



Case Report

Mandibular Metastasis of a Recurrent Poorly Differentiated Urothelial Bladder Carcinoma

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ABSTRACT

Metastatic lesions to the oral cavity are uncommon; they represent between 1 and 3% of all malignant oral neoplasms. In this article, we report a rare case of metastatic urothelial bladder carcinoma in the mandible detected on oral radiographic images and confirmed with multiple imaging modalities. A 67-year-old woman presented to our clinic suffering from pain in the right side of the mandible with a mild swelling. Panoramic radiograph revealed an ill-defined relatively radiolucent lesion in the right mandibular premolar-canine region presenting with permeative changes. Cone-beam computed tomography showed a relatively hypodense lesion with demineralization, interruption of the buccal cortices, and slight thickening and sclerosis of the buccal cortical bone. The patient was referred for further evaluation including additional advanced imaging radiographic techniques (MRI and PET scan) and clinical and histopathological examinations that lead to a final diagnosis of metastatic lesion from an underlying urothelial bladder carcinoma.

Keywords: Bladder, Carcinoma, Mandible, Metastasis, Urothelial

INTRODUCTION

Metastatic tumors to the oral cavity are uncommon and are generally detected at a late stage of the disease.^[1,2] They are usually found in the jaws and less frequently in the surrounding soft tissues and salivary glands.^[1-3]

Tumors metastasizing to the oral cavity mostly come from the breast, the lung, the adrenal glands, the kidneys, the bone, the colon, and the prostate.^[3]

Clinically, metastatic tumors of the oral cavity may be asymptomatic or present different non-pathognomonic symptoms mimicking odontogenic infections such as numbness or paresthesia of the lower lip and chin, pain, swelling, altered sensation, halitosis, gum irritation, teeth loosening and mobility, soft-tissues exophytic masses, trismus, and rarely pathologic fractures.^[3-8]

Radiographically, these malignant lesions do not present a specific radiographic appearance; radiolucent with ill-defined margins, radiopaque, or mixed radiopaque-radiolucent lesions may be seen.^[4,9] This variety of imaging features makes their diagnosis challenging, especially in the initial stages of the disease.

The majority of patients presenting oral metastatic tumors have invasive disease with a poor prognosis.^[10,11]

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In the literature, few cases of bladder cancer metastatic to the oral cavity have been reported. This report describes a case of a mandibular metastasis of a poorly differentiated urothelial carcinoma.

CASE REPORT

A 67-year-old female presented to our clinic with subtle vague pain in the right premolar region of the mandible, severely mobile adjacent teeth and paresthesia of the right lower lip and chin. The symptoms were perceived about 3–4 weeks previously.

The patient smoked not less than 20 cigarettes/day and her medical history revealed a surgery 12 years previously for a low-grade papillary urothelial carcinoma with complete recovery; no other specific health conditions or any systemic medications taken regularly were reported.

Extraoral examination did not show any abnormality while intraorally a slight swelling of the right lower buccal premolar region was noticed. The overlying mucosa was normal in color but softly tender on palpation.

The adjacent teeth were abnormally loose with the presence of deep pockets and calculus deposits reflecting a severe chronic periodontitis. No regional lymphadenopathy was detected.

A periapical radiograph of the concerned region revealed an ill-defined and non-corticated relatively low-density area with permeative changes, the adjacent teeth were removed, but the symptoms persisted after 2 weeks even though the bone healing was normal. The periapical radiograph taken after extraction exhibited an increased radiolucency in the area [Figure 1].

The orthopantomograph showed a 2 cm diameter ill-defined and non-corticated slightly radiolucent osteolytic lesion with permeative changes of the right premolar region extending from the canine area to approximately the mesial aspect of

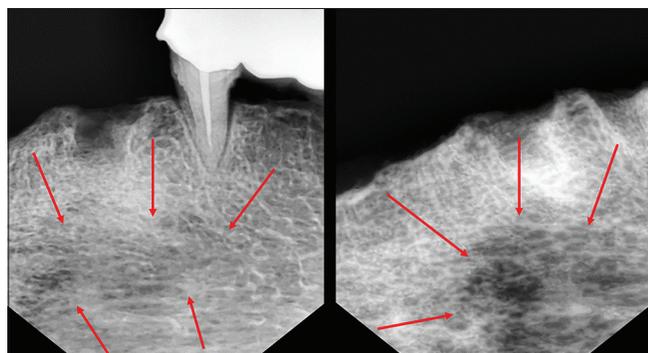


Figure 1: Periapical radiographs (before and after extraction) of a 67-year-old woman with subtle vague pain in the right premolar region of the mandible and a paresthesia of the right lower lip and chin revealing an ill-defined radiolucency and alveolar bone demineralization (arrows).

the molar area, the lesion also appeared to be extending from the apical area within the alveolar crest to the superior aspect of the basal cortex [Figure 2].

Cone-beam computed tomography (CBCT) serial cross-sectional of 1 mm thick showed small ill-defined hypodense areas in proximity to the right lower premolar with multiple perforations of the buccal and lingual plates and slight thickening and sclerosis of the buccal cortex [Figure 3].

The same radiographic features are seen in the axial, sagittal, and frontal views [Figure 4].

Radiographic features and changes as well as the clinical findings were highly suggestive of an aggressive/malignant process.

