

Spleen and Bilateral Kidney Infarction and Intestinal Ischemia Due to Atrial Fibrillation

Atriyal Fibrilasyona Bağlı Dalak, Bilateral Böbrek İnfarktı ve İntestinal İskemi

ABSTRACT

We report a 82-year-old women who presented with abdominal pain, nausea and multiple organ ischemia and infarction due to atrial fibrillation (AF). Her electrocardiography (ECG) was compatible with AF and the transaminase and creatinine levels and leukocyte counts were high. In addition to anticoagulation, supportive treatment was administered. After treatment her complaints decreased and the elevated laboratory parameters returned to nearly normal ranges. Abdominal symptoms of patients with atrial fibrillation should warn physicians regarding ischemia and infarction that may occur in abdominal organs.

KEY WORDS: Spleen, Kidney, Infarction, Intestinal ischemia, Atrial fibrillation

ÖZ

Yazımızda, karın ağrısı, bulantı ile başvuran ve atriyal fibrilasyon (AF)'a bağlı çoklu organ iskemisi ve enfarktı saptadığımız, 82 yaşındaki kadın olguyu sunmaktayız. Olgunun elektrokardiyografi (EKG)'si AF ile uyumlu, transaminaz, kreatinin seviyeleri ve lökosit sayısı ise yüksekti. Olguya antikoagülasyona ek olarak destek tedavisi uygulandı. Tedavi sonrası olgunun yakınmaları azalırken, yükselmiş olan laboratuvar parametreleri de neredeyse normal sınırlara geriledi. Atriyal fibrilasyonu olan hastaların karın ile ilgili semptomları, hekimleri karın içi organlardaki iskemisi ve enfarkt olayları ile ilgili olarak uyarıcı olabilmektedir.

ANAHTAR SÖZCÜKLER: Dalak, Böbrek, Enfarkt, Bağırsak iskemisi, Atriyal fibrilasyon

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INTRODUCTION

Although intestinal ischemia is not rare in the geriatric population, because of the rarity of spleen and kidney ischemia and/or infarction the latter may be delayed. The most important etiological factors are thrombotic and embolic pathologies for these cases. In cases with abdominal pain with or without hematuria and/or acute renal functional loss, kidney ischemia and/or infarction should be kept in mind especially in elderly patients with risk of thrombotic or embolic disorders in order not to delay the treatment (1,2).

Here we report an elderly woman with spleen, bilateral kidney infarction and intestinal ischemia due to thromboembolism caused by atrial fibrillation.

CASE PRESENTATION

An 82-year-old woman presented at the emergency service with a 3-day-history of abdominal pain and nausea. Her medical history was insignificant as she not seen a physician before. Her abdominal pain was continuous and located at periumbilical region and bilateral upper quadrants. She did not exhibit hematuria, fever, dysuria and any other symptoms. On physical examination, she was an anxious elderly woman. Her skin color and body temperature were normal. The mucous membranes were relatively dry. Her heart rate was 80/min and irregular. Her blood pressure was 145/90 mmHg. She was tachypneic and the respiratory rate was 22/min. Her abdominal examination revealed



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a mild periumbilical tenderness and the bowel sounds were increased at a rate of 10/min. ECG was compatible with atrial fibrillation (Figure 1).

On laboratory analysis at admission, urinalysis revealed (++) RBC, 8 white blood cell (WBC)/HPF. Lactate dehydrogenase (LDH) was 1267 IU/l, ESR 73 mm/h, ALT 117 IU/l, AST 67 IU/l, albumin 2,6 gr/dl, urea 109 mg/dl, creatinine 3.12 mg/dl, WBC 16.30 x10⁹/L, Hb 12.3 g/dl, platelets 267 x 10⁹/l. Computed tomography (CT) and CT- angiography showed spleen and bilateral kidney ischemia and infarction areas and mesenteric ischemia (Figure 2A,B).

Low molecular weight heparin, acetylsalicylic acid, diltiazem and intravenous isotonic saline infusion treatments were administered. After the treatment, her complaints decreased and elevated laboratory parameters returned to nearly normal ranges within a week. The creatinine level was also decreased to 1.6 mg/dl (Figure 3).

Echocardiographic evaluation revealed left ventricular hypertrophy, mitral and aortic valve calcification and regurgitation and left ventricle systolic dysfunction with an ejection fraction of 30-35%.

Except for her advanced age, she did not have a positive history that could create a risk for thrombosis such as atherosclerosis, smoking, hypertension, diabetes, hyperlipidemia, hormone replacement therapy, thrombotic microangiopathy or hereditary causes of thrombophilia. The only diagnosed causative factor for thrombosis in this patient was atrial fibrillation.

