A rare cause of abdominal pain: a case of renal infarct

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Abstract. We present here a patient who was admitted to the hospital with abdominal pain. The patient was complaining of abdominal pain radiating to right lower quadrant and right flank initially. During the follow up, to reduce of abdominal pain and development of hematuria several diagnostic studies were performed. Contrast enhanced computerized tomography and color Doppler ultrasound revealed a perfusion defect at the superior lobe of the right kidney. The patient was followed up non-operatively and discharged by recovery of the perfusion. Diagnosis of Renal infarction should be considered if symptoms such as hematuria develop accompanying uncertain abdominal pain in patients. Contrast-enhanced CT may be helpful for the diagnosis.

Key words: Renal infarction, abdominal pain, hematuria.

Renal infarction is one of the rare causes of acute abdominal pain, and is difficult to diagnose. Misdiagnosis can have serious repercussions. The causes in descending order of frequency are traumatic, thromboembolic (90% from atrial fibrillation), atheroembolic, and thrombotic. Risk factors include cardiovascular disease likely to lead to thrombus formation, local surgical manipulation, or systemic disease (infection, inflammation, or hypercoagulable) states. There have been a number of reports implicating cocaine in renal infarction [1,2].

Clinical presentation (in a nontraumatic setting) is usually a sudden onset flank or abdominal pain with nausea, vomiting, and fever. On examination, patients are hypertensive and have local tenderness without peritoneal signs. Laboratory data and clinical features are often not helpful. Some patients have hematuria and elevated CPK or AST but it is generally accepted that patients can be diagnosed based on an elevated LDH. Several imaging studies, including IV contrast CT, Doppler ultrasound, MRI, and arteriography are considered diagnostic, but there are no data elucidating the sensitivities of these modalities. Management is almost always medical except in patients with a traumatic cause or a single kidney. Medical therapy is expected to improve renal function if occlusion of the renal arteries is incomplete or if effective thrombolytic treatment is initiated within 90 to 180 min, which represents the ischemic tolerance of normal renal tissue [3]. Therefore, diagnosis should be established earlier.

In this study we report a case of renal infarction initially accepted as acute appendicitis, whose diagnosis was confirmed on the second and third days of the attack by contrast enhanced CT of the abdomen, and the procedures for diagnosis of renal infarction are discussed.

Case

A 21-year-old male patient was admitted to the hospital due to abdominal pain that has lasted for 12 hours. He told that his pain started from the periumbilical and the lower abdominal areas and spread to the right lower quadrant and right flank area. He also had nausea, but he did not have anorexia. He had also a history of nephrolithiasis. Physical examination revealed only a slight tenderness at the right lower quadrant. There was no rebound tenderness and muscular defense. His temperature was 37.8°C and WBC was 21,000/mm³. Plain abdominal films were normal. Ultrasound (US) examination revealed no positive findings for appendicitis and nephrolithiasis or any other abdominal condition. The patient was hospitalized with the diagnosis of suspected appendicitis. His oral intake was restricted and fever and WBC tests were repeated. During the first day of the observation the tenderness at the right lower quadrant regressed, but the patient developed hematuria after the first day. After the onset of hema-

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We decided to observe the patient and he underwent a contrast enhanced computed tomography. This revealed a perfusion defect on the superior lobe of the right kidney (Figure 1). This non-perfused area was also presented at color Doppler US examination. The observation of the patient continued and he was treated non-operatively. The patient was kept on bed rest with clinical and laboratory controls. To prevent any infection, intravenous ceftriaxone was given for one week that was later converted to prophylactic oral cefaclor for six weeks. The follow up was continued with serial color Doppler US examinations and these revealed that the hypo-perfused area resolved.

Figure 1. Contrast enhanced CT image. Arrows showing the perfusion defect at the superior lobe of the right kidney.

His total hospital stay was 7 days and he was discharged with analgesics, orientations and ambulatory return. The patient was asymptomatic and had a normal renal function when he was discharged.

Discussion

There was no specific reason for the renal infarction in our patient. This case was an idiopathic case of renal infarction. Idiopathic renal infarction is a rare entity, which is caused by several reasons. Risk factors for renal infarction are mostly cardiac diseases such as atrial fibrillation (55%), valvular disease (30%) that can cause to thromboembolic events. Hypercoagulability, vasculitis, collagenous vascular disorders and trauma are other risk factors for the development of renal infarction [4-6]. RAI can also occur spontaneously or after treatment with warfarin or thrombolytic agents [5]. Idiopathic renal infarction is a rare phenomenon and it can also occur due to cocaine use [6,7].

The clinical features of renal infarction are variable. These can include lumbar pain, abdominal pain, nausea and vomiting [4]. Our patient had a pain originating from the lower abdomen and the periumbilical area and spreading to the right lower quadrant and right flank area. The pain was neither intermittent nor colic. It is reported that the main symptom is lumbar pain (61%) and only 28% of patients with renal infarction have abdominal pain [4]. In our case the patient’s pain was more similar to appendicitis rather than renal infarction, but the implicating point was that the patient had no anorexia. Hematuria also developed one day after admission. It is also reported that hematuria is present in up to 40% of cases [5].

Physical examination revealed only slight tenderness at the right lower quadrant and right flank. These are common findings related with inflammation at this region. Elevation of WBC is also a common finding. So the determination between an inflammatory process at the right lower region and RAE is difficult, especially in such a patient, who does not have any risk factor. US examination is reported to be useful in detecting RAE [8], but it is also reported that it can reveal no positive findings as in our case. The evaluation with contrast enhanced abdominal CT is the key point of this case, because the diagnosis was established with CT and renal Doppler US. Renal artery angiography is the gold standard method for the diagnosis of RAE [8]. Renal infarction in cases such as ours when the differential diagnosis has to be made, the use of such an invasive method cannot be suggested. Therefore contrast enhanced-CT is an alternative. Furthermore it is reported that contrast enhanced CT for the initial diagnosis of Renal infarction is necessary [4,9,10]. The value of contrast enhanced-CT is pointed in several studies [4,8].

The treatment modalities for renal infarction are several. The most commonly used treatment method is the use of streptokinase. Spontaneous recovery of renal infarction such as in our case has also been reported.

In conclusion, idiopathic renal infarction is rare and must be kept in mind in patients with an atypical abdominal pain. The use of contrast enhanced-CT is useful for detecting the infracted area at the kidney and also discriminating between other conditions.
References