

Metastatic renal cell carcinoma of the buccal mucosa masquerading as a salivary gland neoplasm

Ranjini Kudva, Bhavna Nayal, Swarna Kantipudi¹, Satadru Ray²

Departments of Pathology, ¹Radiodiagnosis and ²Surgical Oncology, Kasturba Medical College, Manipal University, Manipal, Karnataka, India

Abstract

Metastasis to the oral cavity is a rare occurrence with renal cell carcinoma (RCC) being the third most common tumor to metastasize to this location. Buccal mucosa is rarely involved and in the absence of a known primary, such lesions pose a diagnostic challenge to the pathologist. The histomorphological features may mimic a primary salivary gland neoplasm adding to the dilemma. We present one such case of metastatic RCC of the buccal mucosa.

Key Words: Buccal mucosa, metastasis, renal cell carcinoma

Address for correspondence:

Dr. Bhavna Nayal, Department of Pathology, Kasturba Medical College, Manipal University, Manipal, India. E-mail: bhavnayal@yahoo.com

Received: 25.04.2015, **Accepted:** 01.09.2016

INTRODUCTION

Renal cell carcinoma (RCC) has a very high propensity to metastasize to distant anatomic locations owing to its high vascularity. Metastasis to the head and neck region is uncommon and accounts for 6%–18% of the cases. RCC is the third most common site of infraclavicular malignancy metastasizing to the oral cavity, following breast and lung cancers. However, metastasis to buccal mucosa is extremely rare and its presence as the first manifestation carries a very poor prognosis.^[1-3] We present a case of metastatic RCC presenting with ulcer in the buccal mucosa.

CASE REPORT

A 36-year-old female presented with a nonhealing, painful ulcer in the right buccal mucosa of 2 months duration. There was an associated facial swelling over the angle of the mandible on the right side and low back ache for 1 month. She gave a

history of chewing arecanut. There was no history suggestive of ankyloglossia or trismus. Local examination revealed an ulceroproliferative growth measuring 4 cm × 2 cm with raised shelf-like inferior margin and submucosal induration involving the right buccal mucosa and right molar trigone, extending into the upper and lower gingivobuccal sulcus. No cervical lymph nodes were palpable. Per abdomen examination showed a firm mass 3 cm below the left costal margin and hepatomegaly. Computed tomography (CT) scan of the head and neck showed an ill-defined heterogeneously enhancing growth involving the right retromolar trigone, buccal space, masticator space along with the erosions of the ramus of mandible and right lateral pterygoid plate and focal thinning of the posterolateral wall of the right maxillary sinus [Figure 1]. Enlarged right Level Ib and II nodes were noted. In view of suspicion of malignancy, a lesional biopsy was done. Histopathology revealed hyperplastic stratified squamous epithelium adjoining an infiltrating tumor composed of sheets of polygonal malignant cells with abundant

Access this article online

Quick Response Code:



Website:

www.jomfp.in

DOI:

10.4103/0973-029X.190967

This is an open access article distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 3.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as the author is credited and the new creations are licensed under the identical terms.

For reprints contact: reprints@medknow.com

How to cite this article: Kudva R, Nayal B, Kantipudi S, Ray S. Metastatic renal cell carcinoma of the buccal mucosa masquerading as a salivary gland neoplasm. *J Oral Maxillofac Pathol* 2016;20:547.

clear cytoplasm, mild anisonucleosis, round to oval vesicular nuclei and few cells showing prominent nucleoli [Figure 2]. Differential diagnosis of a clear cell carcinoma, either metastatic or primary tumor of minor salivary gland with myoepithelial differentiation was rendered. On immunohistochemistry, the tumor cells were negative for S-100. Following this, an extensive systemic evaluation was done. Plain and contrast magnetic resonance imaging study of cervical and dorsal spine showed altered signal intensity lesions in almost all the vertebral bodies and multiple posterior elements of visualized vertebrae showing enhancement on contrast injection suggesting skeletal metastasis. Contrast-enhanced CT of the abdomen revealed multiple enhancing hyperintense lesions in the liver suggestive of metastasis. A large hyperintense cystic lesion with internal hemorrhage and peripheral heterogenous enhancing solid components replacing the upper pole of the left kidney was seen conclusive of RCC [Figure 3]. Renal carcinoma immunostains, including PAX8, CD10 and vimentin, were performed, all of them were positive [Figure 4]. On correlating the clinical, radiological and histopathology findings, a final diagnosis of metastatic RCC was rendered. The patient was referred for palliative radiotherapy.

