

Metastatic Renal Cell Carcinoma in Nasopharynx-A Paradox: Case Report and Review of Literature

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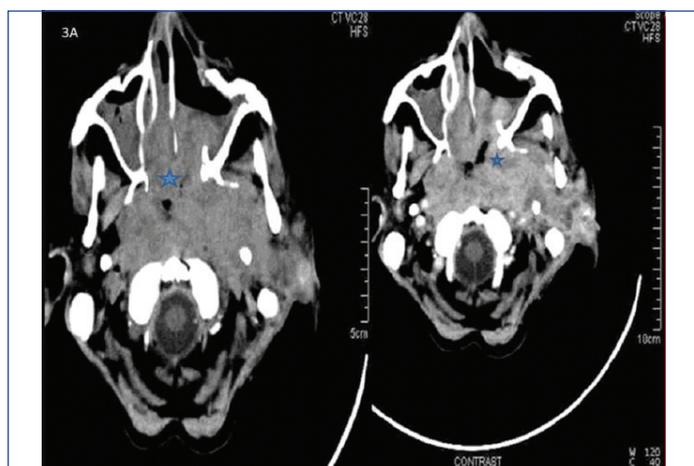
ABSTRACT

Metastatic renal cell carcinoma of the head and neck is extremely rare. Metastasis to the nasopharynx is extremely unusual and can be misdiagnosed as primary of the specific site hindering further management. The present case report of an 82-year-old male presenting with epistaxis was found to have a nasopharyngeal mass on radiology. Microscopic evaluation of the nasopharyngeal mass revealed a highly vascular clear cell tumour with cells arranged in alveolar and trabecular pattern. Immunohistochemical assessment revealed positive PAX 8, CD10 and vimentin which are highly specific for metastatic renal cell carcinoma. Retrospective computed tomography scan revealed a renal mass; however, the patient succumbed before any biopsy could be performed.

Keywords: Clear cell tumour, Epistaxis, Immunohistochemistry

CASE REPORT

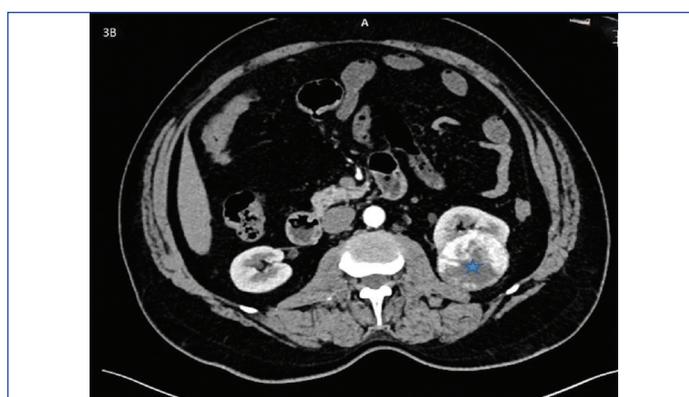
A 82-year-old man presented with recurrent epistaxis for a month. Endoscopy revealed a highly vascular mass in the nasopharynx. CT scan of the head and neck was done which revealed a large extensive infiltrating mass lesion in the nasopharynx extending into the posterior part of both halves of nasal cavity. Lesion was inhomogeneously enhancing on post contrast scan. Erosion of petrous bones and extension into left infra temporal fossa was also noted [Table/Fig-1a].



[Table/Fig-1a]: Pre and post contrast CT showing a vascular enhancing nasopharyngeal mass marked with a star.

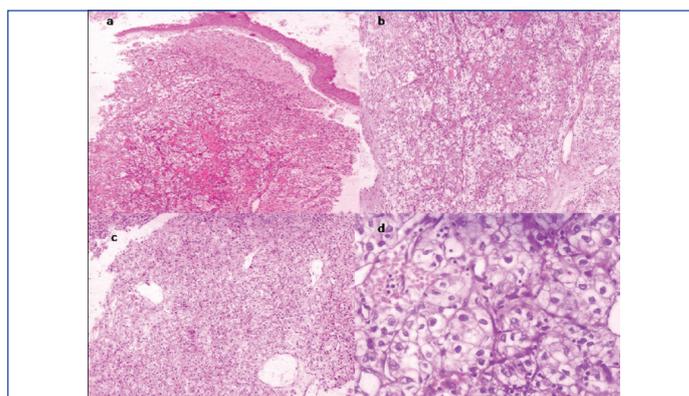
Computed tomography was performed and showed a focal well marginated space occupying lesion of size 55×48 mm at posterior cortex interpolar region of left kidney [Table/Fig-1b]. Hence, a diagnosis of metastatic renal cell carcinoma was made. However, biopsy or nephrectomy could not be performed as the patient succumbed to the disease.

