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Pregnancy Outcome in Women with History of Uterine Rupture or Dehiscence

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Abstract

Objective: We assessed the pregnancy outcome of women diagnosed with uterine rupture or dehiscence during previous pregnancy

Method: We analyzed the pregnancy outcome of women who had previously experienced uterine rupture or dehiscence during labor.

Results: All women underwent repeat Cesarean delivery at $37+5 \pm 1.0$ (36-39+2) weeks' gestation. Three of 13 women (23.1%) who gave birth following prior pregnancy complicated by uterine rupture or dehiscence were found to have recurrent uterine dehiscence. None required hysterectomy. The average blood loss was 618 \pm 147ml. All newborns had Apgar scores of 9 and 10 at 1 and 5 minutes, respectively.

Conclusion: The outcome of pregnancy in women who previously experienced uterine rupture was generally good. Clinicians may use this information when counseling women who consider becoming pregnant again after experiencing uterine rupture.

Introduction

The rate of Cesarean deliveries continues to increase world-wide. Cesarean delivery, in particular when repeated, is associated with an increased risk of several complications in subsequent pregnancies, including uterine rupture and uterine dehiscence [1]. Rupture of a uterine scar is defined as a disruption of the full thickness of the uterine wall including the overlying visceral peritoneum (uterine serosa). It occurs most frequently in women who have undergone previous uterine surgery (e.g. Cesarean delivery, myomectomy) but may also occur in an unscarred uterus [2]. It is a rare complication estimated to occur in 0.07% of pregnancies. Uterine rupture is associated with high incidence of fetal and maternal morbidity that includes significant blood loss, fetal distress, protrusion or expulsion of the fetus and/or placenta into the abdominal cavity, need for a prompt cesarean delivery and uterine repair or hysterectomy

Uterine scar dehiscence is a disruption and separation of a preexisting uterine scar. It is more common than uterine rupture and seldom results in major maternal or fetal complications. This is mainly due to the fact that when the defect in the uterine wall is limited to a scar dehiscence, it does not disrupt the overlying visceral peritoneum and does not result in clinically significant bleeding from the edges of the preexisting uterine scar. Furthermore, the fetus,

placenta and umbilical cord remain contained within the uterine cavity [2].

Following uterine rupture or dehiscence, it is common to advise women to avoid future pregnancies. However, some women become pregnant again, either accidentally or deliberately. The available information on pregnancy outcomes in such women is limited. Data is derived from small case series comprised of women who had undergone repair of ruptured uterus and became pregnant again. In 2007 Usta et al. [3] after reviewing patients' charts from the previous 25 years, identified 37 women who had experienced uterine rupture and reported pregnancy outcome in 12 women who became pregnant again. The recurrence rate was 33% (eight of 24 pregnancies in five of the 12 women) [3]. Recently, Fox et al. [4] reported that in a case series of 44 women with history of prior uterine rupture or dehiscence they followed during subsequent pregnancy the rate of recurrence was only 6.7%. There was one recurrence in 20 pregnancies (5%) in the 14 women with history of uterine rupture and four recurrences in 40 pregnancies (7.5%) in 30 women who had prior dehiscence. The wide range in the estimation of the risk of recurrence suggests that additional information is needed so that clinicians can provide counseling to these women.

The purpose of this study was to collect information on the outcome of pregnancies in women who had previously experienced uterine rupture or dehiscence.

Materials and Methods

We collected data and analyzed the pregnancy outcome in women who had previously been diagnosed with uterine rupture or uterine dehiscence and subsequently delivered at Ma'ayanei Hayeshua Medical Center, Israel, between January 2007 and May 2015. Our institution's policy regarding the mode of delivery in women who previously underwent repair of uterine rupture or dehiscence is to perform an elective repeat cesarean section at term. Accordingly, all the women included in the current analysis underwent cesarean deliveries.

The information was collected retrospectively and anonymously and included maternal demographics, maternal medical history, pregnancy complications and neonatal outcome. The study was approved by the institution's review board and was conducted according to the International Conference on Harmonization-Good Clinical Practice guidelines.

