

## Evaluation of Complication of Repeat Cesarean Section: A Study of 100 Patients in a Tertiary Care Hospital in Bangladesh

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### Abstract

**Background:** Worldwide, caesarean section (CS) is one of the most commonly performed obstetric procedures. Maternal mortality and morbidities associated with repeat caesarean section is an important health problem in global perspective that needs to be addressed. **Objectives:** To evaluate the complications of repeat caesarean section. **Materials and Method:** This cross-sectional descriptive study was conducted in the department of Obstetrics & Gynaecology, Rangpur medical college hospital, Rangpur from July '18 to June '20 after acceptance and ethical clearance of the protocol. During data collection total admitted patient were 2123 out of which 446 caesarean section was done among them 100 patients of my study population were selected by fulfilling inclusion and exclusion criteria. After full explanation, informing the details of the purpose of the study informed written consent was obtained from the study subjects/ or her legal guardian. After Meticulous history taking thorough physical examination was done on every patient and available investigations according to the need of management was done in the hospital. Per operative and postoperative complications were noted. Information's were collected in predesigned questionnaire and presented in tabulated form and that was finally was analyzed with the help of computer program SPSS (Statistical Package for Social Science) version 23. **Result:** Total patient admitted during my data collection were 2123 and of them 446 caesarean sections were done and repeat caesarean sections were 100. The incidence of repeat caesarean section was 22.42%. 35% respondents were between >25-30 years of age. Average gestational age was >36 – 40 weeks. Emergency caesarean section was done in 79% cases and elective in 21% cases. 68% patients had adhesion, 38% had uterine atonicity, 26% had injury to the surrounding structure, placenta previa was found in 7% cases and morbid adhesion of placenta was found in 3% cases. Additional procedures like blood transfusion needed in 34% cases, adhesiolysis performed in 21% cases, ICU admission needed in 16% cases, caesarean hysterectomy performed in 11% cases and B-Lynch suture in 8% cases. Among the postoperative complications wound infection occurred in 20% cases, PPH in 13% cases, UTI in 9% cases, paralytic ileus in 4% cases and postpartum psychosis in 3% cases. Maternal mortality was found in only 3% cases. Conclusion: Repeat caesarean section is associated with increased number of intraoperative and postoperative complications like adhesion, placenta previa, morbid adherent placenta, PPH, wound infection thus increasing maternal morbidity. So, the best way to reduce these morbidity and mortality by reducing primary caesarean section rates by taking judicious decision and indications should be appropriate and C/S should be done by well-trained doctors and specialists in well-equipped centre.

**Keywords:** Repeat caesarean section, complication, outcome.

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### INTRODUCTION

Caesarean section delivers fetuses after 28 weeks through an incision in the abdominal and uterine walls. Primary and repeat. Primary caesarean section is

a patient's initial surgery. Repeat caesarean section is performed in a woman's future pregnancies. Elective and emergency caesarean sections are two categories [1]. In the previous three decades, lower segment CS has increased globally. Maternal death from CS is rare,

