Uterine Rupture after Previous Cesarean Section and Feto-Maternal Outcome

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ABSTRACT

Objective *To determine the frequency of uterine rupture after previous cesarean section and feto-maternal outcome.*

Study design *Descriptive case series.*

Place & Duration of study *Department of Obstetrics & Gynaecology, Sheikh Zaid Women Hospital Unit 1, SMBBMU Larkana, from February 2018 to August 2018.*

Methodology *All women with history of previous caesarean section admitted in the gestational age of 28 weeks and above were the part of this study. All the patients of rupture of uterus were admitted in labour room through emergency or out patients department. They were thoroughly inquired as per the questions of pre-design form. Diagnosis was made accordingly after taking history, physical examination and was confirmed on laparotomy. Upon history taking, previous obstetrical, surgical, medical, maternal and fetal outcomes were inquired. Symptoms which indicated rupture of uterus were; shortness of breath, abdominal distention, loss of uterine contour, palpable fetal parts, absent fetal heart sounds and bleeding per-vagina. Women with history of myomectomy or any uterine surgery and those with parity of more than one were included in this study. Patients with abruptio placentae, placenta previa and congenital uterine anomaly were excluded from study.*

Results *Overall 169 women were managed. Mean age of the participants was 29.77±2.38 years and the mean gestational age was of 37.40 ± 0.875 weeks. The mean parity was 2.79±0.892 with minimum and maximum parity of 2 and 6 respectively. The mean number of previous cesarean sections was 1.52 ± 0.627. There were 92 (54.4%) females who had one previous cesarean section, 65 (38.5%) had two and 12 (7.1%) had 3 cesarean sections. According to maternal outcome 14 (8.3%) deaths occurred due to uterine rupture. According to fetal outcome 42 (24.9%) fetuses were alive and with Apgar score >7. Moreover, 9 (5.3%) fetus born with low Apgar score <7 and died within 24 hours of their birth, while 118 (69.8%) were found dead.*

Conclusions *The study concluded that neglected and poorly managed cases, along with grand multipara, injudicial use of oxytocin and instrumentation were the main causes of rupture of uterus. A review of already present protocols is needed to minimize the risk of uterine rupture and associated maternal & perinatal morbidity and mortality.*

Key words *Cesarean section, Uterine rupture, maternal mortality, fetal outcome, APGAR score.*

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INTRODUCTION:

Uterine rupture is a serious complication that may occur during childbirth in which myometrium of the uterus is torn or breached. There are two types of myometrial ruptures, first is partial/incomplete and second is full/complete. In complete rupture there is full thickness separation of the uterine wall, and fetus along-with placenta is expulsed into the abdominal cavity while in partial rupture overlying

serosa/peritoneum is secure and fetus and placenta remain within the uterine cavity.[1.] It is rare that peripartum complications with negative impact on mother and fetus will lead to morbidity and mortality.

Among the risk factors, history of cesarean section in the past is the most important. Due to increased rate of cesarean sections globally, the number of women presenting with uterine rupture has also gone up.[2.] The prevalence of uterine rupture after previous c-section is about 0.74%. Factors responsible for increased risk of uterine rupture includes, poverty, low socioeconomic conditions, uncontrolled birth rate, and lack of awareness and literacy, late marriages, improper and under developed small pelvis.[2.] Its incidence in Pakistan is reported as 1.05%. It is much higher in northern Pakistan where up to 12.5% rate has been reported.[4]

The risk of uterine rupture increases when there is reduction in time interval between two deliveries. Monitoring of vaginal delivery is of almost importance if women opt for vaginal delivery after cesarean section. Among two consecutive deliveries or pregnancies at least gap of more than 18 months is recommended as safe.[5] There is also increased risk to fetus, and other visceral injuries like urinary bladder rupture, vesicovaginal / rectal fistula formation and psychological trauma.[1] Uterine rupture is a major indication for peripartum hysterectomy in developing countries like Pakistan with incidence ranging between 58% to 72%.[6]

Rupture of an intact uterus can occur due to neglected and poorly managed labors in grand multipara, inappropriate use of oxytocin, instrumentation and obstetric manoeuvers. The main cause of rupture in a scarred uterus is lack of appropriate counseling and inadequate or absence of antenatal care. With increasing number of women undergoing vaginal delivery, separation of previous cesarean scar has become a common cause of rupture.[7] There is a fourfold risk of uterine rupture with prior single layer closure compared with double layer closure in women undergoing a trial of labor after prior cesarean delivery.[8]

The uterine rupture also increases the risk of feto-maternal mortality. Literature shows that maternal mortality rate varies from 2% to 7.76% and fetal mortality rate ranges from 73.33% to 81.7% in different studies.[3] The frequency of poor APGAR score at 5 minutes in patients of uterine rupture is about 40%.[9] Even after uterine rupture if women survive then future reproductive potential is considered to be at cost, it is either reduced or completely lost forever. Rupture of unscarred uterus is extremely rare, and estimated as <1/10,000 deliveries. The situation is miserable in developing countries.[10.] The present study was planned to find out the frequency of uterine rupture and its feto maternal outcome in terms of mortality and APGAR score at birth. This could be helpful in identifying the burden of disease and for that preventive measures may well be taken to minimize the risk in our setups.

