



# Symptomatic giant renal oncocytoma with an incidental papillary adenoma

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## ABSTRACT

Renal oncocytomas are benign, slow-growing tumours accounting for 3–7% of all solid renal neoplasms. These tumours tend to be small, unilateral and asymptomatic and are often discovered incidentally on imaging. Large oncocytomas are rare and can be difficult to distinguish from renal cell carcinoma based off clinical findings or imaging characteristics alone. Papillary adenomas are also benign renal neoplasms but arising from the renal tubular epithelium and almost always located within the cortex. We present a case of a 63-year-old Caucasian male with a large symptomatic renal oncocytoma with an incidental concurrent papillary adenoma.

## 1. Introduction

Renal oncocytomas are benign, slow-growing tumours accounting for 3–7% of all solid renal neoplasms. They are most commonly encountered in adulthood with a peak frequency over 50 years of age and a male predominance. Oncocytomas are comprised of epithelial cells with an abundant supply of mitochondria, resulting in a characteristic eosinophilic granular cytoplasm.<sup>1</sup> These tumours tend to be small, unilateral and asymptomatic and are often discovered incidentally on imaging. Large oncocytomas are rare and can be difficult to distinguish from renal cell carcinoma based off clinical findings or imaging characteristics alone. Papillary adenomas are also benign renal neoplasms but arising from the renal tubular epithelium and almost always located within the cortex. In this report, we present a case of a 63-year-old male with large symptomatic renal oncocytoma and an incidental papillary adenoma.<sup>2</sup>

## 2. Case

A 63-year-old male presented to our rooms with a 3-months history

of right flank pain. He described the pain as gradual onset, intermittent, dull pain. The patient denied fevers, haematuria or any other urinary symptoms. His blood work up showed a normal renal function. Computed tomography with contrast was done to further characterise the lesion which revealed a large partially enhancing mass of 11 × 11 × 9cm arising from the mid to upper pole of the right kidney. Coronal imaging of the mass had an appearance of central stellate scar (Fig. 1). An ultrasound of the right renal artery and vein was subsequently performed which showed no vascular involvement. Given its size, the findings were initially reported as favouring a renal cell carcinoma.

It was decided to perform an open right radical nephrectomy via a subcostal incision. Intraoperatively, there was neo-vascularisation in the perinephric fat but no evidence of locally invasive disease. The operation was completed without any complications and the specimen was sent for histopathology. The patient recovered well from the procedure and was discharged on day 5 following the operation.

Histopathological and immunochemistry findings revealed a diagnosis of renal oncocytoma with papillary adenoma. Histopathology revealed a 108 × 107 × 82 mm mass with a tan brown appearance and a central scar. Microscopically, there were solid nests of oncocytic cells

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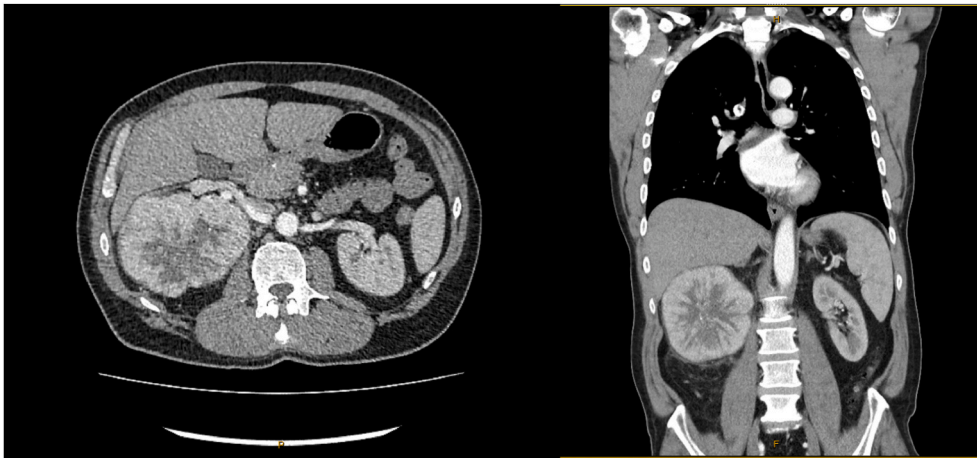


