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Atypical Presentation of Renal Cell Carcinoma in a 47-year Old Hypertensive Female Patient – Case Report

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ABSTRACT

Characterized by a wide range of nonspecific symptoms, renal cell carcinoma tends to be found only at advanced stages or when kidney failure occurs.

In this case report we describe the incidental finding of a 6cm renal cell carcinoma in a 47-years old hypertensive female patient with peculiar symptomatology. Contrast-enhanced-US showed supplementary intratumoral necrotic areas rising the suspicion of renal carcinoma, which was confirmed by CT and histology. Incidental detection rate of renal masses has increased, ultrasound, and especially contrast-enhanced-US having an important role in its diagnosis.

Keywords: Renal carcinoma, contrast-enhanced-ultrasound, paraneoplastic

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INTRODUCTION

Renal cell carcinoma (RCC) among adults comprises more than 90% of all the cases of kidney cancer[1], being characterized by a lack of early symptoms, remaining often clinically hidden. The classic triad (flank pain, hematuria, palpable mass) is rarely found (5-10%), polycythemia, hypercalcemia and liver dysfunction being the most frequently found paraneoplastic syndromes[2]. The incidence of RCC has been rising, due to the progress in the diagnostic procedures, as well as the increased exposure to risk factors[3].

CASE REPORT

A 47-year old non-smoking, non-allergic, non-obese female patient presented with frontal headache, diffuse abdominal discomfort, intense pain in the right hypochondrium, nausea, weight loss (3kilograms in the past month), ageusia and increased pruritus in the extremities. These symptoms had suddenly started 3weeks before admission. The patient had been diagnosed with essential hypertension approximately one year earlier, condition which was adequately controlled with 5mg of bisoprololum per day, blood pressure on presentation being 130/90 mmHg. The patient reported physiological micturition. On clinical examination tenderness was present in epigastrium and right hypochondrium. No palpable masses were identified and Giordano sign was negative bilaterally. Laboratory data revealed a slight hepatocytolitic syndrome, increased GGT, no associated inflammatory syndrome, normal creatinine, no pathological findings in the urinary sample, carcinoembryonic antigen in normal range and negative viral hepatitis (HBV, HCV) and autoimmune markers.

It is worth mentioning that the patient took one tablet of 500 mg of paracetamol per day for roughly one month for recurrent respiratory symptoms, prior to admission.

Grey scale and Doppler-ultrasound (US) described a 6x5.8 cm inhomogeneous, hypervascularized mass in the left kidney, with no signs of thrombosis in the renal vein or inferior vena cava, no liver metastasis or any other pathological intraabdominal changes (Fig.1). Contrast-enhanced ultrasound (CEUS) (Fig.2) revealed an early and increased enhancement (compared to the rest of the renal parenchyma) of the tumor during the arterial phase (16 seconds after intravenous administration of Sonovue), except for the central area, which lacked enhancement. After approximately 2minutes, the tumor was isoenhanced with respect to the surrounding parenchyma, maintaining however a central non-enhanced area, suggestive of necrosis. Up to 5minutes follow-up, during the late phases, there was no observable washout of the tumor.

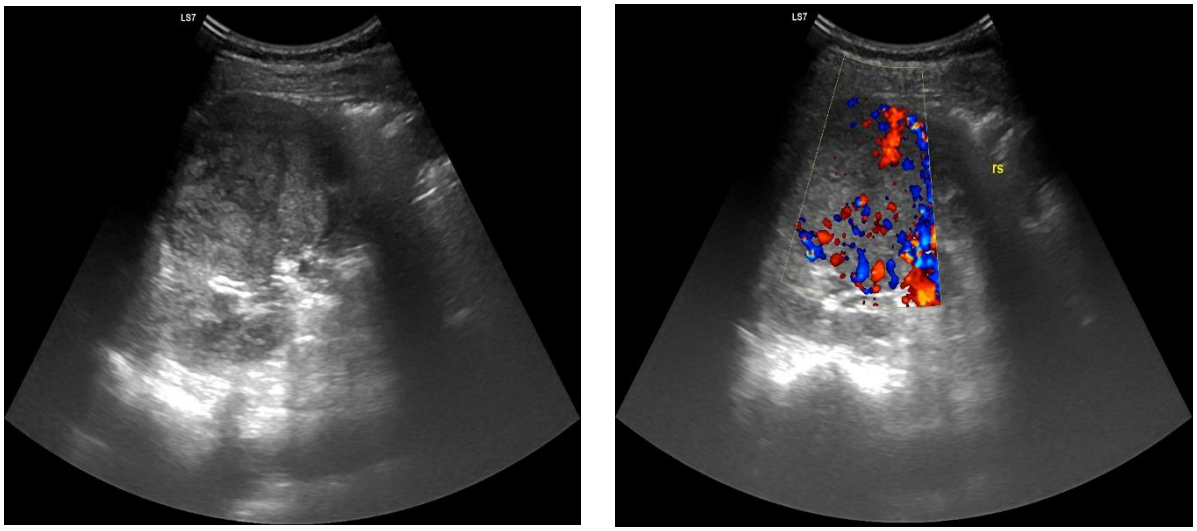

Fig 1. a) Grey-scale US: left renal mass b) Colour-Doppler US: hypervascularized tumor

