



## Case report

# Route from the paraaortic lymphatic system to the tracheobronchial lymph nodes evidenced on lymphangiogram in a patient with gastric cancer

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### Abstract

**Lung metastasis from gastric or colonic cancer, without liver metastasis, is seldom seen. However, its metastatic pathway has not been delineated on imaging. We present and discuss such a lymphatic route in a patient with gastric cancer. The appearance of the mediastinum on a lymphangiogram is discussed. To the best of our knowledge, the lymphangiographic demonstration of the route from the paraaortic lymphatics to the tracheobronchial lymph nodes has been not reported. Lymphatics running from the paraaortic to the tracheobronchial lymph nodes through the diaphragm may play an important part in direct metastasizing to lung or tracheobronchial lymph nodes in certain patients.**

**Key words** Paraaortic lymph nodes · Tracheobronchial lymph nodes · Lymphatic route · Lymphangiogram

### Case report

A 56-year-old woman with stage IIIA [1] gastric cancer underwent subtotal gastrectomy and Billroth-I reconstruction. During the operation, anticancer drug and contrast medium [2] (OK-432, iopamirone, and lipiodol) was injected to prevent lymph node metastasis along the abdominal aorta in the area of the no. 16b1 int 1 nodes). She had given her consent for the performance of this therapy [3].

The paraaortic lymph nodes, cisterna chyli, and thoracic duct were opacified on the roentgenogram obtained. At the same time, a route from paraaortic to the tracheobronchial lymph nodes through the diaphragm was incidentally demonstrated on a lymphangiogram (Fig. 1). The contrast medium that was injected along the abdominal aorta spread between the aorta and the

inferior vena cava and ran into the lymphatic vessels. This medium did not run into the thoracic duct, but spread in the diaphragm and ran into the tracheobronchial lymph nodes through the middle mediastinum [1]. Lymphatics running from the paraaortic to the tracheobronchial lymph nodes through the diaphragm may play an important part in direct metastasizing to lung or tracheobronchial lymph nodes in a patient with gastric cancer. The patient has been well for 5 years since the surgery.

### Discussion

Lymphatic systems play an important role in the carcinoma metastasizing process. To prevent lymph node metastasis, a therapeutic medium [2] (OK-432, iopamirone, and lipiodol) is injected, and a roentgenogram is obtained. The paraaortic lymph nodes, cisterna chyli, and thoracic duct should be opacified and visible on the roentgenogram [4].

In one patient, we incidentally demonstrated a route from the paraaortic to the tracheobronchial lymph nodes through the diaphragm on a lymphangiogram. To our knowledge, this is the first report describing lymphangiographic evidence of this route [2]. Metastasis to the lung, tracheobronchial lymph nodes, or both, is seldom experienced in the absence of metastasis to the liver in patients with colorectal or gastric cancer. Kanemitsu et al. [3] reported that, in 71 (2.3%) of 3076 gastric cancer patients, hematogenous recurrence of cancer was confirmed by clinical or operative examination. Of the 71 patients with hematogenous recurrence, 22 (31.0%) had lung metastases. In these patients, seven metastases (31.8%) were localized in the lung.

In our patient, the findings showed that the lymphatic flow from the paraaortic lymph nodes sometimes flows directly to the hilum of the lung. Metastasis from the hilum of the lung into the lung would probably be rare,



**Fig. 1.** Lymphangiogram: lymphatic flow was shown running from the paraaortic to the tracheobronchial lymph nodes via the diaphragm

but there is the possibility of the existence of an other route which flows from the paraaortic lymph nodes to around the bronchus or directly to the lung. In other words, lung metastases may not be only hematogenous but may also be lymphatic [4]. Lymphatic flow running from the paraaortic to the tracheobronchial lymph nodes through the diaphragm may play an important part in direct metastasizing to lung or tracheobronchial lymph nodes in certain patients with gastric cancer.

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