

Metastatic Renal Cell Carcinoma Presenting as Nasal Mass: Case Report and Review of Literature

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Abstract Sinonasal neoplasms are rare and exceptional site for metastatic tumours and comprising <3 % of all malignant aerodigestive tumours and <1 % of all malignancies. Renal cell carcinoma is known to metastasise to the most unusual sites, the sinonasal region being one of them. We here by present a case of 60 year old male patient who presented with epistaxis and nasal obstruction. Clinical examination and CT scan revealed a tumour in the right nasal cavity and maxillary sinus. The presence of primary renal cell carcinoma was recognized only after surgical removal of metastatic tumour. Very few reports have been presented in literature of metastatic renal cell carcinoma in the sinonasal region. We present this case to document its occurrence; highlight the rarity, presentation and difficulties in diagnosis and treatment along with review of literature.

Keywords Sinonasal region · Renal cell carcinoma (RCC) · Epistaxis · Metastasis

Introduction

Renal cell carcinoma (RCC) may present with diverse range of clinical manifestations and becomes a diagnostic dilemma with its unusual presentations. The same is true for tumour recurrence even several years after primary

tumour resection. RCC is an aggressive tumour, representing approximately 3 % of all malignant tumors [1], with 25–30 % of overt metastases at initial presentation [2]. Renal cell carcinoma is the primary tumour which most frequently metastasises in the sinonasal region and occasionally metastatic sinonasal tumours from other sites, mainly the kidneys and, to a lesser degree, the lungs and breast, may manifest with nasal symptoms [3]. But, as such Sinonasal region is an exceptional site, with very few cases reported in literature [1, 4]. Due to the significant vascularisations of the tumour, epistaxis is the most common sign of metastasis to sinonasal area [5–7]. This article is to report a rare case of metastatic RCC involving nose and maxillary sinus.

Case Report

A 60 year old male presented with complains of recurrent bleeding from the right nostril and history of nasal obstruction since 2 months. On anterior rhinoscopy an irregular mass was seen occupying the entire right nasal cavity which bled on touch with probe test. The left nasal cavity was normal. To work up nasal mass a CT scan of paranasal sinuses was done which reported a heterogeneously enhancing mass, occupying the right nasal cavity and maxillary sinus, and extending into the nasopharynx with no obvious bone erosion. Biopsy of the nasal mass was taken and sent for histopathological examination but report came to be inconclusive and Primary nasal tumour was suspected clinically.

Subsequently, patient was prepared for surgery and pre operatively ultrasound abdomen was done which revealed absent right sided kidney. Leading questions were asked to the patient and his past reports were collected which

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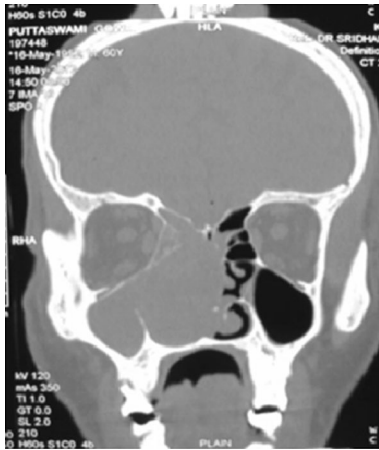


Fig. 1 CECT images: Plain CT image showing involvement of right nasal cavity and maxillary sinus



Fig. 2 CECT images: CT image with contrast showing a heterogeneously enhancing mass

showed that he had undergone right sided nephrectomy (T1N0M0) 6 years back. Patient was taken up for surgery and lateral rhinotomy with medial maxillectomy with tumour excision was done. Intra operatively tumour was found to be vascular with clear margins and after removal of tumour, bleeding from sphenopalatine artery pedicle was recognized which was ligated.

Post operative recovery was uneventful and histopathological examination of tumour revealed metastatic renal cell carcinoma. Patient was advised chemo radiotherapy which he refused. On follow up after 6 months and 1 year there was no evidence of local recurrence and distant metastasis. At present patient is disease free and is on regular follow up (Figs. 1, 2).

Histopathological report was suggestive of diagnosis of metastatic renal cell carcinoma, of clear cell type, in the right sinonasal region (Figs. 3, 4.)

