

## Fetomaternal Outcome of Vaginal Birth after Previous Cesarean Section (VBAC): Study on Tertiary Level Hospital in Bangladesh

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DOI: 10.36348/sijog.2021.v04i11.006

Received: 12.10.2021 | Accepted: 19.11.2021 | Published: 24.11.2021

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### Abstract

**Background:** Cesarean sections have been a part of human history from the beginning of time. There are legends from both western and eastern civilizations of this technique leading to live mothers and children. In today's obstetrics practice, pregnant women who have had cesarean sections in the past are becoming more commonplace. There are proven hazards to the mother's health following a cesarean section in subsequent pregnancies, such as placenta praevia or rupture of the uterine scar. Premature birth, low birth weight, and perinatal mortality have also been linked to it. Because of the risk of harm to the surrounding structures, repeat cesarean sections are extremely difficult to perform. **Aim:** To evaluate the outcome of vaginal birth after cesarean section (VBAC) of patients admitted into a tertiary level hospital. **Methods:** It was prospective, non-randomized, and observational, which involved interviewing all pregnant patients admitted in Gynae and Obstetric Department of RMCH with a history of one or more cesarean sections were included in this study. **Results:** Out of 50 cases mean age of the study population was 26.92±4.67. Eighty-four percent of study subjects received a regular antenatal check-up during their present pregnancy. A maximum number of 29 patients (58%) had BMI < 20. Before VBAC 40% of subjects had previous vaginal delivery followed by cesarean section, 4% of subjects had previous cesarean section followed by vaginal delivery, and 56% of subjects had only one delivery by caesarean section. All the caesarean sections were done due to nonrecurrent causes. Bishop's scoring during admission for present pregnancy was the highest number i.e., 30(60%) had dilatation ≥4 cm, 60% of the subjects had ≥80% effacement. Women presenting with established labor had a greater chance of successful VBAC. Most of the patients 39 had spontaneous onset of labor while in 11 cases were induced. Eighty-six percent underwent VBAC successfully, and 14% of cases failed to undergo VBAC. Six subjects (12%) had undergone caesarean section. During caesarean section, peritoneal adhesion (83.33%), bladder adhesion with lower segment (66.67%), liquor-stained amniotic fluid (66.67%), cord around the neck (33.33%) were found. It was observed that the majority (76%) of the neonates were born with a birth weight between 2.5 to 3 kg, and 92% of the neonates had an APGAR score 7 at 1 min and 10 at 5 min. Only 2 neonates died after VBAC, but they died a few hours after admission in the Neonatal ward. The mother of these two neonates was in a prolonged 2nd stage of labor on admission. Peripartum hysterectomy was done in one case due to extension of cervical tear up to the body of the uterus following precipitate labor. The average length of hospital stay was about 24 hours. After delivery for most (86%) of the mothers (after VBAC), whereas only 2% stayed for more than 5 days (who underwent peripartum hysterectomy). **Conclusion:** From the Study, it could be concluded that if a mother fulfilled the criteria, VBAC could be attempted as it has a few maternal and fetal complications. If risk factors are identified and proper antenatal care is given, VBAC could be successfully undertaken without any grave maternal and fetal outcomes.

**Keywords:** Cesarean Section, VBAC, Rajshahi Medical college Hospital.

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### INTRODUCTION

The cesarean delivery rate is increased dramatically from 5% to more than 31% in the last 35 years. Pregnancy with a prior history of cesarean section is very common in today's obstetric practice [1]. Because of the "once a cesarean always a cesarean" rule, cesarean birth rates rose [2]. The problem is that

this strategy just can't be sustained much longer. Women who have had a previous C/S should be encouraged to undergo a planned vaginal delivery if they have no other reason to have one during this pregnancy [3]. Prior cesarean sections are extremely difficult to measure in terms of risk. The subsequent pregnancy may be associated with significant problems

such as placental abruption and praevia. Perinatal mortality and premature birth are both linked to this condition.

After one or more cesarean sections, Cynthia Chazotte found that 2.4% of the patients suffered complications such as uterine rupture and placenta accretion with concomitant hemorrhage [4]. Premature births, urinary incontinence, and other complications can develop throughout pregnancy, labor, and repeat cesarean sections [5]. Repeated cesarean sections raise the risk of bladder damage by three times [6]. A uterine rupture after a VBAC (vaginal birth after cesarean delivery) can be prevented if diagnosed and treated quickly. In 1995, the percentage of women who attempted a vaginal birth following cesarean surgery (VBAC) increased from 35 to as high as 64 percent. VBAC rates virtually doubled without decreasing success rates, which indicates that many repeat cesarean births may have been avoided. After the research, the rate of repeat cesarean births dropped from 7.4% to 3.85% [7].

