

Acute renal infarction due to left ventricular thrombus: About a rare case and literature analysis

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ARTICLE INFO

Keywords:

Renal infarction
Ventricular thrombus
Emboli
Renal colic

ABSTRACT

Renal infarction is a rare pathology, with a serious threat to the functional prognosis of the kidney. Because of its nonspecific clinic presentation, renal infarction is often misdiagnosed as renal colic and pyelonephritis or any etiology of abdominal pain. Embolic Renal infarction occurs commonly in a patient with the risk factors of thromboembolic with heart diseases especially atrial fibrillation. It's important to be aware of this condition to initiate treatment to increase the chance of renal salvage.

We report a patient with a renal infarction due to the emboli from left ventricular thrombus with a brief review of the literature.

1. Introduction

Renal infarction is a rare pathology often misdiagnosed because of its lack of specific clinical presentation,¹ because the patient usually presents acute abdomen pain, unilateral pain in the flank similar to renal colic and pyelonephritis. Renal infarction may occur in patients with risk factors of cardiovascular disease, with local renal artery involvement and hypercoagulable statuses.² Contrast-enhanced CT of the abdomen is important for diagnosis.¹ It's important to be aware of this condition to initiate a treatment to increase the chance of renal salvage.

A few case reports involve the possibility that a cardiac embolism can cause acute renal infarction. Herein we present a patient with segmental renal infarction secondary to left ventricular thrombus who presented symptoms of renal calculus with a brief review of the literature.

2. Case report

A 65-year-old woman with a medical history of cervical cancer was treated in 2015 with radiochemotherapy, cured in 2016, and cholecystectomy 13 years ago. She consult our emergency medical system for shortness of breath, her vital included: a regular pulse rate 116 beats/min, blood pressure was 140/80 mmHg, respiratory rate was of 16 breaths/min, and oxygen saturation was 97% at room air.

The physical examination was unremarkable except for tachycardia,

without any evidence of heart failure or pulmonary congestion.

The laboratory test results were within the normal range with white blood cell count at 9000, electrolytes, renal function, and liver function were normal, CRP negative, LDH was elevated at 1288U/L, and D-dimers positive.

A chest CT angiography with an abdominal section was performed showing a thrombus in the left ventricle (LV) (Fig. 1) with a normal left kidney. Thus, anticoagulant therapy with a curative dose was started.

Transthoracic echocardiography showed an akinetic left ventricle and the presence of a mobile LV thrombus and an estimated LV ejection fraction of 25%.

During her hospitalization, the patient presented a left flank pain mimicking renal colic, associated with nausea and vomiting, alleviated by an antalgic treatment.

An abdominal CT scan (Fig. 2) with the contrast was performed and showed hypodense lesions of the upper pole of the left kidney.

After exclusion of possible diagnoses in front of this clinical presentation, in particular, ureteral lithiasis the diagnosis of a segmental renal infarction following the left ventricular thrombus migration was retained. During her hospitalization a symptomatic treatment has been preconized based on analgesics, with favorable evolution, the patient was discharged with preserved renal function.

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<https://doi.org/10.1016/j.eucr.2021.101922>

Received 4 October 2021; Received in revised form 24 October 2021; Accepted 27 October 2021

Available online 28 October 2021

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Fig. 1. (→) Enhanced computed tomography scan showing a thrombus in the left ventricle.

