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Spontaneous rupture of the spleen: Case report and review of literature

BAKUNDA Christian [1, 2] , NSENGIYUMVA Prosper [1, 3] , BENHADDI Amine[1,3] KAID Mohamed K.[1,5], SEKKAT Hamza [1,4], ECHARRAB El Mahjoub [1, 3] , EL OUNANI Mohamed [1, 3] , EL ABSI Mohamed [1, 3]

[1]*Mohamed V University of Rabat, Faculty of Medicine and pharmacy, Rabat, Morocco*
[2]*Visceral Surgical department B, Ibn Sina Hospital, Rabat, Morocco*
[3]*Visceral surgical emergency department, Ibn Sina Hospital, Rabat, Morocco*
[4]*Visceral surgical department C, Ibn Sina Hospital, Rabat, Morocco*
[5]*Department of Surgery II, Mohammed V Military Teaching Hospital*

Abstract: *Spontaneous rupture of the spleen is a rare and potentially fatal surgical emergency. Symptoms are usually acute, characterized by abdominal pain, hemodynamic instability and altered general condition. However, progressive forms may delay diagnosis and therapeutic management. Spontaneous rupture of the spleen is often due to an underlying pathology: hematological, infectious or tumoral, sometimes idiopathic. Splenectomy is performed in the majority ofcases. We report a case of a 27-year-old female patient with unrecognized hemoglobinosisS-C admitted for sudden abdominal pain with splenomegaly and clinical and laboratory anemia. Confirmation of subcapsular splenic rupture on splenomegaly was established on the basis of CT images, and the patient underwent splenectomy. The outcome was favorable.*

Keywords: *spontaneous rupture, spleen, review, surgey.*

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I. Introduction

Non-traumatic rupture of the spleen is a rare entity but has an estimated morbidity and mortality of 20% (1). This is due to the delay indiagnosis, early and appropriate management, and the severity of the underlying pathology (2, 3, 4). Radical treatment by splenectomy is often considered, although conservative treatment is an alternative therapy subject to certain criteria including hemodynamic stability and young age (5).

II. Clinical case

This 27-year-old patient with known heterozygous sickle cell disease was admitted to the emergency department with an acute abdomen. Symptoms appeared 24 hours after admission, with abrupt onset of abdominal pain pointed up in the left hypochondrium and left flank, with painful splenomegaly, mucocutaneous pallor, tachycardia and blood pressure of 100/60mmHg. All this was evolving in a context of preserved general condition and physical asthenia. No history of trauma or fall was reported on examination.

Biological tests showed microcytic hypochromic anemia with hemoglobin at 6.5g/dl.

An abdominal contrast enhanced CT scan showed spontaneous subcapsular splenic rupture in heterogeneous splenomegaly with foci of infarction (Fig1 and 2).

Based on the clinical context and underlying pathology, splenectomy surgery was decided upon. A consultation and additional pre-anaesthetic work-up were carried out as a matter of urgency, and the patient was admitted to the operating room after conditioning and stabilization of hemodynamic constants.

The patient was placed in the supine position and the approach was a left subcutaneous laparotomy.

Exploration of the abdominal cavity revealed a very large spleen with inflammatory and hemorrhagic adhesions (FIG 3 and 4).

A total splenectomy was performed, with favorable clinical and biological outcome. The patient was discharged following pneumococcal vaccination and oral antibiotic prophylaxis.

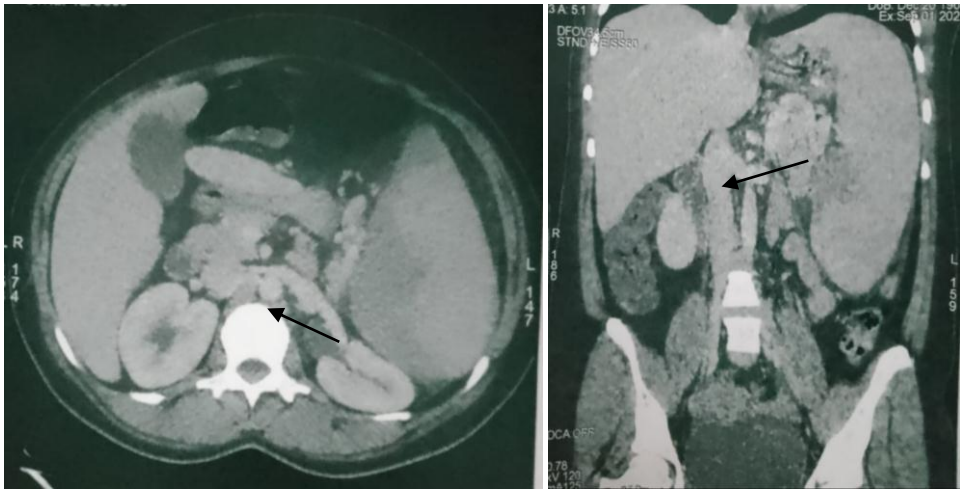

Figure 1 2: CT scans: large spleen (21cm long axis) with heterogeneous enhancement and hypodense areas; 5cm subcapsular hematoma (black arrow).