Biopsy of the mass was performed and sent for histopathological examination. It showed a clear cell lesion arranged in alveolar and trabecular pattern with extensive vascularity, just below the respiratory epithelium [Table/Fig-2a-c]. These cells were large and had high nuclear: cytoplasmic ratio, hyperchromatic nuclei with inconspicuous nucleoli [Table/Fig-2d]. A review of clinical symptoms was demanded from the clinician and no abdominal or urinary symptoms were observed. A thorough clinical examination was also performed and no abdominal mass was found.



[Table/Fig-1b]: CT scan showing a well marginated lesion in the left kidney marked with a star.

Even though many lesions can have clear cells in the nasopharynx [Table/Fig-3], the characteristic alveolar arrangement and high vascularity, made us suspect metastatic renal cell carcinoma too, despite it being a remote possibility. A panel of immunohistochemical markers consisting of Melan A, HMB5, synaptophysin, chromogranin, CK 5/6, p63, CD45, CD10, PAX 8 and vimentin was done. Immunohistochemistry turned out positive for CD10, PAX 8, Vimentin [Table/Fig-4a-c]. This made us hint the surgeon on the possibility of metastatic renal cell carcinoma.



[Table/Fig-2]: H&E showing: a) diffuse infiltrative tumour cells arranged in nests just below the pseudostratified ciliated columnar lining of the nasopharynx at 4X; b) and c) Tumour cell population consisting of clear cells with prominent vascular proliferation at 10X; and d) individual tumour cells arranged in alveolar pattern with hyperchromatic nuclei, inconspicuous nucleoli and abundant clear cytoplasm at 40X.

DISCUSSION

Renal cell carcinoma is a highly aggressive, vascular and lethal malignancy of elderly patients in age group of 65-74 years with propensity to metastasise. It accounts for 90% of renal malignancies in adults and approximately 3% of adult malignancies [1]. Clear cell renal cell carcinoma accounts for 70-80% of renal cell carcinoma [2]. It is more common in men than women (SEER stat fact sheets). The well known triad of renal carcinoma i.e., haematuria, flank pain and renal mass is seen in only 10% of patients with the disease [3]. More than one-third of the patients with renal carcinoma presents with distant metastases as the initial presentation. The common sites of metastasis of renal cell carcinoma are lungs (75%), regional lymph nodes (65%), bone (40%), liver (40%) and brain (5%) [4,5]. The metastatic pattern of renal cell carcinoma is unpredictable with many unusual sites. While metastasis to head and neck per se is very rare, with thyroid and brain being the preferred sites; the nasopharyngeal metastases are much rarer. It is an extremely unusual site with less than 50 cases reported till date [6].

The clinical impression of vascular space occupying lesion in nasopharynx raises the possibilities of primary lesions like angiofibroma, glomus tumours, haemangioma or haemangiopericytoma [7]. In an elderly patient, distant metastasis should be given a considerable thought. Metastasis to nasopharynx are extremely rare and includes melanoma, renal, lung and breast cancers [8].

The tumour cells of the clear cell renal cell carcinoma can metastasise to the nasopharynx via two possible routes. One, the caval route, where the tumour cells ascends via the inferior vena cava to the right heart and then to the lungs coming via the pulmonary vein and then entering the aorta and then via the maxillary artery reach the nasopharynx. In the second retrograde route, the tumour cells enter the Batson's plexus and enter the cranium via the internal jugular vein and reach the nasopharynx by unusual flow patterns [9].

