

## Metastasis of Renal Cell Carcinoma to Mandible

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### Abstract

**Background:** Renal cell carcinoma (RCC) is one of the most common urological malignancies. **Case Report:** A 62-year-old male patient was admitted to our clinic due to painful swelling on the right side of his face. On the panoramic radiograph, a well defined, unilocular, approximately 1.9×1.5 cm sized radiolucent area was observed. It was decided to enucleate the lesion, which was thought to be ‘radicular cyst’ radiographically. While performing incision and flap operations, bleeding continued in an abnormal amount. Surgical material was diagnosed a RCC metastasis. **Conclusion:** The possibility of a metastatic tumor in cases with excessive bleeding during surgery should be kept in mind.

**Keywords:** Head and Neck Neoplasms, Mandible, Metastasis, Renal cell carcinoma, Radicular Cyst, Panoramic Radiography.

## Introduction

Renal cell carcinoma (RCC) accounts for 3% of all tumors in adults [1]. RCC is the most common malignant tumor of the kidney (90-95%) and is usually seen in males between 30-60 years [2]. It is the third most common infra-clavicular neoplasm that metastasizes to the oral cavity, following that of lung and breast tumors [3]. RCC often spreads to lungs, liver, bones, lymph nodes; rarely metastasizes to the head and neck region [4]. RCC metastasizes to the thyroid, parotid, tonsil, tongue, sinonasal region, mandible and skin in this region [4]. The main symptoms of the metastatic tumors in the oral cavity are swelling, pain, bleeding and tooth loss [4]. In this article, we report a case of metastatic RCC to the mandible.

## Case Report

A 62-years old male patient was admitted to Cumhuriyet University, Faculty of Dentistry, Department of Oral and Maxillofacial Surgery, due to painful swelling on the right side of his face. The current swelling was noticed about two months

ago. Antibiotic treatment was advised by different dentists at this period. The patient had diabetes mellitus and hypertension for ten years.

On the panoramic radiograph, a well defined, unilocular, approximately 1,9×1.6 cm sized radiolucent area extending from the lower right first premolar to the second molar was observed [Fig.1]. It was decided to enucleate the lesion, which was thought to be ‘radicular cyst’ radiographically, and to extract the second premolar tooth. While performing operation, bleeding continued in an abnormal amount, and enucleation was made very difficult. Bleeding was controlled by dental spongostane (Ferrosan). Bleeding could be stopped with compression in addition to this medical treatment [Fig.2].

Immunohistochemical (IHC) panel consisting of S-100, CD1a, CD34, CD68 and PAN-CK was applied for the differential diagnosis of this clear cell lesion [Fig.3]; only diffuse cytoplasmic positive immunoreactivity with pan-CK was obtained in tumor cells [Fig.4]. Accordingly,

"epithelial malignant tumor metastasis" and especially RCC metastasis were considered. The pathology archive was scanned. Approximately one year ago, the patient who underwent nephrectomy was diagnosed with "RCC" and showed histopathological similarities with the mandibular mass, and it was concluded that the mandibular mass was metastasis of kidney tumor as well as clear cell RCC [Fig.5,6].

On the whole body scintigraphy, focally prominent increased osteoblastic activity was observed in the right mandibular region. In addition, osteoblastic increased activity was detected in a small focus at the 1/3<sup>rd</sup> distal portion of the right



**Fig.1:** The patient's panoramic radiograph showed a well-defined radiolucent area in the right mandibular premolar region.

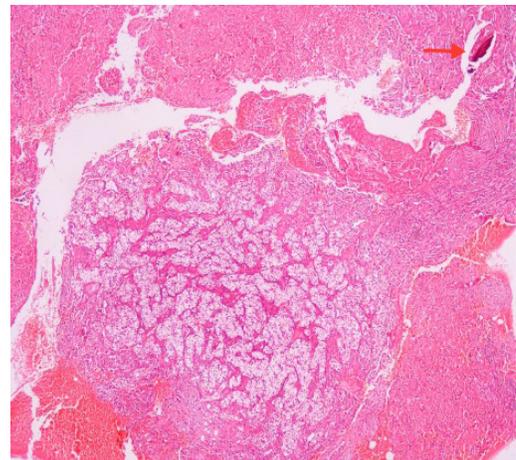


**Fig.2:** Clinical view of the operation area after the bleeding was controlled with medical treatment and compression.

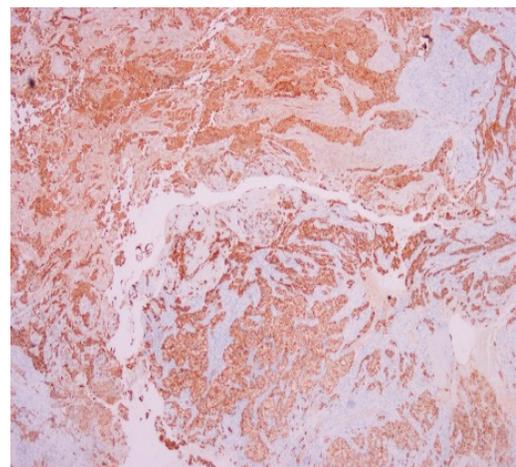
femur and 1/3<sup>rd</sup> proximal portion of the left tibia [Fig.7]. The patient was scheduled for palliative treatment after consulting with the department of oncology following enucleation. The region was healed by rinsing with rifamycin (Rifocin 250 mg/ml) for two weeks.

