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Case Report

Renal cell carcinoma presenting as pulmonary embolism

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ABSTRACT

We report a case of massive pulmonary embolus demonstrated on CT in an adult male presenting with dyspnea, with no known risk factors for embolism. Abdominal CT on further investigation showed a renal tumor invading the left renal vein and the inferior vena cava as the cause of the pulmonary embolus. In a patient presenting with pulmonary artery embolism without venous thrombosis, the differential diagnosis should include an occult tumor as the cause of the embolus.

Keywords: Computed tomography, Pulmonary embolus, Renal cell carcinoma

INTRODUCTION

Renal sarcoma with venous tumour thrombus is usually an aggressive malignancy that necessitates complete surgical extirpation to achieve cure. Due to the rarity of these tumours, clinicians rely on case reports to better understand and treat patients with this disease. We recently encountered 2 patients with renal sarcoma who developed malignant pulmonary embolus. Our cases, combined with those previously published, suggest renal sarcoma tumour thrombus is at high risk for spontaneous and intraoperative embolization. This report details our experience and outlines measures that may decrease the rate of venous tumour embolization in patients with sarcoma.

Sarcomas represent approximately 1% of primary renal neoplasms. To our knowledge, there are only 10 cases in the medical literature of post pubertal patients with primary renal sarcoma associated with inferior vena cava (IVC) tumour thrombus.[1-10] Of these cases, 3 suffered a malignant pulmonary embolus (PE).[4,6,8] We present 2 additional cases of renal sarcomas with IVC thrombus and malignant PE.

CASE REPORT

40-Year-old male patient presented with chief complaints of Chest pain 2-3 hrs and Breathlessness 2-3 hrs. Patient was apparently well 3 hrs. back when he had sudden onset retro- sternal chest pain, continuous, squeezing, non-radiating, associated with breathlessness which was acute in onset, present even at rest. There was no history of fever, cough, cold, hemoptysis, trauma. Patient also gives history of painless hematuria, oliguria since, 15-20 days. Patient presented with this to casualty f/b which ECG was done which showed

- Sinus tachycardia,
- S1Q3T3,
- RBBB,
- Poor R wave progression.

Suggesting of acute pulmonary embolism, following tests were done

- Cardiac markers- within normal limit,
- D DIMER- 2920,
- Chest x ray- within normal limit,

- 2D echo- Right atrium and right ventricle dilated with PASP (pulmonary artery systolic pressure)-60mmhg with 16mm*13mm mass at IVC,
- CT pulmonary angiogram- Complete thrombosis of left pulmonary artery with complete obliteration of its basal sub segmental and apico anterior sub segmental branches, Partial thrombosis involving the posterior wall of the right pulmonary artery causing partial defect of its apical and posterior basal sub segmental branches, patchy consolidation in apical segment of the right lower lobe with surrounding ground glass opacity suggestive of pulmonary infarct,
- CT abdomen- Large well defined moderately heterogeneously enhancing lesion with non-enhancing necrotic areas involving the mid pole of left kidney suggestive of neoplastic etiology, tumor thrombosis of the left renal vein extending into the supra renal part of infra renal and intra hepoatic IVC.

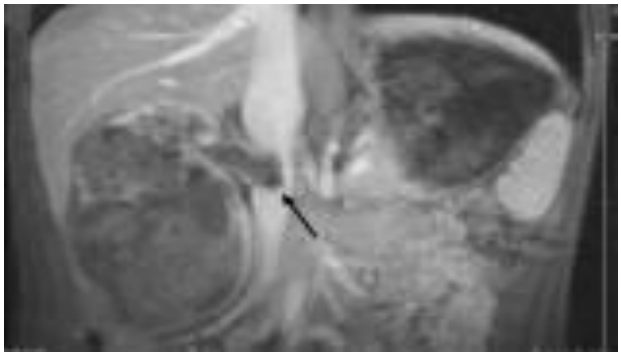

Figure 1: The arrow indicates a right renal mass with extension into the inferior vena cava.

