Original article

Study on maternal and perinatal outcome of pregnancy with history of previous caesarean section

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Abstract:

Background: This is a Prospective observational study conducted in Department of Obstetrics and Gynaecology, BSMMU, Dhaka. ***Objective:*** The purpose of this study was to evaluate maternal and perinatal outcome of pregnancy with history of previous caesarean section. ***Method:*** Data were collected as per questionnaire by researchers herself by interviewing the patients and by observing the operations, investigation records and post-operative follow-up. A total number of 150 patients admitted with pregnancy with history of one or more previous caesarean section. ***Outcome measure:*** To find out antepartum complications, per-operative and post-operative complications specially related to previous caesarean section and to find out perinatal mortality and morbidity. ***Results:*** Among 150 patients who were delivered after one or more previous caesarean section, 88(52%) patients had antepartum complications the majority (88%) pregnancies were term pregnancy. The per-operative problem was difficulty to reach lower uterine segment due to adhesion with bladder was 16%. Overall post-operative complications were 20% cases. The common complications were wound infection (86%). Perinatal complications were 20(30%) cases. ***Conclusion:*** The wide spread improvement in anaesthesia, surgical technique, antibiotics and blood transfusions have decreased the morbidity and mortality from caesarean section, but it is not without hazard.

Keywords: Caesarean section; Respiratory distress syndrome;

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Introduction

Cesarean section is the most frequently performed major abdominal surgery in obstetrics. When a cesarean section is necessary, it can be a life saving technique for both mother and infant and has truly been one of the remarkable successes of modern medical science.[1] Pregnancy with history of previous cesarean section are prevalent in present day obstetric practice. These are due to liberalization of primary Cesarean section and repeat cesarean section as many obstetricians are reluctant to take any risk in allowing subsequent trial of vaginal delivery. Although, wide spread improvement in anesthesia, surgical technique, antibiotics and blood transfusions have decreased the morbidity and mortality from cesarean section[2], but it is not without hazard. A cesarean section poses document medical risk to the mothers health, including infection, haemorrhage transfusions, injury to the organ, anaesthetic complications psychological complications and maternal mortality two to four times greater than that for a vaginal birth.[3] Maternal morbidity after vaginal delivery is less than after cesarean section, with fewer complication and shorter hospital stay.[4] In the past 20 years, there has been significant rise in cesarean section. This increase in the rate is not uniform and is associated with wide variation between and within countries.[5] Various factors are responsible for this rising trends of cesarean section. Repeat cesarean section constitutes the commonest indication for cesarean section in most countries. It varies from 35% of all cesarean sections in the USA, to 23% in Norway, the lowest 8% being in Hungary.[6] So many women with uterine scar from previous cesarean section become pregnant and thereby exposed to risk. These women should be considered as high risk and as such regular antenatal check-up is mandatory.[7,8]

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Precise quantification of the risk attributable to a prior cesarean section is difficult. Most studies suggest that uterine rupture and placenta praevia or accreta having potentially serious consequences on the mother and fetus occurs infrequently.[9,10] A retrospective analysis of catastrophic complication of previous cesarean section by Cynthia Chazotte Showed that 2.4% of the patient after one or more previous cesarean section had an extremely serious complication like uterine rupture and placenta preavia or accreta with accompanying hemorrhage.[11] But other complications like impending rupture, bladder discomfort, preterm delivery, operative interference and incidental morbidity can occur during pregnancy, labour and repeat cesarean section.[8] There are more technical difficulties and increased chance of injury to the surrounding structures during repeat cesarean section and postoperative complications are likely to be increased.[12] The incidence of injury to the bladder and ureter at the time of cesarean section is 0.3% and 0.1% respectively and the risk to the bladder is increased threefold in repeat: cesarean section.[13] The major hazard in the performance of elective repeat cesarean section is miscalculation at dates with consequence delivery of a premature baby and respiratory distress syndrome, both of which are associated with multiple complication, intensive care and burden some financial cost. Even mature babies in the absence of labour increases the risk of breathing problems and other complications.[3,14] A recent study at Rogie maternity hospital showed that the rate of neonatal respiratory distress in babies delivered by elective cesarean section at 37 weeks is 7.3%, at 38 weeks is 4.2% at 39 weeks is 1.8% and at 40 weeks is 0.4%.[15] Elective cesarean section performed indiscriminately on as an easy way out for obstetric or non-obstetric indication not only adds to the rising cesarean rates but also contributes to unnecessary morbidity besides being a hazard to the future of the women's reproductive performance.[6]

