

Spontaneous rupture of the uterine vessel in pregnancy: a case report

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Summary

Background: Spontaneous uterine vessel rupture during pregnancy is not only rare but also potentially lethal, leading to maternal and fetal mortality. **Case:** A 29-year-old nulliparous woman at 23 weeks +1 days' gestation presented with acute abdominal pain. Her blood pressure was 100/60 mmHg and pulse rate was 106 beats/minute, and complete blood count showed anemia, with a hemoglobin of 8.5 g/dl and hematocrit of 25.1%. Immediate volume replacement with colloid and blood transfusion was begun. Pelvic ultrasonography revealed a large free fluid collection in both the subphrenic area and the right side of the uterus. Exploratory laparotomy was performed and arterial bleeding from the posterior wall of the left fallopian tube was found. To control the bleeding vessels, the fetus was delivered through an anterior hysterotomy. The bleeding vessels were repaired and the maternal outcome was good. **Conclusion:** The clinical presentation of uterine vessel rupture is sudden onset of abdominal pain, accompanied by signs of hypovolemic shock and decreased hemoglobin levels. A rapid diagnosis and prompt intervention may be the only chance for a favorable outcome for the maternal and fetal status.

Key words: Hemoperitoneum; Uterine vessel rupture; Pregnancy.

Introduction

Spontaneous uterine vessel rupture during pregnancy is not only rare but also potentially lethal, leading to maternal and fetal mortality [1]. The etiology of spontaneous rupture of the uterine vessels during pregnancy is unknown [2]. The clinical presentations of hemoperitoneum due to rupture of uterine vessels are the sudden onset of abdominal pain, followed by signs of hypovolemic shock and reduction in hemoglobin levels [2, 3]. Although pelvic ultrasonography is a useful tool in detecting a fluid collection in the abdominal cavity, the diagnosis of hemoperitoneum is difficult because of the non-specific clinical presentation such as acute abdominal pain, maternal hypovolemic shock, and fetal distress [2,4]. In this report, the authors present a nulliparous woman at 23 weeks +1 days' gestation with hemoperitoneum due to uterine vessel rupture.

Case Report

A 29-year-old nulliparous woman at 23 weeks +1 days' gestation visited a local clinic because of the sudden onset of acute abdominal pain. She was then transferred to the authors' tertiary hospital because of suspicions of uterine rupture. There was no history of vaginal bleeding, rupture of the membranes, uterine contraction, intercourse, or abdominal trauma prior to the onset of pain. Her blood pressure was 100/60 mmHg and pulse rate was 106 beats/minute. At the time of admission, the patient experienced persistent severe abdominal pain. Tenderness was all over

the abdomen, ranging from the subphrenic area to the lower abdomen. Fetal doppler monitoring revealed a normal fetal heart rate. On pelvic examination, the cervix was closed and uneffaced. Also there was no uterine contraction.

The disseminated intravascular coagulation profile was normal, but the complete blood count (CBC) showed anemia, with a hemoglobin of 8.5 g/dl and hematocrit of 25.1%. Immediate volume replacement with colloid and blood transfusion was begun and pelvic ultrasonography was performed. It revealed a large free fluid collection in both the subphrenic area and the right side of the uterus. Despite hydration and blood transfusions, the hemoglobin decreased from 8.5 to 7.0 g/dl and the hematocrit was reduced to 20.7%. An exploratory laparotomy was performed to evaluate the cause of the hemoperitoneum. When opening the abdominal cavity, about 2,000 cc of fresh blood was found. After removal of the hemoperitoneum from the abdomino-pelvic cavity, initial inspection of the uterus revealed that there was no evidence of uterine rupture; however, vessels near the left fallopian tube with active bleeding were detected (Figure 1). To control the bleeding vessels, the fetus was delivered through an anterior hysterotomy. There was blood vessel engorgement around both fallopian tubes (Figure 2). The bleeding artery was ligated and careful inspection for any other bleeding focus was done. Postoperative recovery was uneventful. The patient was discharged on the third postoperative day in good condition.

Discussion

There are a variety of causes of spontaneous hemoperitoneum in pregnancy [4]. It may be caused by uterine rupture, ovarian cyst rupture, uterine vessel rupture, or it may



Figure 1. — Pelvic cavity during exploratory laparotomy. Active arterial bleeding (arrow).



Figure 2. — Blood vessel engorgement in both fallopian tubes.

be due to non-obstetric causes, and so on [4]. Because spontaneous hemoperitoneum shows no typical symptoms or signs, it is difficult to diagnose the cause of hemoperitoneum [5] and this often results in delay of diagnosis and proper management. Spontaneous uterine vessel rupture during pregnancy is not only rare but also potentially lethal, leading to maternal and fetal mortality [1].

In the literature, there are similar cases on hemoperitoneum during pregnancy. The causes are reported as rupture of uterine vessels, the uterine artery, and utero-ovarian vessels [6-11] or spontaneous rupture of the uterine varix [4]. The etiology of this condition is poorly understood. A suggested etiologic factor is increased venous pressure in the uterine circulation during muscular activity, such as coughing, defecation, coitus, and the second stage of labor [1, 4, 5].

To prevent the development of maternal hypovolemic shock, prompt volume replacement with fluids and blood is necessary. Also, an emergency exploratory laparotomy should be performed to control the bleeding and clarify the cause of the hemoperitoneum. In the present case, despite the aggressive fluid replacement and blood transfusion, hemoglobin was reduced from 8.5 to 7.0 g/dl, and the hematocrit was also reduced. The present authors performed an exploratory laparotomy and a hysterotomy to find the bleeding focus and to manage the hemoperitoneum properly for the best maternal prognosis. Emergency explorative laparotomy should be performed regardless of the fetal status [5]. Indeed, the fetal prognosis principally depends on the gestational age and hemodynamically stable maternal conditions [4].

The differential diagnosis of hemoperitoneum is difficult because of its non-specific symptoms, such as the sudden onset of abdominal pain, maternal hypovolemic shock, re-

duction of maternal hemoglobin, and fetal distress. Obstetricians should pay attention to the possibility of uterine vessel rupture as a differential diagnosis of hemoperitoneum [2]. To diagnose this condition, history taking, checking of the vital signs, and laboratory testing should be done. Pelvic ultrasonography can be useful for finding free fluid in the abdominal cavity. The treatment is aggressive fluid replacement, blood transfusion, and subsequent surgical intervention. In conclusion, a rapid diagnosis and prompt intervention may be the only chance for a favorable outcome for the maternal and fetal status.

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