

CASE REPORT

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Two rare cases of synchronous and metachronous colonic metastases in patients with advanced gastric cancer

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Abstract

Background: Patients with advanced gastric cancer (GC) may ultimately die because GC mostly leads to synchronous or metachronous metastasis. However, colonic metastasis of GC is extremely rare. According to a PubMed search of papers published from May 1968 to March 2017, only 21 patients with GC (10 patients from 10 case reports and 11 patients from a retrospective study) have been found to have colonic metastasis. In this report, we present two cases of synchronous and metachronous colonic metastases of advanced GC.

Case presentation: Two patients with advanced GC received a diagnosis of colonic metastasis based on colonoscopic findings and computed tomography images, and the diagnosis was confirmed through pathological immunohistochemical analysis. Herein, we describe the management and outcomes of these metastases.

Conclusions: Submucosal swelling and segmental bowel wall thickening observed through colonoscopy in patients with advanced GC might indicate colonic metastasis.

Keywords: Gastric cancer, Synchronous colonic metastasis, Metachronous colonic metastasis

Background

Gastric carcinoma is the fourth leading cause of cancer-related deaths worldwide [1]. In the advanced stages of this disease, patients may develop either synchronous or metachronous metastasis. The most common sites of gastric cancer (GC) metastasis are the liver, peritoneum, lungs, and bones [2]. According to our review of the literature published between May 1968 and March 2017, 21 patients with GC (10 patients from 10 case reports and 11 patients from a retrospective study) received a diagnosis of colonic metastasis [3–13]. In this report, we present two rare cases of synchronous and metachronous colonic metastases of advanced GC and report their diagnoses, management, and clinical outcomes.

Case presentation

Case 1: synchronous colonic metastasis of advanced GC

A 77-year-old man visited our emergency department with acute abdominal pain for 2 days. After initial evaluation, abdominal computed tomography (CT) was performed, which revealed diffuse wall edema of the rectosigmoid colon (Fig. 1a). Rectosigmoid colon cancer with partial obstruction was suspected, and transverse colostomy was subsequently performed. Colonoscopy revealed mucosal swelling on the anal side a few days after the stool diversion procedure (Fig. 1b). Pathological examination of the colonoscopic biopsy revealed only chronic inflammation. The second abdominal CT examination, performed after 1.5 months, showed circumferential thickening of the pylorus with marked stomach distension (Fig. 1c), and advanced GC was tentatively diagnosed. Esophagogastroduodenoscopy revealed a hyperemic mucosal lesion over the antrum, and the pathology report revealed poorly differentiated GC. Colonoscopy was performed

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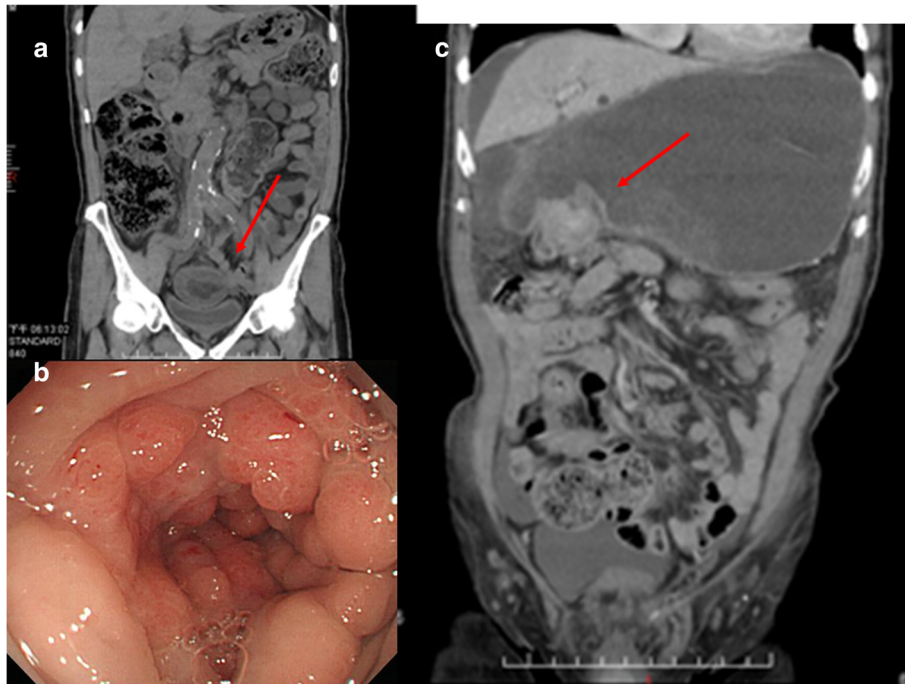


