Case Report

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Spontaneous Spleen Rupture Due to Infectious Mononucleosis

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Abstract

Spontaneous spleen rupture (SSR) is a fatal and rare pathology causing acute abdomen. SSR secondary to infectious mononucleosis (IM) is quite rare (0.06-0.5%), and it is the most common cause of IM associated death. A 43 years old male patient, who had no previous severe disease history, chronic drug use, or previous operation applied to our emergency outpatient clinic of general surgery. The patient had complaints of severe abdominal pain, nausea, vomiting, and diarrhea. In abdominal computerized tomography, diffuse free fluid with respectively increased in density (hemorrhage?) was observed. Emergency operation was decided, because patient developed acute peritonitis signs. During exploration in the operation, it was observed that spleen was ruptured at multiple sites, and bleeding was ongoing, and splenectomy was performed. Serology was consistent with the previous EBV infection. It was mentioned in the pathology report that there was no neoplastic infiltration, and infectious causes should be investigated. No problem has been encountered during approximately two years' follow-up. SSR secondary to EMN is a rare, fatal, and very severe pathology. Diagnosis is delayed, or it is not even diagnosed because there is no trauma. Correct diagnosis on time, and decision of emergency surgical intervention can be life-saving.

Keywords: Spontaneous spleen rupture; infectious mononucleosis; surgery.

Introduction

Spontaneous spleen rupture (SSR) is a fatal and rare pathology causing acute abdomen. It constitutes only 1% of all spleen ruptures [1]. Four criteria are important in the diagnosis; a a careful anamnesis; no sign of any organ disease, which may cause rupture, other than the spleen; absence of previous trauma or perisplenic adhesions due to rupture or scar tissue; and normal macroscopic and histologic examination of the spleen [2]. Causes of SSR are examined in seven categories; neoplastic, infectious, hematologic, inflammatory, iatrogenic, primary splenic diseases, and idiopathic. SSR secondary to infectious mononucleosis (IM) is quite rare (0.06-0.5%), and it is the most common cause of IM associated death [3]. Patients diagnosed with IM are generally at the age of tens or young adults. Mortality is especially damaging in this population, and it confirms the importance of awareness of IM. Its incidence is reported 345-671 in 100.000 individuals [3]. We present this very rare case to increase awareness especially to emergency physicians and surgeons.

Case Report

A 43 years old male patient, who had no previous severe disease history, chronic drug use, or previous operation applied to our emergency outpatient clinic of general surgery. There was no specific finding in his family history. He was not taking alcohol or smoking. The patient had complaints of severe abdominal pain, nausea, vomiting, and diarrhea. The patient had influenza infection 10 days ago, and he had no trauma history. Besides, the patient was a compressor worker who was breaking concrete, so it was possible that he had chronic trauma in his abdomen. Laboratory tests revealed CRP: 76.48 mg/L, WBC: 13.6, Hb: 10.8 g/dL, Hct: % 33.6. The vital signs were blood pressure: 100/70 mmHg, pulse rate: 110/min and rhythmic, respiratory rate: 18/min. There was tenderness and defense in the left abdominal quadrant in the physical examination. In abdominal ultrasonography, there was a heterogenous image filling up the left subdiaphragmatic space, encircling the spleen, and causing irregular borders (hematoma?). In abdominal computerized tomography, diffuse free fluid with respectively increased

