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Renal Infarction with two Different Etiologies: Two Case Reports

Farklı İki Etiyolojiye Bağlı Renal İnfarkt: İki Olgu Sunumu

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ABSTRACT

Renal infarction is a rare clinical problem and it is frequently misdiagnosed because of the nonspecificity of its symptoms. We present two cases of renal infarction with two different etiologies. The first case was a 43-year-old male who attended the emergency department for pain in the left flank. A contrast-enhanced abdominal computed tomography scan was performed due to the persistent pain, and the segmental renal infarction was detected. The second case, a 6-year-old girl, was hospitalized due to falling from a height of 8 meters. Traumatic renal infarction was detected in the abdominal computed tomography scan which was performed during the assessment for multiple traumas. Both patients were followed-up conservatively and discharged from the hospital without any renal complications. The diagnosis of renal infarction is generally based on the clinical suspicion. Emergency physicians should keep renal infarction in mind during the management of the patients with abdominal, back or flank pain.

Keywords: *Renal infarction, trauma, abdominal pain, flank pain*

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ÖZET

Renal infarkt nadir görülen bir klinik problemdir ve sıklıkla silik semptomları nedeniyle yanlış tehşis edilir. Burada farklı iki etiyolojiye sahip iki renal infarkt olgusu sunacağız. İlk olgu sol yan ağrısı nedeniyle acil servise başvuran 43 yaşında erkekti. Tedaviye dirençli ağrı nedeniyle hastaya yapılan kontrastlı batın bilgisayarlı tomografi görüntülemesinde segmental renal infarkt teşhis edildi. İkinci olgu 8 metre yüksekten düşme nedeniyle takip edilen 6 yaşında kızdı. Çoklu travma açısından değerlendirilirken hastanın batın bilgisayarlı tomografisinde travmatik renal infarkt tespit edildi. Her iki hasta da konservatif olarak takip edildi ve böbrek fonksiyonları açısından komplikasyon gelişmemesi üzerine taburcu edildi. Renal infarkt tanısı genellikle klinik şüpheye dayanır. Acil servis hekimleri karın, bel ve yan ağrısı şikayeti olan hastaların klinik yönetimi sırasında renal infarkt tanısını da aklında bulundurmalıdır.

Anahtar Kelimeler: *Renal infarkt, travma, karın ağrısı, yan ağrısı*

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INTRODUCTION

Renal infarction is a rare disease. It is often either misdiagnosed or treated initially as another condition such as urolithiasis or lumbago (1, 2). Atherosclerosis, polycythemia vera, lupus erythematosus, trauma and cardiac factors such as atrial fibrillation, myocardial infarction, mitral stenosis are its primary causes (3-5). Although the renal infarction cases have nonspecific symptoms, the diagnosis must be correctly identified. Patients who have delayed diagnosis or are misdiagnosed will be subject to persistent symptoms and renal impairment (1). In recent years, contrast-enhanced computed tomography (CT) has been effectively used in highly suspicious cases in order to confirm or rule out renal infarction (4, 6).

CASE 1

A 43-year-old male attended the emergency department with left flank pain which had started 24-hour earlier. At the beginning, the pain had been moderate and showed fluctuations. He had vomited once after the initiation of the pain at home. Then the left flank pain had increased gradually and radiated to the left lower abdominal region. He was admitted to hospital after the pain had become continuous and severe. The patient reported a similar pain which was considered to have developed from a renal colic two years ago, and he had been smoking for approximately 25 years. There was no history of hypertension, cardiac disease, diabetes, or hyperlipidemia. Physical examination revealed left costovertebral angle tenderness without guarding. Arterial blood pressure was 150/80 mmHg, heart rate was 95/min and body temperature was 37.1ºC. The laboratory findings were as follows: Leukocyte count was 13.0 K/uL, hemoglobin was 15.6 g/dL, thrombocyte was 188 K/uL, glucose was 116 mg/dL, urea was 38 mg/dL, and creatinine was 0.75 mg/dL. In the urine analysis, pH was 5.0, density was 1.030 and there were 1-2 leukocytes per high-power field (hpf). There was normal sinus rhythm in his electrocardiogram. There was no indication of a stone in the direct abdominal X-ray. The patient was initially considered as having renal colic. Hydration was started with saline, and for analgesia diclofenac sodium, tramadol HCl and meperidin respectively were given intravenously. Since the pain could not be relieved after six hours, renal ultrasonography was performed. Bilateral kidney dimensions, ureters and bladder were normal in the ultrasonography. In the abdominal CT and renal CT angiography scan, a view compatible with cortical infarction in the lower 1/3 part of left kidney was observed (Figure 1). The patient was followed for complete blood count and urea-creatinine levels. As for treatment, acetylsalicylic acid, enoxaparin, hyosin-N-butylbromid and cephtriaxon (3 days) were given. The patient whose pain was relieved with medication was discharged at the end of the fifth day of hospitalization.

