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# The Outcome of VBAC after the Previous One Cesarean Section: A Study in a Tertiary Care Hospital

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**Abstract** **Original Research Article**

***Introduction:*** The rate of primary cesarean section (CS) is on the rise. More women report a history of a previous CS. A trial of vaginal delivery can save these women from the risk of repeat CS. Vaginal birth after cesarean section (VBAC) is one of the strategies developed to control the rising rate of cesarean sections. With present techniques and skills, the incidence of cesarean scar rupture in subsequent pregnancies is very low. This study aimed to assess the outcome of VBAC after a previous one cesarean section. ***Methodology:*** This prospective observational study was conducted at the Department of Obstetrics & Gynecology, Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka, Bangladesh. The study was carried out from March 2011 to March 2012. A total of 100 patients who were admitted in the hospital were selected as study subjects as per inclusion criteria. Evaluation of all patients was done by medical history and physical examination. A purposive convenient sampling technique was applied for the study. Necessary data were collected by using pre-formed structured questionnaire. Informed written consent was obtained from all study subjects. Perioperative outcomes were noted routinely. All data were kept confidential and used only for this study purpose. Ethical clearance was obtained from the hospital. Descriptive statistical analysis was performed by using Statistical Packages for Social Sciences (SPSS-25) software. ***Results:*** Most of the patients (40, 40.0%) belonged to the 26-31 years age group, followed by (35, 35.0%) >31 years of age group, and the rest (25, 25.0%) belonged to the 21-25 years of age group. In this study, 65.0% of patients showed successful VBAC, 24.0% of patients underwent elective repeat C/S, and 11.0% had failed VBAC. Indications of repeat C/S were non-availability of operative note (10, 10.0%), followed by big baby (06, 6.0%), previous uterine incision extension (02, 2.0%), malpresentation (04, 4.0%), on patient request (02, 2.0%). Concerning pregnancy outcome, fetal distress occurred in 7.0%, 30.0%, and 5.0% of patients in no trial of scar, successful VBAC, and failed VBAC respectively. Failure to progress was seen in 12.0%, 18.0%, and 5.0% of patients in no trial of scar, successful VBAC, and failed VBAC respectively. In terms of antepartum hemorrhage, 2.0%, 7.0%, and 1.0% of patients respectively. Moreover, malpresentation was seen in 3.0%, 10.0%, and 2.0% of patients with no trial of scar, successful VBAC, and failed VBAC respectively. Regarding maternal morbidity, 94.0% of women did not show any major complications, 3.0% of women had a post-partum hemorrhage, followed by 2.0% of patients experienced scar dehiscence, and only 1.0% experienced adherent placenta. ***Conclusion:*** This study concluded that, in carefully selected cases, vaginal delivery after a previous cesarean section was safe and successful. This study also found that women's wishes and the presence of conditions favorable for vaginal delivery influenced the selection of patients for this procedure.

**Keywords:** Vaginal Birth after Cesarean (VBAC), Malpresentation, Uterine incision.



## INTRODUCTION

Vaginal birth after cesarean section (VBAC) is one of the strategies developed to control the rising rate of cesarean sections. It is a trial of vaginal delivery in selected cases of a previous CS in a well-equipped hospital. In the present era of lower segment cesarean section (LSCS), cesarean-related morbidity and mortality are significantly reduced [1]. VBAC is a reasonable choice for the majority of women. Adverse outcomes were rare for both elective repeat cesarean delivery and trial of labor [2]. Pregnant women with one previous CS are faced with two delivery options: vaginal birth after cesarean (VBAC) section or elective repeat CS. Rates of successful VBAC vary from one study to another. For instance, a large study in the USA (33,560 women) showed that women attempting vaginal birth after a prior CS had around a 73% of success rate. VBAC section has fewer complications and faster recovery compared with CS. Women who

