

Synchronous isolated gastric metastases from ascending colon carcinoma, a case report

Bin Yang

The Affiliated Traditional Chinese Medicine Hospital of Southwest Medical University

Zhonghua Gan

The Affiliated Traditional Chinese Medicine Hospital of Southwest Medical University

Shulan Liu

The Affiliated Traditional Chinese Medicine Hospital of Southwest Medical University

Mingxia Li

The Affiliated Traditional Chinese Medicine Hospital of Southwest Medical University

Si guangyan (✉ 403584403@qq.com)

The Affiliated Traditional Chinese Medicine Hospital of Southwest Medical University

Case Report

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Abstract

Background

Gastric metastases (GM) are rare and often accompanied with synchronous metastases of other organs. Synchronous isolated gastric metastases from ascending colon carcinoma are uncommon and rarely studied. Gastric metastases may be confused with primary gastric tumors.

Case presentation:

A rare case of synchronous isolated gastric metastasis from ascending colon carcinoma was confirmed by computed tomography (CT) and pathological diagnosis. A 45-year-old man presented to our hospital with abdominal distension and anal pendant expansion. The abdominal physical examination was negative. The positive fecal occult blood test and the negative tumor marker were obtained. Colonoscopy and gastroduodenoscopy revealed a polypoidal lesion in the ascending colon and a polypoid mass in the gastric body, respectively. CT showed the thickened wall of ascending colon and polypoid mass in the gastric body with homogenous enhancement. Additionally, synchronous gastric metastases from the ascending colon carcinoma were confirmed by pathology after laparoscopic right hemicolectomy and partial gastrectomy. After 13 individual doses of fluorouracil (2.8g/time), calcium leucovorin (0.8g/time), and oxaliplatin (85mg/time), the patient was discharged without any discomfort, without any additional metastases detected during the following 18 months.

Conclusion

GM may appear as a polypoid lesion. Surgery combined with chemotherapy may improve the prognosis in patients with synchronous isolated GM.

Background

The reported incidence of Gastric metastasis (GM) is only around 0.3% (9/2579) [1]. The primary tumor of GM usually originates from breast cancer, lung cancer, renal cell carcinoma, malignant melanoma [2] and rarely from reproductive system cancers, hepatocellular carcinoma, Merkel cell carcinoma, anaplastic thyroid carcinoma, colon cancer, etc. [3–7]. Therefore, GM is often accompanied with metastasis of other organs, such as the lung, liver, brain, bone, etc. However, synchronous isolated GM from ascending colon carcinoma is uncommon, with only a few cases reported worldwide [8]. It should be noted that GM may be misdiagnosed as other gastric tumors because it has not been well understood. We report a synchronous GM case from ascending colon carcinoma confirmed by pathology. To our knowledge, a polypoid lesion of the stomach is a manifestation of GM.

Case Presentation

Chief complaints

A 45-year-old man presented to our hospital with a 6-month history of abdominal distension and anal pendant expansion.

History of present illness

Paroxysmal abdominal distension and pain were accompanied by a sense of anal pendant expansion, and the pain was relieved after using the toilet. Paroxysmal abdominal distension and pain developed progressively in less than half a month. The patient demonstrated no nausea, vomiting, cold or chills, and stool was neither mucoid nor purulent.

History of past illness

The patient had no history of hypertension, diabetes, coronary heart disease, tuberculosis or hepatitis.

Personal and family history

The patient had no history of smoking or drinking, with a negative family medical history of hereditary diseases.

Physical examination

The abdomen was soft and flat, with no pain or tenderness, whereas the liver and spleen were not palpable.

Laboratory examinations

A positive fecal occult blood test was obtained. However, the levels of the tumor markers, CA19-9, CA153, CA-125, and carcinoembryonic antigen, were normal. Blood tests for liver and kidney function and electrolyte levels were negative. Ultrasonic examination showed that the liver, gallbladder and spleen were unremarkable.