Fig. 1 Synchronous colonic metastasis of advanced GC. **a** Abdominal CT showed suspected rectosigmoid colon cancer with partial obstruction; **b** colonoscopy revealed rectosigmoid colon wall thickening and partially obstructed mucosal swelling; **c** abdominal CT displayed circumferential thickening of the pylorus and marked stomach distension, indicating the possibility of GC

again, and the second pathology report confirmed poorly differentiated GC with colonic submucosal involvement (Fig. 2a). The immunohistochemical analysis results were as follows: CDX-2 (-) (Fig. 2b), CK20 (-) (Fig. 2c), and CK7 (+) (Fig. 2d). The final pathology report stated that the patient had advanced GC with synchronous colonic metastasis. Although the patient received neoadjuvant chemotherapy of 7 cycles of oxaliplatin, folinic acid, and 5-fluorouracil (FOLFOX4) regimen for disease control, he survived for only 6 months.

Case 2: metachronous colonic metastasis of advanced GC

A 78-year-old man had advanced GC with poorly differentiated histology (pT3N3aM0). Eighteen months previously, radical subtotal gastrectomy and Billroth-II gastrojejunostomy had been performed. In addition, he had received neoadjuvant therapy of 12 cycles of the FOLFOX4 regimen. Because the patient had developed progressive abdominal distension, abdominal CT was performed, which showed a circumscribed mass lesion with severe distention at the proximal colonic loop. CT scans also revealed a small bowel loop, which was suspected to be a colon tumor (Fig. 3a). Colonoscopy revealed mucosal swelling characterized by a completely obstructive lesion (Fig. 3b). Transverse colectomy and end-to-end colocolostomy were performed for confirmation.

The pathology report confirmed that the patient had metachronous colonic metastasis of advanced GC (Fig. 4a). Immunohistochemical analysis obtained the following marker results: CDX-2 (weak and faintly positive) (Fig. 4b), CK20 (-) (Fig. 4c), and CK7 (+) (Fig. 4d). However, the clinical outcome was negative owing to rapid disease progression. The patient survived for only 6 months after receiving the diagnosis.

Discussion and conclusions

Colonoscopy revealed that the two patients exhibited different manifestations of colonic masses. We observed only wall thickening and swelling in both cases, with no signs of contact bleeding or centrally ulcerated lesions of the colon. These findings are different from the classic appearance of primary colon cancer upon colonoscopy. Furthermore, intestinal metastasis of GC has rarely been reported [14].

Jang et al. performed a retrospective radiological analysis of 23 GC patients with intestinal metastasis, of whom only 11 were pathologically diagnosed as having colonic metastasis. Most of the patients had poorly differentiated adenocarcinoma or the signet-ring cell type with a propensity to develop into rare intestinal metastasis. Notably, the two patients in the present case report had poorly differentiated adenocarcinoma.

