CASE OF THE MONTH

A right atrial mass—but where is it coming from?

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We present a case of a 70-year-old male who attended our emergency department with prolonged weight loss and a 3-week history of progressive swelling of his lower limbs and scrotum with haematuria. On examination there was pitting oedema up to his sacral area, with significant scrotal enlargement. The abdomen was distended with a large left-sided abdominal mass extending across the midline. This was in addition to 5 cm of hepatomegaly. On auscultation a pansystolic murmur was noted, which was loudest over the cardiac apex, with bibasal lung crepitations. Engorged neck veins and goitre were also

noted. Acute renal failure was diagnosed with a creatinine level of 171.

An unenhanced CT scan confirmed a heterogeneous 24×19-cm mass originating from the inferior pole of the left kidney. Metastatic disease was noted in the lungs, liver and thyroid gland.

Transthoracic echocardiography (TTE) identified a large 6×3-cm smooth and mobile mass in the right atrium (RA; Figure 1), which partially prolapsed through the tricuspid valve (Figure 2).

With a likely diagnosis of a primary renal cell carcinoma, what is the significance of the right atrial mass?

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Figure 1. Transthoracic echocardiography four-chamber image of the 6x3-cm right atrial mass.

Figure 2. Transthoracic echocardiography showing mass prolapse through the tricuspid valve.

Figure 4. Late gadolinium enhanced coronal image.

Figure 3. Coronal and sagittal cardiac MRI images.

Diagnosis

Cardiac MRI confirmed that the mass seen in the RA on TTE was a heterogeneous extension from the thyroid region via a distended right jugular vein into the superior vena cava (SVC) and RA (Figure 3). The mass showed some enhancement post gadolinium (Figure 4), indicating confluent tumour mass rather than purely thrombus.

A core biopsy was performed with histology and immunostaining confirming the renal cell adenocarcinoma (RCC).

Metastatic tumours of the heart are up to 40 times more common than primary cardiac tumours. RCC metastases are commonly seen in the lung, lymph nodes, bone, liver and the thyroid gland [1], with a great propensity to invade venous structures. Intracardiac extension of primary renal cell carcinoma via the inferior vena cava is well documented. Local SVC invasion from nodal metastases leading to SVC obstruction and the

clinical syndrome [2, 3] are described. It is, however, extremely rare for this right atrial extension to occur as tumour thrombus from a thyroid metastatic deposit. The patient gave full consent for publication prior to his sudden death within weeks of the diagnosis.

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