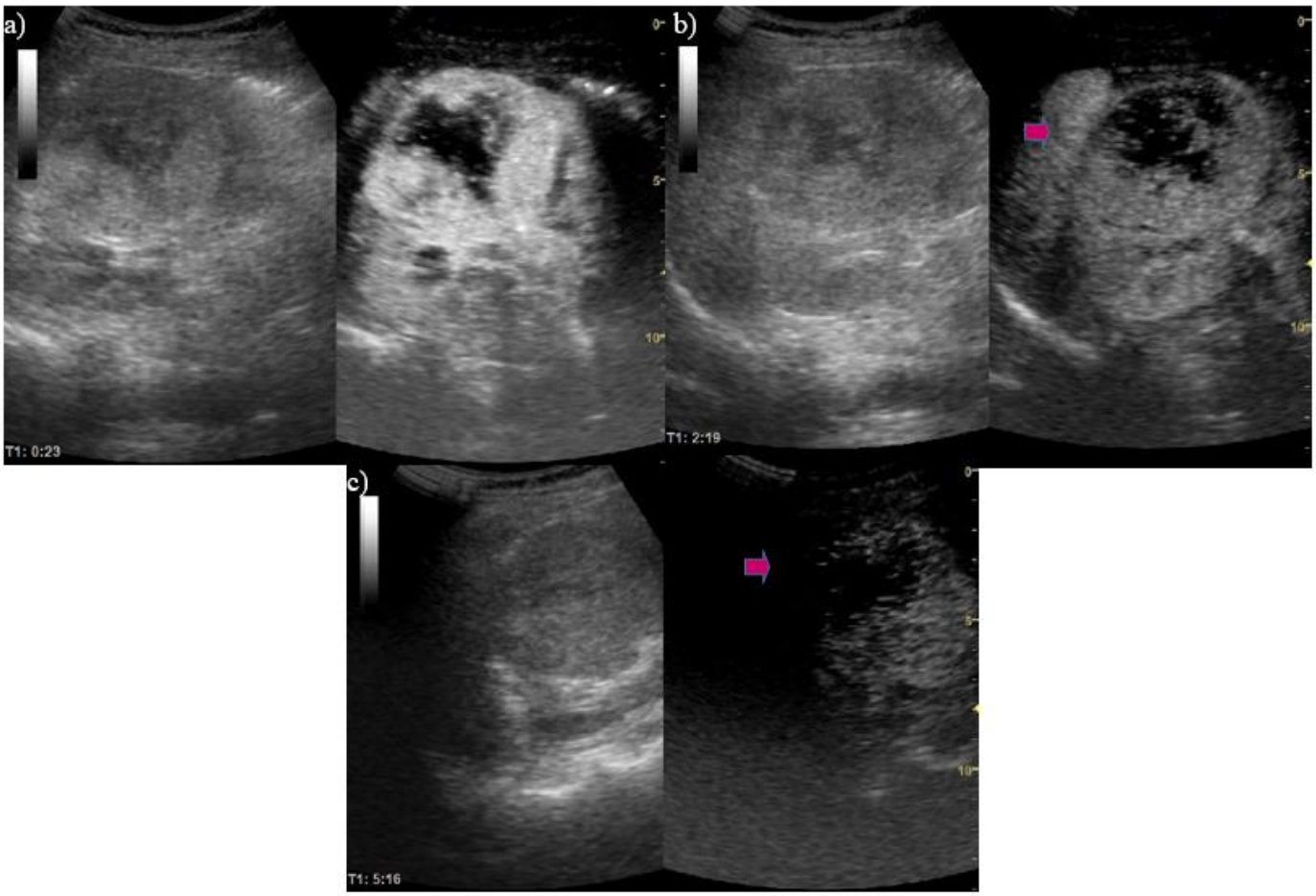

Fig. 2 CEUS a) arterial phase: early-filling, vascularized left kidney tumor b) portal phase: isoenhanced tumor with central lack of enhancement (necrosis) c) late phase: no washout

