

Preterm Spontaneous Uterine Rupture in a Non-labouring Grand Multipara: A Case Report

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Abstract

Background: Uterine rupture can be a catastrophic obstetrical emergency. Many risk factors for uterine rupture have been identified, as well as a wide range of clinical presentations. In this case report, we describe the occurrence of fetal death and uterine rupture in a non-labouring, preterm patient.

Case: A 32-year-old woman, gravida 10, para 7, who had three previous lower segment Caesarean sections, presented with minor abdominal pain and vaginal bleeding. Fetal demise was confirmed on ultrasound examination. Delivery of the fetus by lower segment Caesarean section was planned, but at laparotomy a complete uterine rupture was found, with the amniotic sac intact in the mother's abdomen.

Conclusion: Uterine rupture can be a fatal event for the fetus, with the mother experiencing only minor symptoms. In managing patients with risk factors for uterine rupture, clinicians must always keep the possibility of rupture in mind. Abdominal trauma and intercourse may be added risk factors for uterine rupture.

Résumé

Contexte : La rupture utérine peut constituer une urgence obstétricale catastrophique. De nombreux facteurs de risque, ainsi qu'une vaste gamme de tableaux cliniques, ont été identifiés en ce qui concerne la rupture utérine. Dans le présent exposé de cas, nous décrivons la survenue d'un décès fœtal et d'une rupture utérine chez une patiente préterme, n'étant pas en travail.

Cas : Une femme de 32 ans, gravida 10, para 7, qui avait déjà subi trois césariennes du segment inférieur, présentait une douleur abdominale mineure et des saignements vaginaux. Le décès fœtal a été confirmé au cours de l'examen échographique. L'accouchement du fœtus par césarienne du segment inférieur était prévu; cependant, au moment de la laparotomie, une rupture utérine totale a été constatée, la cavité amniotique étant intacte au sein de l'abdomen de la mère.

Conclusion : La rupture utérine peut constituer un événement mortel pour le fœtus, la mère ne connaissant que des symptômes mineurs. Dans le cadre de la prise en charge des patientes présentant des facteurs de risque de rupture utérine, les cliniciens doivent toujours avoir à l'esprit la possibilité d'une rupture. Les traumatismes abdominaux et les relations sexuelles peuvent constituer des facteurs de risque supplémentaires en ce qui concerne la rupture utérine.

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INTRODUCTION

Uterine rupture is an obstetrical emergency. The majority of reported cases have occurred in patients with risk factors for uterine rupture, most notably labour after previous uterine surgery and grand multiparity.^{1–3} Some case reports have described primiparous women having uterine rupture; most of these women have had uterine surgery, abnormal placentation such as placenta accreta, or augmentation or induction of labour.^{4,5} The reported cases indicate that signs and symptoms of uterine rupture vary widely, and therefore clinicians must have a high index of suspicion.¹

The case presented here is of uterine rupture in a non-labouring grand multiparous woman who had had three previous transverse lower segment Caesarean sections. The rupture resulted in fetal demise. This patient had experienced mild abdominal trauma as well as intercourse on the evening before admission to hospital. The hospital in which delivery occurred is a Level 2 hospital with 5500 deliveries per year; a specialist obstetrician and an anaesthesiologist provide continuous in-hospital coverage for the labour and delivery unit.

THE CASE

The patient, a 32-year-old gravida 10, para 7 woman, was pregnant with unknown gestational age. She was admitted to hospital approximately three hours after she had experienced a 15-minute episode of sharp lower abdominal pain associated with a gush of blood with some clots per vaginam. She described the episode of pain as abrupt and severe and localized to the lower abdomen. On admission, she stated that she was unable to feel fetal movement. She denied any bowel or urinary symptoms.

Paramedics reported hearing a fetal heart rate of 150 to 165 bpm in the patient's left upper quadrant on four occasions during transport to hospital. Fetal heart tones had last been heard 50 minutes before admission to hospital. The patient reported having had intercourse on the night before admission; she also reported that her three-year-old son had jumped on her abdomen.

Figure 1. The ruptured and contracted uterus as found in the abdominal cavity



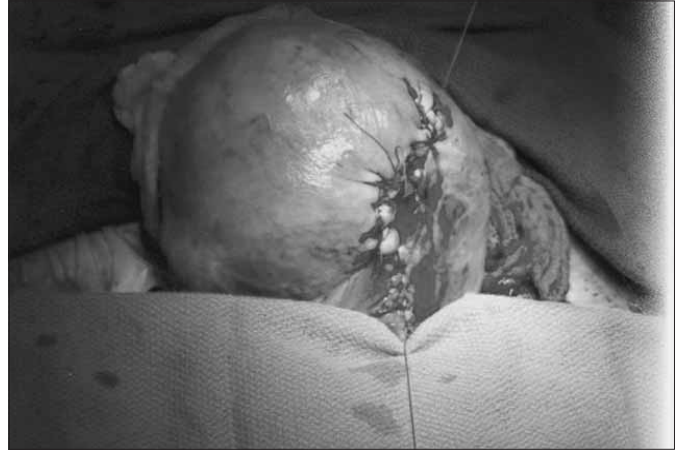
The patient had not had any prenatal care. She was unsure of the date of her last menstrual period, but thought that she was at approximately 30 weeks' gestation. Until the time of admission, her pregnancy had been uncomplicated.

