

Spontaneous Rupture of the Spleen in Postpartum

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Abstract

Introduction: Spontaneous rupture of the spleen in postpartum or in pregnancy is a rare condition with severe complications and a high risk of mortality that must be suspected on clinical examination and confirmed immediately by ultrasound and CT scan.

Case Report: We report the case of a 28 years woman who was admitted for abdominal pain and hemorrhagic shock on her second postpartum day. The splenic rupture was found in the US and CT scans. Given the patient improvement and the favorable control of lesions after drainage, surgical intervention was not required.

Conclusion: Spontaneous splenic rupture is an important diagnosis to call to mind in women presenting in postpartum an acute abdominal pain with signs of hemorrhage. Imaging has a fundamental role in the immediate diagnosis of the attack to speed up its management and avoid its complications.

Keywords: Spleen; Rupture; Postpartum

Introduction

Spontaneous splenic rupture in postpartum is a rare event that occurs rarely in a normal spleen, it manifests by unexplained abdominal pain or with clear signs of hemorrhage, the positive diagnosis is confirmed by medical imaging. The spontaneous splenic rupture has a serious prognosis and requires rapid diagnosis and treatment. In this article, we report a rare case of spontaneous splenic rupture in a normal spleen, in a 28 years old woman on her second postpartum day. And we discuss the impact of imaging in the management of this acute pathological entity.

Observation

We report the case of a 28 years old primigravid woman, with full-term and bass delivery, and with no known history of any disease during or before pregnancy, who was admitted to the obstetrical emergency unit, after experiencing at the second day of postpartum a sudden upper abdominal pain, vertigo, and general pallor and weakening.

At admission, she was pale and had signs of hemorrhagic shock. She had a high pulse at 120 beats per minute, blood pressure at 100/60 mmHg and a fever measured at 39,5 °c. To stabilize the situation, immediately, intravenous access was established with plasma expanders and oxygen.

Furthermore, this patient had an abdominal contraction in the left hypochondrium, without pelvic pain or uterine hemorrhage. She

denied any recent abdominal trauma or strain. Ultrasound scan (Figure 1) demonstrated a large heterogeneous focal lesion in the spleen with a perisplenic fluid hyperechoic, related to a splenic rupture with perisplenic hem peritoneum. CT was performed (Figure 2) showing a splenic laceration and perisplenic hem peritoneum with signs of secondary infection of this last, and without active bleeding.



Figure 1: Ultrasound image showing a large heterogeneous focal lesion in the spleen (asterisk) with perisplenic hematic effusion (arrows)

