

Metastatic renal cell carcinoma presenting as maxillary lesion: Report of two rare cases

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Abstract

Oral cavity is not a usual site for metastasis, accounting about 1% of all oral tumors. The majority site for metastasis is the mandible and less common the maxilla followed by intraoral soft tissue. These tumors may be the first clinical manifestation of the primary lesion. One of the most important sites of the primary neoplasm that metastasizes to the jaws is kidney. Therefore, considering to this fact that the metastatic tumors always are not seen in a typical site, it is necessary to rule out the metastatic carcinomas to jaws. We presented two cases of metastatic renal cell carcinoma to maxilla with two different clinical features, one of them with an intraosseous lytic lesion and the other one with a large exophytic mass.

Keywords: Carcinoma, maxilla, metastasis

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INTRODUCTION

Oral cavity is an unusual site for metastatic tumors, accounting about 1% of all oral tumors.^[1-4] The most common site in the oral and maxillofacial region for metastatic lesions is the body of the mandible usually in premolar and molar regions because of the presence of hematopoietic tissues.^[1,3,5] Although in the most percentage of the cases, the primary tumor has been known, in one-third of the cases, a metastatic tumor is the first clinical manifestation.^[6] After lung and breast, the kidney is the most common site for metastasis to the oral cavity.^[6,7] There are very few reports of metastasis of carcinoma to the maxillary region.^[6,8-10]

We reported two cases of metastatic renal cell carcinoma to the maxillary bone and maxillary gingiva as the first

presenting sign of two unknown primary tumors. These reports aim to present the various clinical features of metastatic tumors to the oral cavity.

CASE REPORTS

Case 1

A 54-year-old male was referred to the oral and maxillofacial surgeon with the history of pain and swelling of the anterior region of the maxilla and pus discharge from the maxillary midline region.

The lesion has been presented for approximately 1 month and had increased in size. He reported a history of root canal therapy for both central incisors that due to decrease the pain but pus discharge and pain were keeping on after few days.

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At the clinical examination, anterior teeth (both central incisors and right lateral incisor) showed mobility. There was no palpable cervical lymphadenopathy.

There was no noticeable point in the patient medical history.

A cone-beam computed tomography (CT) revealed an intraosseous ill-defined radiolucency with ragged borders on the anterior part of the maxilla extending from left canine to right first premolar without any root resorption.

The lesion perforated nasal floor and also invaded anteromedial walls of the maxillary sinus [Figure 1].

The incisional biopsy was performed. Microscopic examination showed a neoplastic tissue composed of numerous nest and islands of epithelial cells with plump nuclei and prominent nucleoli and some clear cells with abundant cytoplasm and occasionally duct-like figures [Figure 2a].

Mild nuclear atypia and polymorphism were evident. Large sheets of necrosis and occasionally atypical mitoses were also seen [Figure 2b].

The first diagnosis was invasive carcinoma. Whole-body scan was advised to rule out the metastatic carcinomas.

Positron emission tomographic (PET) imaging showed hypermetabolic soft-tissue mass in the anterior aspect of the right maxillary sinus projection to the right nasal cavity, lungs, hilar regions, left kidney and left retroperitoneal soft tissue [Figure 3].

The largest mass was located in the left kidney (measured 9.7 cm × 6.3 cm) suggesting the kidney as the origin of the primary tumor. The immunohistochemical staining showed positive immune reactivity for CD10 antigen in some tumoral cells and confirmed the renal cell origin of carcinoma [Figure 4].

Unfortunately, because of the widespread metastatic lesions, the patient was died 11 months after the inception of the systemic chemotherapy and radiotherapy.

Case 2

A 51-year-old male referred to our department with a 2-month history of a painless large polypoid mass in the left posterior maxillary alveolar ridge [Figure 5].

The patient's past medical history was unremarkable. There was no lymphadenopathy in physical examinations of the head and neck. The patient was in a good healthy situation

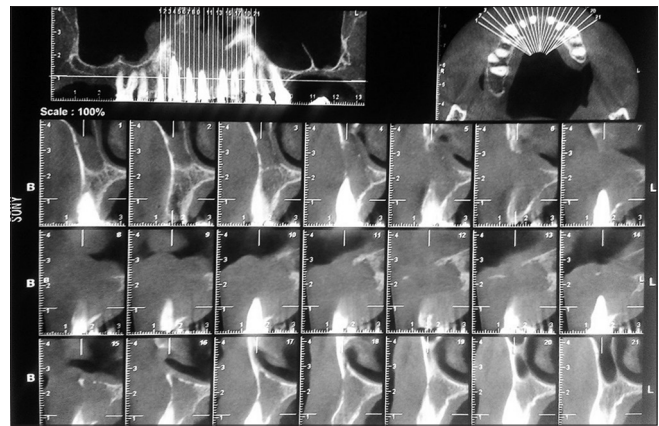


Figure 1: Cone-beam computed tomography view shows large ill-defined radiolucency with ragged borders on anterior part of maxilla

