CASE REPORT

Renal Cell Carcinoma and Angiomyolipoma in a 75-year Old Female

Ravi James Buxani, MD; Nicolo Buenaventura, MD; Jo Ben Chua,MD, FPUA and Juvido Agatep, MD, FPUA

Department of Urology, East Avenue Medical Center

This is a rare case of renal cell carcinoma and angiomyolipoma in a 75-year old female who consulted because of an eight-month history of a left palpable flank mass. Pre-operative diagnostics revealed a left renal mass and an incidentally discovered right renal mass. She underwent open surgical management for both renal masses in two separate procedures, scheduled 2 weeks apart.

Keywords: Renal cell carcinoma, angiomyolipoma

Introduction

According to Kakkar, et al.[1], there are about 60 reported cases of concomitant angiomyolipoma (AML) with renal cell carcinoma (RCC). Presented is a patient admitted for a palpable left flank mass with an incidental finding of right renal mass on imaging. This is a case of an RCC on the left with a synchronously-occurring AML on the contralateral side. It is a condition commonly seen in patients with tuberous sclerosis. The management for both masses was still surgical.

The Case

This is a case of a 75-year old female who sought consult due to a palpable left flank mass. History started around eight months prior to admission when the patient noted a left flank mass, associated with intermittent tolerable flank pain, difficulty in defecation, pallor, generalized weakness and weight loss. The patient did not present with gross hematuria, hematochezia and anorexia. She is a known hypertensive, maintained on Amlodipine, non-diabetic, without any previous operation or food and drug allergies. She is a non-smoker, non-alcoholic beverage drinker and works as a seamstress. Her family history is unremarkable. Signs and symptoms of tuberous sclerosis complex such as nodules, skin lesions, facial and ungula fibromas were absent. Physical examination of the abdomen revealed a left flank mass which measured around 10cm x 8 cm, was non-movable, firm and non-tender.

Whole abdomen computed tomography (CT) scan with IV contrast showed a predominantly cystic mass, heterogeneously enhancing, arising from the left kidney, measuring 18.2cm x 10.7cm x 13.2cm as well as a well-defined, exophytic, complex mass, with predominantly fat attenuation (HU-84), with minimal heterogeneous enhancement, measuring 5.3cm x 6.2cm x 5.3cm, in the lower pole of the right kidney. No enlarged lymph nodes or other lesions were noted on the scan (Figure 1). The patient was

diagnosed as a case of RCC stage II (T2bN0M0) on the left and angiomyolipoma on the right.

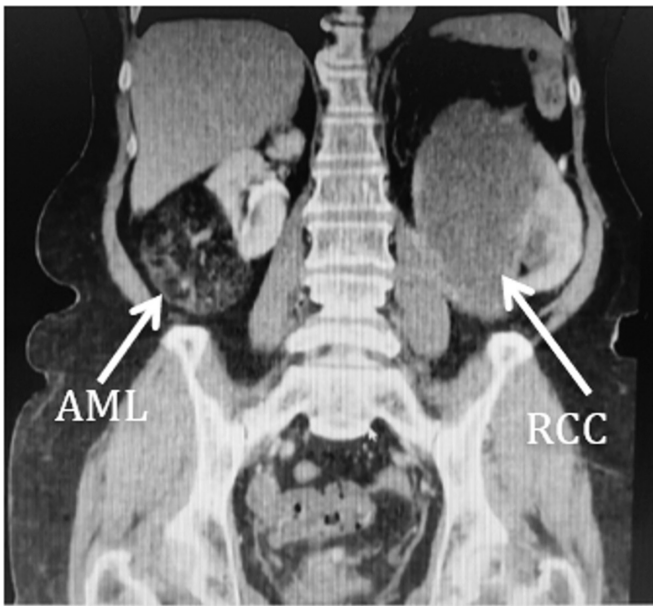

Figure 1. Pre-operative CT scan showing the angiomyolipoma, right and the renal cell carcinoma, left.

