

# Invasive Ductal Carcinoma with Multiple Metastases to Facial and Cranial Bones: A Case Report

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## ABSTRACT

Female breast cancer is one of the major causes of death among women. Metastatic tumors to the maxillo-facial bones are rare. We present diagnosis and treatment of multiple metastatic invasive ductal carcinoma involving massive and early stage the left half of the mandibular body, the floor of the orbit, maxilla, left parietal bone, the iliac bone and cervical and thoracal vertebrae in a 36 years old female one and half years after operated. (Eur J Dent 2010;4:334-337)

Key words: Invasive ductal carcinoma; CT; Bone scintigraphy; Incisional pathology; Metastase; Facial and cranial bones.

## INTRODUCTION

Breast cancers are potentially life-threatening malignancies that develop in one or both breasts. Now there is an ever-expanding array of therapeutic management options for invasive breast cancer in the modalities of surgery, radiotherapy, and systemic therapy.<sup>1</sup>

Distant metastases in breast cancer may spread to almost any region of the body; about 50%

to 75% of patients relapse first in a single organ. Typically, metastases to regional lymph nodes are observed in nearly one-third of patients with cancer in the breast, colon, uterus, neck oral cavity, and pharynx.<sup>2</sup>

Metastases in the oral regions, including soft tissues and jaw bones, account for only 1% to 8% of all oral malignancies,<sup>3</sup> and are derived from primary tumors located elsewhere in the body.<sup>4</sup> Although most patients are previously diagnosed with primary neoplasms and treated, in one-third of the metastases the oral region presents the first clinical sign of the malignancy.<sup>4,5</sup> Bone metastases, including those in the jaw bones, are the second most frequent malignant bone tumors after osteosarcomas.<sup>6</sup>

Nearly all types of malignancy may metastasize to the mouth.<sup>4</sup> The mandible is the most common site of metastasis of the oral and maxillofacial region.<sup>4</sup> Mandibular lesions are the early

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sign of generalized metastatic disease in 67% of cases.<sup>6</sup> The formation of secondary foci of tumor colonization occurs by hematogenous dissemination of tumor emboli, mainly accumulating in regions with larger amounts of bone marrow and low circulatory velocity.<sup>6</sup>

Although no particular malignancies seem to favor spread in the oral cavity, some primary tumors are found to occur more often than others. The most common primary tumors are from lung cancer in men and breast cancer in women.<sup>4</sup>

## CASE REPORT

A 36-year-old female was referred to the Department of Oral and Maxillofacial Surgery of Ataturk University, the Faculty of Dentistry, with complaint of pain over the left half of the face, trismus, extraoral swelling, hard on palpation on the anterior body of the mandible, and numbness in the left half region of the mandible. Intra-oral examination showed a hard swelling over the posterior corpus of the mandible. Ipsilateral sub-mandibular lymph nodes were immobile and hard on palpation. In radiological examination, the trabecular pattern and bone density of the left mandibular body and ramus were distinctly different on panoramic radiograph (Figure 1). Diffuse osteolytic defect sites in the mandible, maxilla, and orbit floor were observed on CT (Figure 2).

Patient's medical history revealed that 2 years ago, a mastectomy for the treatment of invasive ductal carcinoma was performed and chemo-

therapy was followed because of recurrence. Under local anesthesia, incisional biopsies were performed. Sections from the biopsied material, stained with haematoxylin and eosin, showed the presence of cells with hyperchromatic nuclei and large eosinophilic cytoplasm. The cells were arranged in nests and glandular-like structures and were located between segments of bone and into bone marrow spaces (Figure 3). These histological results supported evidence of metastatic invasive ductal carcinoma. Subsequently, a static scintigraphic image of the whole body was obtained. Bone scintigraphy showed isotope (technetium TC 99m) accumulation in the left half of the mandibular body, floor of the orbit, maxilla, left parietal bone, iliac bone, and cervical and thoracal vertebrae (Figure 4). The patient was sent to consult with the Department of Medical Oncology and Radiooncology for chemotherapy and radiotherapy.

## DISCUSSION

Every primary malignancy theoretically has the capability to metastasize to the oral cavity. Metastasis to the bone occurs more frequently than to the soft tissues.<sup>3</sup> Metastases to the soft tissues account for 0.1% of all oral lesions. Of all metastatic malignancies in the mouth and jaw bones, approximately 61% occur in the mandible, 24% in the maxilla, and 15% in soft tissues. The most frequent primary sites of malignancy with the potential to metastasize in the mandible are, in decreasing order, the breast (31%), lung (18%), kidney (15%),