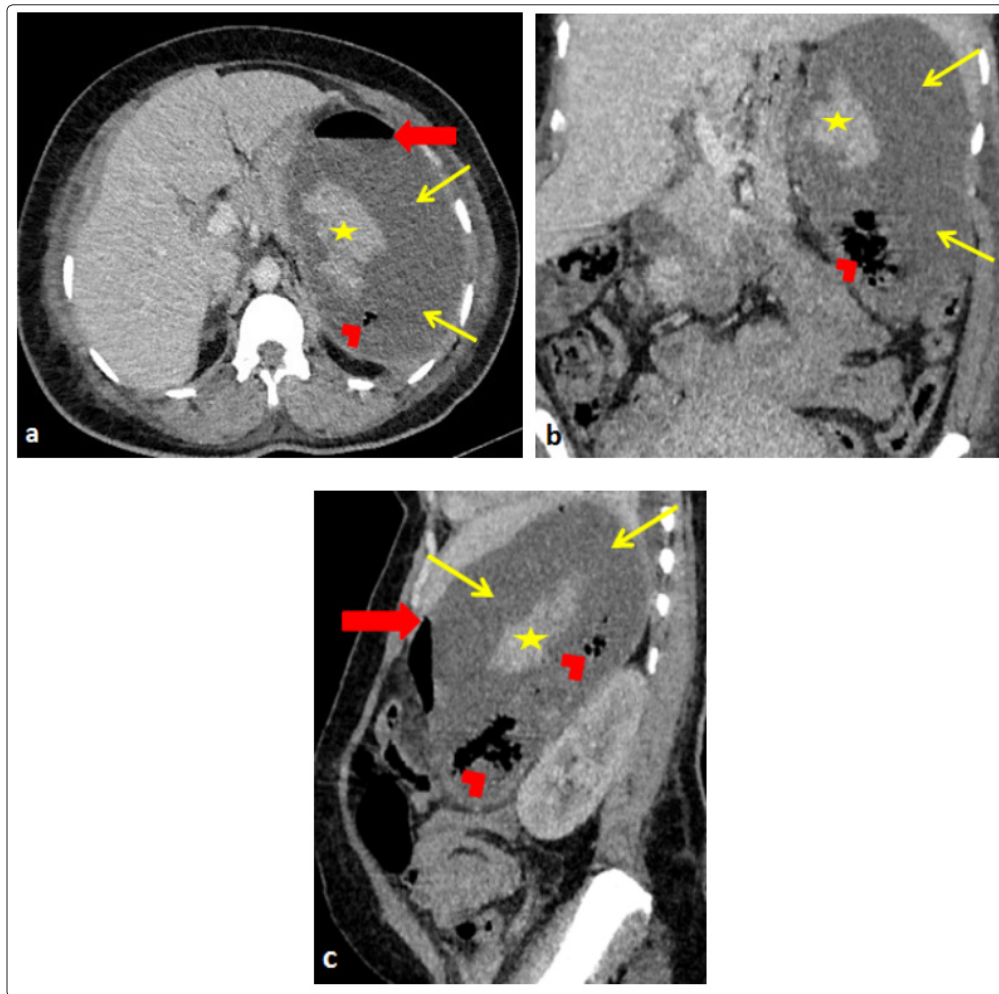


Figure 2: Initial abdominal-pelvic CT in axial (a), coronal (b) and sagittal (c) sections, showing a splenic laceration (asterisk) with perisplenic hemoperitoneum (yellow arrows) which contains air bubbles (arrowhead) with a hydroaeric level (red arrow) related to his secondary infection. Absence of peritoneal effusion away

The patient benefited from hemoperitoneum drainage and she was conducted with a reanimation unit for 6 days with intravenous antibiotic therapy, the patient's follow-up showed a favorable evolution. A second abdominal-pelvic CT (Figure 3) was released on the 7th day of hospitalization showing a decreasing volume of splenic laceration with important resorption of adjacent hemoperitoneum, which makes surgical intervention unuseful.

Discussion

Spontaneous rupture of the spleen in postpartum is a rare condition presenting as an acute surgical complication with high mortality. It is an uncommon and misdiagnosed occurrence that is often related to a preexisting splenic pathology.

The occurrence of this accident on a normal spleen in postpartum remains a dilemma, despite all highly developed diagnostic methods and equipment. It should be suspected when a woman present in pregnancy or in puerperium an acute abdominal pain with signs of hemorrhage, when all obstetrical, gynecological and other causes have been ruled out, such as trauma or systemic disease [1].

Several etiologies of spontaneous splenic rupture were reported in the literature such as splenic hemangioma, ectopic pregnancy in the spleen and splenic angiosarcoma [2-4].

The pathophysiology of the spontaneous rupture in a normal spleen especially in pregnancy and postpartum remains poorly understood, some theories were proposed:

- Splenic enlargement and physiological increased blood volume during pregnancy besides the minimal trauma of parturition can contribute to a spleen injury, but this still controversial.

- Traction with undue force during cesarean or during the bass delivery, also the insertion of packs could produce injuries to an already congested spleen.

- It might also be possible that rapid plasma expansion with blood products and other volume expanders could result in a rapid volume increase within the spleen, predisposing it to rupture.

- Another possible mechanism is a portal vein thrombosis or an obstruction of collateral drainage of the spleen associated to spasm of the splenic vein [5-7].

Generally and outside of pregnant or puerperium population, the splenic rupture can be not spontaneous and related to an general disease that can correspond to an infectious disease (malaria, infectious mononucleosis); hematologic diseases (hemophilia, hemolytic anemia); metabolic disorders (amyloidosis, Wilson's disease); or side effects of a drug (such as heparin and streptokinase) [8].

Rupture of the spleen in the postpartum period poses a significant difficulty for early diagnosis because more common entities present with similar clinical findings especially early in the course of the rupture (postpartum pains, uterine rupture...). Abdominal ultrasonography is an inexpensive and practical tool that gives a quick diagnosis and can be performed at the patient's bedside or in the emergency unit aiding in the initial workup of the patient present a hemodynamic instability.

Computed tomography is useful to confirm the splenic rupture, to quantify the lesion and the intact parenchyma, and to find other associated lesions. In our patient, the splenic rupture was detected on ultrasound (Figure 1) and confirmed by CT (Figure 2) that showed a splenic laceration with infected perisplenic hemoperitoneum, and without peritoneal effusion away of the splenic lodge.