Due to persistence of left flank pain, pallor and above CT findings, the patient was admitted by the Urology service. Laboratory tests were done which revealed initial hemoglobin of 73g/L, creatinine of 80.70 umol/L, so correction of anemia was the initial step of management. Glomerular function test was not done on this patient because the creatinine was normal. The patient was referred to nephrology service and for possible renal replacement therapy post-operatively. The plan for this case was a radical nephrectomy in the left and a partial nephrectomy in the right. The left radical nephrectomy was done first since this is a Bosniak IV cyst whose risk for malignancy is 75-90%. Intraoperatively, a 25cm x 14cm necrotic renal mass was noted. No lymph nodes were enlarged (Figure 2). Nephrectomy was done with minimal blood loss and the conduct of the surgery was unremarkable. On the second post-op day, the patient was on full diet, had minimal penrose drain output, had good wound healing and was ambulatory. Now the urologist's focus shifted to the management of the right renal mass. Based on the CT scan findings, it had a renal nephrometry score of 7, which correlates to a moderately complex mass, amenable to partial nephrectomy. Sixteen days after her first surgery, the patient underwent partial nephrectomy. Intraoperatively, the urologist noted a 6cm x 5cm lipomatous mass, in the mid to inferior pole of the right kidney (Figure 3). Post-operatively, her hemoglobin went down to 96 mg/L, hence transfusion of 1 unit packed red blood cells was done. Her creatinine was normal at 86.2 umol/L. On the sixth post-operative day, the patient was ambulatory and was discharged. On follow-up after a month, the patient's creatinine was of 101 mg/dl. Histopathology examination of the left renal mass showed a renal clear cell carcinoma grade IV, with sarcomatoid features while the right renal mass revealed an angiomyolipoma

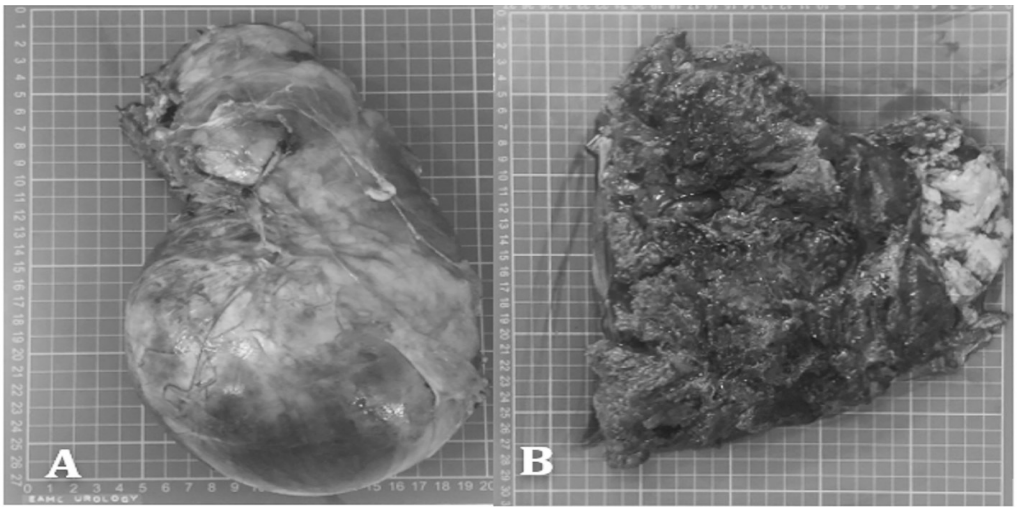

Figure 2. Gross specimen of the left kidney with the renal cell carcinoma. A) uncut specimen; B) cut specimen

