

CASE REPORTS

An Unfortunately Surprise of a Renal Cystic Mass - Case Presentation

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Abstract

Cystic renal cell carcinoma represents 5 to 7% of all malignant renal lesions and approximately 6% of the renal cystic masses are malignant. Imaging investigations such as ultrasonography, CT, MRI and contrast enhanced ultrasonography are essential in the evaluation process of the renal cystic masses in order to establish a proper therapeutic management. We present the case of a patient with a giant renal cystic mass for which we have performed radical nephrectomy considering it was a morpho-functional damaged kidney or a renal abscess but the histopathologic examination established the diagnosis of type I papillary renal cell carcinoma. Despite general considerations that type I pRCC metastasis are rare and uncommon, our patient developed secondary lung determinations which were found at six months after surgery.

Keywords: cystic renal cell carcinoma, kidney injury, nephrectomy, metastasis, outcome.

Rezumat

Tumorile renale chistice de tip malign reprezintă între 5 și 7% din totalul leziunilor renale maligne și aproximativ 6% din masele renale chistice sunt maligne. Investigațiile imagistice (ecografia, examinarea CT, investigația prin rezonanță magnetică și ecografia cu substanță de contrast) sunt esențiale în procesul de evaluare a maselelor chistice renale, în scopul stabilirii unui plan terapeutic adecvat. În acest articol prezentăm cazul unui pacient cu o formațiune chistică renală stângă de mari dimensiuni pentru care am efectuat nefrectomie stângă, luând în calcul ipoteza unui rinichi distrus morfo-funcțional sau a unui abces renal. Examenul histopatologic a stabilit diagnosticul de carcinom papilar de tip I. Cu toate că în cazul carcinomului papilar de tip I metastazele sunt rare, la șase luni post-operator s-au decelat determinări secundare pulmonare, în cadrul unei examinări CT de control.

Cuvinte cheie: tumori renale chistice de tip malign, disfuncție renală, nefrectomie, metastaze, prognostic.

INTRODUCTION

Cystic renal masses represents a pathology that may rise diagnosis and management difficulties. The differential diagnosis of large renal cystic masses should be made with normal renal cysts, hydronephrosis, renal abscess, renal hematoma, morpho-functional damaged kidney or with a renal tumor with necrosis and abscess.

The imaging investigations are necessary for the evaluation of such pathology in order to establish a proper therapeutic management, but even so there are cases when these investigations may pass near the correct diagnosis.

Despite other existing imaging techniques, such as ultrasound examination and magnetic resonance imaging, computed tomography has proven to be very use-

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ful in renal cystic masses evaluation and has become the primary diagnosis tool¹.

According to Bosniak classification of renal cystic masses, classification based on CT scans, there are four types of renal cysts, but only type III and IV need surgical treatment, due to the high risk of malignancy. Type III renal cyst is associated with a malignancy risk of approximately 50 % while the type four renal cyst presents a higher risk, estimated to be between 70 and 90%^{2,3}. Therefore type III and IV renal cysts should be considered as renal cell carcinomas⁴.

Magnetic resonance imaging (MRI) may be useful when evaluating more complex cysts, due to its ability to characterize with greater detail when compared to CT scans, allowing a better visualization of the cystic septa and its modifications. Additionally, it may encounter new septa which have not been seen with the CT examination and it may also detect thickening of the cystic wall and septa and even contrast enhancement. MRI also helps to differentiate hemorrhagic cysts from solid masses^{5,6}.

For the patients with impaired kidney function (on chronic dialysis or not) for whom contrast CT or MRI is contraindicated, contrast enhanced ultrasound (CEUS) may be the proper alternative⁷⁻¹¹. This imaging investigation permits the detection of the blood flow within the solid components, cystic wall and septa. When compared to CT scans CEUS has proven to have similar or even better accuracy, taking into account the Bosniak renal cyst classification¹². It has been reported that CEUS can improve the description of complex renal cystic masses that were uncertain at CT scans¹³.

However, contrast CT examination remains the standard imaging technique for the evaluation of the renal cystic masses.

We present the case of a patient with a giant renal cystic mass for which we have performed radical nephrectomy considering it was a morpho-functional destroyed kidney or a renal abscess but the histopathologic examination established the diagnosis of type I papillary renal cell carcinoma.

CASE PRESENTATION

A 71 years old male patient presented in our clinic for a left giant renal cystic mass which was discovered after an ultrasound examination taken in another medical unit.