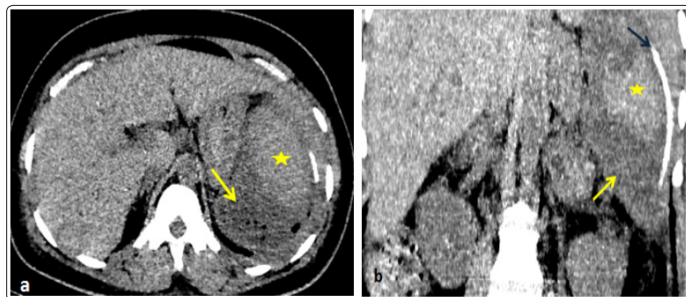


Figure 3: Control CT in axial (a) and coronal (b) sections, released on the 7th day of hospitalization, showing a decreasing volume of perisplenic hemoperitoneum (yellow arrow) and splenic laceration (asterisk), with properly placed drain (black arrow)

The treatment of spontaneous postpartum splenic rupture is not systematically an emergency splenectomy, but in the literature, a conservative approach with close hemodynamic monitoring has been recommended in selected cases. Several criteria are required to be eligible for nonoperative management, including hemodynamic stability and the absence of significant peritoneal signs or other injuries requiring surgery.

Factors that predict failure of conservative measures include preexisting splenic disease, patient age older than 55 years, important splenic injury, significant and diffuse hemoperitoneum, and active bleeding [9-12]. In our patient surgery was not required given the hemodynamic stability, the hemoperitoneum focal in the splenic lodge, also the favorable evolution of the patient after drainage of the perisplenic effusion and the treatment of the secondary infection.

Conclusion

Spontaneous rupture of a normal spleen in postpartum is a rare condition that still not clearly understood, and exposes to a high risk of mortality. It is an important diagnosis to keep in mind when acute abdominal pain is reported in association with signs of hemorrhage.

Imaging is useful for confirming the diagnosis and analyzing its severity, thus guiding the therapeutic management that can be surgical or conservative.

References

1. Bljajic D, Ivanisevic M, Djelmis J, Majerovic M, Starcevic V (2004) Splenic rupture in pregnancy : traumatic or spontaneous event ? Eur J Obstet Gynecol Reprod Biol 115: 113-114.
2. Carta G, D'Alfonso A, Nallbani A, Palermo P, Franchi V, et al. (2012) Spontaneous rupture of splenic hemangioma in puerperium. Clin Exp Obstet Gynecol 39: 407-408.
3. Zhang Y, Kang D, Zhang B, Lin Yang, Zhe Fan (2016) Ectopic pregnancy causing splenic rupture. Am J Emerg Med 34: 1184.e1-2.
4. Duan YF, Jiang Y, Wu CX, Zhu F (2013) Spontaneous rupture of primary splenic angiosarcoma: a case report and literature review. World J Surg Oncol 11: 53.
5. Weiss SJ, Smith T, Laurin E, Wisner DH (2000) Spontaneous splenic rupture due to subcutaneous heparin therapy. J Emerg Med 18: 421-426.
6. Orloff MJ, Peskin GW (1958) Spontaneous rupture of the normal spleen; a surgical enigma. Int Abstr Surg 106: 1-11.
7. Bahareh H, Shomali Z (2013) Postpartum Spontaneous Rupture of Spleen in a Woman with Severe Preeclampsia: Case Report and Review of the Literature. Bull Emerg Trauma 1: 46-48.
8. Debnath D, Valerio D (2002) Atraumatic rupture of the spleen in adults. J R Coll Surg Edinb 47: 437-445
9. Ochsner MG (2001) Factors of failure for nonoperative management of blunt liver and splenic injuries. World J Surg 25: 1393-1396.
10. Latic F, Delibegovic S, Latic A (2009) Urgent laparoscopic splenectomy after traumatic splenic rupture in pregnancy. Acta Inf Med 17: 231-232.
11. Biolchini F, Giunta A, Bigi L (2010) Emergency laparoscopic splenectomy for haemoperitoneum because of ruptured primary splenic pregnancy: a case report and review of literature. ANZ J Surg 80: 55-57.
12. Augustin G (2018) Spleen. In: Acute Abdomen During Pregnancy. Springer, Cham.

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