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Case report

Mandibular metastasis as the first manifestation of prostate adenocarcinoma

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ABSTRACT

Metastatic lesions to the oral region are uncommon and account for 1% of all malignancies of the jaw. Reported is a rare case of mandibular metastasis without other osseous metastases as the first manifestation of prostate adenocarcinoma. A 60-year-old man was referred due to a complaint of swelling in the left mandible with no other symptoms. A diagnosis of metastatic prostate adenocarcinoma of the mandible was made through biopsy specimens from the mandible by immunohistochemistry for prostate-specific antigen (PSA) and from urological examination. After starting hormonal therapy, elevated serum levels of PSA markedly decreased. The therapy was extremely effective not only in the primary lesion but also in the metastatic mandibular lesion.

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1. Introduction

The oral region is an uncommon site for metastatic tumors, and metastatic tumors account for less than 1% of all malignancies of the jaw [1]. The common primary sources of tumors metastatic to the oral region are the lung, kidney, liver, and prostate [2].

Prostate cancer is associated with a high risk of bone metastasis. Bone involvement in prostate cancer occurs in a predictable manner, with lesions tending to appear first in the axial skeleton and subsequently in the appendicular skeleton [3]. The relative frequency of prostate cancer that metastasizes to the oral cavity is indicative of the relative incidence of cancer in the population; for example, in the United States, the prostate is the third most common tumor site that metastasizes to the jaws (9.6%), and in Canada the prostate is the most common primary site that metastasizes to the jaws (21%), whereas in Japan the prostate is only the eighth (3.6%) most common site [4–6].

Differential diagnosis and treatment of patients with bone metastases of prostate cancer can be extremely difficult because there are a number of pathologic conditions with similar symptoms

and because diagnostic examination can be highly confusing. Diligent clinical and histopathological investigation should be performed in order to diagnose the metastatic lesion and its origin. Here we report a rare case of mandibular metastasis as the first manifestation of prostate cancer.

2. Case report

A 60-year-old man was referred to the Department of Oral and Maxillofacial Surgery at Matsusaka City Hospital because of a painless swelling on the left cheek. According to the patient, the swelling had been present for 3 months. The patient had been hospitalized for treatment of manic-depressive psychosis. Family history was insignificant. At the initial extraoral examination, diffuse swelling around the angle of left mandible was seen, and intraorally an asymptomatic mass resembling exophytic bone covered by normal mucosa was observed extending from the posterior region to the ascending ramus of the left mandible. This lesion was not affixed to the surrounding soft tissues on palpation (Fig. 1). Paresthesia in the left lower lip was not observed. A panoramic view displayed a diffuse osteoblastic bone lesion in the region of the third left mandibular molar (Fig. 2). Computed tomography (CT) of the oral region showed a circumscribed osteoblastic lesion without elevation of periosteum in the mandible (Fig. 3). Due to the strong suspicion of a tumor in the mandible, a biopsy specimen was taken intraorally. Formalin-fixed, paraffin-embedded biopsy tissue was stained with routine hematoxylin–eosin (H&E). Microscopically, neoplastic cells with a high nucleus–cytoplasm ratio that invaded the mandibular bone were identified. These cells were poorly formed and ill-defined small glands which were randomly scattered in the stroma and lacked basal cells. The tumor was interpreted to be an unusual type of intraoral adenocarcinoma (Fig. 4a). Though salivary

Abbreviations: PSA, prostate-specific antigen; CT, computed tomography; MRI, magnetic resonance imaging; MDP, methylene diphosphonate; H&E, hematoxylin–eosin.

[☆] AsianAOMS: Asian Association of Oral and Maxillofacial Surgeons; ASOMP: Asian Society of Oral and Maxillofacial Pathology; JSOP: Japanese Society of Oral Pathology; JSOMS: Japanese Society of Oral and Maxillofacial Surgeons; JSOM: Japanese Society of Oral Medicine; JAMI: Japanese Academy of Maxillofacial Implants.

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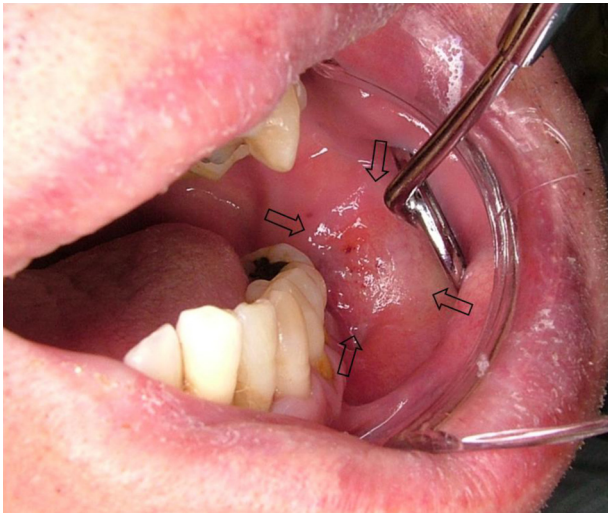


Fig. 1. On initial examination, a bone expansion with a covering of normal mucosa (arrows) is visible in the area of the ascending ramus of the left mandible.



