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Original Article

Association between repeat cesarean section and adhesion of 100 patients: A cross sectional study in a tertiary care hospital in Bangladesh

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ABSTRACT

Background: *Caesarean Section (CS) births are on the rise around the world. Many births following a previous cesarean section (CS) are done via repeat surgery, either through an elective CS or after a failed attempt at natural labor. Increased maternal morbidity is linked to the production of adhesions in individuals who have had several cesarean sections.* ***Objectives:*** *To evaluate the association between repeat cesarean section and adhesion.* ***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 gardian. 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:*** *2123 patients were hospitalized during my data collection, 446 had caesarean sections, and 100 had repeat surgeries. In 22.4% of instances, repeat cesareans were done. 35% of respondents were aged 25 to 30. Gestational age averaged 36 to 40 weeks. In 79% of instances, an emergency caesarean section was done; in 21%, an elective one. 68 percent of patients had adhesion, 38% had uterine*

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atonicity, 26% had damage to the surrounding structure, 7% had placenta previa, and 3% had morbid placental adhesion. Transfusions and adhesiolysis were done in 34% and 21% of instances. ***Conclusion****: Repeat caesarean increases intraoperative and postoperative complications include adhesion, placenta previa, morbid adherent placenta, PPH, wound infection, and maternal morbidity. To decrease morbidity and mortality, well-trained physicians and experts at well-equipped institutions should do C/S.*

Keywords: *Repeat cesarean section, complication, outcome, adhesion.*

INTRODUCTION

Globally, lower segment CS has risen over the preceding three decades.[1] When it comes to the long- and short-term health effects of CS, there is inconsistency. [2] In 1992 WHO summit recommended that no region's CS rate should be higher than 10 to 15 percent[3]. Cesarean section rates have increased from 5% to 25% in the last 35 years, a dramatic increase. Increased use of primary C/S, decreased VBAC (vaginal birth after cesarean delivery) because of the risk of uterine rupture, electronic monitoring by CTG and the diagnosis of fetal distress, as well as maternal distress, increasing maternal age, increasing labor induction rates, and decreased use of operative vaginal delivery. [4,5] First-time cesareans are supported by some. Caesarean sections are safer today because of antibiotics, blood transfusions, and better anesthetic treatments. Caesarean section rates and indications vary by region and facility, but they are on the rise globally. [6] Latin America and the Caribbean account for 44.3%, Eastern Europe and Central Asia 27.3%, North America 32%, and Western Europe 26.9% of global population[7]. As of 1993, there were 8% of all births in Turkey being delivered via cesarean section; by 2008, that number has risen to 37%, according to the Turkish Demographic and Health Survey (TDHS). [8] C-section rates are on the rise all around the world. As much as half of the world's 6.2 million unnecessary cesarean sections were performed [9] in China and Brazil in 2008. In the last few years, 31% of Bangladeshi deliveries were performed via Caesarean section. [10] Many pregnant women with caesarean scars are at risk.[11] Placenta previa and placenta accreta are difficult to quantify following elective main or repeat cesarean birth. Recent advances in fetal monitoring and laboratory tests that indicate placental insufficiency, as well as revolutionary improvements in overall surgical technique and a better understanding of antenatal and intranatal fetal well-being, have greatly expanded the use of caesarean section in recent years. [12] Health of mother and fetus, date of birth, surgeon's expertise, center's competence and surgical method as well as anaesthetic danger all play a part in issues. fetal concerns include birth traumas, such as cephalhematomas, clavicular fractures, brachial plexopathy, skull fractures and facial nerve palsies. Obstetrics and abdominal imaging are more dangerous when performed after many caesareans. Problems include placenta previa, adhesions, uterine dehiscence, and scar rupture are well-known. Scarring and adhesion formation can increase significant complication rates by 4.3 percent to 12.5 percent depending on the number of previous caesarean procedures. More C-sections increase the risk of scar rupture.[13] Elective repeat caesarean surgery can lead to premature delivery and respiratory distress syndrome, both of which necessitate intensive care and hefty medical bills if they are miscalculated. High blood loss (7.9 percent) and thick adhesions are the most common intraoperative complications (46.1 percent). Increased blood loss and more complicated surgeries have been linked to several cesareans [14,15] There's a higher likelihood of complications if you have more than one caesarean section.

