Rare case of clear cell renal cell carcinoma presenting as a unilateral tonsil lesion

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SUMMARY

A 70-year-old man presented with gradually worsening throat discomfort. He had no prior diagnosis of cancer and no travel history of note. Examination revealed a right-sided painless neck lump. He underwent an MRI of the neck, revealing a gadolinium-enhancing tonsillar mass and two brain lesions. Biopsy of the tonsil lesion was in keeping with an epithelial neoplasm, suggesting metastatic renal cell carcinoma. This was confirmed following a staging CT, which revealed a left renal mass and lung metastases. Due to his brain metastases, the patient has been started on the tyrosine kinase inhibitor cabozantinib. A brief discussion on the diagnostic evaluation of a tonsil mass as a rare presentation of renal cell cancer follows this report.

BACKGROUND

Tonsil lesions have many causes; however, metastasis of a renal cell carcinoma (RCC) is very rare. This is particularly challenging in an individual with no prior cancer history. This case represents the importance of a wide differential and thorough evaluation of individuals presenting with a tonsil mass.

CASE PRESENTATION

A 70-year-old man was referred to the otolaryngeal department due to progressive throat discomfort and a right-sided neck lump that was unresponsive to several courses of antibiotics over the period of several weeks. He had a medical history of hypertension and hypercholesterolaemia, which he managed with amlodipine, lansoprazole, furosemide and atorvastatin. He had no family history or prior history of cancer. Further assessment via MRI of his neck confirmed a suspicious mass confined to the right tonsil (figure 1).

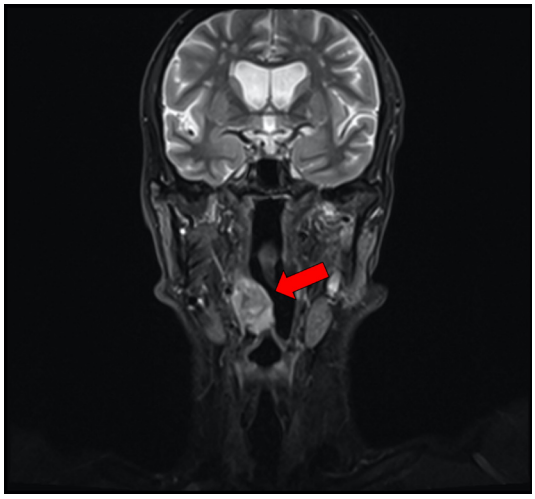

Figure 1 Coronal image of T2-weighted MRI of the neck with red arrow pointing to gadolinium-enhancing right tonsil mass.

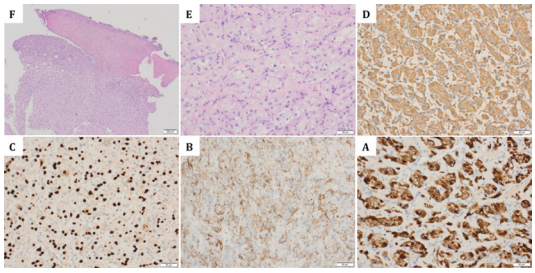

Figure 2 Histology of tonsil biopsy staining for (A,B) H&E at ×4 and ×20 magnification, (C) vimentin, (D) PAX8, (E) CD10 and (F) epithelial membrane antigen.

INVESTIGATIONS

The patient underwent a biopsy of the tonsillar lesion, revealing tumour cells which stained positive for vimentin and PAX8. The cells had focal weak staining for CD10, and were weakly positive for AE1/AE3 (figure 2A–F). Cells were negative for CD56, chromogranin, synaptophysin, cytokeratin (CK) 7, CK20, thyroid transcription factor 1 and Melan-A. Based on the morphological appearance, metastatic clear cell RCC was considered as a likely diagnosis.

A staging CT was then performed, which confirmed a left renal mass highly suspicious for an RCC primary (figure 3). Lung metastases were also noted on the scan. The neck MRI of the patient was suggestive of brain lesions, thus he underwent

Figure 3 Axial image from CT scan with contrast with red arrow pointing to a left renal mass.

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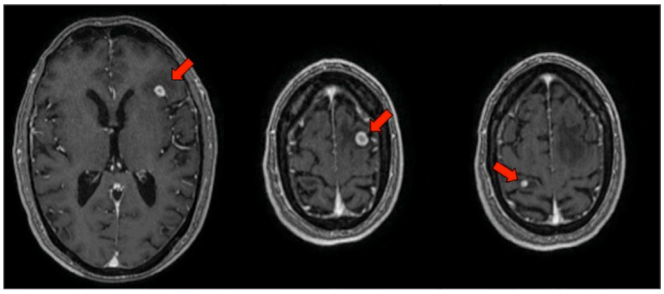

Figure 4 Axial images from T1-weighted MRI scan with gadolinium showing brain metastases, red arrows pointing to a small 5 mm lesion in the right front lobe, and to two enhancing nodules in the left front lobe (11 mm towards apex and 9 mm anteriorly).

an MRI of the head. This confirmed two enhancing left-sided lesions with surrounding oedema; the largest was 11 mm towards the apex with a 9 mm lesion more anteriorly. There was also a small right-sided lesion in the posterior aspect of the right frontal lobe, measuring 5 mm (figure 4). There was no mass effect and the patient was completely asymptomatic from them.