DISCUSSION

RCC usually affects the elderly individuals with a male preponderance. A high number of patients are being detected incidentally on imaging studies for unrelated causes. The clinical manifestations include hematuria, flank mass and back pain.^[4,5]

RCC can metastasize before the detection of the primary lesion, at the time of diagnosis or after long latent years of up to 25 years. Metastasis at the time of diagnosis is present in 40%–50% of the patients. The common sites of metastasis include lungs, bones, contralateral kidney, liver, brain and lymph nodes.^[1,2,5,6]

RCC can metastasize to the head and neck with paranasal sinuses being the most common site followed by oral cavity. Metastatic lesions encompass only 1% of all malignancies of the oral cavity. The spread of RCC in the oral cavity is most often seen to the mandible followed by soft tissue. Very few cases of metastasis to buccal mucosa have been reported.^[1,3,6,7]

The mechanism of metastasis of RCC is the invasion of the renal vessels resulting in hematogenous spread to various organs. The absence of pulmonary lesions in some patients with involvement of other sites suggests the spread through Batsons' venous plexus or thoracic duct.^[1,4,8]

The differentials of metastatic RCC on histology, with clear cell variant being most common, are tumors with predominant

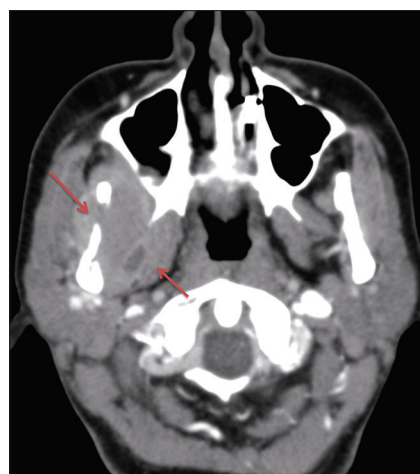


Figure 1: Axial contrast-enhanced computed tomography of head and neck showing a well-defined enhancing lesion (arrows) in the buccal and masticator spaces destroying the ramus of the mandible and extending medially involving the medial and lateral pterygoid muscles suggestive of a malignant lesion

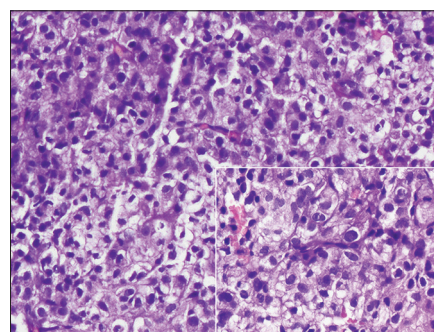


Figure 2: Photomicrograph showing the sheets of clear tumor cells with intervening congested vessels (H&E stain, $\times 100$). Inset: High power view of the same (H&E stain, $\times 400$)



Figure 3: Coronal contrast-enhanced computed tomography of abdomen showing a well-defined enhancing solid and cystic lesion involving the upper and middle pole of the kidney (arrows)

clear cells. These include malignancies of the salivary gland, namely, mucoepidermoid carcinoma, acinic cell carcinoma, epithelial-myoeepithelial carcinoma, sebaceous neoplasm and

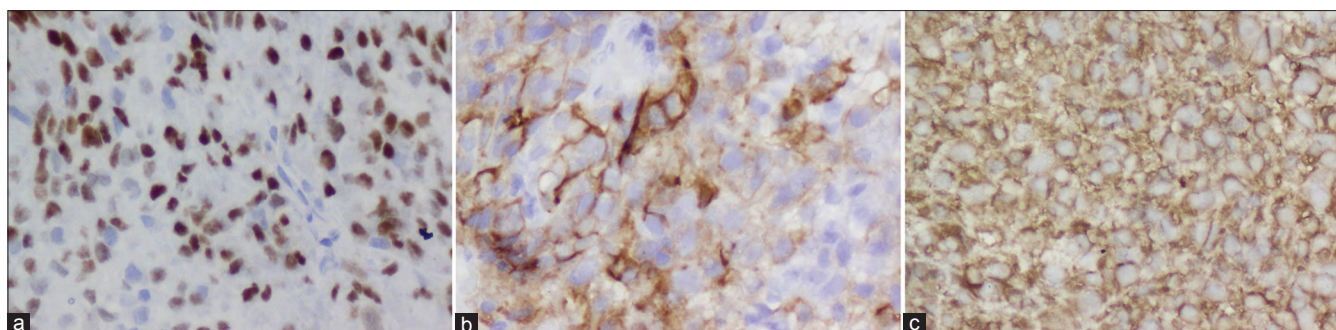


Figure 4: Photomicrograph of tumor cells showing immunopositivity for (a) PAX8 (b) CD10 and (c) vimentin (IHC stain, ×400)