DISCUSSION

Acute kidney infarction is a rare condition and prospective studies with large numbers of patients are therefore absent in the literature but there are case presentations. It is also difficult to diagnose, because its symptoms and signs can be confused with many other diseases such as urinary calculi, mesenteric ischemia, genital diseases and so on (3,4).

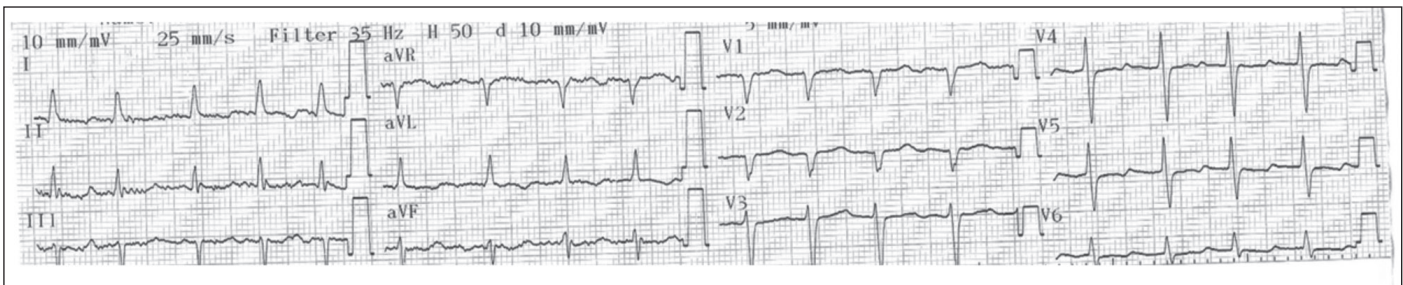


Figure 1: Atrial fibrillation on ECG.

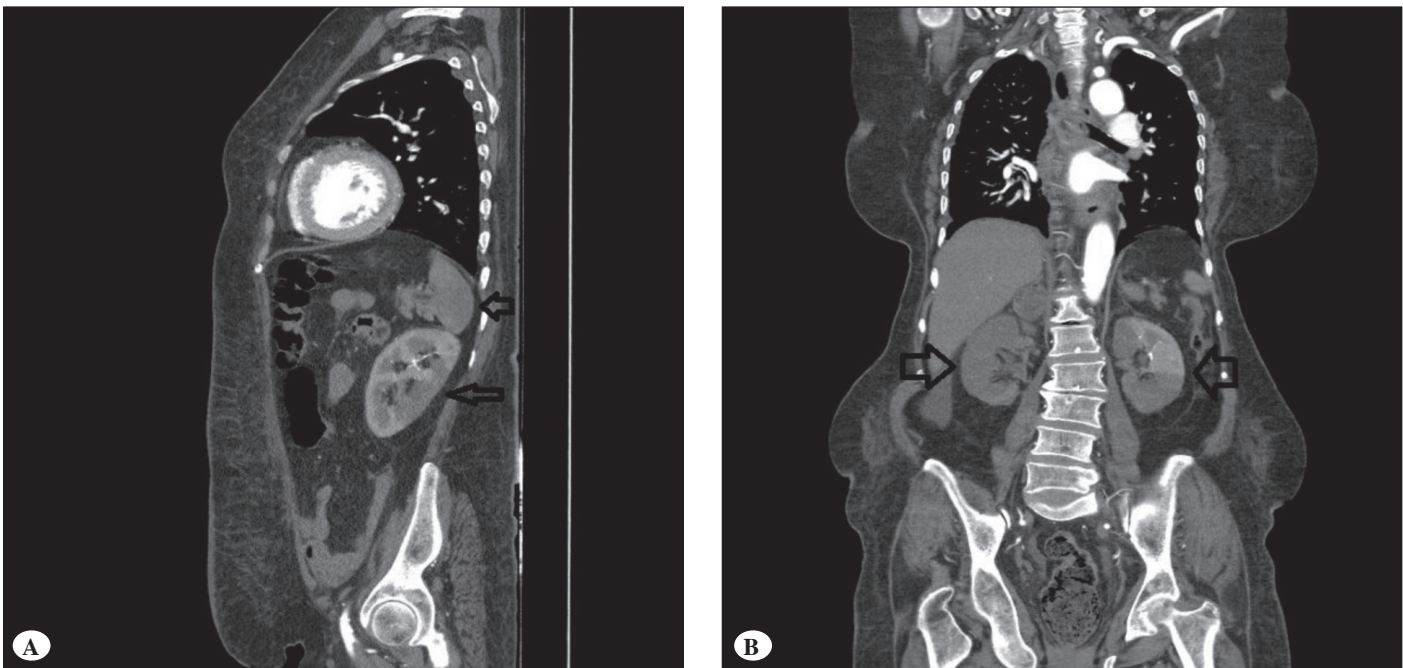


Figure 2: A) Splenic and left kidney infarction areas (arrows), B) Bilateral kidney infarctions (arrows).