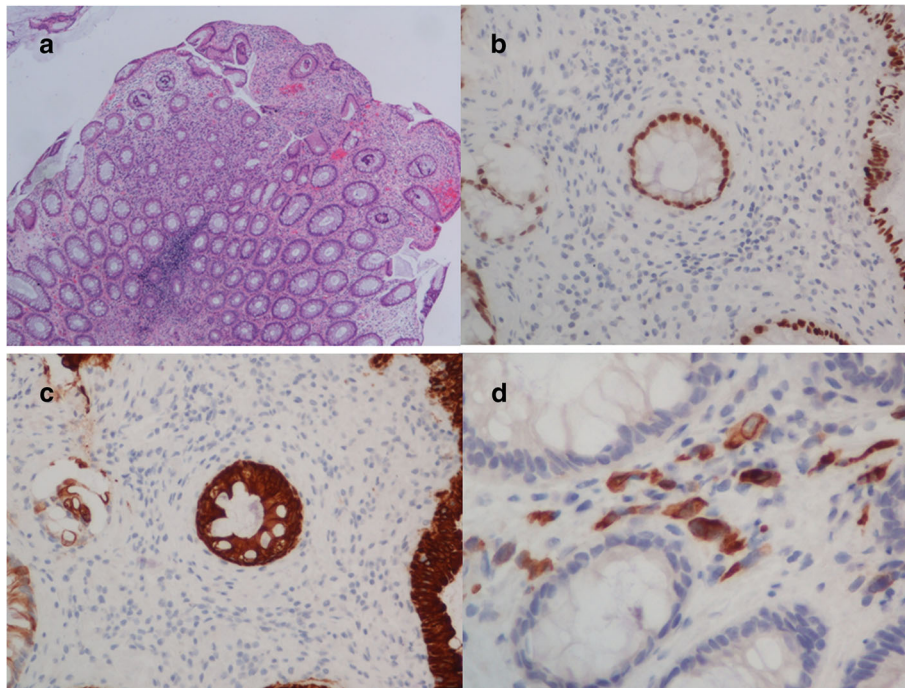


Fig. 2 a Poorly differentiated carcinoma involving colonic submucosa hematoxylin and eosin staining (HE) ($\times 40$); b CDX-2 staining with negative results ($\times 100$); c CK20 staining with negative results ($\times 100$); and d CK7 staining with positive results ($\times 400$)

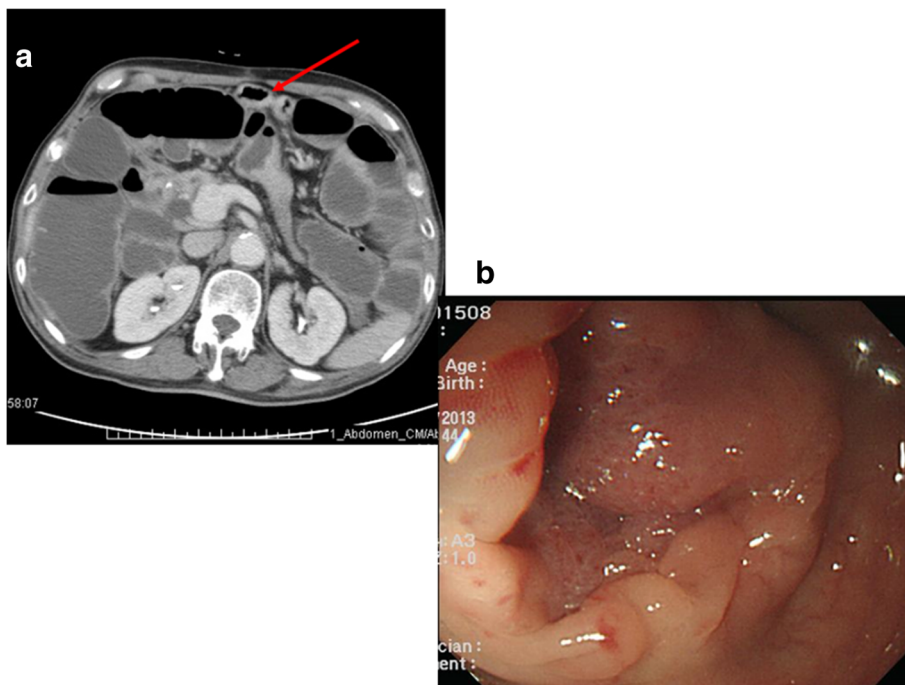


Fig. 3 Metachronous colonic metastasis of advanced GC. a Abdominal CT showed a circumferential mass lesion with severe distention of the proximal colonic loop and small bowel loop, suggesting colonic metastasis. b Colonoscopy revealed mucosal swelling with total obstruction