CASE 2

The 6-year-old girl attended the emergency department after falling from a height of 8 meters. Her general condition was poor, she was unconscious and Glasgow Coma Scale score was 9, arterial blood pressure was 90/50 mmHg, heart rate was 115/min. When the patient arrived at the hospital she was immediately intubated, and aggressive fluid resuscitation was started. Intertrochanteric femur fracture, temporal and frontal linear fracture lines, frontal lobe contusion, pneumocephalus, and bilateral lung contusion were diagnosed. In the abdominal CT, laceration was observed in the right lobe of the liver and cortical blood flow was not observed in the middle lobe of the right kidney (Figure 2). In the CT scan, no perirenal hematoma or active bleeding was observed. The laboratory findings were as follows: leukocyte was 18.7 K/uL, hemoglobin was 11.3 g/dL, urea was 29 mg/dL, creatinine was 0.39 mg/dL, AST was 253 U/L, and ALT was 501

Figure 1. Cortical infarction in the lower 1/3 part of left kidney in contrast-enhanced abdominal CT

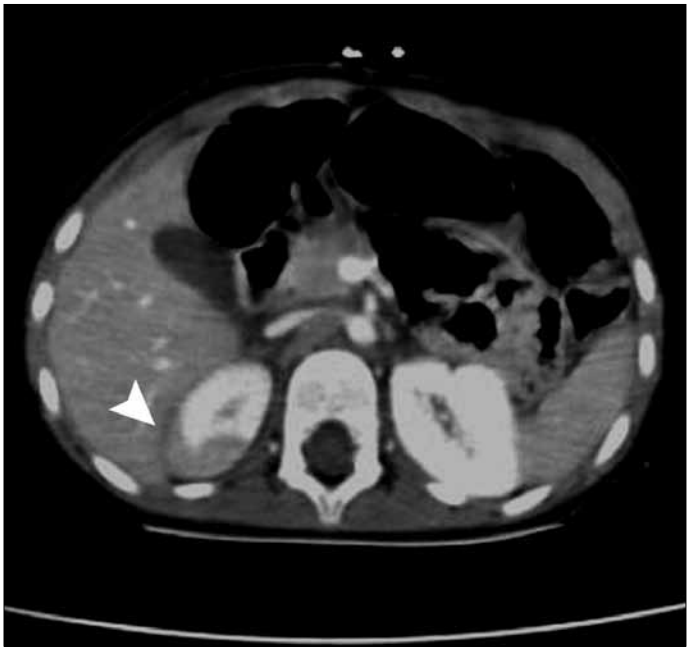

Figure 2. In the right kidney, middle lobe cortical blood flow was not observed in contrast-enhanced abdominal CT

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U/L. In the urine analysis, pH was 8.0, density was 1.008 and there was no erythrocyte or leukocyte in the microscopy. The patient was followed up in the intensive care unit. Conservative treatment was initiated. Hemoglobin levels were measured at 12-hour intervals, the hemoglobin level was 7.5 g/dL in the 72nd hour and erythrocyte suspension was transfused. In the 96th hour of her stay in the hospital, The general condition of the patient improved and she was transferred from the intensive care unit to the ward. In the control abdominal CT scan, no perirenal hematoma or active bleeding was observed and the cortical blood flow was improved. She was discharged on the 9th day of hospitalization.

DISCUSSION

Renal infarction is a rare clinical problem with an incidence rate of about 0.007% of emergency department visits. Patients usually attend the emergency department with the complaint of continuous flank (65%), abdominal (53%) or back pain (29%) (1, 2). Our first case attended the emergency department with left flank pain which radiated to the left lower abdominal region, and he was considered to suffer from renal colic. Due to the ongoing pain despite the analgesics and hydration, further investigation for the cause of the flank pain was necessary and renal infarction diagnosis was made 8 hours after admission. In the study conducted with 17 cases of renal infarction, the risk factors were listed as atrial fibrillation (65%), mitral stenosis (35%), hypertension (53%) and cardiac disorders (41%) (2). In the literature, renal infarction cases due to trauma, autoimmune disorders, coagulation disorders, renal arterial aneurysms, and drugs were reported (3, 6, 7). In our first case, no risk factor other than smoking was detected, there was no history of atrial fibrillation, hypertension, valvular pathology h but further work-up such as hypercoagulability screening, fasting lipid panel, and echocardiogram was not performed. Non-traumatic renal infarction cases are generally seen between the ages of 60 and 80 due to the risk factors. Our case was 43 years old and he was in a younger age group than expected.

In renal infarction cases, hematuria, raised serum LDH levels, leukocytosis and increased serum creatinine levels are usually detected (2, 3). Although hematuria rates are reported to be between 54% and 100%, two cases diagnosed with renal infarction without hematuria were reported in the literature (6). Also, in both of our cases there was leukocytosis, but no hematuria.

In the treatment of renal infarction cases, there is no standard approach. While some authors prefer surgical operation, others prefer conservative approaches such as anticoagulant or thrombolytic drugs. Surgical treatments are generally preferred in renal infarction cases of traumatic origin, especially in the renal infarction cases with complications such as renal artery dissection or active bleeding (2, 3). If renal function and vital signs are normal in renal artery dissection, invasive treatment may not be necessary because medical treatment alone with strict blood pressure control is as effective as surgical management (8). Our first case was treated with low molecular weight heparin. Although our second case was a traumatic renal infarction case, there was no evidence indicating active bleeding around the kidney or renal vascular pathology. Consequently, she was followed conservatively and in her control abdominal CT scan, no further pathology was detected.

Patients who have delayed diagnosis or are misdiagnosed will be subject to persistent symptoms and renal impairment (1). It is reported that serum creatinine is a good marker for predicting disease severity and the length of stay in hospital in renal infarction cases (3). Serum creatinine levels were in the normal range during the follow-up periods of our cases. The diagnosis of renal infarction is generally based on clinical suspicion. Emergency physicians should keep renal infarction in mind during the management of patients with abdominal, back or flank pain.

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