although data on its short- and long-term effects are inconsistent [2]. No region should have a CS rate exceeding 10 to 15%, according to a 1992 WHO summit [3]. The cesarean section rate has risen from 5% to 25% in 35 years [4]. Increasing primary C/S, decreasing VBAC (vaginal birth after cesarean delivery) due to uterine rupture risk, use of electronic monitoring by CTG and diagnosis of fetal distress, moreover maternal distress, increasing maternal age, increasing labor induction rates, decreased use of operative vaginal delivery. Some support for primary cesarean [5]. Due to antibiotics, blood transfusions, and improved anesthetic procedures, cesarean delivery is safer nowadays. Indications and rates of cesarean delivery differ by country and hospital, although the global incidence is rising [6]. Latin America and the Caribbean 44.3%, Eastern Europe and Central Asia 27.3%, North America 32%, Western Europe 26.9% [7]. The 1993 Turkish Demographic and Health Survey (TDHS) indicated an 8 percent cesarean birth rate; 2008 studies report 37 percent [8]. Worldwide, C-section rates are rising [9]. In 2008, 6.2 million unneeded cesarean sections were performed worldwide; China and Brazil account for 50%. In recent years, 31% of births in Bangladesh were through Caesarean section [10]. Many women with caesarean scars become pregnant and are at danger [11]. Increased risks of placenta previa and placenta accreta after elective main or repeat cesarean delivery are difficult to quantify. Indications for caesarean section have been greatly broadened in recent years due to more sophisticated fetal monitoring and laboratory tests indicating placental insufficiency, as well as revolutionary improvements in overall surgical technique and better understanding of antenatal and intranatal fetal wellbeing [12]. Maternal and fetal health, date of birth, surgeon's expertise, center's competency, surgical technique, and anaesthetic risk all play a role in problems. Birth injuries, cephalhematoma, clavicular fracture, brachial plexopathy, skull fracture, facial nerve palsy, and respiratory problems are fetal issues. Repeat caesareans make obstetrics and abdominal investigations riskier. Placenta previa, morbid adherent placenta, intraabdominal thick adhesions, uterine dehiscence/uterine scar rupture with unfavorable fetal and maternal prognosis, bowel and bladder damage, and cesarean hysterectomy are well-known problems [13]. Depending on the number of previous caesarean sections, scarring and adhesion formation can raise serious complication rates by 4.3% to 12.5%. With more C-sections, scar rupture risks rise. 13 Miscalculation of dates during elective repeat caesarean surgery can lead to premature delivery and respiratory distress syndrome, both of which cause various difficulties, intensive care, and expensive costs. Intraoperative problems are high blood loss (7.9%) and thick adhesions (46.1%) [14]. Multiple caesareans are related with more difficult procedures and higher blood loss [15]. Multiple caesareans raise the chance of problems. Placenta praevia risk increases with each

caesarean section: 3.5% with I, 22.5% with II, 28% with III, and 50% with IV [16]. Caesarean section increases maternal mortality and morbidity compared to vaginal delivery. Repeat caesarean sections are associated with greater maternal morbidity. Repeat caesareans require a senior, experienced obstetrician. Reduce primary C-section rates to reduce this. Previous caesarean patients should be deemed high risk and provided the option of vaginal birth after caesarean wherever possible.

## OBJECTIVE

- To evaluate the complications of repeat caesarean section.

## METHODOLOGY

This cross-sectional descriptive study was conducted in the department of Obstetrics & Gynaecology, Rangpur medical college hospital, Rangpur from July '18 to June '20 after acceptance and ethical clearance of the protocol. During data collection total admitted patient were 2123 out of which 446 caesarean section was done among them 100 patients of my study population were selected by fulfilling inclusion and exclusion criteria. After full explanation, informing the details of the purpose of the study informed written consent was obtained from the study subjects/ or her legal guardian. After Meticulous history taking thorough physical examination was done on every patient and available investigations according to the need of management was done in the hospital. Per operative and postoperative complications were noted. Information's were collected in predesigned questionnaire and presented in tabulated form and that was finally was analyzed with the help of computer program SPSS (Statistical Package for Social Science) version 23.

### Inclusion Criteria

- All pregnant women who were admitted after 28 weeks of pregnancy with history of one or more caesarean section and had undergone repeat caesarean section. Total 100 patients were taken as study subjects who underwent repeat LSCS.

