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Case Report

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Metastatic renal cell carcinoma in the head and neck region

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ABSTRACT

We describe 3 rare cases of metastatic renal cell carcinoma in the head and neck region. Our first case was a 72 years old male presented with profuse bleeding from the left ear. On examination, proliferative, pink, friable mass was present in the left external auditory canal. On eliciting the detailed history, it was found that patient had renal cell carcinoma in the left kidney four years back and underwent left radical nephrectomy. Patient underwent left lateral temporal bone resection with cul-de-sac closure. Histopathological examination of the specimen showed metastatic renal cell carcinoma. Our second case was a 64 years old male presented with complaints of growth in the oral cavity of 1 month duration. On examination, 5×3 cms proliferative growth was present in the hard palate. Biopsy from the growth in the hard palate showed metastatic renal cell carcinoma. Patient gave history of renal cell carcinoma in the past for which he did not receive treatment. Our third case was a 45 years old male who presented to us with a diffuse swelling in the left temporal region of 2 months duration. On examination, 3×2 cms swelling was present in the left temporal region. Patient had history of renal cell carcinoma of left kidney and underwent left nephrectomy one year prior to the presentation of the left temporal swelling. Ultrasonography guided biopsy of the left temporal region showed metastatic renal cell carcinoma.

Keywords: Renal cell carcinoma, Metastasis, Head and neck

INTRODUCTION

Metastatic renal cell carcinoma in the head and neck region is extremely rare. In adults, renal cell carcinoma originates in the renal cortex and accounts for 80-85% of the malignant renal tumours, the rest 15-20% of the renal cancers are transitional cell carcinomas.[1] Renal cell carcinoma usually affects in fifth to sixth decade of life and commonly affects males compared to females. Approximately 25-30% of renal cell carcinoma patients present with distant metastasis at the time of initial presentation.[1] Renal cell carcinoma is the third most common malignancy metastasizing to the head and neck from an infra-clavicular primary tumour after breast and lungs.[2] Renal cell carcinoma most commonly metastasizes to lungs followed by bone (spine). Here, we present three cases of metastatic renal cell carcinoma in the head and neck region.

CASE REPORT

Case 1

A 72 years old male presented to a tertiary referral cancer hospital with profuse bleeding from the left ear. There was no history of trauma to the left ear. He had noticed a growth in the left external auditory canal and he also had complaints of left aural fullness, decreased hearing, ear discharge and occasional bleeding from the left ear. All these symptoms had persisted for the duration of 3 months prior to consultation. Patient also gives history of profuse bleeding from the left ear after an attempted

biopsy at the peripheral centre. On examination, proliferative, pink, friable mass was present in the left external auditory canal completely occluding the canal. Right ear examination was unremarkable. There was no cervical lymphadenopathy. On eliciting the detailed history, it was found that the patient had renal cell carcinoma in the left kidney four years back and underwent left radical nephrectomy. He was on regular follow-up post nephrectomy and there was no local recurrence. In view of previous history of renal cell carcinoma, PET CT imaging was done. PET CT imaging showed 2.5 cm×1.8 cm enhancing osteolytic soft tissue lesion involving the floor of the left external auditory canal and adjacent mastoid bone. There was no evidence of local recurrence in the imaging (Figure 1).

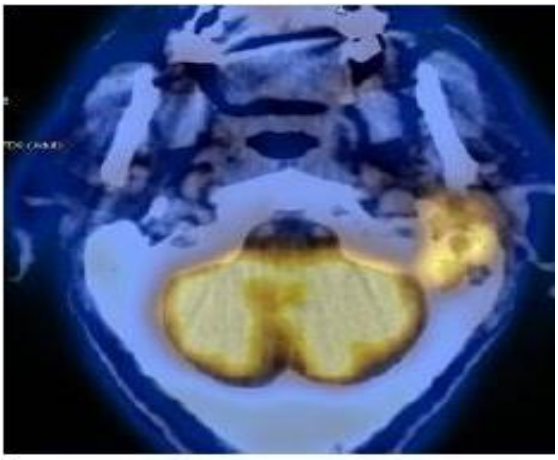

Figure 1: PET CT imaging showing enhancing osteolytic soft tissue lesion involving the floor of the left external auditory canal.

