

# Asymptomatic spontaneous complete uterine rupture in a term pregnancy after uterine packing during previous caesarean section: a case report

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## Summary

Uterine rupture is a life-threatening obstetrical complication with significant neonatal and maternal morbidity. The authors report a 36-year-old woman with a history of previous caesarean section because of pre-eclampsia and antepartum haemorrhage at 31 gestational weeks during her first pregnancy. Postpartum haemorrhage occurred and the uterine cavity was packed with gauze for reducing blood loss. After two years, she underwent elective, repeat caesarean section at 38+1 gestational weeks with no abdominal pain or vaginal bleeding. During the operation, a six- to seven-cm-long defect was found in the lower uterine segment, with complete separation of the uterine scar and disruption of the visceral peritoneum. A live baby was delivered. The postoperative course was uneventful. Uterine dehiscence and rupture should be suspected in the presence of risk factors such as previous caesarean section, especially uterine packing involved. Spontaneous silent rupture can occur in women without any alarming symptoms.

*Key words:* Uterine rupture; Pregnancy; Caesarean section.

## Introduction

Uterine rupture is a life-threatening obstetrical complication with significant neonatal and maternal morbidity [1-3]. To the authors' knowledge, full-term live birth after scar rupture due to uterine packing during a previous caesarean section has never been reported.

## Case Report

A healthy, 36-year-old woman (gravida 2, para 1) underwent elective, repeat caesarean section at 38+1 gestational weeks. She had regular menstruation, no gynaecological history and no history of injuries predisposing to uterine scarring, such as perforation, uteroplasty, myomectomy, and cornual resection. In February 2011 during her first pregnancy, an emergency, low-transverse caesarean section was performed at 31 gestational weeks because of mild pre-eclampsia and massive antepartum haemorrhage due to placental abruption. After the placenta was delivered, postpartum haemorrhage occurred. The uterine cavity was completely and uniformly packed from fundus to cervix with a three-meter-long, four-cm-wide sterile gauze, without any dead space. The uterine incision was closed with continuous, unlocked double-layer sutures. The gauze was removed through the vagina 24 hours later. Late postpartum haemorrhage and puerperal infection did not occur. After delivery, her menstruation was regular.

She became pregnant for the second time after using contraception for one year. Regular prenatal examinations were begun at 17 gestational weeks in the present obstetrical department. After 20 weeks, she was administered 50 mg aspirin and two grams of calcium daily to dredge the microcirculation and prevent vasospasm. The antenatal period was uneventful, with normal blood pressure and urine protein levels. She had no lower

abdominal pain/tenderness or vaginal bleeding. Ultrasonography revealed adequate amniotic fluid volume and no fetal abnormalities. On December 5, 2012, she was hospitalized for an elective caesarean delivery. No fetal heart rate abnormalities or clinical symptoms such as abdominal pain, vaginal bleeding, hypertonia, and acute uterine contractions were present. The following parameters were noted on admission: blood pressure, 110/70 mm Hg; pulse, 76 beats/minute; symphysis-fundal height, 36 cm; haemoglobin, 120 g/l; and fetal heart rate, 144 beats/min. Caesarean section was performed on the day of admission. On incising the parietal peritoneum, a six- to seven-cm-long defect was found in the lower uterine segment, with complete separation of the uterine scar and disruption of the visceral peritoneum (Figure 1A). Unlike fresh rupture wound, the defect edges were older fibrous tissues without bleeding (Figure 1B). The intact amniotic sac containing the fetus, clear amniotic fluid and vernix, was exposed through the defect. A live baby girl was delivered with a one-min Apgar score of 10 and birth weight of 3.3 kg (Figures 1C-E). After the uterus was sutured in double layers, it firmly contracted, with no abnormal blood loss. The postoperative course was uneventful; she was discharged after three days.

## Discussion

The median incidence of uterine rupture worldwide is 5.3/10,000 births [4]. Uterine rupture commonly manifests as fetal distress, abdominal pain, scar tenderness and vaginal bleeding, and rarely, as massive haemorrhage and hypovolaemic shock [5]. Asymptomatic, spontaneous, complete rupture at term is rare [6]. The present patient had a clinically silent uterine rupture, followed by a live birth, with no maternal complications. As the uterine scar from the previous caesarean section chronic ruptured, its defective edges formed fibrous tissues and the fetal membrane was suffi-

