



## Case report

# Solitary metastasis to the left axillary lymph node after curative gastrectomy in gastric cancer

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### Abstract

**Regional lymph node metastasis in advanced gastric cancer is common, whereas axillary lymph node metastasis (ALNM) is rare. We experienced a patient with a solitary ALNM in gastric cancer. A 48-year-old woman underwent curative distal gastrectomy for advanced gastric cancer (P0H0T3N3M0CY0, stage IV). Twenty-one months after the surgery, she complained of an asymptomatic left axillary tumor. Mammography and computed tomography (CT) scans showed the presence of tumors in neither breast nor lung. Fine-needle aspiration of the axillary tumor demonstrated poorly differentiated adenocarcinoma cells, which coincided with the cells of the resected gastric carcinoma. We diagnosed ALNM from gastric cancer and operated on the patient with radical left axillary lymph node dissection. One year after the reoperation, she has had no recurrence. We conclude that gastric cancer can metastasize to unusual sites. A re-radical resection is recommended if curative resection is feasible.**

**Key words** Gastric cancer · Axillary lymph node metastasis · Recurrence · Metastasectomy

### Introduction

Regional lymph node metastasis in advanced gastric cancer is common [1–3], while axillary lymph node metastasis (ALNM) is rare. The axillary lymph node metastasis is classified as distant metastasis of gastric cancer by the Japanese classification of gastric carcinoma [4]. As a distant metastasis, ALNMs have been reported in bronchogenic and ovarian carcinoma [5–9]. Gastric cancer is the most common malignant tumor in

Japan, and a few cases of ALNMs associated with supraclavicular lymph node metastasis (SCLNM) have been reported. However, only two cases of solitary ALNM from gastric cancer have been documented in the Japanese literature (with no English abstract).

Recently we experienced a patient with solitary ALNM from gastric cancer and succeeded in the surgical treatment of the condition. Here we report this case and review the Japanese literature.

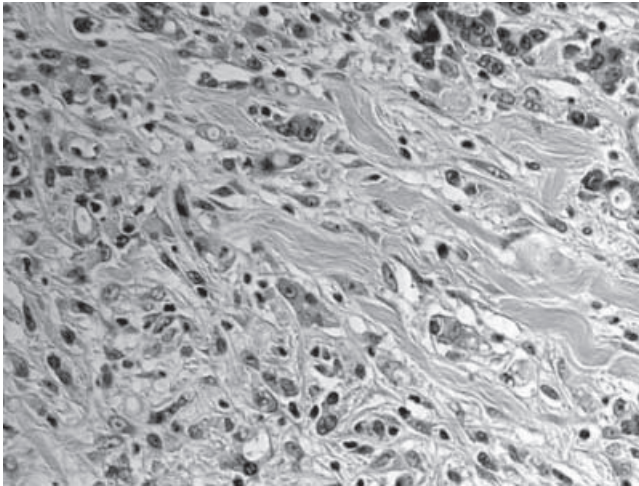
### Case report

A 48-year-old woman with upper abdominal discomfort was admitted to Kanagawa Cancer Center Hospital, Yokohama, Japan. The patient was diagnosed as having advanced gastric cancer by X-ray and endoscopic findings, and pathology examination confirmed poorly differentiated adenocarcinoma (por) with signet-ring cell carcinoma (sig) in a biopsy specimen. She had neither distant metastasis nor a high level of serum tumor markers, including carcinoembryonic antigen (CEA) and carbohydrate antigen (CA) 19-9. She underwent curative distal gastrectomy with D3 lymphadenectomy in May 1999. Resected specimens demonstrated flat elevated type 5 advanced gastric cancer, 8.7 cm in diameter, located in a circular fashion, in the lower third portion (Fig. 1). The tumor was stage IV, poorly differentiated, adenocarcinoma nonsolid type (por 2) predominantly, with signet-ring cell carcinoma also present (Fig. 2) (T3N3ly2v0). Tumor cells were observed in 16 of 61 dissected lymph nodes, including 3 of 22 abdominal paraaortic lymph nodes. The patient was discharged 2 weeks after the gastrectomy. Subsequently she received no adjuvant chemotherapy.

