Tongue Metastasis as an Initial Presentation of a Lung Cancer

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Abstract

Metastasis to the tongue seldom occurs, and lingual metastasis as an initial sign of cancer occurs even less frequently. We report a case of lung cancer in which the patient’s initial symptom was related to the tongue metastasis. A 63-year-old man had a submucosal tumor on the left posterolateral aspect of the tongue and a biopsy specimen of the tongue tumor showed poorly differentiated squamous cell carcinoma. A chest X-ray showed a mass in the right lung and cytological examination of the specimen obtained by bronchial brushing showed poorly differentiated squamous cell carcinoma, whose appearance was similar to that of the tongue. Based on these findings, the tongue lesion was diagnosed a metastatic tumor from the lung cancer. The patient received radiation therapy combined with systemic chemotherapy, however, he died 5 months after the diagnosis of lung cancer. An autopsy revealed a lung cancer in the right lower lobe with metastatic tumors in the tongue, right middle lobe, left upper lobe, liver, adrenal gland, pericardium, heart, and subcutaneous tissues. No other possible primary cancer that may have been the cause of the metastases was identified.


Key words: lung cancer, lingual metastasis, squamous cell carcinoma

Introduction

Primary tumors metastasizing to the tongue are extremely rare. There is a 1% rate of metastasis to the oral cavity from other primary sites, most commonly the lung, breast, skin, gastrointestinal tract, and liver (1). In a previous report, primary lung cancer metastasized to the tongue in 1.6% of 3,047 cases (2). Patients with lung cancer may present with symptoms caused by metastatic disease without pulmonary symptoms. However, tongue metastasis is rarely the initial presentation of carcinoma. Metastases are usually found months after diagnosis of the primary tumor or autopsy (1–4). We report a case of lung cancer in which the patient’s initial symptom was related to the tongue metastasis.

Case Report

A 63-year-old man was referred to the Department of Oral Surgery, Tokyo Dental College, with a lump on the left side of his tongue. He had been aware of this lump for approximately 2 months and was experiencing pain, dysarthria, and difficulty in eating. He had smoked a pack of cigarettes per day for 40 years. Results of a physical examination showed an elastic, hard, submucosal tumor with no mucosal lesion on the left posterolateral aspect of the tongue (Fig. 1). There was no evidence of ulceration. A MRI showed a large infiltrating tumor (4×4×4 cm in size) on the left side of the tongue involving the base and the mid-line (Fig. 2). No cervical lymphadenopathy was found. Cytological examination of the specimen taken from the tongue tumor showed poorly differentiated squamous cell carcinoma (Fig. 3A). The patient was scheduled to have glossectomy, but a preoperative chest X-ray showed a mass in the right lung (Fig. 4). A chest CT scan showed a tumor, about 7×6×6 cm in size, with a cavity in the right S6, and a right hilar and a subcarinal lymphadenopathy (Fig. 5). Cytological examination of the specimen obtained by bronchial brushing performed during
endoscopy showed poorly differentiated squamous cell carcinoma (Fig. 3B), whose appearance was similar to that of the tongue. Based on these findings, the tongue lesion was diagnosed as a metastatic tumor from the lung cancer. An abdominal CT scan showed hepatic and bilateral adrenal metastases. A brain MRI showed multiple brain metastases. A bone scan confirmed multiple bone metastases to the sternum and left elbow. Radiation therapy combined with systemic chemotherapy was initiated. The patient was given two cycles of docetaxel 100 mg IV and carboplatin 600 mg IV. He received radiation to the lingual lesion; however, he continued to have pain at the site of the tongue lesion along with dysphagia. Muscular metastases developed in the left lower back, the right neck and the left arm. Radiation therapy was performed for the brain to prevent neurological complications and the muscular metastases to control the pain. He died 5 months after the diagnosis of lung cancer. An autopsy revealed a lung cancer in the right lower lobe with metastatic tumors in the tongue, right middle lobe, left upper lobe, liver, adrenal gland, pericardium, heart, and subcutaneous tissues. Post-mortem tissue of the lung showed a moderately differentiated squamous cell carcinoma (Fig. 6), with a similar appearance to that seen in the tongue. The tumor in the tongue, treated with radiation, consisted of predominantly fibrous

Figure 1. Left side of the tongue showing submucosal tumor with no ulceration.

Figure 2. A MRI showing a mass on the left side of the tongue involving the base and the mid-line.

Figure 3. (A) Tongue biopsy showing a poorly differentiated squamous cell carcinoma (Papanicolaou stain, ×160). (B) A specimen obtained by bronchial brushing showing poorly differentiated squamous cell carcinoma (Papanicolaou stain, ×132).
scar with some viable or degenerating carcinoma cells. Microscopically, the metastatic tumor in the tongue, which infiltrated between bundles of striated muscles, was located beneath the surface epithelium. The upper portion of the tumor was partly attached to the surface epithelium, but features suggesting squamous cell carcinoma in situ were not observed. Thus, the lingual tumor was confirmed to be a metastasis. No other possible primary cancer that may have been the cause of the metastases was identified.

Discussion

Primary tumors metastasizing to the tongue are very rare. Zegarelli et al reported 12 cases of lingual metastases (0.2%) in the autopsy specimens of 5,933 patients with various malignancies, and only two cases (0.3%) in 579 primary lung cancers (3). In another study, Ochsner and DeBakey reported 48 cases of lingual metastasis from 3,047 primary lung tumors (2). Although the number of the cases of lung cancer is increasing, tongue metastasis is extremely rare as an initial manifestation of the disease. The present patient was unusual in that the patient’s initial symptom was related to the tongue lesion. He had no pulmonary symptoms or signs at physical examination. He appeared to be well nourished and showed no sign of systemic disease. There have been only two case reports in which the lingual metastasis was the initial presentation of lung cancer (5, 6).

Because tongue metastasis is rare as an initial sign of malignant diseases, it is difficult to distinguish primary cancer and metastasis. In a series of 12 cases in which the lingual lesion was found before death, the lingual metastasis in 4 patients was initially thought to be a primary tumor (3). Like primary lesions of the tongue, lingual metastases have a gross appearance that varies from ulcerated to polypoid. In this case, the tumor was infiltrating the muscle of the tongue, but the overlying mucosa was not involved, which strongly suggested that this was a metastasis. Zegarelli et al noted that 66% of their patients had the metastasis localized to the base of the tongue (3). Kim et al reviewed some of the literature on the metastasis of the oral cavity, and reported that the base of the tongue was the site most commonly involved, probably because it is relatively immobile and contains many lymphatic and blood vessels (4). In the present case, the
metastatic lingual tumor was located in the left side as well as in the base of the tongue. A non-ulcerated mass in the tongue, especially near the base, should be considered to be suspicious of a metastatic lesion and the appropriate investigations should be undertaken.

Metastasis to the tongue seldom occurs, and lingual metastasis as an initial sign of cancer occurs even less frequently. We report a case of squamous cell carcinoma of the lung in which the patient’s initial symptom was related to the tongue metastasis.

References