Women who have had a previous cesarean section are less likely to endure a trial of labor, which results from their own choice as much as the obstetricians'. This decision will be influenced by how a woman is advised. Even if the chances of a repeat cesarean section are 30 percent, the lady will be swayed by this information from the doctor, who has no objections to it. A trial of labor vs an elective cesarean section is associated with much more morbidity, further influencing the choice [8].

Maternal requests for cesarean sections have gained a lot of attention and notoriety in medical literature in recent years [9]. Criteria of excellent medical practice have been outlined by the General Medical Council (GMC) (GMC 1995). When discussing a patient's request for an elective cesarean section with them, keep in mind that they have a right to be fully included in the decision-making process. Following the publication of the Patients Charter and the changing nature of birthing, women were given more of a voice in their obstetric treatment, which may have contributed to the rise in cesarean sections.

Patients who desire an elective cesarean section should only do so when there is a demonstrable benefit to both the mother and her unborn child. Who knows why such a large number of people would go through with it? According to a few anecdotes, pregnant women are concerned about their own and the fetus's safety. Another worry is that they may go through a long period of labor just to be forced to have a second cesarean. Incredibly, women will choose to put themselves and their unborn child at danger for a major surgical surgery that has no known benefit to either of them. Obstetricians may be to blame, it has been suggested. Women may have seen during consultations

that their obstetricians believe an elective cesarean section is the best option, and hence requested this during their prenatal visits [10].

Because effective counseling and evaluation of women who have had previous cesarean sections has been regarded a major technique of decreasing the cesarean section rate, according to the latest publications, a trial of labor is not risk-free, and it should not be carried out carelessly. If there are no obstetric contraindications, most women who are ready to give it a try should be encouraged to do so, but under medical supervision, to lower the rate of cesarean delivery [11]. Scar dehiscence is far less common than previously assumed in LSCS, according to several research. There is a 75% success rate in childbirth following a prior cesarean surgery, and the uterine rupture risk is less than 1% [12]. The chance of uterine rupture increases by 0.24 percent when a woman goes through a trial of labor.

Consider giving a trial of labor for those individuals in impoverished nations like Pakistan who have not been diagnosed with an absolute contraindication to vaginal birth. Women who have already had a cesarean section once must switch to having their babies delivered in a hospital rather than having another one performed at home [13]. The management of the circumstances described in the preceding section necessitates the education of the healthcare workforce. Accordingly, the department's policy on deciding which cases should be eligible for a trial of labor should undergo a thorough examination and revision. The purpose of this study is to determine the maternal and perinatal problems and mortality and morbidity in individuals who have had cesarean sections in the past.

### **The rationale of the study**

Mothers and children who have undergone cesarean sections are more likely to suffer from long-term complications. The maternal morbidity rate following cesarean section has been reported to be as high as 35.7%. Repeated cesarean sections in subsequent pregnancies resulted in a higher maternal death and morbidity rate because of a catastrophic consequence. A VBAC has obvious benefits to a repeat cesarean section. The surgical morbidity and mortality are fully removed, the hospital stay is substantially shorter, and the associated costs are far less expensive [14]. Cesarean section rates must be lowered. This may be done to a modest amount by avoiding primary cesarean procedures performed without specific indications and, more crucially, by trying vaginal birth after a previous cesarean section, which is safe for the fetus [15]. Patients hospitalized at RMCH were the focus of this investigation.

## OBJECTIVE

### General Objectives

- To evaluate the outcome of vaginal birth after cesarean section (VBAC) of patients admitted into a tertiary level hospital

### Specific Objectives

- To find out the efficacy and safety of vaginal birth after cesarean section.
- To find out any antepartum maternal complication related to previous cesarean section.
- To find out intrapartum maternal & fetal complications.
- To find out the incidence of emergency operative interference in the patients with previous cesarean section.
- To find out fetal outcomes like prematurity, perinatal mortality & morbidity.
- To find out maternal morbidity and mortality in the patients with previous cesarean section.

### Review of Literature

It is possible to have a vaginal birth after a prior cesarean section has been performed, which is known as a "VBAC" (surgically). It is estimated that 90% of women who have given birth via cesarean section are eligible for a VBAC [16]. VBAC success rates range from 60 to 80 percent, which is equal to the general vaginal delivery rate in the United States in 2010 [17]. It was decided in March 2010 that "given the existing evidence, the trial of labor is a feasible choice for many pregnant women with a previous low transverse uterine incision," by the National Institute of Health.

