Subclavian vein thrombosis: an unusual presentation of renal cell carcinoma

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Abstract

Subclavian vein thrombosis is an uncommon clinical condition which is often associated with venous catheterization or secondary to excessive effort. We present a 54-year-old female with subclavian vein thrombosis as a first presentation of renal cell carcinoma. Although this is an unusual presentation, malignancy should be considered in the differential diagnosis. Hypercoagulability as part of a paraneoplastic syndrome was considered a possible etiology. In patients with otherwise unexplained subclavian vein thrombosis, full systemic examination and radiological evaluation of the abdomen, retroperitoneum and pelvis should be pursued. A review of the literature relevant to this unusual case is provided.

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Case report

A 54-year-old, previously healthy, female patient presented to the hematology department with a 1-week history of left arm pain and swelling. Upon questioning, she admittedly reported recent generalized weakness. There has been no weight loss or any hematuria or pain anywhere else. There was also no history of recent trauma injury or hospitalization.

Her past medical history confirmed she had good health, with no medical problems; she had only an appendectomy as a teenager. She is not on any medication and has no allergies. There is no family history of blood-related problems or cancer.

Clinically, she looked well with mild pitting edema of the left upper arm as the only significant clinical finding. Her laboratory investigations revealed mild anemia (Hb 9.0 g/L) and thrombocytosis (platelets 600 000/mL) and normal urea and electrolytes. A Doppler ultrasound confirmed an occluding left subclavian vein thrombus. A computed tomography (CT) scan of the abdomen revealed a 15-cm left renal cell carcinoma (RCC) with central necrosis and left renal vein and regional lymph nodes involvement. An inferior vena caval (IVC) tumour thrombus was suspected (Fig. 1), which was confirmed with a magnetic resonance imaging of the IVC. There was a "tongue" of tumour thrombus in the IVC with patent vein (Fig. 2).

The patient was placed on therapeutic anticoagulation in the form of therapeutic enoxaparin (1.5 mg/kg) and the case was discussed at a multidisciplinary meeting, with input from the hematology department. After discussions, it was felt that the procedure would have to be done as soon as possible because the 6-month waiting time for the clot to dissolve was not applicable in this case. It was felt that a delay in surgery may jeopardize the chances of the operability of the cancer. Eventually, the patient underwent a left radical nephrectomy and an IVC tumour thrombectomy. We followed Robson's principle of radical nephrectomy via an extended midline incision.[1] Initial ligation of the renal artery and vein was individually achieved. The kidney was mobilized outside the Gerota's fascia. The ipsilateral adrenal was removed as it was firmly adherent to the tumour. Lymphadenactomy was not performed due to its doubtful therapeutic benefit and potential complications.[2]

She had a smooth postoperative course, with 3 days of antibiotics. Once stable, she started therapeutic anticoagulation therapy. Histology revealed clear cell carcinoma Fuhrman grade VI (pT3c). Platelet count normalized postoperatively and the patient was followed up by the oncology team.

Discussion

Renal cell carcinoma accounts for about 3% of adult malignancies arising from the proximal renal tubules. It is characterized by a lack of early warning signs and diverse clinical manifestations. One of its characteristics is the paraneoplastic manifestations.[3]

There are 2 cases reported in the literature presenting with superior vena cava syndrome secondary to metastatic RCC.[4,5] Another case of internal jugular vein thrombosis due to RCC was also reported.[6] However, to our knowledge there has been no reported case so far with isolated subclavian vein thrombosis secondary to RCC.

The possible etiology in venous thrombosis secondary to malignancy could be mechanical obstruction, by the primary tumour or its metastatic deposits.[5] However,

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Fig. 1. A computed tomography scan showing a large left renal cell carcinoma with central necrosis associated with regional lymphadenopathy.

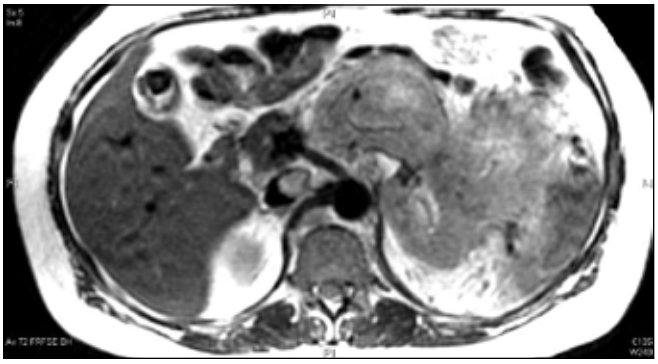

Fig. 2. Magnetic resonance venogram demonstrating left renal cell carcinoma with tumour thrombus in the inferior vena caval (arrow).

hypercoagulability, possibly secondary to thrombocytosis as paraneoplastic manifestation, is the cause in our case. Thrombocytosis is a known phenomenon with RCC and tends to carry a poor prognosis.[7,8]

The investigations for idiopathic subclavian vein thrombosis would involve electromyography, ulnar and median nerve conduction velocities and a radiological examination for cervical ribs. The final diagnosis is confirmed with venous duplex examination and/or venography.[9]

We recommend exclusion of abdominal and pelvic malignancy in patients presenting with idoppathic subclavian vein thrombosis.

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