

A rare cause of abdominal pain: Spontaneous rupture of the spleen

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Abstract

Spontaneous spleen rupture (SSR) has a high mortality rate, and numerous factors have been blamed in its etiology. In this case study, the purpose was to discuss a patient diagnosed with SSR in light of the literature. A 62-year-old male patient, who gave verbal permission to be presented in the case report, was admitted to the Emergency Service with abdominal pain, nausea, vomiting, and diarrhea complaints that started the day before. In the Focused Assessment with Sonography for Trauma (FAST) Ultrasonography (USG) of the patient, there was widespread free fluid in perihepatic and perisplenic areas. IV-contrasted abdominal computerized tomography (CT) revealed an unruptured saccular aneurysm in the left iliac artery, extravasation in the upper pole of the spleen, sub-capsular hematoma in the spleen, and widespread hemorrhagic fluid in the abdomen. The patient was diagnosed with rupture of the spleen and operated. It should be considered that patients applying to emergency services with abdominal pain and distension, with no trauma history, and anemia with no known cause in their examinations may have SSR.

Keywords: Spleen rupture, Spontaneous, Abdominal pain

Introduction

The spontaneous rupture of the spleen, which is the most injured organ in blunt abdominal traumas, is a rare cause of acute abdomen. Since the bleeding is rapid, it causes widespread intra-abdominal hemorrhage, threatens life, and mostly develops due to neoplastic and infectious causes [1,2]. Acute Myeloid Leukemia (AML) is a clonal disease characterized by proliferation and accumulation of the myeloid precursor cells in bone marrow, resulting in hematopoietic insufficiency. It is the most common type of leukemia in adults [3]. In this case report, a patient referring to the emergency service with the complaints of abdominal pain, nausea, vomiting, and a history of AML, who was diagnosed with spontaneous rupture of the spleen was discussed together with literature data.

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Informed Consent

The authors stated that the written consent was obtained from the patient presented with images in the study.

Conflict of Interest

No conflict of interest was declared by the authors.

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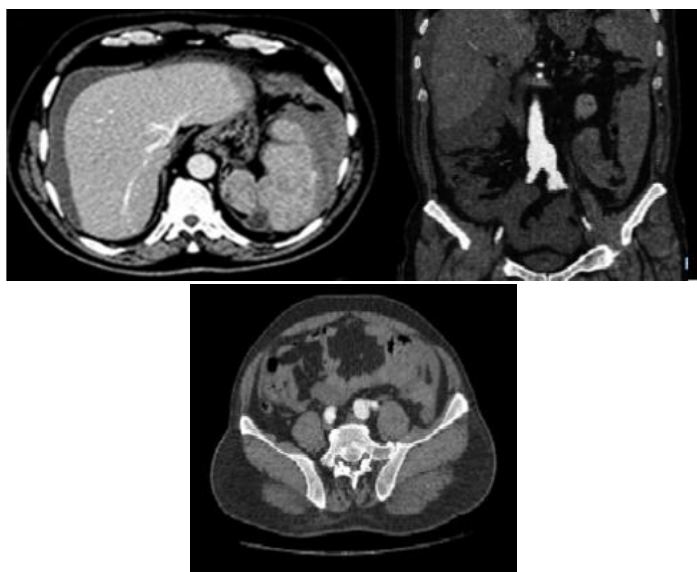
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Case presentation