When it comes to cesarean sections, VBAC is a safe, reasonable option for the vast majority of women who have had a previous cesarean section, according to the U.S. Department of Health & Human Services Agency for Healthcare Research and Quality (AHRQ) [18]. In July 2010, the American College of Obstetricians and Gynecologists (ACOG) also revised their own guidelines to be less restrictive of VBAC, stating, "Attempting a vaginal birth after cesarean (VBAC) is a safe and appropriate choice for most women who have had a prior cesarean delivery, including for some women who have had two previous cesareans [19]. Because of the scar left by a cesarean section, uterine walls are weaker than they normally are. The risk of a ruptured uterus during childbirth in a subsequent pregnancy is modest, but it's something to be aware of (0.47 % chance among women having a trial of labor versus 0.03 % among women scheduling repeat cesarean deliveries). The chance of perinatal mortality is roughly 6 % if a uterine rupture occurs. Those who have had a prior or lower uterine segment cesarian are regarded the greatest prospects since the uterus is under less physical stress during labor and delivery. The negatives of VBAC are typically modest and identical to the drawbacks of any vaginal birth,

including the danger of perineal tearing, apart from the risk of uterine rupture. Compared to a repeat cesarean birth, a VBAC reduces maternal morbidity, NICU admissions, hospital stay time, and medical expenditures [20].

Vaginal birth is tried but ends in another cesarean, which increases the chance of postoperative infection by twofold. Following a failed vaginal birth, having a cesarean procedure increases the likelihood and severity of all of the cesarean surgery's problems. Placenta accrete is claimed to affect 50-67 % of women who have had three or more cesarean sections, and the risk of internal abdominal adhesions, bladder damage, and aberrant placentation increases drastically as the number of operations increases. It has been found that "abnormal placentation has been associated with both maternal and neonatal morbidity, including need for antepartum hospitalization, preterm delivery, emergency cesarean, hysterectomies and blood transfusions, surgical injury and intensive care unit (ICU) stay, fetal and maternal death." The chance of VBAC for an individual based on demographic and obstetric characteristics. For examples

### Maternal characteristics

There are a few research papers that evaluate the influence of pre-pregnancy weight and height on delivery methods. Cesarean birth is more common in shorter women and women who are overweight. It's important to understand that cesarean birth has been linked to both higher prenatal weight and increased gestational weight growth. Studies in the VBAC setting have shown that morbidly obese women have a greater probability of failing a trial of labor than women who are normal weight. Interpregnancy weight gain has been proven to increase the likelihood of failure in a second trial of labor, whereas interpregnancy weight loss has not shown a benefit in VBAC success rates [21]. VBAC research has also studied the influence of maternal age. An approximately three-fold greater risk of a failed labor attempt for women over the age of 40 who have had a previous cesarean birth is present when confounding variables are taken into account. Women under the age of 40 were awarded an additional point in one scoring system as a predictor for successful VBAC [22].

### Birth weight

The increased risk of cesarean delivery in nulliparous women is about fourfold when the baby is more than 4000 grams. Patients with a birth weight of more than 4000 g have been found to have a decreased rate of VBAC than those with lower birth weight. Many studies have shown a higher failure rate for a trial of labor with increased birth weight in agreement with these findings [23].

**Gestational age**

Pregnant women who have TOLAC after 40 weeks of gestation have repeatedly been lower rates of successful VBAC [24].

**Cervical examination on admission**

Patients who arrive at labor and delivery with advanced cervical examination results have a higher success percentage of vaginal birth. There have been studies on several aspects of cervical examination, including cervical dilation and effacement. There is a greater chance of a successful VBAC if a patient's cervical examination findings are further advanced when they first arrive [21].

**Interpregnancy interval**

Women achieved a VBAC success rate of 86 % with interpregnancy intervals greater than 18 months; those with interpregnancy intervals shorter than 18 months had 79%. This difference was not statistically significant, and it is not apparent if the period between pregnancies impacts the success rate or merely the risk of uterine rupture [25].

**Preterm delivery**

Preterm labor and delivery is a chance to re-educate women about the dangers and advantages of a trial of labor following cesarean birth. Quinones *et al.*, analyzed 12,463 women who tried a trial of labor, and the VBAC success rates for the term and preterm groups were 74% and 82%, respectively. As a result, there was a decrease in preterm births' risk of uterine rupture. These findings can be utilized to advise women who have had a cesarean section in the past about the risks of premature labor [26].

**Nature of hysterotomy**

When it comes to TOLAC, doctors aren't confident enough in their ability to perform the procedure on women who have previously undergone an incision above the round ligament insertion (i.e., a conventional hysterotomy). If you've already had an old-fashioned surgical procedure, you're going to be more likely to get pregnant again. These women can withstand a uterine rupture before going into labor, hence they are frequently delivered around 36-37 weeks of pregnancy. Uterine rupture risk is estimated to be between 6 and 12 percent in this group of individuals. Patients who have had a vertical lower uterine segment incision have a larger risk of uterine rupture than those who have undergone a transverse lower uterine segment incision. These studies found a uterine rupture rate of 0.8-1.3 percent [27].

**Number of prior cesarean deliveries**

Although research has shown that women who have had more than one cesarean birth are at an increased risk of uterine rupture, it has not been possible to draw any firm conclusions about how this risk compares to that of women who have only had one

prior uterine incision [28].