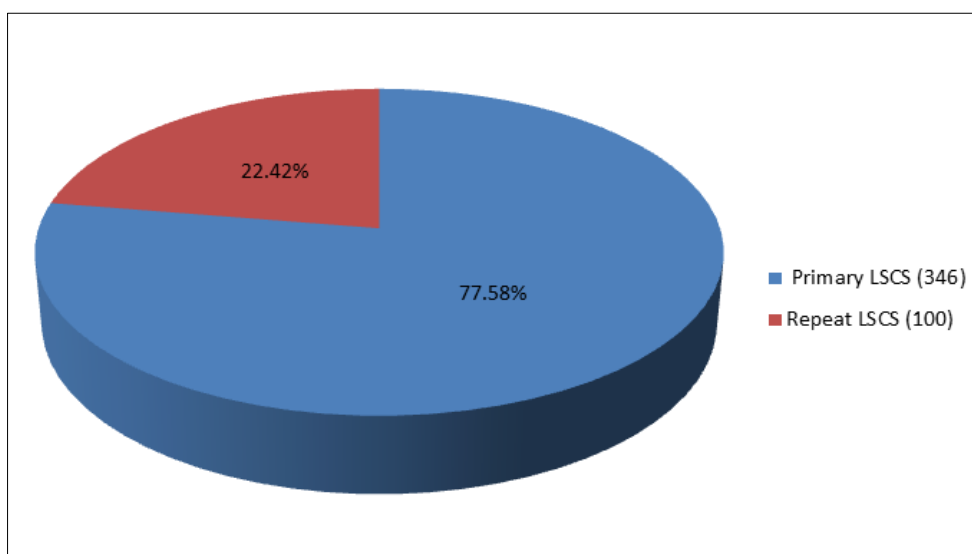
### Exclusion Criteria

- All pregnant women after 28 weeks of pregnancy who had undergone primary caesarean section.
- The pregnant mother after 28 weeks of pregnancy who had undergone other abdominal surgeries eg. myomectomy, appendicectomy etc.
- The pregnant women after 28 weeks of pregnancy who had other systemic diseases which might influence the complications like pregnancy with heart disease, uncontrolled diabetes, chronic renal diseases etc.

**RESULTS**

During this study data collection period delivery occurred in total 2123 patients and vaginal delivery was 1677 and total LSCS was 446) and out of

them LSCS in 446 patients, repeat LSCS was 100 cases. So, the incidence of repeat caesarean section was 22.42%.



**Figure 1: Incidence of Repeat LSCS (n=446)**

Table 1: Shows that highest Patients were in age group 25-30 years (35%). Mean age of Patients was 28.08±5.56 years. Majority patients were educated up

to primary level (43%), unemployed (71%) and of middle-class family (60%).

**Table 1: Sociodemographic Profile of Study Subjects (n=100)**

Parameter	Number	Percentage	X <sup>2</sup> value	P value
<b>Age</b>				
<20 years	01	1%	40.800	P<0.001(S)
20-25 years	31	31%		
>25-30 years	35	35%		
>30-35 years	23	23%		
>35 years	10	10%		
Mean, ±SD (years)	28.08, ±5.56			
<b>Level of Education</b>				
Illiterate	18	18%	38.900	P<0.05(S)
Primary School	43	43%		
SSC	21	21%		
HSC	08	8%		
Graduation & above	10	10%		
<b>Occupation</b>				
Employed	29	29%	17.640	P<0.05(S)
Unemployed	71	71%		
<b>Socioeconomic status</b>				
Low-income group	38	38%	51.440	P<0.05(S)
Middle income group	60	60%		
High income group	02	2%		

x<sup>2</sup>: Chi-square test, n: Number of study subjects, \* = P<0.05.

Table 2: Shows that majority Patients' duration of pregnancy was >36-40 weeks (79%) and followed by in decreasing order >32-36 weeks (12%)

and 28-32 weeks (5%) and >40 weeks (4%). Results also shows that only 40% study subjects had regular ANC while 60% had irregular ANC.

**Table 2: Obstetrical profile of the Study Subjects (n=100)**

Parameter	Number	Percentage	X <sup>2</sup> value	P value
<b>Duration of pregnancy</b>				
28- 32 weeks	05	5%	157.040	P<0.001(S)
>32-36 weeks	12	12%		
>36-40 weeks	79	79%		
>40 weeks	04	4%		
<b>Pattern of ANC</b>				
Regular	40	40%	4.000	0.046(S)
Irregular	60	60%		

x<sup>2</sup>: Chi-square test, n: Number of study subjects, \* = P<0.05

Table 3: Shows that majority Patients underwent emergency repeat LSCS (79%) and 21% underwent elective LSCS.