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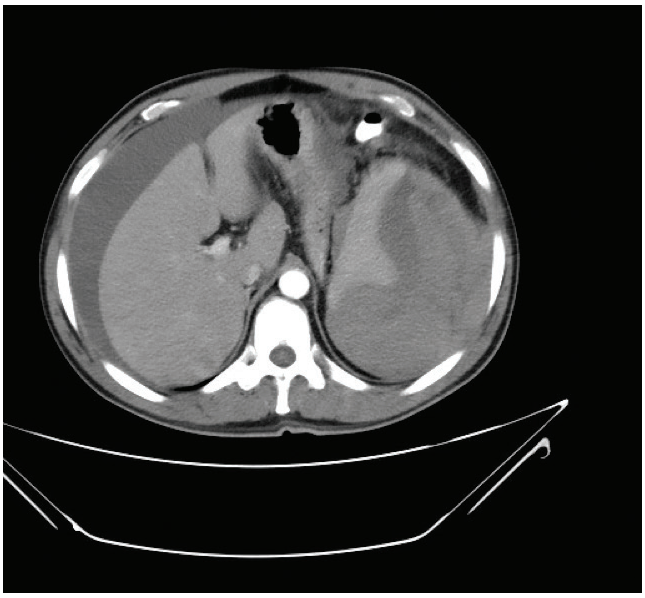

Figure 1. CT image of spontaneous splenic rupture.

in density (hemorrhage?) was observed, and spleen size was increased. There were heterogenous areas which were not enhanced by contrast substance, and signs indicating contusion. Also, it was reported that lateral borders were erased (Figure 1). Emergency operation was decided, because patient developed acute peritonitis signs, and he responded inadequately to medical treatment. During exploration in the operation, it was observed that spleen was ruptured at multiple sites, and bleeding was ongoing. Splenectomy was performed, and abdomen was washed with abundant amount of serum physiologic fluid. Postoperative period was non-problematic; intestinal movements returned normal in the first day, so nutrition was started with oral liquid nutrients. Causes which might lead to SSR were investigated. EBV IgG profile was anti-VCA gp125 IgG 1+, anti -VCA p19 IgG 3+, anti EBNA-1 IgG 3+, anti p22 IgG 2+, and anti -EA-D IgG was weak positive. Thus, serology was consistent with the previous EBV infection. When evaluated with clinical signs, it was decided that SSR was caused by EMN. Vaccines for capsuled bacteria were administered to the patient in postoperative second day. As there was no complication in postoperative period, the patient was discharged with recovery in the seventh day. Pathological examination reported mesothelial cell proliferation in spleen capsule; inflammatory reaction containing giant cell, neutrophil, and histiocyte; dilation in sinusoids; old and new bleeding foci; and germinal center development in the white pulp (Figure 2, Figure 3). It was mentioned in the pathology report that there was no neoplastic infiltration, and infectious causes should be investigated. Therefore, the report supported EMN as etiological cause. No problem has been encountered during approximately two years' follow-up.

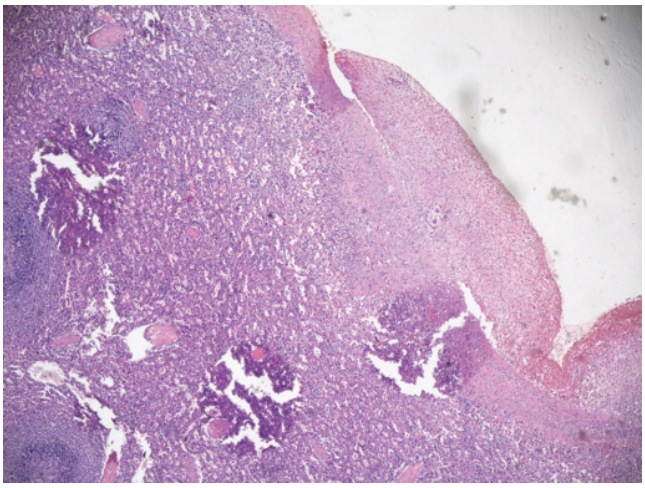

Figure 2. Mesothele cell proliferation in the splenic capsule,giant cell,-neutrophil,histiocytes (HE x 40 magnification)

