

Original Article

Repeat caesarean sections: Complications and Outcome

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Abstract :

Cesarean section is the commonest obstetric operative procedure worldwide. The incidence of cesarean section rate has been continuously increasing both in developed and developing world. A cesarean section poses some documented risks to the mother's health in subsequent pregnancies. It is also associated with increased likelihood of preterm delivery, low birth weight and perinatal death.

Objectives : The study was conducted to determine the incidence of maternal and neonatal morbidity and mortality in women with history of one or more previous caesarean section and to study the incidence of and type of surgical difficulties encountered in repeat caesarean sections.

Methods : This prospective observational study was done in the department of Obstetrics & Gynaecology Dhaka National Medical Institute Hospital (DNMIH), Dhaka during the period from November 2008 to October 2009. A total number of 273 pregnant patients admitted with history of one or more caesarean sections were included in this study.

Results : Out of the 1063 caesarean sections that were done during the study period 273 (25.68%) were repeat sections. Mean age of the study population was 27.2 years. Here 79.49% & 18.32% cases had history of previous one and two caesarean sections respectively. Important antepartum complications were chronic abdominal pain (16.49%), scar tenderness (6.6%), placenta praevia (1.47%), gestational diabetes mellitus (GDM) 1.47%, pregnancy induced hypertension (PIH) 7.7%, malpresentation (3.67%) etc. Emergency caesarean section was needed in 37.37% of cases. Blood transfusion required in 4.76% of cases. Extensive peritoneal adhesions with uterus and posterior surface of the anterior abdominal wall were found in 8.43% cases and bladder was adherent in 11.76% cases. In 5.88% cases take over of surgical procedure by senior obstetrician was necessary. Postoperative period was uneventful in 87.17% cases. Neonatal complications like prematurity, low birth weight, birth asphyxia and neonatal jaundice were developed in 21.62% of cases. Rate of perinatal mortality was 0.37%.

Conclusions :

Maternal and neonatal morbidity in repeated caesarean sections were low. Parietal wall and intra-peritoneal adhesions make repeat caesarean section a difficult procedure. It is prudent to involve a senior experienced obstetrician in the surgical procedure of repeat caesarean section.

Keywords : Pregnancy outcome, repeat caesarean section, caesarean section difficulties, maternal morbidity, neonatal morbidity

Introduction :

Cesarean section is the commonest obstetric operative procedure worldwide. The incidence of lower segment Caesarean section (CS) has increased worldwide in the last three decades¹⁻³. In the past 35 years, the rate of caesarean section has steadily increased from 5% to approximately 25%⁴. This is due to caesarean section being performed now a day for breech presentation, previous caesarean section and foetal distress⁵. Repeat section contributes to 30% of all caesarean section⁶. However this makes future obstetric

performances and future abdominal explorations risky. After any laparotomy it is fairly common to develop scar tissue or adhesions, and caesarean sections are no exception. This scarring and adhesion formation is known to increase the major complications rate from 4.3% to 12.5% depending upon the number of previous caesarean sections⁷. A caesarean section poses some documented risks to the mother's health in subsequent pregnancies like placenta praevia or accretes and uterine scar rupture. Other complications like impending rupture, bladder discomfort, preterm delivery, operative

interference & incidental morbidity can occur during pregnancy and labour in repeat cesarean section⁸. There are more technical difficulties & increased chance of injury to the surrounding structures during repeat section and post-operative complications are likely to be increased⁹. The risk of injury to bladder is increased threefold in repeat cesarean section¹⁰.

Materials and methods :

This prospective observational study was done in the department of Obstetrics & Gynaecology, DNMIH during the period from November 2008 to October 2009. A total number of 273 pregnant patients admitted with history of one or more cesarean sections were included in this study. Data was collected by preparing a data collection sheet which included the patient's particulars, antepartum clinical, laboratory and Ultrasonography findings and intrapartum or per-operative, post-operative findings as well as perinatal outcome of the fetus.

The inclusion criterion was the repeated cesarean section performed at 28 weeks of gestation or later. 273 cases were selected and analyzed for the following parameters:

Demographic and clinical features including age and gravidity of the patient, gestational age, records of antenatal care and number of previous caesarean section. Perinatal features including birth weight, Apgar score at 5 minutes, preterm birth below 37 weeks of gestation, and number of admissions into neonatal unit. Maternal morbidity including operative and post-operative complications such as estimated blood loss during surgery, the severity of adhesions, incidence of placental abnormalities, rupture of scar, bladder injury, blood transfusion, incidence of wound infection, urinary tract infection, chest infection, pyrexia and length of hospital stay. Collected data were compiled and analysed on SPSS statistical package.

