

## Paratracheal Lymph Node Metastasis from Cancer of the Stomach

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### ABSTRACT

An unusual case of gastric cancer associated with a huge metastasis to the paratracheal lymph node is presented. The 57-year-old female patient with such a metastatic disease was managed by surgery and immunochemotherapy. Histologic examination of the stomach and involved lymph nodes showed a poorly differentiated adenocarcinoma.

### INTRODUCTION

A distant metastasis of the cancer to the supraclavicular node is occasionally found in patients with far-advanced cancer of the alimentary tract. But, involvement of the paratracheal lymph node is rare. We report here such a unique case of stomach cancer.

### CASE REPORT

A 57-year-old Japanese woman was admitted to our surgical unit, Nagasaki University Hospital, on March 10, 1987 with the clinical diagnosis of cancer in the upper portion of the stomach. Two months before admission, she developed malaise, anorexia, and a feeling of discomfort in the anterior chest. In the interim, she lost about 11 lbs of weight which was not associated with nausea, vomiting, abdominal pain, or gastrointestinal bleeding. Her

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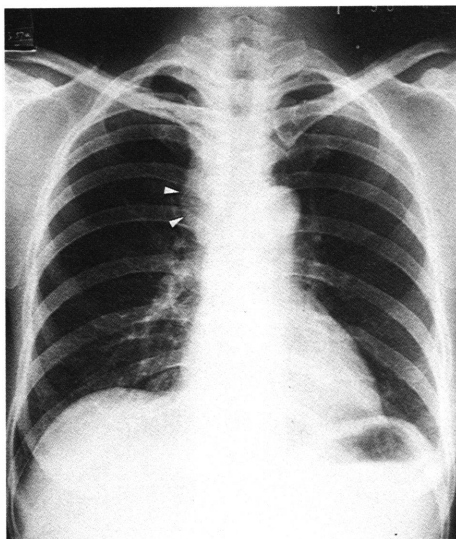
past and history family history were not contributory. She visited a doctor and was given barium swallow and endoscopy. Cancer of the stomach was indicated.

Physical examination on admission was not remarkable except for enlarged superficial lymph nodes in the bilateral axillary and groin areas, ranging from 1.0 to 1.5cm in size. One of the big groin nodes was biopsied and diagnosed as normal. No lymph node swelling was noted in the supraclavicular area.

Laboratory data were all within normal limits except for a markedly raised carbohydrate antigen 19-9 level to 6,295 u/ml (normal value: under 38 u/ml). Serum alpha-fetoprotein and carcinoembryonic antigen were normal.

The chest x-ray on admission (Fig. 1) revealed a rounded soft tissue density mass to the right of the trachea, slightly compressing the right side of the tracheal wall and right main bronchus toward the left side. These findings were confirmed by chest x-ray tomograms.

The upper gastrointestinal barium swallow (Fig. 2) showed an irregular ulcer surrounded by enlarged converging folds in the posterior wall of the upper portion of the stomach.



**Fig. 1.** The chest x-ray on admission showing a mediastinal rounded mass (arrows).



**Fig. 2.** The upper GI barium swallow showing the gastric tumor.

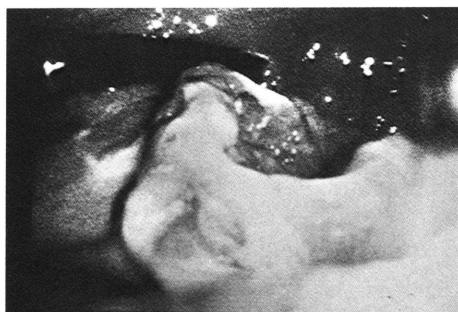
The endoscopic examination disclosed a Borrmann Type-3 gastric cancer (Fig. 3), and biopsy specimens showed poorly differentiated adenocarcinoma.

On the computed tomograms of the chest (Fig. 4), a mass, measuring 3cm in size, was noted antero-laterally to the trachea in the anterior mediastinum. The abdominal computed tomograms showed a gastric tumor and perigastric lymph node metastasis.

