ORIGINAL ARTICLE

Fetomaternal Morbidity Associated with Multiple Repeat Caesarean Deliveries

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ABSTRACT

Objective: To determine fetomaternal morbidity associated with multiple repeat caesarean deliveries.
Study Design: Observational
Place and duration of study: Gynaecology and Obstetrics, Lady Aitchison Hospital, Lahore. The study period extended from June 2012 to December 2012.
Methodology: This study included patients who had repeat cesarean deliveries between June 2012 and December 2012. They were divided into three groups. Group I n=292, (G I), included women who had two caesarean births, Group II n=175, (G II), included women who had three caesarean births and Group III n=38, (G III), included women who had four or more caesarean births. Intra operative complications were noted in terms of dense adhesions, scar dehiscence, placenta previa, morbidly adherent placenta, injury to surrounding viscera, anesthesia complications, need for blood transfusion, and fetal outcome . Women with only one previous delivery were excluded.
Results: Compared with women with two cesarean deliveries, women who had more than two cesarean deliveries show significant increase in terms of adhesions, placenta praevia, placental adherence, and need for obstetrical hysterectomy. There was also significant difference in the mean gestational age in the three groups. We found no significant increase between 3 groups in terms of operative time, injury to surrounding structures, need for blood transfusion, anesthesia complications.
Conclusions: Women with repeat caesarean sections are at risk of developing multiple intra operative complications which may increase the risk of fetomaternal morbidity but their increasing number does not confer any additional risks.
Keywords: Cesarean section/delivery, multiple repeat cesarean sections/deliveries

INTRODUCTION

Cesarean delivery is defined as the delivery of a fetus through surgical incision made through the abdominal wall (laparotomy) and the uterine wall (hysterotomy). Because the words “Cesarean” and “section” are both derived from verbs that mean to cut, the phrase “caesarean section” is a tautology. Consequently the terms “Cesarean delivery” and “Cesarean birth” are preferable. Cesarean deliveries were initially performed to separate the mother and the fetus in an attempt to save the fetus of a moribund patient[1].

The cesarean delivery has evolved from a vain attempt performed to save the fetus to one in which physician and patient both participate in the decision making process. The frequency of cesarean birth is increasing worldwide with a parallel rise in maternal morbidity and mortality[2,3,4]. The gradual rise in C-delivery rate over the past few decades and the recent trend favouring repeat C-birth is resulting in more women having multiple C-deliveries. This pattern of rise is seen in developed as well as developing countries. Following the universal trend the C- delivery rate is also on the rise. The steady rise in the C-delivery rate has resulted in increase in no of patients with a scarred uterus. Repeat C-delivery is the commonest indication. In a local study C-delivery rate of 35% was observed and 31% was due to repeat C-Section[5].

Although maternal death as a result of C-section is rarer, reports of the short and long term consequences of the rising C- delivery rate on the child bearing population are conflicting[6].

The most unacceptable complications of repeat caesarean birth include risk of scar rupture during pregnancy and increased incidence of abnormal placentation, unplanned peripartum hysterectomy is carried out typically as a last resort to control life threatening haemorrhage which is often caused by placenta praevia, placenta accreta, uterine atony and uterine rupture[7].

Some authors have found no increase in maternal morbidity in women with a history of multiple C- delivery and have therefore encouraged them to pursue further pregnancies. With the improved safety of anesthesia, the availability of safe antibiotics and blood transfusions, many C- deliveries are performed uneventfully.

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PATIENTS AND METHODS

This cross sectional observational study was conducted in the Obstetrics and Gynaecology Unit I of Lady Aitchison Hospital Lahore. The study period extended from June 2012 to December 2012. They were divided into three groups, G I included women who had previous 2 C-births. G II included women who had 3 C-births and G III included women who had four or more C-births, G I had 292 patients, G II had 175 patients, G III had 38 patients. The case records were analyzed for the following parameters.

- Demographic and Clinical features including age, parity, duration of surgery, antenatal complications, hospital stay and EBL during surgery.
- Perinatal features including birth weight, Apgar score at 5 min, preterm birth below 36 weeks of gestation, still birth & no of admissions in NICU.
- Operative and postop course including severity of adhesions, incidence of placental abnormalities, rupture of scar, incidence of c- hysterectomy, bladder, bowel injury, blood transfusion, anesthesia complications, incidence of wound, UTI, genital tract infection & maternal death.

The severity of pelvic adhesions was subjectively classified by the operating surgeon according to the American Fertility Society Classification of adenexal adhesions[8].