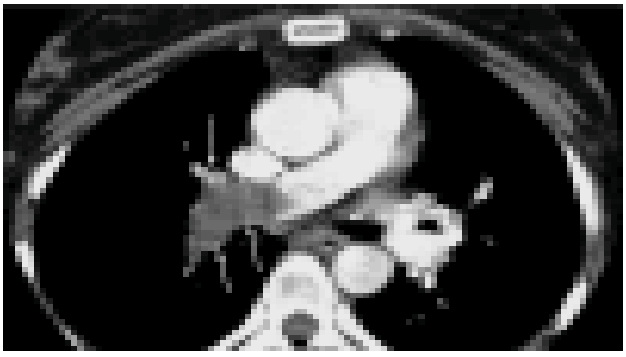

Figure 2: The arrows show a large embolus in the right pulmonary artery.

DISCUSSION

This is the first report to highlight the association of PE with advanced renal sarcoma. Currently, of 12 sarcoma cases with IVC thrombus, 5 (42%) had malignant PE. This prevalence may be artificially elevated due to publication bias, since unusual or unfortunate events are more frequently reported. Nevertheless, the increased incidence of emboli suggest sarcoma tumors are more susceptible to fragmentation than renal cell carcinoma.[11]

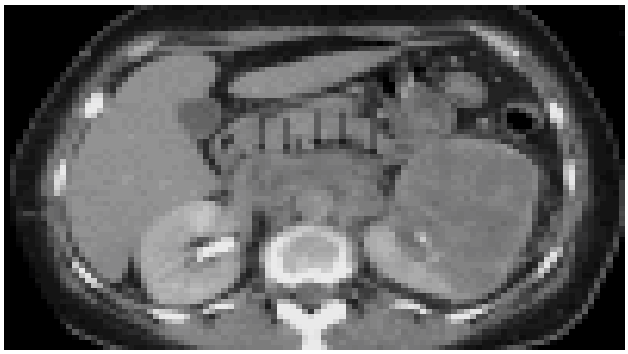

Figure 3: A left renal mass with extension into the inferior vena cava, as shown by the arrows.

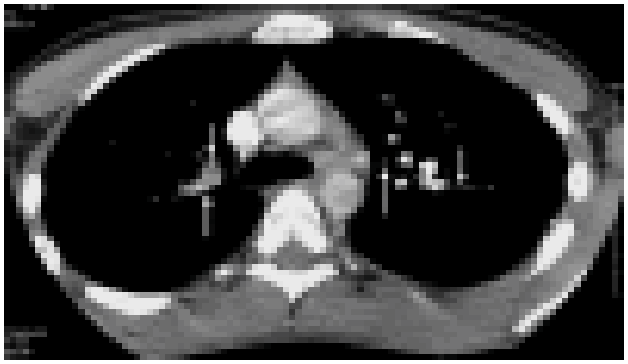

Figure 4: The arrows indicate bilateral pulmonary emboli.

Unfortunately, in the absence of tumour histology, it is not possible to differentiate renal sarcomas from renal cell carcinomas.[12] Although certain properties, such as young patient age, tumour origin from the renal capsule or renal sinus, decreased tumour vascularity, rapid tumour growth and absence of lymphadenopathy associated with a large primary tumour favour sarcoma, these findings can also be associated with renal cell carcinoma. Therefore, we suggest treating all patients with these characteristics as high risk for malignant PE.

Currently, surgical resection is the primary treatment of organ confined and locally advanced renal sarcoma. However, pediatric patients and patients with unrespectable tumours may benefit from radiotherapy and chemotherapy. It is therefore recommended that a multidisciplinary oncology group vet these cases before surgery.

In patients with confirmed or suspected renal sarcoma and venous tumour thrombus, the following recommendations may reduce the risk of malignant embolization

- expedient nephrectomy;

- consideration to preoperative renal angio- infarction to cause thrombus shrinkage; and
- careful intraoperative thrombus handling with early proximal venous control.

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