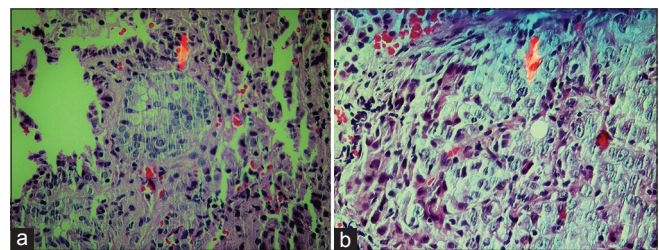


Figure 2: (a) Microscopic features of tumor. Nest of epithelial cells and some clear cells with abundant cytoplasm. (b) Microscopic features of tumor. Atypical mitotic figures in tumoral cells (H & E, ×400)



Figure 3: Positron emission tomographic-computed tomography view. Note numerous hypermetabolic areas in right maxillary sinus and nasal cavity, lungs, hilar regions, left kidney and left retroperitoneal soft tissue

but suffer from difficulties in chewing and speaking, resulting from the presence of the intraoral lesion.

The incisional biopsy showed sheets of large epithelioid cells with clear cell cytoplasm and centrally located nuclei [Figure 6a].

The tumor cells demonstrated significant atypia and occasionally mitotic figures. Sheets of hemorrhage were seen

among the tumoral cells [Figure 6b]. Immunohistochemical staining was performed to differentiate between a clear cell carcinoma and clear cell variant of amelanotic malignant melanoma.

Immunohistochemical staining showed positive immunoreactivity for epithelial membrane antigen and negative immunoreactivity for HMB45. Ki-67 was positive in $\geq 30\%$ of tumoral cells [Figure 7].

According to these histopathologic features, clear cell carcinoma was suggested, and further examination was recommended to rule out metastatic tumors. FDG-PET-CT scan reported hypermetabolic soft-tissue mass lesion on the left side of the oral cavity with evidence of invasion to the adjacent maxillary bone, left hilar region and multiple randomly distributed pulmonary nodules in the both lungs and left kidney in a heterogeneous mass with a maximum dimension of 4.5 cm [Figure 8]. According to PET scan report, the diagnosis of metastatic renal clear cell carcinoma was confirmed.

The patient underwent to chemotherapy and at the time of the diagnosis. After 6 months after initiating of the chemotherapy, he is alive and the oral lesion has been underwent complete regression.

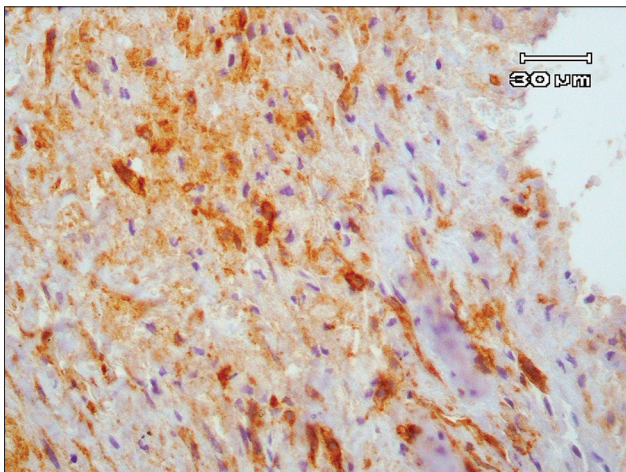


Figure 4: Immunohistochemical stain for CD10 showing positive reactivity in tumoral cells

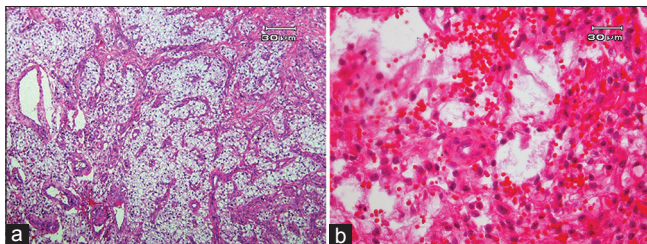


Figure 6: Microscopic features of tumor. (a) sheets of tumoral cells with large clear cytoplasm. (H & E, $\times 100$). (b) hemorrhagic background of tumoral cells. (H & E, $\times 400$)

DISCUSSION

More than 70% of all metastatic tumors in the oral and maxillofacial region are adenocarcinomas, that is, mostly originated from breast (30.4%), kidney (15.6%) and lungs (14.8%).^[4]

According to the literature reviews, the typical most common tumors that metastasize to the jaw arise from the lung, kidney, prostate and rectum in men and from the breast, kidney, uterus and thyroid in women.^[11]

One of the most important sites of the primary neoplasm that metastasizes to the jaws is kidney.^[12] However, $<15\%$ of patients with renal cell carcinoma show metastasis to head and neck area.^[13]

Renal cell carcinoma is an aggressive neoplastic disease and it is responded to many treatment interventions



