

Papillary Renal Cell Carcinoma with Emphysematous Pyelonephritis: A Case Report

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ABSTRACT

The classic clinical presentation of renal cell carcinoma is relatively rare and is indicative of advanced stages of the disease while the unusual presentation as emphysematous pyelonephritis makes their diagnosis and management is challenging, particularly in immunocompromised and elderly patients. We presented a 67 years old male with emphysematous pyelonephritis predisposed by renal cell carcinoma. He was finally diagnosed with histopathologic examination and managed by open radical nephrectomy with clinical improvement.

Keywords: Renal Cell Carcinoma, Emphysematous Pyelonephritis.

INTRODUCTION

Variable presentations were encountered regarding renal cell carcinoma (RCC), frequently the disease is asymptomatic and discovered incidentally.¹ The classic triad of clinical presentation including hematuria, flank pain, and flank inflammatory mass/lesions is relatively rare and is indicative of advanced stages of the disease.^{2,3}

The unusual presentations of RCC include inflammatory masses/renal abscess or perinephric collection and their diagnosis and management is challenging, particularly in immunocompromised and elderly patients.³ However, the advances in imaging and in renal biopsy techniques help in diagnosis and improved the outcomes of such lesions.³

Large RCCs tend to present with central necrosis which provides a good ground for bacterial growth and proliferation⁴, and may lead to formation of an emphysematous pyelonephritis which is a life-threatening status characterized by necrotizing gas forming pyelonephritis.⁵

CASE DESCRIPTION

Sixty-seven years old male patient presented to emergency room with lower abdominal pain for one week associated with gross haematuria for the last 2 days. He had a history of diabetes mellitus on irregular antihyperglycemic medications. No history of fever or chills. No history of nausea and vomiting. No history of anorexia or loss of weight. No other associations at presentation. The patient had history of obstructive lower urinary tract symptoms and he was on Tamsulosin. The patient's surgical

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history was unremarkable. No family history of cancer. No history of smoking. By clinical examination, the patient was generally conscious, oriented, comfort lying on bed. Abdomen was soft and lax with mild tenderness at the lower abdomen and no costo-vertebral angle tenderness. Genitalia were unremarkable. Regarding patients' vital signs; heart rate was 90/minute, blood pressure was 140/75, body temperature was 36.8°C, respiratory rate was 22/minute and oxygen saturation was 99%.

His blood works showed mild leukocytosis and mild creatinine elevation (Hb: 11.9g/dL, TLC 12300/mm³, Creatinine 1.83mg/dL). Contrast enhanced computerized tomography (CT) scan of abdomen and pelvis showed hypovascular left renal lesion occupying the renal pelvis and exophytic posteriorly and superiorly, measuring 13.8 x 12.7 x 10 cm with a necrotic area superiorly with bubbles within. There was calcification in the posterior wall superiorly suggestive of long-standing process. There was hypoperfusion of the nearby renal parenchyma inferiorly from the mass effect. Also, there was perinephric edema and fat stranding. The lesion was protruding into the left renal pelvis. No areas of hypervascularity. Left ureter was prominent likely due to over secretion. Right ureter appears unremarkable. No lymphadenopathy. No renal artery or vein extension. Urinary bladder was unremarkable. The lesion of the left kidney is hypovascular and could represent abscess or RCC with necrosis (Figure 1-a, b).

The patient underwent Left Double-J stent insertion, and ultrasound (US) guided insertion of pigtail drainage catheter in the

left renal abscess. Minimal amount of hemorrhagic turbid infected fluid was drained. Few days later, the total amount drained was not as expected and the patient not showing clinical improvement. Non contrast CT was done and showed no gross interval changes in comparison with previous CT scan. Open drainage and partial nephrectomy were done. The removed portion of the kidney was fragile and necrotic (measuring around 650 grams). All the removed tissues were sent to histopathology. Result showed

papillary renal cell carcinoma type 1 (size: 10cm, encapsulated) (Figure 1-c). The patient underwent open radical nephrectomy. The histopathology result grossly showed dilatation of upper pole calyceal system with friable bloody/ hemorrhagic content. Microscopically showed picture of chronic pyelonephritis extending to gerotta fascia with no evidence of malignancy (Figure 1-d, e). The patient clinically improved and left the hospital in good condition.