**Prior vaginal delivery**

The risk of recurrent uterine rupture appears to be reduced if the mother has previously given birth through vaginal delivery. Prior vaginal delivery patients had a 0.2 % rupture risk, compared to 1.1% for those who had never given birth vaginally. A 6.2-to-1 adjusted odds ratio was used to account for potential confounding factors in the research. For the first time, no research has been done to compare the rate of rupture in patients who previously underwent VBAC with those who underwent cesarean section. Following research has confirmed this conclusion, however, the impact magnitude has not been quite as big [21].

**Induction of labour**

Only in the last five years has the connection between induction of labor and uterine rupture been studied. In major research, a uterine rupture rate of 2.3% was discovered in individuals who had induced labor that could not account for confounding variables. Assuming that confounding variables are accounted for, the adjusted odds ratios for induced labor patients against spontaneous labor patients were 24 in numerous investigations [29].

**The 2010 ACOG guidelines makes the following recommendations:****The following recommendations are based on good and consistent scientific evidence (Level A) [30]:**

- Most women with one previous cesarean delivery with a low-transverse incision are candidates for and should be counseled about VBAC and offered TOLAC.
- Epidural analgesia for labor may be used as part of TOLAC.
- Misoprostol should not be used for third-trimester cervical ripening or labor induction in patients with cesarean delivery or major uterine surgery.

**The following recommendations are based on limited or inconsistent scientific evidence (Level B):**

- Women with two previous low transverse cesarean deliveries may be considered candidates for TOLAC.
- Women with one previous cesarean delivery with a low transverse incision, who are otherwise appropriate candidates for twin vaginal delivery, may be considered candidates for TOLAC.
- External cephalic version for breech presentation is not contraindicated in women with a prior low transverse uterine incision at low risk for adverse maternal or neonatal outcomes from external cephalic version and TOLAC.
- Induction of labor for maternal or fetal indications remains an option in women undergoing TOLAC.
- TOLAC is not contraindicated for women with previous cesarean delivery with an unknown

uterine scar type unless there is a high clinical suspicion of a previous classical uterine incision.

**The following recommendations are based primarily on consensus and expert opinion (Level).**

- A trial of labor after previous cesarean delivery should be undertaken at facilities capable of emergency deliveries. Because of the risks associated with TOLAC and that uterine rupture and other complications may be unpredictable, the College recommends that TOLAC be undertaken in facilities with staff immediately available to provide emergency care. When resources for immediate cesarean delivery are not available, the College recommends that health care providers and patients considering TOLAC discuss the hospital's resources and availability of obstetric, pediatric, anesthetic, and operating room staff. Respect for patient autonomy supports that patient should be allowed to accept increased levels of risk. However, patients should be clearly informed of such a potential increase in risk and management alternatives.
- After counseling, the ultimate decision to undergo TOLAC or a repeat cesarean delivery should be made by the patient in consultation with her health care provider. The potential risks and benefits of both TOLAC and elective repeat cesarean delivery should be discussed. Documentation of counseling and the management plan should be included in the medical record.

Neither elective repeat cesarean delivery nor TOLAC is without maternal or neonatal risk. The risks of either approach include maternal hemorrhage, infection, operative injury, thromboembolism, hysterectomy, and death. Most maternal morbidity that occurs during TOLAC occurs when repeat cesarean delivery becomes necessary. Thus, VBAC is associated with fewer complications, and a failed TOLAC is associated with more complications than elective repeat cesarean delivery [14]. A 2004 study by Landon *et al.*, found that the overall measure of morbidity was higher among women who underwent VBAC. A subsequent study demonstrated that among 15,338 patients at term undergoing TOLAC (trial of labor after cesarean section) there were 2 neonatal deaths and 7 cases of hypoxic-ischemic encephalopathy, for rates of 1.4 per 10,000 and 4.6 per 10,000 respectively [31]. Proper selection, appropriate timing, and suitable induction methods with close supervision by competent staff are the key factors in achieving greater success in VBAC [32].

## MATERIALS AND METHODS

This study was a Prospective, non-randomized and observational Study. Six months-from March 2017 to August 2017. 50 women with a previous cesarean section delivered carried out at the Department of

Obstetrics and Gynaecology, Rajshahi Medical College Hospital, Rajshahi.

### Inclusion Criteria

- Patient with a history of only one previous caesarean section for nonrecurrent cause.
- Patient belonging to any age group and parity
- Patient admitted with spontaneous onset of labor pain.
- Admitted patient who went into spontaneous labour in the hospital.

