

## Repeat Caesarean Sections: Complications and Outcomes

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### Abstracts

**Background:** The rising incidence of caesarean section all over the world has been of great concern both to the patients and obstetrician.<sup>1</sup> Repeat caesarean section is one of the major reasons which have contributed greatly to high caesarean section (CS) rate.<sup>1,2</sup> Although maternal death as a result of CS is now rare, reports of the short-and long-term consequences of the rising CS rate on the childbearing population are conflicting.<sup>3</sup> Available data show that repeat caesarean section is associated with many maternal complications, specially intra-abdominal adhesions, central placenta praevia, uterine rupture, caesarean scar pregnancy, caesarean hysterectomy etc.<sup>4</sup>

**Objective:** To evaluate outcome and complications of multiple repeat caesarean section.

**Methodology:** This was a cross sectional prospective study conducted in Shaheed Suhrawardy Medical College Hospital (ShSMCH) from 1<sup>st</sup> June '2016 to 30<sup>th</sup> November '2016 for a period of six months. The study population were 102 patients, selected randomly who were admitted in ShSMCH for repeat caesarean section.

**Results:** Out of 102 patients admitted with history of previous caesarean section, maternal morbidity was 26 (25.49%), which includes intra-abdominal adhesions 19 (18.62%), excessive blood loss 6(5.88%), placenta praevia 4 (3.94%), placenta accreta 1 (.98%), postpartum haemorrhage 11 (10.78%), wound infection 12 (11.76%) etc.

**Conclusion:** As the rate of repeat caesarean section continue to rise, surgeons should be more judgemental in doing caesarean section.

### Key Words:

Repeat, Caesarean section, complication.

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### Introduction

Caesarean section is the most commonly performed surgery in obstetrics.<sup>5</sup> Caesarean section is often performed when a vaginal delivery would put the baby

or mother at risk. The World Health Organization recommends that this should be done based on medical need and in many cases they are lifesaving for the mother and baby.<sup>6</sup> Since 1985, the international healthcare community has considered the ideal rate for cesarean sections to be between 10% and 15%. Since then, caesarean sections have become increasingly common in both developed and developing countries.<sup>5,7</sup> Over the years the indications for CD (cesarean delivery) have widened from saving either the mothers or infant's life or both to prevent immediate complications and contributed to high increasing rates of CD in many countries.<sup>8</sup> The incidence of lower segment Caesarean section (CS) has increased worldwide in the last few decades.<sup>9,10,11</sup> During the past several decades, cesarean section (CS) has become a common operative procedure, with the proportion of women giving birth by CS increasing over time in all over the world.<sup>12</sup>

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The rising incidence of caesarean section all over the world has been of great concern both to the patients and obstetrician.<sup>5,13</sup> Repeat caesarean section is one of the major reasons which have contributed greatly to high caesarean section (CS) rate.<sup>9,13</sup> The incidence of primary and repeat caesarean section is increasing all over the world, primarily due to maternal preferences, medical disorders in pregnancy and extensive intrapartum fetal monitoring.<sup>9</sup> The observed increase in caesarean birth has been attributed to a number of factors.<sup>12</sup> The common indications for caesarean section are previous caesarean section, foetal distress, premature rupture of membranes, cephalo pelvic disproportion, breech presentation, obstructed labour, twin pregnancy, high blood pressure in the mother, problems with the placenta, umbilical cord etc.<sup>5,6,12</sup> Other additional factors are improved safety of anesthesia, antibiotics, availability of blood products and pre- and postoperative monitoring. Consequently, there is a rise in higher order caesarean sections. These rising rates of primary and repeat cesareans are responsible for increasing proportion of pregnant women with complications of prior CS.<sup>8,9</sup>

