A Rare Cause of Hemoperitoneum in Pregnancy

Uma Forma Rara de Hemoperitoneu na Gravidez

CASO CLÍNICO

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ABSTRACT

Spontaneous hemoperitoneum in pregnancy is a rare complication resulting in high maternal and fetal morbidity and mortality. The authors describe the case of a pregnant woman presenting at 32 weeks of gestation with abdominal pain and free abdominal fluid on ultrasound. Laparotomy revealed a hemoperitoneum resulting from a suspected ruptured varices on the uterine posterior surface. A live newborn was delivered by cesarean-section, and hemorrhage was controlled with sutures and compression. Clinicians should be aware of this diagnosis when a pregnant woman presents with abdominal pain, anemia or hypovolemic shock. Early intervention will avoid poor outcomes for both the mother and the fetus.

Keywords: Hemoperitoneum/diagnosis; Hemoperitoneum/etiology; Hemoperitoneum/surgery; Pregnancy; Pregnancy Complications/diagnosis; Varicose Veins/complications

RESUMO

O hemoperitoneu espontâneo na gravidez é uma complicação rara, associado a morbimortalidade materna e fetal elevadas. Os autores descrevem o caso clínico de uma grávida que, às 32 semanas de gestação, recorreu ao serviço de urgência por dor abdominal, apresentando líquido livre na ecografia abdominal. Na laparotomia identificou-se um hemoperitoneu com aparente origem num vaso varicoso da face posterior do útero. Fez-se cesariana, resultando um nado-vivo. A hemorragia foi controlada com pontos hemostáticos e compressão. Os médicos devem considerar este diagnóstico perante uma grávida com queixas de dor abdominal, anemia aguda ou sinais de choque hipovolémico. Uma intervenção precoce prevenirá maus desfechos maternos e fetais.

Palavras-chave: Complicações na Gravidez/diagnóstico; Gravidez; Hemoperitoneu/cirurgia; Hemoperitoneu/diagnóstico; Hemoperitoneu/etiologia; Varizes/complicações

INTRODUCTION

The term 'spontaneous hemoperitoneum in pregnancy' (SHiP) describes a condition where significant bleeding occurs inside the abdominal cavity with no apparent cause during pregnancy or puerperium.[1] Hereby, we describe a clinical case of SHiP during the third trimester of pregnancy.

CASE REPORT

A thirty-five-year-old woman, primigravida, was admitted at 32 weeks of pregnancy with acute persistent abdominal pain in the lower quadrants, nausea and vomiting.

On admission, her vital signs were stable and body temperature was normal. The gynecological examination was unremarkable. On abdominal examination, she referred pain on palpation of the left iliac fossa and both abdominal flanks. An ultrasound scan revealed a live fetus, with both normal body movements and amniotic fluid; the placenta was posterior, distant from the internal *os*. The second trimester blood tests showed a hemoglobin level of 12.5 g/dL. A new red blood cell count was performed, revealing a hemoglobin level of 9.6 g/dL, high leucocyte count (17.9 x 10^9/L) and C-reactive protein of 5 mg/L. Analgesia was instituted but there was no reduction in pain intensity.

On re-evaluation, the patient mentioned shoulder pain, which changed with lateral decubitus. An abdominal ultrasound examination allowed the detection of abdominal free fluid with no obvious organ injury (Fig. 1).

Corticosteroids were administered in order to induce fetal lung maturation.

A multidisciplinary evaluation with a general surgeon concluded that an acute appendicitis could not be excluded, so an urgent appendicectomy was decided due to acute abdomen, in the context of a suspected perforated appendicitis.

The opening of the parietal peritoneum revealed hemoperitoneum with a moderate amount of blood and clots. On inspection, the appendix was normal and prophylactic appendicectomy was undertaken. Subsequently, a low transverse incision was performed, showing a reddish-purple uterine surface, suggestive of a uterine wall hematoma (Fig. 2). A low incision was then made in the uterus, revealing normal amniotic fluid and a 1950 g newborn was delivered. The Apgar score was 1/5/7 at 1', 5', 10', respectively. The fetal umbilical cord artery pH was 7.345. The placenta was normal, complete and there was no evidence of abruption. The uterine cavity was also normal. On posterior uterine wall inspection, the presence of a hematoma surrounding the inferior uterine segment was observed, extending to the left uterine horn, broad ligament and ipsilateral round ligament, with small bleeding spots associated with varicose veins (Fig. 3). The hemorrhage was controlled with hemostatic sutures on the posterior uterine wall, over the varicose veins, and moderate compression with a surgical dressing

