

# Spontaneous Unscarred Uterine Rupture at 15 Weeks of Pregnancy: A Case Report

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**Background:** Uterine rupture during pregnancy is a serious obstetric complication. The presence of a previous uterine scar is the most important risk factor, whereas rupture in an unscarred uterus is a rare event.

**Case Report:** A 34-year-old woman, gravida 3 para 1, presented with sudden acute hypogastric pain at 15 weeks of gestation. The patient had no history of cesarean delivery. Ultrasound scans showed an empty endometrial cavity continuing directly into the amniotic sac that developed mainly outside the uterus. Because of the ultrasound findings and the patient's progressive anemia, a laparoscopy was performed that revealed a massive hemoperitoneum caused by the rupture of the uterine fundus with exteriorization of most of the amniotic sac. Laparoscopy was converted to laparotomy, the pregnancy was removed, and the uterine disruption was repaired.

**Conclusion:** Early diagnosis and prompt treatment of uterine rupture may significantly improve prognosis. This severe obstetric complication should be considered even in early gestational age pregnancies and in the absence of known risk factors.

**Keywords:** Hemoperitoneum, pregnancy, uterine rupture

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## INTRODUCTION

Uterine rupture during pregnancy is a serious obstetric complication that can cause maternal or fetal death. This uncommon complication can be defined as a nonsurgical disruption of some or all layers of the uterus. Uterine rupture generally occurs during the third trimester of pregnancy or during delivery, and the most important risk factor is the presence of a uterine scar resulting from a previous cesarean delivery or myomectomy. Rupture of an unscarred uterus is a rare event. It can occur in the first or second trimester and may be associated with a uterine malformation. We report a case of spontaneous unscarred uterine rupture in a woman at 15 weeks of pregnancy without any known risk factors.

## CASE REPORT

A 34-year-old patient, gravida 3 para 1, at 15 weeks of gestation presented to our tertiary center with acute hypogastric pain. The patient had not had a bowel movement for 3 days and vomited on arrival at the hospital. She reported the pain as continuous and dull and said it had developed suddenly in the previous 2 hours.

Until the commencement of pain, the patient's pregnancy had been uneventful. Her medical history included appendectomy at a pediatric age, and her obstetric history included a regular pregnancy with spontaneous vaginal delivery 6 years prior and a spontaneous miscarriage at 5

weeks treated with dilation and curettage 2 years prior. Her family history was negative for cardiovascular diseases and thrombotic disorders.

Clinical examination showed intense pain in the hypogastric area with rebound tenderness and increased bowel peristalsis. The patient's weight was 84 kg, body temperature was 37.4°C, blood pressure was 100/60 mmHg, pulse rate was 98 bpm, and oxygen saturation was 100%. Blood test showed mild leukocytosis ( $13 \times 10^9/L$ ), regular platelet count, normal coagulation set, and hemoglobin of 9.2 g/dL. Vaginal examination was unremarkable.

A transabdominal ultrasound scan showed an empty endometrial cavity in the sagittal plane with a thickness of 15 mm (Figure 1). However, it was not possible to visualize the myometrial layer of the uterine fundus. The endometrial cavity continued directly into the amniotic sac that developed mainly outside the uterus and contained a viable fetus with a regular heartbeat and a normal amount of amniotic fluid (Figure 2). In addition, intraperitoneal free fluid with mixed internal echogenicity was present; the adnexa were not visualized.