Materials and Methods

This prospective observational study was conducted in the department of obstetrics and gynecology BSMMU, Dhaka from September 2005 to January 2006. A total number of 150 patients admitted with pregnancy with history of one or more previous cesarean section. Selected patients were those who were attended in the Hospital. All the patients were given an explanation of this study and informed written consent was taken. This study did not involve any additional investigative procedure and to avoid significant risk as well as economic burden to the patients.

This study was approved by the ethics Committee of BSSMU.

Results

Table - I: Age incidence of study population

Age in years	Number of patient	Percentage
<20	06	4%
21-25	45	30%
26-30	72	48%
31-35	24	16%
36-40	03	2%
41 and above	0	0
Total	150	100

Table I shows that maximum incidence of C/S were done among patient of group between (26-30) years of age 48%, between 21-25 years of age 30%, between 20 years of age 4% and between 31-35 year of age 16%, 36-40 year of age 2%.

Figure 1: shows maximum caesarean section cases (80%) had taken antenatal visit regularly that is more than 3 times. Only a few (20%) has irregular antennal visit that is <3 times.

Figure II shows that 12%)patients had 2 previous caesarean section and 88% patients had 1 previous caesarean section. Other problems such as abortion 12%, menstrual regulation 15%, stillbirth + IUD 11.5%, Neonatal death 9% and 3% were other problems such as ectopic 1 patient and Molar

Table - II: Antepartum complications

Problem	Number	Percentage
No abnormality detected	72	48%
Pregnancy induced hypertension	33	22%
Diabetes mellitus	09	6%
Placenta previa	06	4%
Chronic abdominal pain	15	10%
Scar tenderness	03	2%
Others (UTI, Fever)	05	3.34%
Respiratory distress syndrome	06	4%
Genital organic lesion	01	0.66%
Total	150	100

Table - III: Type of per-operative problems

Type of preoperative problem	Number	Percentage
Difficulty in opening the abdomen due to adhesion with peritoneum/omentum/intestine/posterior surface of anterior abdominal wall (a) Minimal adhesion (b) Maximum adhesion	130 20	86.6% 13.3%
Difficulty to reach LUS due to adhesion with bladder	24	16%
Bladder injury	1	0.6%
Difficulty in stitching the uterine incision due to thing of window in scar	30	20%
Impending rupture	3	4%

Table - IV: Post *operative complications*

Maternal complication	Number of cases	Percentage
Uneventful puerperium	120	80%
Wound infection	06	4%
Serous discharge from wound	07	4.6%
Purperal pyrexia	03	2%
PPH	03	2%
UTI	04	2.6%
Anaemia	03	2%
Headache	03	2%
Post operative rise of BP	01	0.6%
Total	150	100

Table - V: Causes of perinatal morbidity

Conditions of baby	Number of patients	Percentage
Healthy	120	80%
Birth asphyxia	03	2%
Prematurity	12	8%
IUGR	07	4.6%
Jaundice	03	2%
Neonatal infections	03	2%
Neonatal death	01	0.66%
IUD	01	0.66%
Total	150	100

pregnancy 1 patient

Table - II shows the selected antepartum complications in index pregnancy. Among the complications pregnancy induced hypertension 22%. Diabetes mellitus 6%, placenta previa 4%, chronic abdominal pain 10%, Scar tenderness 2%, organic lesion one case. Respiratory distress syndrome 4% and other problem such as UTI-1, Fever 3, Heart disease - 1. 48% cases detected no abnormality.

Figure III shows that majority (88%) of the pregnancies were term pregnancy (37 to 40 weeks). Some cases (3%) were post dated (>40 weeks). The rest cases (9%) were premature delivery.

Table - III shows that among per-operative problem difficulty to reach the abdominal cavity due to adhesion (minimal adhesion 86.6% and maximum adhesion 13.3%), difficulty to reach the LUS due to adhesion with bladder 16%, difficulty in stitching uterine incision due to thinning 20% and impending rupture 4%.

