CASE REPORT

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Mandible Bone Metastases Secondary to Pulmonary Adenocarcinoma

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Running Title: Mandible metastases with pulmonary adenocarcinoma

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ABSTRACT

Objective: Metastatic tumors of the mandible are rare and usually present clinically as growths. The prognosis of lung cancer patients with bone metastases is poor. **Case Report:** This article shows a metastasis from adenocarcinoma of the lung affecting the mandible of a 75-year-old female patient where the metastatic lesion was detected before primary tumor. The patient were treated with radiation therapy with palliative and analgic intent. But the patient died 8 weeks after the diagnosis. **Conclusion:** Radiation therapy was effective and well tolerated in the case. Bone metastases particularly mandible metastasis of lung cancer has poor prognosis. Palliative and supportive therapy may be firstly chose because of poor prognosis.

Key word: Mandible metastases, Lung cancer, Prognosis

1. INTRODUCTION

Oral metastases of cancer are rare, accounting for 1% of intra-oral tumors. The most common tumors of origin are breast, lung, adrenal, kidney, gastrointestinal tract, and prostate, respectively (1). Prognosis is generally poor and the median survival is 6 months. In 23 % of patients with oral metastases was the first indication of an undiscovered malignancy at a distant site. The jawbones, particularly the mandible, is more frequently affected than the oral soft tissues (1).

Lung cancer is the most frequently diagnosed cancer and the leading cause of cancer-related mortality in economically developed and developing countries (2). Metastatic lung cancer accounts for approximately 58% of newly diagnosed lung cancer as reported by a prospective study conducted in 2010 (3).

It has been estimated that 30% to 65% of patients with metastatic lung cancer will develop bone metastases (4) and in a manner similar to oral metastases, median survival from the time patients develop bone metastasis is classically considered as less than 6 months (5). However, mandible metastasis from lung cancer is a rare condition that may occur in the late stages of the disease (1). We describe a case of non-small-cell lung cancer (NSCLC) metastasis to mandible bone as first clinical evidence, and discuss treatments and outcomes.

2. CASE PRESENTATION

A 75-year-old woman presented to our facility with a history of right mandibular pain, paresthesia and swelling that had persisted for several months. Examination revealed a soft mass (5 cm × 7 cm) in the mandibular region. She has been hemodialyzed because of end stage renal disease since 2002. She have been a no-smokers. A computed tomography (CT) scan of the chest revealed a right inferior lobe lung mass (59×47 mm) and mediastinal lymphadenopathy. CT-guided biopsy of the lung mass provided a histopathological diagnosis of adenocarcinoma (staining for thyroid transcription factor 1 (TTF-1) and cytokeratin 7 (CK7) was positive (fig.1a, b, c). Molecular testing of epidermal growth factor receptor (EGFR) gene and anaplastic lymphoma kinase (ALK) showed no mutations and rearrangement. A positron emission tomography (PET)/CT scan (fig. 2 a, b). Identified increased FDG uptake in the mandible bone (SUV maximum of 16.8) and right lung mass (SUV maximum of 8.22). Unfortunately increased FDG uptake was seen at lung, liver and other bone site. Our patient's case was discussed at our multidisciplinary committee: the radiotherapist and oncologist recommended radiation therapy (RT) on the bone metastasis. They are refused the chemotherapy as worsening his quality of life. She received symptomatic and palliative RT on the left mandible bone lesion with 48Gy in a 3 Gyx16 fractions. However, unfortunately, af-

Figure 1. Pathologically, the tumor was diagnosed as adenocarcinoma composed of characteristic cribriform and lepidic pattern. Tumor cells contain mucin material (A). An immunohistochemical examination demonstrated tumor cells positive for cytokeratin 7 (CK7) (B) and thyroid transcription factor-1 (C).

Figure 2. An axial section of the computed tomography scan fused with positron emission tomography. A right inferior lobe lung mass can be seen (A) and identified increased fluorodeoxyglucose uptake in the mandible bone (B).

ter eight weeks from histopathological, the patient died of cardiorespiratory failure.

3. DISCUSSION

It has been reported that the mean age of patients with metastatic jawbone tumors are found 53 years with the mean age of females lesser younger than that of males (6). According to previous study, metastases to the jawbones have a slight female predilection (1). But in the previous review, males had a higher rate of metastatic tumors, especially in the jawbone (6). The difference results of these studies may be explained with primary tumor sites of patient. For example, The breast was not a common primary site for females in the same study. Major symptoms in jawbone metastases are painful swelling, paresthesia, bleeding and increasing tooth mobility (6). Our patient has similar symptoms.

The jawbones are more frequently affected than the oral soft tissues (2:1). In the jawbones, the mandible is the most common location (372 cases, 82%) with the molar area. In men the lungs are the most common primary site affect-

ing both the jawbones followed by the prostate gland. In females, the breast was the most common primary tumor affecting the jawbones followed by the adrenal and female genital organs. In most cases the prognosis was grave with an average survival time of about 6-7 months. Therefore, treatment regimen aimed to improve "quality of life" included local resection, radiotherapy or chemotherapy even in widespread disease (7). Most patients who present with a metastatic tumor in the jawbone have also developed metastases at other sites, so a palliative regimen is the only management option. Local treatment of jawbone metastases nearly always by radiotherapy usually relieves pain and may prevent loss of function. Follow-up until death was available for all patients and the prognosis was poor, as shown by the median survival of 7 months (1).

Lung cancer frequently metastasizes to bone, with 36% of patients presenting with bone lesions at autopsy. At an early stage, bone metastases may occur easily at an axial bone through the vertebral vein system, then at appendicular bone in more advanced stages of the disease (8). This is probably due to the ability of lung cancer to shed malignant cells directly into the arterial blood flow, from where they can be seeded far and wide. The prognosis of lung cancer patients with bone metastases is poor, with a median survival time from detection of lesions measured in months (9). However, recent studies have revealed the favorable efficacy of gefitinib, an epidermal growth factor receptor (EGFR) tyrosine kinase inhibitor, compared with that of combination cytotoxic chemotherapy in patients with EGFR-activating mutations (10).

This report presents the cases of patient affected by NSCLC, metastatic to the right mandible and other sites. Patients was treated with RT to the involved area, not in addition to systemic chemotherapy. Unfortunately, the patient died 8 weeks after the pathological diagnosis.

4. CONCLUSION

Because of its rarity, the diagnosis of a metastatic lesion in the mandible is challenging. The mandible is not a common site for metastatic colonization, it is an interesting site because of the various and different tissues that may be involved in the metastatic process. The present treatment modalities of advanced metastatic disease are limited to palliation. Palliative radiation therapy is one of the major contributors to the care of patients with oncology issues, well tolerated and offers the possibility of symptomatic relief. Advances in molecular biology have provided new insight into the potential approach to therapy and substantial efforts are invested at the present time in translating the new knowledge of molecular mechanisms to new therapeutic modalities. Research is needed, therefore, to evaluate the importance of the jawbone in attracting metastatic tumor cells.

5. CONCLUSION

Written informed consent was obtained from both patients for publication of this case report and any accompanying images.

CONFLICT OF INTEREST: NONE DECLARED.

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