Gastrointestinal endoscopy

Colonoscopy revealed a polypoidal lesion in the ascending colon with a hard texture and high tendency to bleed (Figure 1a). This mass occupied two-thirds of the colon wall. Gastroduodenoscopy revealed a 1.5 × 2.0 cm polypoid mass in the greater curvature of the gastric body (Figure 1b).

Imaging examinations

Computed tomography (CT) was performed during hospitalization. The results showed an asymmetrically thickened wall in the ascending colon (Figure 2a, c, e) and a 2.1 × 3.5 cm polypoid mass in the greater curvature of the gastric body (Figure 2b, d, f). All the lesions were homogeneously isodense on nonenhanced CT images (Figure 2a-b) and homogeneously enhanced in the arterial phase (Figure 2c-

d) and portal venous phase (Panel 2e-f). Some small lymph nodes were seen around the ascending colon, but none were observed in the vicinity of the stomach. There were no intra-abdominal fluid collections or distant metastasis in the thorax and abdomen.

Treatment

Laparoscopic right hemicolectomy and partial gastrectomy were performed. During hospitalization, the patient received treatments for infection prevention (amikacin sulphate) and liver protection (reduced glutathione and compound glycyrrhizin). After surgery, the patient recovered well and was discharged from the hospital. After 13 individual doses of fluorouracil (2.8g/time), calcium leucovorin (0.8g/time), and oxaliplatin (85mg/time), the patient underwent CT, which was negative. The whole-body CT conducted 18 months after the treatment revealed no recurrence or distance metastasis.

Pathological findings

Ascending colon carcinoma (Figure 3a) with synchronous GM (figure 3b) was confirmed by pathology. Ascending colon carcinoma had invaded the deep muscular layer with intravascular cancer thrombus, without lymph node metastasis and nerve invasion. Immunohistochemical examination of ascending colon carcinoma revealed negative for CK7, Vimentin, Melan-A, S-100, AFP, CgA and Syn, weakly positive for Villin, and positive for P53 (10% of cells positive), CDX-2 and CK20 (Figure 3c).

Discussion And Conclusion

Malignant tumors, such as breast cancer, lung cancer, renal cell carcinoma, malignant melanoma, can metastasize to the stomach [2]. However, metastasis to the stomach is uncommon, especially that originates from colon cancers. According to the report of Terashima et al. [8], there were 14 GM cases originating from colon cancer in 2019 in the Fukushima Journal of Medical Science.

The clinical symptoms of GM are non-specific [9], including dyspepsia, anorexia, abdominal distension, black stool, nausea, vomiting, upper abdominal pain, early satiety, and bleeding, and even gastric perforation [10-12]. However, the most common symptom is abdominal pain. Our patient presented with a 6-month history of abdominal distension and anal pendant expansion, which may be caused by colon cancer.

GM can occur anywhere in the stomach, but mainly in the upper two-thirds of the stomach. They can be single or multiple and synchronous or metachronous, while they are mainly single and metachronous [10]. Our patient had single synchronous stomach metastasis.

There are four types of GM [13]. The first type comprises polypoid lesions, a nodule or mass, which is easily confused with gastric polyps. The second type is ulcerative mass, which is the typical imaging feature of GM. This mass is mainly in the submucosa of the stomach, manifesting as local gastric wall thickening with ulceration at the top of the lesion and normal adjacent or surface mucosa. This is described as a "bull's-eye sign" or "crateriform ulcer" on gastrointestinal endoscopy [14]. It is easily

confused with gastric stromal tumors. The third type involves a submucosal nodule in the gastric wall [15]. It is easily confused with gastric stromal tumors, neurinoma, and leiomyoma. The final type is diffuse gastric wall thickening, also called "linitis plastica" [16], which is prone to be confused with diffuse gastric cancer. Except for the diffuse gastric wall thickening type, the mucosa and adjacent gastric wall of the other GM types usually appear normal, without enlarged lymph nodes around the stomach. GM may occur alone or in association with other metastatic sites such as the lung, liver, brain, and adrenal glands, and the latter is more common. The current case belongs to the first type and has a polypoid mass with homogeneous enhancement.

