

GIANT CLEAR CELL RENAL CARCINOMA: A CASE REPORT

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ABSTRACT

Objective: This article is aimed to report an unusual presentation of renal cancer T4N0M0 in which the tumor weighed about 5 kilograms in a patient admitted to Urology Department of Hasan Sadikin Hospital in Bandung, Indonesia, in August 2016. **Case presentation:** We report a case 62 year old male with history of growing mass in his left abdominal. There are also painless hematuria and weight loss of approximately 10 kg over the past 2 years. **Discussion:** Physical examination found a significant palpable, immobile and mild tender mass in the left upper quadrant of the abdomen. Abdominal Pelvic Computed Tomography (CT) scan revealed inhomogenous hypodens mass in the left kidney. Resection of the tumor revealed a 5 kg (22 x 25 x 18 cm, with total volume of 9.900 cm³) encapsulated neoplasm. Histopathological examination revealed a clear cell type renal cell carcinoma (RCC) with positive margin and Fuhrmann grade 2. In Asia, a giant chromophobe RCC exceeding 10 kg in weight was reported in 2009. As for previously reported giant clear cell RCC, we found out the data to be very limited. **Conclusion:** Giant RCC is rare, especially clear cell type in histopathological result. The size of the tumor reported in this article is considered as the largest-sized giant clear cell RCC ever reported in Asia. The size of the tumor in this case presented several challenges in the operative settings. However, the outcome and six months post-operative follow-up of the patient was satisfying in which there was no presence of single symptom within the six-month follow-up period.

Keywords: Clear cell type, giant renal cell carcinoma, surgical resection.

ABSTRAK

Tujuan: Penelitian ini bertujuan untuk melaporkan presentasi klinis kanker ginjal T4N0M0 yang tidak biasa, dimana berat tumor sekitar 5 kilogram pada pasien yang masuk di Departemen Urologi RSUP Hasan Sadikin Bandung, Indonesia, pada bulan Agustus 2016. **Presentasi kasus:** Kami melaporkan sebuah kasus laki-laki 62 tahun dengan keluhan riwayat pertumbuhan massa pada area perut kiri. Terdapat pula hematuria tanpa disertai dengan keluhan nyeri. Pasien mengeluhkan penurunan berat badan sekitar 10 kg selama 2 tahun terakhir. **Pembahasan:** Pada pemeriksaan fisik ditemukan perabaan massa, sulit digerakkan dan sedikit nyeri di kuadran kiri atas abdominal. CT scan abdomen pelvis dengan kontras tampak adanya gambaran lesi hipodens inhomogen pada ginjal kiri. Setelah dilakukan reseksi tumor didapatkan sebuah massa neoplasia berkapsul seberat 5 kg (22 x 25 x 18 cm dengan total volume 9.900 cm³). Pemeriksaan histopatologis didapatkan clear cell renal cell carcinoma (RCC) dengan margin positif dan Fuhrmann grade 2. Di asia, sebuah chromophobe RCC sangat besar dengan berat lebih dari 10 kg telah dilaporkan pada tahun 2009. Seperti yang dilaporkan sebelumnya Renal Cell berukuran sangat besar dengan tipe clear cell carcinoma, data yang dilaporkan sangat terbatas. **Simpulan:** RCC raksasa sangat jarang terjadi, khususnya tipe clear cell pada pemeriksaan histopatologis. Ukuran tumor yang dilaporkan pada artikel ini dianggap sebagai RCC tipe clear cell dengan ukuran terbesar yang pernah dilaporkan di Asia. Ukuran tumor pada kasus ini mempresentasikan beberapa tantangan pada persiapan dan pada saat intra operasi. Akan tetapi, keluaran dan follow-up enam bulan post-operasi dari pasien ini memuaskan dimana tidak terdapat suatu gejala dalam enam bulan periode follow-up.

Kata kunci: Tipe clear cell, renal cell carcinoma raksasa, reseksi tumor.