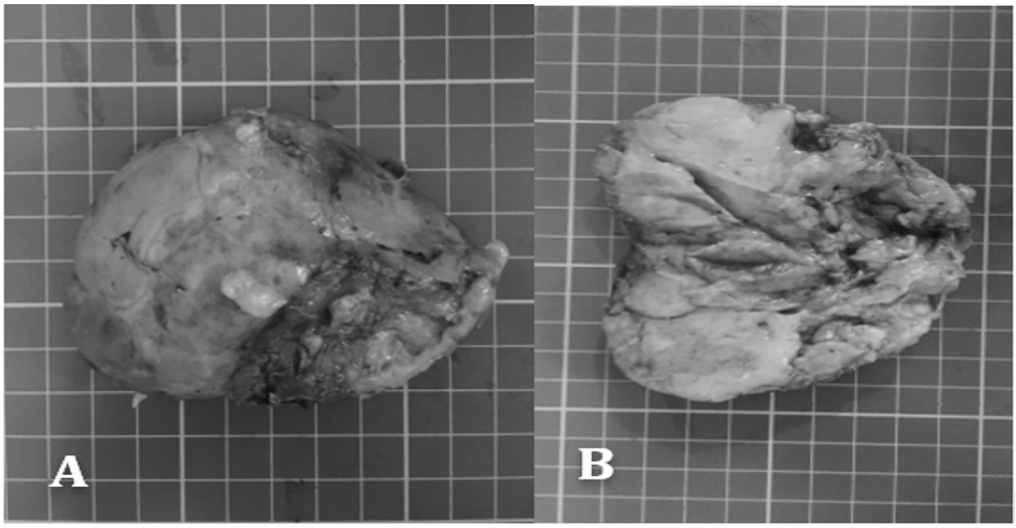

Figure 3. Gross specimen of the angiomyolipoma, right kidney. A) uncut specimen; B) cut specimen

Discussion

This is a case of a 75-year-old female who came in due to left flank pain and anemia, on work-up patient was noted to have a left renal mass with an incidental finding of a right renal mass with different characteristics on imaging. The left renal mass in the patient was noted to be predominantly cystic with heterogeneous enhancement. Mittal and Sureka[2] demonstrated that renal masses are divided into solid, cystic and complex cystic lesions. A solid, enhancing mass must be considered malignant unless proven otherwise. In the patient of the present study, final histopathology revealed a clear cell carcinoma in the left. According to Mittal and Sureka[2], RCC is the 8th most common malignancy in adults and accounts for 80-90% malignant renal neoplasms. Clear cell renal cell carcinoma is the most common subtype of RCC which accounts for 80% of cases. It is a highly vascular tumor, with necrosis, cystic degeneration, hemorrhage and calcification on imaging. It has the worst prognosis among the subtypes of RCC. According to Vos and Oyen[3], angiomyolipoma occurs in 0.2%- 0.6% of the adult population, and has a strong female predilection. They occur sporadically and in isolation in 80% of cases. Twenty percent are associated with tuberosclerosis complex. On imaging, they are seen as fat-rich, with a 7-10 HU, when using an unenhanced CT scan. AML usually have three components on histology: dilated blood vessels, smooth muscle and mature adipocytes.

According to Kakkar, et al.[1], the coexistence of RCC and AML is rare. They presented a 25-year old male patient who had tuberous sclerosis, diagnosed to have a left RCC and a right AML. This is same with the present case. The mean age of patients with concomitant AML with RCC is 59 years. This condition has a female predominance. In contrast, a collision tumor is one wherein there is a discrete RCC and AML in the same kidney.[3] In a composite tumor, the two components (AML and RCC) are intermingled in a single tumor. Further management of this case should include an investigation for the presence of tuberous sclerosis complex. Confirmation of a tuberous sclerosis complex in the patient would explain the occurrence of the synchronous lesions.

References

1. Kakkar A, Vallonthaiel A, Sharma M, Bora G, Panda A, Seth A. Composite renal cell carcinoma and angiomyolipoma in a patient with tuberous sclerosis: A diagnostic dilemma. J Can Urol Assoc 2015; 9(7-8): E507–E510.
2. Mittal M and Sureka B. Solid renal masses in adults. Indian J Radiol Imaging 2016; 26(4): 429–42.
3. Vos N and Oyen R. Renal angiomyolipoma: The good, the bad, and the ugly. J Belg Soc Radiol 2018; 102(1): 1–9.