Case study

Cavoatrial thrombus revealing a renal cell carcinoma

ABSTRACT

Renal carcinoma is a tumor with high metatstatic risk, compromising its prognosis, often fatal.

Involvement in the inferior vena cava is present in 15-20% of metastatic locations with the possibility of intracavitary cardiac extension in 5%

The circumstance of discovery of this tumor are variable, and often discovered by chance on extra-renal explorations.

The right cavo-atrial localization as a sign of discovery has been rarely described in the literature

We report the observation of a young patient who consulted for chest pain, subsequently demonstrating a metastatic clear cell carcinoma to the cavo-atrial system.

Keywords : cavo-atrial thrombus , renal carcinoma , insidious thrombus

INTRODUCTION :

Renal carcinoma is the most common neoplastic entity of renal tumors, often occurring in the sixth decade of life, considered to have a poor prognosis due to its predominant metastatic potential.

Venous extension with thrombembolic complications are special features of renal cell carcinoma. compromising his prognosis. [1].

This extension occurs in 10% of patients, with involvement of the right atrium in 1% of cases[2].

We present here the case of a renal carcinoma, discovered in the complicated stage of right cavo-atrial thrombus

CASE REPORT

-44-year-old youngster, with no particular history, presented to the emergency department for abdominal distension that had gradually set in for 2 months, complicated by dyspnea at rest with edema of the lower limbs.

-Clinical examination found a patient with dyspnea at rest, with abdominal tenderness, the arterial pressure was 130/76 mmHg, a heart rate at 104 bpm, abdominal collateral circulation, hepatomegaly, andswollen lower limbs .

-The ECG was unremarkable, the transthoracic echocardiography found an aspect of serpiginous thrombus encumbering the inferior vena cava and arriving intracavitary at the level of the right atrium, without involvement of the tricupid valve (FIGURE 1) and extending upstream to the level of the unilaterals primitive iliac and common femoral veins (FIGURE 2)

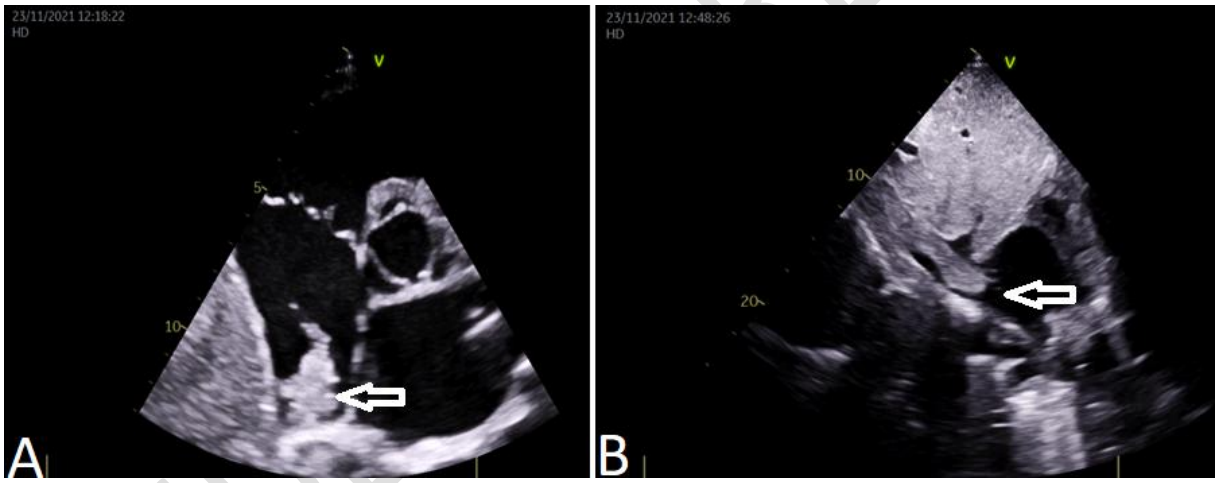


FIGURE 1 : A) short-axis TTE image: mobile thrombotic masses within the right atrium (B) subcostal image: serpiginous thrombus along the inferior vena cava