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INTRODUCTION

Renal cell carcinoma (RCC) is a neoplasm arising from renal tubulus epithelium.¹ It is estimated

that the incidence of renal cancer annually accounts for 1.7 percent deaths in both men and women worldwide. The estimated numbers of new renal cancer cases reach the number of 213.9 in men and

123.9 in women annually.² The prevalence of renal cell carcinoma is predicted to be around two to three percent worldwide, and renal cell carcinoma contributes as the most common case of renal neoplasm, in which 90-95% of renal neoplasm is renal cell carcinoma. There are four subtypes of RCC: clear cell, chromophobe, papillary, and collecting duct RCC in general.^{3,4} As for clear cell RCC, there are four subtypes of giant cells carcinoma included in RCC: benign osteoclast-like giant cells, renal cell carcinoma with sarcomatoid areas of renal cell carcinoma, rhabdoid cells, and syncytial giant cells renal cell carcinoma.⁵ Cantalejo et al, reported that in 55 cases of renal cell carcinomas reviewed, 72.2% were clear cell (conventional I) RCC, 14.5% chromophobe RCC, 10.9% papillar RCC, and 1.8 % collecting duct RCC.³ Renal cell carcinoma presents with triad signs and symptoms of hematuria, flank pain, and abdominal mass but only 60% of cases are present with these classical triad. The rest may complain of weight loss, abdominal pain, anorexia, and fever;¹ the presence of classical triads may indicate progression of the disease in which it leads to eventful prognosis.⁶ The gold standard treatment of renal cell carcinoma is surgery resection, either partial or radical nephrectomy.^{6,7} Once the size of the tumor is exceedingly large, conducting a cytoreductive surgery might become challenging.

Previously there is no sufficient number of case reports reporting large-sized clear cell renal cell

carcinoma especially in Asia. This article is aimed to report an unusual presentation of renal cancer T4N0M0 in which the tumor weighed about 5 kilograms in a patient admitted to Urology Department of Hasan Sadikin Hospital in Bandung, Indonesia, in August 2016. The histopathology examination revealed clear cell RCC with positive margin and Fuhrman grade II.

CASE PRESENTATION

A 62 year old male patient was admitted to urology ward due to his chief complaint of a growing mass in his left abdomen that had been growing in size ever since the past five years. The complaint was also accompanied with history of swelling at the lower back area, intermittent painless hematuria for the past two years, and loss of weight of ten kilograms within the past 24 months. Physical examination showed palpable mass of 25 cm x 20 cm in size at the left flank area. Computed tomography (CT) scan revealed isodense inhomogenous mass arising from the left kidney with irregularly-bordered calcified mass with hypodense appearance at the center. The mass size was calculated to be about 20 cm x 18 cm x 26 cm in size and pushed the surrounding visceral organ: the spleen, pancreas, abdominal aorta, inferior vena cava and intestines. The patient was diagnosed as left renal tumor with the stage of T4N0M0, thus left radical nephrectomy was performed.

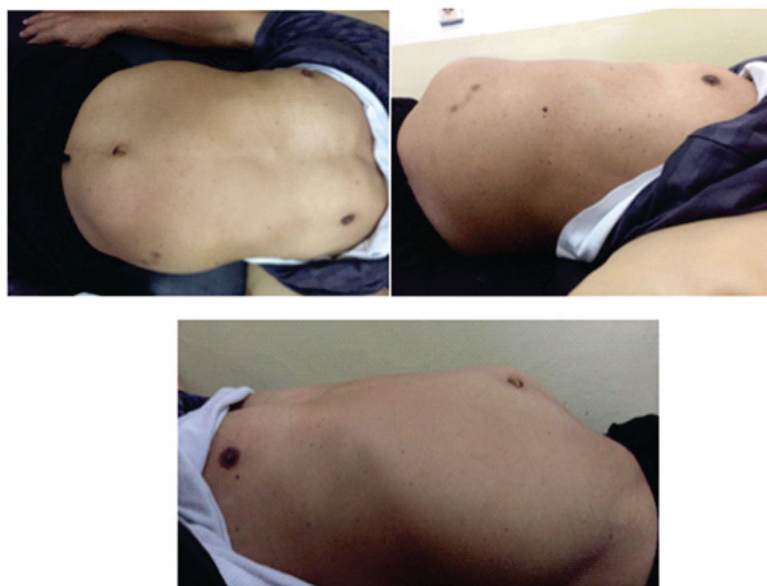


Figure 1. Physical examination revealed a palpable mass of 25 cm x 20 cm in size at the left flank area.