When medically justified, a caesarean section can effectively prevent maternal and perinatal mortality and morbidity. CS constitutes a major surgical procedure and, as such, is associated with a number of surgical complications.<sup>12</sup> As with any surgery, caesarean sections are associated with short and long term risk which can extend many years beyond the current delivery and affect the health of the woman, her child, and future pregnancies. These risks are higher in women with limited access to comprehensive obstetric care.<sup>7</sup> Although maternal death as a result of CS is now rare, reports of the short-and long-term consequences of the rising CS rate on the childbearing population are conflicting.<sup>11</sup> One of the major concern relating to previous cesarean delivery (PCD) is the potential of severe adverse effects on future pregnancies especially intra peritoneal adhesion, placenta previa, uterine scar rupture and cesarean hysterectomy with subsequent adverse fetal and maternal consequences.<sup>4,7,8,11</sup> Abnormal placentation like morbid adherence of placenta (placenta accreta or percreta) is a serious complication of placentation among women with PCD and anterior placenta praevia. There is risk of peri partum hysterectomy due to abnormal placentation and peri partum infection in scarred uterus. Previous cesarean delivery has increased risk for preterm birth (< 37 weeks) as well as very preterm birth (< 32 weeks) and, of being small for gestational age (birth weight < 10th percentile for gestational age).<sup>8</sup>

Elective repeat lower segment caesarean section is associated with better maternal and perinatal outcome, less blood loss and less blood transfusion compared with emergency repeat lower segment caesarean section.<sup>9</sup>

The evolution of cesarean delivery as a safe procedure with low maternal and neonatal morbidity and mortality rate has been one of the most important development in modern obstetric care. Improvement in surgical care such as lower segment cesarean section, aseptic technique, safe anesthesia, antibiotic prophylaxis and the availability of safe blood transfusion have decreased maternal morbidity associated with the surgical procedure.<sup>4,11</sup>

This study has been done to determine the risk factors associated with recurrent C.S morbidity and mortality (intra and/or postoperative). The purpose of our study was to determine the incidence of complications and outcomes of repeat cesarean section in women with one or more previous section. This is a limited study which revealed that previous cesarean section in a significant number of cases had per operative and post-operative complications.

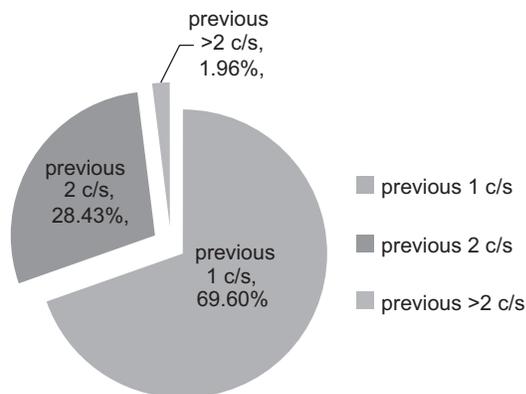
#### **Methodology**

This was a hospital based cross sectional prospective study conducted at inpatient department of Obstetrics and Gynaecology of Shaheed Suhrawardy Medical College Hospital (ShSMCH), Bangladesh from 1<sup>st</sup> June'2016 to 30<sup>th</sup> November'2016 for a period of six months. The study population were 102 patients, selected randomly who were admitted in ShSMCH for repeat caesarean section. This study included 106 pregnant women who had history of previous one or more cesarean section admitted to the obstetric ward of Shaheed Suhrawardy Medical College & Hospital during the study period. After admission, diagnosis was made on the basis of history and clinical presentation. Informed consents were taken from all subjects. Spontaneous vaginal delivery occurred in two patients. Two patients were found having scar rupture during caesarean section. They were excluded from the study. So study population was 102. The cases with history of one or more cesarean section who would have to undergo repeat caesarean section, were included in the inclusion criteria. Clinically diagnosed cases of ruptured uterus proved on laparotomy and systemic disease like heart, lung and kidney diseases were excluded from this study. Information of all the patient were interviewed and data from 102 patients of repeat caesarean section were collected using a preformed data collection sheet, made for recording all relevant parameters under study, after proper counseling and taking written consent of the patient or her legal guardian. Duration of data collection was 6

months. Data was compiled on a master sheet & processed as frequency percentage in tables using Microsoft Excel Statistical Program. Data was analyzed using calculator, computer based software Microsoft Excel.

