

Secondary Multiple Cutaneous Metastases from Primary Gastric Signet-Ring Cell Adenocarcinoma

Jian-Jiao C^{1,2} and Zhao W^{2*}

¹Department of Gastrointestinal Surgery, Clinical Medical College, Dalian Medical University, Dalian, P.R. China

²Department of Gastrointestinal Surgery, Clinical Medical College, Yangzhou University, Northern Jiangsu People's Hospital, Yangzhou, P.R. China

Abstract

A 60-year-old man was diagnosed with gastric cancer by endoscopy in our cancer center. Preoperative CT scan showed thickening of the cardia and enlarged lymph nodes in hepatogastric space. Consequently, he accepted total gastrectomy and Roux-en-Y reconstruction. Immunohistochemical detection showed intense positivity for GST-n and Pgp antibodies and negativity for EGFR, ERCC1, P53, Ki67 and HER-2. Surprisingly, within one month, the patient had multiple asymptomatic cutaneous nodules in the left neck, right subclavian, left armpit, left upper abdomen, lower abdomen, right groin and lumbodorsal region. Abdominal CT scan showed a 22 × 22 mm high-density lesion in the splenorenal space, as well as cutaneous nodules in the left upper abdomen and right groin. Histopathologic examination of cutaneous biopsy showed a poorly differentiated signet-ring cell carcinoma consistent with a diagnosis of secondary metastasis of primary gastric carcinoma. The patient received "DOF" chemotherapy which do benefit to halt the disease progression. He decided not to continue with chemotherapy and died of multiorgan metastasis 2 months later.

Keywords: Gastric cancer; Adenocarcinoma; Cutaneous metastases; Chemotherapy

Introduction

Cutaneous metastasis is believed to be a late manifestation of primary malignancy. It usually takes a long-run development for emergence of cutaneous metastasis from primary malignancy. Cutaneous metastasis from gastric carcinoma is extremely rare, occurring in only 0.4-4.5% of all gastric carcinomas [1]. The occupied proportions of gastric adenocarcinoma are higher relatively in gastric tumors. Gastric signet-ring cell adenocarcinoma account for 9.4% of all gastric carcinomas [2]. Patients diagnosed with gastric signet-ring cell carcinoma are thought to have poorer prognosis and lower survival compared with patients with gastric mucinous carcinoma [3].

We present a case of secondary multiple skin metastases from a primary gastric signet-ring cell adenocarcinoma. The case is intriguing as skin metastasis from gastric adenocarcinoma is uncommon, and location of the lesions, which served as the first sign of recurrent gastric cancer, is quite unusual.

Case Report

A 60-year-old man presenting with a 3-month history of vomiting and weight loss was diagnosed with gastric cancer by endoscopy in our cancer center. Abdominal enhanced CT scan showed thickening of the cardia and enlarged lymph nodes in the hepatogastric space (Figure 1). Pathology of gastric endoscopic biopsy specimens showed a poorly differentiated adenocarcinoma (Figure 2). He accepted total gastrectomy (D2 lymphadenectomy) and Roux-en-Y reconstruction. The lesion, measuring 5 × 3 cm, was located in the upper gastric body near the lesser curvature. Pathology of the resected specimens showed a poorly differentiated gastric signet-ring cell carcinoma with lymphatic invasion and tumor metastasis was identified in 4 of 16 dissected lymph nodes in gastric lesser curvature (Figure 3). Immuno-histochemical detection showed intense positivity for GST- π (glutathione S-transferase-pi) and Pgp (P-glycoprotein) antibodies and negativity for EGFR, ERCC1, P53, Ki67 and HER-2.

One month after surgery, asymptomatic cutaneous nodules developed on his left neck, involving the right subclavian, left armpit,

left upper abdomen, lower abdomen, right groin and lumbodorsal region (Figure 4). Most nodules had normal overlying skin, developing from spot to nodular lesion measuring ~3 cm in diameter.