Table - IV shows that majority (80%) of the cases were free from complications. Among complications were wound infection 4%, PPH 2%, puerperal pyrexia 2%, UTI 2%. Anaemia 2% other complications were serous discharge from wound 4.6%, Headache 2%, Post operative rise of blood pressure 0.6%.

Table - V shows that out of 150 cases 120 babies were healthy. Only 20% developed complications. Among complications neonatal infection (2%) was most important. A good number of premature (8%) baby were delivered and some of the baby asphyxiated (2%) and 4.6% cases were IUGR. Neonatal Jaundice were 2%. Neonatal death only 0.66% cases and one case was IUD which delivered by laparotomy.

Table - VI: Number of cases undergone elective or emergency operation

Operation	Number of cases	Percentage
Elective	84	56%
Emergency	66	44%

Total	150	100

Table - VI shows that the rate of elective caesarean section were 56% and emergency caesarean sections were 44%.

Figure IV shows that only 8% cases were needed blood transfusion but majority of the patients did not need blood transfusion.

Table - VII: Type of anaesthesia given

Type of anaesthesia	Number	Percentage
General	4	2.6%
Spinal	144	96%
Epidural	2	1.3%
Total	150	100

Table - VII shows that 96% cases were operated under spinal anaesthesia. Remaining 2.6% cases operated under general anaesthesia and 1.3% cases were operated under epidural anaesthesia.

Figure V shows that most of the babies (90%) were born with normal (2.5 to 3.5 kg) birth weight. Only 5% case were >3.5 kg and 9% cases were low birth weight babies (2.5 kg).

Discussion

In modern practice, with the objective of safe motherhood and mother baby package programe the aim of the obstetrician is to achieve a healthy mother and healthy baby by proper management of obstetrical problems. To achieve this goal, caesarean section plays a vital role. Analysing the age incidence, the finding of the study presented that 78% in the age of 21-30 years, the maximum age of fertility, which is similar to Chowdhury SB et al in SSM and Mitford Hospital shows 69.2% cases were presented between 20-29 years of age. The group is almost nears (57% among 20-30 years) with Tadesse E, Adane M, Abiyou M of East Afr-med J 1996 and Banu RA and Rouf MA et al different hospitals of Dhaka (16% was >35 years) and Dey N, Hatai SK et al SSKM hospital and IPGMR and Calcatta (87% in the age group of 20-30 years) Another study done by Tuck et al reported a caesarean section rate of 55% in the aged 35 years on older compared with a rate of 25% in women aged 20-30 years. This study also shows that only 16% in the age group 31-35 years and 21% in the age group 36-40 years. This apparent difference in age incidence from Western countries were due to early age of marriage and child bearing in our country. In Bangladesh 90% girl are married before 18 years and 33% of those below 19 years are mother 1* of two child.[18,20] This study shows that 80% patients have regular antenatal check-up and 20% patients have irregular antenatal check-up which were nearly similar to that reported by K. Assazzaman Another study done by Ratten GJ, McDonald L, Royal women's hospital, Australia found that repeated antenatal visit lower the caesarean section rate than as usual care in hospital or other health facilities (8.3% compared with 18.5%) and also lower perinatal mortality rate (6.4 compared with 20.5% thousand live birth).[22,27,30] Regarding past obstetrical history this study revealed that among 150 patients only 18 *12%)* patients had two previous section and 142(88%) patients had previous caesarean section. Other problems were abortion 12%, menstrual regulation 15%, still birth and ILJD 11.5%, neonatal death 9%, 3% were other problems such as ectopic pregnancy 1 and molar pregnancy 1. In this study it was observed that 52% patient had antepartem complications. Among them 22% were pregnancy induced hypertension, 6% diabetes mellitus, 4% respiratory distress syndrome, 10% chronic abdominal pain, 2% scar tenderness, 3.34% other problems such as UTI, fever and heart disease and only one patient needed caesarean hysterectomy which admitted with 28 weeks pregnancy with ILJD with multiple cervical fibroid. The findings of the study presented that majority (88%) of the pregnancies were term pregnancy (37 to 40 weeks). Some (4%) were post dated (>40 weeks) and Direst (8%^ are preterm (<37 weeks) pregnancy. Among preterm delivery (8%) three cases due to DM with less foetal movement, one case due to Rh-negative mother with raised titer, two cases due to APH, two cases due to severe PET, three cases due to multiple pregnancy. Among peroperative problem, difficultly in opening the abdomen due to adhesion (minimal adhesion 86.6% and maximum adhesion 13.3%), difficulty to reach the lower uterine segment 16%, difficulty in stiching uterine incision due to thinning 20% and impending rupture 4%. To prevent higher adhesion recently non-closure of the visceral and parietal peritoneum were used in Western country. It has been found that when left unsutured, peritoneal cuts or separations heal by mesothelial integrity (re-peritonealization) by 48 hours and complete indistinguisable healing (that is no scaring) occur by five days. Re-approximation of peritoneal edges or repair of defects, even with inert fine suture