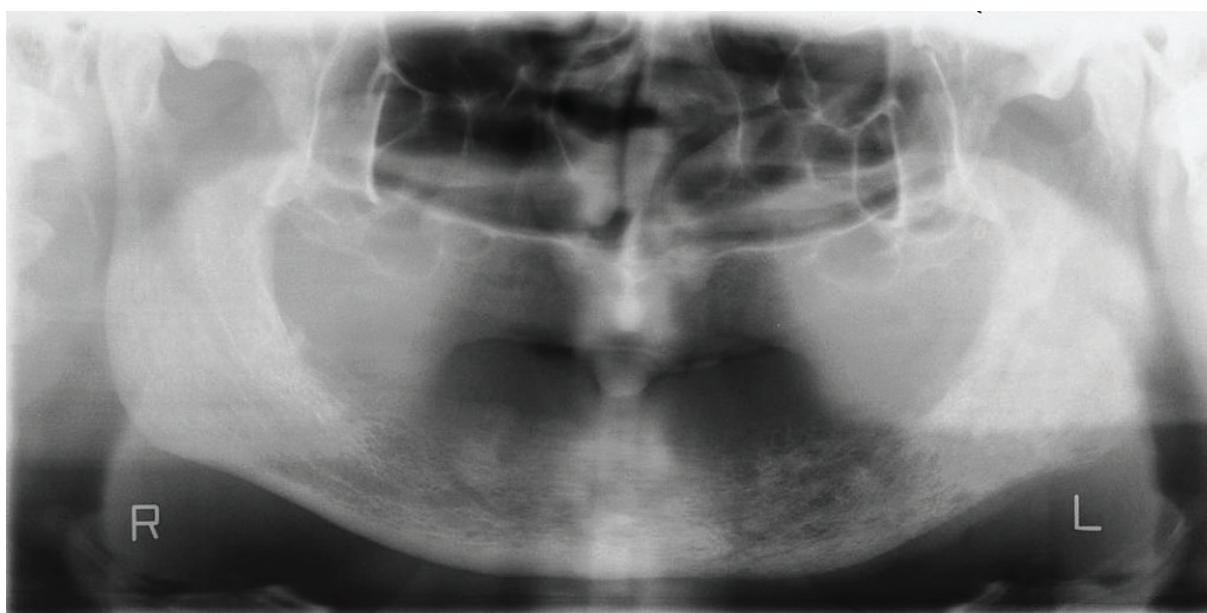


Figure 1. Appearance of the lesions with panoramic radiograph.

thyroid, prostate and colon (6%), stomach and skin (5%), testicle (3%), bladder, liver, uterus, and ovary (1%).<sup>6</sup> A study for a 30-year period reported 1,537 cases of oral malignant tumors, of which 24 cases were metastatic.<sup>4</sup> Fourteen out of 24 cases

were located in the mandible, 4 in the maxilla, and only 1 in the maxilla and mandible. Women were affected in 12 cases and 4 cases were metastatic tumors from the breast into the mandible. The present case was a metastatic breast carcinoma

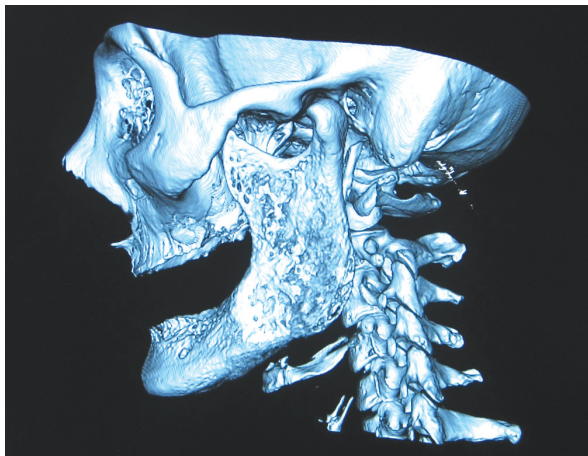


Figure 2. Appearance of the lesions with computerized tomography.

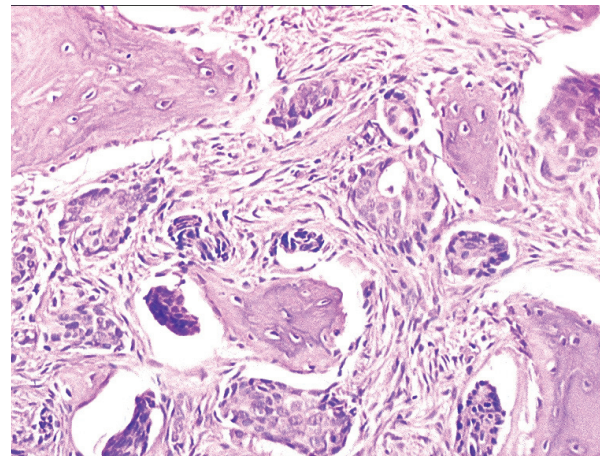


Figure 3. Nests and glandular-like structures of tumor cells infiltrate the jaw bone. Haematoxylin and eosin (100x magnification).