**Table 3: Distribution of the Study Subjects by Type of Repeat LSCS (n=100)**

Type of repeat LSCS	Number	Percentage	X <sup>2</sup> value	P value
Emergency repeat LSCS	79	79%	33.640	P<0.05(S)
Elective repeat LSCS	21	21%		

x<sup>2</sup>: Chi-square test, n: Number of study subjects, \* = P<0.05

Table 4: Shows that majority patients' surgery underwent for <1 hour (79%) and 21% patients' surgery underwent for >1 hour.

**Table 4: Distribution of Total Time Required During Surgery of the Study Subjects (n=100)**

Duration of surgery	Number	Percentage	X <sup>2</sup> value	P value
< 1 hour	79	79%	12.960	P<0.05(S)
>1 hour	21	21%		

x<sup>2</sup>: Chi-square test, n: Number of study subjects, \* = P<0.05 statistically significant.

Table 5: Shows that majority study subjects had history of 1 previous CS (65%) and followed by in decreasing order 2 previous CS (29%) and previous 3 CS (6%).

**Table 5: Distribution of Study Subjects According to their Number of Previous Caesarian Section (n=100)**

Number of previous caesarian section	Number	Percentage	X <sup>2</sup> value	P value
Previous 1 CS	65	65%	53.060	P<0.05
Previous 2 CS	29	29%		
Previous 3 CS	06	6%		

x<sup>2</sup>: Chi-square test of, n: Number of patients, \* = P<0.05 .

Table 6: Shows that major intraoperative complication was adhesion (68%) and followed by in decreasing order uterine atony (38%), Injury to surrounding structure (26%), extension of uterine incision (22%), Ruptured uterus (18%), Placenta previa

(11%), Scar dehiscence (9%), Morbid adhesion of placenta (3%), Bladder injury (4%) and Incomplete rupture (4%). Some patient had single complication and some had multiple complications.

**Table 6: Distribution of Study Subjects by Perioperative Complication (n=100)**

Perioperative Complication	Number of Patient	Percentage (%)
Adhesion	68	68%
Abdominal wall adhesion	28	28%
Abdominal wall to uterus	27	27%
Bladder adhesion	13	13%
Uterine atony	38	38%
Injury to surrounding structure	26	26%
Extension of uterine incision	22	22%
Ruptured uterus	18	18%
Placenta previa	7	7%
Scar dehiscence	09	09%
Morbid adhesion of placenta	03	03%

Perioperative Complication	Number of Patient	Percentage (%)
Placenta Accreta	02	02%
Placenta Increta	01	01%
Incomplete rupture	04	04%
Bladder injury	04	04%

Table 7: Shows that there was association between number of previous caesarian section and presence of adhesion where, presence of adhesion

increases with increase of number of previous caesarian section.

**Table 7: Association between No of Repeat C/S and Adhesion (n=100)**

Adhesion	Number of Previous Caesarian Section			P value
	1(2 <sup>nd</sup> CS) (n=65)	2(3 <sup>rd</sup> CS) (n=29)	3(4 <sup>th</sup> CS) (n=06)	
Present	29 (44.62%)	17 (58.62%)	5 (83.33%)	0.122(NS)

P value was determined by One-way Anova test, n: Number of respondents,\* = P<0.05 statistically significant.

Table 8: Shows that around 36% needed blood transfusion, 21% needed adhesiolysis additionally during surgery and followed by decreasing order ICU admission (16%), Hysterectomy (11%), B-Lynch suture (8%) and bladder repair (4%).

**Table 8: Additional Management Procedures Needed During Repeat CS (n=100)**

Variable	Number of Patient	Percentage
Blood transfusion needed	36	36%
1 unit	20	
>1 unit	11	
2-3 unit	02	
4-5 unit or more	05	
Adhesiolysis	21	21%
B-Lynch suture	08	08%
Bladder repair	04	04%
Hysterectomy	11	11%
ICU admission	16	16%

Table 9: Shows that major postoperative complication was wound infection (20%) and followed by in decreasing order PPH (13%), Urinary tract infection (9%), Paralytic ileus (4%), Postpartum

psychosis (3%) and around 70% Study subjects had no postoperative complication. Some had more than one complication.

