

CASE REPORT

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Metastasis in the mandibular condyle: a case report

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Abstract

Background: Most bone metastases are observed in the trunk of the body. Metastasis in the mandibular condyle is rare. In many case reports, temporary common temporomandibular joint disorder-like symptoms can be a sign of relapse and metastasis.

Case presentation: We report a rare case of breast carcinoma metastatic to the left mandibular condyle in a 55-year-old Japanese woman, who visited our department for a dental check-up prior to chemotherapy. She had almost no symptoms, but radiographs suggested the existence of metastasis.

Conclusions: In many case reports, patients had some symptoms. In this case report, our patient had slight symptoms, but we were able to confirm the metastasis from the symptoms and panoramic dental radiograph. When patients complain about discomfort of the temporomandibular joint, we need to consider the possibility of metastasis and notice changes on the panoramic dental radiograph.

Keywords: Temporomandibular joint, Metastasis, Radiographic finding

Background

Bone metastasis is reportedly found in 65 to 75% of patients with advanced-stage breast cancer. Most bone metastases are observed in the trunk of the body. In contrast, metastasis in the mandibular condyle is rare. The purpose of this study is to present a case of a patient with metastasis in the left mandibular condyle originating from breast cancer that showed slight and temporary common temporomandibular joint disorder (TMD)-like symptoms.

Case reports of metastatic lesions in the mandibular condyle that were written in English and published between 2000 and 2016 were identified through searches of databases. The clinical and radiographic characteristics of the metastatic lesions in the mandibular condyle were discussed.

Case presentation

A 55-year-old Japanese woman visited our department for a dental check-up prior to chemotherapy for breast

cancer. She had a medical history of ovarian tumor, and her ovary and uterus had been removed. One month before (August 2009), at the same time that she felt stiffness in her left breast, she felt sudden trismus and difficulty with chewing. However, she had no pain and gradually recovered from these symptoms without any treatment.

At the initial consultation (September 30, 2009), she had no trismus, pain, or swelling, but showed a slight deviation to the left side when she opened her mouth. The maximum incisal opening distance was 40mm. A tumor-forming ulcer (10cm × 9cm) was observed in her breast. Positron emission tomography (PET) showed the tumor with a maximum standardized uptake value (SUV_{max}) of 18 filling most of her right breast. Metastatic lymph nodes, bone lesions, and a lung lesion were also observed.

A panoramic dental radiograph and computed tomography (CT) radiograph showed the destruction of the left mandibular condyle (Figs. 1 and 2). On magnetic resonance imaging (MRI), a relatively well-defined unstructured mass was observed on both T1-weighted (T1W) and T2-weighted (T2W) imaging (Fig. 3). PET showed multiple lesions, including in the vertebrae, costal bones,

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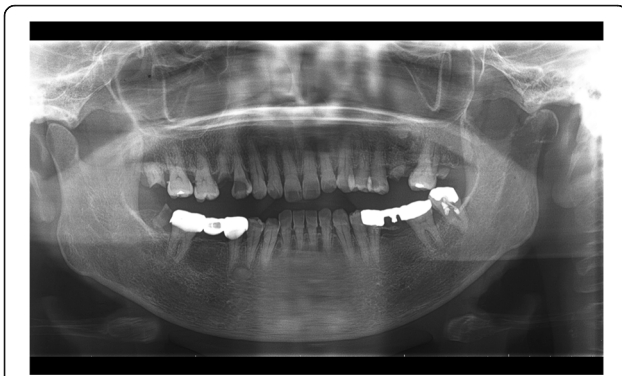


Fig. 1 Panoramic dental radiograph. A radiolucent destructive lesion and pathologic fracture were seen in the left condyle

and left mandibular condyle (Fig. 4). Given the diagnosis of left breast cancer associated with multiple metastatic lesions, chemotherapy using fluorouracil, epirubicin and cyclophosphamide (FEC treatment) was employed. In 4 months, when six cycles of chemotherapy had been completed, a radiograph showed a reduction in the size

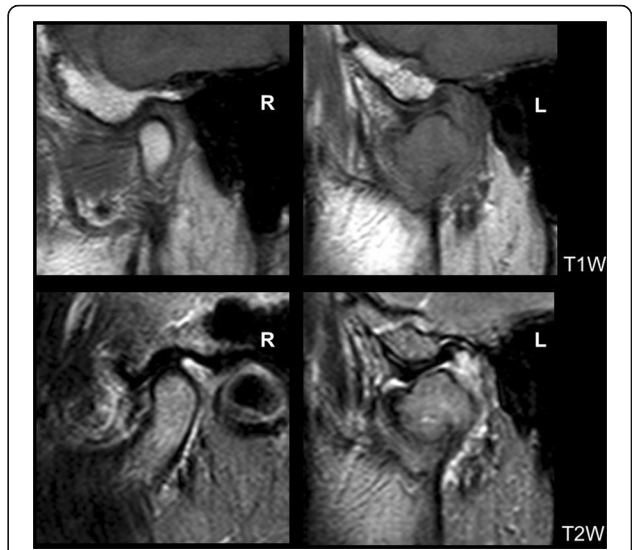


Fig. 3 Magnetic resonance image. The upper images were T1-weighted and the lower images were T2-weighted. On the right side, the shape of the condyle was normal. An unstructured mass was observed in the left condylar region. A normal-shaped articular disc was seen on the destroyed condyle