The departmental policy is to perform elective caesarean delivery on patients who have had two or more previous caesarean deliveries between 37 and 38 weeks of gestation unless there are other indications for early delivery. The operation is performed by a well trained assistant doctor. In general Pfannensteil incision is used to open the abdominal cavity and a transverse incision is given in the lower segment of the uterus.

In our unit visceral and parietal peritoneum is not closed after caesarean delivery to reduce the infection following surgery, Augmentin as a single dose prophylactic antibiotic is given following cord clamping after the delivery of the baby. Fisher's exact test was used to analyze discreet variables and Kruskal Wallis test for analyzing continous variables. P Value<0.05 was considered significant.

RESULTS

Table 1 shows the demographic and operative data of three study groups. Women who had four or more previous sections were significantly older with higher parity compared to those who had previous two or three cesarean deliveries. But as far as the antenatal maternal complications are concerned they were same in three groups. Furthermore no significant difference was seen in the duration of surgery, post operative hospital stay and EBL during surgery.

It can be seen in table 2 that women in group three had significant increase in terms of uterine scar dehiscence, placental adherence and adhesion formations as compared to other two groups. There were no significant differences between the three groups in rates of intra and post operative complications. A single maternal death took place in group one due to pulmonary embolism.

Table 3 shows fetal characteristics and outcome three study groups. No significant differences were shown between the three groups except the gestational age. The birth weight, 1 and 5 minutes Apgar score and NICU stay, premature delivery and perinatal death rate did not show any significant difference.

Table 1: Demographic and operative data of the study groups

Demographic	**G I (n=292)**	**G II (n=175)**	**G III (n=38)**	***P*-Value**
Maternal Age (years)	29.3 ± 4.12	31.13 ± 4.00	31.97±2.86	0.0001*
Parity	3.07 ± 0.51	3.97 ± 0.31	4.95 ± 0.61	0.0001*
Per Operative Blood loss (cc)	482.61 ± 269.66	479.5 ± 244.47	540.54 ± 388.34	0.1955
Operative time (min)	44 ± 11.15	44.28 ± 15.16	48.83 ± 26.97	0.6128
Antenatal Complications				
Bleeding	8 (2.74)	7 (4)	2 (5.26)	0.456
Leaking	27 (9.25)	10 (5.71)	1 (2.63)	0.232
Associated Medical Disorder				
GDM	3 (1.03)	4 (2.29)	0 (0)	0.566
PIH	14 (4.79)	9 (5.14)	3 (7.89)	0.625
Diabetes Mellitus	1 (0.34)	1 (0.57)	0 (0)	1
Anemia	18 (6.16)	10 (5.71)	1 (2.63)	0.868
Anti HCV positive	10 (3.42)	6 (3.43)	1 (2.63)	1
Hep B positive	8 (2.74)	7 (4)	2 (5.26)	0.456
Per Operative Blood loss (cc)	482.61 ± 269.66	479.5 ± 244.47	540.54 ± 388.34	0.1955
Operative time (min)	44 ± 11.15	44.28 ± 15.16	48.83 ± 26.97	0.6128
Hospital stay (days)	3.77 ± 1.51	3.71 ± 1.11	3.85 ± 1.00	0.3154

Values are mean±SD. Group 1-previous 2 CD, Group 2-previous 3 CD, Group 3-previous≥ 4 CD, CS-Caesarean delivery

Table 2: Maternal morbidity and mortality in study groups

Complications	G I (n=292)	G II (n=175)	G 3 (n=38)	*P*-Value
Preoperative complications				
Scar Dehiscence	89 (30.48)	50 (28.57)	11 (28.95)	0.907
Placenta Praevia	23(7.88)	18(10.28)	7(18.4)	0.015*
Placental Adherence	0	2(1.14)	2(5.26)	0.029*
Adhesions	140 (47.95)	97 (55.43)	26 (68.42)	0.033*
Intraoperative complications				
Bladder Injury	13 (4.45)	9 (5.14)	3 (7.89)	0.58
Gut Injury	1 (0.34)	2 (1.14)	0 (0)	0.652
Need for Blood transfusion	14 (4.79)	8 (4.57)	4 (10.53)	0.283
Caesarean Hysterectomy	0 (0)	2 (1.14)	1 (2.63)	0.043*
Anesthesia Complications	0 (0)	1 (0.57)	0 (0)	0.422
Postoperative complication				
Urinary tract infections	46 (15.75)	31 (17.71)	7 (18.42)	0.787
Endometritis	18 (6.16)	10 (5.71)	2 (5.26)	1
Wound Infection	15 (5.14)	8 (4.57)	2 (5.26)	0.902
Wound Dehiscence	14 (4.79)	7 (4)	2 (5.26)	0.793
Haematoma	10 (3.42)	12 (6.86)	3 (7.89)	0.118
Maternal Death	1(0.34)	0	0	0.422