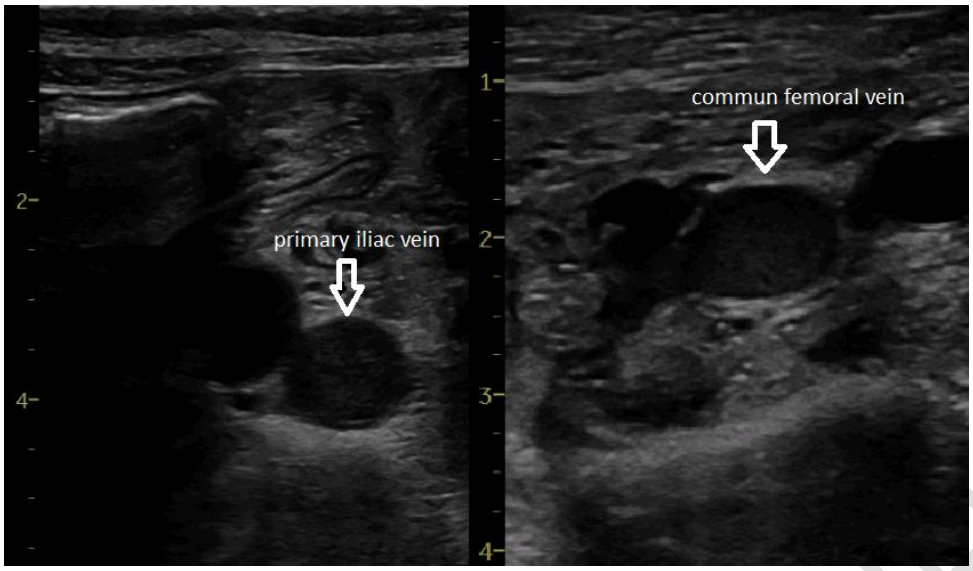
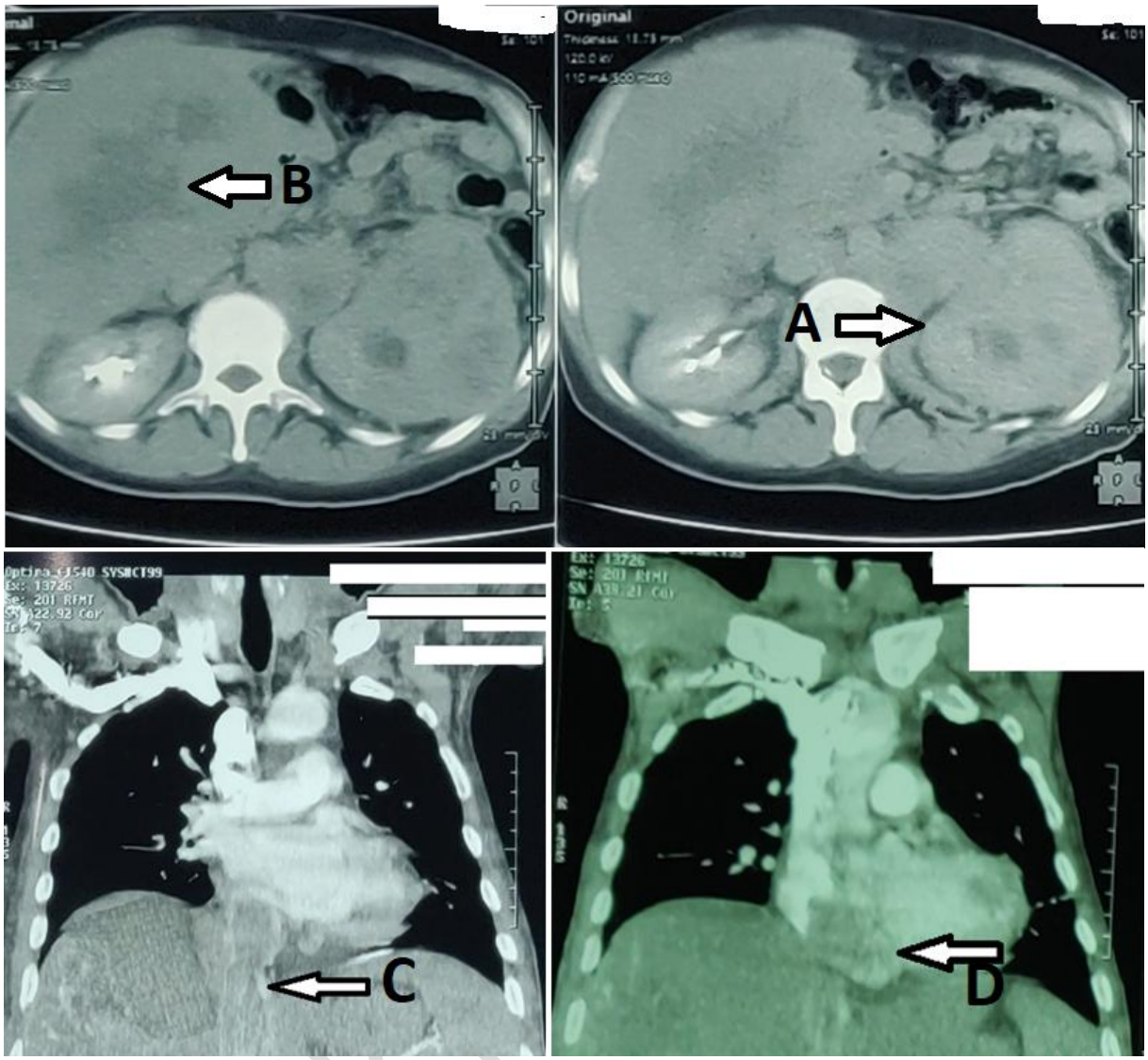