### Exclusion Criteria

- Associated medical disorders like anemia (Hb<10gm%), pregnancy-induced hypertension, diabetes, heart disease and renal disease
- Estimated fetal weight > 3.5 kg
- Breech presentation
- History of postoperative wound infection following previous LUCS
- Details of the previous cesarean operation not available
- Contraindications to vaginal delivery like cephalopelvic disproportion, major degree placenta praevia, and transverse lie.
- Postdated pregnancy with unfavorable cervix

### Data Analysis

After collecting each day, the data were checked, followed by editing and cleaning to detect errors or omissions and maintain the data's consistency and validity. Then the data were entered into the computer using Statistical Package for Social Sciences (SPSS-22 version) software (SPSS Inc, Chicago, IL, USA). The results were presented in tables and figures. The statistical terms included in the study were mean, standard deviation, frequency, and percentage.

## RESULT

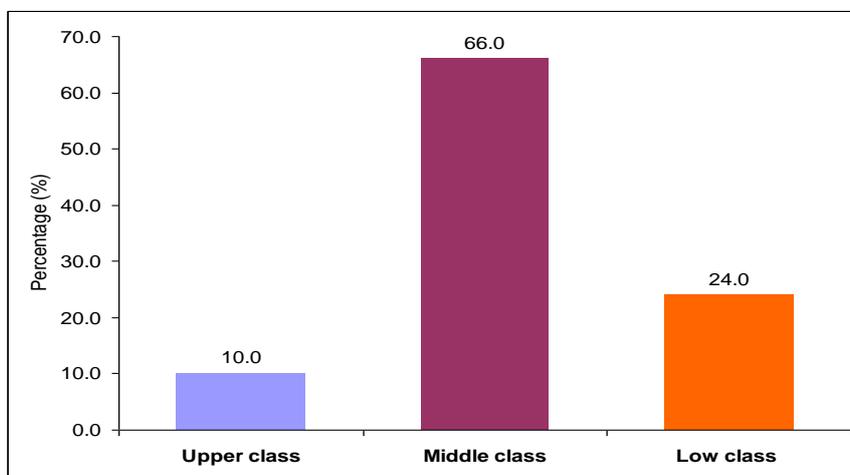
This observational cross-sectional study was conducted to find out fetomaternal outcome after VBAC in the Department of Obstetrics and Gynecology, Rajshahi Medical College Hospital, Rajshahi. A total number of 50 obstetric cases were included in this study. The findings derived from the data analysis are furnished below:

**Table 1: Age distribution of the study subjects (n=50)**

Age group	Number	Percentage
≤ 20 years	02	4.0
21-25 years	21	42.0
26-30 years	26	52.0
>30 years	01	2.0
Total	50	100.0
Mean ±SD	26.92(±4.67)	
Range	(18-34) years	

Table 1 shows that the mean age of the study population was 26.92 years with a standard deviation ( $\pm$ SD) of  $\pm$ 4.67 years and their age ranged from 18 to 34 years. The majority of subjects (52.0%) were found in 26-30 years.

Figure 1 shows that most of the study subjects (66.0%) were from the middle-income group, 24% of subjects were from the low-income group, and 10.0% subjects were from the upper-income group.



**Figure 1: Socioeconomic status of the study population**

**Table 2: Distribution of cases according to the pattern of antenatal care (n=50)**

Pattern of antenatal care	Number	Percentage
Regular	42	84.0
Irregular	08	16.0
Total	50	100.0

Table 2 shows that the majority of the study subjects (84%) received a regular antenatal check-up (that is 3 times or more) during their present pregnancy

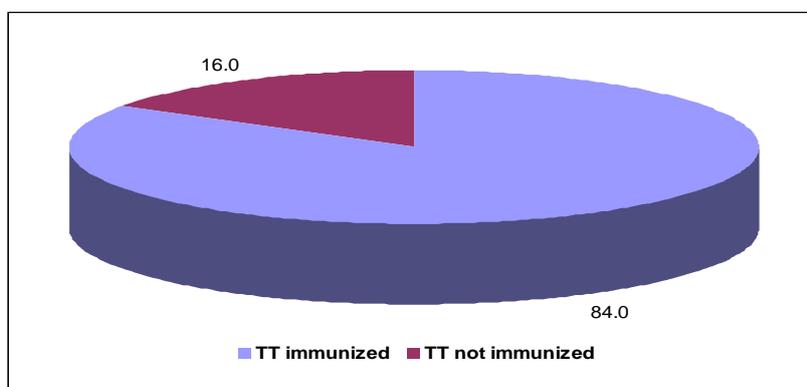
16.0% subjects had irregular (that is < 3 times) antenatal checks up.

**Table 3: Distribution of cases according to body mass index (n=50)**

BMI (kg/m <sup>2</sup> )	Number	Percentage
< 20	29	58.0
20-26	21	42.0
Total	50	100.0

Table 3 reveals distribution of cases according to body mass index (BMI). Maximum number of 29 patients (58.0%) had BMI < 20, while 21 patients (42.0%) had BMI > 20.

