Successful Pregnancy after Previous Uterine Rupture

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ABSTRACT

Uterine rupture is a rare and catastrophic incidence with high maternal and fetal morbidity rate. It is most commonly seen in scarred uterus. Unscarred uterus is least susceptible to rupture with incidence being 1 in 8000 deliveries. In the past, pregnancy after uterine rupture was not widely advised and patients underwent hysterectomy or tubal ligation but with the evolving practice women are motivated for pregnancy which can be successful with proper obstetric care and emphasis on time and mode of delivery. Here we present a case of 31 years old female, Gravida 2 para 1 living 0 with previous uterine rupture after medical induction of labor with still birth 4 years ago. She underwent emergency laparotomy with repair. Patient spontaneously conceived and had close antenatal care throughout the pregnancy. Patient was admitted at 34 weeks of gestation and kept under close surveillance. Corticosteroid was administered. She underwent spontaneous labor at 37 weeks of gestation and emergency cesarean section was planned, delivering via breech presentation to a live baby of 2.4 kg, APGAR score of 8/10, 9/10 at 1 and 5 minutes.

Keywords: cesarean delivery, pregnancy, uterine rupture.
INTRODUCTION

Uterine rupture is a formidable incidence with potential life threatening and devastating condition. It is considered to be one of the serious obstetric emergency. Uterine rupture typically is classified as complete when all layers of the uterine wall are separated and incomplete when muscle is separated but visceral peritoneum is intact also referred to as dehiscence. Morbidity and mortality is greater with complete rupture. Although it most frequently occurs during labor, it can occur before labor as well. The greatest risk factor for uterine rupture is scarred uterus.

The rupture of an unscarred uterus is reported to occur at a rate of 1 in 8000 deliveries. For women with a history of a uterine rupture the recurrence risk of uterine rupture ranges in the literature from 4% to 33%. In women undergoing trial of labor after cesarean section is 0.2%-1%. National data on incidence of uterine rupture has not been recorded but, in a study conducted by Uprety I et al in tertiary central hospital of Nepal, Paropakar Maternity Womens Hospital, rupture in 1390 pregnancies was noted with 1.5% in scarred uterus and 0.64% in unscarred uterus. Scarred uterine rupture was secondary to previous cesarean section in labor. Due to poor neonatal prognosis, parents often express their desire of having a new child. However, data about the outcome of subsequent pregnancies after a rupture are sparse and discordant and are limited to case reports and case series only.

Here we present a case of 31 years old patients who had successful pregnancy after spontaneous uterine rupture in previous pregnancy.

CASE PRESENTATION

A 31 years old female Gravida 2 para 1 Living 0 was admitted to our institution at 34 weeks of gestation with history of previous uterine rupture 4 years ago. 4 years ago patient was admitted at 41 weeks 2 days of gestation for induction of labor. She was inducted medically with misoprostol 25mcg per vagina 4 hourly for 3 doses. Labor was augmented with 2.5U oxytocin 6 hours after last dose of misoprostol. She developed moderate contraction until she started having severe abdominal pain with sudden drop in blood pressure and uterine rupture was suspected and emergency laparotomy was done. Complete rupture at lower uterine segment extending laterally upto fundus at left side was noted. Fetus was partially extruded was in abdominal cavity with fresh still birth. 300ml of retro placental clots retrieved. Primary closure of uterus was done. Patient was monitored post-operatively and discharged. She conceived spontaneously after 4 years. With reassurance patient was advised to continue pregnancy and was on regular follow up. Patient was admitted at 34 weeks of gestation onwards for observation. Dexamethasone 12mg IM 2 doses 12 hour apart given for lung maturity of fetus. At 37 weeks of gestation patient went into labor and emergency cesarean section was done. Low uterine incision given and 2kg baby was delivered via breech presentation with APGAR score of 8/10, 9/10 at 1 and 5 minutes. Left lateral previous scar was intact and thick. Intra-operative and post-operative period was uneventful. Patient was discharged on 3rd post-
operative day. Upon follow up at 1 week, both patient and baby were healthy.

Figure 1: Photograph showing the procedure of cesarean section for the rupture Uterus

**DISCUSSION**

Uterine rupture, if not detected timely and if no timely intervention done, has disastrous outcome on both maternal and fetal mortality. The most common risk factors for uterine rupture are previous uterine rupture, previous cesarean delivery, grand multiparity, uterine anomaly, fetal malpresentation, fetal macrosomia, induced labor, obstructed labor or instrumental delivery. Like in our case, patient had rupture after induction of labor. This risk factors contributed to 84% of uterine ruptures in study conducted by Uprety I et al. Induction or augmentation of labor with oxytocin has been implicated in increased rates of uterine rupture. Uterine rupture was more frequent in women induced 1.1% than spontaneous labor 0.4%. Diagnosis can be non-specific. The most common sign of uterine rupture is non-reassuring fetal heart pattern with variable heart rate decelerations that may evolve into late decelerations and bradycardia with sudden hypovolemic shock. With rupture and expulsion of the fetus into the peritoneal cavity, the chances for intact fetal survival are 50-75%. Fetal condition is dependent to which the placental implantation remains intact. Severe neurological morbidity is seen in surviving fetus. In our case fetus was partially excluded into abdominal cavity with fresh still birth.