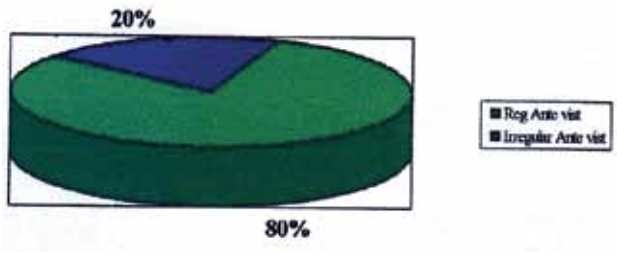

Figure -1: Pattern of antenatal care

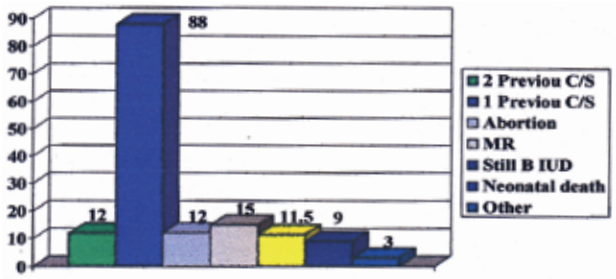

Figure - II: Distribution of the cases according to the past obstetrical history

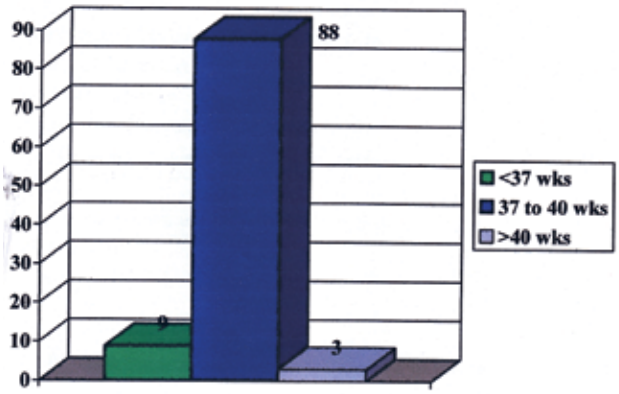

Figure - III): Duration of pregnancy at the time of operation

material causes considerable tissue reaction, result in increase tissue ischaemia and necrosis and foreign body tissue reactions and may lead to increased adhesion formation at the site of re-epithelialization. Non-closure of visceral peritoneum means that the bladder will not be used to cover the surgical area but will remain in its normal anatomical area. So there is less adhesion between bladder wall and the anterior uterine wall. The study of Acta Obstet Gynecol Scand 2003; March shows that the overall intra-operative complication rate was 12.1%. The rate of complication in emergency caesarean section were 14.5% compared with 6.8% in the elective group. Educational level of surgeon and history of previous caesarean section were not found to be significantly associated to intraoperative complication. [23]