The patient was referred for maxillofacial surgery evaluation. An incisional biopsy was performed under local anesthesia and sent for histological assessment.



Figure 2: Panoramic radiograph (after extraction) of a 67-year-old woman with subtle vague pain in the right premolar region of the mandible and a paresthesia of the right lower lip and chin showing the ill-defined radiolucent spongy osteolytic lesion of the right premolar region in the mental foramen area (arrows).



Figure 3: Cone-beam computed tomography cross-sectional 1 mm thick of a 67-year-old woman with subtle vague pain in the right premolar region of the mandible and a paresthesia of the right lower lip and chin showing multiple perforation of the buccal and lingual plate area near the right lower premolar (arrows).

The anatomopathological examination showed bone and fibrous tissues infiltrated by poorly differentiated carcinomatous proliferation. In immunohistochemistry, tumor cells expressed high-molecular-weight cytokeratin; CK7 expressions were intense and diffuse, while GATA3 presented a moderate to low intensity and was distributed heterogeneously.

These findings support the diagnosis of a poorly differentiated metastatic carcinoma.

The patient was referred to an oncologist and a whole body assessment was performed by means of positron emission tomography (PET) scans after intravenous injection of 11 mCi of ^{18}F -FDG and high-resolution CT scan using dedicated PET scanner [Figure 5]; a large hyperactive area involving the right mandible was detected.

Head-and-neck MRI-3T examination showed lytic lesion of the right anterior mandibular body measuring 3 cm and abnormal signal involving also the left mandibular side, suspicious for tumoral infiltration [Figure 6].

Other diagnostic procedures were requested such as a pelvic ultrasound and a bladder biopsy.

These investigations confirmed a papillary urothelial carcinoma (Grade 2, Jewett Stage B) infiltrating the muscle wall of the bladder.

The histopathological aspects as well as the immunohistochemical profile are more or less compatible



Figure 4: Axial, sagittal, and frontal cuts at the level of the right lower premolar area of a 67-year-old woman with subtle vague pain in the right premolar region of the mandible and a paresthesia of the right lower lip and chin showing a slight expansion of the buccal cortex (arrows).



Figure 5: A 67-year-old woman whole body PET scan and high-resolution PET-CT after intravenous injection of 11 mCi of ^{18}F -FDG showing large hyperactive area involving the right mandible.

with what was found at the level of the mandibular tumor, which argues in favor of the mandibular metastasis of the urothelial carcinoma.

Extraction of the involved teeth before treatment was decided and the patient was referred for chemo- and radiotherapy. Radiation with a cumulative dose over 2 weeks resulted to a complete relief of her symptoms; every 2 weeks follow-up examinations were performed for the first 2 months and twice per month for the 2 next years.

DISCUSSION

Metastatic tumors to the oral cavity are rare;^[12,13] they represent between 1 and 3% of all malignant oral neoplasms and are more frequently found in the jaws.^[1-3] Among the jawbones, the mandible is more affected by metastases than the maxilla, with the areas distal to the canine (including the ramus and the body of the mandible) being the most commonly involved.^[3,4]

The pathogenesis of mandibular metastasis is not completely understood; however, it is supposed to be hematogenous connected with Batson venous plexus and the presence of abrupt vessel angulation, especially in the molar and premolar regions, leading to bloodstream slowing and favoring the deposit of malignant cells.^[14]

Urothelial carcinoma is the most frequent malignant tumor occurring in the bladder; with a slight male predilection, it attacks generally the patients in their 6th and 7th decades.^[13]

Mandibular metastasis of bladder urothelial carcinoma is exceptional. In their study conducted on 107 patients, Barbaian *et al.* found that metastasis from this tumor concerns mostly the regional lymph nodes, the liver, the lungs, the bones, and the adrenal glands.^[15]

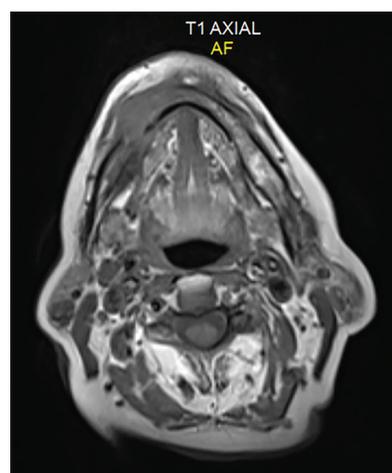


Figure 6: A 67-year-old woman MRI-3T showing lytic lesion of the right anterior mandibular body measuring 3 cm and abnormal signal involving also the left mandibular side, suspicious for tumoral infiltration.

Because of the infrequency of metastatic bladder tumors to the mandible and the lack of typical clinical signs and radiological features linked to them, their diagnosis is challenging; establishing a precise diagnosis the soonest is essential because these lesions represent a poor prognosis sign of the disease and their early detection is of extreme importance.^[12,13]

Finally, metastatic lesions should always be considered in the differential diagnosis of ill-defined jawbones radiolucencies, particularly in patients with a history of malignancy.

CONCLUSION

In the presence of atypical clinical signs and uncharacteristic radiological features in the oral cavity, dentists should take into consideration the probable existence of oral metastases of undiscovered distant primary lesions, especially in patients with a history of previous malignant disease even with complete recovery.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent.

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Conflicts of interest

There are no conflicts of interest.

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