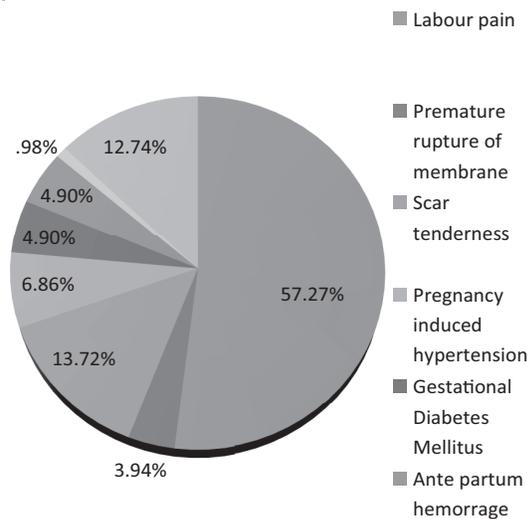
**Results**

Among the 102 patients most of the patients in the study group belonged to the age group of 25-35 years (69.60%), significantly higher number of women among 102, came from urban areas (64.70%). Majority of the patients came from middle economic status (76.47%) and most of the patients (65.68%) in the study group had primary and secondary level of education. Most of the patients of the study group were house wives (70.58%). Gestational age (weeks) of most (85) of the study population were within 37-40 weeks. Among the study population 57.84% of the patients had irregular antenatal visit.



**Fig.-1:** History of cesarean section.

Figure-1 shows that 71 (69.60%) patients were admitted with history of previous one cesarean section, 29 (28.43%) with history of two cesarean section & 2 (1.96%) with >2 ce:



**Fig.-2:** Percentage of patient with presenting chief complaints.

Figure 2 shows that the most common complaint was labor pain (57.27%). Some of the women had more than one presenting features.

**Table-I**

Indication of Caesarean section	Number of Patients	Percentage
History of 2 or >2 Caesarean Sections	35	34.31
Fetal distress	16	15.68
Breech presentation	12	11.76
Premature rupture of membrane	11	10.78
Unfavorable Cervix	10	9.80
Severe Preeclampsia	08	07.84
Scar tenderness	07	06.86
Placenta previa	04	03.94
Abruptio Placenta	02	1.96
Shoulder Presentation	02	1.96
Antepartum Eclampsia	01	.98

This table shows that commonest indications for repeat Caesarean section were previous history of 2 or >2 Caesarean sections (34.31%) and fetal distress (15.68%).

**Table-II**

Type	Number of patients	Percentage
Elective	37	36.27
Emergency	65	63.72

Emergency Caesarean section was done in majority of cases (63.72%).

**Table-III**

Fetal outcome (n=104)	Number of patients	Percentage
Live birth	102	98.08
Stillbirth	02	01.92
Neonatal morbidity	19	18.62
Jaundice	14	13.72
Birth asphyxia	13	12.74
Referral to NICU	06	05.88
Neonatal death	02	01.96

Table shows out of 102 deliveries (02 twins), 102 (98.08%) fetuses were delivered live and there were 02 (01.92%) stillbirth. Neonatal morbidity was found in 19(18.62%) neonate, among them most common morbidity was jaundice (13.72%). Some of the neonates suffered from more than one morbidity. Neonatal death was 02(1.96%).

**Table-IV**

<i>Birth weight of newborn in grams</i>		
Birth weight (grams)	Number of new born (n=102)	Percentage
<2500	06	05.88
>2500	96	94.12

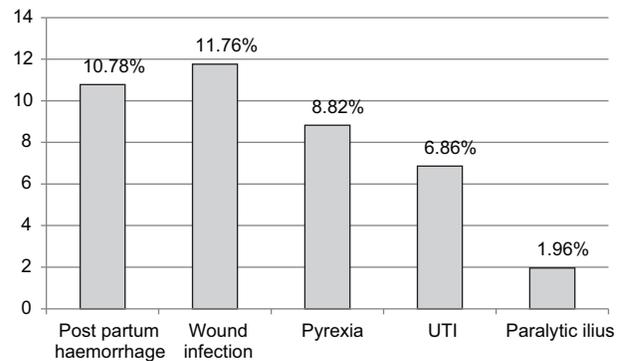
In most of the cases (94.12%) birth weight were more than 2500 grams.