Abdominal CT scan revealed a 22 × 22 mm high-density lesion in the splenorenal space, and cutaneous nodules in the left upper

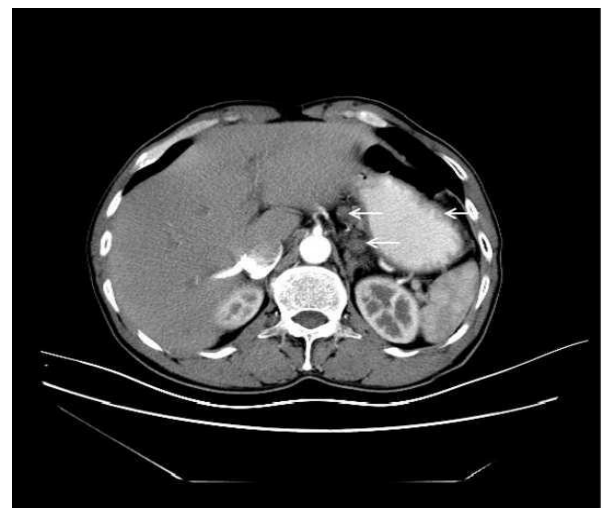


Figure 1: Abdominal enhanced CT scan showed thickening of the gastric wall and regional lymphadenopathy in hepatogastric space.

***Corresponding author:** Dr. Wei Zhao, Department of Gastrointestinal Surgery, Clinical Medical College, Yangzhou University, Northern Jiangsu People's Hospital, No. 98 Nantong West Road, Yangzhou 225001, Jiangsu Province, P.R. China, Tel: 86-716-8060236; E-mail: 13004396890@163.com

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abdomen, lower abdomen and right groin (Figure 5). The multiple cutaneous nodules were resected immediately. Histopathologic examination showed a poorly differentiated signet-ring cell carcinoma consistent with diagnosis of secondary metastases of primary gastric carcinoma (Figure 6).

We developed intravenous “DOF” combination chemotherapy protocols based on his pathologic results and immuno-histochemical findings. He was given docetaxel (75 mg/m²), oxaliplatin (130 mg/m²) and 5-fluorouracil (750 mg/m²) every 28 days, for 2 cycles. And then he accepted one cycle of oral anti-cancerogenics treatment (tegafur, gimeracil, and oteracil 25 mg/m², twice a day, for 28 days), followed by 14 days of rest. “DOF” chemotherapy, which last for 3 months, do benefit to halt the disease progression. However, he suffered from side effects of chemotherapy painfully. The patient refused to continue with chemotherapy at hospital, in turn, to travel to the places his fancy took him. Eventually, he died due to multiorgan metastasis 2 months later.

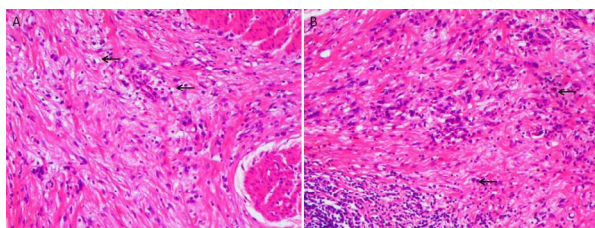


Figure 2: Gastric endoscopic biopsy specimens pathology revealed poorly differentiated adenocarcinoma.

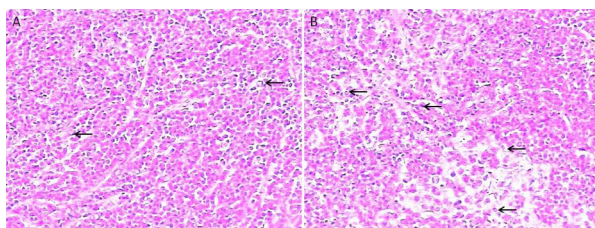


Figure 3: Pathological diagnostic findings of the resected specimens revealed poorly differentiated gastric signet-ring cell carcinoma.



