

CASE REPORT

Metastasis of lung adenocarcinoma to the mandible: Report of a case

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ABSTRACT

Adenocarcinoma of the lung that metastasizes to the mandible is uncommon. There are only a few cases described in the English-language literature regarding metastasis to mandible from adenocarcinoma of the lung. This article shows a metastasis from adenocarcinoma of the lung affecting the mandible of a 55-year-old male patient where the metastatic lesion was detected before primary tumor. This article emphasizes the importance of detailed dentoalveolar examination and early diagnosis for finding the primary focus of metastatic lesions.

Key words: Lung adenocarcinoma, maxillofacial osseous metastasis, mandible

INTRODUCTION

Metastatic tumors in the oral region account for about 1% of oral malignant tumors.^[1-5] These tumors have a great clinical significance because their diagnosis may be the first indication of an undiscovered malignancy at a distant primary site. In 22%-30% of cases, the oral presentation of metastasis is the first sign of malignant disease.^[3] Metastatic lesions may be seen in the oral soft tissues, in the jaw bones or in both bone and soft tissue and these type of metastases are very unusual.^[6,7] The common primary sources of tumors metastatic to oral region are the breast, lung, and kidney.^[3] The most commonly affected bone in the maxillofacial region is the mandible and the most frequent location is the molar region.^[2] At postmortem examination, approximately 70% of patients dying of cancers have evidence of metastatic bone disease, especially in those with breast, lung, or prostate cancer, with only 1% of these involving the jaws.^[8]

CASE REPORT

A 55-year-old white man, presented with an 8 week history of pain and non-fluctuant swelling at right submandibular area [Figure 1]. He had his right molar tooth extracted and

a partial denture was made 10 years ago. One month before our examination, he had a swelling on the affected site and he was prescribed 300 mg clindamycin phosphate IM antibiotics for 5 days by his general dentist. Previous to this, he had paresthesia in the right lower lip for 3 days. Otherwise, the patient had no important medical history. He did not take any systemic medications regularly.

Extraoral physical examination revealed a right mandibular swelling involving the ramus and the body. Vital signs were normal with hydrated skin and no neck adenopathy present.

The intraoral physical examination revealed anesthesia over the peripheral distribution of the inferior alveolar nerve on the affected side with decayed lower and upper canines. The intraoral mucosa was intact and a smooth surfaced non-tender lesion measuring about 2 × 2 cm was noted in the right mandibular premolar-molar area. The orthopantomography showed an ill-defined radiolucent osteolytic lesion of the right molar region under the inferior alveolar canal [Figure 2].

The lesion has an irregular radiolucent area mimicking a dentoalveolar infection located in the corpus of the mandible just below the mandibular canal in the radiographical evaluation.

The incisional biopsy under local anesthesia was performed and a histopathological diagnosis of low differentiated adenocarcinoma of the mandible was given. It was stated in histopathological report that there was a malignant tumoral tissue consisting of solid islands composed of atypical epithelial cells in desmoplastic stroma [Figure 3]. Nuclear pleomorphism in the tumoral islands was marked

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Figure 1: Swelling on the right submandibular area

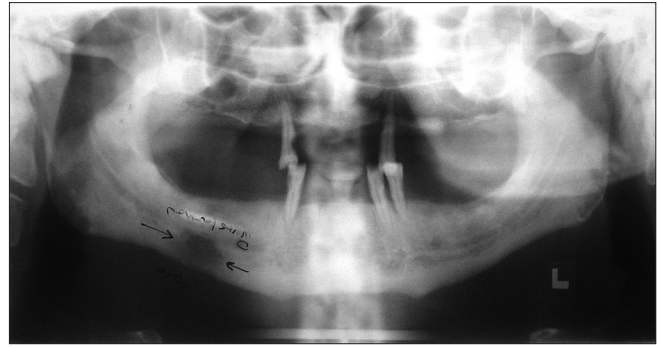


Figure 2: The ill-defined radiolucent osteolytic lesion of the right molar region was seen just under the inferior alveolar canal