had a previous successful VBAC have the best chance to deliver vaginally with a success rate of 85%–90% [3]. Vaginal delivery is associated with fewer risks, requires less anesthesia, stances a lower potential for postpartum morbidity, involves a shorter hospital stay, is more reasonable, and encourages earlier and better bonding between mother and infant. These advantages are significant, especially in a resource-poor setting where sociocultural repugnance to Cesarean delivery is common [4]. However, each patient should be selected for appropriate management based on individual merits independent of past indications for cesarean section [5]. Successful vaginal birth after a cesarean section is more comfortable than repeat emergency or elective cesarean section. Antenatal examinations are important in the selection for the trial of labor, while birth management can be difficult when the patients present in emergency conditions [6]. A study stated that a history of a previous successful VBAC increases the likelihood of success with future attempts. Maternal diabetes and a history of a recurrent indication for cesarean delivery are poor prognosticators for a successful trial of labor [7]. Among VBAC candidates who have had a prior vaginal delivery, those who attempt a VBAC trial have decreased risk for overall major maternal morbidities, as well as maternal fever and transfusion requirement compared with women who elect repeat cesarean delivery [8]. Respiratory morbidity after cesarean delivery is well recognized. Neonates delivered by cesarean, predominantly without the onset of labor, have increased risks of transient tachypnea of the newborn, respiratory distress syndrome, and persistent pulmonary hypertension of the newborn. So, perinatal mortality is of obvious concern when considering the risks of VBAC and ERCD [9]. To meet patient expectations for a safe and successful outcome with a trial of labor after cesarean delivery (TOLAC), specific management plans, checklists, and practical coverage arrangements are necessary [10]. So, this study aimed to assess the outcome of VBAC after a previous one cesarean section.

## OBJECTIVE

### General Objective

- To determine the outcome of VBAC after a previous one cesarean section.

### Specific Objectives

- To determine the mode of delivery in a patient with a previous C/S.
- To observe the indications for elective repeat C/S.
- To identify the maternal morbidity in VBAC.

## METHODOLOGY

This prospective observational study was conducted at the Department of Obstetrics & Gynecology *Bangabandhu* Sheikh Mujib Medical University (BSMMU), Dhaka, Bangladesh. The study was carried out from March 2011 to March 2012. A total of 100 patients who were admitted in the hospital were selected as study subjects as per inclusion criteria. Evaluation of all patients was done by medical history and physical examination. A Purposive convenient sampling technique was applied for the study. Necessary data were collected by using pre-formed structured questionnaire. Perioperative outcomes were noted routinely. Informed written consent was obtained from all study subjects. The purpose and procedures were briefly explained to all participants. All data were kept confidential and used only for this study purpose. Ethical clearance was obtained from the hospital. Descriptive statistical analysis was performed by using Statistical Packages for Social Sciences (SPSS-25) software.

### Inclusion Criteria

- Pregnant women no less than 21 years old.
- Pregnant women who had a previous cesarean section.
- Patients who had given consent to participate in the study.

### Exclusion Criteria

- Pregnancy with any complication.
- Patients who did not give consent to participate in the study.
- Patients with other chronic diseases.

## RESULTS

**Table 1: Age distribution of study subjects (N=100)**

| Age (years) | N | % |
|---|---|---|
| 21-25 | 25 | 25.0 |
| 26-31 | 40 | 40.0 |
| >31 | 35 | 35.0 |

Most of the patients (40, 40.0%) belonged to the 26-31 years age group, followed by (35, 35.0%) >31 years of age group, and the rest (25, 25.0%) belonged to the 21-25 years of age group [Table 1].

**Table 2: Indications for elective repeat C/S (n=24)**

| Indications | N | % |
|---|---|---|
| Operative notes not available | 10 | 10.0 |
| Big baby | 06 | 6.0 |
| Previous uterine incision extension | 02 | 2.0 |
| Malpresentation | 04 | 4.0 |
| Patient request | 02 | 2.0 |

Indications of repeat C/S were nonavailability of operative note (10, 10.0%), followed by big baby (06, 6.0%), previous uterine incision extension (02, 2.0%), malpresentation (04, 4.0%), on patient request (02, 2.0%) [Table 2].

**Table 3: Pregnancy outcome of the studied patients after the previous 1 cesarean section (N=100)**

| After the Previous 1 cesarean section | | Pregnancy outcome | | | Total |
|---|---|---|---|---|---|
| | | No trial of scar (N %) | Successful VBAC (N %) | Failed VBAC (N %) | |
| | Fetal distress | 07( 7.0) | 30 (30.0) | 05 (5.0) | 42 (42.0) |
| | Failure to progress | 12 (12.0) | 18 (18.0) | 03 (3.0) | 33 (33.0) |
| | APH | 02 (2.0) | 07 (7.0) | 01 (1.0) | 10 (10.0) |
| | Malpresentations | 03 (3.0) | 10 (10.0) | 02 (2.0) | 15 (15.0) |
| **Total** | | **24 (24.0)** | **65 (65.0)** | **11 (11.0)** | **100 (100.0)** |

Concerning pregnancy outcome, fetal distress occurred in 7.0%, 30.0%, and 5.0% of patients in no trial of scar, successful VBAC, and failed VBAC respectively. Failure to progress was seen in 12.0%, 18.0%, and 5.0% of patients in no trial of scar, successful VBAC, and failed VBAC respectively. In terms of antepartum hemorrhage, 2.0%, 7.0%, and 1.0% of patients respectively. Moreover, malpresentation was seen in 3.0%, 10.0%, and 2.0% of patients with no trial of scar, successful VBAC, and failed VBAC respectively [Table 3].

