RIGHT ATRIAL METASTASIS WITH RENAL STARTING POINT

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SUMMARY:
Kidney cancer is a rare tumor if we consider the 2.3% incidence of malignant disease in adults; on the other hand, only 1% (1) of these shows right atrial intracardiac metastases. Literature records isolated cases; this is the argument for the presentation of the two clinical cases. Right atrial metastatic tumors have a relatively typical ultrasound appearance and the most frequent etiology is the renal cancer. They can occur in the two types of renal carcinomas by extension in the inferior vena cava or marrow dissemination. That they are silent suggests the indication of echocardiographic exploration in the presence of renal tumors.

Keywords: renal carcinoma, right atrial metastasis, echocardiography

Introduction

Kidney cancer is a rare tumor if we consider the 2.3% incidence of malignant disease in adults; on the other hand, only 1% (1) of these shows right atrial intracardiac metastases. Literature records isolated cases; this is the argument for the presentation of the two clinical cases.

Case 1

The first case is of a patient of 59 years old, diagnosed and operated a year ago for a Grawitz tumor in left kidney T4N2Mx, left lung metastasis - confirmed histopathologically by surgery, left renal vein thrombosis, with documented brain metastases, who is hospitalized with malaise, confused, palpebral ptosis, decreased vesicular murmur, sibilant rales, rhythmic heart sounds, FC = 60b/min, BP = 140/80mmHg, without any other pathological changes.

Pulmonary radiography shows multiple round opacities clearly defined and disseminated in all lung areas. Abdominal ultrasound shows a 71/57mm size formation, left renal tumor, bilateral adrenal glands > 50mm. Cerebral MRI diagnosis brain tumor.

ECG shows sinus rhythm, first degree atrioventricular block, left bundle branch block.

Echocardiography shows: aorta=19.9/29.2mm, left atrium=28.5mm, with good opening and with hyperecogene small deposits, small aortic regurgitation, right ventricle=32mm, interventricular wall=14.5mm, left ventricle=51/40mm, posterior wall=11.4mm, ejection fraction=44.5%, septal diskesis, left atrium=57/34mm, E=0.7, A=1.2, VmaxAo=1.52m/s, gradient=9.8mmHg, right ventricle=33.5mm, right atrium=45mm. In the right atrium is recorded the presence of a inhomogeneous formation 4.36/2.95mm, that intermittent goes through the tricuspid valve, having
an intense hypoechogenous central area 0.98/1cm and extending through the Cava vein, thin blade of fluid in the pericardium (Figure 1,2,3,4,5)

**Diagnosis:** Grawitz left kidney tumor with lung, bilateral adrenal glands, heart and brain metastases. Left renal vein thrombosis with extension into inferior cava vein. Secondary adrenal insufficiency in substitution treatment. Arterial hypertension stage II with very high added cardiovascular risk. First degree atrioventricular block. Left bundle branch block.

**Case 2**

2nd case is a 56 years man who presented 4 months ago with macroscopic hematuria without a originally documented cause; at two months is diagnosed with renal tumor for which he underwent nephrectomy, followed at 1 month by a reintervention with ganglion dissection, resection of the intestine. He addresses our clinic with massive edema of left leg and brief episode of dyspnea 1 day before. Echo-doppler femoral vein shows venous thrombosis (Fig. 6.).

ECG shows discrete changes in the repolarization phase. Echocardiography reveals in left atrial, below the tricuspid valve, the presence of a formation relatively well defined, with homogeneous appearance and with hyperecogenous areas inside. (Figure 7,8, 9)

**Diagnosis:** Left renal squamous cell carcinoma with extension to the colon, the local lymph nodes and the heart. Deep venous thrombosis of left leg.
Discussions

Kidney cancer can be presented in two variants depending on the anatomical point of departure: renal cell carcinoma and urothelial cell carcinoma (2).

Renal cell carcinoma, also called hipernefrom, was first described in 1883 by Paul Grawitz. The origin is the distal cortical tubules and represents 90% of malignant renal tumors. Smoking and genetic factors appear to be important factors. Although transitional epithelial cells are present throughout the urinary tract (the kidneys to the urethra), only 8% of these tumors are located in the renal pelvis. Of these at least 3-7% are squamous cells tumors as in our patient. Tobacco, analgesics and Balkan nephropathy appears to be involved in disease etiology.

Metastatic cardiac tumors are often silent, but can be represented by conduction abnormalities, rhythm abnormalities, venous stasis because of heart failure and sudden death. They occur in right cavities by extension from abdominal tumors via the inferior vena cava (3). Kidney cancer is most often responsible, followed by adrenal carcinoma, liver and uterine carcinoma. Hematogenous metastases are found in both atria, kidney metastases are the 3rd in frequency after the lung and breast ones.

Tumors from the right atrium look like a mass in relation to the inferior vena cava, sometimes going in the right ventricle and are accompanied by the presence of fluid in the pericardium. Appearance is heterogeneous, with hypoechoegenous images inside corresponding to necrosis centers (4,5).

The differential diagnosis is made between primary tumors of the heart (6), first is the atrial mixom (representing 50% of cardiac tumors) but it has as essential feature that is attached to the septum. Lipomatosis may give a pseudo tumor image, is relatively common, may give a false picture, but is not firmly attached to the septum and looks homogeneous. Angiocarcinomas are poorly delimited formations, heterogeneous, are accompanied by pericardial effusion and may radiate into the right atrium. (7,8)

The closest differential diagnosis in the 2nd the patient are intraatrial thrombi, especially since the patient had a confirmed deep vein thrombosis and pulmonary embolism is suspected. Thrombi have a characteristic elongated appearance and are immobile. (9)

Unfortunately the prognosis is not good, metastatic tumors are generally resistant to chemotherapy.
Conclusion

Right atrial metastatic tumors have a relatively typical ultrasound appearance and the most frequent etiology is the renal cancer. They can occur in the two types of renal carcinomas by extension in the inferior vena cava or marrow dissemination. That they are silent suggests the indication of echocardiographic exploration in the presence of renal tumors.

References:
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