DIFFERENTIAL DIAGNOSIS

On initial evaluation, the neck lump was treated with antibiotics as it was thought to be benign. However, on referral to the otolaryngeal department, the tonsillar mass was highly suspicious for a neoplastic lesion due to progressive local symptoms. Common to the neck region, primary squamous cell cancer was initially suspected; lymphoma, melanoma and gastrointestinal malignancies were also plausible aetiologies.[1 2] However, to our surprise, the histological analysis of the tonsillar lesion was suggestive of a RCC of clear cell origin. Of note, paraganglioma was also considered in the histological differential diagnosis as they can have a similar morphology;[3] notwithstanding, this was disputed by the presence of metastatic lesions on the CT scans.

TREATMENT

While the patient was undergoing evaluation, he developed night sweats and weight loss, culminating in a reduction of his performance status to 2–3. His diagnosis coincided with the COVID-19 pandemic, and initial review post multidisciplinary team discussion was to manage the metastatic RCC symptomatically. However, on further review by the oncology team and in view of his synchronous metastatic brain disease, he was started on first-line cabozantinib. This is a tyrosine kinase inhibitor (TKI) believed to have some penetration in the central nervous system.

OUTCOME AND FOLLOW-UP

Apart from high blood pressure, which was successfully managed with a dose reduction, the patient tolerated cabozantinib treatment well. He has also undergone stereotactic radiosurgery for his brain metastases. His performance status improved following treatment and currently remains at 1. Recently, he underwent a 3-month review with a CT scan of the head, neck, chest, abdomen and pelvis which confirmed treatment response.

DISCUSSION

To our knowledge, this case report of a clear cell RCC presenting in an otherwise asymptomatic individual as a right-sided tonsil lesion details a very rare phenomenon that adds to our collective knowledge of the unusual way in which metastatic renal cancers can present.

Most neck lumps are due to an inflammatory cause. However, unilateral and rapidly growing neck lumps are often cancerous.[4] Thus, a systemic approach to evaluating a neck lump in the absence of a known cancer diagnosis or other symptoms is important. RCC presenting as a head and neck metastasis is rare but often seen in the context of a known prior cancer history, or concomitant urological or abdominal symptoms.[5–9]

Tonsillar core biopsy was useful for the diagnosis of metastatic clear cell RCC. However, this can be challenging, in part due to

Table 1 Table summarising case reports of renal cell cancer metastases to the tonsils

Treatment	Tonsillectomy	Tonsillectomy	Tonsillectomy	Tonsillectomy	Radiotherapy	Tonsillectomy and adjuvant radiotherapy	Did not receive treatment	Tonsillectomy	TKI and stereotactic radiosurgery
Other metastases	Liver, left scapula and pancreas head	Nil	Nil	Lungs and bone	Lungs and bone	Lungs	Retroperitoneal lymph node mass, lungs, brain and bone	Lungs and liver	Lungs and brain
Prior nephrectomy	2 years prior	6 months prior	10 years prior	11 years prior	3 years prior	3 years prior	Nil	1.5 years prior	Nil
Location	Right tonsil	Right palatine tonsil	Left soft-palate and tonsil	Palatine tonsil	Right tonsil	Left tonsil lodge	Left tonsil	Right lingual/ palatine tonsil	Right tonsil
Presenting symptoms	3-day history of dysphagia and right-sided throat pain	Neck mass	Throat pain and dysphagia	Neck mass	Dysphagia	Haemoptysis, throat pain and dysphagia	Tonsillitis unresponsive to antibiotic and left sacroiliac pain	Right-sided throat pain, dysphagia and cough	Throat discomfort and right-sided neck lump
Sex	M	F	F	M	M	F	M	M	M
Age	49	56	55	61	76	72	49	61	70
Year	1997	1998	1998	2006	2009	2013	2015	2018	2020
Author	Green *et al*[15]	Garcia Lozano *et al*[17]	Menauer and Issing[5]	Stanczyk *et al*[12]	Massaccesi *et al*[14]	Marcotullio *et al*[16]	Solís-Alfonso and Suárez-Pría[11]	Eslami *et al*[13]	Our patient

F, female; M, male
; TKI, tyrosine kinase inhibitor.

their pleomorphic morphology on histology.[10] Further evaluation by a staging CT is important to confirm a primary cancer; in the context of metastatic brain disease, MRI is more effective for imaging brain lesions.

Tonsil metastases are a very rare initial presentation of a RCC. Our case may be considered 'unique' as the patient had no prior history of renal cancer. A review of the literature using PubMed gave eight cases (table 1). In only one case was the tonsil lesion the primary presentation of renal cancer,[11] while the other seven cases had a prior nephrectomy.[5 12–17] The majority of cases were treated with a tonsillectomy. Although rarely used, palliative radiotherapy to tonsil metastases was considered a plausible option; however, it is reserved for individuals with a poor performance status who are not candidates for surgical intervention. From a clinical and radiological perspective, our patient has responded well to TKI therapy and stereotactic radiosurgery. His performance status has improved to almost baseline and the patient has not developed any neurological deficits. The aforementioned evolution is in keeping with previous papers highlighting the positive impact of adding local therapy on top of TKI treatment.[18]

Learning points

- A new onset neck or unilateral tonsillar lump requires investigation to exclude malignancy.
- Renal cell carcinoma metastases to the tonsil is a rare event and can present as a neck lump.
- Combination stereotactic radiosurgery and the tyrosine kinase inhibitor cabozantinib have been effective in managing synchronous metastases.

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