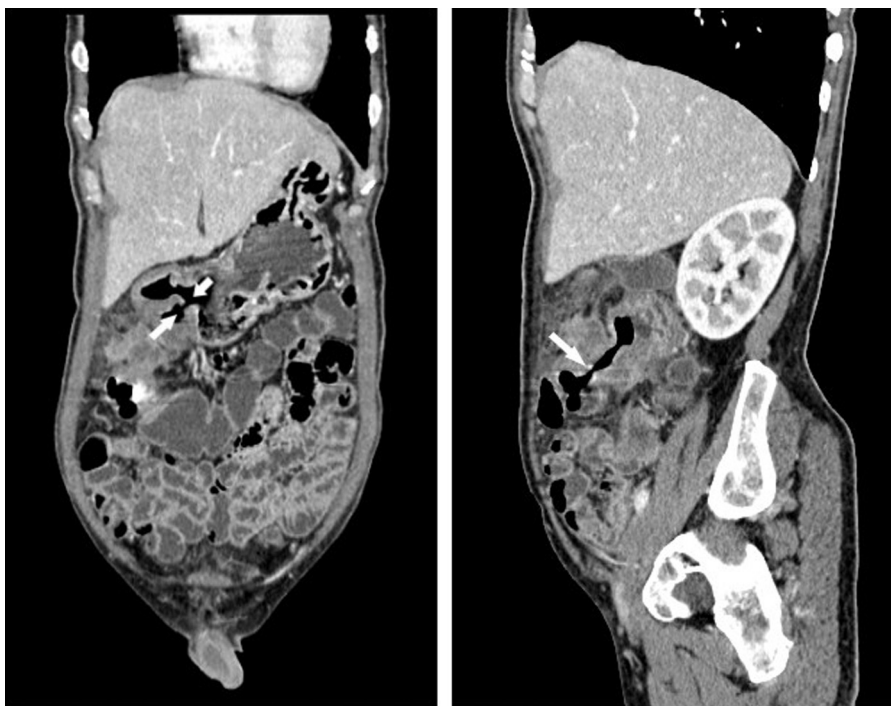


Fig. 1. Preoperative Sagittal and Coronal CT scan revealing gastrocolic fistula demonstrated by contrast in the stomach and ascending colon.



Fig. 2. Gastrocolic fistula appeared immediately after passage of the barium enema into the gastric lumen.

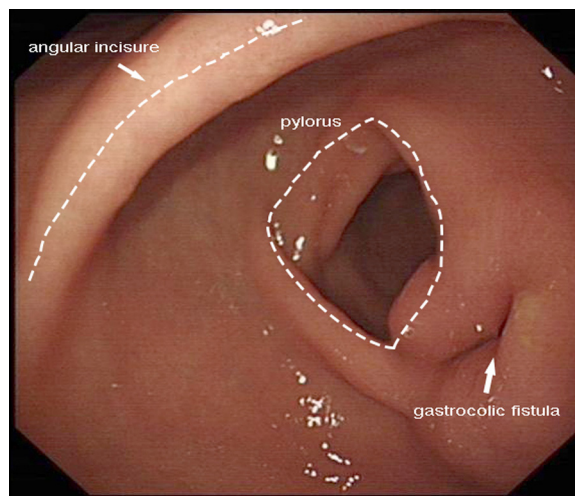


Fig. 3. Gastroscopic view of gastrocolic fistula located in the greater curvature.

specimen also proved that the tumor was colon adenocarcinoma invading into wall of stomach.

3. Discussion

In western world, the most common cause of gastrocolic fistula is transverse colon adenocarcinoma, with a reported incidence of 0.3–0.4 percent in operated cases [8,9], while gastric cancer is the most frequent cause in eastern countries [10], especially in Japan. The typical clinical manifestations of gastrocolic fistula are abdominal pain, vomiting with fecal odor, diarrhea, emaciation, anemia, hypoalbuminemia, weight loss and ascites. Short stature and delayed puberty in adolescent were also reported [11].