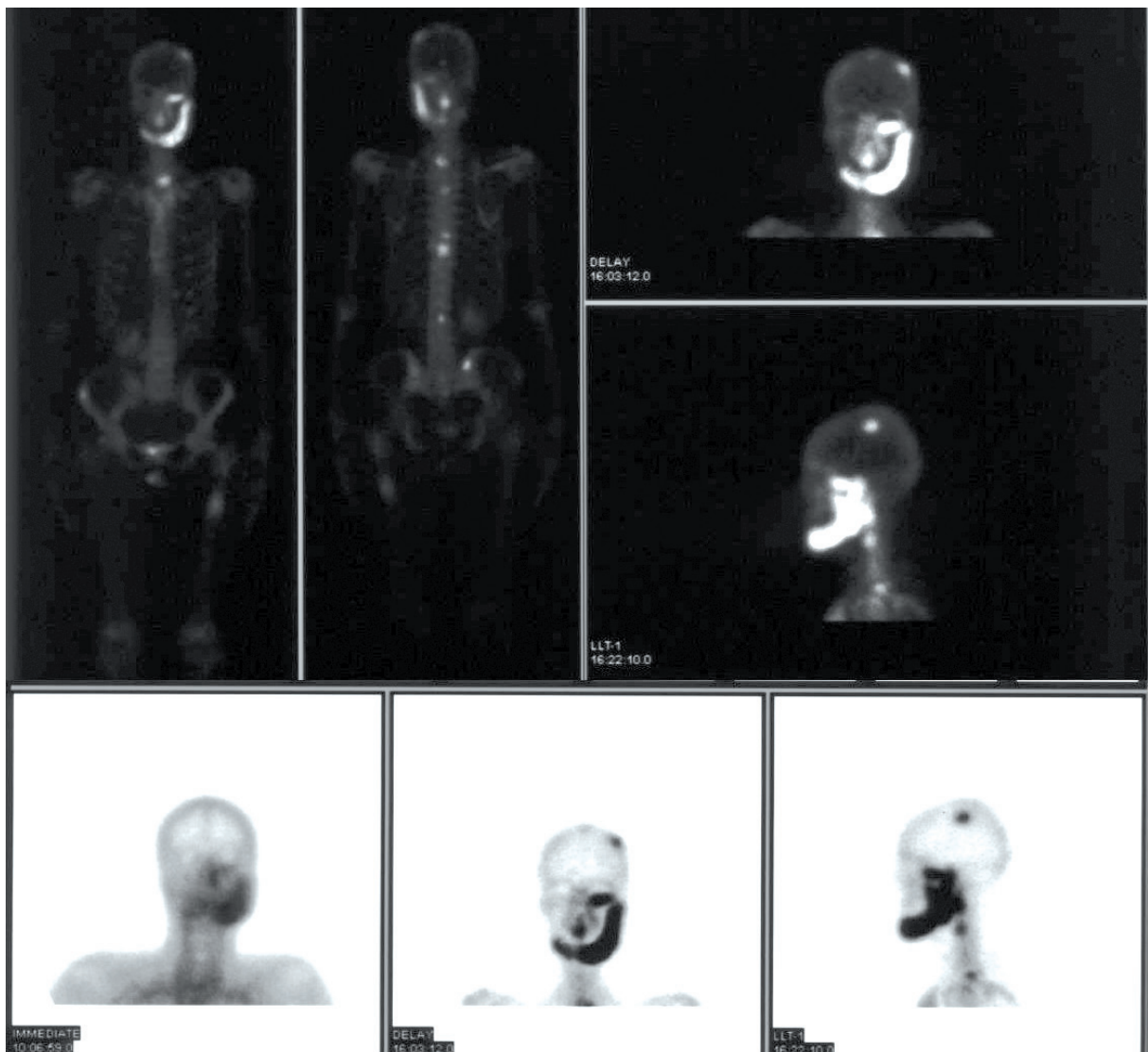


Figure 4. Scintigraphic appearance.

in the left half of the mandible, maxilla, floor of the orbit, parietal bone, and some cervical and thoracic vertebrae in a 36-year-old female. Metastatic lesions occur more often in the posterior region of the mandible, which is an area that retains its normal hematopoietic function.<sup>6,7</sup> This possibly explains why the maxilla, although rich in spongy bone tissue, is a less common site for metastasis.<sup>6</sup> In our case, the metastatic lesion was located in the posterior corpus of the mandible and the whole region of the ramus. The clinical symptoms of our case may simulate a benign proliferative process, osteomyelitis, and primary bone tumor. The metastatic lesions of the jaws do not cause specific signs or symptoms.<sup>6</sup> In our case, symptoms were pain, trismus, swelling, and paresthesia of the left half of the mandible.

## CONCLUSIONS

Differential diagnosis of such cases is difficult through only clinical and radiologic examination. Histologic examination is absolutely necessary. If histologically distant metastasis in the oral and maxillofacial region or elsewhere in the body of breast cancer is diagnosed, a bone scintigram or PET-scan has to be made to identify other tumor locations and to evaluate therapeutic options.

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