Her previous obstetrical history consisted of two first trimester miscarriages, followed by four normal vaginal deliveries and three Caesarean sections. Her second vaginal delivery resulted in a stillborn baby at full term, and her fourth pregnancy resulted in a vaginal delivery at 32 weeks' gestation. Her first Caesarean section (CS) was performed as an emergency for placental abruption. In her eighth pregnancy, she attempted a trial of labour after a previous CS, but failed to progress in labour and required a repeat CS. Her ninth pregnancy ended in elective repeat CS.

The patient was otherwise healthy. She smoked cigarettes but denied any use of alcohol or street drugs during the pregnancy.

On admission to the labour and delivery unit, the patient had no pain or vaginal bleeding. Her vital signs were stable. Examination of the abdomen revealed a gravid uterus palpable above the umbilicus and a previous Pfannenstiel incision. Vaginal examination was not performed. No fetal heart tones could be identified either by auscultation or by portable ultrasound in the labour and delivery unit. Subsequently a formal ultrasound examination was conducted to assess the viability of the pregnancy and to determine the location of the placenta. This ultrasound examination was performed one hour after admission (the mother's condition was stable) and showed an intrauterine pregnancy of approximately 30 weeks' gestation, but with no evidence of fetal cardiac activity. A mass was noted in the right lower quadrant, possibly outside the uterus.

Figure 2. The line of uterine rupture, extending inferiorly from the left side of the previous lower segment scar



A CBC showed mild anemia (hemoglobin 118 mg/L) but otherwise normal findings. A coagulation profile was normal.

After confirming her history of three previous transverse lower segment Caesarean sections, the patient agreed that delivery by repeat CS would be the safest option for her. The patient was brought to the operating room for CS approximately five hours after the initial episode of pain.

Laparotomy was performed through the previous Pfannenstiel skin incision. Dark clotted blood and placental tissue were encountered on entering the abdominal cavity. The uterus had ruptured (Figure 1), and the site of rupture was bleeding moderately. The uterine rupture appeared to begin laterally along the lower uterine segment, and then descended along the left lateral side of the cervix (Figure 2). An intact gestational sac with placenta and a normal appearing male fetus was found in the left upper quadrant of the abdomen, superior to the uterus. The sac was delivered intact through the abdominal incision. The uterus was closed in two layers, the peritoneal cavity was irrigated, and the abdomen was closed.

After delivery, the baby was found to be stillborn but with no evidence of maceration. Birth weight was 2110 g, greater than the 90th percentile for a 30-week pregnancy, suggesting that the patient's dates may have been inaccurate. Autopsy of the baby was not performed. The histology of the placenta was normal.

Review of the ultrasound images taken before delivery suggested that the mass identified in the right lower quadrant was actually the uterus contracted upon itself with the fetus, placenta, and amniotic fluid appearing outside the uterus (Figures 3 and 4).

Figure 3. Ultrasound image demonstrating contracted uterus, endometrial stripe and no intrauterine gestation, with placental tissue above and bladder to the right



Figure 4. Ultrasound image demonstrating contracted uterus (lower) with fetal extremities and amniotic sac outside the uterus



It was subsequently reported that a peripheral blood smear at the time of admission had shown 0.03% maternal-fetal hemorrhage, equivalent to approximately 2 mL of fetal blood.

After receiving advice against having any further pregnancies, the patient subsequently had a tubal ligation performed.

DISCUSSION

The reports from paramedics documenting fetal heart tones during transfer to hospital, and the location of these tones in the left upper quadrant of the abdomen, suggested that uterine rupture in this patient occurred at the time of her initial episode of pain before admission to hospital. The lack of fetal maceration further supports this.

The fact that this patient had had three previous Caesarean sections, each with single layer uterine closure, may have been related to the occurrence of uterine rupture, especially since rupture occurred in the existing uterine scar on the lateral side. In a similar case, a gravida 10 woman with uterine rupture before labour had had only one previous CS, but this was performed using an inverted T uterine incision, which is known to have a higher risk of subsequent rupture than a transverse lower segment incision.⁶

There is disagreement in the literature regarding the risk of uterine rupture after a single CS compared with the risk after multiple Caesarean sections, probably because many of the published reports are observational studies. One prospective multicentre observational study did not identify a significant difference in the rate of uterine rupture between patients with a single CS and those with multiple previous Caesarean sections.⁷ In contrast, in a retrospective chart

review comparing women who had had one previous CS with women who had had two or more, the rate of uterine rupture was significantly higher (3.7% vs. 0.8%) in women with two previous Caesarean sections.⁸ However, in this study the number of women with two previous Caesarean sections (134) was relatively small compared with the number of women who had had only one CS (3757).

In each of our patient's previous Caesarean sections, the uterus was closed in a single layer. In an observational cohort study, women who had a single layer closure had a four-fold higher rate of subsequent uterine rupture than women who had a double layer closure.⁹ The authors of this study also assessed the importance of the length of time between Caesarean sections. They found that women who had an interval between Caesarean sections of two years or less and who had single layer uterine closure had a rate of subsequent uterine rupture of 5.6%, a rate approximately three times higher than patients without this combination.¹⁰

Two case reports have described uterine rupture following intercourse.^{11,12} Each of these cases was complicated by another risk factor for uterine rupture—in one case by a short interval between pregnancies, and in the other by abnormal placentation. Intercourse may have played a role in the uterine rupture of our patient.

Spontaneous uterine rupture can occur with minimal symptoms. Our patient experienced pain and bleeding only for 15 minutes; these symptoms then completely resolved. In a patient who has had three previous Caesarean sections, any abdominal pain or bleeding must alert care givers to the possibility of uterine rupture, even with minor abdominal trauma. The patient in this case did not describe the trauma she experienced as unusual.

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