

## CLINICAL CASE

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### Unusual metastasis of renal cell carcinoma to the nasal cavity

F.Ö. Dinçbas<sup>1</sup>, B. Atalar<sup>1</sup>, D.Ç. Öksüz<sup>1</sup>, F.V. Aker<sup>2</sup>, S. Koca<sup>1</sup>

<sup>1</sup>Istanbul University, Cerrahpasa Medical Faculty, Department of Radiation Oncology, Istanbul; <sup>2</sup>Haydarpasa Numune Hospital, Department of Pathology, Istanbul, Turkey

#### Summary

Metastasis of renal cell carcinoma (RCC) to the nose and paranasal sinuses is very rare. We present two cases of RCC metastatic to the nose who were treated with palliative radiotherapy. Although the prognosis was poor for both

of the patients, the main symptoms (epistaxis and unilateral airway obstruction) were successfully palliated with irradiation.

**Key words:** metastasis, nose, radiotherapy, renal cell carcinoma

#### Introduction

Renal cell carcinoma represents 2% of all cancers in the adult population [1]. The disease is rare in children and young adults and the average age on presentation is 55 to 60 years [1]. Approximately 50% of the patients present with metastatic disease [2]. The most common metastatic sites from RCC are the lung, bone and liver [3]. Metastases to the head and neck region are rare in RCC. However, the most common primary malignancy metastasizing to the sinonasal cavity is RCC. Patients with metastasis to the sinonasal cavity usually complain of epistaxis, nasal obstruction, and rarely of facial pain. When the tumor is locally advanced ophthalmic symptoms may be present.

There are few reports about sinonasal metastasis of RCC in the literature. Surgical resection, radiotherapy, embolisation, and external artery ligation are

the most common treatment modalities for local symptomatic control [4, 5].

We present herein 2 cases with nasal metastasis from RCC treated with radiotherapy, and review the relevant literature.

#### Case presentations

##### Case 1

A 58-year-old female with RCC was referred to our department with a nasal mass. She had a right nephrectomy performed 15 days before her referral. The nasal mass was located in the lower part of the nasal cavity and expanded to the outside of the cavity. There was also hyperemia on the nasal wings and obstruction of the airway. A biopsy of the nasal mass showed metastatic RCC. Lung and bone metastases were also detected after full staging work-up. The patient was put on interferon A and the nasal mass was irradiated to a total tumor dose of 48 Gy in 24 fractions with a single anterior field. She also received 40 Gy in 20 fractions to the painful metastatic ribs with very good palliative effect.

The obstructive symptoms improved greatly even though there was no clear regression of the metastatic mass. However, her performance status was not good due to lung metastases and she was lost to follow up after 1 month.

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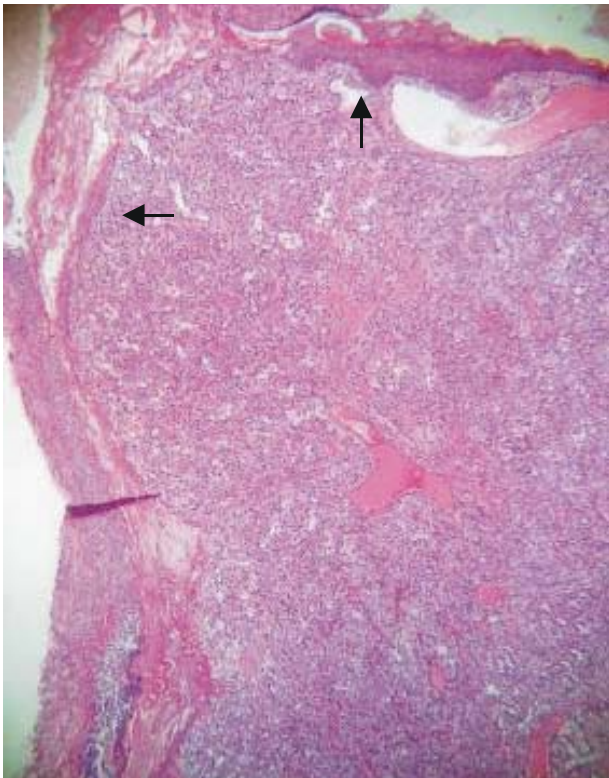
Author and address for correspondence:

Fazilet Öner Dinçbas, MD  
Istanbul University, Cerrahpasa Medical Faculty  
Department of Radiation Oncology  
34303 Fatih, Istanbul  
Turkey  
Tel: +90 212 4143098  
Fax: +90 212 4143097  
E-mail: FaziletOnerDincbas@hotmail.com

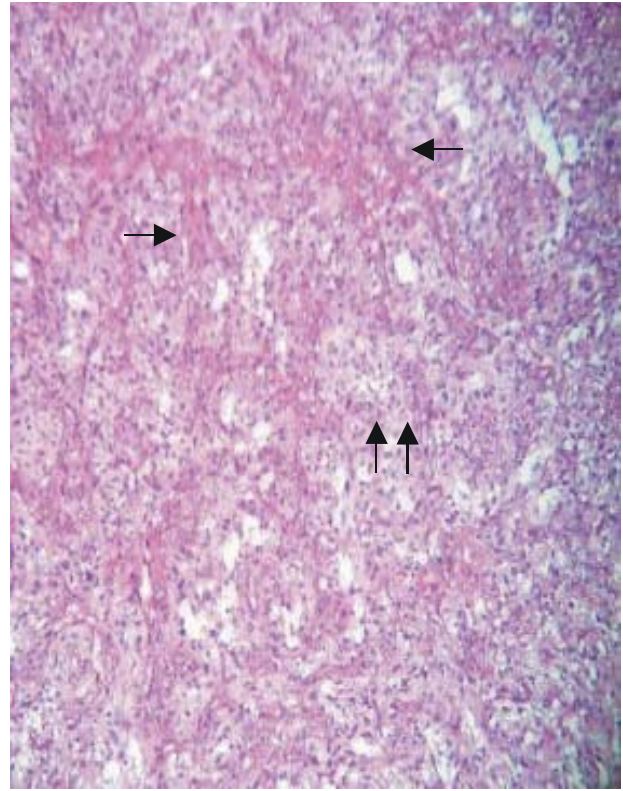
### Case 2

A 72-year-old male with RCC had a nephrectomy performed 1 year before he was referred to our department with epistaxis and a metastatic nasal mass measuring 3×2.5cm. Biopsy of the mass showed RCC (Figures 1-4). The patient was treated with intracavitary high dose rate brachytherapy with a 5 cm Ir<sub>192</sub> source and 3 Gy per fraction were given to the reference volume 1cm axis at the source. The source length was decreased to 3 cm while the tumor regressed during treatment after 6 fractions. Two months after irradiation, at the control cranial tomography and nasal examination, the nasal mass had totally regressed, but a solitary brain metastasis was found in the frontal lobe. He received 30 Gy whole brain irradiation, and had a boost dose of 10 Gy to the solitary mass.

After an asymptomatic period of 8 months, the patient was readmitted to our clinic with epistaxis and nasal mass recurrence (Figure 5). He had also a painful soft tissue mass in the left cruris. He was treated with palliative radiotherapy 30 Gy to the crural mass, and had also intracavitary reirradiation with a 3 cm source length and 9 Gy in 3 fractions. His epistaxis stopped but there was no regression in the nasal mass. He had been under follow up without symptoms for 2 months.