oncocytoma. The predominance of nests of clear cells, the absence of other cell components such as squamous cells in mucoepidermoid carcinoma and basophilic granular cells in acinic cell carcinoma are important distinguishing features. Further, the clearing of the cell cytoplasm in RCC is due to glycogen whereas in salivary gland tumors is due to mucin and glycogen which can be identified using special stains. The tumor cells in RCC show coexpression of vimentin and cytokeration. Further, CD10, PAX2, PAX8 and RCC markers are diagnostic for confirming renal cell origin. Odontogenic tumors such as odontogenic clear cell carcinoma, metastasis from thyroid, melanoma, alveolar soft part sarcomas and paragangliomas should be excluded from the differentials.^[5,9,10] However, morphologic clues such as the presence of characteristic sinusoidal vascular pattern and extensive hemorrhage along with immunohistochemical studies aids in diagnosing metastatic RCC.^[9,10]

Treatment of metastatic RCC is palliative. Surgical excision is provided to alleviate pain and discomfort along with an aim to avoid complications such as bleeding and infection. These lesions are known to be chemotherapy and radiotherapy resistant; however, radiotherapy may provide short-term symptom relief. Immunotherapy and targeted antiangiogenic therapies have also been advocated in the treatment of metastatic RCC.^[1,2,11-13] Unfortunately, the prognosis of metastatic RCC remains grim with an overall survival rate of 6–9 months.^[5]

CONCLUSION

RCC metastasizing to the oral cavity, especially the buccal mucosa is extremely rare and is associated with poor prognosis. If the histopathological examination of clinically suspicious oral lesions demonstrates clear cells, the differential diagnosis includes more common salivary gland tumors and metastatic RCC which can be distinguished by careful morphological study and immunohistochemistry. In the advent of such lesions being the first clinical manifestation,

a vigilant clinicoradiological assessment is essential to detect the primary.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

REFERENCES

- Gil-Julio H, Vázquez-Alonso F, Fernández-Sánchez AJ, Puche-Sanz I, Flores-Martín JF, Cózar JM. Metastasis of renal cell carcinoma to the buccal mucosa 19 years after radical nephrectomy. *Case Rep Oncol Med* 2012;2012:823042.
- Will TA, Agarwal N, Petruzzelli GJ. Oral cavity metastasis of renal cell carcinoma: A case report. *J Med Case Rep* 2008;2:313.
- Maestre-Rodríguez O, González-García R, Mateo-Arias J, Moreno-García C, Serrano-Gil H, Villanueva-Alcojol L, et al. Metastasis of renal clear-cell carcinoma to the oral mucosa, an atypical location. *Med Oral Patol Oral Cir Bucal* 2009;14:e601-4.
- Sountoulides P, Metaxa L, Cindolo L. Atypical presentations and rare metastatic sites of renal cell carcinoma: A review of case reports. *J Med Case Rep* 2011;5:429.
- Abbaszadeh-Bidokhty H, Motalebnejad M, Rajabi-Moghaddam M. Metastatic renal cell carcinoma presenting as a clear-cell tumor in tongue: A case report. *Iran J Otorhinolaryngol* 2014;26:185-90.
- Ali RA, Mohamed KE. Metastatic clear cell renal cell carcinoma presenting with a gingival metastasis. *Clin Pract* 2016;6:847.
- Makos CP, Psomaderis K. A literature review in renal carcinoma metastasis to the oral mucosa and a new report of an epulis-like metastasis. *J Oral Maxillofac Surg* 2009;67:653-60.
- Evgeniou E, Menon KR, Jones GL, Whittet H, Williams W. Renal cell carcinoma metastasis to the paranasal sinuses and orbit. *BMJ Case Rep* 2012;2012. pii: Bcr0120125492.
- Premalatha BR, Rao RS, Patil S, Neethi H. Clear cell tumours of the head and neck: An overview. *World J Dent* 2012;3:344-9.
- Truong LD, Shen SS. Immunohistochemical diagnosis of renal neoplasms. *Arch Pathol Lab Med* 2011;135:92-109.
- Pritchky KM, Schiff BA, Newkirk KA, Krowiak E, Deeb ZE. Metastatic renal cell carcinoma to the head and neck. *Laryngoscope* 2002;112:1598-602.
- Flanigan RC, Salmon SE, Blumenstein BA, Bearman SI, Roy V, McGrath PC, et al. Nephrectomy followed by interferon alfa-2b compared with interferon alfa-2b alone for metastatic renal-cell cancer. *N Engl J Med* 2001;345:1655-9.
- Escudier B, Eisen T, Stadler WM, Szczylik C, Oudard S, Siebels M, et al. Sorafenib in advanced clear-cell renal-cell carcinoma. *N Engl J Med* 2007;356:125-34.