Figure 4: The patient presented with development of asymptomatic cutaneous nodules on his left neck, progression of involvement to right subclavian, left armpit, lower abdomen, right groin and lumbodorsal region occurred.

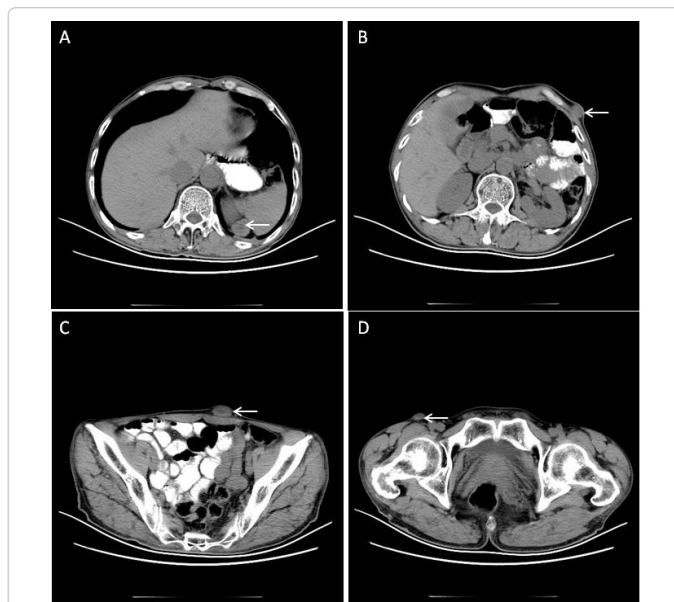


Figure 5: Abdominal CT examination revealed multiple high density soft tissue lesions in splenorenal space. Some cutaneous nodules were also found.

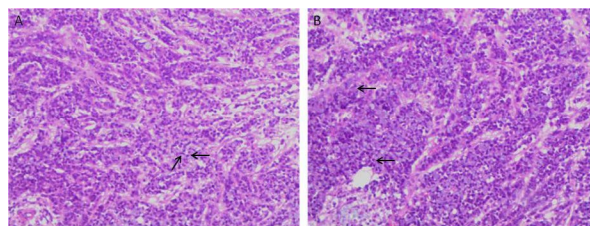


Figure 6: Histopathologic examination of excised cutaneous tumors revealed a poorly differentiated signet-ring cell carcinoma.

Discussion

Breast cancer is leading visceral cancer-causing cutaneous metastasis, while skin metastasis from gastric cancer is uncommon in clinical practice [4]. Gastric cancer may disseminate to liver, peritoneal cavity and lymph nodes *via* ematogenous spread or lymphatic routes, while skin account for minority of metastasis sites [5]. Cutaneous metastasis could involve multiple sites presenting as an ill-defined region of tender, warm, edematous and erythematous skin closely simulating erysipelas or cellulitis [6].

Histopathologic study of cutaneous lesion is essential to determine the primary tumor. Cutaneous metastasis lesions may be likely identified by clinicians before pathologic diagnosis if a previous cancer history is certain. However, it is sometimes confused to distinguish cutaneous metastasis from primary skin adenocarcinoma. Immunohistochemical study would be beneficial to establish a correct diagnosis [7]. When diagnosis of cutaneous metastasis from primary visceral cancer is confirmed, imaging studies should be performed to determine other metastasis sites. CT is presently a standard procedure for the detection of distant metastases in patients with gastric cancer. According to one analysis, the sensitivity and specificity of CT are higher than ultrasonography for detecting metastases in the liver, lung, and celiac lymph nodes. However, ultrasonography has a higher sensitivity than CT for the detection of malignant lymph nodes in the neck [8].