**Table-V**

<i>Per operative Course and Complications (n=102)</i>		
Time taken for operation	Number of patients	Percentage
<60 minutes	85	83.33
>60 minutes	17	16.66
<b>Adhesion</b>		
Mild		69
67.64		
Moderate	30	29.41
Dense		03
02.94		
<b>Placental complication</b>		
Placenta previa	04	3.94
Accreta	01	.98
<b>Scar Condition</b>		
Healthy	99	97.05
Impending Uterine rupture	03	02.94
Bladder Injury		02
1.96		
<b>Blood loss</b>		
Blood loss more than average	08	07.84
<b>Amount of blood transfusion (bags)</b>		
None	65	63.72
1-2	31	30.39
3-4	06	05.88
<b>Associated surgery</b>		
Cesarean hysterectomy	02	01.96

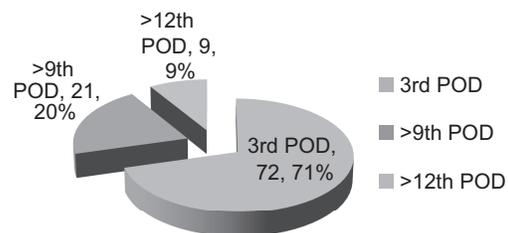
In majority of cases time taken for operation was less than 60 minutes (83.33%). In most of the cases there was mild adhesion (67.64%) and dense adhesion was found only in

02.94% cases, where adhesion was present in between the anterior wall of the uterus & bladder and also with the anterior abdominal wall. Adhesiolysis needed in those cases. Placenta previa was encountered in 3.94% and accreta in 0.98% case, cesarean hysterectomy was needed in that case; Impending uterine ruptures were found in 02.94% cases; there were inadvertent bladder injury in 1.96% cases. Dense adhesions were present in both cases. Adhesiolysis for severe pelvic adhesion were responsible for bladder injury in both cases. Bladders were repaired in layers. Blood loss during operation was more than average in 07.84% cases; most of the patients did not have any transfusion and 3-4 bags of blood were transfused only in 05.88% patients. Cesarean hysterectomy was done in 02 (01.96%), one due to placenta accreta (already mentioned), another was a case of placenta previa where uncontrollable P.P.H occurred.



**Fig-3: Post operative maternal complications.**

Fig-3 shows 78 out of 102 women, had no postoperative complications. Most common postoperative complication was wound infection that occurred in 12(11.76%) cases. History of pre mature rupture of membrane was present in 07 cases of wound infection and blood loss was more than average in most of the cases of wound infection. Post partum haemorrhage occurred in 11(10.78%) cases, where main causes were placenta previa and accreta. Paralytic ileus was diagnosed in 02 (1.96%) cases, in both cases duration of operation was more than average due to dense adhesion.



**Fig.-4 : Statistics of Hospital Stay**

Most of the patients were discharged on 3<sup>rd</sup> postoperative day (71%), 21(20.58%) patients needed to stay in hospital due to wound infection & puerperal sepsis for 9-12 days.