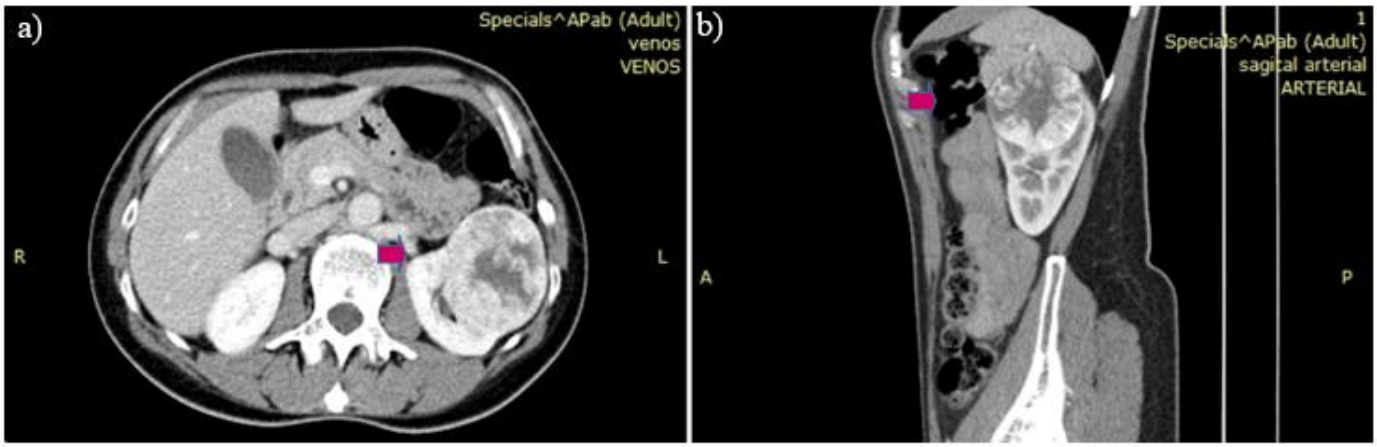

Fig. 3 Contrast-enhanced CT a) transversal b) sagittal plane: mediorenal tumor mass (6x5.7x5.6 cm) with non-enhancing (necrotic) areas

Contrast enhanced CT-scan (Fig.3) revealed a well-circumscribed, inhomogeneous (i.e. with necrotic areas), left mediorenal tumor mass (6x5.7x5.6 cm) with extrarenal expansion up to the thoracic wall, the splenic hilum, the pancreatic tail, and the descending colon, raising the suspicion of a carcinoma. Despite its size, the tumor showed neither signs of invasion (left renal vein) nor metastases or adenopathy.

The patient underwent radical left laparoscopic

nephrectomy, comprising the adjacent adrenal gland and the regional lymph nodes. The histopathologic diagnosis was of clear cell renal carcinoma, stage T1bN0M0, grade Fuhrman 2 and grade 2 after the International Society of Urological Pathology (ISUP). There were no postoperative complications and the patient was discharged 2days later. One year follow-up showed no recurrences either on US or CT scan.

The patient has signed the informed consent and also the approval for participating in medical teaching, in accordance with the Declaration of Helsinki.

DISCUSSIONS

RCC incidence varies significantly, North America being the leader with an age-standardized rate (ASR) of 11.7:100 000, followed by Western Europe (9.8). At the opposite end, Africa has the lowest incidence (<3.0), probably due to the lack of adequate reporting and lack of enough imaging technology needed for tumor detection[4]. Since there are no effective markers or screening programs at the time being, medical imaging remains the main hope for an early detection. Otherwise, RCC tends to be found only when acute/ chronic kidney failure occurs[4].

There are three major histological subtypes of RCC: clear cell (ccRCC), papillary (pRCC) and chromophobe (crRCC). Staging and Fuhrman grading [5] are independent prognosis predictors and the most relevant and important for RCC. Our patient had an overall 5-year survival rate of 80-90% [2] for a T1bN0M0 stage and over 90% for an ISUP 2 grading [6]. Radical nephrectomy with regional lymphadenectomy is the standard therapy for localized RCC.

Incidental finding of RCC while performing US, CT or MRI scans for different comorbidities may lead to bias in the evaluation of risk factors by artificially increasing the link between RCC and certain factors.

There does not exist any typical diagnostic pattern of perfusion behavior in CEUS, in order to differentiate between malignant and benign tumors. Enhancement of the tumor mass compared to the rest of the parenchyma is frequently found, as in our case, and it helps in the differential diagnosis against pseudotumors [7].

The most important risk factors for developing RCC are gender (higher for males), age (risk increases with age), obesity, smoking, hypertension, kidney comorbidities (nephrolithiasis in males, chronic kidney disease with low GFR), HCV infection, paracetamol and NSAIDs usage[8-12]. Protective factors against kidney cancer are physical activity, alcohol and cruciferous vegetables consumption[13].

We interpreted the pruritus in our patient (after ruling out cholestasis and allergies), as a possible paraneoplastic syndrome, which may appear in many solid tumors[14]. The same interpretation applies to ageusia, which usually appears as a result of the chronic inflammatory state associated with cancer[15]. Liver dysfunction here might be interpreted as a paraneoplastic manifestation or as a result of chronic NSAIDs usage.

The peculiar characteristics of this case consist in the incidental finding of a RCC at US and the lack of any urinary symptoms or signs in a patient with a scarcity of risk factors: hypertension and chronic long-term Paracetamol usage.

Even though the outcome and prognosis for our patient were favorable, this case report is one more testimony to the insidious nature of RCC. The kidney cancer-specific triad was not present in the case of our patient and the intense pruritus and ageusia constituted strange findings in this context. As these tumors are often asymptomatic, or accompanied by non-specific, confounding symptoms, few of them can be clinically suspected. However, as medical imaging has become more accessible, the incidental detection rate of renal masses has also increased and CEUS allows an early diagnosis, especially if necrosis is present.

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