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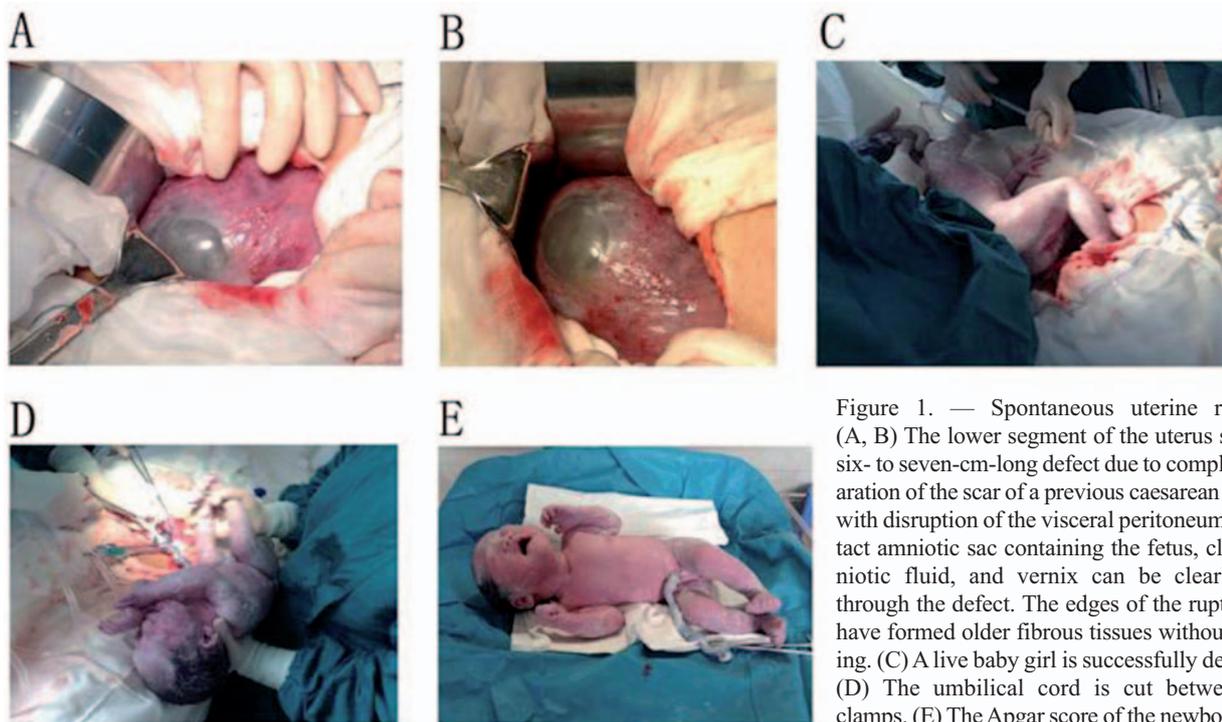


Figure 1. — Spontaneous uterine rupture. (A, B) The lower segment of the uterus shows a six- to seven-cm-long defect due to complete separation of the scar of a previous caesarean section, with disruption of the visceral peritoneum. An intact amniotic sac containing the fetus, clear amniotic fluid, and vernix can be clearly seen through the defect. The edges of the rupture site have formed older fibrous tissues without bleeding. (C) A live baby girl is successfully delivered. (D) The umbilical cord is cut between two clamps. (E) The Apgar score of the newborn is 10.

ciently tenacious to prevent rupture of membranes causing serious maternal or fetal complications.

Common predisposing factors for uterine rupture are previous caesarean section, uterine trauma, myomectomy or other uterine surgeries, uterine evacuation, manual removal of the placenta, and congenital uterine abnormalities. Uterine packing, a safe and effective technique for controlling intractable haemorrhage during caesarean section [7], is a previously unrecognized risk factor. Uterine packing can cause muscle stretching, especially, at the incision site, leading to poor healing. With uterine enlargement and increased intrauterine pressure during subsequent pregnancy, the lower segment gradually thins and lengthens, leading to scar dehiscence, which may progress to complete rupture.

Suture technique, quality of suture material, and physician's operative experience are possible factors that determine the tensile strength of the resultant uterine scar during subsequent pregnancies. Locked, but not unlocked, single-layer closure has been associated with a higher uterine rupture risk than double-layer closure in women attempting a trial of labour in a future pregnancy [8]. In case of uterine packing, it is unclear whether continuous unlocked double-layer closure should be performed using a stronger suture material or whether a different suture technique should be used.

In conclusion, uterine dehiscence and rupture should be suspected in the presence of risk factors such as previous caesarean section, especially, when involving uterine packing. Spontaneous silent rupture can occur in women without any alarming symptoms.

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