

## Oncology

## Metastatic renal cell carcinoma presenting with both acute stroke and an oral lesion



Alexander L. Nesbitt<sup>a,\*</sup>, Zhong Li Titus Lim<sup>a</sup>, Kit June Chan<sup>a</sup>, Ibrahim Zardawi<sup>b</sup>,  
Simon W. Pridgeon<sup>a</sup>

<sup>a</sup> Department of Surgery, Cairns Hospital, 165 Esplanade, Cairns, 4870, Q, Australia

<sup>b</sup> Pathology Queensland, Cairns Hospital, 165 Esplanade, Cairns, 4870, Q, Australia

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## Introduction

Renal cell carcinoma (RCC) is most commonly identified incidentally from imaging for unrelated abdominal conditions but may also present with local symptoms, paraneoplastic syndromes or symptoms from metastatic disease. Common sites of metastasis include lung, lymph nodes and bone. Rarer sites of spread include cerebral and cutaneous metastases; distant disease in the oral cavity and facial skin has been described.<sup>1</sup> Patients who present with atypical lesions can present a diagnostic dilemma; histopathological analysis with immunohistochemistry is usually needed to confirm the underlying primary malignancy. We present a case of a patient presenting with symptomatic, synchronous metastases from a primary RCC with lesions at different sites in the absence of symptoms related to the undiagnosed primary tumour.

## Case presentation

A fifty-nine year old male mechanic was working in a small third world country when he developed a painless ulcerative lesion in the buccal mucosa above tooth 1–3. A local dentist performed root canal treatment followed by a course of oral antibiotics. The lesion persisted despite this treatment.

Three weeks later, he awoke with a complete loss of sensation of his left arm. Over the next few days, he developed progressive weakness in the left upper limb, and presented to his local Emergency Department. A CT scan of his brain was reported as showing multiple large ischaemic

infarcts. An international transfer was arranged to Australia for tertiary level treatment. Following a full assessment by the neurologists, the patient was admitted with a working diagnosis of ischaemic stroke. Further brain imaging using contrast enhanced MRI was performed demonstrating multiple cerebral lesions consistent with metastases with surrounding vasogenic oedema (Fig. 1).

During the patient's admission, the oral and maxillo-facial surgery team was consulted for the non-healing oral lesion. Clinical examination revealed a non-fluctuant 3 cm ulcerated mass in the buccal mucosa above tooth 1–3. It was considered most likely to be an infective mass, but a primary squamous cell carcinoma or other malignant lesion could not be excluded. The patient proceeded to have the involved teeth extracted with simultaneous incisional biopsy of the buccal mass under general anaesthetic.

A contrast enhanced CT scan of the chest, abdomen and pelvis was performed showing a 7 cm heterogenous, mixed solid and cystic mass arising from the upper pole of the left kidney consistent with a primary renal cell carcinoma (Fig. 2). Multiple bilateral pulmonary metastases were present. Percutaneous renal biopsy was performed to assess the cell type to guide potential systemic therapy.

Histopathological analysis from the buccal lesion revealed a malignant spindle cell sarcomatous tumour, with positivity for PAX8 on immunohistochemistry (Fig. 3). Expert opinion was sought and the specimen was reported as consistent with metastatic RCC of sarcomatoid type. The core renal biopsies showed spindle cells with nuclear pleomorphism, and immunostains were consistent with a sarcomatoid RCC (Fig. 3).

\* Corresponding author.

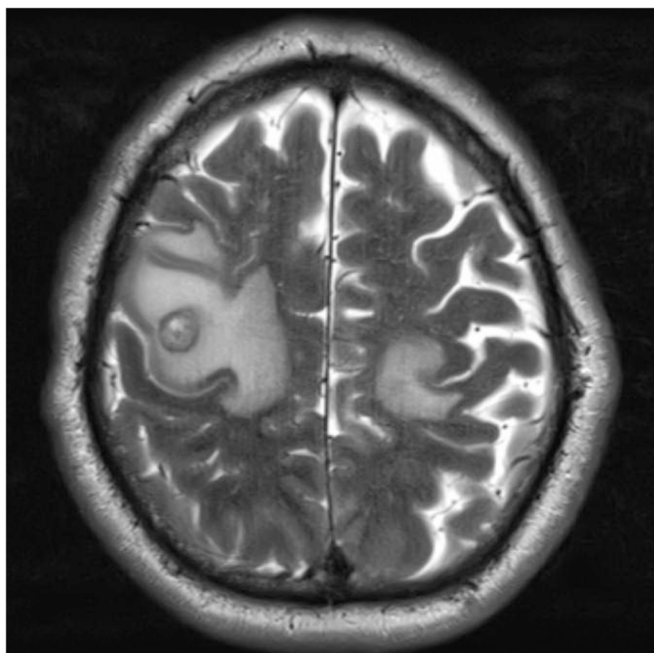
E-mail address: [alexnesbitt1@gmail.com](mailto:alexnesbitt1@gmail.com) (A.L. Nesbitt).

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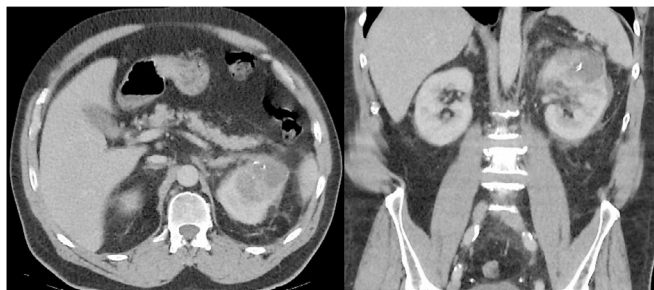
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**Fig. 1.** Contrast enhanced magnetic resonance imaging (MRI) scan of the brain showing abnormal enhancing cerebral lesion surrounded by vasogenic oedema, consistent with cerebral metastases.