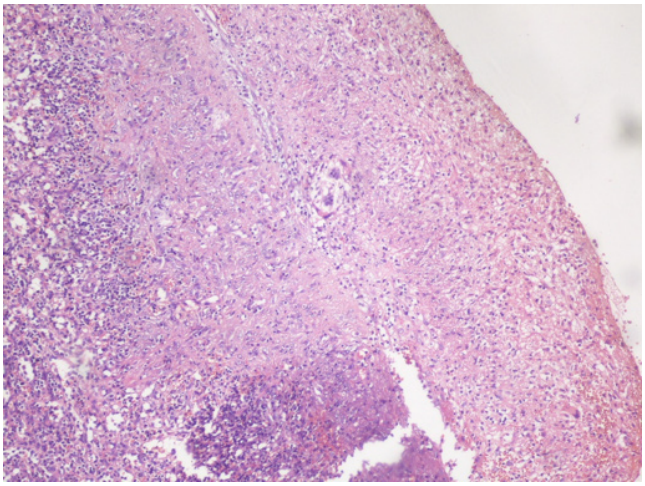

Figure 3. Inflammatory reaction,dilatation in sinosoids,new and old bleeding areas in white pulp (HEx 100 magnification)

Discussion

SSR was first reported in 1861 by Rokintnsy [4]. In 1991, Crate and Payne reported that viral infection, and viral antibody titers should be investigated as the fifth criteria for SSR diagnosis [5]. Generally, spleen reached 3-4 folds of its normal size in EMN patients [2]. Although spleen was non-palpable, splenomegaly was determined 100% by ultrasonography [5,6]. In SSR, the most common complaint is abdominal pain with 88%, and it is generally localized in upper left quadrant of abdomen. Other symptoms are nausea, vomiting, and Kehr's sign.

Since it is rarely encountered, there is no optimal treatment protocol for SSR. Conservative treatment is a well-known approach in traumatic spleen rupture, but 30-days' mortality rate of conservative approach has been reported as 22% in SSR [7]. Emergency surgery is performed in majority of patients, because there are signs of

acute abdomen; diffuse liquid diagnosed by using imaging methods; and there is especially hemodynamic instability. Also, if etiology of rupture is not clarified, then spleen should be removed histopathological examination, and to prevent a delayed secondary intervention.

During EMN infection, spleen rupture may present itself between the first day and 8th week. However, it is observed within the first 4 weeks in 84% of cases. According to a study, in which spleen size was analyzed in EMN patients by using ultrasonography, it was more common within the first 14 days of initiation of SSR symptoms [6,8]. While splenomegaly is severe in the fourth week in 16% of EMN patients, this sign is improved in the 8th week [8]. Spleen rupture was reported in the 3rd week of disease in a histological study which examined changes in spleen structure due to EMN [2]. However, in another study, it was reported that spleen reached its maximum size nearly on 12th day, so rupture was more common in the early phase [6]. Actually, as spleen rupture may occur spontaneously or due to undetermined reasons, it may be wise to avoid from severe and possible traumatic activities. Patient should be asymptomatic before restarting severe activities and exercises. This time period is approximately 8 weeks from initiation of the disease, and improvement of splenomegaly should be verified by using ultrasonography. During the first 8 weeks' time, all sportive activities, heavy lifting, and excessive active life style should be prohibited. However, these prohibitions are not based on controlled studies, national or international guidelines. Therefore, clinical judgement, and local experiences may variable. In this presented case, the patient was treated at outpatient clinic for influenza infection. He did not rest, and continued to work at his heavy job, which was the most facilitating factor for rupture of the spleen, which became fragile during the disease period. It should be kept in mind that the spleen, which becomes sensitive and fragile after infectious mononucleosis, may rupture as a result of trauma to which the patient may be exposed due to work or other conditions, albeit minor, as in our case.

Conclusion

SSR secondary to EMN is a rare, fatal, and very severe pathology. Diagnosis is delayed, or it is not even diagnosed because there is no trauma. Correct diagnosis on time, and decision of emergency surgical intervention can be life-saving.

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