Results :

A total number of 273 pregnant patients were included in this study who was admitted with history of one or more cesarean sections. The mean age of the study population was 27.2 years (range <20-40). Maternal demographic characteristics are shown in Table-I. Here 84.26% cases were aged 21-30 years. All the patients were multigravid. Regarding gestational age 89.74% were at term and 10.26 % had preterm deliveries. Considering antenatal care (ANC) 93.53% were booked case and 1.47% had no antenatal care. Previous one caesarean section was found in 79.49% of cases & 18.32% had two and 2.2% had three previous sections respectively. Among the study population 37.37% needed emergency cesarean section and the rest of cases were terminated on elective basis. Table-

II reveals that in around half (53.12%) of the cases antepartum period was uneventful. Complications related with previous surgery like placenta praevia, scar tenderness & chronic abdominal pain was found in 24.56% of cases. Some medical disorders like gestational diabetes mellitus (GDM), pregnancy induced hypertension (PIH) and urinary tract infection (UTI) etc. were found in 13.54% cases. Table-III shows some degrees of adhesions between various intra-peritoneal structures (26.74%) were the chief causes of intraoperative difficulties. Extensive peritoneal adhesions with uterus and posterior surface of the anterior abdominal wall were found in 8.43% cases and bladder was adherent in 11.76% cases. Bladder was injured in one cases (0.37%). Extensive ventrofixation of uterus causing direct entry into uterine cavity without clearly defining peritoneal cavity occurred in 1.47% cases. In 5.88% cases takeover of surgical procedure by senior obstetrician was necessary. Catheter was kept for 3-5 days in 08 (2.93%) cases.

Post-operative complications have been shown in Table- IV. Here majority (87.17%) had no complication. Important complications were wound infection (3.3%), PPH (2.2%), post spinal headache (2.93%) and UTI (2.2%). Post operative hospital stay for 5 days was in 231 (84.62%) and 6-8 days in 42 (15.38 %) cases. Only 4.76% cases required blood transfusion during operation. Regarding perinatal fetal outcome (Table V), majority (78.38%) babies were healthy and the rest had some complications like prematurity (9.89%), IUGR (3.66%), birth asphyxia (2.93%), neonatal infection (1.83%) & neonatal jaundice (2.93%). Resuscitation required in 04 (1.47%) cases. Perinatal death was found in one case where caesarean section was done due to 34 weeks pregnancy with transverse lie with antepartum haemorrhage. Estimation of foetal weight at birth has been shown in Table VI. Here 61.90% were between 2.5-3 kg, 21.24 % between 3.1-3.5 kg and 13.91% had <2.5 kg.

Table-I : Maternal Demographic characteristics (n=273)

Demographic characteristic	No. of patients	Percentage
Age in years		
16-20	16	5.87
21-25	108	39.57
26-30	122	44.69
31-35	25	9.16
36-40	02	0.74
Gravida		
2 nd	152	55.68
3 rd	83	30.41
4 th	26	9.53
5 th	12	4.4

Gestational age (in weeks) during LSCS		
<37 weeks	28	10.26
37-40	230	84.25
>40	15	5.5

Antenatal care		
Booked	269	98.5
Regular	234	85.72
Irregular	35	12.81
Unbooked	04	1.47

Number of previous LSCS		
Previous 1 LSCS	217	79.49
Previous 2 LSCS	50	18.32
Previous 3 LSCS	06	2.2

Types of LSCS		
Emergency	102	37.37
Elective	171	62.64

Table-II: Antepartum complications (Clinical presentation)

Antepartum complications	No. of Patient	Percentage
No complication	145	53.12
<i>Complications Related with previous Surgery-</i>		
Chronic pain	45	16.49
Scar tenderness	18	6.6
Placenta praevia	04	1.47
<i>Medical problem</i>		
GDM	04	1.47
PIH	21	7.7
Hypothyroidism	02	0.74
Jaundice	01	0.37
UTI	09	3.26
<i>Other associated conditions</i>		
IUGR	06	2.2
Oligohydramnios	04	1.47
Malpresentation	10	3.67
Polyhydramnios	01	0.37
Twin pregnancy	03	1.1

Table III: Intraoperative difficulties Intraoperative difficulties Percentage

A. Difficulty in opening the abdominal cavity due to	%	
1. Some degrees of adhesions between various intra-peritoneal structures	73	26.74
2. Extensive peritoneal adhesions with uterus and posterior surface of the anterior abdominal wall	23	8.43
3. Extensive ventrofixation of uterus causing direct entry into uterine cavity without clearly defining peritoneal cavity	04	1.47
B. Inaccessibility of lower uterine segment due to adhesions with bladder	32	11.76
C. Difficulty in stitching due to thinning of lower segment	11	4.03
D. Impending / incomplete rupture	05	1.84
E. Bladder injury	01	0.37
F. Take over of surgical procedure by senior obstetrician.	16	5.88

Table IV: Post operative complications

Complications	Number of cases	Percentage
PPH	06	2.2
Post spinal headache	08	2.93
Heart failure	01	0.37
Wound haematoma	02	0.73
Haematuria	02	0.37
Wound infection	10	03.3
UTI	06	2.2
Nil	238	87.17

Table V: Perinatal foetal outcome

Conditions of the baby	Number of cases	Percentage
Healthy baby	214	78.38
Birth asphyxia	08	2.93
IUGR	10	3.66
Premature	27	9.89
Neonatal jaundice	08	2.93
Neonatal infection	05	1.83
Stillborn	01 (APH, premature)	0.37
Perinatal mortality	01	0.37

Table-VI. Birth weight in Kg

Birth weight	No of patients	Percentage
<2.5 Kg	38	13.91
2.5--3 Kg	164	61.90
3.1--3.5 Kg	58	21.24
>3.5 Kg	08	02.93

Discussion :

Worldwide increase in caesarean section rate has become an international public health concern. The rates have increased from 5-7% in 1970 to 25-30% in 2003¹¹. Increased caesarean section rate in developed world is largely due to fear of litigation, health insurance system, CS by choice, increased use of electronic monitoring and increased proportion of breech deliveries by caesarean section.