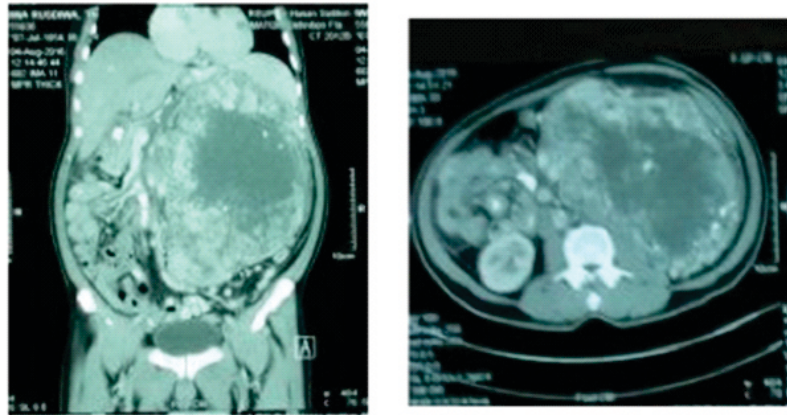


Figure 2. Computed tomography (CT) scan revealed mass arising from the right kidney with the size of 20 cm x 18 cm x 26 cm attached to the surrounding visceral organs.

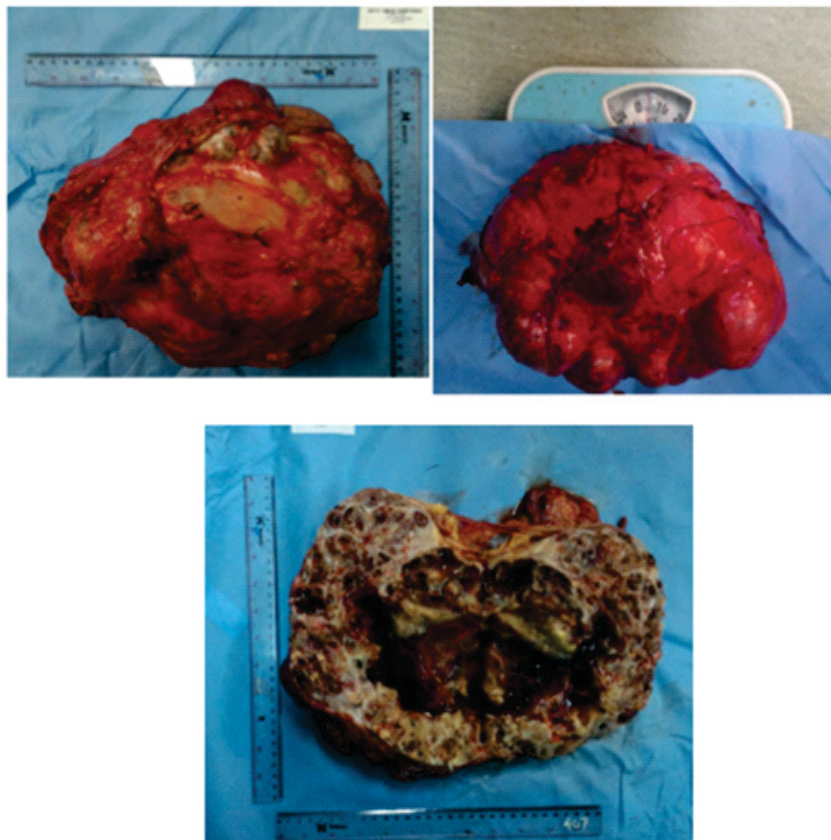


Figure 3. The left kidney weighing 5 kilograms appeared to be yellowish white in color. The size was 22 cm x 25 cm.

Intraoperative finding revealed the left kidney of 22 cm x 25 cm x 18 cm in size weighing 5 kilograms was attached to the surrounding tissues including the posterior abdominal wall, the pancreas, and the mesocolon. The kidney was then cut and it was revealed that the whole left kidney

appeared to be yellowish white in color.