There are three types of fistula: (1) External, i.e., colcutaneous fistula, between colon and the skin without involving other organ. (2) Internal, i.e., gastrocolic or cologastric, based on which organ it originates. (3) Complicated, such as gastrojejunal, gastropan-

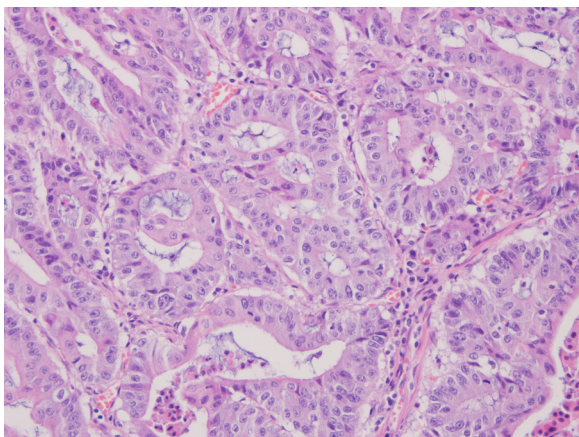


Fig. 4. Postoperative biopsy specimen proved that it was colon adenocarcinoma (HE stain $\times 200$).

creaticocolic fistula [4]. At the present, there are two theories regarding the development of a fistula: the tumor may invade across the gastrocolic omentum directly from the originating organ or alternatively, an ulcer may provoke a surrounding inflammatory peritoneal reaction leading to the adherence and fistulation between the two organs. Malignant gastrocolic fistula is characterized by the presence of large infiltrative tumors with surrounding inflammatory reaction [9,12,13]. It is rare for a fistula to form between the upper digestive tract and colon. The modalities and causes of such fistula are complicated, and most of the time it is caused by digestive ulcer, tumor serosa infiltration, and colon tumor invading into the wall of stomach. In medical practice, transverse colon tumor has been found to be able to invade to pancreas, spleen, gallbladder, liver, kidney and duodenum, and is misdiagnosed as gallstone disease, upper digestive tract ulcer and liver disease. A fistula will form if hollow organs are invaded. In our case, we report a male who presented with a gastrocolic fistula secondary to adenocarcinoma of the ascending colon.

The common causes of gastrocolic are digestive ulcer, Crohn's disease, chronic pancreatitis, pancreatic abscess, colic carcinoid, infiltrating tumors of pancreas, duodenum and biliary tract [4]. Other rare causes include high-dose aspirin, NSAIDs, steroids and ACTH-intake, tuberculosis, trauma, Hodgkin's lymphoma, gastric lymphoma, syphilis, gastric infection from cytomegalovirus in patients who suffer from HIV and migration of PEG feeding tubes.

The methods for the diagnosis of gastrocolic fistula include abdominal computed tomography, gastroscopy, colonoscopy, and double contrast radiography. It is reported that barium enema is the most accurate examination for establishing the diagnosis of gastrocolic fistula, with a sensitivity of 90% and specificity of 30% [2,7]. In contrast, gastroscopy can observe the fistula directly, and be able to take biopsy conveniently. However, very small fistulas under gastric folds may be missed [14]. In our case, gastroscopy and colonoscopy were both used to locate the position of the fistula. Fortunately, it is located on the greater curvature of gastric antrum closed to posterior wall of stomach. During the examination, we changed to a smaller fiber scope, which was able to pass through the fistula, and directly got into the lumen of ascending colon, and the tumor was located around the fistula. We took biopsy from the mass originated from colon tubular adenocarcinoma. Based on these evidence, gastrocolic fistula was diagnosed.

The main treatment is surgical operation. Up to now, gastrocolic fistula was not found in gastric stump cancer. A case of a long gastrocolic fistula was reported and repaired via a novel method of dual endoscopic closure with use of Resolution clips [15]. In our case, the patient suffered sustained weight loss, long-term anemia, mal-

nutrition and tumor progression. In addition, the biopsy taken in preoperative endoscopy revealed a colon tubular adenocarcinoma. In addition, CT scan revealed that the boundaries between tumor and surrounding tissue was relatively clear. Under these circumstances, we decided to perform distal gastrectomy combined with partial resection of transverse and ascending colon with gastrocolic omentum, which was R0 resection.

4. Conclusion

It is rare for gastrocolic fistula case to be caused by colon tubular adenocarcinoma, and has been rarely reported inside China. In order to gain better prognosis, Physician may design an individual operation plan based on a patient's condition. Radical en-bloc resection of colon tumor in combination with chemotherapy may bring long-term benefit to patients.

Conflict of interest

BiaoHuan Zhou and WeiHua Li have no conflict of interest.

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Ethical approval

Nothing to declare, no research studies performed.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Author contributions

Dr. Li performed the surgery and gave some useful suggestions during writing. Mr Zhou assisted in the surgery, collected all the related information and completed the whole paper.

Guarantor

BiaoHuan Zhou (Mr. Zhou).

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