In modern practice, with the objective of safe motherhood & mother baby package program the aim of obstetricians is to achieve a healthy mother & healthy baby. To achieve this goal, caesarean section plays a vital role and increasing trend of caesarean section is also related to it to a certain extent. Repeat caesarean section is the commonest contributory factor for increased rate of section. It varies from country to country and center to center; 35% of all caesarean section in USA, 23% in Norway, 24-30% in India, the lowest 8% being in Hungary¹². This prospective observational study was done in the department of Obst. & Gynae, DNMIH Dhaka among 273 patients with history of one or more caesarean section who were admitted for termination of pregnancy either on emergency or elective basis. Majority (84.26%) of the study population were of 21-30 years which is more or less similar to other study results done in BSMMU & SSMC Mitford Hospital where 78% were between 21-30 years and 69.2% cases were between 20-29 years^{13,14} respectively. In this study 85.72% had regular antenatal check-up which is similar to two other studies in our country^{15,16}. Here 79.49%, 18.32% & 2.2% cases had history of previous one, two & three caesarean sections respectively. Among the study population there were some common complications associated with previous caesarean section like placenta praevia (1.4%), scar tenderness (6.6%) and chronic abdominal pain (16.49%). Some medical disorders like GDM, PIH, UTI, etc. were found in (13.54%) of cases. Majority (89.74%) cases came with term pregnancy; only (10.26%) were preterm and required emergency termination for GDM with non-assuring CTG, APH, severe pre-eclampsia, multiple pregnancies etc. Here total (37.37%) cases underwent emergency caesarean section. The rate of elective caesarean section is higher (62.64%) in this study in comparison to those of Khawaja NP et.al in Pakistan (11.33%) and Asaduzzaman in Bangladesh (34.6%)^{16,17} but more or less similar to the study done by Nahar K in BSMMU where 56% caesarean sections were done on elective basis. The higher rate of sections may be due to avoidance of taking any risks in allowing subsequent trial of vaginal delivery, inadequate monitoring facilities, fear of litigation, and also by choice of the patient. In 8.43% cases there were extensive adhesion among uterus, omentum and anterior abdominal wall causing

much difficulty in opening the abdomen. Urinary bladder was found adherent in 11.76% cases and in one of them it was injured during operation. In 4.03% cases lower segment was found so thin that stitching was found difficult. The overall peroperative complication was much less in this study and it was (12.1%) in the study of Bergholt T & Stenderup JK¹⁸. In our study majority (87.17%) cases had no post-operative complication. Here important complications were PPH (2.2%), wound infection (3.3%), UTI etc. The rate of complication is significantly less in this study in comparison to other two studies done by Chowdhury et. al. and Asaduzzaman^{14,16}. In our study (21.62%) babies developed complications which is statistically comparable to the study of Dey N & Hatai SK in India¹⁹. Among them 9.89% babies were premature, 2.93% had birth asphyxia & other 2.93% developed neonatal jaundice. The birth weight observation revealed that 13.91% cases were low birth weight babies; the number is higher than the findings of Lydon M²⁰. Here number of perinatal mortality was 1 (0.37%), where caesarean section was done due to 34 weeks pregnancy with transverse lie with antepartum haemorrhage and a stillborn baby was delivered. These findings are a bit different from the study of Tadesse E et.al in Ethiopia where stillbirth and neonatal deaths were 2.8% & 4.7% respectively²¹.

Conclusion :

Modern obstetrics practice for medical, social, economic and legal reasons has witnessed an increase in the primary caesarean section rates everywhere. This has created a common clinical entity of "previous caesarean section" in subsequent pregnancies, giving a high risk pregnancy status to the reference pregnancy. This is a very limited study which revealed that previous caesarean section related antenatal complications was not very high but a significant number of cases had per operative complications. There was no maternal mortality but perinatal fetal mortality rate was 0.37%. In spite of its low rate of maternal morbidity and mortality due to improved surgical technique and modern anesthetic skill, it still carries a slightly greater risk than normal vaginal delivery and risk is more in subsequent pregnancies. Repeat caesarean sections constitute the commonest indications for caesarean sections. To reduce the incidence of repeat caesarean sections, the incidence of primary caesarean sections should be reduced by proper antenatal evaluation, prevention of unjustified induction, by creating awareness at primary care level for timely referral and minimal intervention. Further larger study with the scope of trial of vaginal delivery would be important to evaluate the pregnancy outcome in the patients with the history of previous caesarean sections.

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