FIGURE 2: transverse vascular ultrasound image of the primary iliac vessels: endoluminal material encumbering the unilaterals primary iliac and common femoral veine

The biological assessment found anemia at 5g / dL, a slight deterioration of renal function with cretininemia at 15 mg / L, and remained stable after rehydration after the CT imaging; the cytobacteriological examination of the urine showed microscopic hematuria

The CT imaging objectified: a hypodense endoluminal material over the entire length of the IVC extended downstream of the right atrium, with large left renal mass associated with a magma of lumbo-aortic lymphadenopathy, and diffuse peritoneal and retro–peritoneal infiltration, associated with multiple hepatic masses invading the contiguity of the IVC and staged vertebral osteloytic lesions; we concluded a suspicion of a left renal tumor complicated by hepatic,peritoneal and bones metastasts , with invasion of the cavo-atrial system. (FIGURE 3)



<u>FIGURE 3</u> : Thoraco-abdominal CT images: A: left renal mass with diffuse peritoneal infiltration ;B multiple fairly well-limited hepatic masses of secondary origin ; C: endoluminal material at the level of the Inferior vena cava; D: right intra-atrium thrombus

The patient received a blood transfusion and put on anticoagulation; after biological stabilization, he subsequently underwent a left nephrectomy with cavotomy and thrombectomy, histological examination confirmed a clear cell renal carcinoma. (Figure 4-5)

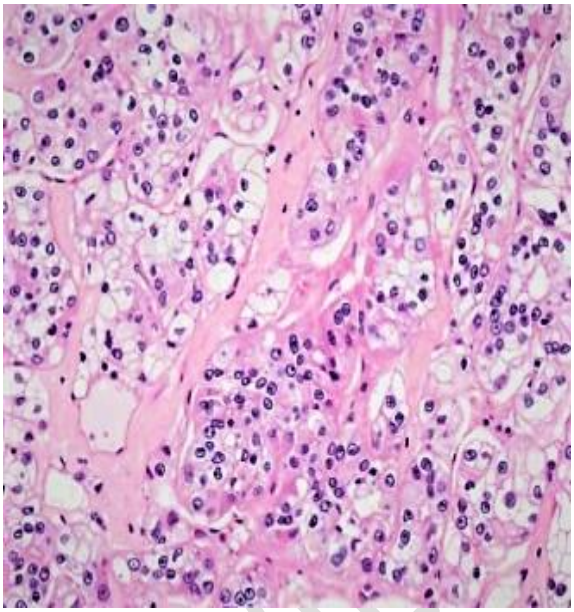


FIGURE 4: left nephrectomy surgery piece **FIGURE 5 : histopathological study showing a clear cell renal cell carcinoma**

DISCUSSION :

-Our observation highlights a form of fortuitous discovery of renal carcinoma, based on thromboembolic complications.

-The typical triad of kidney tumors: flank pain, mass and hematuria was not present in our patient. and the diagnosis was oriented through the discovery of the thrombotic images on the echocardiography, the differential diagnosis was initially made with a cardiac tumor (myxoma), a thrombus of the eustachi valve. The serpiginous extension at the level of the IVC and the venous network upstream directed to search for a primary localization.