Verbal consent of the patient was obtained while preparing this case report. A 62-year-old male patient was admitted to the emergency service with abdominal pain, nausea, vomiting, and diarrhea complaints that started the day before. When the patient arrived, his general condition was moderate, he was conscious and cooperative. The arterial blood pressure was 100/60 mmHg, pulse was 100 /min, body temperature was 36.4°C, and respiratory rate was 22/min. He had received chemotherapy for AML 3 years ago and recovered without any complications after the treatment. In his physical examination, there was widespread sensitivity in the abdomen mostly in the upper left quadrant, the abdomen seemed tense, and there was no defense or rebound. Rectal digital examination, as well as other system examinations, were normal. The patient was taken under observation, intravenous (IV) fluid replacement was administered, and the bladder was catheterized. In the blood tests, Blood Urea Nitrogen (BUN) was 31mg/dl (range 0-20mg/dl), creatinine was 1.9 mg/dl (range 0.67-1.17), C-reactive protein (CRP) was 27.8mg/L (range 0-5), and other biochemical parameters, Prothrombin Time (PT), Activated Partial Thromboplastin Time (aPTT) and electrolyte values were within normal range. His leukocyte count was 9630/mm³ (range 3980-10200/mm³), platelet count was 99x10³/uL (range 142-424), and hemoglobin was 7.7g/dl (range 14.1-18.1). FAST USG showed widespread free fluid in perihepatic and perisplenic areas. In the IV-contrasted abdominal computerized tomography (CT), there was an unruptured saccular aneurysm in the left iliac artery, extravasation in the upper pole of the spleen, sub-capsular hematoma in the spleen, and widespread hemorrhagic fluid in the abdomen (Figure 1). In clinical follow-up, arterial blood pressure dropped steadily, and the patient, who became anuric, was diagnosed with rupture of the spleen, and operated.

Figure 1: Transverse image compatible with spleen rupture and hematoma-coronal section-transverse image of unruptured saccular aneurysm in the left iliac artery.



Discussion

Spontaneous Spleen Rupture (SSR) has a high mortality rate, and various factors have been blamed in its etiology. Hematological diseases, such as Non-Hodgkin Lymphoma, myeloproliferative disorders, and Acute Myeloid Leukemia,

which are the most common hematological malignancies among neoplastic causes, are among them [1]. Hematological malignancies cause splenomegaly, which facilitates SDR due to distension or extra-medullary hematopoiesis by causing changes in the histological structure following the infiltration of the spleen. Coagulation disorders, on the other hand, cause spontaneous spleen rupture because of splenic infarctions and sub-capsular hemorrhage [4]. Low platelet count is also among the causes of hemorrhage [5]. The anamnesis of the patient showed AML that resulted in complete healing, and the patient had thrombocytopenia in past examinations. Aneurysm was observed in the left iliac artery in abdominal CT; however, no infarctions or any structural vascular pathologies that could cause hemorrhage in the spleen were detected. The patient had two possible etiologic factors for SSR: Previous AML could have infiltrated the spleen and prepared the ground for SSR, or it might have developed due to the hemorrhage caused by thrombocytopenia. It may also have developed idiopathically.

The main symptoms and findings of SSR are abdominal pain mostly felt in the left quadrant, pain spreading to the left shoulder (i.e., Kehr finding), nausea and vomiting. However, defense and rebound are generally not expected. Additional symptoms depend on the etiological causes. Dizziness, tachycardia, hypotension, and shock symptoms can be observed due to hemorrhage [6]. Our patient had abdominal pain, nausea, vomiting complaints, and widespread abdomen sensitivity and distension mostly in the upper left quadrant in physical examination, and no defense or rebound. The clinical symptoms and findings of our patient, who was in the pre-shock phase, were in line with the literature.

The diagnosis of SSR is made based on clinical symptoms and supportive imaging modalities. Parasyntesis is also an effective diagnostic method; however, negative results cannot rule out hemorrhage definitively [7, 8]. Today, the use of this method has decreased because it is an invasive method, takes time, and cannot definitively rule out intra-abdominal hemorrhage. The FAST USG is an inexpensive and practical method for fast diagnosis of intraperitoneal fluid accumulation or hematoma, which can be carried out at the bedside in the emergency service. Abdominal CT, on the other hand, clearly shows the severity of spleen damage and the degree of intraperitoneal hemorrhage and is preferred for hemodynamically stable patients. For hemodynamically unstable patients, the FAST USG is preferred as a fast and non-invasive diagnostic imaging method [9, 10]. We performed FAST USG at bedside to support clinical symptoms and detected intra-abdominal free fluid. Then, abdominal CT was performed to determine the severity of the damage. Since the prognosis is poor, the treatment of choice in SSR is splenectomy [11]. In line with the literature, the patient was urgently operated, and splenectomy was performed.

Conclusion

It should be considered that patients admitting to the Emergency Department with abdominal pain and distension, no history of trauma, and anemia with no known cause may have SSR. It should not be ignored that SSR may develop due to non-traumatic causes or idiopathically.

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