

CASE REPORT

A case of renal cell carcinoma with an extensive inferior vena cava thrombosis

Majd Alfreijat, MD*

Department of Medicine, St. Joseph's Hospital and Medical Center, Phoenix, AZ, USA

Renal cell carcinoma (RCC) is the most prevalent primary renal malignant neoplasm in adults. Most of the cases are usually found incidentally. It is commonly associated with venous thrombosis. We demonstrate a case of a RCC which was associated with an extensive thrombus that reached the upper part of the inferior vena cava (IVC). We also perform a brief literature review about the association between RCC and IVC thrombosis.

Keywords: *renal cell carcinoma; inferior vena cava; thrombus; renal vein; nephrectomy*

*Correspondence to: Majd Alfreijat, Department of Medicine, St. Joseph's Hospital and Medical Center, 350 W. Thomas Rd, Phoenix, AZ 85013, USA, Email: Majd_freijat@yahoo.com

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Eighty-seven-year-old female with a history of hypertension and paroxysmal atrial fibrillation presented to the hospital after she had a syncopal episode. The event lasted for 30 s and was preceded by lightheadedness. The patient had no history of stroke, seizure, or recent ear infection. Her paroxysmal atrial fibrillation was rate controlled with a low-dose beta blocker.

The orthostatic signs were negative. Her initial laboratory examination showed signs of a mild dehydration manifested with an acute kidney injury (BUN 29 mg/dL and Cr 1.73 mg/dL which was corrected to 10 mg/dL and 0.82 mg/dL, respectively, after gentle hydration). The EKG showed sinus bradycardia with a rate of 59, and a first degree AV block along with left atrial enlargement, left axis deviation, and an old left bundle branch block.

A CT of the head showed microvascular ischemic changes with no acute intracranial abnormalities. On 2D echocardiogram, the ejection fraction was found to be 55–60% with diastolic dysfunction. There was a 5.19 cm × 2.26 cm mass in the inferior vena cava (IVC) near the atriocaval junction nearly occluding the IVC. The mass was suspicious for a thrombus (Fig. 1). The lower extremities duplex was negative for any deep venous thrombi. A CT scan of the chest, abdomen, and pelvic demonstrated a large enhancing right renal mass that was consistent with a renal cell carcinoma (RCC) with a thrombus that extended to the upper part of the IVC (Fig. 2).

The patient was diagnosed with stage III RCC. She declined any aggressive treatment including surgery, radiation, or chemotherapy. She was discharged home on oral anticoagulation treatment for the IVC thrombus.

Discussion

RCC is the seventh most common cancer in males, and the tenth most common cancer in females. In 2015, there were approximately 62,000 new cases of RCC in the USA. About two thirds of the cases occurred in males (1). There is no screening test for RCC, and most of the cases are found at incidental imaging investigations (2). Hematuria is usually the most common presenting symptom in 60% of the patients. Other initial manifestations of

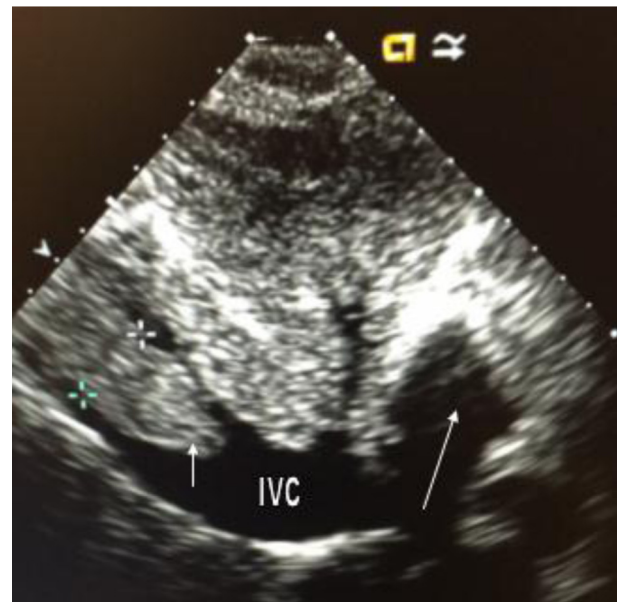


Fig. 1. 2D echo cardiogram shows a thrombus (short arrow) in the IVC close to the right atrium (long arrow).

