

A painful swelling of the mandible

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CLINICAL PRESENTATION

A 54-year-old female patient presented to the Department of Oral and Maxillofacial Surgery with a chief complaint of lower jaw pain and a feeling of numbness in the lower lip, both on the right side. The patient reported that her symptoms started 3 months ago as numbness and feeling of swelling of the lower lip accompanied by ear pain on the right side; no treatment was administered. Fifteen days earlier, the patient had presented to a General Hospital complaining of gingival pyorrhea and swelling of the right mandible. Antibiotic treatment (amoxicillin 1 g two times daily and metronidazole 500 mg three times daily) was administered with limited improvement. At this point, the patient was referred to our Department for additional evaluation and management.

Her medical history was significant for breast cancer diagnosed 5 years ago. Her initial treatment included chemotherapy with docetaxel, four cycles of cyclophosphamide, epirubicin, and 5-fluorouracil and radiotherapy, which resulted in full remission. For the last 4 years, the patient was receiving the aromatase-inhibitor anastrozole for hormone manipulation. No use of bisphosphonates was reported. She was a light smoker (of approximately one to two cigarettes per day for several years) and a nondrinker.

Intraoral clinical examination did not reveal significant findings, except for a palpable swelling of the buccal cortical plate in the right posterior mandible toward the angle. Extraoral examination revealed facial asymmetry due to swelling of the body of the right mandible extending to the angle (Figure 1). Review of a

panoramic radiograph performed a few weeks earlier revealed an ill-defined radiolucency of the right posterior body of the mandible with a diffuse alteration of the bone trabeculation pattern (Figure 2). A cone beam computed tomography scan of the mandible showed thinning and multiple areas of perforation of the cortical bone (“moth-eaten” appearance) of the body and ramus of the right mandible (Figure 3).

DIFFERENTIAL DIAGNOSIS

A clinical presentation of painful swelling of the mandible elicits an extensive differential diagnosis. Taking into account the clinical and radiographic presentations of the present case, an infectious or inflammatory process, such as chronic osteomyelitis, was considered. Chronic osteomyelitis can cause pain, swelling, and intermittent purulent discharge. Radiographically, it may present as a patchy and ill-defined radiolucency that often contains central radiopaque areas, and the cortical surface can demonstrate significant periosteal reaction.¹ However, the lack of association with a carious tooth or other local source of infection and the nonresponse to antibiotic treatment made the diagnosis of chronic osteomyelitis less likely.

Certain benign but locally aggressive lesions could generate clinical and imaging findings similar to those of the present case. Ameloblastoma may present as a destructive radiolucent lesion frequently located in the posterior mandible; however, a painless, well-defined multilocular radiolucency is more typical.² A similar presentation of a slow-growing, painless, and locally aggressive lesion may be caused by odontogenic myxomas, most of them being reported in female patients, especially in their second and third decades of life. Since pain and hypoesthesia are not common, the lesions may reach a considerable size before diagnosis.³ Central giant cell granuloma usually appears as an asymptomatic lesion. In most cases, it can be diagnosed as a painless expansion of the affected jaw during clinical examination or most frequently as a well-defined unilocular or multilocular radiolucency in a routine radiographic examination. Cortical bone plates are thinned, but perforation into surrounding soft tissue, as in our case, is rare. In addition, paresthesia is not a typical feature of central giant cell granuloma.⁴

Primary or metastatic bone tumors may manifest as destructive radiolucent jaw lesions causing cortical

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Fig. 1. Extraoral view showing facial asymmetry as a result of swelling of the body of the right mandible extending to the angle.

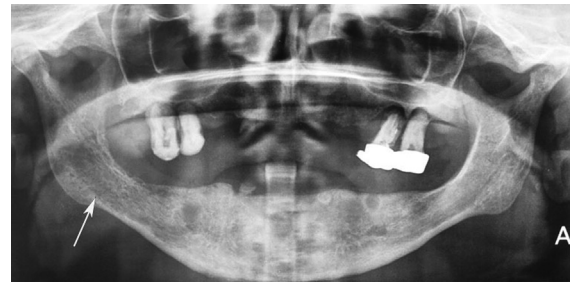


Fig. 2. Panoramic radiograph revealing “moth-eaten” appearance of the body and ramus of the right mandible (arrow).

perforation accompanied by neurologic symptoms, such as pain and paresthesia. Therefore, strong consideration was given to the possibility of a malignant process. Although oral mucosal squamous cell carcinoma (SCC) is, by far, the most common malignancy of the oral cavity and may invade the jaws, the presence of intact overlying mucosa excluded a primary mucosal origin. In the case of the relatively rare primary intraosseous SCC (PIOC), the most common presentation involves progressive painful swelling of the jaws along with loosening of teeth, trismus, and sensory disturbances, such as paresthesia and numbness; although the tumor may be asymptomatic during the early phases and only detected radiographically. In 61% of cases, primary intraosseous SCC presents as a unilocular radiolucency, resembling a cystic lesion in many sizes and shapes with poorly defined and irregular margins.⁵

Primary tumors of bone, such as osteosarcoma and chondrosarcoma, can be included in the differential diagnosis of an ill-defined radiolucent lesion, even in the absence of other typical radiographic findings, such as spiking root resorption, structural changes in the mandibular canal, and “sun ray” appearance. The patient’s symptoms were also consistent with malignancy, and her age was compatible, considering that jaw osteosarcomas tend to occur in older patients in comparison with extragnathic tumors.^{6,7}

Extranodal malignant lymphomas, especially non-Hodgkin lymphoma, may affect oral soft or hard tissues as a primary site of occurrence or as a component of widespread disease. Central lymphomas of the jaws tend to affect the maxilla more frequently. Clinically, a primary lymphoma of bone could manifest as localized bone swelling, possibly associated with ulceration of the overlying mucosa and tooth mobility; pain, numbness, and paresthesia are often reported. The radiographic presentation is not typical for this entity, which commonly appears as a nonspecific osteolysis.⁸

Metastatic tumors in the jaws usually appear as ill-defined radiolucent lesions, although bone production has been associated with certain primary sites, particularly the prostate and the breast. Painful swelling and paresthesia are the most common clinical signs of metastatic tumors in the jaws, and the posterior mandible (mainly the molar and premolar areas) appears to be the site of predilection.⁹ Although metastatic disease to the jaws is not very common, corresponding to approximately 1% of all oral malignancies, a history of malignancy, similar to previous breast cancer in the present patient, should be a strong consideration.

DIAGNOSIS AND MANAGEMENT

With the patient under local anesthesia, a full thickness mucoperiosteal flap was developed, and an incisional biopsy of the intrabony lesion was performed.

Macroscopically, the biopsy specimen was red in color, had a smooth surface mass of elastic consistency, and measured $3.0 \times 1.5 \times 1.0$ cm. Microscopically, a proliferation of neoplastic cells of epithelial origin within a dense fibrous connective tissue stroma was observed (Figure 4). The neoplastic cells were arranged in islands of variable size and shape or as isolated infiltrating cells. The tumor cells had eosinophilic cytoplasm and pleomorphic large, round or oval hyperchromatic nuclei showing focal duct formation (Figure 4). Vascular invasion was also noted. On the basis of these microscopic features, a provisional histopathologic diagnosis of epithelial malignancy that was consistent with metastatic breast cancer was made.

Immunohistochemical testing showed positivity of the tumor cells for estrogen receptor and cytokeratin 7 (CK7), whereas CK20 was negative (Figure 4).

Taking into account the patient’s history, a final diagnosis of metastatic breast adenocarcinoma was established. The patient was referred to her oncologist for a full metastatic workup and further management.

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