

Acute Renal Infarction: An Uncommon Presentation of Colon Adenocarcinoma

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ABSTRACT

Renal infarction is a rare cause of acute flank and abdominal pain. It usually occurs in patients with cardiac disease or a history associated with a high risk of thromboembolism. Malignancy is a well known hypercoagulable state. We herein report the first case of colon adenocarcinoma complicated with renal infarction, presenting with flank pain and hematuria mimicking renal colic. The clinical presentation of the patient was suggestive of nephrolithiasis. Contrast enhanced computerized tomography made the final diagnosis of renal infarction and the underlying colon cancer. A high index of clinical suspicion is warranted for the diagnosis of both renal infarction and the underlying rare causes like adenocarcinomas.

Keywords: Flank pain, Hematuria, Kidney colic, Renal infarction, Colon adenocarcinoma

ÖZET

Akut Renal İnfarkt: Kolon Adenokarsinomunun Nadir Klinik Prezantasyonu

Renal infarkt akut yan ve abdominal ağrının nadir nedenlerinden biridir. Renal infarkt genellikle kardiyak hastalığı olan veya artmış tromboemboli riskine sahip hastalarda görülür. Hiperkoagülabiliteye neden olduğu bilinen önemli bir neden malignite varlığıdır. Biz burada yan ağrısı ve hematüri ile prezente olan renal infarkt ile komplike olmuş ilk kolon adenokarsinoma vakasını sunuyoruz. Hastanın ilk klinik prezantasyonu nefrolitiazisi düşündürüyordu. Çekilen bilgisayarlı tomografi sonucunda renal infarkt ve altta yatan kolon adenokarsinomu tanısı kondu. Hem renal infarkt hem de altta yatan malignite teşhisine ulaşabilmek için klinik şüphe oldukça önemlidir.

Anahtar Kelimeler: Yan ağrısı, Renal kolik, Renal infarkt, Kolon adenokarsinomu

INTRODUCTION

Renal infarction is a rare cause of acute flank and abdominal pain but it can be difficult to diagnose. There is no laboratory or clinical feature specific to renal infarction, so it can be easily confused with more common diagnosis having similar symptoms. Renal infarction usually occurs due to an embolus secondary to a cardiac disease, trauma, clotting disorders, antiphospholipid syndrome and connective tissue diseases but it sometimes can be idiopathic.¹ Prognostic factors include situations that are known to be related with high risk for thromboembolism like atrial fibrillation, smoking and protein S deficiency.²

Patients with cancer, especially those with mucin secreting adenocarcinomas of the gastrointestinal tract or ovary, are believed to represent a particularly high-risk group for the development of thromboembolic disease.^{3,4}

Acute renal infarction has not been previously reported in patients with colon adenocarcinoma. We herein report a female patient with flank pain and hematuria mimicking renal colic as the first symptoms of colon adenocarcinoma complicated with aortic thrombus and renal infarction.

CASE REPORT

A 57-year-old female patient was admitted to our Nephrology outpatient clinic with left flank pain and red colored urine for 5 days. She was also complaining about nausea, vomiting and fever. She had lost 8 kg in the last two weeks with constipation lasting for ten days. She had a history of hypertension for 15 years and she was using beta-blocker.

On admission, her physical examination revealed tenderness with palpation of the abdomen and hypoactive bowel sounds, but otherwise normal findings. Record of the laboratory analyses provided the following results: hemoglobin, 13.3 g/dL; leukocyte, 10.6×10^9 /L; platelet, 242×10^9 /L; urea, 41 mg/dL; creatinine, 1.1 mg/dL; lactate dehydrogenase, 833 U/L (normal: 135-214); alanine aminotransferase, 45 U/L (normal: 1-31); aspartate aminotransferase, 82 U/L (normal: 1-32). Urinalysis showed 12 erythrocytes and 10 leukocytes per high-power field, and her urine density was 1015. Other laboratory parameters were within normal



Figure 1. Abdominal CT shows multiple wedge-shaped, sharply margined, low-density lesions in the left kidney, suggestive of segmental renal infarction areas.

range. The electrocardiogram showed no signs of arrhythmia or myocardial infarction. Abdominal ultrasound revealed only a hyperechogenic solid lesion of 15 mm in liver. Plain abdominal radiography showed air-fluid levels of colon so the patient was evaluated with computed tomography. Abdominal CT imaging showed a thrombus material of 65 mm length and 15 mm diameter in its largest part, which is, localized in posterior left wall of the abdominal aorta in superior mesenteric artery orifice level. The thrombus involved both renal arteries and multiple wedge-shaped, sharply margined, low-density lesions in left kidney, suggestive of segmental renal infarction areas (Figure 1).