Histopathology examination revealed that renal tissue was capsulated with connective tissue. In the subcapsular area hyperplastic round oval shaped cells forming some tubular structure and some papillary structure were present. The nucleus

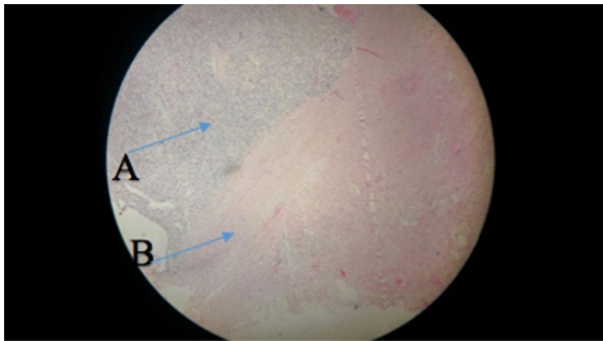


Figure 4. Histopathology examination. Note the presence of tumor cells on connective tissue (arrow A) and the capsule of the tumor (arrow B).

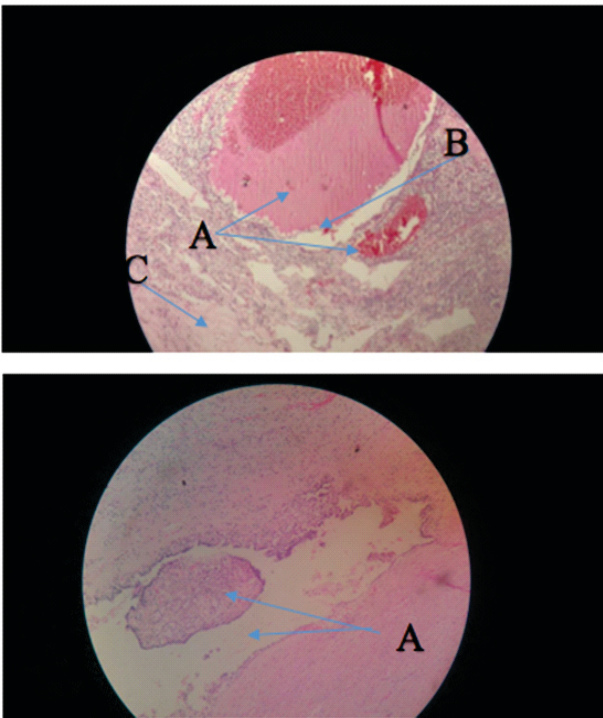


Figure 5. Histopathology examination. Note the shows tumor cells invading the lymphovascular structure accompanied with dilation of blood vessel (arrow A), possible bleeding of blood vessel invaded by tumor cells (arrow B), and the necrotic area of the connective tissue (arrow C).

appeared to by polymorph and hyperchromatic. The stroma of the connective tissue fibrocollagen underwent hyaline degeneration surrounded by lymphocytes and histiocytes and swelling of

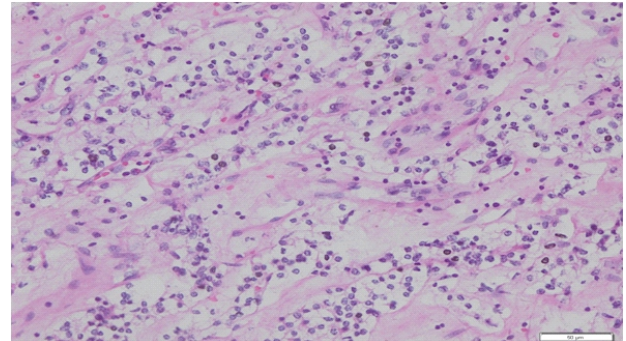


Figure 6. Histopathology examination with 200x magnification reveals clear cell carcinoma of the left kidney.

capillaries; bleeding and necrotic process seemed to appear. The tumor cells appeared to invade the lymphovascular structures. The glomerular and tubular structures were absent. In summary, the histopathology findings showed clear-cell renal cell carcinoma of the left kidney with positive margin and Fuhrmann grade II.

DISCUSSION

The diagnosis of the patient was established through history taking, physical findings, CT scan, and histopathology examination. From history taking and physical examination, it was noted that not all components of the classical triad of RCC were present in this patient. In general, imaging modality can accurately diagnose a renal neoplasm and its metastases to lungs.⁶

The TNM classification is defined based on tumor size and its relation to the surrounding organs or tissues (T), metastases to lymph nodes (N), and metastases to distal organs (M),¹ while Fuhrman scoring system relies on nuclear feature and its pleomorphism.⁴ This case was considered as T4N0M0 due to invasion of the tumor to renal fascia without neither lymph node nor distal organs metastases. Radical nephrectomy was performed on the left kidney as it is the gold standard treatment of RCC.⁷

Clear cell RCC macroscopically is seen as cortical tumors that are solitary and randomly distributed, and the average diameter is around 7 cm. However, the size of the tumor does not determine malignancy.¹ However, large-sized tumor of the kidney as of presented in this report with the size of 20 x 25 x 18 cm (volume 9.900cm³) is considered as

Table 1. Summary of previously reported giant RCCs.