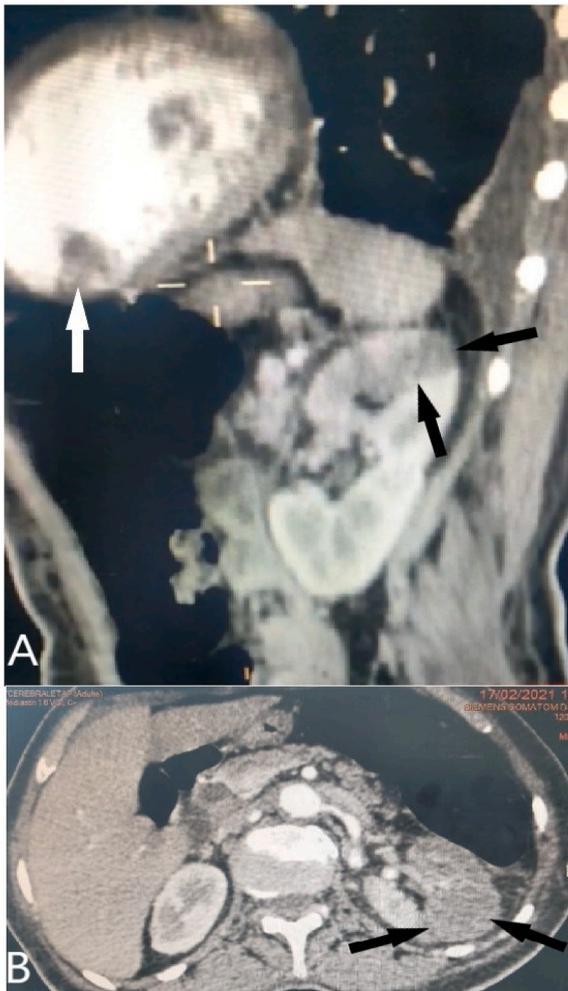


Fig. 2. Abdomen CT Scan with contrast.

3. Discussion

Acute renal infarction due to emboli is a rare condition, commonly misdiagnosed, and can lead to a functional loss of the kidney.¹ In 1940, in a series of 14,411 autopsies published, the incidence of renal infarction was 1.4%.³ The clinical presentation is often confused with other common pathologies, and this pain can be attributed to other pathologies of the digestive tract, vertebral, or even cardiac.⁴

Renal infarction is usually caused by thromboembolism, which

commonly originates from the heart or aorta and renal artery lesion (spontaneous, traumatic, angioplasty, or surgery).³

The predisposing factors of thromboembolic renal infarction include commonly atrial fibrillation,⁵ smoking, percutaneous transluminal angioplasty, and intraluminal stent placements, valve replacement, intracardiac tumors, ischemic heart disease, trauma, infective endocarditis, and drug abuse. Idiopathic cases of renal infarction have also been reported.¹

The most common clinical presentation of embolic renal infarction is a clinic mimicking renal colic (as in our patient), but also abdominal pain with or without vomiting, hematuria, and in some cases hypertension.³ At the time of presentation, the differential diagnoses include nephrolithiasis (as in our case), pyelonephritis, myocardial infarction, acute cholecystitis, acute tubular necrosis, and pulmonary embolism. Even though not specific, serum LDH has been considered a very sensitive marker of infarction, and reliable for renal artery embolism when screening patients with flank pain³; Urea and serum creatinine levels might be elevated or normal.

In the presence of acute flank pain, unenhanced CT is usually the first and gold standard test for the diagnosis of urinary lithiasis, which is more common than renal infarction. The CT angiography is the diagnostic tool of choice of renal infarction and the typical findings are a wedge-shaped zone of peripheral diminished density without enhancement showing a subcapsular base and apex directed to the hilum. But the positive diagnostic of renal infarction is still made by renal arteriography.⁵

As a result of the rare incidence of diagnosed renal infarction, no consensus on investigation or treatment has been established for this condition. Treatment of patients with acute renal infarction involves thrombolysis, anticoagulation, and occasionally surgery, depending on the duration of symptoms.

In several studies, anticoagulation with unfractionated heparin, low-molecular-weight heparin, and warfarin showed favorable results. For patients who present atrial fibrillation, the treatment is clear and it will be conventional anticoagulation with a favorable prognosis¹ In cases of traumatic renal artery thrombosis, surgical management is highly effective. Other treatment options include endovascular thrombolysis, with limited data in the literature.

4. Conclusion

Renal infarction is an uncommon pathology that should be suspected in patients with risks factor of cardiovascular disease who present abdominal pain. The enhanced CT scan is the diagnostic tool of choice, Treatment of patients with acute renal infarction involves thrombolysis, anticoagulation, and occasionally surgery, depending on the duration of symptoms.

Declaration of competing interest

None of the contributing authors have any conflict of interest, including specific financial interests or relationships and affiliations relevant to the subject matter or materials discussed in the manuscript.

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