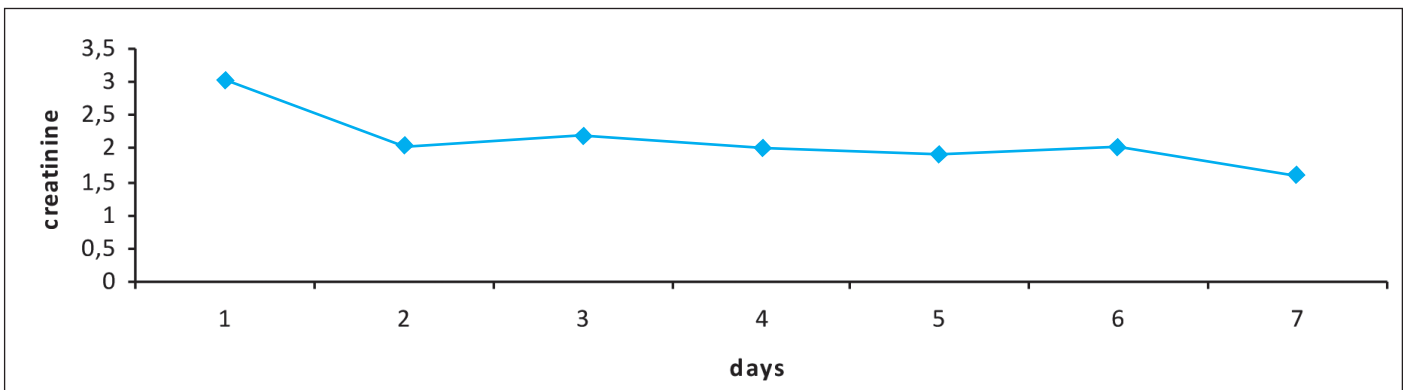


Figure 3: Creatinine survey of the patient during hospitalisation.

Kidney ischemia/infarction can present with either flank and abdomen pain, nausea, vomiting, hematuria, fever and hypertension or without any symptom and may be diagnosed incidentally on CT scans (5). Although plasma levels of some markers such as alkaline phosphatase and C- reactive protein may increase during kidney infarction, LDH is the most sensitive marker and it should also be kept in mind that WBC count elevation is expected in this situation (6-9).

The most important cause of kidney infarction is embolism of a blood or cholesterol clot and is often due to cardiac disorders such as atrial fibrillation, myocardial infarction and mitral stenosis (10). Beside thromboembolic factors, aneurysm of renal artery, thrombocytopenic purpura, thromboangiitis obliterans, trauma to renal artery, and narcotics may be the etiological factor for kidney infarction or it may be idiopathic as well (11,12). CT imaging is the main diagnostic option for kidney infarction to show the occlusion of renal artery, ischemia/infarction of the parenchyma and to exclude other possible pathologic states that can cause confusion (5).

If the CT is negative but the patient is under strong risk of thromboembolic diseases and has positive serum markers such as LDH and WBC, angiography or scintigraphy may be other diagnostic options (6).

Despite the lack of guideline recommendations because of the rarity of kidney infarcts, anticoagulation with or without thrombolysis or revascularisation surgery when necessary is the main treatment strategy and it is recommended that anticoagulation is continued as long as the atrial fibrillation continues (1). Renal outcomes of kidney infarction are relatively favorable and the acute kidney injury at the beginning of the process ameliorates among time.

Splenic infarction may present with abdominal pain, especially located on the left upper quadrant, and may be accompanied by fever and anemia. Thromboembolic conditions and hematologic disorders are the most common causes. The main diagnostic option for splenic infarction is CT images that support the clinical symptoms. Supportive therapeutic

approaches such as anticoagulation and fluid resuscitation are recommended and surgery should be an option only for complicated cases (13,14).

Argiris A. reported two cases of splenic and renal infarctions due to atrial fibrillation and treated them successfully with anticoagulation and supportive care (15).

We reported this case because of the rarity of multiple organ ischemia and infarction due to AF. Our patient was an elderly woman who presented with abdominal pain, nausea and multiple organ ischemia and infarctions caused by AF. After treatment with low molecular weight heparin and supportive interventions, her complaints subsided and elevated laboratory parameters returned to nearly normal ranges.

Abdominal symptoms of patients with atrial fibrillation should warn physicians regarding ischemia and/or infarction that may occur in abdominal organs.

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