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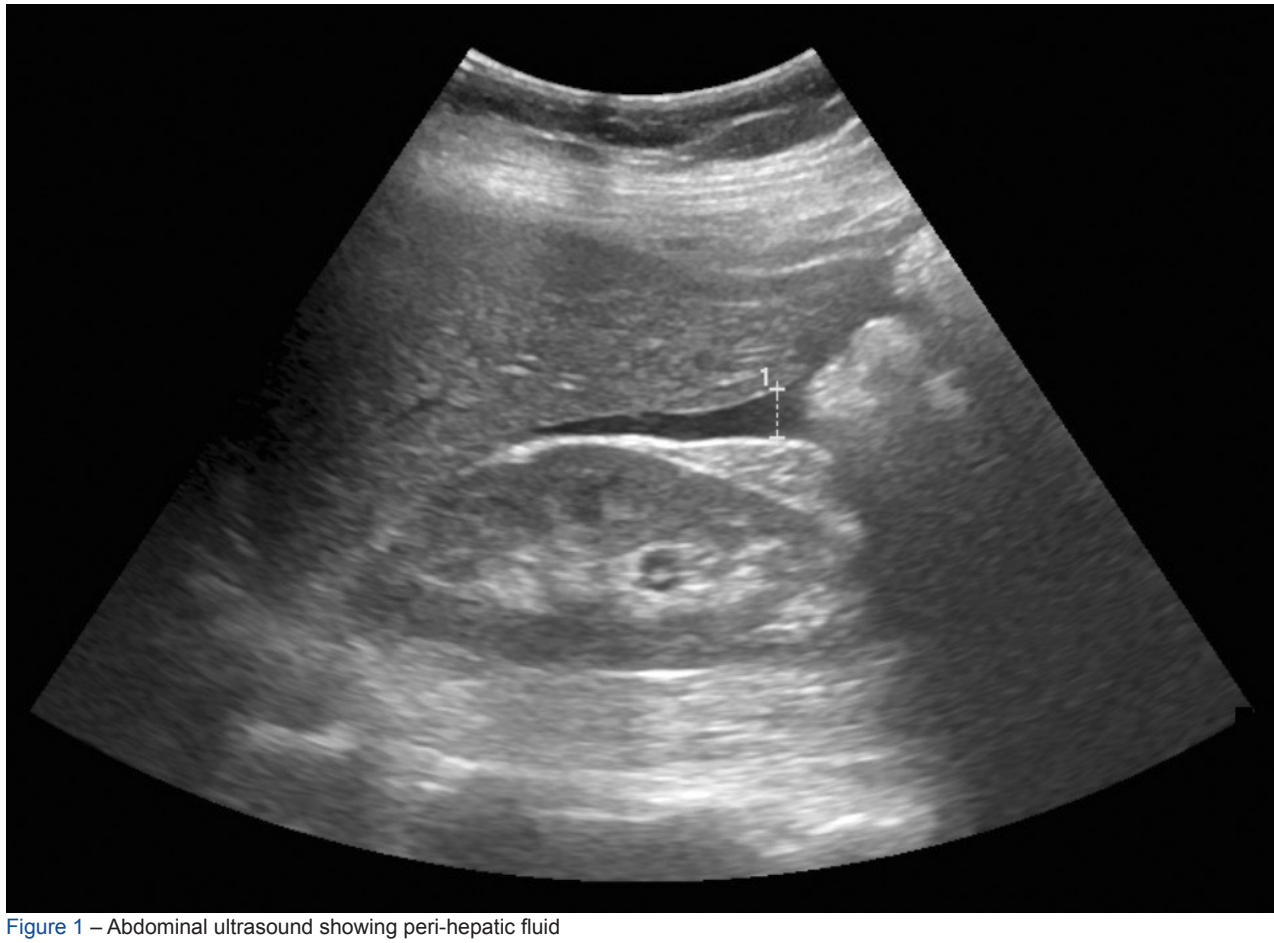

Figure 1 – Abdominal ultrasound showing peri-hepatic fluid

and tranexamic acid. A hemostatic powder was also used. The arterial blood gas test during surgery showed a maternal hemoglobin level of 6.6 g/dL and she received both erythrocyte (2) and plasma (1) transfusions. The patient was then transferred to the Intermediate Care Unit, where she remained for three days, for monitoring and recovery from anemia. During the post-operative period there were complications due to the presence of remnant blood clots in the abdominal cavity, which caused some abdominal discomfort and increased inflammatory markers (leukocytosis