Patient characteristic	This Case Male, 62 y.o	Oviedo et al ⁷ Male, 75 y.o	Shen et al ⁵ Male, 63 y.o	Wu et al ⁸ Male, 42 y.o	Suzuki et al ⁹ Male, 55 y.o	Guillaume et al ¹⁰ Male, 68 y.o
History	Left abdominal mass	Abdominal distension	Hematuria, urinary retention	Lower leg edema, shortness of breath, weight loss	Low-grade fever, malaise, breath disturbance	Abdominal mass
Supporting Data	CT scan: inhomogenous isodens lesion with calcification of the left kidney attached to surrounding organs	CT scan: large sized retroperitoneal mass	MRI and CT scan: large mass of the left kidney	CT scan: tight-side renal tumor, roughly 28 cm in size	N/A	CT scan: a mass sizing 31x31x10 cm
Management	Radical nephrectomy of the left kidney	<i>En bloc</i> partial nephrectomy followed by total nephrectomy and lymphadenectomy	Radical nephrectomy of the left kidney and lymphadenectomy	N/A	Radical nephrectomy of the left kidney	Radical nephrectomy of the left kidney
Intraoperative Finding	Yellowish white kidney with size of 22x25x18 cm, weighing 5 kg, volume 9900cm ³ ; attached to surrounding tissues	Renal size 28x25x15 cm, volume 10500 cm ³	Mass size was 14.8x10.4x10.3 cm, weighing 2162 gram	N/A	Tumor size 35x18x19 cm, weight 11500 gram	Tumor sizing 31x31x10 cm, weighing 4100 gram
Histopathology Finding	Clear cellRCC	PapillaryRCC	Syncytial giant cell and clear cell RCC	SarcomatoidRCC	Clear cellRCC	Clear-cellRCC
Post-operative evaluation	Uneventful within 6 months post-operative follow-up	Uneventful	Multiple liver mass	N/A	Uneventful within 20 months post-operative follow-up	Uneventful within 2 years post-operative follow-up

unusual clinical presentation of renal cancer. Oviedo et al reported a case of 75 year old male patient with papillary renal cell carcinoma with a volume of 10.500 cm³.⁷ Another case reported by Shen et al, revealed a clear cell renal cell carcinoma weighing 2162 grams.⁵ Wu et al, reported a sarcomatoid renal cell carcinoma roughly 28 cm in size.⁸ A giant chromophobe renal cell carcinoma exceeding 10 kilograms was reported in 2009 in Japan.⁹ Guillaume et al, reported a tumor with a size of 31 x 31 x 30 cm weighing 4100 grams.¹⁰ Table 1 summarizes previous reports on giant RCC. Another published report related to giant clear cell RCC especially in Asia is still very limited, thus we consider our case finding to be the largest giant clear cell RCC ever reported in Asia.

As surgical resection remains as the gold standard of treating renal cell carcinoma, we met some challenging circumstances due to the size of the tumor but despite the size and challenge, the outcome and post-operative evaluation of the patient is satisfying in which there was no presence of single symptom within the six-month follow-up period.

CONCLUSION

Renal cell carcinoma accounts for only two to three percent of all adult malignancies but is the most common type of neoplasms arising from the kidney, in the other hand, giant renal cell carcinoma remains as rare case of renal neoplasm. The size of the neoplasm reported in this case is not the RCC

with the most enormous size ever reported worldwide, but it is estimated to be the largest giant clear cell RCC ever reported in Asia. The histopathology finding showing clear-cell type renal carcinoma is co-herent with the previous studies in which clear-cell or conventional RCC is considered as the most common and frequent type of renal cell carcinoma. Despite the complicated surgical procedure due to the large size of the mass, the outcome and post-operative evaluation of the patient was considered satisfying due to the absence of symptom within the six-month follow-up period.

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