With each caesarean section, the risk of placenta praevia rises: 3.5 percent with I, 22.5 percent with II, 28 percent with III, and 50 percent with IV[16]. There is a greater risk of maternal mortality and morbidity with caesarean section than there is with vaginal delivery. Increased maternal morbidity is linked to repeated cesarean procedures

OBJECTIVE:

- To evaluate the association between repeat cesarean section and adhesion.

METHODOLOGY

This descriptive cross-sectional study was conducted from July '18 to June '20 in the Obstetrics & Gynecology department of the Rangpur medical college hospital, Rangpur, after protocol approval and ethical clearance. During data collection, the total number of admitted patients was 2,123, and 446 caesarean sections were performed; 100 patients from my research group were chosen based on inclusion and exclusion criteria. After explaining the goal of the study in detail and obtaining informed written consent from the subjects or their legal guardians, the research was conducted. After meticulously obtaining a patient's medical history, a comprehensive physical examination was performed on each patient, and investigations were performed in accordance with the requirement for treatment. There were intraoperative and postoperative problems. The data was obtained using a pre-designed questionnaire, tabulated, and then analyzed using SPSS (Statistical Package for the Social Sciences) version 23.

INCLUSION CRITERIA

- All women admitted after 28 weeks of pregnancy with a history of one or more cesarean sections who underwent a second cesarean section. As study subjects, a total of 100 individuals had 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 the data collection period delivery occurred in total 2123 patients and out of them LSCS in 446 patients, repeat LSCS was 100 cases. So, the incidence of repeat caesarean section was 22.42%.

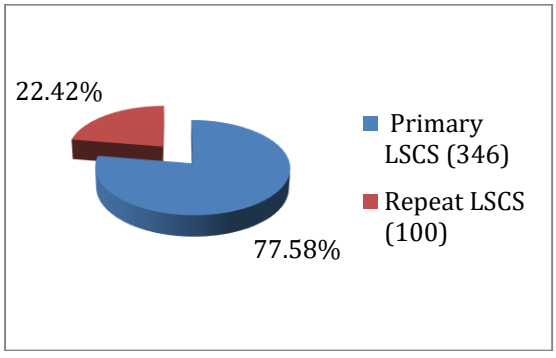

Figure 1: Incidence of Repeat LSCS (n=446)

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: Socio demographic Profile of Study Subjects (n=100)

Parameter	Number	Percentage	X^2 value	P value
Age				
<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			
Level of Education				
Illiterate	18	18%	38.900	P<0.05(S)
Primary School	43	43%		
SSC	21	21%		
HSC	08	8%		
Graduation & above	10	10%		
Occupation				
Employed	29	29%	17.640	P<0.05(S)
Unemployed	71	71%		
Socioeconomic status				
Low-income group	38	38%	51.440	P<0.05(S)
Middle income group	60	60%		
High income group	02	2%		

x^2: 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%). Table 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^2 value	P value
Duration of pregnancy				
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%		
Pattern of ANC				

Regular	40	40%	4.000	0.046(S)
Irregular	60	60%		

x^2: 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^2 value	P value
Emergency repeat LSCS	79	79%	33.640	P<0.05(S)
Elective repeat LSCS	21	21%		

x^2: Chi-square test, n: Number of study subjects, * = P<0.05

Table -4: 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 4: Distribution of Study Subjects According to their Number of Previous Caesarian Section (n=100)

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

x^2: Chi-square test of, n: Number of patients, * = P<0.05 .

Table 5: 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 5: 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%
Placenta Accreta	02	02%
Placenta Increta	01	01%
Incomplete rupture	04	04%
Bladder injury	04	04%

Table -6: 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 6: Association between No of Repeat C/S and Adhesion (n=100)

Adhesion	**Number of Previous Caesarian Section**			**P value**
	1(2^{nd} CS) (n=65)	2(3^{rd} CS) (n=29)	3(4^{th} 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<0.0.05 statistically significant.

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 al2018 [19] .'s 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 al18, 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's 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 201818, 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.98%. In this investigation, healthy scar was discovered in 91% of patients, incomplete rupture was 4%, which was consistent with Ghani A et al's 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 had 1 LSCS (Table- 6). The stats were substantial. It's almost the same as Ghani A et al's 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].

CONCLUSION

Repeat caesarean procedures increase morbidity and mortality, according to the study. Intra-operative 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, it's 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.

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