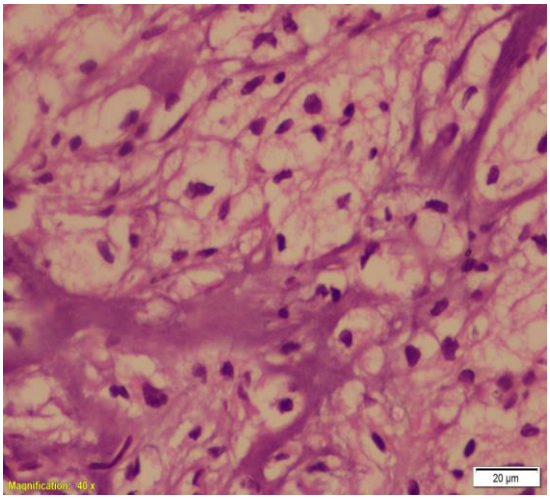

Figure 2: Microscopic examination of the specimen revealed nests of pleomorphic cells with mild nucleomegaly and abundant clear cytoplasm.

With the provisional diagnosis of temporal bone malignancy, patient was planned for biopsy. Biopsy was done which showed metastatic renal cell carcinoma. Patient underwent left lateral temporal bone resection with cul-de-sac closure. Specimen was sent for histopathological examination. Microscopic examination of the specimen revealed nests of pleomorphic cells with mild nucleomegaly and abundant clear cytoplasm (Figure 2). Tumour cells were positive for Pan CK, EMA, Vimentin, CD 10 and PAX 8 and negative for S- 100, synaptophysin and chromogranin in Immunohisto-chemistry (Figure 3).

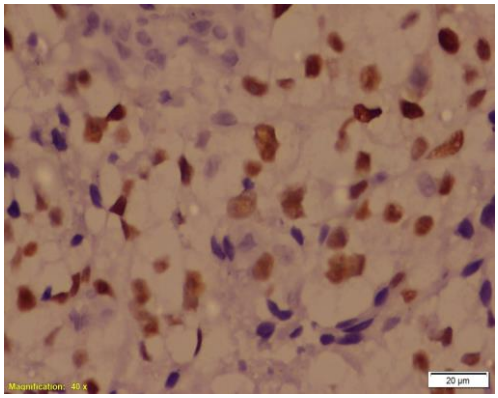

Figure 3: Tumour cells are positive for PAN CK, EMA, Vimentin, CD 10 and PAX 8 on immunohistochemistry.

Case was discussed in our tumour board meeting and the decision of hypofractionation radiotherapy was taken. Patient had received 30Gy/10# of radiotherapy.

Case 2

A 64 years old male presented to us with a complaint of growth in the oral cavity of 1month duration. On examination, 5×3 cms growth present in the hard palate almost filling the oral cavity (Figure 4). There was no cervical lymphadenopathy. Patient did not give history of tobacco chewing, smoking and alcohol consumption. On eliciting the detailed history, it was found that there was an incidental finding of the lesion in the choroidal plexus of the left eye during the cataract surgery one year prior to the presentation of the oral cavity growth. Biopsy of the choroidal lesion was done, which showed metastatic renal cell carcinoma. On further evaluation with PET CT imaging, clear cell renal cell carcinoma of the left kidney was diagnosed. Patient did not receive treatment after the initial diagnosis. After 1 year, patient has presented to our centre with growth in the oral cavity. PET CT imaging was done which showed FDG avid lesion in the left kidney, bilateral infratemporal fossa, buccal mucosa and palate (Figure 5). Patient also had pulmonary metastasis, adrenal metastasis and metastasis in the pancreas in the PET CT imaging. Biopsy was done from the maxillary growth which showed metastatic renal cell carcinoma. Microscopic examination shows squamous lining epithelium beneath which are seen clear cells arranged in alveolar pattern separated by fibrovascular stroma (Figure 6)

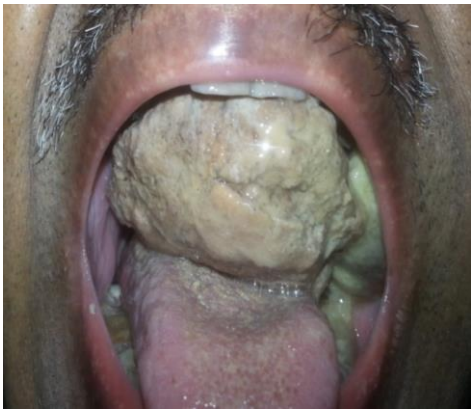

Figure 4: Figure showing 5×3 cms growth in the hard palate.

