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Case Report Open Access

Splenic Spontaneous Rupture Associated with Acute Myeloid Leukemia: Report of a Case and Literature Review

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Abstract

Introduction : Spleen Spontaneous Rupture (SSR) is a rare disease; its diagnosis is difficult. Infectious and hematologic are its most frequent etiologies representing more than the half of cases. The prognosis is depending on quality of care and the nature of the etiology, mortality is high (14%).

Presentation of Case : We report a case of non-traumatic splenic rupture occurring in a woman carrying of acute myeloid leukemia presented with spontaneous rupture of the spleen, and has received an emergency splenectomy.

Discussion : The combination of non-traumatic splenic rupture in acute myeloid leukemia is very rare, and there are some cases reported in the literature regarding this association.

Conclusion : We report this interesting case to emphasize the seriousness of this disease and its various diagnostic and therapeutic modalities.

Keywords: Acute myeloid leukemia; Splenic rupture; Splenectomy

Introduction

The non-traumatic or Spleen Spontaneous Rupture (SSR) is a very rare and potentially fatal disease entity [1,2]. Delay diagnostic, therapeutic and the severity of the terrain increases mortality of this pathologie it occurs on a spleen disease (tumor) or a healthy rate (during mononucleosis), and it is an indication for emergency splenectomy [3,4]. We report the case of a woman followed for acute myéloïd leukemia that was presented with spleen spontaneous rupture to the emergency.

Case Report

We report a case of a 48 year old patient being treated with good prognosis acute myeloid leukemia (Type 4) who presented with severe abdominal pain without pyrexia. Physical examination showed no evidence of traumatic injury. In clinical examination: the patient was conscious, respiratory rate 30 breaths/min, heart rate 120 beats/min, blood pressure 09/06 mm-hg, temperature was normal, with generalized abdominal tenderness. The patient underwent an abdominal ultrasound that showed an abundance of hemoperitoneum with heterogeneous splenic upper pole. Abdominal scan showed a splenic hematoma with hemoperitoneum of abundance (Figure 1). Hemoglobin was 5.8 g/dl, GB : 1080éléments/mm^3, platelets to 8000 cells/mm^3. Given the evolution of the patient to hemodynamic instability, she was transferred to the service of visceral surgical emergencies where she received a splenectomy after transfusion of red blood cells and platelets. Surgical exploration was objectified an hemoperitoneum of abundance, with capsular rupture at the posterior face of the spleen, splenic pedicle was intact (Figures 2 and 3). Post-operative suites were simple, the patient received pneumococcal vaccination/antiheamophilus and oral antibiotics and was transferred to the Division of Hematology for additional care.

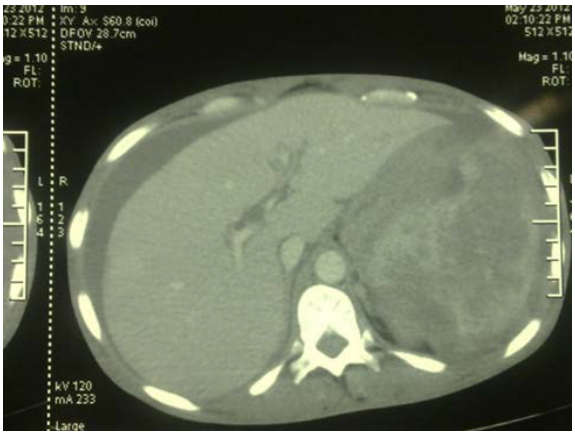

Figure 1: The abdominal CT scan showing an abundance of hemoperitoneum with heterogeneous appearance of the spleen.

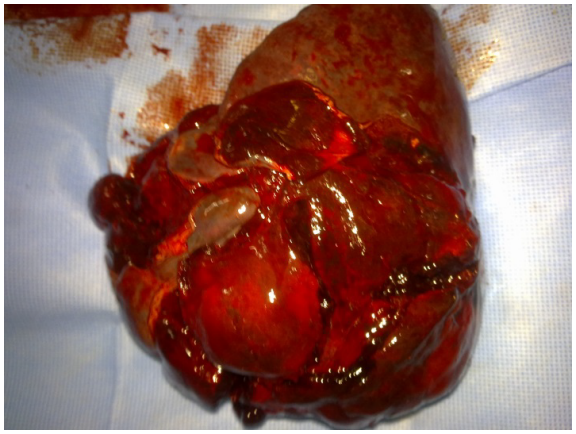

Figure 2: Piece of splenectomywithcapsular rupture of the posterior face.

