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Gravid Uterine Rupture Following Cesarean Section and Intervening Vaginal Delivery

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Properly conducted vaginal delivery after a prior cesarean section is relatively safe, with a 0.7% incidence of uterine rupture, 0.93/1000 perinatal mortality rate, and no maternal deaths due to uterine rupture (1,2). Investigations by Case et al (3) showed no significant difference in the incidence of uterine rupture among patients who were allowed a trial of labor after a prior cesarean section with or without an intervening vaginal delivery. However, a cesarean section scar is always suspect for possible rupture no matter how many times a woman has safely delivered vaginally since the original cesarean operation. When compared to patients with lower segment transverse scars, patients with classical scars have a severalfold increased incidence of uterine rupture, a greater probability of complete uterine rupture, and an increased probability of fetal death (1). The following signs and symptoms may herald rupture of the uterus: cessation of labor, alteration in uterine contour, regression of the presenting part, fetal distress, hematuria, severe suprapubic pain, and heavy vaginal bleeding (1-5).

In this case report a 41-year-old woman had a gravid uterine rupture following a prior classic cesarean section with two intervening normal spontaneous vaginal deliveries and a spontaneous abortion.

In 1983, a 41-year-old woman gravida 7, para 3, 2, 1, 3, began her prenatal care at the high-risk pregnancy clinic at Henry Ford Hospital eight weeks after her last menstrual period. Ultrasound and amniocentesis at 17 weeks gestation, performed because of her age, showed a single viable intrauterine pregnancy of a normal male (46 XY). Her prenatal course was essentially uneventful.

The patient's obstetrical history includes the following data. In 1967, at 39 weeks gestation, normal spontaneous vaginal delivery (NSVD) occurred; the male infant weighed 2440 g. In 1969, at 28 weeks gestation, premature labor, rupture of membrane, and NSVD of stillbirth occurred. In 1970, at 32 weeks gestation, premature labor and rupture of membrane occurred; cesarean section was performed, and the infant died after 48 hours. In 1972, at 40 weeks gestation, NSVD occurred without complication; the male infant weighed 2340 g. In 1980, spontaneous abortion at 6 weeks gestation occurred. In 1982, at 40 weeks gestation, NSVD without complication occurred; the female infant weighed 3350 g. In 1983, at 40 weeks gestation, it was decided that the patient be allowed a trial of vaginal delivery with preparation for an immediate cesarean section in case of rupture.

Our patient presented to labor and delivery three days before her estimated delivery date at 10 AM with labor contractions that had started at 3 AM the same day. She was placed on an external monitor. Uterine contractions were every 4 to 5 minutes and lasted 50 to 80 seconds. Fetal heart tone (FHT) was 148 beats/min. On examination fundal height was 38 cm, and the uterus was firm with contractions. Cervix was 4 cm dilated, 100% effaced, zero station, vertex presentation, and membrane was intact. At 10:30 AM the patient said she felt as if a balloon had burst in her abdomen. FHT was 80 beats/min. She was turned to her left side, and oxygen was given via a face mask. FHT was 80 to 100 beats/min. Pelvic examination and rupture of membrane revealed a moderate amount of blood-tinged fluid and a floating presenting part. Her abdomen was soft, and she experienced no contractions. Fetal parts were easily palpated in the abdomen. The patient was taken to the operating room at 10:45 AM, and a cesarean section was performed at 10:50 AM with the delivery of a viable male infant at 10:53 AM. Apgar scores were two at one minute and eight at five minutes; the infant weighed 3390 g and was completely extrauterine. The placenta was low-lying posterior and unseparated from the uterus. The uterus had a large rupture which extended to the fundus and down to the cervix (Figs 1 and 2). The rupture was considered unreparable, and a hysterectomy was performed. She was transfused four units of whole blood. Her postoperative course was uneventful, and she was discharged with her infant on the fourth day after admission.

Although vaginal delivery after cesarean section is reported to be relatively safe, physicians are generally aware of the dangers of uterine scar dehiscence associated with vaginal delivery subsequent to a cesarean section. The incidence of uterine rupture in women undergoing a trial of labor is 0.7% and reportedly is lower than the expected rate (1).

The most important predisposing factor is the type of uterine incision. The classical uterine scar carries a 2.2% chance of rupture before the onset of labor and a 4.7% incidence of rupture during labor. These ruptures tend to be complete and have a higher probability of fetal or maternal death (1,6). The lower segment transverse scar carries approximately a 0.8% chance of rupture before labor and a 1.2% incidence of rupture during labor. Rupture of this lower segment transverse scar has not been documented to cause an increase in either prenatal or maternal mortality (1,6).

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Specific guidelines for trial vaginal delivery have been established by the American College of Obstetricians and Gynecologists (ACOG Newsletter 1982). These guidelines require 1) the patient’s acceptance and understanding of the advantages and risks of both vaginal and repeat cesarean section, and 2) one previous low transverse incision with no extension of the uterine incision confirmed by written operative report. The incidence of uterine rupture with trial vaginal delivery following low vertical incision is unknown. Because of this, trial vaginal delivery is not recommended by the ACOG at this time.

Commonly cited prognostic indicators of successful vaginal delivery include: 1) indication for previous cesarean section (nonrecurrent cause such as fetal distress has a better prognosis than a recurrent cause including cephalopelvic disproportion); 2) previous vaginal delivery; 3) cervical dilation on admission; and 4) duration of labor.

An extensive literature search failed to reveal reports that deal comprehensively with the relative risk of uterine scar dehiscence and perinatal and maternal morbidity and mortality associated with trial vaginal delivery following 1) intervening successful vaginal deliveries following cesarean section, and 2) cesarean section performed during the late second trimester and early third trimester. When cesarean section is performed to deliver a premature fetus, the low uterine segment may not be well developed, which prevents a true low segment cesarean section from being performed. Our patient had the cesarean section at 32 weeks of gestation due to fetal distress in an out-of-state hospital (the type of uterine incision was not known to us). After this primary cesarean section, she had two uneventful, normal, spontaneous vaginal deliveries at term and one spontaneous abortion at six weeks of gestation.

Fig 1—Uterus of the patient showing a scar dehiscence of anterior mid to lower segment.

Fig 2—Cut section of the anterior fundus of the uterus showing a thin surgical scar from previous cesarean section.
This report serves as a reminder that a cesarean section scar is always subject to rupture, no matter how many times a woman has safely delivered vaginally following cesarean section.

References