Metastasis to the gastric wall occurs in several ways, such as direct invasion, hematogenous metastasis, lymphatic metastasis and intraoperative implantation [17]. Among them, hematogenous and lymphatic metastases are the most common. In our case, GM occurred through hematogenous metastasis.

Current treatment methods for GM include surgical resection, neoadjuvant chemoradiotherapy, endoscopic electrocoagulation, and endoscopic resection [18]. Because of rapid metastatic tumor growth, the survival time of GM patients is only a few months after primary diagnosis [19]. However, with appropriate treatment, patients can live longer. By combining surgery with chemotherapy and radiotherapy, the longest survival time is seven years [8]. So far, our patient recovers well, 18 months after surgery, with 13 times of chemotherapy.

This report presents a rare case of synchronous isolated GM from ascending colon carcinoma. In this case, polypoid lesion in the gastric wall has certain imaging characteristics feature of GM on CT. This case study also demonstrates that surgery combined with chemotherapy may promote prognosis in patients with synchronous isolated GM.

Abbreviations

Gastric metastases - GM, computed tomography - CT.

Declarations

Ethics approval and consent to participate

The local ethics committee at the affiliated traditional Chinese medicine hospital of southwest medical university approved the use of clinical data for this case report (IRB No.KY2020027). Informed consent was obtained from the participant included in this study.

Consent for publication

Written consent for publication was obtained from patients.

Availability of data and material

The datasets used during the current article are available from the first author on reasonable request.

Competing interests

The authors declare that they have no competing interests.

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Authors' contributions

All the authors have contributed to the creation of this manuscript for important intellectual and read and approved the manuscript.

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Figures



Figure 1

Colonoscopy and gastroduodenoscopy images from the case of a 45-year-old man with synchronous isolated gastric metastasis.

a. A polypoidal lesion in the ascending colon, occupying two-thirds of colon wall