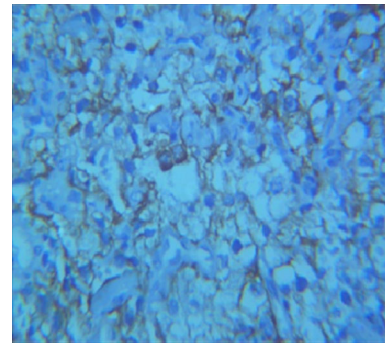


Fig. 3 Histopathological images: Photomicrograph showing immunohistochemical stain for CK in metastatic RCC (40×)

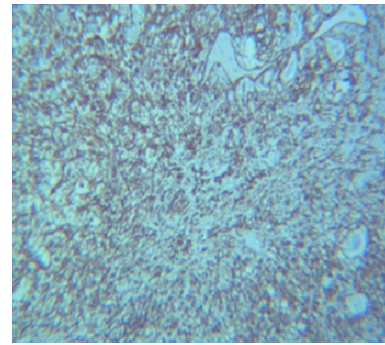


Fig. 4 Histopathological images: Photomicrograph showing immunohistochemical stain for Vim in metastatic RCC (10×)

Discussion

Nose and paranasal sinuses are unusual site for metastatic tumours and renal cell carcinoma is well known for its propensity to metastasize. Nearly 50 cases of nasal metastases and about 105 cases of maxillary involvement have been reported in literature so far [8, 9]. The clinical course of the primary tumour is often unpredictable, with spontaneous regression noted. Metastases may be found at diagnosis in 25–30 % of the patients, or at some interval after nephrectomy. Longer intervals of up to 17 years have been reported in literature [6]. Unusual sites of metastases are characteristic of RCC and virtually any organ site can be involved, including the thyroid, pancreas, skeletal muscle and skin or underlying soft tissue. The median time before a relapse after nephrectomy is 15 months, and 85 % of relapses occur within 3 years [10]. The 5-years survival rate after nephrectomy is approximately 60–75 % and with multiple metastases is 0–5 % [11].

Most common presenting symptom epistaxis can be described as tumour is hypervascular due to the presence of abundant sinusoids and high vascularity of the tumour can be explained by mutation of the VHL gene, which causes upregulation of hypoxia-induced factor 1 α , which in turn leads to angiogenesis through VEGF upregulation [8].

The possibility of metastasis should be considered when carcinomas of unusual morphology are encountered in the sinonasal area [2]. Study of literature reported 46 cases of metastatic tumours in the head and neck region, of which four were in the nasal cavity and paranasal sinuses, with one case of RCC involving the maxillary sinus [12]. RCC is the most common primary tumour to metastasise to the paranasal sinuses, the maxillary sinus being most commonly involved [1].

The possible mechanism of such unusual metastasis in our patient can be haematogenous, lymphatic or both. Tumour cells spread either through the inferior vena cava or through the Batson's paravertebral venous plexus, which allows the cells to escape the pulmonary capillary filter and spread to unusual sites.

Clinically the main differential diagnosis includes angiofibromas, inverted papilloma, squamous cell carcinoma and adenocarcinoma of nose or metastatic tumours from breast and lungs. A paranasal sinus CT scan provide some hints about the benign or malignant nature of the lesion, such as tumour expansion, bone erosion and remodelling (signs of malignant and metastatic lesions), hypervascularity, expansion of the sphenopalatine foramen and pterygopalatine fossa (angiofibromas).

Mostly biopsy from metastatic renal cell carcinoma is inconclusive due to diffuse necrosis of the lesion. Some authors advocate selective embolization prior to tumour biopsy particularly if there is a known history of nephrectomy [13, 14]. Treatment modalities include radiotherapy and immunochemotherapy as suggested for metastatic diseases, but surgery remains the mainstay for treatment because most metastatic tumours in the nasal or paranasal sinuses are single.

Conclusion

Metastasis in renal cell carcinoma is known entity and its presentation in sinonasal region represents the unpredictability of the tumour. Poor prognostic factors, multiple metastasis, and unusual presentation of the tumour make it more difficult for the clinician to diagnose and intervene. The purpose of this case report is to highlight metastatic renal cell carcinoma as a differential diagnosis in patient presenting with recurrent epistaxis and nasal mass. A good clinical history, proper radiological evaluation and biopsy are necessary to establish the diagnosis.

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Compliance with Ethical Standards

Conflict of interest None.

Ethical Approval The case report involving the particular participant were in accordance with the ethical standards of the institution.

Informed Consent Informed consent was obtained from the participant included in the case report for publishing the details.

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