Figure 2 shows that most (84%) respondents took the T.T. vaccine during their present pregnancy, and 16.0% of women did not take it.



**Figure 2: T.T. immunization status of study subjects**

**Table 4: Distribution of the study subjects by parity**

Parity	Number	Percentage
Two	30	60.0
3 and more	20	40.0
Total	50	100.0

Table 4 shows that out of 50 respondents, most of the patients (60%) were of Para 2, 40% of the patients were of Para 3 and more.

**Table 5: Mode of previous delivery in Para 2 or more cases (n=50)**

Mode of delivery	Number	Percentage
Only by caesarean section	28	56.0
First normal vaginal delivery then caesarean section	20	40.0
First caesarean section then VBAC	02	04.0

Table 5 shows that 56.0% of subjects had a previous history of caesarean section. 40.0% of subjects had first normal vaginal delivery, then caesarean

section 4.0% of subjects had first caesarean section than vaginal delivery.

**Table 6: Indication of previous caesarean section (n=50)**

Indication of caesarean section	Number	Percentage
Primi breech	10	20.0
Foetal distress	25	50.0
Cord prolapse	02	04.0
Big baby	03	06.0
PROM with cervical dystocia	07	14.0
Transverse lie	03	06.0

Table 6 shows the record of the indications of the previous caesarean section. All the cases were due to non-recurrent causes. Most of the subjects (50.0%) underwent caesarean section due to foetal distress, and

the other 20.0%, 4.0%, 6.0%, 14.0%, and 6.0% were due to primi breech, cord prolapse, Big baby, PROM with cervical dystocia, and Transverse lie respectively.

**Table 7: Complications after previous caesarean section (n=34)**

Complications	Number	Percentage
Wound infection	12	24.0
Postpartum haemorrhage	10	20.0
Urinary tract infection	12	24.0

Multiple responses were elicited

Table 7 shows that in the previous caesarean section, wound infection (24.0%), postpartum

hemorrhage (20.0%), and urinary tract infection (24.0%) prevailed.

**Table 8: Findings of Bishop's scoring during admission for present pregnancy (n=50)**

Bishop score	Number	Percentage
<b>Cervical dilatation</b>		
< 4 cm	20	40
≥4 cm	30	60
<b>Effacement</b>		
< 80%	20	40
≥ 80%	30	60
<b>Station</b>		
-2	03	06
-1	15	30
0	17	34
+1	10	20
+2	05	10

Table 8 shows cases according to findings of Bishop scoring during admission for present pregnancy. The highest number i.e. 30 (60.0%) had dilatation  $\geq$  4 cm. sixty percent of the subjects had  $\geq$  80% effacement. The fetal station was in 0 positions in most of the cases (34.0%).

**Table 9: Outcome of induction of labour at present pregnancy (n=11)**

Induction	Number	Percentage
Successful	06	54.55
Unsuccessful	05	45.45

Table 9 shows that labor induction was given in 11 cases and the success rate was only 54.5% and 45.5% of cases were unsuccessful.

**Table 10: Outcome of augmentation of labour (n=25)**

Augmentation	Number	Percentage
Successful	13	86.66
Unsuccessful	12	13.34

Table 10 shows that augmentation of labour was implemented in 25 cases, and 86.66% of cases were successful. Only 13.34% cases were unsuccessful.

**Table 11: Outcome of the trial of vaginal delivery following previous lower segment caesarean section (n=50)**

Mode of delivery	Number	Percentage
Successful VBAC	43	86
Normal vaginal delivery	25	50
Ventouse delivery	18	36
Failure after trial for VBAC		
Emergency C.S.	06	12
Peripartum hysterectomy (uncontrolled PPH due to extension of cervical tear upto body of uterus)	01	02
Total	50	100

Table 11 shows that 86% underwent VBAC successfully and 14% cases failed to undergo VBAC.

**Table 12: Requirement of episiotomy (n=43)**

Requirement of episiotomy	Number	Percentage
Yes	35	81.39
No	08	18.60

Table 12 shows that among 50 cases episiotomy was given in 35 cases (81.39%) and 18.60% cases did not require episiotomy.

**Table 13: Preoperative findings in cases undergoing caesarean section (not having VBAC) (n=6)**

Preoperative findings	Number	Percentage
Bladder adhesion with lower segment	04	66.67
Peritoneal adhesion with lower segment	05	83.33
Cord around the neck of the fetus	02	33.33
Liquor stained amniotic fluid	04	66.67
Impeding scar rupture	03	50.00

Multiple responses were elicited

Table 13 shows that peritoneal adhesion was 83.33% during operation, liquor-stained amniotic fluid was found in 66.67%, peritoneal adhesion with lower

segment was in 66.67%, cord around the neck of the fetus in 33.33% cases.