### Discussion

The rate of primary and repeat cesarean deliveries continue to rise around the world. The rapid increase in cesarean section rate may thus lead to a higher number of women facing multiple cesarean sections.<sup>1</sup> Repeat cesarean section is routinely performed in our country. Nearly all pregnant women who have had cesarean section undergo elective cesarean section. As the operation of cesarean section has become safer, the incidence of cesarean section has increased. In our study majority of pregnant women were belonged to 25-30 years of age (36.27%), Socioeconomic status reveals that majority of the patients belonged to middle income (5000-15000) group(76.47%) and majority of the women were educated(72.54% literate). Our study shows that significantly higher number of women came from urban areas (64.74%) as majority of cases of repeat caesarean section are middle income group who resides in urban areas. It is observed that with increasing education, self-consciousness increases and the incumbents on realize the risk of home delivery. In the present study, as regards to profession, we found that 70.58% were housewives and 29.41% were service holders. This showed that due to the dependency on others they could not take decision about their health problems and they did not come to the hospital in proper time. Thus the per operative complications were more. In this study a large number of patients were admitted with the features of labor pain (57.27%), PROM (10.78%), and scar tenderness (06.86%). Thus the emergency repeat cesarean sections were more, about 63.72%. In this study indications of repeat cesarean section were previous history of caesarean section 35 (34.31%), fetal distress 16(15.68%). Many women presented with more than one above mentioned features. Out of 102 deliveries (02 twins) 102 (98.08%) fetuses were delivered live and there were 2 (1.92%) stillbirth. Birth asphyxia and low APGAR score were seen in 13 (12.74%) newborns. Referred to NICU for better management were 6 (5.88%). Jaundice appeared in 14 (13.72%) cases and neonatal death within 8 days after delivery were 2 (1.96%) due to respiratory distress syndrome.

As most of the repeat cesarean section was conducted by Medical officers, Trainee doctors and Assistant Registrars, the study observed that more time was taken for each operation. 85 (83.33%) cases needed 30-60 minutes and 17 (16.66%) cases needed 60-120 minutes. Blood loss during operation more than average (>1000ml) was in 08 (07.84%) cases and average (<1000ml) was in 94

(92.16%) cases. In most of the cases there was adhesions either peritoneal or between the adjacent structures. Out of 102 cases, 19 (18.62%) cases needed adhesiolysis and in 83 (81.37%) cases there was no need of it. Placenta previa were found in 04 (3.94%) cases, whereas placenta accrete was found in 1 (.98%) case in the present study. In this series healthy scar was found in 99 (97.05%) cases mostly who had history of previous one cesarean section and incomplete or impending rupture of uterine scar were found in 03 (2.94%) cases. In this study bladder injury occurred in 02 (1.96%) cases. In this study adhesiolysis for severe pelvic adhesion were responsible for bladder injury. Adhesions lead to difficulty in separating the lower segment and corresponding increase in operation time and blood loss with consequent post-partum anaemia, blood transfusion; In this study blood loss were more than average in 07(6.86%) cases, but 3-4 bags of transfusions were needed in case of 06(5.88%) women, 31 (30.39%) women needed 1-2 bags of transfusion. To reduce blood loss in cases of placenta previa and placenta accrete, associated surgery like uterine artery and uterine-ovarian artery (4 pairs ligation) was done in 03 (02.94%) cases, and cesarean hysterectomy was done in 02(01.96%) cases. In this study out of 102 women 24 (23.88%) women experienced postoperative complications like postpartum hemorrhage 11(10.78%), wound infection 12(11.76%), pyrexia 09 (8.82%) urinary tract infection(UTI) 07 (6.86%), paralytic ileus 02(1.96%) cases. The mortality was 01 (0.98%) due to post-partum haemorrhage(PPH). In our study 72 (70.58%) women needed to stay in hospital for 3-4 days, 21 (20.58%) women needed for 10-12 days and 09 (8.82%) needed for more than 12 days due to wound infection and puerperal sepsis.

Our results demonstrated that with appropriate prenatal care, adequate preoperative care, meticulous surgical techniques and careful postoperative care, multiple repeated cesarean sections were safe. All cesarean sections were performed in the tertiary center which has highly experienced surgeons and standard equipped place. This may be different in other circumstances, especially in the rural area or in hospital that lack some facilities.

### Conclusion

The incidence of primary and repeat caesarean section is increasing all over the world. Consequently, there is a rise in higher order caesarean sections with associated complications. The high rates of primary and repeat CD are warnings for clinicians facing problems in repeat deliveries. These risks are part of overall clinical assessment at the time of first birth. A careful decision before any elective primary CD is therefore important for its adverse impact on future birth. Indications for both

primary and repeat caesarean sections should be carefully reviewed, as this will reduce the rate of higher order caesarean section, especially in the developing countries like ours which places a high premium on child-bearing. Women should be encouraged to accept planned repeat caesarean section when they have had two or more.

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