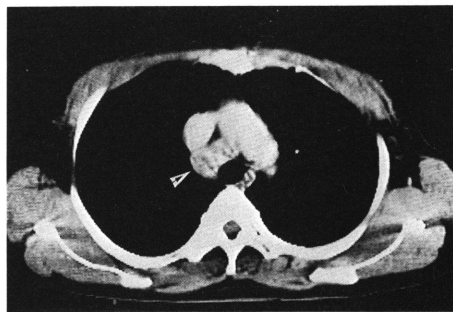
Ultrasound scanning of the upper mediastinum (Fig. 5) showed that the mass in the anterior superior mediastinum was compressing the innominate vein and superior vena cava. Ultrasound image of the upper abdomen disclosed multiple enlarged lymph nodes around the stomach, including paraaortic nodes.

The operation was performed on April 9, 1987 with the preoperative diagnosis of gastric cancer and extensive lymph node metastases with no evidence of liver metastasis or peritoneal seeding. First, laparotomy was made through the upper abdominal midline incision and showed that the gastric tumor was situated in the posterior wall of the upper portion of the stomach and invaded the pancreatic body and left adrenal gland. Perigastric lymph nodes were also involved extensively, including nodes in the hepatoduodenal ligament and around the abdominal aorta and the origin of the superior mesenteric vessels. Total gastrectomy was done in combination with en bloc resection of the spleen, pancreatic body and tail, and left adrenal gland with extensive abdominal lymph node dissection. The reconstruction of the alimentary tract was made with loop Roux-en Y anastomosis. There was no cancer metastasis in the lower mediastinal lymph nodes dissected through the esophageal hiatus.

Therefore, in the hope of removing all visible tumors the midsternotomy was made by extending the abdominal incision upwards to remove the huge metastatic paratracheal node, measuring 3cm in size. It was enlarged enough to shift the trachea leftwards and the innominate vein anteriorly. After the root of the azygos vein was ligated and severed, the



**Fig. 3.** The endoscopic picture disclosing a Borrmann type 3 cancer.



**Fig. 4.** The computed tomogram showing an enlarged lymph node antero-lateral to the trachea.

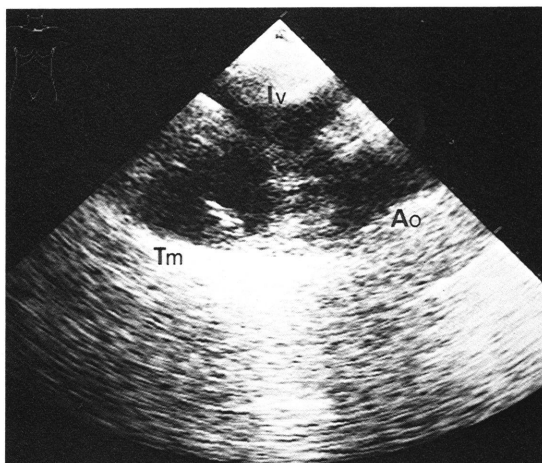
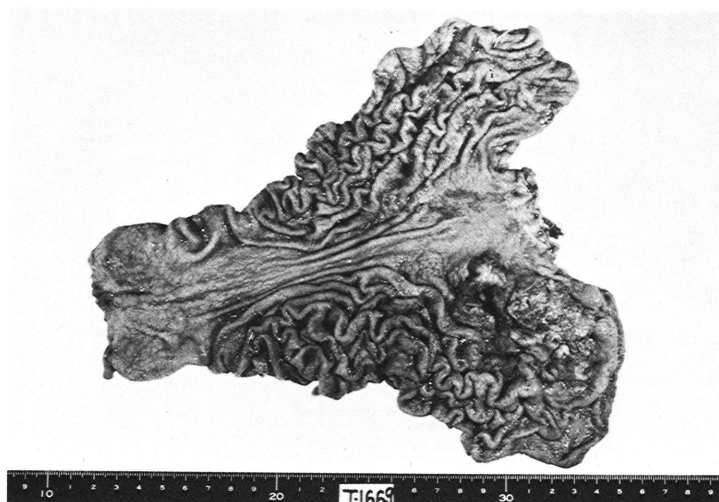


Fig. 5. The ultrasound image of the upper mediastinum showing a mass compressing the innominate vein and superior vena cava. Iv, Ao and Tm indicate innominate vein, Aorta, and tumor, respectively.