## Discussion

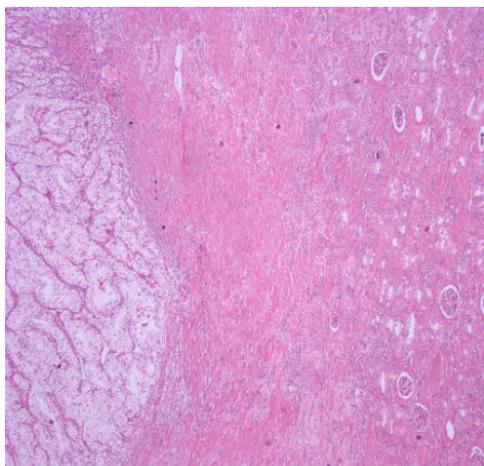
RCC constitutes approximately 3% of all adulthood tumors [5]. Most cases of RCC occur in individuals aged between 30-60 years [6]. Approximately 75% of all detected RCCs are clear cell RCCs [7]. RCC



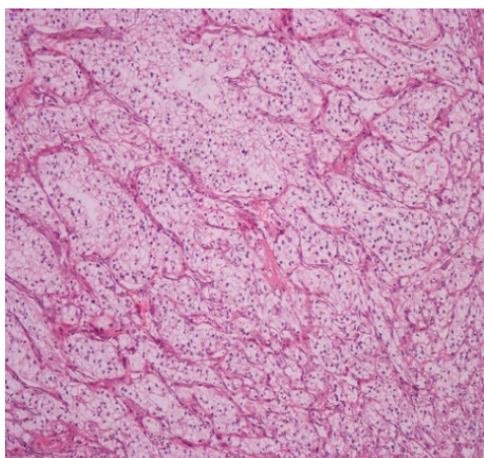
**Fig.3:** Tumor metastasis to the mandible (red arrow shows small bone spicule) (HE x 40).



**Fig.4:** Immunohistochemistry of the lesion in the jawbone. Tumor cells were stained with PAN-CK diffuse cytoplasmic (IHK x 40).



**Fig.5:** Overview of the primary clear cell tumor (RCC) adjacent to the kidney tissue at the left flank (HE x 40).



**Fig.6:** Detailed view of the tumor: tumor cell nests with small hypercellular nuclei in the clear cytoplasm between delicate fibrovascular stroma (HE x100).

metastasizes usually late and its metastasis is seen in 20-40% of patients [2]. However, some of the cases are diagnosed after metastasis [8]. Metastatic RCC is known as one of the most resistant tumors to treatment. Average survival rate after diagnosis is less than one year [9]. RCC is known to cause distant metastasis to many tissues and organs [10]. RCC is one of the most common tumors that metastasize to the head and neck region following lung and breast cancer. 15% of cases metastasize to the head and neck region [11]. The thyroid gland is the most common organ in this region that has undergone metastasis by RCC [12]. Soft tissue



**Fig.7:** Whole body bone scintigraphy. Osteoblastic increased activity in the right mandibular region, also in a small focus at the 1/3 distal portion of the right femur and 1/3 proximal portion of the left tibia.

metastasis, such as oral gingiva, tongue, uvula and lip, have also been reported [8,13].

The majority of distant metastasis occur within the first two years after definitive treatment of the primary tumor [14]. In our patient, metastasis to the mandible occurred one year after nephrectomy. Mandibular metastasis is usually evidence of extensive spread and has a serious prognosis. The time from the onset of metastasis to death may not be a few months long, and more than two-thirds of patients with metastatic carcinoma in their jaw die within one year. The 4-year survival rate is only about 10% [15]. We lost also our patient 17 months after mandibular metastasis.

In a differential diagnosis, pyogenic granuloma, bone diseases including osteomyelitis, mandibular cysts, primitive malignant tumors of jaws, Langerhans cell histiocytosis must be considered for RCC [4]. In our case, the radiographic image of mandibular lesion had a cystic lesion appearance. Such clear cell lesions in the jaw bone may resemble "xanthofibromas" and Langerhans cell histiocytoses. In this context, IHC panel consisting of S-100, CD1a, CD34, CD68

and pan-CK was applied for differential diagnosis. Xanthofibroma and Langerhans cell histiocytosis were excluded, epithelial tumour metastasis was diagnosed positive immunoreactivity with pan-CK and because of that, the pathology archive was scanned and the primary focus RCC was arrived.

Surgical removal, radiotherapy-chemotherapy and hormonal therapy can be used in the treatment of metastasis [4]. A comprehensive review suggests palliative treatment if the primary tumor spreads or if metastasis can not be removed by resection. Although clear-cell RCC is a radiotherapy-resistant tumor, radiotherapy may be useful in the treatment of metastatic disease. Chemotherapy is also useful in residual disease after resection, although the response is less than 25% [3]. However, due to the poor prognosis after enucleation and the involvement of 1/3<sup>rd</sup> distal part of the right femur and 1/3<sup>rd</sup> proximal part of the left tibia in our case, it was enough to wash the wound in the oral cavity with 250 mg/ml of rifamycin every other day for two weeks, according to the joint decision with the department of oncology.

## Conclusion

The possibility of metastatic tumors should be considered in cases with excessive bleeding during operation, together with other clinical features.

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