

SUCCESSFUL MANAGEMENT OF GRAVID UTERINE RUPTURE

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Spontaneous rupture of the gravid uterus is very rare, with a reported rupture rate of 0.09% [1]. Previous uterine surgery, macrosomia, high parity, advanced maternal age, fundal pressure, oxytocin, and prostaglandin augmentation are risk factors. Uterine rupture is a catastrophic obstetric event, associated with high rates of perinatal morbidity and mortality. Early diagnosis and adequate hemostasis are extremely important for good outcomes.

A 37-year-old Taiwanese woman, para 0, with a history of myomectomy 5 years previously, became pregnant naturally, and antenatal examinations were uneventful. She presented with regular labor pain at 36 weeks 6 days of gestation. Her labor pain was characterized by a gradual increase in intensity until it became intolerable 20 minutes before arrival at the delivery room.

Her vital signs revealed a body temperature of 36.5°C, heart rate of 120 beats per minute, and respiratory rate of 20 breaths per minute. No ripening of the cervix or rupture of the amniotic membranes was evident. Abdominal muscle guarding, sweating, hyperstimulation of uterine contractions, along with variable decelerations occurred 20 minutes after arrival. No pelvic fluid was identified on sonography. Immediate pelvic examination showed that the cervix was not dilated. Intrauterine resuscitation with intravenous fluid, maternal positional changes, and oxygen administration did not resolve the prolonged decelerations. The “staircase” sign (Figure 1) appeared after 10 minutes, and the possibility of uterine rupture was suspected, based on her previous surgical history, physical examination, and the presence of the staircase sign. Immediate cesarean delivery was performed under spinal anesthesia.

Upon cesarean delivery, a fresh uterine laceration with blood clots was found. The laceration measured 10 cm, with complete disruption along the left posterior uterine wall and active bleeding (Figure 2). A male fetus, weighing 2,515 g, was delivered with Apgar scores of 7 and 9 at 1 and 5 minutes, respectively.

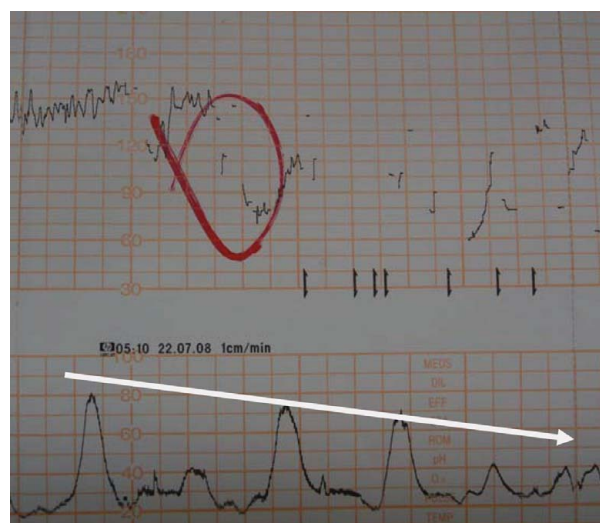


Figure 1. Stepwise gradual decrease in contraction amplitude and sudden onset of profound and prolonged fetal bradycardia.

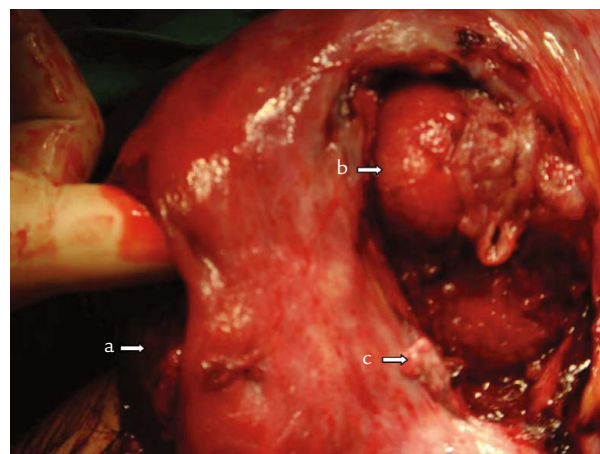


Figure 2. Ruptured uterus: classic cesarean section incision (a); submucosal myoma (b); and ruptured left-posterior uterine wall (c).



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The hemoperitoneum with up to 1,500 mL of blood clots was evacuated. Because of maternal hemodynamic compromise and intractable oozing of the suture site, bilateral internal iliac artery ligation was performed to achieve hemostasis. A total blood loss of 2,300 mL was determined during this critical episode. After massive blood transfusion with packed red blood cells, the patient recovered well.

Previous myomectomy is well known to endanger subsequent pregnancy because of the high risk of uterine rupture as a result of uterine scar formation. Uterine contraction may precipitate myometrial disruption, which manifests as mild to severe variable fetal heart rate decelerations or hyperstimulation upon fetal monitoring, depending on the extent of disease severity [2,3].

In some cases, as with our patient, the stepwise gradual decrease in contraction amplitude followed by sudden onset of profound and prolonged fetal bradycardia (staircase sign) implies uterine rupture [4]. We observed this obstetric crisis in a more comprehensive way as disease progression. Uterine rupture is sometimes confused with true labor pain and the onset of uterine dehiscence. Early recognition of the staircase sign combined with sonography or other clinical manifestations minimizes an obstetric tragedy, even among patients near term, as with our patient [5].

Uterine rupture can occur in pregnancy among women with uterine scarring or among high-order gravidas without scarring. In half of the cases, women were deprived of their fertility if hysterectomy or tubal sterilization was performed. In our case, uterine devascularization (internal iliac artery ligation) was performed. Ligation of the internal iliac arteries is a quick method for hemostasis and preserves fertility during postpartum hemorrhage, after failure of other conservative measures [6]. Although hysterectomy is a strong possibility in cases of extensive uterine rupture, internal iliac artery ligation is an alternative because of its relatively more conservative surgical nature [7].

Mortality rates for the mother and fetus are 10–15% and 35–42%, respectively, for uterine rupture [8,9]. Immediate cesarean section can save the fetus from

hemorrhage and hypoxia and avoid serious neonatal consequences. Early diagnosis of uterine rupture is difficult and important, especially in the case of posterior uterine wall disruption. A detailed medical history review, meticulous clinical examination, and a high index of suspicion for uterine rupture among pregnant women presenting with severe abdominal pain with muscle guarding, fetal heart rate deceleration (staircase sign), and intra-abdominal fluid raise the likelihood of early detection of uterine rupture. Based on our experience, internal iliac artery ligation is superior to hysterectomy for fertility preservation even in extensive uterine rupture.

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