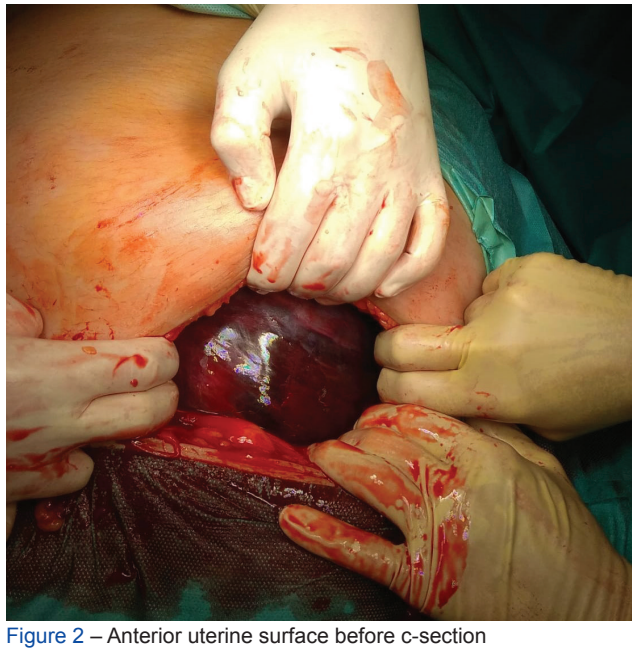

Figure 2 – Anterior uterine surface before c-section

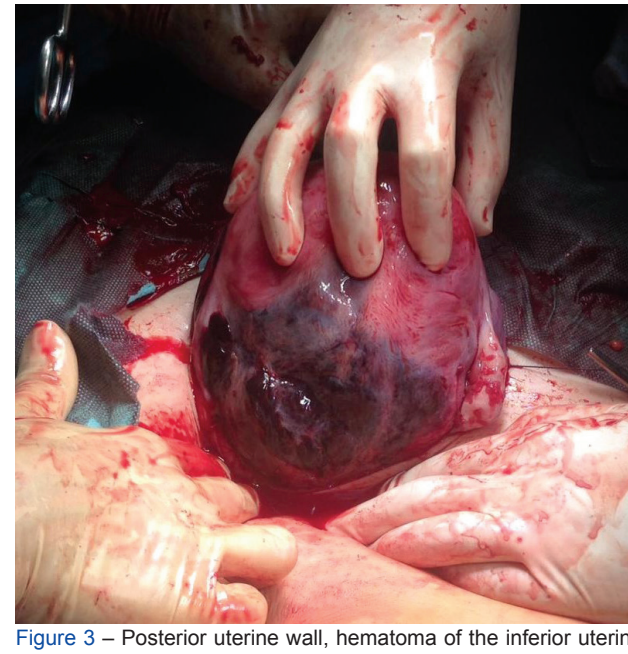

Figure 3 – Posterior uterine wall, hematoma of the inferior uterine segment, extending to the left uterine horn

and C-reactive protein). These were successfully treated with antibiotics (cephazolin and metronidazole) and analgesia. The patient was discharged 10 days after the surgery.

DISCUSSION

Hemoperitoneum during pregnancy is a rare complication. Initially, maternal mortality was reported to be 49% - 56%, having decreased recently to 0% - 4% as result of improved advanced life support, anesthetic and operative techniques.[2-5] However, perinatal mortality remained at 31% - 36%.[4,6] The prevalence of spontaneous hemoperitoneum in pregnancy (SHiP) before labor is 61% (the majority occurring during the third trimester of pregnancy),[5] 18% during labor and 21% occur during the puerperium.[2]

The etiology of this condition is poorly understood. It is known that endometriosis is present in 55.9% of cases.[5] Other suggested etiological factors include increased venous pressure in the utero-ovarian circulation during muscular activity or straining which could lead to the rupture of uterine vessels.[7] There are reports of rupture of uterine vessels, uterine artery, utero-ovarian vessels, uterine varices or uterine artery aneurysm.[7,8] High maternal blood pressure and atherosclerosis may also contribute to this complication.[2]

The most frequent clinical presentation is acute or subacute abdominal or flank pain (94.9%) with signs of hypovolemic shock (47.5%) and/or decreased level of hemoglobin (62.7%) without visible bleeding. Signs of fetal distress occur in 40.7% of cases.[5]