**Table 14: Maternal complication after VBAC**

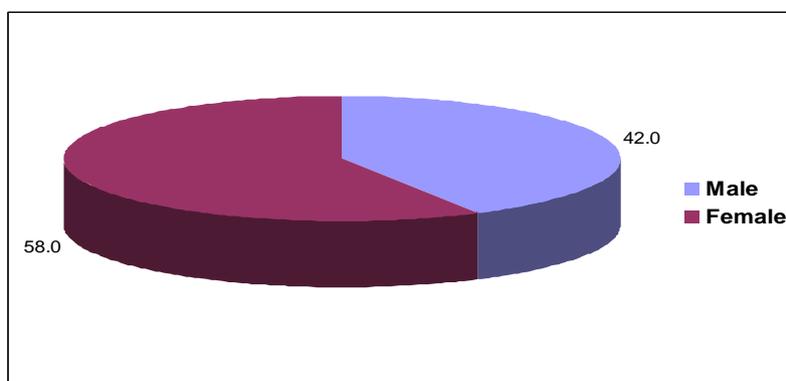
A maternal complication of VBAC	Number	Percentage
Retained placenta	--	--
PPH	02	04.0
Third-degree perineal tear	01	02.0
Uterine rupture		
Scar rupture	00	00.0
Other site rupture-(extension of cervical tear up to the body of the uterus)	01	02.0
Peripartum hysterectomy	01	02.0

Multiple responses were elicited

Table 13 shows that during VBAC, there was 3<sup>rd</sup>-degree perineal tear in 1 case (2%). After VBAC, the rupture in another site of the uterus (body) was

found in 1 case (2%), and peripartum hysterectomy was done in 1 patient (2%).

Figure-3 shows 21(42%) neonates were male, and 29(58%) were female.



**Figure 3: Distribution of the neonatal sex (n=50)**

**Table 15: Distribution birth weight of the baby (n=50)**

Birth weight	Number	Percentage
<2.5	10	20.0
2.5-3kg	38	76.0
3-3.5	01	02.0
>3.5kg	01	02.0
Total	50	100.0

Table 15 gives details of cases by birth weight of baby. Maximum number i.e 38(76.0%) weight 2.5-

3kg, 10(20%) were <2.5kg and 02(04.0%) weight above 3kg.

**Table 16: Distribution of APGAR score (n=50)**

APGAR score	At 1 minute	At 5 minute
0-3	02(04)	02(04)
4-6	04(08)	02(04)
>7	44(88)	46(92)
Mean±SD	6.92±1.07	8.94±1.07

Table 16 shows that Apgar score at 1-minute majority was 44(88%) were >7 and mean score were

6.92±1.08). Apgar score of babies at 5minutes majority were 46(92%) were >7 and mean score were 8.94±1.07)

**Table 17: Neonatal response after birth (n=50)**

Neonatal response	Number	Percentage
Spontaneous cry	44	88.0
Cried after resuscitation	02	04.0
Admission to the neonatal care unit	04	08.0
Total	50	100.0

Table 17 shows neonatal response after birth majority (88%) were spontaneous cry, 02(04%) were

cried after resuscitation and 04(08%) were admitted to the neonatal care unit.

**Table 18: Living status of the neonates (n=50)**

Outcome	Number	Percentage
Alive	48	96.0
Still birth	0	0.0
Neonatal death	02	04.0
Total	50	100.0

Table 18 shows the living status of the neonates 48(96.%) babies were alive, and 02(04%) babies were neonatal death.

## DISCUSSION

After a first low transverse caesarean operation, a woman's option to attempt a VBAC or to elect a repeat caesarean section has various and complicated ramifications. Recent years have seen academics and physicians focus on the immediate safety issues of VBAC, including the danger of uterine rupture and its related risks of mother morbidity and possibly newborn morbidity [33].

This observational cross-sectional study was conducted to find out fetomaternal outcome after VBAC in the department of Obstetrics and Gynecology, Rajshahi Medical College Hospital, Rajshahi. A total number of 50 obstetric cases were included in this study; the study period was six months. These cases had a history of one caesarean section for nonrecurrent causes.

In this study mean age of the study population was  $26.92 \pm 4.67$  years, and their age ranged from 18 to 34 years. The majority of subjects (94%) were found in the age group of 21-30 years. Compared with Kashif S *et al.*, [34] study shows the distribution of cases according to age. A maximum number of females were in the age group of 20–40 years, that is 87 (87.0%). While the minimum number is 13 (13%) were above the age of 40 years with a mean age of  $34.27 \pm 6.45$ .