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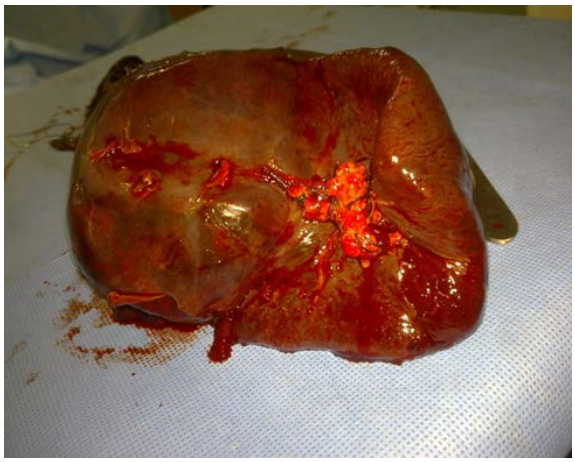

Figure 3: Inner surface of the spleen.

The anapath of the surgical specimen showed signs confirming acute myeloid leukemia type 4.

Discussion

The non-traumatic splenic rupture (SSR) is an emergency diagnostic and therapeutic as noted our observation, it is a very rare cause of spontaneous hemoperitoneum and difficult to diagnose in the absence of an imaging abdominal exam. The first cases of SSR were reported by [1]. The causes of this disease are dominated by infectious and hematologic diseases account for more than half of the cases [1]. Infectious causes (30%) are mostly represented by mononucleosis infectious and malaria, while hematological causes (27%) are mainly represented by malignancies peripheral origin , including leukemia and Hodgkin's and non-Hodgkin lymphomas (NHL). Other fewer cases were reported : solid or benign tumors of the spleen (11%), portal hypertension (10%), renal insufficiency dialysis stage (3%). In 5% of cases, no etiology was found [2]. Hematologic causes are the second etiology of SSR in most cases it's hematological malignancies with a risk of rupture that increase with age [5-7]. Various mechanisms have been proposed : bleeding in infarction sites, in tumor foci and/or hemostasis disorders. Regarding the SSR in acute myéloïd leukemia incidence is not known and some observations are published. In terms of SSR in hematological malignancies, 136 cases have been reported in literature, acute leukemias represented 34%. The SSR associated with acute myeloid leukemia affects often adult males without particular explanation [8]. The pathogenesis remains unclear and the mechanisms of leukemic infiltration of caogulopathies and infarct are incriminated .

The SSR may occur in an acute array which corresponds to the spleen immediate rupture associated with abdominal pain syndrome rapidly progressing to collapse and hemorrhagic stock, as was reported the observation of our patient. They can also be revealed by a subacute array corresponding to the spleen rupture in two time and it combines episodes of diffuse abdominal pain with hemodynamic signs such as tachycardia and episodes of hypotension. Data from the physical examination variables : painful splenomegaly in the absence of any trauma, must be systematically suggest the diagnosis. Abdominal ultrasound is the first examination to practice to confirm the diagnosis. When hemodynamic status permits, an abdominal CT scan with injection of contrast can be performed to make an accurate assessment of the lesions, The emergency laparotomy was performed in front of the cases of acute abdominal syndrome with shock allows for hemostasis and confirm the diagnosis. Splenectomy was performed in 90% of cases, conservative medical treatment without surgery was attempted in less than 7% of patients [1]. The part of conservative surgery seems very limited in this disease because of its occurrence in the majority of cases in disease or tumoral spleen or infarction seat [1]. In 8% of cases, patients die before being operated and diagnosis is made at autopsy [9,10]. The overall mortality rate reported in the literature is 14% [11]. After splenectomy regardless of indication, it is conventional to prevent by vaccination against Streptococcus pneumoniae. Infection by Haemophilus influenzae and Neisseria meningitidis are also possible. Some etiologies of SSR especially tumor, probably exposed to an increased risk of postsplenectomy infection [12] risk. It is therefore justified to perform an additional vaccination against these germs, in patients considered immunocompromised and meanwhile these vaccinations be fully effective, prescribe a prophylaxis oral antibiotic (penicillin) that effectiveness is however imperfect due to the increased resistance of causative germs to penicillin [9].

Conclusion

SSR entities are rare, with high mortality and difficult to diagnose. The overall mortality rate is about 14% and appears to be primarily related to diagnostic and/or severity of the pathology behind. Infectious etiologies, dominated by MNI and hematological etiologies dominated by hematological malignancies that presented more than half of cases in SSR. The diagnosis must be evoked in front of hemorrhagic shock associated with abdominal pain in the absence of trauma injury. However, a rupture in two times is possible. The diagnosis is based on ultrasound or abdominal CT scan. The treatment is splenectomy, conservative treatment can be offered to selected patients with MNI.

Conflits of Interest

The authors declare that there is no conflict of interest

Ethical Approval

Written informed consent has been obtained by the patient.

Author Contributions

Fahmi Yassine and El Abbassi tawfik contributed to the writing of this paper F.Z. Bensardi, K. Hattabi, S. Berrada, R. Lefriyekh, N. Benissa., A. Fadil, N. Zerouali performed the operation. D. Khaiz supervising the article.

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