The patient accused discomfort in the left lumbar region and in the left flank with asymmetrical increase in volume of the abdomen, the symptoms dating for approximately two months. Also, the patient complained of constipation, having lately a stool at every 5-7 days.

Given the uncertainty of the ultrasound diagnostic and the fact that the renal architecture was completely modified, an abdomen and pelvic contrast CT scan was performed. This confirmed the presence of the renal cystic mass, which was occupying the whole lumbar region and it was pushing medially the great abdominal vessels. The mass presented an irregular, bold capsule and homogeneous content and it also presented contrast enhancement (Figure 1).

Laboratory tests on admission were within normal limits. On palpation of the abdomen, it was found a tumor mass in the left upper quadrant and in the left flank which caused the bulging of the abdominal wall.

Given the clinical and imaging data, we started from the premise of a modified renal cyst, possibly tumoral, but we didn't exclude the possibility of a renal abscess, which destroyed the left kidney. With all of these con-



Figure 1. Giant left renal cystic mass, with homogeneous content and tickned and irregular capsule, which pushes towards medial to abdominal great vessels.

siderations, and given the fact that we did not know the etiology of the cystic mass, we have opted for radical nephrectomy.

Under general anesthesia, through transperitoneal approach we have identified, dissected, ligated and severed the left ureter and then the left renal artery and vein. We managed with difficulty to release the left adrenal gland and renal tumor mass, which were adherent to the psoas muscle (Figure 2).

Given the large size of the renal mass, possibly tumoral, we haven't encountered any proximity invasion, in none of the surrounding organs, although we consider this hypothesis (Figure 3).

The constipation described by the patient was found to be secondary to the compression exerted by the tumoral mass, although we initially thought at the possibility of colon invasion.

After the removal of the modified kidney, the intervention went without any incidents, and the post-operative evolution was favorable, the patient being discharged 7 days after surgery.

When the extracted tumor mass was cut for examination, purulent content externalized in large amounts, approximately 2.500 mL. In regards to the purulent liquid content of the renal mass, we still took into account the possibility of a renal abscess, despite the fact that the capsule was thick and with an irregular surface, this raising a question mark (Figure 4).

The surprise came from the pathological examination, which established the diagnosis of renal papillary carcinoma.

At six months after surgery, a thoracic-abdominal-pelvic contrast CT scan revealed the presence of secondary lung metastasis. The patient was afterwards guided for oncologic evaluation and treatment.

DISCUSSIONS

Cystic renal cell carcinoma represents 5 to 7% of all malignant renal lesions¹⁴. Approximately 6% of the renal cystic masses are malignant and the predominant histological form is the papillary renal cell carcinoma

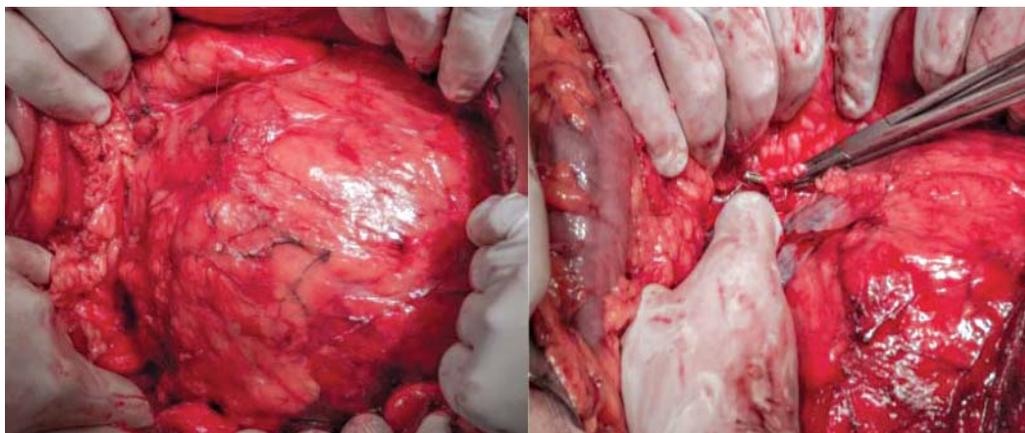


Figure 2. Dissection of the left renal cystic mass; dissection and ligation of the left ureter, followed by the dissection and ligation of the renal artery and vein.