Because of the patient's progressive anemia (arterial blood gas analysis revealed a steep decrease in hemoglobin to 7.9 g/dL), hypotension, and increasing pain, an urgent laparoscopy was performed that revealed a massive hemoperitoneum caused by the rupture of the uterine fundus with exteriorization of most of the amniotic sac. Because of the massive hemoperitoneum, laparoscopy was converted to



**Figure 1. Sagittal plane ultrasound scan shows the empty endometrial cavity with an increased thickness.**



**Figure 2. Sagittal plane ultrasound scan shows the endometrial cavity continuing directly into the amniotic sac that developed mainly outside the uterus. The myometrial portion of the uterine fundus was undetectable.**

laparotomy. The patient's fallopian tubes were macroscopically normal in all their parts, isthmus included. No adhesions or endometriosis was found, and all other abdominal organs were normal. The pregnancy was removed and the uterine defect was repaired (Figure 3). A single layer of interrupted stitches restored the endometrial integrity, and a 2-layer seromuscular suture with interrupted stitches closed the seromuscular defect. Two red blood cell units were administered during surgery. The patient's postoperative course was regular, and she was discharged 10 days later.

## DISCUSSION

Uterine rupture occurs in 5.3 per 10,000 deliveries, according to a systematic review.<sup>1</sup> Uterine ruptures in women who have had a previous cesarean delivery are estimated at approximately 1%.

The presence of a transmyometrial surgical incision in the uterine wall is the major risk factor for uterine rupture. Other risk factors include grand multiparity, short length of time since cesarean delivery or myomectomy, an increased number of cesarean deliveries, use of uterotonic drugs (oxytocin and prostaglandins) during induction of labor, abnormal placentation, presence of uterine anomalies, dystocia, macrosomia, multiple gestation, and maternal age >35 years.<sup>2,3</sup>

However, unscarred uterine ruptures in early gestational age pregnancies are rare, with an incidence of approximately 1 per 10,000,<sup>1</sup> and are exceedingly rare without a coexisting uterine malformation.<sup>4</sup>

The clinical presentation of a gravid uterine rupture can include acute abdominal pain, vaginal bleeding, uterine overtone, altered fetal heart rate or fetal bradycardia and, more rarely, hypotension and hypovolemic shock.<sup>5</sup>

Diagnosis is challenging for several reasons. First, uterine rupture is associated with nonspecific signs and symptoms. Second, the clinical presentation changes throughout the course of the pregnancy, and diagnosis is generally more difficult in the first or second trimester. Third, symptoms depend on the site of the rupture. Uterine rupture generally occurs in the lower uterine segment and causes vaginal bleeding, whereas if the rupture happens in the fundus, the diagnosis is delayed because blood collects in the peritoneal cavity. Last, only surgery can provide a definitive diagnosis.

Abdominal ultrasound imaging can be useful by detecting a defect in the uterine wall, but the defect must be large to be visible. Moreover, posterior defects are less noticeable compared to defects of the lower uterine segment.

The differential diagnosis of uterine rupture is broad and includes a variety of conditions with overlapping clinical presentations depending on the gestational age. Hemoperitoneum caused by ectopic pregnancy and placenta percreta is a differential diagnosis for uterine rupture in the first and second trimester.<sup>6,7</sup> Differential diagnoses in the third trimester and during delivery include placenta previa, placental abruption, uterine atony, and uterine inversion. Moreover, any condition unrelated to pregnancy that may cause hemoperitoneum should be considered in the differential diagnosis.

The aim of management should be to stop the hemorrhage, repair the anatomic damage, and reduce morbidity with surgical repair or a hysterectomy, depending on several factors such as the size of the uterine defects, patient age, and comorbidities.



**Figure 3. Laparotomy showed rupture of the uterine fundus with exteriorization of most of the amniotic sac.**

In this case, the patient had no uterine malformations and no other known risk factors. Endometriosis, pelvic adhesions, and placental abnormalities were excluded during surgery. However, the rupture may have been caused by the presence of a locus minoris resistentiae resulting from an unrecognized uterine perforation that occurred during previous curettage. Unrecognized uterine injury caused by previous surgical curettage has been reported in the literature as a possible cause of uterine rupture during pregnancy.<sup>8</sup>

## CONCLUSION

An increased awareness of spontaneous unscarred uterine rupture, a life-threatening condition, may help enable earlier diagnosis and prompt treatment. This serious obstetric complication should be considered even in early gestational age pregnancies and in the absence of known risk factors.

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