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Splenic Artery Aneurysm Rupture in Pregnancy: A Case Report

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ABSTRACT

Ruptured aneurysm of the splenic artery is a rare and very serious complication. It is one of the non-obstetric causes of abdominal pain and hemoperitoneum during pregnancy, regardless of the pregnancy term. The vascular walls integrity damage induced by hormonal changes during pregnancy and/or portal hypertension caused by increased uterine volume are the main mechanisms that trigger or worsen spleen aneurysms. Therefore, a hemoperitoneum in pregnancy evokes aneurysmal rupture, and once the diagnosis is suspected and/or confirmed, medical resuscitation with multidisciplinary surgical management implemented obstetrician and visceral surgeon are essential to ensure the mother and the fetus survival. An open splenectomy seems to improve the maternal-fetal life prognosis.

Keywords: Hemoperitoneum, Aneurysmal rupture, Implemented obstetrician

INTRODUCTION

Spontaneous rupture of a splenic vascular aneurysm during pregnancy is an unusual and very serious complication most often observed at advanced gestational ages. Maternal-fetal survival depends on two things: the time in which the diagnosis was done, and the speed of surgical management delay. We report a case which occurred spontaneously on the pregnancy first trimester in a third gesture woman, revealed by typical clinical-biological features of ectopic pregnancy.

CASE REPORT

The patient, Mrs. A.N, 35 years old, third gesture, second gravida, is a mother of two children aged 13 and 7 years old. The patient had no pathologic medical history. She came to the gynecological emergency department for pelvic pain localized first in the left lower abdomen and then generalized to the whole abdomen. A five weeks amenorrhea and a positive urinary BHCG.

Physical examination showed stable vital signs (BP=102/60, pulse=105 bpm), no fever, and tenderness in the left lower abdomen without palpable masses. The gynecological examination showed a normal-sized uterus, a healthy looking long closed posterior cervix, no bleeding, and no leucorrhea. The rest of the exam showed no abnormality.

The pelvic ultrasound study had revealed an empty uterus, and a thickened endometrium, with a heterogeneous latero-uterine mass of 3.5 cm long axis with medium abundance of free peritoneal fluid in the Douglas pouch. The BHCG blood level was1400 mIU/ml.

The acute onset pain, combined with physical finding, and the free peritoneal fluid and blood levels of BHCG, raised suspicion of ruptured ectopic pregnancy. The patient was informed of the maternal morbidity and mortality risks and accepted to undergo an open exploratory surgery.

After consent obtained, we performed an urgent Pfannenstiel laparotomy which showed a 500 ml hemoperitoneum, with a ruptured left hemorrhagic ovarian cyst without ectopic pregnancy. After hemostasis control and abundant peritoneal washing with saline serum, a new bleeding appears despite the ensured hemostasis on the pelvic floor.

The peritoneal cavity exploration revealed a bleeding coming from the left hypochondria. A supra-umbilical midline laparotomy was performed, showing continuous bleeding from the splenic pedicle through asplenic artery aneurysmal breach. A splenectomy was undertaken, during which the patient lost around 2.5 L of blood. The patient received four concentrates of red blood cells. The patient's evolution was favorable and discharged on the 14th day, after receiving

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polyvalent pneumococcal, Haemophilus influenza and meningococcal polysaccharide diphtheria toxoid conjugate vaccines. However, we noted an unusually heavy periods on the 7th post-operative day, and two weeks after surgery the beta subunit of human chorionic gonadotrophin was zero.

DISCUSSION

Internal bleeding in pregnant women can be due to several causes: The main ones are ruptured ectopic pregnancy, subcapsular hematoma of the liver, rupture of uterine vessels or rupture of a splenic artery aneurysm rupture which is the most exceptional situation [1-3].

The splenic artery is the most common location (60%) of digestive artery aneurysms [2]. Spontaneous rupture is a rare complication with a worse prognosis. According to Angelakis et al. [3] maternal mortality was 75% and fetal mortality 90% in the 1990s with a few rare cases of mother-child survival. However, a more recent review of 32 cases reported lower maternal and fetal mortality (22 and 16% respectively) [4]. As the exact mechanisms are poorly understood, the influence of pregnancy on the development and / or rupture of the aneurysm is proved [1,2]. Two mechanisms can be mentioned: The vascular walls integrity alteration induced by hormonal changes during pregnancy and/or portal hypertension induced by the increase of uterine volume [2]. Thus, it preferentially affects multiparous women in the third trimester of pregnancy, but can also occur at any term and in primigravida [5].

The vast majority of splenic artery aneurysms remains asymptomatic and is diagnosed during surgery following the rupture [6]. We rarely find some prodrome in the days or weeks preceding the rupture such as epigastralgia, nausea, vomiting or intermittent pain in the left hypochondrium [2]. Imaging techniques ultrasound, computed tomography, MRI and angiography can allow a fortuitous diagnosis during an examination for another indication. But these should not be performed while there is an evident clinical and sonographic hemoperitoneum, evoking the rupture of a splenic aneurysm, in order not to delay surgical management [7].

Two rupture issues could be observed: abdominal pain localized in the left hypochondrium and radiating towards the shoulder (Kehr's sign) [8], in this situation the bleeding remains localized, then, with no intervention, it reaches the large peritoneal cavity through Winslow's foramen, hence the rapid evolution towards a state of hemorrhagic shock. The free interval is very variable, ranging from a few hours to several weeks [6]. However, the prodromes are most often absent and the rupture is revealed by a brutal collapse [1].

Until now, no standardized recommendation concerning the management of splenic aneurysmal rupture has been established. However, according to Gallot et al. [9] and Veluppillai et al. [6] in a literature review, when a surgical exploration of hemoperitoneum in pregnant women reveals bleeding of splenic origin, splenectomy is recommended, especially for distal third splenic artery injury, such as our patient's case, explained by the hilum dissection's delicacy and danger as well as necrosis risk which results from it [6].

When a splenic artery aneurysm is discovered incidentally in a pregnant woman or of reproductive age, the use of preventive surgical treatment should be recommended: Ananeurysmal ligation with splenic preservation if possible, otherwise a splenectomy [9]. The optimal time for surgery seems to be the second trimester, since embryogenesis is complete and the size of the uterus allows the lesion to be exposed. This attitude is justified by the aneurysmal rupture aggravation during pregnancy, regardless of the size since it doesn't compromise the evolution [6-9].

CONCLUSION

Ruptured splenic aneurysm during pregnancy is very difficult and often leads to late diagnosis because of misleading revelation, leading to an unpleasant prognosis due to treatment delay. Obstetricians should think about this when faced with hemoperitoneum in a pregnant woman. Once diagnosed, it is a life-threatening emergency that requires prompt surgical control of the bleeding by an experienced surgeon to ensure maternal and fetal survival.

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