Fig. 2. Panoramic radiograph exhibits an osteoblastic bone in the region of the ascending ramus of the left mandible.

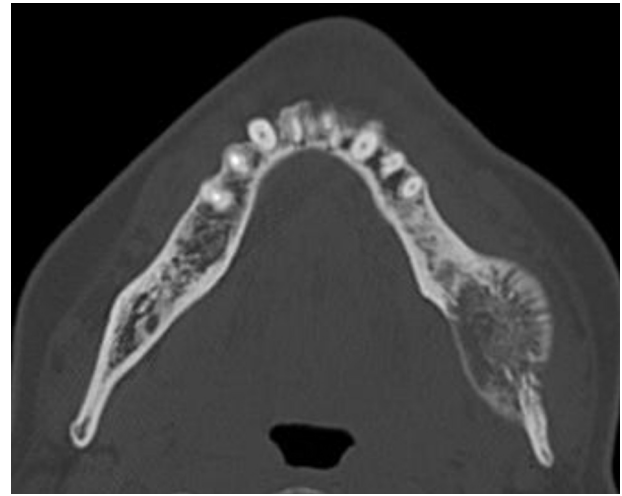


Fig. 3. CT shows an osteoblastic lesion with expansion of both cortical plates in the region of the ascending ramus of the left mandible.

carcinoma was initially considered as a differential diagnosis, the pathologist suggested the possibility of a secondary deposit from a primary prostate cancer, considering the patient's age, sex, and the presence of small and fairly uniform glandular spaces lined with malignant cells exhibiting prominent nucleoli and lacking cytoplasmic mucin. Subsequently, the Department of Urology at Matsusaka City Hospital was consulted. Although the patient did not have any symptoms of urological dysfunction, a blood test revealed elevated levels of prostate-specific antigen (PSA, 99.65 ng/mL; normal 0–4 ng/mL). Furthermore digital rectal examination revealed a slightly enlarged prostate. The result of a biopsy specimen from the prostate was similar to that for the mandibular tumor (Fig. 4b), and adenocarcinoma was histopathologically diagnosed by H&E staining (Gleason score 4 + 5, combined Gleason 9). The adenocarcinoma cells were poorly formed and ill-defined small glands which lacked basal cells and haphazardly infiltrated the fibrotic stroma in which a minor component consisting of individual malignant cells with no attempt at gland formation was also present. In order to confirm the diagnosis, immunohistochemical staining for PSA of paraffin-embedded biopsy specimens from the prostate and mandible

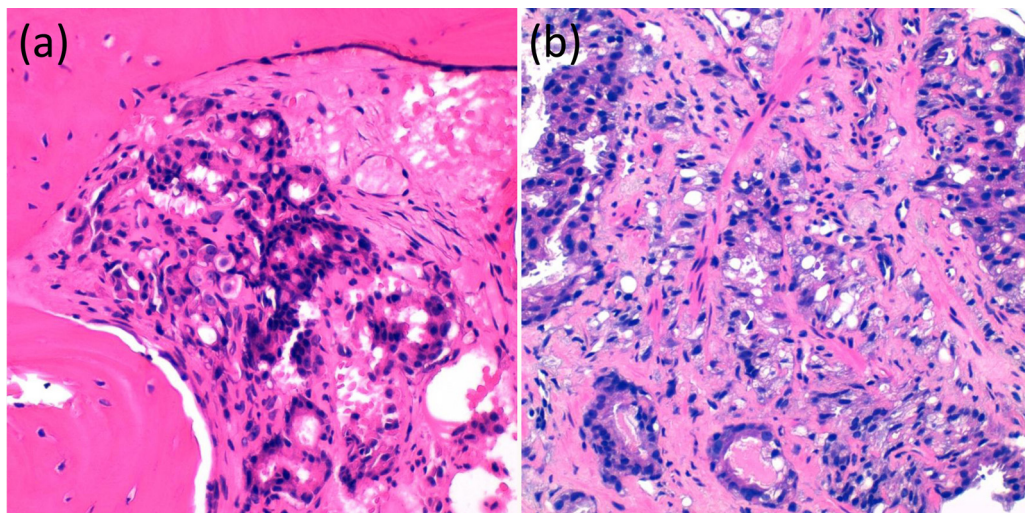


Fig. 4. (a) Photomicrograph of the biopsy of the mandible shows adenocarcinoma with nuclei exhibit prominent nucleoli which infilling to the bone (original magnification, 40 \times ; H&E stain). These microscopic features randomly scattered in the stroma include the presence of small and fairly uniform glandular spaces lined with malignant cells exhibiting prominent nucleoli and lacking cytoplasmic mucin. (b) Photomicrograph of the biopsy of the prostate shows adenocarcinoma with nuclei exhibiting prominent nucleoli (original magnification, 40 \times ; H&E stain). These are poorly formed and ill-defined small glands which lack basal cells and haphazardly infiltrate the fibrotic stroma in which a minor component consisting of individual malignant cells with no attempt at gland formation is also present.

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