This study reveals that majority (80%) of the cases

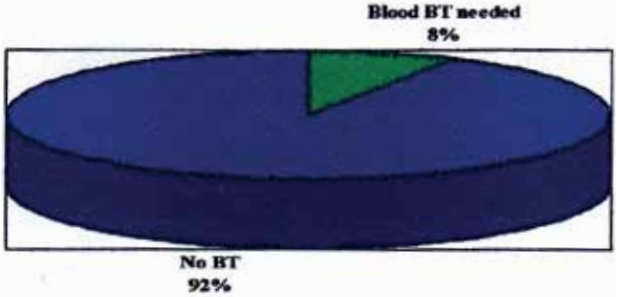

Figure - IV: Blood transfusions needed

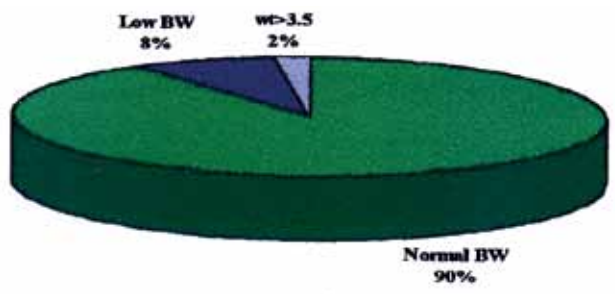

Figure - V: Outcome of baby according to birth weight.

developed no complications. Among complications 2% were post partum haemorrhage which were managed by blood transfusion and oxytocin drip. No hysterectomy was done. The other complications were wound infection 4.6%, puerperal pyrexia 2%, UTI 2.6%, anaemia 2%, post operative rise of BP 0.6%, some of the findings are higher in Chowdhury et al SSMC and Mifford hospital. They found that complications in caesarean section were wound sepsis 18.28%, anaemia 7.1%. The study of Khondokar Asaduzzaman shows that 58.6% of the cases developed no complications. Among complications, haemorrhage 24.6%, wound infections 3.1%, anaemia 2.6%, puerperal pyrexia 2.6%, UTI 1.6%, headache 1.6%. The low rate of post operative complications and thereby of maternal morbidity is mainly due to strict aseptic measures and use of routine post operative broad spectrum parenteral antibiotic thearpy.[18,30]

In this study 80% of the babies were delivered healthy and only 20% developed complications. Among complications 8% were prematurity. Birth asphyxia were 2% cases. These babies were managed accordingly and referred to the neonatal unit for intensive neonatal care. Neonatal jaundice were 2% cases, neonatal death only. 6% cases, 1 case was IUD which delivered by laparotomy. These finding are a bit differenf than Tadesse E, Adane M, Abixou M at Ethiopia where still birth were 2.8% and neonatal death 4.7%. But the findings of this study are similar with Dey N and Hatai SK

at Calcatta. They found the neonatal complications 21.8% in emergency caesarean section and 15.5% in elective caesarean section.[19,20]

In this study 12(8%) cases needed blood transfusion. Dicason and Dinsmore reported an incidence of transfusion 6.8% in women undergoing repeated
caesarean section[26]

A good number of babies (90%) were born with normal (2.5 to 3.5 kg) birth weight. Only 8% cases were low birth weight babies (<2.5 kg). The study of N Engl J Med
July, 2001; shows <2.5 kg 3.1%, 2.5 to 3.4 kg 42% and >3.5 kg 54%.[28]

In this study 96% cases were operated under spinal anaesthesia, only 2.6% cases were operated under general anaesthesia and only two cases (1.3%) operated under epidural anaesthesia. This finding are a bit different than the study of stamer UM.Messerschmidt A and wulf H at Department of anaesthesiology University of Born Germany. They found that general anaesthesia is the most common that is 61%. Epidural in 23% cases of scheduled and 5% in non-scheduled caesarean section and spinal in 14% scheduled and 10% in non-scheduled cases.[21]

Conclusion

The caesarean delivery rate continues to increase. Though the development of science, new method and improved surgical techniques, anaesthesia and post operative management, the mortality and morbidity rate due to caesarean section has been reduced, if still caries a greater risk than a vaginal delivery both for the mother and the baby. Caesarean section possess a risk factor during subsequent pregnancies. It is very important to take major steps to spread the knowledge and the advantage of a regular antenatal care and check up during pregnancy and to train the birth attendants to learn to detect the high risk cases and to refer them to the hospital for proper management.

The cases referred which ultimately requires an operation to bring out a living and healthy baby causing the least maternal morbidity is the ultimate achievement of the caesarean section.

Conflict of interest: none declared.

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