Figure 5: Clinical view of the patient shows large exophytic mass

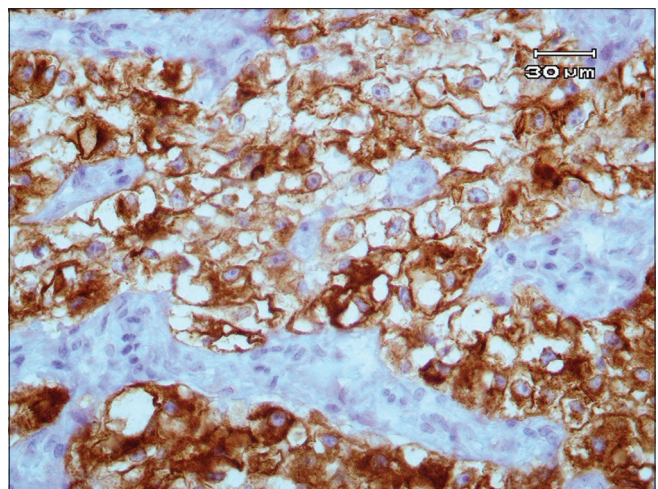


Figure 7: Immunohistochemical staining. Positive reactivity for epithelial membrane antigen

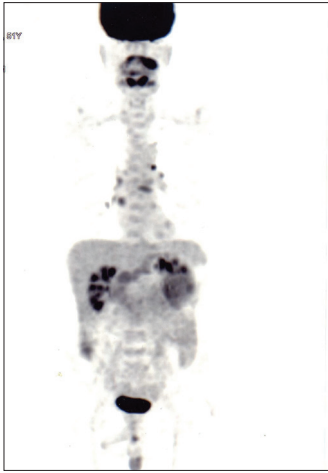


Figure 8: Positron emission tomographic-computed tomography view shows some hyper metabolic areas

is very poor with poor response to conventional treatments.

Renal cell carcinoma can remain occult clinically for a long time.^[1,3] The most common sites that involved by metastatic renal cell carcinoma are lungs, soft tissues, bones, liver, cutaneous sites and central nervous system.^[1,3] Although the oral cavity lesions may be show the first presenting sign of another primary carcinoma, usually when a malignancy metastasizes to the oral tissues, the disease is in advanced stage and the prognosis is very poor in this condition.^[1,4]

Metastatic malignancies of the jaws have very different signs and symptoms such as swelling, pain, paresthesia, numbness and sensation of thickening of the lips. In case 1, the most important clinical signs were mild swelling, toothache and mobility of the teeth. Considering the presence of diverse clinical signs and symptoms, we can also think about infection with dental origin, primary oral soft-tissue malignancy with osseous invasion and primary intraosseous malignancies were considered as differential diagnoses.

In case 2, the patient had an exophytic polypoid lesion with invasion to adjacent bone. In case 2, reactive tumor-like lesion, neoplasm with salivary gland origin, lymphoma and malignant soft-tissue tumors were considered as differential diagnoses.

For metastatic jaw lesions, radiographic findings are initially depend on how long does it takes to discover the lesion and the degree of bone resorption. Bone metastases are a common feature of advanced cancers. Most of the metastatic tumors of the jaw bones are lytic lesions; however, some metastatic lesions such as prostatic metastases are predominantly osteoblastic.^[3,14] As

mentioned before, most of the metastatic bone lesions are radiographically present as an ill-defined radiolucent lesion, as we saw in the Case 1.

Sometimes, there are no radiographic changes, but we cannot exclude the possible of a small metastatic lesion.^[3]

Due to the destructive behavior of malignancies and rapidly growth, malignant lesions generally invade adjacent normal structures such as peripheral bone as the supporting alveolar bone is destroyed by the lesion as we saw in the Case 2.

PET-CT scan is a more advanced imaging modality in nuclear medicine which is useful in skeletal imaging for assessing primary bone tumors, locating metastases and to determine how cancer has spread.

Interestingly, PET can detect the early onset of disease before the other imaging tests such as CT or MRI can detect it. In both cases we presented, PET scan was done and could discover the occult primary origin of neoplasm.

The rareness of oral metastasis can lead to miss them. There are some criteria to consider that help us to diagnosis of metastatic tumors.

1. A correct history of past illness and presenting symptoms
2. Complete physical examination, histologic verification and accurate study on radiographic features. The histological feature of metastatic lesion must match to the primary tumor
3. Consider to this fact that the metastatic tumor always not found in a typical site
4. Exclude the possibility of spreading primary oral tumor to the jaw bones.^[2-4]

In summary, our cases were a rare presentation of the metastatic renal cell carcinoma to oral cavity in maxillary bone and alveolar region.

As the most of the cases, both of our cases had multiple organ involvement at the time of oral metastasis occurred. However, only one of them responded to treatment. It shows that early and accurate diagnosis of oral metastasis is the most important key to increase survival of the patients.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will

not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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