Twenty-one months after the surgery, the patient complained of an asymptomatic left axillary mass. The mass was an oval and elastic hard solid mobile tumor, 5 cm in diameter. Mammograms demonstrated no

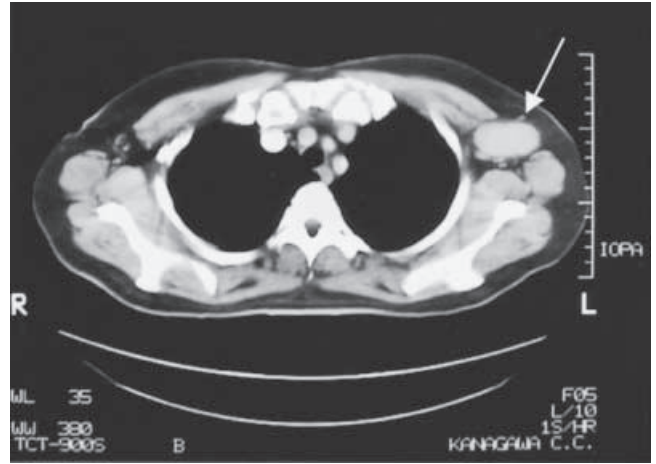


**Fig. 1.** Resected specimen reveals flat elevated type 5 advanced gastric cancer located in the lower third portion

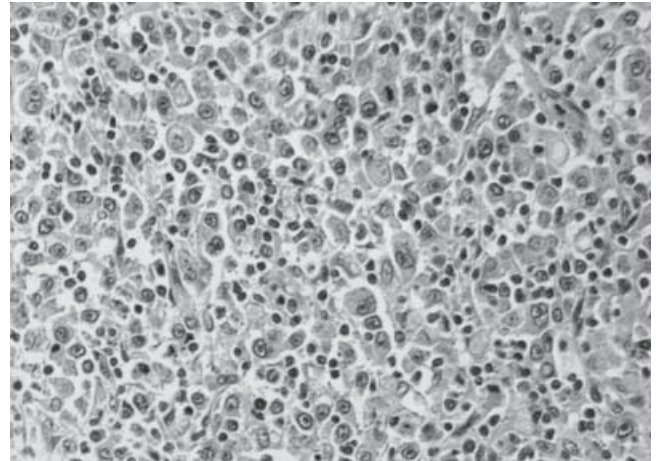


**Fig. 2.** Histological findings of the primary lesion: poorly differentiated adenocarcinoma, nonsolid type (por 2), is dominant, with signet-ring cell carcinoma also shown. H&E,  $\times 400$

breast disease. Computed tomography (CT) scans showed a smooth and homogeneous tumor with no invasion to the adjacent structures (Fig. 3). Fine-needle aspiration of the axillary tumor demonstrated poorly differentiated adenocarcinoma cells, which coincided with the cells of the resected gastric carcinoma. No other tumors were found by whole body CT scans and endoscopy of the gastric remnant. We diagnosed ALNM from gastric cancer. The patient underwent radical axillary lymph node dissection in March 2001. The tumor was located along the thoraco-dorsal artery and was 5 cm in diameter, oval and elastic hard, and showed no invasion to the adjacent structures. Pathological examination demonstrated poorly differentiated



**Fig. 3.** Computed tomography (CT) scan shows a smooth and homogeneous solitary left axillary tumor with no invasion to adjacent structures (*arrow*)



**Fig. 4.** Histological findings of the metastatic axillary lymph node: poorly differentiated adenocarcinoma containing signet-ring cell carcinoma. H&E,  $\times 400$

adenocarcinoma containing signet-ring cell carcinoma, which coincided with metastatic adenocarcinoma from gastric cancer in two of nine dissected lymph nodes (Fig. 4). Subsequently, she was treated, as an outpatient, with 100mg/day of oral TS-1 (tegafur, gimeracil, oteracil potassium) for 28 days, followed by 14 days' rest, as one course. One year after the reoperation, she has not shown any evidence of recurrence.