Fig. 1. Axial and coronal CT scan showing a right renal mass with central stellate scar.

arranged around the central scar, containing round nuclei with inconspicuous nucleoli. Immunohistochemistry showed the oncocytic cells were diffusely positive for CD117 and negative for CK7 and CD10 (Fig. 2).

### 3. Discussion

Renal oncocytoma is an uncommon epithelial neoplasm derived from the intercalating cells of the collecting ducts. Patients with oncocytomas often do not have any urological complaints and the tumour is found incidentally on imaging. Clinical and laboratory findings for the tumour are non-specific and can include flank pain, haematuria and a palpable abdominal mass. Imaging findings are also non-specific however the appearance of a well-defined homogenous lesion with a central scar should raise suspicions of an oncocytoma.<sup>3</sup>

Renal oncocytomas are typically small and average between 4 and 8cm. There have been few reported cases of renal oncocytomas greater than 10cm in the literature, resulting in clinicians leaning towards a provisional diagnosis of renal cell carcinoma if a large mass is encountered. At present, the largest oncocytoma has been reported by Demos et al. measuring 27 × 20 × 15 cm. The second largest has been reported by Ahmad et al. measuring 25 × 16 × 16 cm followed closely by Akbulut et al. with 25 × 15 × 12 cm.<sup>4</sup>

In gross appearance, the mass tends to be tan or mahogany coloured, well-circumscribed and can exhibit a central stellate scar in one-third of cases. Immunohistochemistry can provide some aid in the differentiation from other renal masses. Oncocytomas stain positive for CD117 and S100 calcium-binding protein A1 and negative for CK7 and CD10. Despite these characteristics, oncocytomas share overlapping features with variants of renal cell carcinoma (RCC), such as a chromophobe RCC, which poses difficulty when trying to distinguish from one another. As a result, these masses tend to be treated with radical or partial nephrectomy.<sup>5</sup>

Irrespective of their size, renal oncocytomas follow a benign clinical course and have an excellent prognosis, with only rare reports of metastasis. Given their nature, more conservative management such as partial nephrectomy may be warranted rather than radical

nephrectomy, as was seen in this case.<sup>4</sup>

Renal papillary adenomas are benign renal neoplasms arising from tubular epithelium and almost always located within the cortex as seen in this case. Their morphology is similar to papillary renal cell carcinoma type 1, however lack pseudocapsule and are <15mm and are thought to be precursor lesions of papillary RCC however the incidence of papillary RCC is much lower than papillary adenoma indicating that not all cases have the potential to progress. Based on available data these lesions do not have the capacity to metastasize however they are reported in 7% of kidneys resected for other tumours more commonly in papillary RCC (>25%). They fall under the general category of renal adenomas and are considered to be one of the commonest of renal epithelial neoplasms. The prevalence rate is around 7–40% in patients older than 70 years of age (by autopsy series) and are very common in end stage kidneys.<sup>2</sup>

### 4. Conclusion

In summary, this report highlights the difficulty in distinguishing renal oncocytomas from other malignant renal tumours. Given the variability in size, renal oncocytomas should be considered in the differential diagnosis of renal neoplasms.