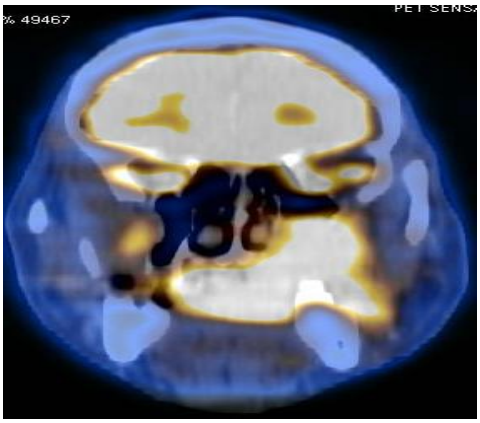

Figure 5: PET CT showing FDG avid lesion in the palate, buccal mucosa and bilateral infratemporal fossa.

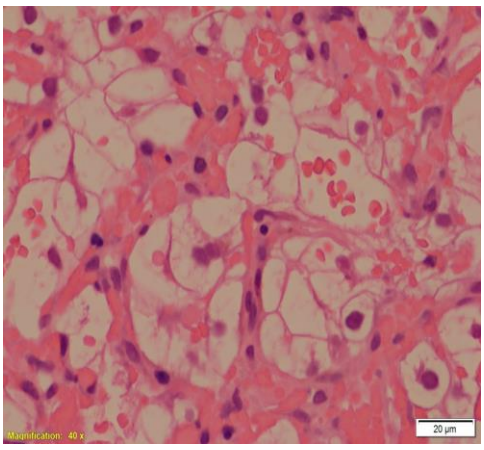

Figure 6: Microscopic examination shows squamous lining epithelium beneath which are seen clear cells arranged in alveolar pattern separated by fibrovascular stroma.

Case 3

A 45 years old male presented with a diffuse swelling in the left temporal region of 2 months duration. On examination, 3×2 cms diffuse bulge present in the left temporal region. Swelling was firm in consistency and nontender. Patient had history of clear cell carcinoma of left kidney and underwent left nephrectomy one year prior to the presentation of the swelling in the temporal region. Six month's post nephrectomy status, follow-up imaging showed right adrenal mass lesion. Patient underwent right adrenal tumour excision. Histopathological examination showed metastatic renal cell carcinoma. 1 year post nephrectomy patient had developed bulge in the left temporal region. MRI was done which showed 4×2 cms intensely enhancing mass in the muscular plane of left temporal fossa. Ultrasound guided biopsy from the left temporal bulge was done. Histopathological examination showed metastatic renal cell carcinoma (Figure 7). Tumour cells are positive for CD 10 & PAX 8 and negative for CK-7. Case was discussed in our tumour board meeting and the decision of hypofractionation radiotherapy was taken.

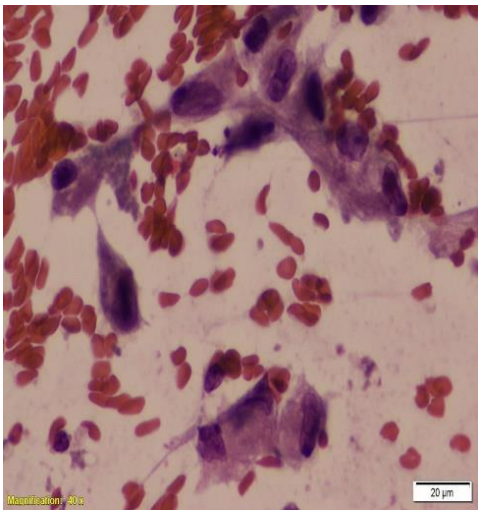

Figure 7: Tumour cells are positive for CD 10 and PAX 8 and negative for CK7.