Values are mean±SD. Group 1-previous 2 CD, Group 2-previous 3 CD, Group 3-previous≥ 4 CD, CS-Caesarean delivery

Table 3: Fetal characteristics and outcome

Fetal Characteristics	G I (n=292)	G II (n=175)	G III (n=38)	*P*-Value
Gestational Age (weeks)	37.70 ± 1.2	37.51 ± 1.04	37.51 ± 0.51	0.0021*
Birth weight (kg)	2.97 ± 0.45	2.97 ± 0.47	3.07 ± 1.11	0.3984
Apgar score				
1 min	6.59 ± 0.66	6.42 ± 0.94	6.56 ± 0.61	0.106
5 min	8.44 ± 1.10	8.32 ± 1.14	8.36 ± 1.05	0.3503
Perinatal Death %	27(9.2)	10(5.7)	1(2.63)	0.232
NICU %	11(3.77)	8(4.57)	4(10.53)	0.168
Premature Delivery %	17(5.82)	11(6.29)	2(5.26)	0.955

Values are mean±SD. Group 1-previous 2 CD, Group 2-previous 3 CD, Group 3-previous≥ 4 CD, CD-Caesarean delivery

DISCUSSION

C-Delivery is a major obstetric operation that has been a matter of controversy and gained popularity in the recent decades with a rise in the rate of C-delivery all over the world. It can be attributed to increase in primary cesarean rate and decline in the vaginal birth after cesarean[9].

It is not uncommon in Muslim countries like Saudi Arabia or Pakistan for pregnant women to have had more than three C- deliveries. The high prevalence of grand multiparity in the community may be related to the cultural needs of the community[10].

Lady Aitchison Hospital is a 200 bedded tertiary care hospital that provides care to the population of inner Lahore city.An average of 4500 sections are performed in the hospital per annum of all types of complicated obstetric cases are received and dealt with. The major complications of repeat C- births include rupture of the scarred uterus, placenta accreta and interaoperative complications such as bladder or bowel injury. Unfortunately there are no guidelines regarding the maximum number of C-births a woman may have before she risks serious complication.

In our study scar dehiscence (defined as the presence of a widow in part of uterine scar with intact membranes) was not found to be statistically different in all three groups. This is same as another study where the incidence of scar dehiscence did not increase with increase in number of deliveries[10]. In the review by Kirkinen 27 of the patients with three or more previous c-births had fenestration of the uterine scar but some studies have described the rates ranging from 1-10% in women undergoing more than 5 c-sections[11,12]. It is notable that the risk factors for scar dehiscence such as multiple pregnancy and polyhydramnios were not present in our patients.

In our study it was seen that increasing number in C-deliveries leads to increased rate of adhesion formation. These results are same as that of Morales[13] and Tulandi T.

Nisenblat et al demonstrated that dense adhesions were significantly more common among women undergoing third or more c-deliveries[14]. Different studies also show different rates of

adhesion formation. It is reported 12%, 48% and 73%. In our study overall rate of 57% was seen. Many studies have highlighted the previous c-births as an important risk factor for placenta previa. This risk increase from 0.26% with an unscarred uterus to 10% with four or more c births. Same was proven in our study[15].

However another study by Khurshid et al showed that increasing number of c-births does not raise the incidence of placenta previa[16]. This study also showed the association of previous c-births with placenta accreta. It has been proven by various studies that placenta accreta is becoming an increasingly common complication of pregnancy mainly due to increasing number of c-delivery over the past fifty years[17-18]. This may be due to the fact that uterine scarring which is more frequently caused by previous surgery is thought to cause deficient decidualization which predisposes uterus to abnormal adherence of placenta[19].

This study also showed the association of previous C- delivery with placenta accreta and hysterectomy. Emergency hysterectomy was performed on patients who had placenta accreta, placenta previa. There was no major morbidity noted in patients who underwent hysterectomy. Knight et al and Lyell estimated the risk of peripartum hysterectomy among several women. The study was consistent with our findings[20-21].

The association between fetal outcome and number of previous c deliveries has been previously discussed by other investigators. In a recent study conducted by Uygur et al had similar findings. He had same sample size as that of ours[22]. Contrary to our findings Seidman et al reported that low Apgar scores were significantly related with the number of previous c- births. This may be related to the smaller size of patients in their study compared to ours[23]. In our study there was significant difference in the mean gestational age at delivery. This conforms to a study conducted by Sobande et al.

CONCLUSION

Women with repeat caesarean deliveries are at risk of developing multiple intra operative complications which may increase the risk of fetomaternal morbidity but their increasing number does not confer any additional risks.

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