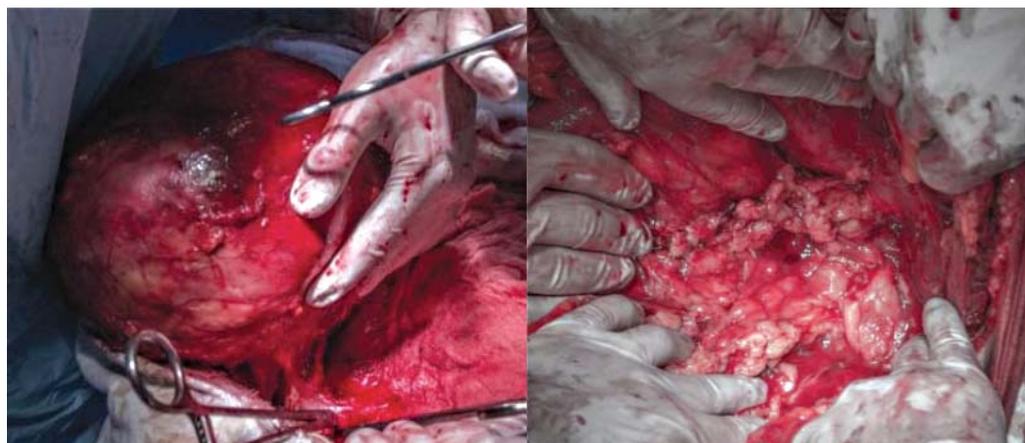


Figure 3. Mobilization of the left cystic renal mass; intraoperative picture of the left lumbar region after removing the cystic mass.



Figure 4. Postoperative images of the renal cystic mass; over 2500 ml liquid purulent content; irregular and thickened cystic capsule.

(pRCC), followed by clear cell renal cell carcinoma (ccRCC)¹⁵⁻¹⁸. Papillary renal cell carcinoma is a slow growing tumor which can be encountered in 10 to 15% of the renal cell carcinoma cases (RCC)¹⁹.

According to literature there are two main histological pRCC types, type I and II, but several articles have reported a third type, the oncocytic form. The debate regarding the existence of the oncocytic pRCC form is still open^{20,21}. Type I pRCC has a less aggressive evolution than type II pRCC and can be associated with extensive necrotic changes with abscess formation, that may lead to spontaneous rupture with retroperitoneal content extravasation²².

In regards to our case we ask ourselves, what would have happened if the tumoral capsule would have been perforated during surgery? We believe that the externalization of the purulent content would have led to peritonitis and we did not exclude the possibility of tumoral organ invasion, due to the dissemination of tumor cells into the peritoneal cavity.

On the other hand, we believe that the abscess formation was favorable for the patient, because the increasing tumor mass and the secondary symptoms caused him to present for medical evaluation. We believe that the outcome would have been different if the abscess had not appeared.

Despite general considerations that type I pRCC metastasis are rare and uncommon, our patient developed secondary lung determinations, which were found at six months after surgery.

On a 2014 retrospective study conducted on 133 patients with potential malignant cystic renal masses who have undergone radical or partial nephrectomy, Reese et al reported that 67% of the renal cystic masses were malignant. 25% of these malignant cases were pRCC

and 63% were ccRCC. He noted that advanced age was significantly associated with the papillary form rather than the clear cell histology, but no statistical significant data was found regarding the association between age and pathology stage or Furhman grade. In regard to CT scan findings he reported that pRCC is more likely to associate cystic lesions without septations and contrast hypoenhancement. He also concluded that cystic renal malignancies have a less aggressive evolution when compared with solid renal malignancies and that the majority of the renal cystic malignancies are low-stage and low grade. Recurrence after surgery was rare¹⁵.

Webster and Han reported that the survival rate is superior for the patients with cystic renal malignancies than for the patients with the solid renal malignancies^{23,24}.

CONCLUSIONS

Imaging investigations such as ultrasonography, CT, MRI and contrast enhanced ultrasonography are essential in the evaluation process of the renal cystic masses in order to establish a proper therapeutic management.

Approximately 6% of the renal cystic masses are malignant and the most frequent histological form is the pRCC.

Type I pRCC has a less aggressive evolution than type II pRCC and can be associated with extensive necrotic changes and abscess formation.

According to literature, cystic renal malignancies are reported to be less aggressive than their solid counterparts and that metastasis are rare and uncommon.

In regards to the papillary histology prevalence it appears that it is higher in the cystic forms than in the solid tumors.

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