CASE REPORT

Gastric metastasis by primary lung adenocarcinoma

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Abstract

The diagnosis of gastric metastasis from lung cancer is relatively rare in living patients. We describe a case of Type 4 tumor-like metastasis due to primary lung cancer diagnosed with immunohistochemical staining while the patient was alive. A 68-year-old man was admitted to our hospital because of epigastric pain. Gastrointestinal endoscopy revealed a Type 4 tumor and the histological examination showed poorly differentiated adenocarcinoma. His chest X-ray showed mass shadow in the right upper lung field. The resected specimens showed moderately differentiated adenocarcinoma. The diagnosis of gastric metastasis from lung cancer was made by immunohistochemical staining of the lung and gastric tumors which showed positive staining for Thyroid transcriptional factor-1. Diagnosis of gastric metastasis, especially Type 4 metastasis by lung cancer is difficult. However, immunohistochemical staining is very helpful for diagnosis of primary lung cancer metastasis at sites such as the gastrointestinal tract which are not normally prone to metastasis.

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Key words: Primary lung cancer; Type 4 gastric cancer; Gastric metastasis; Thyroid transcriptional factor-1

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INTRODUCTION

Gastric metastasis from lung cancer is relatively rare with a reported incidence of 0.2% to 0.5% in necropsy. In fact, the diagnosis of gastric metastasis due to primary lung cancer is very rare in living patients. The macroscopic findings of gastric metastasis in most case reveal submucosal tumor formation radiographically demonstrated as a Bull’s eye sign while Type 4 tumor-like metastasis is relatively rare. Here, we describe a case of gastric metastasis showing Type 4 tumor-like metastasis due to primary lung cancer diagnosed by immunohistochemical staining.

CASE REPORT

A 68-year-old man with a 40-year smoking history was admitted to a local hospital because of severe epigastric pain. Gastrointestinal endoscopy was performed and an erosive,
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Gastric metastasis from lung cancer was confirmed by positive staining for Cytokeratin 7 (Figure 4A), Thyroid transcriptional factor-1 (TTF-1) (Figure 4B), Cytokeratin AE 1/3, and CEA.

The patient was treated with three courses of systemic chemotherapy with carboplatin (180 mg/body, days 1, 8 and 15) and paclitaxel (80 mg/m², days 1, 8 and 15). However, the patient’s general condition gradually worsened because of the progressive metastasis to brain and bone and he died of sepsis one year after the diagnosis of gastric metastasis. An autopsy was not performed.

DISCUSSION

Metastasis to sites in the gastrointestinal tract are rare[2]. Menuck et al[4] reported that the incidence of gastric metastasis was 1.7% in 1010 autopsy cases and that the most common cancers metastasizing to the stomach were breast cancer, melanoma and lung cancer. On the other hand, primary lung cancer is prone to metastasize to the liver, adrenals, bone, and brain[2,5]. The percentage of gastric metastasis from lung has been reported as 0.2% to 0.5% at necropsy[1,2]. Furthermore, the diagnosis of gastric cancer is very rare in living patients[6].

In the present case, the patient manifested severe epigastric pain and we found gastric metastasis using gastrointestinal endoscopy. However, in most cases, gastric metastases are asymptomatic because they initially occur in the submucosal layer. When the metastatic lesions grow and cause obstruction or ulceration, patients develop symptoms such as abdominal pain, vomiting and anemia. Severe complications due to primary lung cancer, such as gastric perforations, pyloric obstruction have been reported[6-8]. Therefore, when symptoms related to the gastrointestinal tract are present, gastrointestinal endoscopy might be considered although the incidence of gastric metastasis is not high.

In the present case, the gastrointestinal endoscopic findings showed a Type 4 tumor or linitis plastica-like tumor which might be extend as circumscribed plaques within the submucosal layer. Menuck et. al. have described several patterns observed from radiographic findings: (1)
solitary polypoid submucosal mass, which may ulcerate; (2) multiple polypoid submucosal masses, which may ulcerate; and (3) infiltrating constricting pattern similar to a “linitis plastica”. Type 4 gastric tumors or linitis plastica-like metastasis are sometimes observed in gastric metastases of breast cancer. This pattern of metastasis is very rare in lung cancer and only a few cases have been reported.

We performed immunohistochemical staining for TTF-1 on tissue sections of gastric adenocarcinoma. TTF-1 is a transcriptional factor and mainly expressed in thyroid and lung during embryogenesis. However, Holtinger et al. have reported the usefulness of TTF-1 for diagnosis of primary lung cancer. TTF-1 is immunostained in lung and thyroid cancer but not in breast cancer, colon cancer or gastric cancer. Therefore, TTF-1 is recognized as a specific marker for primary lung cancer. In the present case, the diagnosis of metastatic gastric cancer from the endoscopic findings was difficult. However, immunohistochemical staining for TTF-1 was helpful diagnosing lung as the primary site.

In summary, we report a case of lung cancer with Type 4 tumor-like metastasis. Immunohistochemical staining for TTF-1 is useful to distinguish primary gastric cancer from metastatic cancer due to primary lung cancer.

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