CASE REPORT

Gingival metastasis of adenocarcinoma from the lung

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Summary
Metastases to the gingival soft tissues are extremely rare. We report a case of a lung tumor metastatic to the mandibular gingiva. A 66-year-old woman complained of dizziness and a tumor in the lower gingiva. Magnetic resonance imaging (MRI) of the brain revealed multiple brain tumors, and computed tomography (CT) of the lung showed a mass in the left lower lobe. Histological diagnoses from biopsies of the brain, lung and gingiva were adenocarcinoma of the lung with multiple metastases to the brain and gingiva. Radiographic examination revealed that the bone underlying the gingival metastasis was not involved.

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Introduction
Metastases of malignant tumors to the oral cavity are relatively rare. In particular, metastases confined to the oral soft tissues are uncommon. A literature review showed that only 0.1% of tumors were confined to the oral mucosa.1 We report here a patient who had a metastatic tumor in the mandibular soft tissue arising from a lung primary adenocarcinoma. This is the sixth report in the English literature to date.

Case report
A 66-year-old woman complaining of dizziness was referred to our hospital in July 2006. Magnetic resonance imaging (MRI) of the brain revealed multiple brain tumors in the frontal lobe, occipital lobe and cerebellar hemisphere, raising suspicion of metastases from another organ. Computed tomography (CT) of the lung showed a mass in the left lower lobe and swelling of the mediastinal lymph nodes (Figure 1).

A craniotomy procedure was first performed for the diagnosis of occipital lobe and cerebellar hemisphere carcinoma as her symptoms of dizziness were severe. Pathological diagnoses of the tissue samples were adenocarcinoma. CT-guided aspiration was done for the lung tumor, and the diagnosis of this specimen was also adenocarcinoma.

Several months before admission, the patient had noticed oral pain and swelling in the lower gingiva. Oral examination revealed a red, smooth and easily bruised mass measuring 2.5 × 1.0 cm located in the lower right mandibular gingiva (Figure 2). A biopsy of this specimen revealed adenocarcinoma (Figure 3). A panoramic radiograph showed no abnormal bone resorption, indicating no involvement of alveolar bone in the right mandible (Figure 4). Bone...
scintigraphy did not reveal a hot lesion in the mandible underlying the metastatic mass. We assessed the metastatic gingival tumor confined to the oral mucosa. The clinico-pathologic findings indicated that the patient had primary adenocarcinoma of the lung with multiple metastases.

Because gingival metastasis results in severe pain and bleeding, it affects the patient’s quality of life (QOL). Therefore, we planned to treat her with chemotherapy for the relief of the symptoms. However, liver function abnormalities from an unknown cause occurred, and her condition worsened rapidly thereafter. She died 4 months after admission without radiation treatment or chemotherapy. An autopsy was not performed.

Figure 1  CT of the chest shows a large mass in the left lower lobe (A) and swelling of the mediastinal lymph nodes (B).

Figure 2  Tumor in the lower right mandibular gingiva is exophytic and easily bruised.

Figure 3  High-power view of gingival biopsy specimen shows metastatic adenocarcinoma. (Haematoxylin and eosin, × 200.)

Figure 4  Panoramic radiograph shows no involvement of alveolar bone in the right mandible.
Discussion

Metastases of malignant tumors to the mouth and jaws are relatively rare. Meyer and Shklar\(^1\) reported that only 25 of over 2400 malignant oral tumors were metastatic (approximately 1%). They also reported that those tumors metastatic only to the oral mucosa were extremely rare, accounting for only about 0.1% of all oral cancers. A review of the literature shows that only five cases of distant metastases to the gingiva from lung cancer, without involvement of bone, have been reported (Table 1).\(^2\)–\(^6\) All of them were men. These included two cases of adenocarcinoma,\(^3\)\(^,\)\(^4\) one case each of large-cell carcinoma,\(^5\) small-cell carcinoma \(^6\) and undifferentiated carcinoma.\(^2\) The location of lung cancer seems to be unrelated to that of gingival metastasis. The prognosis was very severe and in the five cases, the longest survival duration from the onset of gingival metastasis was 4 months. Chemotherapy or radiotherapy was performed in two cases of them, but that was symptomatic treatment to relieve the patient’s pain.

Although the jawbones and their adjacent gingiva share a common blood supply through the maxillary artery, there are two patterns in the metastasis to the gingiva: the localized metastasis or secondary invasion from the jawbone. The mechanism of localized gingival metastasis from lung cancer, such as this case, has yet to be elucidated. Hirshberg et al.\(^7\) proposed that circulating tumor cells may be entrapped in the rich capillary network of chronically inflamed attached gingiva once the cells have reached the oral region. Because the patient had previously complained of an ill-fitting denture, poorly fitting dental appliances were suspected to be an inducing factor of chronic inflammation in the mandibular gingiva. Five other reported cases of gingival metastasis did not describe if the patients had dental appliances or chronic inflammation, but interestingly, four of five cases were located in the lower gingival soft tissue. There may be some relationship between localization, chronic inflammation and blood supply.

A metastatic tumor in the gingiva is characteristically a rapidly growing proliferative tissue that tends to cause mechanical disturbances, pain and intermittent bleeding from a necrotic and non-healing ulcer.\(^4\) Because the metastatic lesion resembles benign inflammatory lesions, such as hyperplasia, pyogenic granuloma and fibrous epulis,\(^8\) a detailed history and physical examination are crucial to detect the metastatic gingival tumor.

There is no proven treatment for the gingival tumors, and prognosis is very poor. Tanaka et al.\(^9\) reported that the median survival time of lung cancer cases with gingival metastasis was only 4 months. However, not treating these conditions may result in bleeding, pain, foul smell, eating disorders and loss of speech, which critically affect the patient’s QOL. Radiotherapy, chemotherapy (including cisplatin) and surgery are used as common treatments. They can decrease the tumor size and relieve the patient’s symptoms. Unfortunately, this case could not receive chemotherapy due to her unstable systemic status.

Gingival metastases confined to the oral mucosa are extremely rare and only five cases have been reported. They are easily missed unless tested for carefully. Early recognition and rapid initiation of appropriate therapies can improve the patient’s QOL.

Conflict of interest statement

The authors declare they have no conflict of interest.

References


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