## Discussion

In the Japanese literature there are only two documented cases of solitary ALNM in gastric cancer.

Okushima et al. [10] reported gastric cancer with simultaneous ALNM that was located in the reconstructed gastric tube after total esophagectomy for esophageal cancer. Their case was rather unusual because the stomach was located in the presternal area (the report is in Japanese without an English abstract). In another case, solitary ALNM developed 8 years after curative gastrectomy for early gastric cancer, but the details were not reported. We have experienced two recurrent cases of ALNMs in gastric cancer; however, these patients had simultaneous lymph node metastases involving supraclavicular and mediastinal lymph nodes. There are a few case reports of ALNM with SCLNM in gastric cancer. The present report is the first to document a recurrent case of gastric cancer presenting solitary ALNM.

Metastatic mechanisms to axillary lymph nodes were well documented in lung cancer [5–7]. There were reported to be three hypothetical major metastatic routes. The first consists of newly developed lymphatic channels which arise from pleural lesions of adhesive lung tumors. The second is a retrograde spread mechanism which referred to the presence of SCLNM. The third is that ALNMs could be of systemic origin. In gastric cancer, however, there are few reports describing the mechanisms of ALNM. Okushima et al. [10] speculated that the metastatic route was through chest wall invasion of gastric cancer, because lymphatic drainage to the axillary lymph node was from subcutaneous or intercostal lymphatic vessels in the chest wall [5]. While lymphatic drainage of the chest wall via newly developed lymphatic channels to the axilla is a well-documented pathway, neo-lymphatics running within adhesion lesions were not observed in autopsy cases [11].

The left supraclavicular, Virchow's, lymph node is the intercalated node draining from the thoracic duct and it is frequently involved by gastrointestinal cancers [12]. Yu-chih and Chia-ch'ing [13] reported that tumor cells were identified in the thoracic duct in five of ten patients after surgical manipulation of advanced gastric cancer. The interconnection between supraclavicular lymph nodes and axillary lymph nodes has been investigated. Marcantonio and Libshitz [7] reported a retrograde flow of contrast material from the supraclavicular lymph nodes to the axillary lymph nodes in 2%. Requet [11] suggested that the retrograde pathway would be a result of lymphatic blockade by the presence of simultaneous SCLNM, and could occur when the valvular competence of lymphatic vessels was lost. Another metastatic route is that ALNMs could be of systemic origin. The systemic metastases could be caused by blood vessel invasion of the main tumor, and also by tumor cells disseminating into the venous system through the thoracic duct [13,14].

In the present patient, the tumor was most likely a result of systemic disease, because the recurrence presented only at the axillary nodes without SCLNM, and the primary tumor had invaded the paraaortic lymph node which connects with the thoracic duct. Stevens [14] suggested that if the thoracic duct became involved, it would be easy to see how distal glands might be affected.

Lymph node recurrence would generally preclude extirpation and would be treated with chemotherapy because it could involve simultaneous multiple sites of recurrence in gastric cancer [15]. We documented that neither of two patients survived for more than 2 years after re-radical resection for recurrent metastasis in lymph nodes [16]. In contrast, Nashimoto et al. [17] reported a patient who survived for over 6 years after dissection of recurrent metastasis in abdominal paraaortic lymph node in gastric cancer. Radical surgery may well benefit some patients with lymph node recurrence in terms of survival.

Gastric cancer can metastasize to unusual sites. This is the first case documenting solitary ALNM in gastric cancer. We recommend curative resection for the treatment of patients with solitary ALNM. In order to perform curative surgery for metastasis, early detection is important.

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