This study reveals the distribution of cases according to body mass index (BMI). Maximum number of 29 patients (58.0%) had BMI < 20, while 21 patients (42.0%) had BMI > 20. In the Kashif S *et al.*, [34] study, 2/3rd of patients who had successful vaginal delivery had a BMI of <20. This was also documented by a study in Columbia University, New York, which showed a maximum success rate of VBAC at BMI of >19.8.8 This shows that increasing BMI and excessive weight gain during pregnancy both decrease VBAC success. Before VBAC, 40% of subjects had previous normal vaginal delivery followed by caesarean section, 4% of subjects had a previous history of caesarean section followed by vaginal delivery, and 56% subjects had only one delivery, which was caesarean section. This reflected that VBAC could be tried in the case of those who had the previous history only of the caesarean section followed by vaginal delivery.

In the Kashif [34] study, 79 (79.0%) women who had VBAC had a history of prior vaginal delivery. Similar results were obtained in a survey carried out in Mount Sinai Medical Centre, New York, showing an 87% success rate in a similar group of women [35].

Due to nonrecurrent reasons, all prior caesarean sections were unnecessary. Fetal distress

accounted for 50% of the cases, with 20%, 4%, 6%, 40%, and 6% of those who required caesarean section owing to primi breech, cord prolapse, Big baby, and PROM with cervical dystocia, and Transverse lying in the other cases. Breech presentation and fetal distress are related to a greater rate of successful VBAC in women who had previously undergone a caesarean section. A university in Toronto, Canada, has shown the same outcomes with this strategy [36].

This study shows that most of the cases (60%) had cervical dilatation of about 4 cm. Sixty percent of the subjects had  $\geq 80\%$  effacement. My results coincide with results of a study carried out by Flamm and Geiger, which showed an 86% success rate at cervical dilatation of > 4 cm.59

Most of the patients, 37(74%), had spontaneous on the set of labour while in 11(22%) of cases were induced. And the success rate of induction was 45.6%. Augmentation of labour was implemented in 15 cases, and 86.7% was successful; episiotomy was given in 33(70%) cases, 18 cases (100%) underwent VBAC successfully with the aid of ventouse.

It was found in the Kashif [34] study that spontaneous onset of labour and maintenance of labour was a favorable factor for vaginal delivery. 92% of cases had spontaneous onset of labour, and in 86% of cases, no oxytocin was used. In 2005, the ACOG committee agreed with this, as well [14]. In our study, 70% of women who had previously had a caesarean were normally delivered via vaginal birth. According to most research, following an LSCS, around 60% to 80% of women may give birth vaginally [37].

In our study, individuals who had previously undergone a caesarean section were more likely to successfully deliver a baby vaginally [38]. (76.19% vs. 68.96%). This research found no evidence of maternal death. According to the majority of published data, uterine rupture with LSCS is less than 1%. Patients who had a vaginal birth attempt fail had double the number of complications as those who had a successful vaginal delivery. Women who had previously undergone a C-section who attempted vaginal delivery but were unsuccessful had the highest rate of comorbidity [39].

Eighty-three and a third percent of caesarean section patients without VBAC discovered peritoneal and bladder attachment to lower segments, liquor-tinged amniotic fluid, and a neck chord in about 33 and a third percent of cases. Fetal weight is an important factor predicting the success of VBAC. In my study, 96% of the fetal weight was < 3.5 Kg, and in only 4% of cases, fetal weight was above 3.6 Kg. These results are comparable to a study carried out in West Africa, which showed that fetuses weighing > 3.5 Kg are less likely to have a successful vaginal delivery [40].

Regarding APGAR score, most 92% of the neonates had a score >7 at 1 mm and 10 at 5 mm. Only 2 neonates died after VBAC, but they died a few hours after referral in the neonatal ward. On admission, the mother of these two neonates was in prolonged 2 stages of labor with severe fetal bradycardia. The newborns were delivered with the aid of ventouse. For the late reporting of these two mothers, proper monitoring could not be possible. If she would come earlier, adequate monitoring of fetal well-being could be possible, she could undergo caesarean section earlier, and the baby could be saved. Previous studies reported that the incidence of fetal death was 0.02 -0.00 per 1000 VBAC [41]. This was due to uterine rupture and fetal hypoxia during labor. The average length of hospital stay was about 24 hours after delivery for most 86% of the mothers. Only 2% stayed for >5 days (those who underwent caesarean section and peripartum hysterectomy).

## CONCLUSION

From the study, it could be concluded that if a mother fulfilled the criteria, VBAC could be attempted as it has a few maternal and fetal complications. If risk factors are identified, and proper antenatal care is given, VBAC could be successfully undertaken without grave maternal and fetal outcomes.

## LIMITATION

- Modern electronic monitoring devices like cardiotocography and intrauterine pressure catheter were not available to accurately assess fetal condition and uterine activity.
- Study of fetal scalp blood pH has not been possible in suspected fetal distress cases.
- The past medical and surgical records were inadequate.

## RECOMMENDATIONS

It was a hospital-based single-centered study, so it will not reflect the actual picture of the total population. For this reason, multicenter, large population studies need to be undertaken to establish an accurate concept for VBAC.

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