Combination chemotherapy has shown greater efficacy in the treatment of skin metastases. Dong-Lai Ma et al., reported a clinical case of Sister Mary Joseph nodule, the lesion in the umbilicus caused by metastases from the gastric carcinoma. And they provided a chemotherapy protocol that suppress development of the primary tumor [9]. Immunohistochemical study is not only helpful in establishing a correct diagnosis, but also beneficial to personalized chemotherapy. In randomized trials evaluating the feasibility of personalized chemotherapy, therapy was proposed in a flow chart that rely on the expression of these markers, it is indicated that the survival of the patients benefit from recommended personalized treatment [10]. Immunohistochemical detection of this case showed intense positivity for GST-n and Pgp antibodies and negativity for EGFR, ERCC1, P53, Ki67 and HER-2. It is figured out that Pgp and GST- π expression of gastric cancer cells may conduce to primary resistance to some chemotherapeutic drugs [11]. It is quite essential to evaluate the expression of chemotherapy targeted biomarkers associated with personalized treatment for gastric adenocarcinoma. Molecular profiling (MP) of gastric adenocarcinoma may have the potential to define patients who would derive the greatest benefit from current therapies [12].

Conclusion

Cutaneous metastasis of gastric signet-ring cell adenocarcinoma is rare, and may present with unusual clinicopathological features, rendering diagnosis challenging. In such cases, cutaneous metastasis of cancer generally appears late in the course of the disease. Adjuvant chemotherapy and nutritional support in addition to surgical operation may do benefit to prolong patient survival.

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Consent for Publication

Written informed consent was obtained from the patient's family for publication of this case report and any accompanying images.

Competing Interests

These authors declare that they have no competing interests.

References

1. Nashan D, Muller ML, Braun-Falco M, Reichenberger S, Szeimies RM, et al. (2009) Cutaneous metastases of visceral tumours: A review. *J Cancer Res Clin Oncol* 135: 1-14.
2. Liu X, Cai H, Sheng W, Yu L, Long Z, et al. (2015) Clinicopathological characteristics and survival outcomes of primary signet ring cell carcinoma in the stomach: Retrospective analysis of single center database. *PLoS One* 10: e0144420.
3. Bozkaya Y, Erdem GU, Ozdemir NY, Demirci NS, Hoczade C, et al. (2017) Comparison of clinicopathological and prognostic characteristics in patients with mucinous carcinoma and signet ring cell carcinoma of the stomach. *Curr Med Res Opin* 33: 109-116.
4. Hu SC, Chen GS, Lu YW, Wu CS, Lan CC, et al. (2008) Cutaneous metastases from different internal malignancies: A clinical and prognostic appraisal. *J Eur Acad Dermatol Venereol* 22: 735-740.
5. Aurello P, D'Angelo F, Rossi S, Bellagamba R, Cicchini C, et al. (2007) Classification of lymph node metastases from gastric cancer: Comparison between N-site and N-number systems, our experience and review of the literature. *Am Surg* 73: 359-366.
6. Han MH, Koh GJ, Choi JH, Sung KJ, Koh JK, et al. (2000) Carcinoma erysipelatoides originating from stomach adenocarcinoma. *J Dermatol* 27: 471-474.
7. Elston D (2009) Lever's histopathology of the skin. *J Am Acad Dermatol* 61: 171.
8. Vliet E, Steyerberg E, Eijkemans M, Kuipers E, Siersema P (2007) Detection of distant metastases in patients with oesophageal or gastric cardia cancer: A diagnostic decision analysis. *Br J Cancer* 97: 868-876.
9. Liu JW, Ma DL (2018) An ominous sign from sister Mary Joseph. *Lancet* 392: 776.
10. Yoshida K, Tanabe K, Ueno H, Ohta K, Hihara J, et al. (2003) Future prospects of personalized chemotherapy in gastric cancer patients: Results of a prospective randomized pilot study. *Gastric Cancer* 6: 82-89.
11. Geng M, Wang L, Chen X, Cao R, Li P (2013) The association between chemosensitivity and Pgp, GST-pi and Topo II expression in gastric cancer. *Diagn Pathol* 8: 198.
12. Miura JT, Johnston FM, Thomas J, George B, Eastwood D, et al. (2014) Molecular profiling in gastric cancer: Examining potential targets for chemotherapy. *J Surg Oncol* 110: 302-306.