### Consent

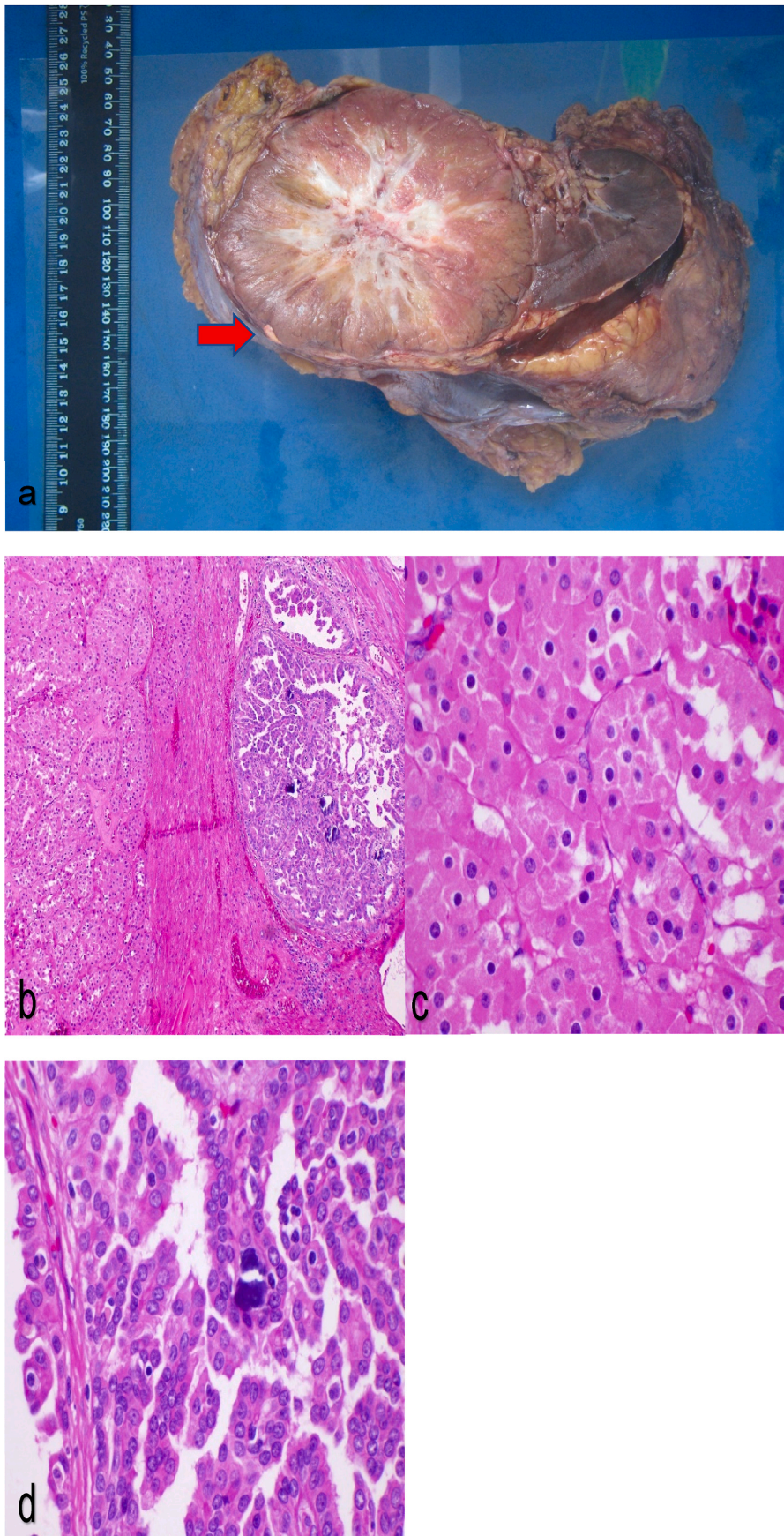
Written informed consent was obtained from patient for publication of this case report and accompanying images.

### Financial conflict of interest

None.

### Declarations of competing interest

None.



**Fig. 2.** (a) Papillary adenoma (red arrow) at the edge of oncocytoma, (b) HE x10 Oncocytoma with papillary adenoma, (c) HE 60x Oncocytoma, (d) HE 60x Papillary adenoma. (For interpretation of the references to colour in this figure legend, the reader is referred to the Web version of this article.)

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