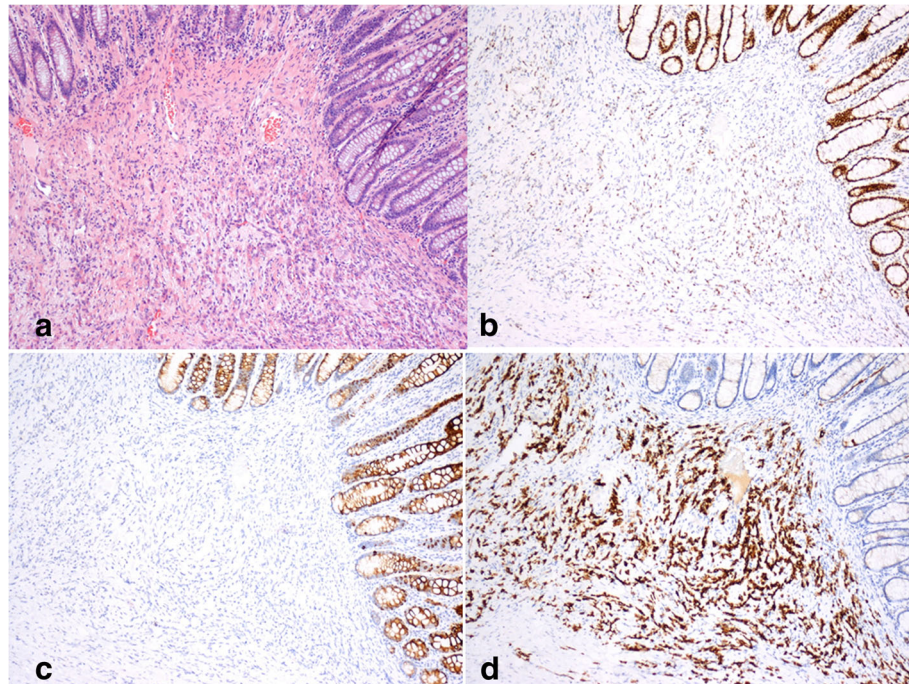


Fig. 4 **a** Poorly differentiated carcinoma involving colonic submucosa HE ($\times 40$); **b** CDX-2 staining with weak and faintly positive results ($\times 100$); **c** CK20 staining with negative results ($\times 100$); and **d** CK7 staining with positive results ($\times 400$)

Furthermore, intestinal metastasis should be considered by physicians for patients with GC who exhibit wall thickening over segmental bowel and those who exhibit target enhancement and progressive thickening of the enhancing inner layer on CT images [13, 15].

In our cases, segmental bowel wall swelling and progressive thickening of the enhancing inner layer were detected through colonoscopy and CT, respectively. The final diagnosis of colonic metastasis was based on histological features and immunohistochemical analysis. The analyses confirmed the expression of negative CDX-2 in one case, weak and faintly positive CDX-2 in the other, and negative CK20 in both [16, 17]. Moreover, positive CK7 staining was performed to exclude the possibility of prostate cancer.

Cases of GC with colonic metastasis are extremely rare. The survival period for most established cases ranges from 1 to 10 months [4, 9–11]; both patients in our report survived for approximately 6 months after their diagnosis. Furthermore, the prognosis of advanced GC in the two cases was relatively poor even after aggressive treatment. Therefore, colonic metastasis should be considered by physicians if colonoscopy reveals submucosal swelling and segmental bowel wall thickening in patients with advanced GC, particularly in those with poorly differentiated adenocarcinoma or the signet-ring cell type.

Abbreviations

CT: Computed tomography; FOLFOX4: Oxaliplatin, folinic acid, and 5-fluorouracil; GC: Gastric cancer

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Availability of data and materials

All findings of this case report are based on diagnostic examinations performed during patient hospitalization. The publication of these data was authorized by Kaohsiung Medical University Hospital. Data sharing is not applicable to this article as no datasets were generated or analyzed in the present report.

Authors' contributions

SWC wrote the original manuscript. WCC and TSY interpreted the pathological findings. The final manuscript was revised by THL, YYS, MCJ, and WJY. The final manuscript has been read and approved by all authors.

Ethics approval and consent to participate

This study was approved by the Institutional Review Board of Kaohsiung Medical University Hospital (KMUH-IRB 1217–1417).

Consent for publication

Not applicable as this is a retrospective review of two expired patients.

Competing interests

The authors declare that they have no competing interests.

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