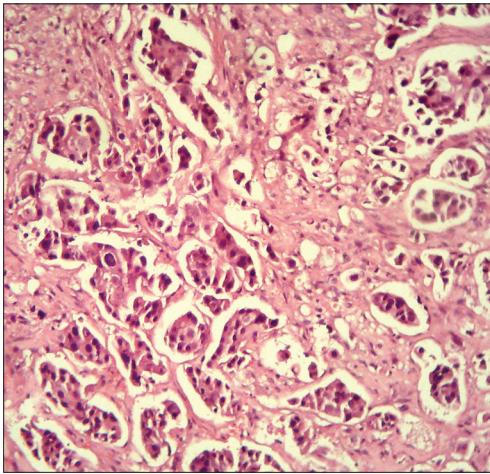


Figure 3: Malignant tumoral tissue was seen as solid islands composed of atypical epithelial cells in desmoplastic stroma (H&E stain, $\times 50$)

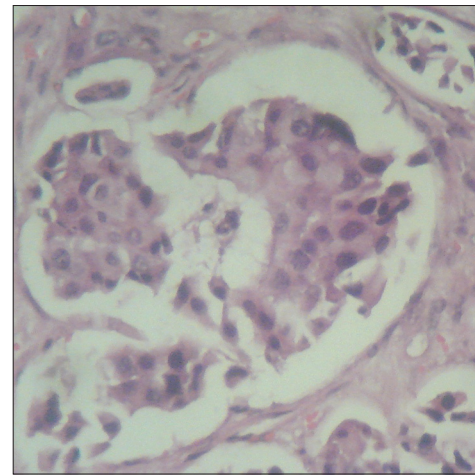


Figure 4: Nuclear pleomorphism in the tumoral islands was marked and cytoplasmic small vacuoles were seen (H&E stain, $\times 400$)

and cytoplasmic small vacuoles were seen [Figure 4]. This tumoral configuration is compatible with poorly differentiated adenocarcinoma. However, this morphology is not common in oral cavity tumors, including salivary gland tumors. For this reason, it was thought that the tumor was primarily metastatic. This high-degree adenocarcinoma was thought to be originated from the lung, gastrointestinal system, or breast. However, breast was excluded because the patient was male. Classical colorectal carcinoma morphology^[9] was not seen in this tumor but glandular morphology of gastric adenocarcinoma was more evident. The focus of this tumor was thought to be primarily lung according to the solid island configuration and focal cytoplasmic vacuolization.

After obtaining the report of the biopsy, the patient had consulted the medical oncology department where our histopathological diagnosis of lung cancer was approved. There was a mass on the left upper lobe of the lung in posteroanterior chest radiogram [Figure 5]. Enlarged aorticopulmonary, subcarinal, left hilar lymph nodes and a mass on superior segment of the left upper lobe of lung on a thorax computed tomography was noted [Figure 6]. However, the patient refused treatment of lung cancer for 1 year. On September 8, 2006, the patient appealed to medical oncology department because his condition became worse. Etoposide 50 mg/day for 21 days,

ondansetron 8 mg 3×1 IV/po, or granisetron 3 mg 2×1 IV/po, or tropisetron 5 mg 1×1 IV/po as chemotherapy was initiated but unfortunately, the patient died 5 months after the start of the chemotherapy.

DISCUSSION

Many tumors may metastase to the mandible; those of the lips, prostate, breasts, colon, lungs, and kidneys are probably the most frequent.^[6,7] Surgery, radiation, and palliation are the therapeutic measures that may be employed.^[8]

Metastasis to the oral region from a malignant tumor elsewhere in the body is an uncommon but clinically an important finding, because it may be the first indication that the patient has a primary tumor. The vast majority of metastases from distant primary lesion to the oral cavity occur in the mandible, although the maxilla can be affected as well. However, in the present case, the most important clinical sign was anesthesia in the area of the peripheral distribution of the inferior alveolar nerve. This symptom, which is referred to in the literature as numb chin syndrome, was the most consistent finding when the neoplasm was located in the ramus and body of the mandible.^[9,10]