The diagnosis is difficult to establish prior to laparotomy.[2] Radiological tests such as abdominal ultrasonography and computed tomography scan[9] may identify free peritoneal fluid in 62.7% of cases and, of these, 89.2% are detected on ultrasonography.[5]

The differential diagnosis includes ectopic pregnancy, placental abruption with uterine rupture, abdominal pregnancy, ruptured appendix, HELLP syndrome, liver or spleen rupture, hepatocellular adenoma, uterine arteriovenous malformation, uterine hemangioma or even the rupture of a perivascular epithelioid cell neoplasm.[2,5,7,10-13]

In the described clinical case, the patient presented with acute abdominal pain without evident signs of bleeding in the third trimester of gestation and there were no signs of fetal distress. The investigation was focused on a possible non-obstetrical cause for the abdominal pain. The potential diagnosis of ruptured appendicitis resulted from the patient complaints of abdominal pain, nausea and vomiting, signs of rebound tenderness, free fluid and leukocytosis. The patient was always hemodynamically stable.

Treatment for this condition requires immediate surgery to prevent maternal hypovolemic shock. Lier *et al*,[5] on its review, raised the possibility of a wait-and-see approach in cases of SHiP in the absence of maternal hypovolemic shock or fetal distress. However, this approach was criticized by Markou and Fysekidis,[14] which argued that it is not possible to find out what the etiology of hemoperitoneum was or to predict its severity and evolution without an exploratory laparotomy. The fetal prognosis depends on gestational age and good hemodynamic maternal conditions. Lier *et al*[5] described an intervention rate of 94.9%: 69.6% for maternal reasons, 3.6% for fetal distress and 26.8% for both. During surgery, the bleeding site must be identified: it usually originates from the posterior surface of the uterus or the utero-ovarian vessels in the parametrium. Thereafter, hemostasis should be undertaken. Bleeding can be controlled following hemostatic sutures and/or compression.[9] Exceptionally, a hysterectomy or oophorectomy may be required.

Lim *et al*[9] reviewed eight case reports of SHiP. In his series, all cases occurred during the third trimester of pregnancy and post-delivery spontaneous hemoperitoneum was described in one of them. The most frequent clinical presentation was hemodynamic shock and severe abdominal pain. In many of these cases, an emergent cesarean-section was performed due to suspected scar or uterine rupture, abruption, or non-reassuring fetal status. The diagnosis was confirmed intra-operatively in all cases, which were successfully managed with hemostatic sutures and compression. Hysterectomy was performed only in one patient. Maternal mortality was not reported, but there was a case of perinatal death in one multiple pregnancy. Aziz *et al*[2] described the case of a 20 weeks pregnant woman presenting with hypovolemic shock resulting from massive bleeding. This was originated from a ruptured uterine vessel and associated with a left adnexal mass and decidualized endometriosis, with subsequent fetal death.

Mzarin *et al*[1] have also reported a case of a 46-year-old woman at 26 weeks of pregnancy presenting with acute abdominal pain and hypovolemic shock. Free fluid was observed on ultrasound and a laparotomy was performed due to a suspected ruptured uterus. A massive hemoperitoneum with nine liters of blood was observed. The mother received treatment, but the fetus did not survive.

In this case report, as described in the literature, the diagnosis only became clear intraoperatively. The rapid intervention allowed a good outcome for both the mother and the fetus, although the former had to receive blood transfusions for anemia.

Hemoperitoneum in pregnancy is a serious complication, associated with both maternal and fetal poor outcomes. It is not a preventable complication, and it is therefore essential that clinicians are aware of this clinical entity in order to enable early diagnosis and treatment, which lead to improved maternal and neonatal outcomes.

AUTHORS CONTRIBUTION

AE: Conception of the study, draft of the manuscript.

CCG: Data acquisition and interpretation, draft of the manuscript.

RM: Data acquisition, critical review and approval of the final version of the paper.

AF: Critical review and approval of the final version of the paper.

PROTECTION OF HUMANS AND ANIMALS

The authors declare that the procedures were followed according to the regulations established by the Clinical Research and Ethics Committee and to the 2013 Helsinki Declaration of the World Medical Association.

DATA CONFIDENTIALITY

The authors declare having followed the protocols in use at their working center regarding patients' data publication.

INFORMED CONSENT

Patient informed consent was obtained.

COMPETING INTERESTS

The authors declare that there are no competing interests.

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