b. A 1.5 × 2.0 cm polypoid mass in the greater curvature of the gastric body

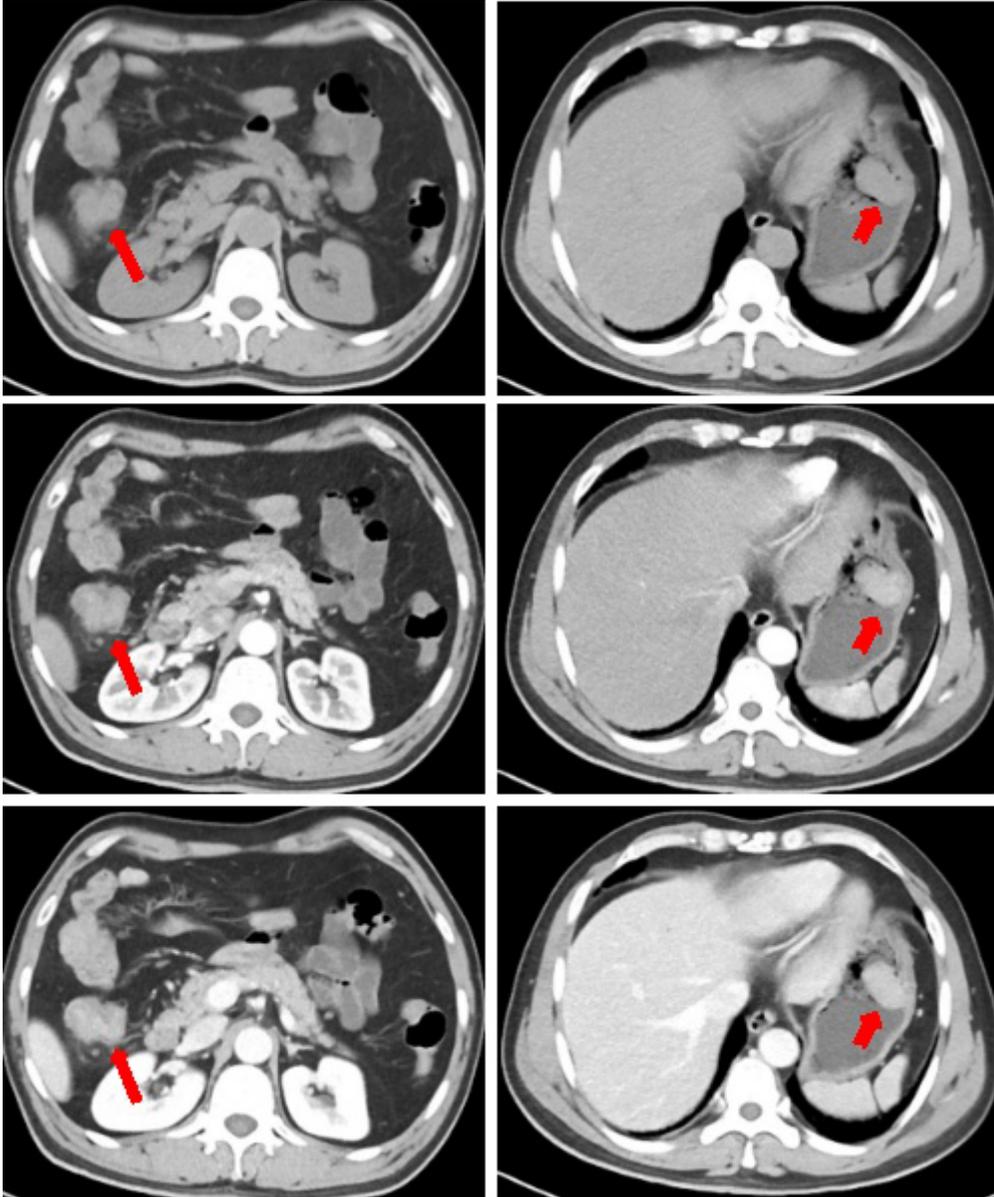


Figure 2

Computed tomography images from the case of a 45-year-old man with synchronous isolated gastric metastasis.

- a. Nonenhanced CT image shows the asymmetrically thickened wall (red arrow) presented uniform iso-density in the ascending colon, and there were some small lymph nodes around the ascending colon.
- b. Non-enhanced CT image shows a 2.1 × 3.5 cm polypoid mass (red arrow) showing a homogeneous pedunculated mass at the greater curvature of the gastric body. There was no lymph node around the stomach.
- c. Contrast-enhanced CT image showed the thickened wall (red arrow) in the ascending colon with homogeneous enhancement in the arterial phase.
- d. Contrast-enhanced CT image shows a polypoid mass (red arrow) with homogeneous enhancement in the arterial phase.
- e. Contrast-enhanced CT image shows the thickened wall (red arrow) in the ascending colon persistent significant enhancement in the portal venous phase.
- f. Contrast-enhanced CT image shows a polypoid mass (red dovetail arrow) with persistent enhancement in the portal venous phase.

