






More Cause, More Effect: A Case Report of Simultaneous Splenic Infarction and Renal Infarction

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Abstract

Abdominal pain is one of the most common reasons for presentation to the emergency department. Splenic infarction and renal infarction in the differential diagnosis of abdominal pain are rare clinical conditions caused by organ hypoperfusion. The majority of predisposing factors for both splenic infarction and renal infarction include hypercoagulable states and thromboembolic events. Contrast-enhanced CT imaging is the gold standard for both diagnoses. Conservative treatment is mostly preferred for both infarction conditions; however, surgery is performed in some cases. A 65-year-old woman presented to the emergency department with a long-standing complaint of abdominal pain. She had a history of both hypercoagulability and thromboembolic diseases. INR was 4.08 in blood tests: 4.08. Contrast-enhanced abdominal CT scan showed multiple infarct areas in the spleen and a large infarct area in the posterior and superior aspect of the left kidney. The patient was transferred to the ward for follow-up. With conservative treatment, the patient had no problems related to both clinical events, but he died on the 8th day of follow-up due to pathologic conditions related to his sub-diseases. With this case report, we wanted to draw attention to the fact that splenic infarction and renal infarction may occur simultaneously in the presence of multiple predisposing factors in the differential diagnosis of abdominal pain.

Keywords: Splenic infarction; Renal infarction; Abdominal pain

Introduction

Splenic infarction (SCI) is a clinical condition that may result in ischemia and subsequent necrosis as a result of impaired arterial or venous blood flow.¹ The most common etiologies include hematologic diseases, malignancies, cardiac-thromboembolic diseases (AF), hypercoagulable states (SLE), trauma, pancreatitis and severe infective conditions (AIDS, malaria, brucella). Abdominal pain and flank pain are the most common reasons for hospital admission.² Contrast-enhanced abdominal computed tomography (CT) is the most useful diagnostic test. The infarct area has an irregularly limited hypodense area appearance on CT. Although not specific in laboratory parameters, elevated LDH and WBC may be observed.^{1,3} Treatment varies depending on the underlying cause; it ranges from supportive treatment including hydration and analgesia to surgery.³

Renal infarction (RE) is a clinical condition that may cause parenchymal damage due to hypoperfusion with renal artery occlusion.⁴ Hypertension, thromboembolic events (valvular diseases, AF, previous LVH), infective endocarditis, hematologic malignancies and coagulopathy have been shown as the most common causes.⁵ Abdominal pain, nausea, vomiting and hematuria are the most common reasons for presentation. Elevated CRP, WBC, lactate

and renal function tests may be observed in laboratory tests. Contrast-enhanced abdominal CT scan is used in the diagnosis; a sharply limited triangular hypodense area appearance is present.⁶ Anticoagulant use, renal replacement therapy and surgery are used in treatment.⁷

In patients presenting with nonspecific symptoms such as abdominal pain and flank pain, DE or RE is not often considered as a differential diagnosis because of its rarity. We wanted to demonstrate the presence of etiologic factors and to present the possibility of simultaneous involvement of multiple organs with this case.

Case Report

A 65-year-old woman presented to the emergency department with complaints of abdominal pain and weight loss for about 2 months. She had a history of heart failure, AF, chronic myeloid dysplastic disease (CMDH) and chronic kidney disease. Ejection fraction (EF) was 30%. His medications included warfarin, diltiazem, digoxin, furosemide, anti-potassium. He was not taking any medication for CKDH but was being followed up as an outpatient by the hematology department because he had JAK-2 mutation (+). At the time of admission, vital values were blood pressure 137/103 mmHg, pulse rate 134/min, temperature 36°C, SpO₂ 85%. On physical

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examination, the abdomen was diffusely tender and basal rales were present in both lungs. No pathology was found in other system examinations. Blood tests revealed WBC: 9.37 Plt: 426 Hb: 11.2 Kre: 1,13 (basal cre:1,40) GFR: 51 CRP: 92.5 LDH: 421 PCT: 0.18 INR: 4.08, pH in blood gas: 7,41 Lactate 1,2; urinalysis showed erythrocyte: 1 leukocyte: 26. ECG was consistent with AF and tachycardic. Contrast-enhanced abdominal CT scan showed increased splenic size, multiple infarct areas, the largest of which was 10 cm in size (Figure 1) and contamination around it. There was a large infarct area in the posterior and superior aspect of the left kidney (Figure 2). Both DE and RE were diagnosed and the patient was consulted to general surgery and urology clinics. Surgery was not planned by both departments and the patient was transferred to the ward for follow-up. With conservative treatment, the patient did not have any problem with both clinical presentations, but he died on the 8th day of follow-up due to pathologic conditions related to his sub-diseases.

Discussion

Splenic infarction and RE are both rare causes of abdominal pain. Both may be missed due to nonspecific symptoms. RE is accompanied by low back pain, nausea and vomiting, whereas fever and tachycardia are the most common symptoms of RE. Consistent with the literature, the clinical presentation of our patient was abdominal pain and weight loss was not common. Thromboembolic events and hypercoagulable states are predisposing factors for both infarction conditions; however, hypercoagulable states were found to be more common in DE and thromboembolic events in RE. Likewise, CKDH and AF were simultaneously present as risk factors in our patient. In contrast, 30% etiology was unknown. Contrast-enhanced CT imaging is the gold standard for both diagnoses.⁸ Although the treatment of DE is directed towards the underlying cause, anticoagulation and supportive treatment is usually sufficient; surgery is performed in cases of large infarct area, abscess, hemorrhage, shock and splenic crisis.^{3,9} Since there was no indication for surgery in our patient, supportive treatment approach was preferred. DE mortality rates have been reported between 6-34%. The highest mortality rate was observed in patients with qSOFA \geq 1 and a history of malignancy. Elevated CRP at presentation, fever above 38°C, and respiratory rate of more than 20 are associated with a high risk for mortality.^{10,11} There were no risk factors other than elevated CRP in terms of mortality, and it was thought that the patient, who was not predicted to have a mortal course in terms of infarction, was exited due to underlying multisystemic diseases. The aim of RE treatment is to achieve revascularization. Options include antiplatelet therapy, oral anticoagulation, IV thrombolytics, endovascular interventional procedure. Surgery is performed in cases such as trauma and arterial dissection, hematoma. Delay in treatment leads to irreversible renal failure. RE

emergency room admission rates are between 0.004-0.007%; however, this frequency was found to be 1.4% in autopsies. Delay in diagnosis or misdiagnosis explains the statistical difference.¹² In terms of RE, a conservative approach was preferred for the patient who had no indication for surgical or interventional treatment.

Our patient had both hypercoagulability and thromboembolic risk factors. In the presence of these risk factors, IV contrast-enhanced abdominal CT was performed with a prediagnosis of intra-abdominal organ infarction along with other causes of abdominal pain. After imaging, other prediagnoses in the differential diagnosis were ruled out and the final diagnosis was clarified. In the emergency department, the prediagnosis of DE and RE should be considered and the diagnosis should be confirmed with imaging.

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