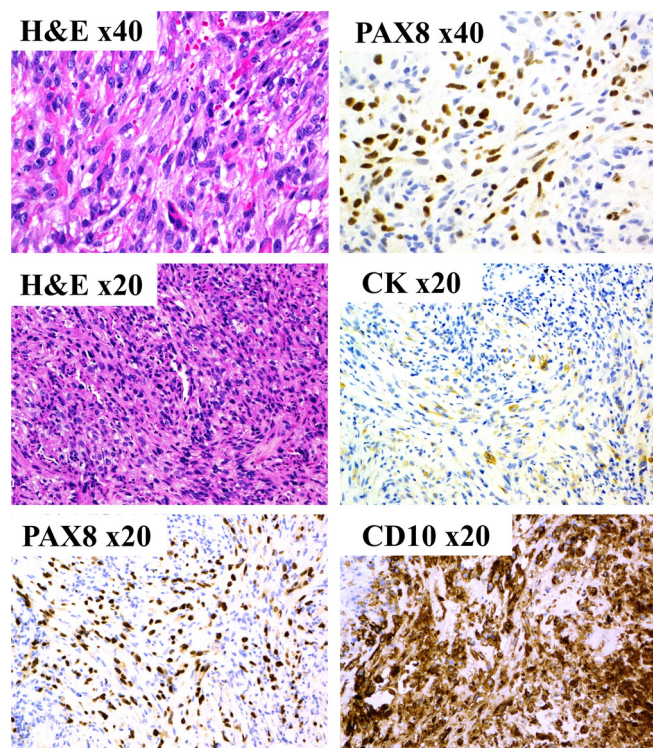


**Fig. 2.** Computed tomography (CT) scan showing a poorly defined complex mixed density mass arising from the upper pole of the left kidney, surrounded by perinephric fat stranding, consistent with a primary renal cell carcinoma.

Cytoreductive nephrectomy was not appropriate in the setting of high volume metastases and poor performance status. Systemic targeted therapies were unlikely to be of benefit in non-clear cell metastatic RCC. Over the next week his disease progressed, with deterioration in both upper and lower left limb neurology and cognitive impairment. The neurological symptoms improved with administration of dexamethasone, and the patient proceeded to have palliative whole brain radiotherapy. The buccal lesion demonstrated painful progression despite local palliative radiation. The patient was subsequently repatriated to his home country to be with family for best supportive palliative cares.

## Discussion

Intracranial haemorrhage due to metastatic lesions is a recognised differential diagnosis for patients presenting with acute neurological symptoms. In patients presenting with cerebral metastases, RCC needs to be considered as brain metastases are found in 2–17% of patients with metastatic RCC.<sup>2</sup> It is important also to consider cerebral metastases as a cause of neurological symptoms in patients with a prior history of RCC. Current staging guidelines do not recommend screening for brain metastases at diagnosis, unless symptomatic.<sup>2</sup> Brain metastases may present many years following primary nephrectomy, with reports



**Fig. 3.** The histological and immunohistochemical findings in biopsies from the oral cavity (upper row) and the kidney (lower 2 rows) are demonstrated. The tumour is made up of spindle cells with moderate to marked nuclear pleomorphism. The tumour cells are PAX8 and CD10 positive. Broad-spectrum cytokeratin AE1/AE3 is focally positive.

of up to eight years between nephrectomy and diagnosis of brain metastases.<sup>3</sup> Whilst patients with excellent performance status and solitary metastatic deposits to the brain may be candidates for aggressive treatment with metastasectomy, most patients undergo palliative treatment.<sup>2</sup> When surgery is not feasible, radiotherapy may be used with the intention to prolong survival or reduce morbidity from brain metastases.<sup>4</sup>

Oral metastases are much less common and less familiar to physicians. Of all malignant tumours in the oral cavity, approximately 1% are metastatic lesions.<sup>1</sup>

It has been reported that in patients with oral metastases, these lesions represent the first presenting symptom from an unknown primary in 23% of cases.<sup>5</sup> In men, primary cancer of the kidney is the second most common source of soft tissue oral metastasis, responsible for 14% of cases in a series reported by Hirschberg.<sup>5</sup> A recent review of RCC metastasising to the soft tissue of the oral cavity found 25 reported cases between 2007 – 2017.<sup>1</sup> In most of these cases there were other metastases either known at diagnosis or discovered shortly thereafter. Treatment is usually with palliative intent.<sup>1</sup>

## Conclusion

This is a rare case of renal cell carcinoma presenting with both symptomatic oral mucosal and cerebral metastases. An underlying malignancy should be suspected in any patient presenting with multifocal lesions at separate sites. Metastases from RCC are commonly seen at diagnosis and the primary tumour is easily characterised on abdominal cross-sectional imaging. Biopsy of secondary sites is usually performed to confirm a diagnosis of metastatic RCC. Sarcomatoid RCC is an aggressive histological variant with few systemic treatment options and a poor prognosis.

**Consent**

The patient provided informed consent for the information presented here to be shared.

**Declarations of interest**

None.

**Conflicts of interest**

None.

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