

An atypical presentation of uterine rupture during trial of labor after Cesarean delivery

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Abstract

Uterine rupture is an obstetric emergency affecting approximately 0.06% of all deliveries with tearing of the uterus into the abdominal cavity. Women with a history of previous Cesarean delivery, preterm delivery, malpresentation, multiparity, and dystocia are more likely to be affected by this complication. The patient is a 25-year-old G2P1001 Latina at 29 weeks and 0 days with a history of prior Cesarean section via low transverse incision. She presented with contractions and scant bleeding. She was diagnosed with active labor. Her fetal heart tracing was reassuring and she opted for repeat Cesarean. Cesarean section was under general anesthesia due to inability to obtain adequate regional anesthesia. Upon entry to the peritoneal cavity amniotic membranes were visualized approximately 8 cm vertical. However, there was no evidence of hemoperitoneum. A healthy baby boy was delivered and care was transferred to neonatology. The uterus was closed with double-layer closure. After 3 uneventful days in recovery, mother and baby were discharged home. Despite the potential for catastrophic complications, by timely recognition and treatment, this case demonstrates the value of attentive nursing care and preparedness of the care team for escalation of high risk obstetric patients.

Keywords

uterine rupture; repeat cesarean section; obstetric emergency; vaginal birth after Cesarean delivery

Introduction

Uterine rupture is an obstetric emergency affecting approximately 0.06% of all deliveries [1]. This catastrophic injury results in tearing of the uterus into the abdominal cavity [2]. Signs of uterine rupture may include bradycardia, failure to progress, pain or vaginal bleeding [2]. Untreated, resultant complications include hemorrhage, loss of fertility, or maternal death [2].

Uterine rupture is associated with women with a history of previous Cesarean delivery, preterm

delivery, malpresentation, multiparity, and dystocia [1]. However, in women with singleton pregnancies and previous Cesarean section attempting a Trial of Labor After Cesarean delivery (TOLAC), rupture is far more common than in women with Elective Repeat Cesarean Delivery (ERCD), with relative prevalence of 0.02% and 0.71%, respectively [3]. Further, there is a significant relationship between uterine rupture and perinatal mortality [1]. The relative prevalence of perinatal mortality in TOLAC is 0.13%, relative to only 0.05% in ERCD [3]. For these reasons, the American College of Obstetrics and Gynecology (ACOG) advises that women with more than one previous Cesarean delivery, macrosomic fetuses, gestation beyond 40 weeks, previous low-vertical incision, unknown type of prior uterine incision, twin gestation, and obesity are likely poor candidates for TOLAC [3].

Given the rarity of uterine rupture, it is challenging to screen and predict for this condition. This is particularly true given the frequency of this complication, even in the demographic most likely to be affected. Lower uterine segment sonogram demonstrates strong predictive value in the assessment of uterine scar defects [4]. In a study evaluating the utility of sonographic evaluation of the lower uterine segment as a predictive tool for uterine rupture, the group most likely to experience complete uterine rupture were those women with full thickness of less than 2.3 mm [5]. Even so, this was predicated on a frequency of only 3 ruptures of the 33 women meeting this criterion [5].

The following case presents an atypical uterine rupture discovered during Cesarean section.

Case Presentation

The patient is a 25-year-old G2P1001 Hispanic at 29 weeks and 0 days with history of prior Cesarean section via low transverse incision for abnormal fetal heart tracing with no prenatal care. She presented with the complaints of uterine contractions and minimal vaginal spotting. She was found to be 4 cm dilated with scant bleeding. Fetal Heart Tracing (FHT) showed category 1 patterns. Options were given to the patient for TOLAC versus repeat Cesarean section. The patient opted for repeat Cesarean section. She was admitted and taken to the operating room. During the placement of spinal anesthesia, she started to have more vaginal bleeding with category 1 fetal heart tracing. Regional anesthesia was difficult to obtain due to painful contractions, so it was decided to induce the patient for general anesthesia. After induction of anesthesia, a Pfanestel incision was performed due to dense fascia adhesions to what appeared to be the abdominal rectus muscle. Some bleeding was encountered after sharp dissection. Entry to the abdominal cavity was achieved through a small opening which was extended. Exposure of amniotic membranes was noted of approximately 8 cm. However, there was no evidence of hemoperitoneum. At that point amniotomy was performed and a baby boy was delivered from a cephalic presentation. The cord was clamped and cut and handed off to the neonatology team. Due to dense adhesions, the uterus was not exteriorized. The uterus was closed with double-layer closure. Fascia and skin were closed in normal fashion.