**Table 9: Postoperative Complication of the Study Subjects (n=100)**

Postoperative Complication	Number	Percentage
Wound infection	20	20%
PPH	13	13%
Urinary tract infection	09	9%
Paralytic ileus	04	4%
Postpartum psychosis	03	3%

**Table 10: Distribution of Patients by Maternal Mortality (n=100)**

Maternal Mortality	Number	Percentage	X <sup>2</sup> value	P value
Yes	03	3%	88.360	P<0.05(S)
No	97	97%		

x<sup>2</sup>: Chi-square test, n: Number of study subjects, \* = P<0.05 .

## DISCUSSION

In the past two decades, caesarean births have risen globally. Indications include previous caesarean section. Despite advances in anesthesia and surgery,

Caesarean sections still have difficulties and morbidity. Indications include previous caesarean section. This study evaluated recurrent C-section complications.

Out of 2123 prenatal patients admitted to Rangpur Medical College and Hospital during my data collecting period, 22.42 % had repeat caesarean sections (Table 1). It's similar to a 2012-2014 study by Mustafa K *et al*, in Southeast Turkey, where repeat caesarean section incidence was 21.95 %. It contradicts the study of Nazlima Nargis *et al*, at IBN SINA Medical college hospital, Kallayanpur Dhaka from January 2010 to December 2010 [17]. Where repeat caesarean section frequency was 31.57 %. As a non-tertiary hospital with affluent patients, the caesarean section rate is high. This research is done in a tertiary government hospital where all levels of patients are admitted and referred from other facilities. Most patients were hungry, anemic, and not referred in time, therefore they were in horrible shape. CS is cheaper than private hospitals.

In this study, the respondents' mean age was 28.085.56 years (Table 2). This finding is similar to Dr. Deepa Shanmugham *et al*, 2018 [19], study, where the mean age was 24.44. In my survey, 43% were primarily educated, followed by SSC (21%), HSC (8%), and Graduated (10%). Most study subjects were housewives (71%) and middle class (60%) and the results are noteworthy. This situation shows that educated patients were greater due to the free cost, and majority of the study subjects were housewives with primary education. This may be because it's a public hospital and wealthy folks prefer private. Due to their dependence on others, they couldn't make decisions regarding their health and didn't come to the hospital in time.

In this study, the obstetrical profile (Table 3) shows that most of the study subjects were between 37 and 40 weeks (79 %) of gestation, which is significant and similar to studies by Dr. Deepa Shanmugham *et al*, [19] and Ghani A *et al*, [18], where the average gestational age was 37.44 weeks and 37-40 weeks respectively.

60% of study participants had irregular ANC. It's almost consistent with Ghani A *et al*, 2018 study, which found 57.84% irregular ANC. Most of the study subjects are housewives and primarily educated; they lacked understanding about regular antenatal care and its benefits and were unable to make decisions about their own health care benefits. They received little or no prenatal care. Antenatal care improves maternal health. Correcting anemia during antenatal visits helps patients resist blood loss following surgery. By having frequent ANC, hazardous problems like placenta previa and morbid adherent placenta can be recognized and treated [18].

In this investigation, most LSCSs (79%) were done for emergency indications (Table 4), which is comparable to the study of Dr. Neha Makwana *et al*, on 2017 [12]. (86%). Most emergency surgeries are done

by junior anaesthetists on unprepared patients, which may exacerbate difficulties. In this study, 79% of surgeries took 30-60 minutes and 21% took 60-120 minutes (Table 5). The stats were substantial. According to a 2018 study by Ghani A *et al*, 83.3% of patients required 30-60 minutes and 16.6% required 60-120 minutes. As most repeat cesareans were performed by medical officers, trainee doctors, and assistant registrars, each took longer.