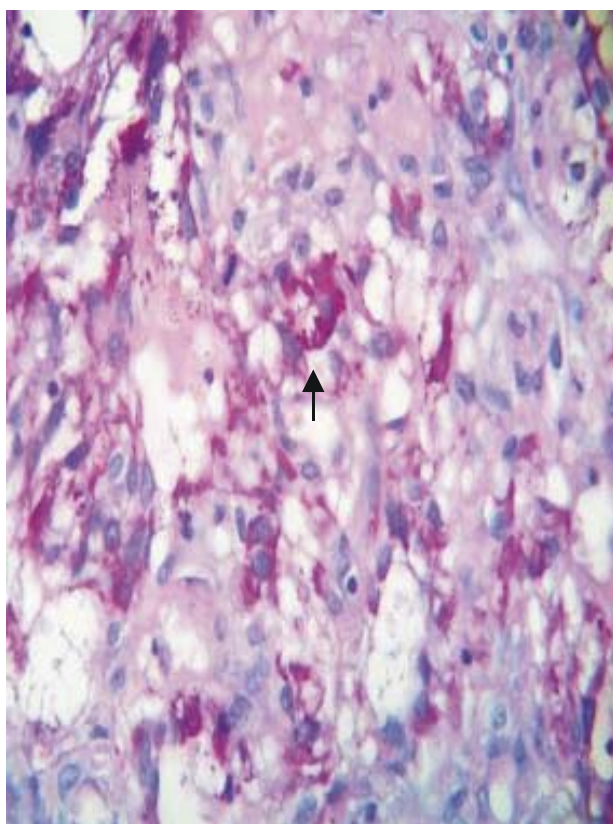


**Figure 1.** Case 2. Tumor tissue (arrows) lying beneath the squamous epithelium (H&E ×40).



**Figure 2.** Case 2. Prominent vascularity, lobular pattern (single arrows) and tumor cells with clear and granular eosinophilic cytoplasm (double arrow) (H&E ×100).

**Figure 3.** Case 2. Diffuse and strong positivity with cytokeratin in tumor cells (IHC ×100).



**Figure 4.** Case 2. Tumor cells (arrow) displaying PAS positive staining in the cytoplasm (PAS  $\times 200$ ).

## Discussion

RCC usually metastasizes to the lung, bone and liver. However, this cancer is the most common infradiaphragmatic tumor metastasizing to the head and neck region [6]. Although there are few reports about metastases to the nasal cavity, Fredman et al. reported that RCC was the origin of nasal cavity metastases in 16 out of 20 patients [7]. In a literature review by Debois, from 24 cases with metastases to the nasal cavity, half of them were from RCC [6].

It is difficult to explain the tendency of RCC to metastasize to the sinonasal cavity. There are some



**Figure 5.** Case 2. Metastatic nasal mass (arrow).

reports about the mechanism of metastasis of RCC, both by means of hematogenous or lymphatic spread; however, the mechanism is not very clear and poorly understood [4, 6]. Head and neck metastasis from RCC usually presents simultaneously with other sites both by means of hematogenous or lymphatic spread; however, the mechanism is not very clear and poorly understood [4,6]. Head and neck metastasis from RCC usually presents simultaneously with other sites of metastasis, especially with lung or bone metastasis, as we have observed in our patients.

Usually the presenting symptoms are epistaxis and unilateral nasal obstruction. While these metastases have rich vascular capillaries, external carotid artery embolization may be required in order to control bleeding. This richness of capillaries may cause difficulty in taking biopsy for diagnosis.

Radiotherapy may play a role in the palliation of symptoms, although RCC is believed to be a radioresistant tumor. Reports about the results of radiotherapy show 64-86% palliation rates in metastatic RCC [8,9]. Simo's et al. in their series with 6 cases used 35-42.5 Gy in 8 to 15 fractions and achieved 2 complete and 3 partial responses, with long-term palliation of the patients [4]. Our patients achieved 1 complete and 1 partial response with satisfactory palliation. Although there are some conflicting reports about the total dose and fractionation, moderate doses (30-45 Gy) may be adequate in controlling the disease and achieving palliation.

Local excision and embolization may be alternative treatment choices [5]. Debulking can be used after radiotherapy in the partially responded patients. There are some reports on surgery with good survival rates [5].

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