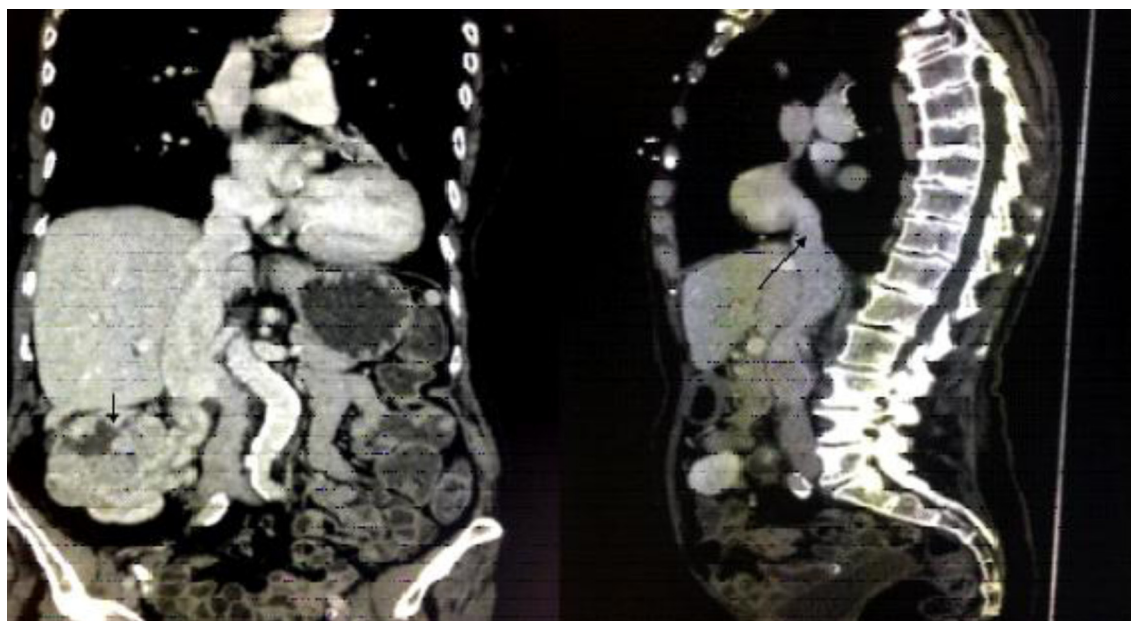


Fig. 2. CT shows right renal mass (short arrow), and IVC thrombus (long arrow).

RCC include abdominal pain, abdominal mass, secondary polycythemia, hypercalcemia, and a sudden onset of varicocele in males. About 10% of the patients may present because of clinical symptoms related to metastases (3).

RCC is commonly associated with a venous thrombosis. Up to 10% of the patients could have IVC thrombus at the time of the diagnosis (4). The extension of the thrombus could reach the right atrium in less than 20% of the cases (5).

According to Neves and Zincke, the level of the IVC thrombus was classified as Level I when it is limited to the renal vein (RV), Level II when it is below the hepatic vein, Level III when it is above the hepatic vein but below the diaphragm, and Level IV when the thrombus extends above the diaphragm or into the right atrium (6). The level of the thrombus dictates the surgical approach which could include total nephrectomy, limited or extensive IVC dissection, or vascular or cardiopulmonary bypass (7).

The overall survival was found to be better in patients with a thrombus that is confined to the RV (Level I) compared with those with IVC involvement (8). A higher level of the thrombus in the IVC did not affect the long-term survival; nevertheless, it was associated with a higher rate of surgical complications and hospital stay especially with Level III and IV thrombus (9).

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