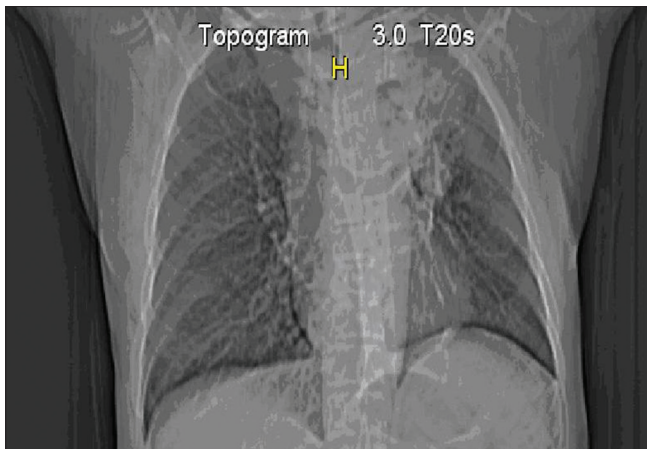


Figure 5: Postero-anterior chest radiogram showing mass lesion on left upper lobe

The clinical presentation of mandibular metastasis mimics common conditions, such as toothache, temporomandibular joint pain, osteomyelitis, trigeminal neuralgia, odontogenic infection, cysts, pyogenic granuloma, benign tumors, and primary malignancy.^[11] In most of the patients who present with oral metastasis, the primary focus has generally been well diagnosed and treated. However, in very small number of patients the oral metastasis represents the initial finding, which ultimately leads to the detection of a hidden malignant lesion.^[1,3] The time difference between the initial diagnosis of the malignancy at the primary site and the diagnosis of oral metastasis is 1-5 years. About 30%-75% reduction in bone density is required to visualize a metastasis, which is evident radiographically.^[6] Therefore if the primary tumor could not be diagnosed, the value of the diagnosing metastatic lesion first will be more important. In this case, metastasis in the mandible was the first indication of the spreading cancer.

Irani *et al.*, have reported that many mandibular cystic lesions are metastatic manifestations of distant primary tumors. These metastases occur by way of hematogenous or lymphatic spread, and diagnosis depends on clinical history, radiologic findings, and histopathologic confirmation. In his study, most of the metastatic tumors to the head and neck region were found in men (62%) and patients were mostly older than 40 years.^[9]

Metastatic disease in the jaws may extend into the overlying soft tissues and appear as a dental or periodontal infection.^[12] However, the histologic appearance of metastatic jaw disease often is poorly differentiated, making it a challenge to determine the location of the primary lesion. Uchiyama *et al.* reported that it was not possible to determine whether the gingival mucosa was the initial recipient site of metastasis or whether the gingiva was secondarily involved by extension from metastatic bone in the jaw.^[12]

The median survival time from diagnosis varies among different tumor types. The median survival time from diagnosis



Figure 6: Computed tomography revealed a mass lesion on the left lung near pulmonary artery with lymphadenopathy.

of bone metastases from prostate cancer or breast cancer is measurable in years. In contrast, the median survival time from the diagnosis of advanced lung cancer is typically measured in months.^[8] In a study of 673 patients with metastatic tumors to the oral cavity, most cases had grave prognosis with an average survival time of about 7 months.^[3] The present case survived for 15 months after the primary focus was diagnosed.

This lesion presented with anesthesia in the lower lip, mimicking a dentoalveolar infection located in the corpus of the mandible. Radiographically, we observed an irregular radiolucent lesion just below the mandibular canal. These symptoms and findings directed us to a metastatic lesion. On histologic examination, we noted nuclear pleomorphism and scattered atypical mitoses and focal formation of glandular structures confirming the diagnosis [Figures 2 and 3].

CONCLUSION

Although metastases to the jaws are rare compared with metastases to other bones of the body, this may be the first indication of a malignancy elsewhere in the body and this necessitates that suspected jaw swelling be thoroughly evaluated to expedite treatment.

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