METHODOLOGY:

This was a descriptive case series conducted at Sheikh Zaid Women Hospital Unit 1 SMBBMU Larkana, from February 2018 to August 2018. All women who were admitted in labour room via OPD or emergency with age of 20-45 years having gestational age of 28 weeks onwards, were confirmed on ultrasound that having uterine rupture, and with the history of previous caesarean section, were enrolled for this research. Patients with abruptio placentae, placenta previa and congenital uterine abnormality were excluded from the study.

Demographic information like age, gestational age, parity, maternal and fetal outcome were also noted. Moreover, the clinical findings upon general physical examination favored uterine rupture like pallor, low blood pressure, tachycardia and tachypnea were meticulously recorded. On per-abdomen examination, distention of abdomen, loss of uterine contour, absent fetal heart sounds, palpable fetal parts, bleeding per-vagina, edema of vulva during pelvic examination noted. Once admitted, patients were managed in emergency with multidisciplinary approach. After the improving general condition of the patients they were managed according to the type and severity of rupture. The maternal outcome was assessed in terms of maternal death due to uterine rupture. The fetal outcome was assessed in terms of fetal death and Apgar score at birth. Mean and standard deviation were computed for quantitative variable like age, parity, and gestational age and previous number of cesarean sections. Frequency and percentages were computed for categorical variables like maternal outcome (maternal death) and fetal outcome (neonatal Apgar score at 5 minutes, and neonatal death).

RESULTS:

Overall 169 women were managed. Mean age of the females was 29.77±2.38 year (between 22 and 37 years). There were 133 (78.7%) patients who were > 30 years of age. The mean gestational age was 37.40 ± 0.875 weeks with range of 4 weeks (36 – 40 weeks). According to parity 138 (81.7%) had parity 2-3 and 31(18.3%) 4-6. The mean parity was

Table I: Frequency distribution of fetal outcome		
Fetal outcome	**Frequency (N)**	**Percentage (%)**
Alive	42	24.9
Dead	118	69.8
NND	9	5.3
Total	169	100.0

Table II: Age of Patients		
Fetal outcome	**Frequency (N)**	**Percentage (%)**
<30	133	78.7%
31-35	20	11.83%
36-40	10	5.91%
41-45	6	3.55%

Table III: Parity of Patients		
Parity	**Frequency (N)**	**Percentage (%)**
2-3	138	81.7%
4-6	31	18.3%

2.79±0.892 (between 2 and 6). The mean number of previous cesarean section was 1.52±0.627 with (from 1 to 3). There were 92 (54.4%) females who had one previous cesarean section, 65 (38.5%) had two and rest 12 (7.1%) had 3 cesarean sections. According to maternal outcome 14 (8.3%) deaths occurred due to uterine rupture. Moreover, for the fetal outcome, 42 (24.9%) fetuses were reported as alive at birth >7 Apgar score. while, 9 (5.3%) were born with less than <7 Apgar score and died within 24 hours of their birth. However, 118 (69.8%) were found as dead fetus. When we stratified data with age, parity, Apgar score and number of previous cesarean section there was no significant association with maternal and neonatal outcome except Apgar score at 5 minutes and maternal age groups.

DISCUSSION:

Cesarean section is one of the commonly performed surgery in women all over the world with low mortality of mother and child.[11,12] In today's era number of cesarean sections (CS) has increased, both in developed and developing countries.[13] Ruptured uterus is among the rare peripartum complications, associated with severe maternal and perinatal morbidity and mortality.[14] There are number of risk factors and causes which are reported for uterine ruptures in scientific literature.[15,16]

With increase in rate of cesarean sections, number of mothers with previous cesarean section and consequent high risk of uterine rupture in next pregnancy is also considered on rise.[17.] The main cause of uterine rupture in a scarred uterus is lack of comprehensive antenatal care and planning. With increasing number of women undergoing trial of labor after a previous caesarean section, in an anticipation of vaginal delivery, separation of previous caesarean scar has become a common cause of rupture especially when are given in unskilled hands.[18,19] The occurrence of uterine rupture varies in different parts of the world. In developed countries the frequency has dropped significantly. Meanwhile, in developing countries like Pakistan it is still amongst the major health problems.[19]

In present study the mean age was 29.77 ± 2.380 years. A study done by Khan et al enrolled age group of 31-35 years (47%) followed by the age group 26-30 (38.27%).[20] Another study which was conducted in Jamshoro Sindh found that 60% participants were between the ages of 26-30 years.[21] Most of ruptures occurred in para 2-4 (53.33%), while same result was found in a study done by Malik HS in which females were para 2-4 (42.71%).[22] In our study majority of ruptures were found in para 2-3 (81.7%). Fourteen (8.3%) maternal deaths occurred due to uterine rupture in this series. A local study reported that frequency of uterine rupture was around 2%.[21] Likewise, this was comparable with other studies.[23,24,25] In this study perinatal mortality

was 75.1%, it was low as compared to the study done by Malik HS. The perinatal mortality in a study is about 73.33%. In majority of cases, causative risk factors were prolonged neglected obstructed labor and history of cesarean section scar. Anterior uterine wall was reported as complicated in 60% of cases. When we stratified data with age, parity, Apgar score and number of previous cesarean section there was no significant association with maternal and neonatal outcome found except for Apgar score at 5 minute and maternal age groups 20-45 year.

CONCLUSIONS:

Uterine rupture was found in 8.3% and about 69.8% fetuses died. Neglected and poorly managed cases, grand multipara, injudicial use of oxytocin and instrumentation were among the common causes of rupture of uterus.

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Tanweer Akhtar: Data collection
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