-In the literature, similar cases have been reported .Most of the cases have described insidious discoveries on request for imaging, sometimes finding metastases from the outset as is the case with us. [3-4-5].

-Recourse to mutimodal imaging is often essential to assess the extent, complications and guide therapeutic management, renal ultrasound is the first accessible examination, followed by abdominal-thoracic CT, MRI as well as cardiac imaging [6]

-The renal cell carcinoma (RCC), often takes extension at the level of the right cardiac chambers, the precision of the upper margin is important to guide the therapeutic management. [6]

RCC is described on 4 levels according to this upper edge:

* Level I: the tumor thrombus extends from the renal vein into the IVC, but still infrahepatic level.

*Level II: the tumor thrombus extends to the subhepatic IVC

*Level III: the tumor thrombus extends into the intrahepatic IVC

*Level IV: the tumor extends to the right atrium

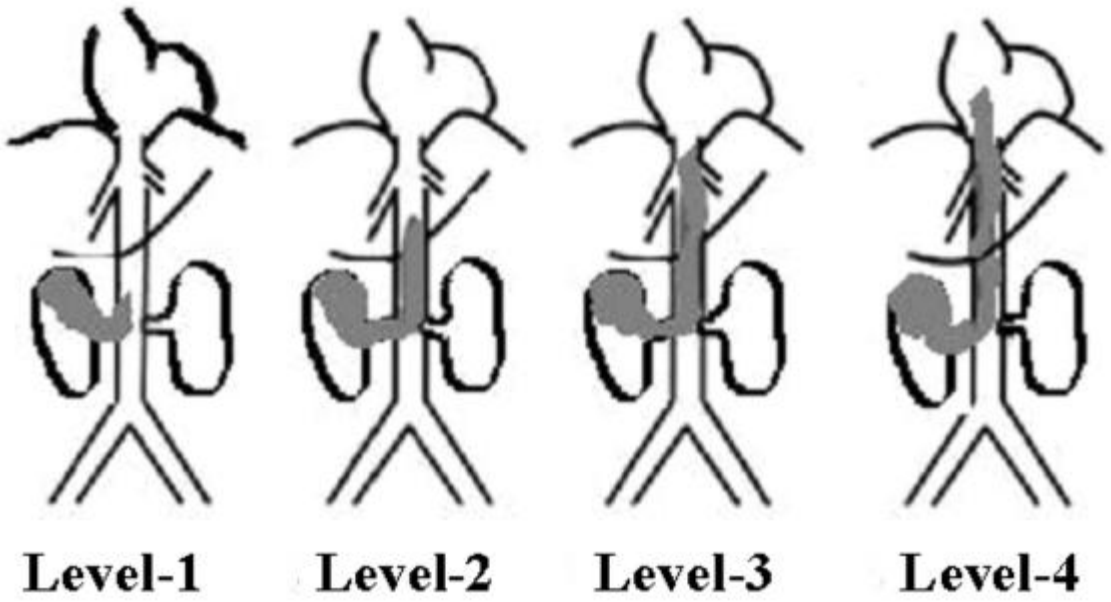


FIGURE 6 : Classification of the renal cell carcinoma according to tumor and tumor thrombus level

- The surgical management in patients with renal cell carcinoma is quite complex, to find a fairly safe result.

combined surgical intake with the use of cardiopulmonary bypass may be necessary allowing complete resection of the tumor. [7-8-9]

-Long-term postoperative survival has been described in studies in spite of the invasive nature of the intracardiac extension. [10]

CONCLUSION:

The discovery of extensive cavo-atrial thromus should lead to a search for a renal or hepatic neoplastic origin.

The use of imaging techniques combining echocardiography, CT and MRI is essential to determine the extent of thrombosis and tumor.

multidisciplinary urological, vascular and cardiac management is essential to guide safe tumor resection.

LIST OF ABBREVIATIONS :

CT:computed tomography

ECG : Electrocardiogramm

IVC : Inferior vena cava

MRI: magnetic resonance imaging

RCC : renal cell carcinoma

TTE : transthoracic echocardiography

Disclaimer regarding Consent and Ethical Approval:

As per university standard guideline, participant consent and ethical approval have been collected and preserved by the authors

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