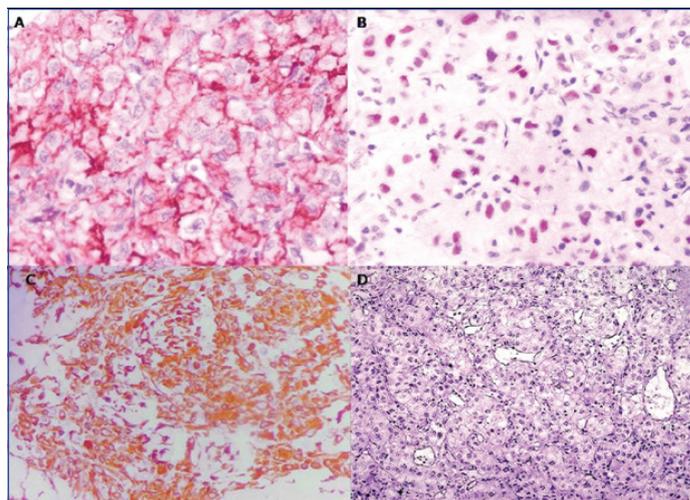
Even though patients with metastatic renal cell carcinomas have bad prognosis, the further patient outcome depends on the histological grade and clinical status of the patient [10]. However, the National Comprehensive Cancer Network practice guidelines for kidney cancer states that patients with a resectable tumour and a single metastasis would benefit from nephrectomy and metastasectomy. Also, radiotherapy has been proven to be a useful adjunctive therapy for symptomatic control in patients with metastatic renal cell carcinoma of the nose and paranasal sinuses, offers good symptomatic control even if the primary tumour is not resectable [11].

Histopathological examination of the lesion showed an encapsulated tumour mass lying beneath the lining respiratory epithelium composed of clear cells arranged in an alveolar pattern with extensive

IHC	CK 5/6	HMB 45	CD 10	PAX 8	SYN-APTO-PHYSIN	VIMEN-TIN	P63
Metastatic renal cell carcinoma [12]	-ve	-ve	+ve	+ve	-ve	+ve	-ve
Nasopharyngeal squamous cell carcinoma [13]	+ve	-ve	-ve	-ve	-ve	-ve	+ve
Melanoma	-ve	+ve	-ve	-ve	+ve	-ve	-ve
Paraganglioma [14]	-ve	-ve	-ve	-ve	+ve	-ve	-ve
Hyalinising clear cell carcinoma [15]	+ve	-ve	-ve	-ve	-ve	-ve	+ve
Present case	-ve	-ve	+ve	+ve	-ve	+ve	-ve

[Table/Fig-3]: Showing comparative IHC panel of clear cell tumors of nasopharynx.

vascular proliferation. Based on histology, a differential diagnosis of melanoma, lymphoma, paraganglioma, nasopharyngeal carcinoma and hyalinising clear cell carcinoma were considered. A detailed immunohistochemical workup was performed and immunopositive markers have been shown in [Table/Fig-4]. PAX 8 was considered to be more sensitive than PAX 2 even in metastatic renal cell carcinomas [16], and RCC antigen has been reported to be positive in a number of non renal tumours [17]. Therefore the immunohistochemical workup with CD10, PAX 8, HMB45, Leucocyte Common Antigen (LCA) (CD45), Vimentin, P63 and CK 5/6 was performed. Positivity for CD10, PAX 8 and Vimentin and negativity for LCA confirmed the diagnosis of metastatic renal cell carcinoma of nasopharynx [Table/Fig-4a-d].



[Table/Fig-4]: Immunohistochemistry showing: a) membrane positivity of CD10 (40X); b) nuclear positive staining of PAX 8 (40X); c) Positive staining of vimentin (40X); d) negative staining of LCA (10X).

CONCLUSION

In conclusion, nasopharyngeal metastasis of an asymptomatic renal cell carcinoma is very rare. It should be suspected and investigated in patients presenting with highly vascular tumours of the head and neck and more so, if the microscopy shows clear cells. Hence, in every person with a nasopharyngeal mass, a histological diagnosis is a mandatory requirement despite the risk of heavy bleeding. Early suspicion and prompt diagnosis can be beneficial to the patient and even curative surgery or radiotherapy can be offered for a good quality of life. Therefore, this case report highlights the importance of histopathology along with immunohistochemistry in the diagnosis of a nasopharyngeal mass even with apparently innocuous clinical presentation and throws light on the indispensable and vital role of pathologists.

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