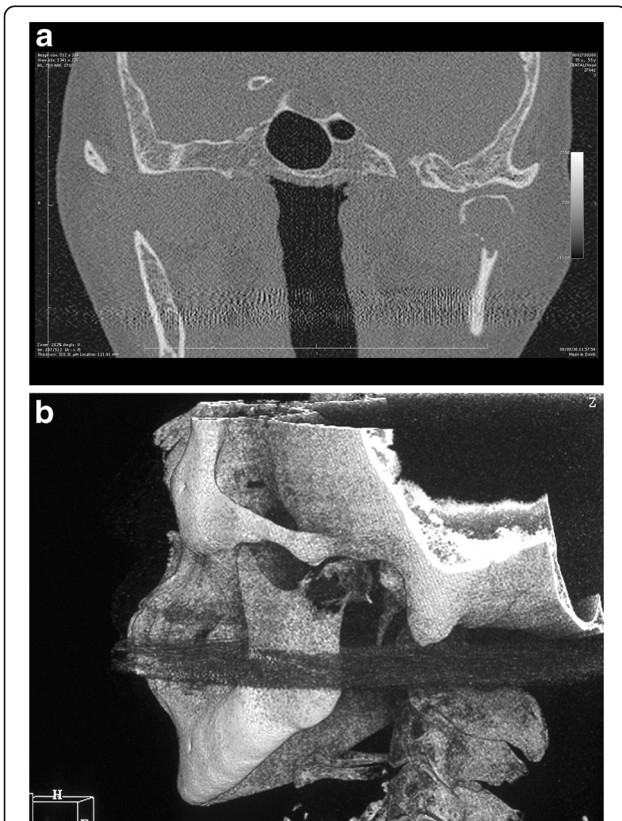


Fig. 2 Computed tomography radiographs. **a** Computed tomography radiograph (coronal plane). A radiolucent destructive lesion of the left condyle was observed. The cortical bone at the condyle was thin and partially fractured. **b** Computed tomography radiograph (three-dimensional reconstruction). Destruction of the left mandibular condyle was observed

of both the primary and the metastatic lesions, including the left mandibular condylar lesion. An additional two cycles of chemotherapy were performed. Her general condition deteriorated. One and a half years after the first medical examination, she died.

Discussion

As PET showed multiple bone masses in addition to the extended primary left breast lesion, our patient was diagnosed with breast cancer associated with multiple metastases. A biopsy of a sample from the left condyle was not performed, and pathologic diagnosis of the left condylar lesion was not available. Nevertheless, after the FEC treatment, the lesions, including the one in the left condyle, appeared to be reduced on the radiograph investigation, which suggested that the left condylar lesion as well as the multiple bone lesions had the same characteristics as the breast adenocarcinoma. From this clinical finding, the left condylar lesion was speculated to have been a metastatic lesion from the breast cancer.

Between 2000 and 2016, 19 case reports (24 cases) of metastasis to the condyle were published. The primary tumor was diagnosed as breast cancer in five cases, lung cancer in five cases, and prostate, colon, and kidney cancer in two cases, respectively. According to the reports (Table 1), at the first consultation, most of the cases involved obvious subjective symptoms such as pain (16 out of 22), swelling (15 out of 22), and trismus (8 out of