In the past, it was commonly advised that either hysterectomy or, sterilization be performed in the treatment of uterine rupture to prevent recurrent ruptures in a future pregnancy. In 1969, Reyes-Ceja et al published a case series of 22 pregnancies among 19 women with prior rupture from a single institution in Mexico. Repeat rupture occurred in only one patient leading the authors to conclude that surgical repair of the ruptured uterus instead of hysterectomy has a place in obstetric practice. Decision of repair are mainly based on the extent, type and location of rupture and hemodynamic status of patient. Hysterectomy in case of uterine rupture is today performed in 4% to 10%. In study by Uprety I et al, subtotal hysterectomy was done in 14% cases(n=28) and tubal ligation was done in14% cases who underwent repair. Singh et al has also concluded in her study that 25% of peripartum hysterectomy were secondary to uterine rupture. In a study conducted by Chibber R et al, of 44 pregnancies 45% had abdominal hysterectomy, remaining 10 had suture repair with 2 sterilization and rest 14 underwent suture repair with hypogastric artery ligation to control bleeding and reproductive function. Our patient had primary suture repair and sterilization
was not done as patient and family member were hopeful for next pregnancy.

Ideal management strategy for uterine rupture and pregnancy after uterine rupture has not been developed due to limitations to case reports and case series. Obstetricians are left to their best clinical judgement in managing these patients. The published reports over the last 100 years indicate that most women with previous uterine rupture have a favorable outcome in subsequent pregnancies. In a study by Usta et al\(^9\) of 24 pregnancies with prior uterine rupture, a 33% risk of recurrent uterine rupture was recorded. Similarly, Shick S et al\(^10\) reported outcome of 13 pregnancies with prior rupture, 3 patients (23%) had recurrent rupture. They concluded that risk of rupture was high in previous longitudinal rupture and when interval between subsequent pregnancy was shorter, in their case 2 versus 5 years. Delecour L et al\(^11\) studied 11 pregnancies after rupture and median interval between pregnancy was 24 months. In a study conducted by Chibber R et al\(^8\) of 24 successful pregnancies after rupture, 2 mortalities were recorded secondary to ruptured uterus and they were the ones noted to have sparse antenatal checkup. Surprisingly, in contrast to this, Fox NS et al\(^1\) out of 20 pregnancies following uterine rupture, there was no recurrence of uterine rupture with 100% successful pregnancy and no neonatal morbidity. 5.0% (95% CI 0.9–23.6%) women with prior rupture had uterine dehiscence. In addition, in a review conducted by Larrea et al\(^5\) the reported rate of repeat rupture ranges from 4%-32% and with higher qualities modern studies and close follow up risk has decreased to 4%-15%, on greater side with history of upper uterine segment rupture.

Other severe morbidities associated are bladder injury, bowel injury, mechanical ventilation, intensive care unit admission, thrombosis, reoperation, maternal death, and perinatal death, placenta previa, placenta accreta, uterine dehiscence at delivery are encountered sparsely.\(^1,12\) However, no such morbidities were encountered in our case.

In a case series by Fox NS et al\(^1\) and Delecour L et al\(^11\) Patient were attributed to serial ultrasounds every month to assess fetal growth and lower uterine integrity and placental growth. The optimal cut off value varied from 2.0 mm to 3.5 mm for the full lower uterine segment thickness, and from 1.4 mm to 2.0 mm for the myometrial layer. However, the findings like uterine dehiscence in earlier gestational period did not change the clinical decision making in delivery time. Rather, patients were admitted for observation and waited for elective cesarean at 36-37 weeks of gestation or earlier if needed or else before onset of labor. Standardization and validation is still required before implementing the use of ultrasound for scar assessment.\(^13\) Our patient was not attributed to monthly ultrasound, however scar assessment was done at 30 weeks of gestation and found it to be 2mm.

Based on different studies, cesarean section must be planned between 36-38 weeks of gestation.\(^1,5,8,9,11\) This is guided by location of previous scar and
Timing of rupture as well. Those with ruptured lower uterine scar delivery at 37-38 weeks of gestation is recommended. Similarly, for upper uterine rupture opinion varies. Some advised delivery at 35 weeks of gestation and some have advised early admission at 34-35 weeks of gestation or hospital 1 week prior to the gestational age at which labor stated in the previous pregnancy. Chibber et al\textsuperscript{8} had 16 with low transverse scar delivered at 37 weeks and 4 pregnancies at 35 weeks due to upper uterine rupture scar. If delivery is planned before 37 weeks, amniocentesis for fetal lung maturity can be done. Like in our case we decided to admit the patient at 34 week of gestation onwards for observation. Corticosteroid were administered and wait, watch protocol followed. Fox NS et al\textsuperscript{1} did it in 51% cases. The administration of antenatal late preterm steroids should be considered to reduce the risk of neonatal respiratory morbidity.

**CONCLUSION**

Pregnancy after uterine rupture can be successful, given that proper obstetric care is provided with main focus on time and mode of delivery i.e standardized approach with planned cesarean delivery before labor onset results in good outcomes. Location of previous scar and timing of rupture should also be reflected upon. If delivery is planned before 37 weeks of gestation, the administration of corticosteroids must be considered to reduce risk of neonatal respiratory morbidity. Patient education and awareness about risk or recurrence of uterine rupture or dehiscence with signs of labor are instructed to seek medical help immediately.

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