At completion of the operation, total estimated blood loss was 600 mL. The patient was transferred to the recovery room and remained stable before transfer to the maternity unit.

After 3 uneventful days in recovery, mother and baby were discharged home.

Discussion

The presentation of uterine rupture in this patient is unusual, although signs and symptoms of uterine rupture are variable. Many times, uterine rupture presents as fetal bradycardia, increased uterine contractions, vaginal bleeding, loss of fetal station, or new onset of intense uterine pain [6]. However, the classical constellation of pain, fetal heart rate abnormalities and vaginal bleeding are present in less than 10% of cases [6]. The most common among these are fetal heart rate abnormalities which were not present in this patient [6].

Uterine rupture during TOLAC presents the risk of severe outcomes including maternal and perinatal morbidity and mortality [7]. Data suggest that relative to the baseline risk of elective Cesarean section, the risk of severe outcomes related to uterine rupture during TOLAC at term is 1.3 per 1000 deliveries [7].

Discovery of uterine rupture often occurs during the postpartum period [8]. However, palpation of the uterine scar has not demonstrated efficacy in assisting in the diagnosis of eventual uterine rupture [8]. The risk of uterine rupture is more common with prolonged use of oxytocin and multiple hysterectomies those will dramatically increase the risk of uterine rupture [9].

In this case, the only factor precluding uterine rupture was her history of two previous term Cesarean section. However, aside from these historical factors, data support differential success rates of VBAC among ethnicities, with the likelihood of positive outcomes significantly reduced for both Hispanic and Africa-American women relative to Caucasians [10].

The risk of repeat rupture was discussed extensively with the patient as well the contraceptive options available to her. If the patient is to become pregnant again, it is likely that TOLAC will be avoided in favor of early repeat Cesarean given the result of this pregnancy. Double-layer closure has been demonstrated to reduce the risk of uterine rupture in subsequent pregnancy as was utilized in this case [9].

For patient that desires TOLAC, it is possible to incorporate an ultrasound during the third trimester to measure the lower uterine segment. One report demonstrates that if the lower uterine segment (full thickness and myometrial thickness only) is less than 2.3 mm at 35 to 38 weeks of gestation, TOLAC is associated with a higher risk of complete uterine rupture. [4]. More studies need to be conducted since this report is very small.

The presented case also speaks to the importance of proper prenatal care. In 2005, it was estimated that nearly 30% of pregnant women in the United States did not begin prenatal care in the first trimester [11]. Factors associated with late or inadequate prenatal care affecting this patient include Hispanic ethnicity, multiparity, and low education level [11]. Latina mothers in the United States often demonstrate favorable birth outcomes despite disadvantages regarding the social determinants of health, often referred to as the “Latina paradox” [12]. However, as Latinas assimilate into the culture of the United States, protective factors seem to deteriorate [12]. Thus, supporting cultural factors alongside integration with formal prenatal care may improve both care access and health outcomes [12].

Despite the potential for catastrophic complications, by timely recognition and treatment, this case demonstrates the value of attentive nursing care and preparedness of the care team for escalation of high-risk obstetric patients.

Acknowledgements

I would like to thank Dr. Rodriguez for the opportunity to evaluate this patient. Most importantly, I would like to express my gratitude to the patient and her family for permitting me to participate in her care.

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