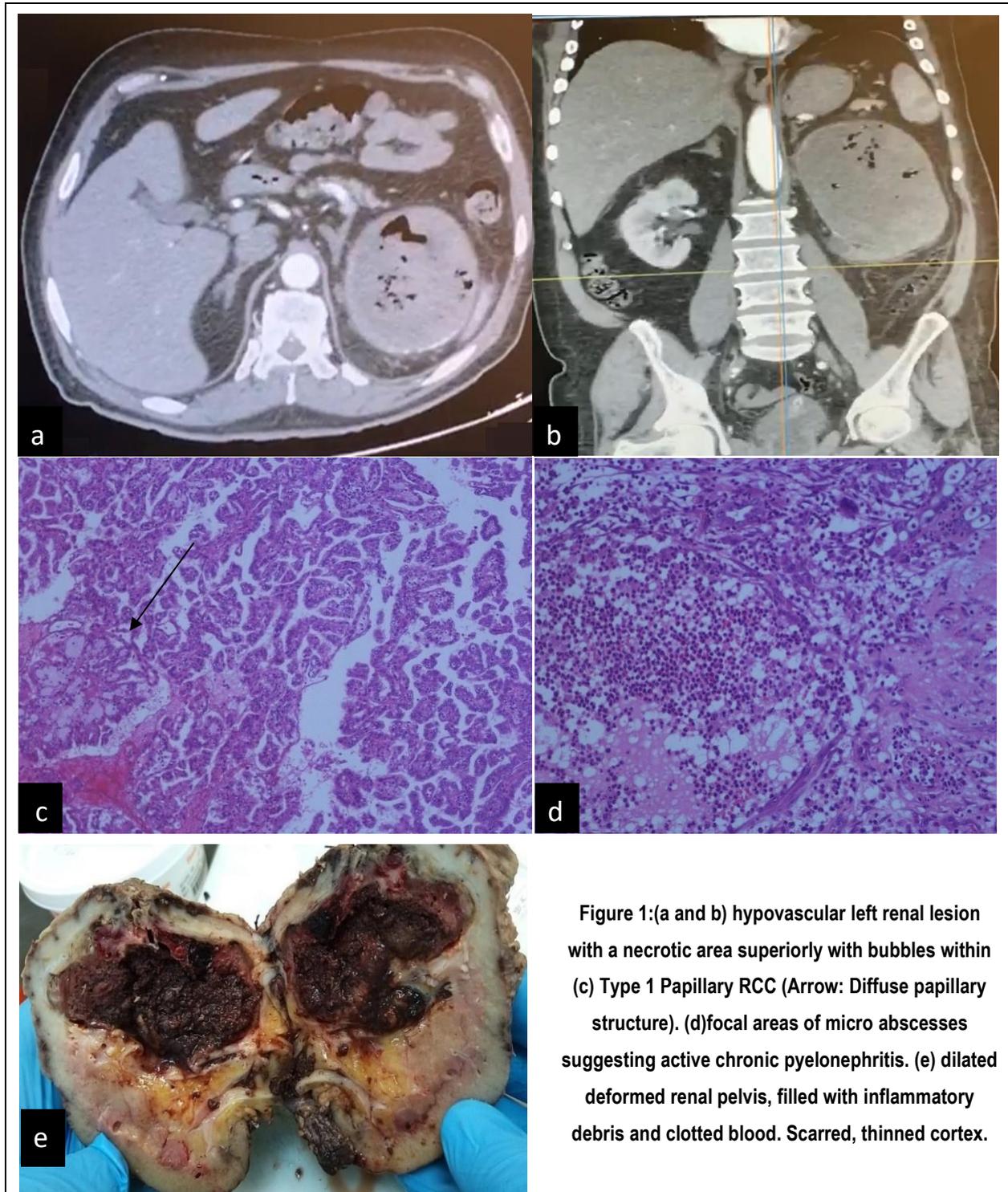


Figure 1:(a and b) hypovascular left renal lesion with a necrotic area superiorly with bubbles within (c) Type 1 Papillary RCC (Arrow: Diffuse papillary structure). (d)focal areas of micro abscesses suggesting active chronic pyelonephritis. (e) dilated deformed renal pelvis, filled with inflammatory debris and clotted blood. Scarred, thinned cortex.

DISCUSSION

RCC is characterized by having systemic rather than local manifestations and its constitutional symptoms such as fever, weight loss or night sweats could indicate advanced disease,

rather than local complication.⁶ The present case is an elderly male presented without constitutional symptoms as the only presentation was lower abdominal pain associated with gross haematuria for 2 days.

Emphysematous pyelonephritis (EP) is a rare life-threatening status characterized by formation of gas in the renal parenchyma as well as peri-renal space.⁷ In the present case, renal cell cancer was the predisposing factor. EP is more reported among females.⁸ However, the present case was male. Also, Bhat RA⁵, et al (2013) described eight cases of EP aged between 21 and 65 years; mostly males (62.5%); six cases were managed conservatively while one patient required nephrectomy with percutaneous drainage and one died without surgical intervention. Eltahawy E, et al (2015)³ identified 11 RCC patients with a mean age of 66 years (53-82); three patients underwent radical nephrectomy, five had open drainage and biopsy, four patients had very poor performance status and one patient had radical surgery without the need for biopsy. The present case was managed by radical nephrectomy as the conservative management through US guided insertion of pigtail drainage catheter, and open drainage with partial nephrectomy showed no clinical improvement as the underlying cause was renal cell cancer.

Mechanism of emphysematous pyelonephritis is not well known. However, in the present case, urinary tract obstruction and retrograde infection could happen as a result of malignancy, leads to non-resolving upper urinary tract infection and consequently emphysematous pyelonephritis.

In conclusion, Renal cell carcinoma in elderly and immunocompromised patients could presents in unusual way such as emphysematous pyelonephritis, as a result of superadded infection. Usually in such cases, as a result of complex pathology, the diagnosis is delayed and usually done by histopathology examination of tissues. In such cases, CT or new imaging technologies should be done to confirm the diagnosis. Surgery of such cases should not be delayed.

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