



# Laparoscopic resection of large oncocytoma with metaplastic ossification: Case report and video

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## ABSTRACT

Renal oncocytoma (RO) represents about 7% of kidney tumors. They usually behave in a benign fashion, with a slow-growth rate. Patients are often asymptomatic and the tumour is found incidentally on imaging. Due to its wide variation of presentations and multiple radiological findings it is difficult to differentiate RO from renal-cell carcinomas. Interpretation of the images in the appropriate clinical context is crucial and supports the surgeon to avoid aggressive surgical procedures in favor of a nephron-sparing approach, whenever possible. We report a case of a 71-year-old female patient with a large calcified RO which was resected laparoscopically.

## 1. Introduction

Renal oncocytomas (RO) account for approximately 3–7% of all renal tumors. They are most commonly encountered in adulthood with a peak frequency over 50 years of age and have a male predominance. Oncocytomas almost invariably behave in a benign fashion, with a slow-growth rate and, even when very large, they are generally well encapsulated and are rarely invasive or associated with metastases. Sporadic RO are usually unilateral and single, tend to be asymptomatic and are often discovered incidentally on imaging.<sup>1</sup> Imaging findings are also non-specific, with a wide variation of presentations and radiological findings, which often overlap with renal-cell carcinoma. However, the appearance of a well-defined homogenous lesion with a central scar should raise suspicions of an RO. Typically, RO appear as a heterogeneous hyperdense solid tumor together with calcifications or stellate scars on unenhanced CT.<sup>2–4</sup> In this report we present a case of a 71-year-old female patient with a large calcified RO which was resected laparoscopically.

## 2. Case presentation

A 71-year-old female patient with a history of cervical cancer previously treated with cisplatin and radiotherapy. During the pretreatment staging, a renal tumor was incidentally identified. The CT result showed a hypodense nodular lesion with gross peripheral calcifications and apparent thick septations, with no defined contrast uptake, located on

the lateral face of the lower half of the left kidney, measuring 6.0 × 5.6 × 4.8 cm with an area of adjacent cicatricial cortical retraction (Fig. 1). Some of the lesion loculations contained material with density of fluid or even fat and others contained material with a density of soft tissue. We decided to first perform the oncological treatment of the cervix, and 1 month later to undergo a left partial nephrectomy.

Laparoscopic partial nephrectomy was then conducted and the procedure carried out without complications (Video 1). Intraoperatively, the kidney lesion was frankly hardened and firmly adhered with no cleavage plane. After the procedure the material was sent for analysis with the following anatomopathological results: renal oncocytoma measuring 9 cm in diameter, with extensive degenerative alterations, such as calcification, metaplastic ossification, fibrosis and hemorrhage. There was no vascular and perineural invasion, free resection surgical margin (Fig. 2). Immunohistochemistry: CK07 (SP52) negative, CD117 focal positive, CD15 (MMA) negative, CK20 (SP33) negative; compatible with RO.

Supplementary video related to this article can be found at <https://doi.org/10.1016/j.eucr.2022.102112>

## 3. Discussion

Patients with RO often do not have any urological complaints and the tumor is found incidentally on imaging. Clinical and laboratory findings for the tumor are non-specific and can include flank pain, haematuria and a palpable abdominal mass.<sup>1</sup> Because renal RO and Chromophobe

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**Fig. 1.** Computed Tomography: hypodense nodular lesion with gross peripheral calcifications and apparent thick septations.



**Fig. 2.** Renal oncocytoma measuring with extensive degenerative alterations, calcification and metaplastic ossification, fibrosis and hemorrhage.

Renal Carcinoma share a common histologic background, originating from the intercalated cells of the collecting duct, these two entities inevitably are similar regarding morphologic, histologic, immunohistochemical, and ultrastructural background.<sup>3</sup> Distinguishing an RO from an renal cell carcinoma histologically can occasionally be difficult.<sup>4</sup> Interpretation of the imaging findings in the appropriate clinical context is crucial. Wu et al.<sup>2</sup> found that CT imaging features such as stellate scar,

spoken-wheel-like enhancement, and segmental enhancement inversion were more common in RO and could help in differentiating RO from Chromophobe Renal Carcinoma. However, a recent study<sup>4</sup> has shown that the typical CT features of an RO, such as hypervascularity and homogeneity with a characteristic central stellate scar, are found only in a small proportion of cases. Regarding calcified lesions, these represent about 4–11% of all renal masses, being renal cell carcinoma (RCC) the most frequently diagnosed. About 7–18% of RCC show calcifications on imaging exams, more commonly in papillary and chromophobe RCC (32% and 38% respectively).<sup>5</sup> Therefore, it is difficult to diagnose RO preoperatively. The wide variation of presentations and multiple radiological findings, often overlap with RCC. Preoperative distinction by radiological imaging is important to avoid aggressive surgical procedures in favor of a nephron-sparing approach whenever possible.<sup>3</sup> Our patient presented no symptoms related to the tumor. Computer tomography showed a nodular lesion with gross calcifications and apparent thick septations, with an area of adjacent cicatricial cortical retraction. Once the tumor had predictors of malignancy, such as gross calcifications and large size, we chose not to perform an MRI in this case, as it would not change our interventional approach. We conducted a partial nephrectomy and Immunohistochemistry of the specimen post-operatively granted the diagnosis of RO.

#### 4. Conclusion

Renal oncocytomas usually have an excellent prognosis and are not associated with an aggressive clinical course. However, distinguishing an oncocytoma from a renal cell carcinoma preoperatively can be occasionally difficult. Nephron-sparing and laparoscopic surgical approaches could be used to treat appropriately selected patients.

#### Consent

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

#### Section headings

Oncology.

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#### Declaration of competing interest

The authors declare no conflicts of interest.

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