Tests for anti-cardiolipin antibodies, antineutrophil cytoplasmic antibodies, antinuclear antibody, and anti-dsDNA were all negative. Coagulation test provided the following results:

Prothrombin time, 14.3 s (range 11.23-14.44); activated partial thromboplastin time, 29.7 s (normal 25.8-33.2). Anticoagulant therapy was initiated with enoxaparine 60 mg twice daily. Abdominal CT also revealed a wall thickening of 15 mm in colonic splenic flexure (Figure 2). Echocardiography was normal without any evidence of intramural thrombus or valvular pathology. Colonoscopy showed an ulcerovegetant lesion narrowing the lumen of the splenic flexure and multiple biopsies were ta-



Figure 2. Abdominal CT shows a wall thickening in the colonic splenic flexure.

ken. The patient underwent surgery with the diagnosis of grade II/IV colon adenocarcinoma and left hemicolectomy was performed. Embolectomy was planned but the thrombi regressed with heparin treatment within 2 weeks.

DISCUSSION

Renal infarction is one of the causes of acute abdominal and flank pain but due to similar clinical picture with more common diseases like urolithiasis, pyelonephritis, it can be difficult to diagnose.⁵ In the literature, the incidence of renal infarction was reported to be 0.007% - 1.4%.^{6,7} The most common causes of renal infarction are embolus secondary to cardiac disease, trauma, clotting disorders and connective tissue diseases²; sometimes it can be idiopathic.⁸ We excluded the classical causes of renal infarction in our patient by laboratory analysis and her medical history.

The most common clinical symptoms of renal infarction are acute flank or abdominal pain accompanied by nausea, vomiting, and fever. These complaints generally mimic nephrolithiasis.⁹ In laboratory, leukocytosis, a markedly elevated LDH level, often more than five times the upper limit of normal, with little or no rise in plasma transaminase levels, hematuria can be suggestive of renal infarction.¹⁰ In our patient, a sudden onset of flank pa-

in with nausea and vomiting, leukocytosis, and mild hematuria suggested a renal colic. Abdominal ultrasound did not show any evidence of urolithiasis. The definitive diagnosis of renal infarction necessitates an abdominopelvic computerized tomography, which reveals the region of infarction with its configuration.¹¹ The classic radiological finding of renal infarction is a wedge-shaped perfusion defect without any mass effect in the adjacent parenchyma and without contour bulging.¹² The radiological findings of our case was compatible multiple segmental renal infarctions in contrast enhanced CT.

As renal artery thrombosis or thromboembolism is the main cause of renal infarction, the increased risk of systemic thromboembolism plays a central role.¹² Patients with cancer, especially those with mucin secreting adenocarcinomas of the gastrointestinal tract or ovary, are believed to represent a particularly high-risk group for the development of thromboembolic disease.³ The pathogenesis of cancer-related hypercoagulable state is complex; coagulation and fibrinolytic system activation as well as perturbation of the vascular endothelium function may lead to pathological fibrin clot formation.⁴ In the previous literature, colon adenocarcinomas have been reported with thromboembolic complications like, deep vein thrombosis, portal vein thrombus, bilateral central retinal vein occlusion, transverse sinus thrombosis, splenic vein thrombosis and widespread thromboembolism.¹³⁻¹⁸ In our case, the underlying cause of the acute renal infarction was colon adenocarcinoma presenting with flank pain and hematuria mimicking renal colic.

We here reported a case of renal infarction that was considered based on the presence of colon adenocarcinoma to be due to cancer-related hypercoagulable state. This appears to be the first case of renal infarction as the initial presentation and a complication of colon adenocarcinoma. The diagnosis can be delayed because of its similar clinical picture with renal colic as occur in our patient. Underlying factors that are related with high risk for thromboembolism like malignancies should also be kept in mind in patients with acute renal infarction. A high index of clinical suspicion is warranted for the diagnosis of both renal infarction and the underlying rare causes like adenocarcinomas.

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