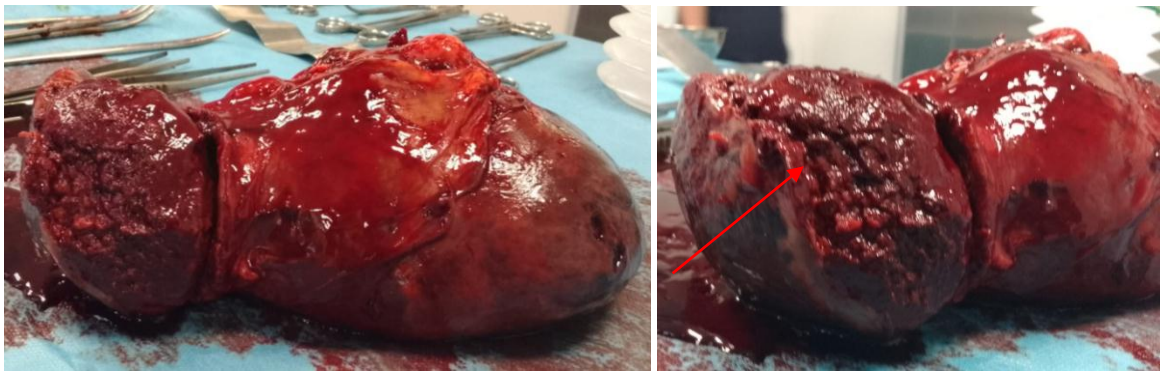

Figure3and4: Surgical specimen from a splenectomy; a fractured spleen is visible (red arrow).

III. Discussion

Spontaneous splenic rupture accounts for 3.2% of all splenic ruptures. Rokitansky in 1861 and Atkinson in 1874 were thefirst to describe cases of non-traumatic splenic rupture (6,7).

In the literature, the most common causes of spontaneous splenic rupture are infectious (around 30%), led by infectious mononucleosis (IMN) and malaria, followed by haematological causes (27%) represented by haematological malignancies. Sickle-cell syndromes rarely cause spontaneous rupture of the spleen, and such cases are reported in children (8). In our observation, the mechanism of rupture to be evoked would be the occurrence of hemorrhagic lesions in foci of recent infarction or infarction (heterogeneous enhancement with hypodense areas on CT. The mechanism was potentiated by splenomegaly in a patient with late diagnosis of SC hemoglobinosis and no follow-up.

Solid tumors of the spleen and digestive pathologies accounted for 11% and 10% respectively. Rheumatological causes accounted for 4% and renal failure at the dialysis stage for 3%. However, 5% of spontaneous ruptures are of idiopathic origin, with no significant underlying pathology or history of trauma (2).

The clinical picture of a spontaneous rupture of the spleen is often that of an acute surgical abdomen, associated with hemodynamic instability and hypovolemic shock in the acute form. However, there are progressive forms marked by diffuse abdominal pain associated with pallor, anemiaand possibly painful splenomegaly in the case of underlying pathology (9). Diagnosis is based on ultrasound in the first instance, although CT scans are more sensitive in establishing the lesion (10).

In the majority of cases, spontaneous splenic rupture is managed surgically, with total splenectomy. Conservative treatment may be offered to well-selected patients meeting certain criteria: young subjects with infectious mononucleosis, hemodynamically stable and no need for transfusion. (1, 11,12). Conservative surgical treatment of infectious mononucleosis causing subcapsular haematoma involves placement of a resorbable peri-splenic mesh.

IV. Conclusion

Spontaneous splenic rupture is a rare entity, potentially fatal due to delayed diagnosis and appropriate therapy. Infectious causes are the most common, followed by haematological causes, mainly haematological malignancies and rarely haemoglobinopathies, as in our case. Diagnosis relies on ultrasonography; however, abdominal CT scans offer greater sensitivity. The optimal treatment remains radical surgery (splenectomy), while conservative treatment is reserved for well-chosen cases of clinically stable infectious mononucleosis under close hospital supervision.

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