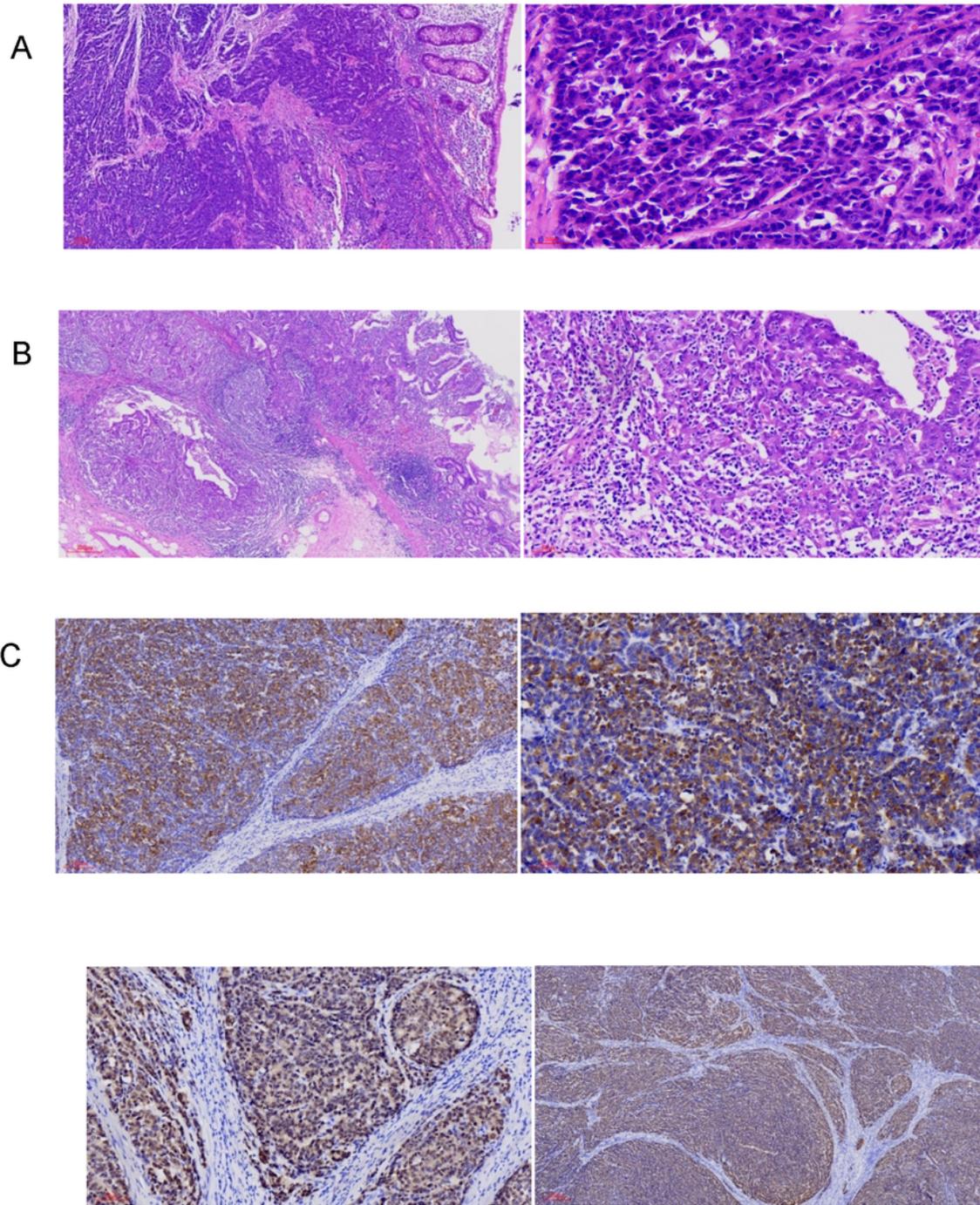


Figure 3

Images of Histological and immunohistochemical staining of ascending colon cancer from the case of a 45-year-old man with synchronous isolated gastric metastasis.

a. Hematoxylin and eosin staining ($\times 100$ and $\times 400$) showing adenocarcinoma tumor cells (nos, G3) from the ascending colon. The tumor cells arranged in a cord pattern, and were distributed diffusely with rare

gland duct differentiation. The nuclear/cytosolic ratio was high. Deep staining and the nuclear division were observed in high numbers.

b. Hematoxylin and eosin staining (×100 and ×400) showing adenocarcinoma tumor cells of the stomach. The cytologic atypia of tumor cells was obvious, and the tumors had a small amount of gland duct differentiation zone.

c. Immunohistochemical staining (×100 and ×400):

Tumor cells were positive for CK20.

A gut transcription factor of CDX-2 was strongly and diffusely positive in the tumor cells, and the positive sites were in the nucleus.