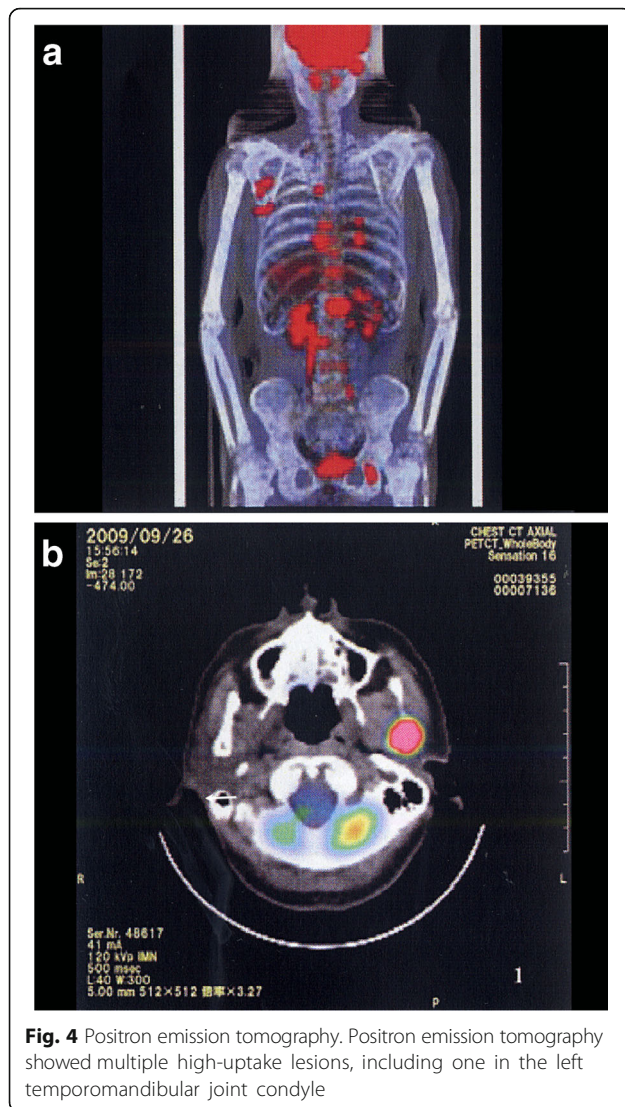


Fig. 4 Positron emission tomography. Positron emission tomography showed multiple high-uptake lesions, including one in the left temporomandibular joint condyle

22). In most of the cases (six out of seven), a panoramic dental radiograph was performed, and bone destruction and absorption were recognized. In this case, our patient visited our department for a dental check-up before receiving chemotherapy for breast cancer. She did not have any severe symptoms at the first consultation. However, the condylar lesion was recognized at the same time as multiple other metastases on PET. A panoramic dental radiograph showed destruction. Several previous reports (10 out of 22) claimed that the mandibular condyle could be the first recognized metastatic region. Additionally, other reports (12 out of 22) stated that TMD-like symptoms can be a sign of relapse and metastasis. Because of the development of cancer treatment, the number of patients with a history of cancer treatment is increasing. When patients complain about discomfort of the temporomandibular joint, we need to

Table 1 Case reports of metastatic tumors of the temporomandibular joint (from 2000 to 2013)

Primary lesion	Sex	Age (years)	Pain	Swelling	Trismus	Other complaints	*1	*2	Author
Bladder	M	49	o	o			☆		[1]
Prostate	M	85		o		Discomfort	☆		
Lung	F	62	o			Lower lip numbness	☆		
Penis	M	53		o		Numbness		☆	
Colon	M	64	o	o				☆	
Breast	F	47	o					☆	
Renal cell	F	59		o	o			☆	[2]
Breast	M	73	o	o			☆		[3]
Prostate	M	75	o	o	o			☆	[4]
Lung	M	49	o	o			☆		[5]
Breast	F	51	o	o	o			☆	[6]
Lung	M	51	o	o	o		☆		[7]
Breast	F	42	o	o				☆	[8]
Lung	M	60			o	Limitation of mandibular movement	☆		[9]
Breast	F	78	o		o			☆	[10]
Stomach	M	67				Progressive facial asymmetry		☆	[11]
Cystosarcoma	F	58	o			Hearing difficulty		☆	[12]
Lung	F	71	o			Changes in occlusion and functional limitation	☆		[13]
Chordoma	F	63	o	o	o			☆	[14]
Renal cell	M	49				An enlarging painless left mandibular mass	☆		[15]
Colon	M	73	o	o			☆		[16]
Liver	M	59	o	o	o			☆	[17]
Uterine cervix	F	65	o	o	o			☆	[18]
Uterine cervix	F	63	o	o				☆	[19]

*1:☆=the cases whose temporomandibular joint lesion was found before the primary lesion was recognized

*2:☆=the cases whose temporomandibular joint symptoms was a sign of a relapse and metastasis of the disease

M male, F female, o subjective symptoms

consider the possibility of metastasis and notice changes on the panoramic dental radiograph.

Conclusions

We report a case of a patient with metastatic lesion in the mandibular condyle from breast cancer. Our patient had slight and common TMD-like symptoms. Dentists and oral surgeons should keep in mind the possibility of metastatic lesion in the mandibular

condyle and should be familiar with its clinical and radiographic characteristics.

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Availability of data and materials

The datasets used during the current study available from the corresponding author on reasonable request.

Authors' contributions

MK, YK, and HH collected data and followed up the patient. MD and MK participated in the design of the study and drafted the manuscript. TK drafted and corrected the manuscript. All authors read and approved the final manuscript.

Ethics approval and consent to participate

Our research was based on guidance about patient privacy protection and ethics in medical science research defined by the Japanese Society of Oral and Maxillofacial Surgeons.

Consent for publication

Written informed consent was obtained from the patient for publication of this case report and any accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal.

Competing interests

The authors declare that they have no competing interests.

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