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Table 1: Study population's previous and subsequent pregnancy outcome

Patients	Original Diagnosis	Age at delivery (Years)	Gestational History at Subsequent Delivery	Scar at Subsequent Delivery
1	Uterine rupture	31	G6P5 CS3	intact
2	Uterine rupture	24	G2P1 CS1	intact
3	Uterine rupture	28	G3P2 CS2	intact
4	Uterine rupture	27	G3P2 CS2	ruptured
5	Uterine dehiscence	25	G3P2 CS2	intact
6	Uterine rupture	32	G11P6 CS1	ruptured
7	Uterine rupture	28	G3P2 CS2	intact
8	Uterine rupture	29	G4P3 CS3	ruptured
9	Uterine dehiscence	27	G4P2 CS2	intact
10	Uterine dehiscence	28	G4P3 CS2	intact
11	Uterine rupture	30	G5P4 CS1	intact
12	Uterine dehiscence	38	G8P7 CS7	intact
13	Uterine dehiscence	38	G6P5 CS4	intact

Continuous variables were analyzed for averages (\pm standard deviation), and discrete variables were presented categorically with their prevalence (%).

Results

We identified 13 women who gave birth after previously experiencing uterine rupture or dehiscence. Their average age during the current pregnancy was 29.6 ± 4.5 years (range 24-38), average gravidity was 4.7 ± 2.6 (2-11) and parity was 3.5 ± 2 (1-8).

All women were delivered by repeat cesarean sections at $37+5 \pm 1.0$ (36-39+2) weeks' gestation. The average blood loss was 618 ± 147 ml. There were three (23.1%) cases of repeat uterine rupture/dehiscence; all were repaired and none required a hysterectomy (Table 1).

All newborns had good outcomes with 1 and 5 minute Apgar 9 and 10, respectively. The average birth weight was $3,010 \pm 410$ grams.

Discussion

Pregnancy following the diagnosis of uterine rupture or dehiscence of a uterine scar is a well-known risk factor for repeated rupture or dehiscence usually associated with significant maternal and/or fetal morbidity, and may result in cesarean hysterectomy. Therefore, we advise women who have experienced uterine rupture or dehiscence not to conceive again. However, the majority of women who receive care in our medical center are orthodox Jews, a population characterized by high parity, avoidance of contraception and objection to termination of pregnancy, even in life threatening situations. Women who have been diagnosed with uterine rupture or dehiscence and were consulted to avoid additional pregnancy often returned to our medical center pregnant again. In such cases, we advised these women to undergo prenatal care at a high-risk obstetric clinic and to pay close attention to uterine contraction and abdominal pain. We planned elective cesarean section at approximately 38 weeks of gestation unless women experienced regular uterine contractions prior to this gestational age. Three of 13 women (23.1%) who gave birth following prior pregnancy complicated by uterine rupture or dehiscence were found to have recurrent uterine dehiscence.

We expected a high rate of complications in pregnant women who experienced previous uterine rupture or dehiscence. We were surprised by the low rate of complications recently reported by Fox et al. [4]. These researchers reported that in 20 pregnancies in 14 women who had prior uterine rupture, and in 40 pregnancies in 30 women who had prior uterine dehiscence, there was 0% severe morbidity. Overall, 6.7% of their patients were found to have uterine dehiscence at the time of delivery [4]. The rate of recurrent uterine rupture we report in the current study is similar to the rate reported by Usta et al. [3] in 2007. These researchers, after reviewing patients' charts from the previous 25 years, identified 37 women who had experienced uterine rupture and reported pregnancy outcome in 12 women who became pregnant again. The recurrence rate was 33% (eight of 24

pregnancies in five of the 12 women) [3]. The risk of recurrence was higher when the original rupture was longitudinal (60% versus 0%) and when the interval between the rupture and subsequent pregnancy was shorter (median interval from the first rupture 2 versus 5 years). There was an association of earlier gestational age at the preceding rupture and an increased risk of recurrence but it did not reach statistical significance [3].

Decreasing the risk of uterine rupture or dehiscence would decrease the associated maternal and fetal morbidity and minimize the number of women who face the dilemma of whether to risk future pregnancies after such an event. Several obstetric factors increase the risk of rupture of the uterus or dehiscence of a uterine scar. Sciscione et al. [5] reported that the risk of uterine rupture was increased in women who underwent preterm cesarean delivery compared with women who underwent cesarean delivery at term. More recently, Landon et al. [6] reported that cesarean section at periviability was associated with an increased risk of uterine rupture in a subsequent pregnancy, even if transverse incision was performed in the lower uterine segment, when compared with cesarean delivery at term. Bujold et al. [7] reported that prior single-layer closure of the uterus during cesarean delivery carried more than twice the risk of uterine rupture compared with double layer closure. In their opinion, single-layer closure should be avoided in women who contemplate future vaginal birth after cesarean delivery.

Conclusion

The outcome of pregnancy in women who previously experienced uterine rupture was generally good. Clinicians may use this information when counseling women who consider becoming pregnant again after experiencing uterine rupture.

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