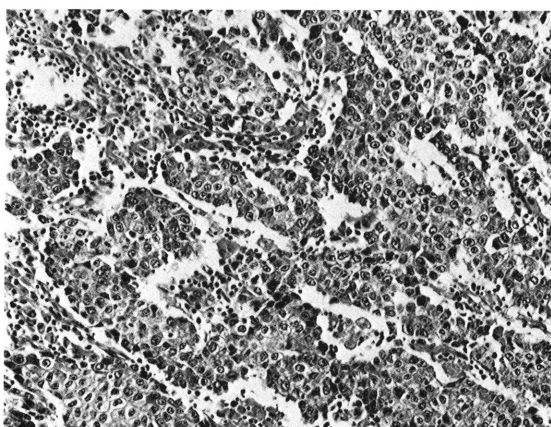
tumor was freed from the trachea, superior vena cava and innominate vein, and then finally removed. There was no invasion to this contiguous organ or these vessels. A piece of the mass submitted for a frozen section histology verified the diagnosis of a metastatic adenocarcinoma. There were no other involved nodes around this mass.

Immediately after the operation, anticancer chemotherapy and immunotherapy were started with administration of Mitomycin C (18mg, i. v.), Lentinan (2mg/wk, drip i. v.) and thereafter Tegafur (600mg daily, t. i. d., p. o.). An intravenous hyperalimentation was given after surgery for maintaining nutritional support. The postoperative course was uneventful except for a temporary fever and left-sided pleural effusion. The patient has been well and free from the disease for 80 days since the operation. The gross findings of the resected stomach (Fig. 6) disclosed a Borrmann Type 3 gastric cancer, measuring  $6.5 \times 5.0$  cm in size, located in the posterior wall of the upper portion of the stomach. The metastatic cancer to the lymph nodes around the the common hepatic and splenic arteries involved the pancreatic body and tail.

Histologic examination showed a poorly differentiated adenocarcinoma of the stomach, and the depth of cancer invasion was subserosal. Metastases were confirmed microscopically in the nodes along the greater and lesser curvatures, around the cardia, origins of the mesenteric vessels; and in the paraaortic areas. Although there was no metastasis in the lower mediastinal nodes dissected, one of the paratracheal nodes was occupied by poorly differentiated adenocarcinoma cells (Fig. 7) similar to those of the primary gastric lesion.



**Fig. 6.** The resected stomach showing a gastric tumor.



**Fig. 7.** Histologic picture of the paratracheal lymph node.

## DISCUSSION

In an advanced stage of gastric cancer, the lymph node metastases are occasionally found in the posterior mediastinal and supraclavicular regions. Paratracheal nodal involvement, however, is believed to be unusual. The anatomical and physiological basis for the spread of gastric cancer to the mediastinal and supraclavicular lymph nodes is not fully clarified. Several possibilities seem to exist with regards to the mode of cancer spread to the paratracheal node from gastric cancer. The pathogenesis of involvement of these nodes is regarded mainly as the propagation of tumor cells into the thoracic duct<sup>1)2)</sup> or along its course,<sup>3)</sup> either by means of backflow to the nodes or by small afferent branches

from the duct to the nodes.<sup>2)</sup> Thus, in our case, the first possibility is that the paratracheal node metastasis developed from involvement of the thoracic duct or its branches. There were no supraclavicular nodal metastases in our patient, but it is plausible that a retrograde metastasis occurred from the occult or unrecognized metastatic supraclavicular and/or posterior mediastinal nodes to the paratracheal node.

Another possibility is that involvement of the paratracheal nodes from gastric cancer was secondary to pulmonary metastasis either via the portal system or via the azygos vein.<sup>4)</sup> Although an evident pulmonary metastasis was not found in our case, here again it could be an occult one.

The third possibility is a pure hematogenous metastasis to the paratracheal node. This can not be ruled out, either, because of histologic findings in which the paratracheal node was too diffusely occupied to distinguish a lymphatic spread from a hematogenous spread.

There is another problem in the present case. That is, whether surgery should be performed for this advanced disease or not. Most authors think that the mediastinal lymph node metastasis represents the final stage of the disease. However, since survival can be achieved only by adequate surgical resection, a role is believed to exist for debulking of advanced stage disease by surgical excision which can enhance potential for response to chemotherapy and immunotherapy.

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