

An Incidental CT Scan Discovery of a Bilateral Renal Infarction in a Patient with Systemic Lupus Erythematosus Presenting with Acute Pancreatitis

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Abstract

Case Report

Although patients with systemic lupus erythematosus, especially those with antiphospholipid antibodies, have a high incidence of arterial and venous thrombotic events, renal infarcts have been infrequently reported in these patients and are likely to be underestimated. In this paper, we report a case of multiple bilateral renal infarctions in a patient suffering from systemic lupus erythematosus, provide a brief insight into the clinical features and especially highlight the radiological aspects of this diagnosis.

Keywords: Systemic lupus erythematosus, antiphospholipid syndrome, bilateral renal infarction.

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INTRODUCTION

Renal infarction is due to the obstruction of the main renal artery or its distal branches, most commonly it is incidental to a known subjacent disease; the vast majority of cases are secondary to arterial embolism in patients with atrial fibrillation or other cardiac diseases, however other causes include trauma, polycythemia vera, fibromuscular dysplasia, extra-adrenal pheochromocytoma, aneurysm or dissection of the renal artery, and some drug substances, a less known etiology is the vascular affection of systemic lupus erythematosus [1, 2].

Although patients with systemic lupus erythematosus, especially those with antiphospholipid antibodies, have a relatively high incidence of arterial and venous thrombotic events, renal infarction has been seldom reported in these patients, it is very often misdiagnosed because the symptoms are misleading. The mechanisms are diverse, predominantly thrombotic and embolic [3, 4].

In this article, we report a case of bilateral renal infarction in a patient with systemic lupus erythematosus, shed light briefly on the clinical features and emphasize the radiological aspects of this diagnosis.

CASE REPORT

We report the case of a 21-year-old female patient with a medical history of systemic lupus erythematosus since 2018 complicated by renal failure, who presented to the adult emergency department with diffuse abdominal pain, more accentuated in the epigastric area radiating posteriorly to the back, and associated with nausea and vomiting worsened by ingestion of food or fluid, symptoms seemed to be soothed by the knee-chest position, and physical examination showed a supple, non-distended abdomen with a sensibility in the epigastric area.

Urgent blood tests were performed and showed elevated lipasemia and high levels of urea and creatinine. In the light of these clinical and biological findings the diagnosis of acute pancreatitis was made.

In the 72 following hours an enhanced abdominal CT scan was requested for the pancreatitis severity staging, and showed after approval of injection of the contrast medium by the nephrologists; stage A pancreatitis according to Balthazar score and revealed fortuitously kidneys of normal size, with regular contours and multiple hypodense areas of triangular shape and peripheral base surrounded by a rim of subcapsular enhancement parallel to the renal margin (the cortical rim sign) strongly suggestive of renal infarction Figure 1, 2 and 3.

The patient was referred to the department of internal medicine for additional investigations, and an antiphospholipid syndrome was identified.



Figure 1: Contrast-enhanced abdominal CT scan (axial) showing multiple renal hypodense areas, of triangular shape and peripheral base surrounded by a rim of subcapsular enhancement parallel to the renal margin (arrow) (the cortical rim sign)



Figure 2: Contrast-enhanced abdominal CT scan (sagittal) showing multiple renal hypodense areas of triangular shape and peripheral base, surrounded by a rim of subcapsular enhancement parallel to the renal margin (arrow) (the cortical rim sign)

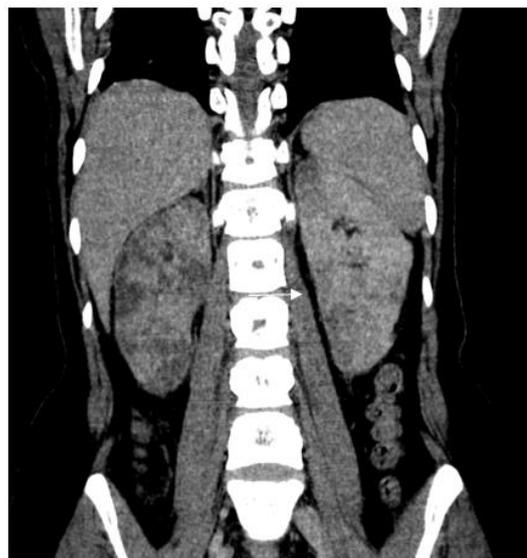


Figure 3: Contrast-enhanced abdominal CT scan (coronal) showing multiple renal hypodense areas of triangular shape and peripheral base, surrounded by a rim of subcapsular enhancement parallel to the renal margin (arrow) (the cortical rim sign)

DISCUSSION

Lupus is a chronic inflammatory disease that affects 4 to 250 people per 100,000 of the population, (70% of patients have systemic lupus erythematosus), It is frequent in women, and the first symptoms appear between the age of 15 and 44 years, About 30-50% of cases have clinical manifestations of renal involvement and this patients generally complain of flank and/or upper abdominal pain that is often accompanied by both nausea and vomiting and sometimes hematuria, fever and or acute elevated blood pressure, In contrast, renal infarction may be completely asymptomatic and be diagnosed incidentally on abdominal CT scan examination such as in our case [1, 5].

Lupus vasculopathy has been related to WHO class IV lupus nephritis [6]. Renal infarction in lupus patients usually occurs with a positive lupus anticoagulant in the setting of antiphospholipid syndrome, which is characterized by a hypercoagulable state that involves potentially all segments of the vascular bed with thrombosis [7].

The imaging features of lupus-related kidney disease are unspecific and generally depend on the stage of the disease, Nevertheless, imaging is yet the key to the diagnosis of renal artery occlusion [8].

CT has a good sensitivity of approximately 85%. The radiological features of CT scan are described by a familiar sign: the cortical rim sign; This sign is found most often in cases of renal artery obstruction by embolus thrombosis or dissection [9, 10].

On contrast imaging, CT scan or MRI, a 1 to 3mm rim of subcapsular enhancement parallel to the renal margin can be seen due to retained perfusion of the external renal cortex by capsular perforating vessels. The findings can be either partial or complete depending on the extent of the vascular obstruction, and there can be an acute contrast arrest in the renal artery, referred to as the arterial cut-off sign [8]; this sign is pathognomonic, but it is commonly missing in the first 6 hours after infarction. A newly identified CT sign has been described as "flip-flop" enhancement, which is a delayed enhancement of the early hypo attenuations; it is due to the extravasation of the contrast material in the ischemic regions resulting from the rupture of the glomerular membrane. This sign is suggestive of both ischemia and necrosis and can be observed in inflammatory disease conditions [11, 12]. All these findings must be correlated with clinical and laboratory data.

The main differential radiological diagnoses for renal infarcts are; pyelonephritis, lymphoma, and metastasis. Other diagnoses to be considered based on the clinical features are renal calculi, hemorrhagic cyst, renal or perirenal hematoma which can be easily excluded by a noncontrast-enhanced CT scan.

The treatment guidelines for the management of renal infarction have not been established, early recognition of such a diagnosis is critical in order to minimize loss of renal function. The standard treatment strategy includes anticoagulation with or without thrombolysis [10].

CONCLUSION

Renal infarcts may remain underdiagnosed for a long time in patients with Systemic Lupus Erythematosus, it may compromise the functional outcome of both the kidneys and is a warning occurrence of other thromboembolic events in other various locations, including the brain. Imaging is very relevant in its discovery which may be incidental in many cases, and allows the exclusion of other differential diagnoses.

Our purpose is to increase awareness of this condition in order to facilitate early prompt diagnosis and treatment.

Disclosure of Interest: The authors declare that they have no conflicts of interest concerning this article.

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