Outcome and follow-up

Our 1st case, received hypofractionation radiotherapy 3 months back, post temporal bone resection. Patient is on regular follow-up and disease free at present. Our 2nd case, patient refused to take any further treatment. Patient is on symptomatic treatment. Our 3rd case, completed hypofractionation radiotherapy 1month back and is disease free at present.

DISCUSSION

Renal cell carcinoma accounts for approximately 2 percent of all cancers.[1] The incidence of renal cell carcinoma has been gradually increasing recently, this rise could be due to improved capability of diagnosis and advances in diagnostic modalities. The risk factors for the development of the renal cell carcinoma include smoking, hypertension, obesity and occupational exposure to metal

dust, asbestos.[1] Small sized localised renal tumours do not produce much symptoms and this leads to delayed diagnosis and advanced staging at presentation. The most common presenting symptom is hematuria in 50-60% of patients.[1] The other palpable symptoms include abdominal pain and flank mass. The most common tumour cell type in renal cell carcinoma is clear cell type. The typical histological features of the clear cell carcinoma consist of vascularised sheets, cords and tubular aggregates of cells with clear cytoplasm.[3]

25-30% of patients with renal cell carcinoma present with metastasis at the time of initial diagnosis.[1] Lung parenchyma is the most common site for the metastasis of the renal cell carcinoma followed by bone (spine), liver and brain. 6-16% of renal cell carcinoma metastasize to head and neck region during their course and in 8-10% of these cases the symptoms resulting from this metastasis will be the first manifestation of the disease.[4] Five-year survival rate of metastatic renal cell carcinoma is less than 10%.[5] Early diagnosis and treatment increases this percentage[1]. Metastatic renal cell carcinoma has a very bad prognosis.

Renal cell carcinoma frequently invades the local vascular network and can cause hematogenous spread to distant organs. It has also been proposed that renal cell carcinoma can spread through Batson's venous plexus. Batson's venous plexus is epidural and vertebral venous plexus communicating directly with the pelvic veins, intercostal veins, the azygous vein and vena cava. Batson's para spinal venous plexus is a rich valve less venous anastomosis and this offers a very minimal resistance to the spread of tumour emboli especially when the intrathoracic or intraabdominal pressure is increased. In this way through the Batson's venous plexus, renal cell carcinoma can cause metastasis to the head and neck region. The presence of multiple arteriovenous shunts could provide additional propulsive force for the spread of the tumour emboli.[6] The thyroid gland is the most common site of distant metastasis of renal cell carcinoma in the head and neck region followed by nose and paranasal sinuses.[6] Most of the malignant tumours arising in the external auditory canal are primary tumours like squamous cell carcinoma or basal cell carcinoma, metastatic tumour should also be included in the differential diagnosis of soft tissue mass in the external auditory canal.

Carcinoma of the external auditory canal is a rare disease. Carcinoma of the external auditory canal can be a primary or metastasis from the other sites.[7] Squamous cell carcinoma is more common in the external auditory canal compared to basal cell carcinoma. These malignancies present as a space occupying lesions in the external auditory canal and can cause otorrhea, otalgia or reduced hearing.[8] It is difficult to differentiate malignant lesions from the benign lesions of the external auditory canal based on clinical features alone. The common primary sites of metastasis to the temporal bone is breast followed by lungs, kidney.[9] Metastasis to the temporal bone is common in petrous temporal bone, internal auditory canal, mastoid process and is very rare in external auditory canal.[9]

Our patient (case 1) had presented with history of profuse bleeding from the ear which can be explained by the rich vascularity of the metastatic renal cell carcinoma. After a thorough literature search, we found only 4 reported cases of renal cell carcinoma that metastasized to external auditory canal. In two of the cases, the metastasis in the external auditory canal was the presenting feature and a detailed evaluation later revealed to be renal cell carcinoma.[2,10] According to the literature, it is known that 25-30% of renal cell carcinoma metastasize at initial presentation.[1] The median time from the nephrectomy to distant metastasis was 1.6 years (range 0 to 25).[11] The most interesting feature in this case is metastatic renal cell carcinoma presenting in the left external auditory canal after four years of completion of treatment of renal cell carcinoma. The patient did not show any evidence of locoregional recurrence at the time of presentation. Surgical resection remains the cornerstone for the treatment of renal cell carcinoma. Renal cell carcinoma is radioresistant, however radiotherapy has been found effective in metastatic renal cell carcinoma.[5] This patient was treated with surgery followed by hypofractionation radiotherapy.