Adhesion was a prominent intraoperative complication (68%), including adhesions to the abdominal wall (28%), uterus (27%), and bladder (13%). (Table 7). It's similar to a 2018 study by Deepa Shanmugham *et al*, where abdominal wall adhesions were 32%, 67 (33.5%) had abdominal wall to uterine adhesions, and 35 (17.5%) had bladder adhesions. In Ghani A *et al*, on 2018 [18], mild adhesion was 69%, moderate adhesion was 29.41%, and dense adhesion was 3%. Sonali S *et al*, on 2017 [13] found that 40.85% of adhesion was in history of 1 LSCS and 65.96% in history of 2 LSCS. Adhesion caused problems during caesarean section. Placenta previa was 7% and placenta accreta was 3%, which was similar to a 2018 study by Ghani A *et al*, where the incidence was 3.94% and 9.8%. In this investigation, healthy scar was discovered in 91% of patients, incomplete rupture was 4%, which was consistent with Ghani A *et al*, 2018 study (97.05%, 2.94%). Extension of uterine incision (22%), harm to surrounding structure (26%), uterine atonicity (38%), and ruptured uterus were other intraoperative problems (16 percent). Most instances (65%) have 1 LSCS (Table 6). The stats were substantial. It's almost the same as Ghani A *et al*, 2018 study (69.60%). It was also consistent with a study by Sonali S *et al*, in the Department of Obstetrics and Gynecology, Department of Physiology, Kamineni Institute of Medical Science, Narketpally, Nalgonda (Dist.) Telangana, India, which was 71%. [13]. As the frequency of caesarean sections increases, the incidence of adhesion increases (Table 8), which is statistically significant and similar to Sonali S *et al*, (1 caesarean section vs 2 caesarean section- 40.85 vs 65.96 percent respectively) [13].

Regarding the necessity for extra operations during surgery, this study demonstrated adhesiolysis was needed in 21% (Table 9) instances, which is similar to the study by Ghani A *et al*, on 2018 [18] (18.62%), hysterectomy was needed in 11% cases, and ICU admission was needed in 12% cases. Another complication is hysterectomy. It's connected with placenta accreta, praevia, atony, and rupture. Regarding blood loss after surgery, only 5% of patients require 4 bags of blood transfusion (Table 10), which is remarkable and similar to the study by Ghani A *et al*, on 2018 [18], where it is 5.88%. Adhesions cause difficulty separating the lower section, which increases operation duration, blood loss, and postpartum anemia/blood transfusion. 27% of individuals had

postoperative problems, whereas 73% had none. Major surgical complication was wound infection (20%). (Table 10). It's roughly consistent with the study by Ghani A *et al*, on 2018 [18], where surgical complications were 23.88 percent and wound infection was 11.76 percent and by Akhter L *et al*, where postoperative complications were 20 percent and wound infection was 4 percent, which is not consistent. Due to strong aseptic procedures and routine post-operative wide spectrum parenteral antibiotic therapy, post-operative complications and maternal morbidity are low. As a public government hospital, it is sometimes difficult to maintain 100% asepsis. Hospital acquired infection, preexisting anemia, malnutrition, and excess postoperative attendants are further factors.

In this study, maternal mortality was 3% (Table 11), and the cause of death was irreversible shock related to postpartum hemorrhage. This study's death rate is similar to that of Ghani A *et al*, in Repeat Caesarean Sections: Complications and Outcomes, where it was 0.98 percent owing to post-partum hemorrhage (PPH). With appropriate prenatal care, adequate preoperative preparation, meticulous surgical techniques, timely identification, and appropriate and careful postoperative care, multiple repeated cesarean sections may be safe in a tertiary care hospital with experienced surgeons and standard equipment and facilities.

## CONCLUSION

Repeat caesarean procedures increase morbidity and mortality, according to the study. Intraoperative morbidities raised the risk of morbid adhesion, placenta accreta, which can be minimized by limiting the number of CS in some patients. For example, if a pregnant mother has 1 CS, her likelihood of placenta previa is 3%, if she has 2 CS, its 11%, and if she has 3 CS, it's 40%. So reducing initial C/S can prevent repeat C/S problems. Primary C/S should be done with sufficient indications. VBAC should be an option if a primary C/S is indicated and should be performed by a well-trained birth attendant. High-risk cases should be referred to a tertiary care center for color doppler. Repeat C/S requires modern technology and a competent obstetrician. It's necessary to educate the population about the benefits of regular antenatal care and train delivery attendants to spot high-risk cases in peripheral facilities and refer them promptly. Before elective primary caesarean section, consider its impact on future birth.

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