Metastatic lesions in the oral cavity are very rare accounting for approximately 1% of oral cavity malignancies.[12] It has been mentioned in the literature that the common site of metastatic renal cell carcinoma in the oral cavity is tongue. Possible routes of metastatic spread to the tongue include lymphatic, arterial and venous spread. Metastases are mostly located in the base of the tongue due to its rich vascular supply.[13] Azam et al reported a case of tongue metastasis as an initial presentation of renal cell carcinoma.[13] Their patient underwent surgical debulking of a rapidly growing metastatic tongue lesion followed by radiotherapy to the oral cavity. Our patient (case 2) had presented with an extensive growth in the oral cavity. In view of extensive disease and multiple distant metastasis the option of palliative and supportive care was given to the patient. However, patient refused to undergo any treatment. Our third patient had presented with metastasis in the left temporal region. Metastasis to the temporal region is a very rare presentation. The metastatic pattern of the renal cell carcinoma is varied in presentation. Renal cell carcinoma has been associated with rare metastatic sites in the head and neck region.

CONCLUSION

Careful examination should be undertaken in renal cell carcinoma patients during their follow-up post nephrectomy, as there is high chance of distant metastasis. The distant metastasis can occur at a variable duration post nephrectomy. Metastatic renal cell

carcinoma should be considered in the differential diagnosis if there is a rapidly growing vascular lesion in the head and neck region.

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REFERENCES

1. Motzer RJ, Bander NH, Nanus DM. Renal cell carcinoma. New England J Med. 2012;335(12):865-873.
2. Ingelaere PPC, Simpson RHW, Garth RJN. Metastatic renal cell carcinoma presenting as an aural polyp. J Laryngol Otol. 1997;3:1066-8.
3. Seijas BP, Franco FL, Sastre RM, Garcia AA, Lopez JL. Metastatic renal cell carcinoma presenting as a parotid tumor. Oral Surg Oral Med Oral Pathol Oral Radiol Endod. 2005;99:554-7.
4. Flanigan RC, Campbell SC, Clark JI, Picken MM. Metastatic renal cell carcinoma. Current treatment options in oncology. 2003;4:385-90.
5. Atzopodien J, Kirchner H, Illiger HJ, Metzner B, Ukena D, Schott H, et al. IL-2 in combination with IFN-alpha and 5 FU versus tamoxifen in metastatic renal cell carcinoma: long term results of a controlled randomised trial. Br J Cancer. 2001;85(8):1130-6.
6. Pritchyk KM, Schiff BA, Newkirk KA, Krowiak E, Deeb ZE. Metastatic Renal cell carcinoma to the head and neck. Laryngoscope. 2002;112:1598-602.
7. Shenoy A, Jyothy S, Rao K, Hazarika P. Carcinoma of External Auditory Canal. Indian J Otolaryngol Head Neck Surg. 2011;53(3):229-31.
8. Devaney KO, Boschman CR, Willard SC, Ferlito A, Rinaldo A. Tumours of the external ear and temporal bone. Lancet Oncol. 2005;6:411-20.
9. Vasileiadis I, Kapetanakis S, Vasileiadis D, Petoutis A, Karatzas T. External Auditory Canal Mass as the first manifestation of a Bronchogenic Carcinoma: Report of a rare case. Ann Otol Rhinol Laryngol. 2013;122(6):378-81.
10. Michaelson PG, Lowry TR. Metastatic renal cell carcinoma presenting in the external auditory canal. Otolaryngol Head Neck Surg. 2005;133:979-80.
11. Hoffmann NE, Gillett MD, Cheville JC, Lohse CM, Leibovich BC, Blute ML. Differences in organ system of distant metastasis by renal cell carcinoma subtypes. J Urol. 2008;179:474-7.
12. Will TA, Agarwal N, Petruzzelli GJ. Oral cavity metastasis of renal cell carcinoma: A case report. J Med Case Reports. 2008;2:313.
13. Azam F, Abubakerr M, Gollins S. Tongue metastasis as an initial presentation of renal cell carcinoma: a case report and literature review. J Med Case Reports. 2008;2:249.

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