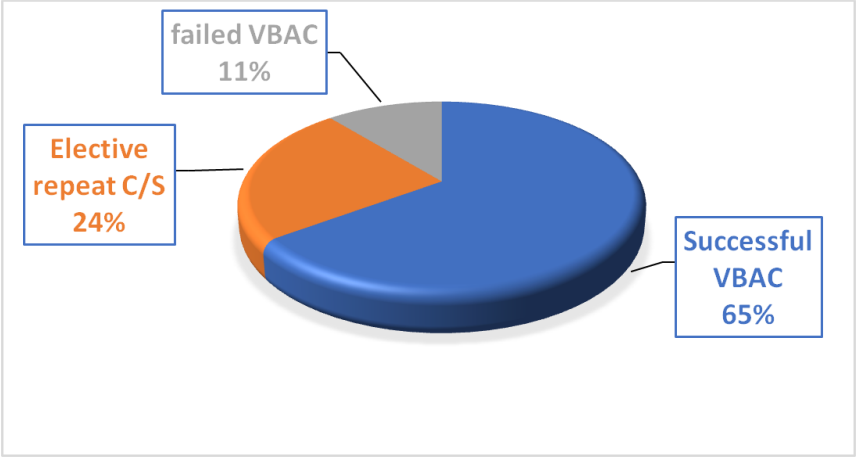


**Figure 1: Mode of delivery in current pregnancy in women with previous one cesarean section (N=100)**

In this study, 65.0% of patients showed successful VBAC, 24.0% of patients underwent elective repeat C/S, and 11.0% had failed VBAC [Figure 1].

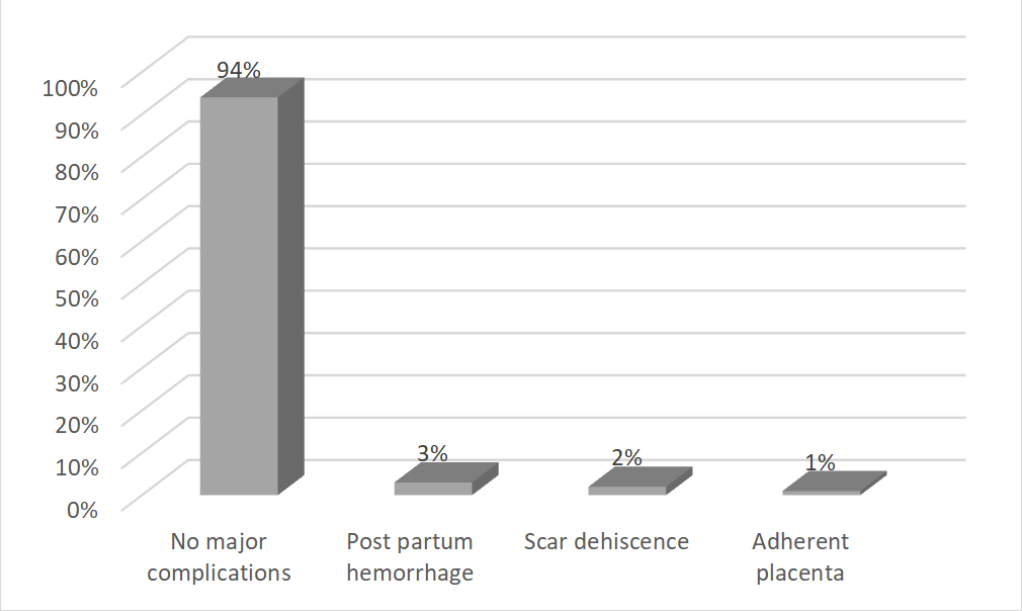


**Figure 2: Maternal morbidity in VBAC (N=100)**

Regarding maternal morbidity, 94.0% of women did not show any major complications, 3.0% of women had a post-partum hemorrhage, followed by 2.0% of patients experienced scar dehiscence, and only 1.0% experienced adherent placenta [Figure 2].

## DISCUSSION

In this study, 65.0% of patients showed successful VBAC, 24.0% of patients underwent elective repeat C/S, and 11.0% had failed VBAC. In a study, of the 151 women, 36 (23.8%) had elective repeat cesarean section (ERCS), 96 (63.6%) had VBAC and 19 (12.6%) had failed TOS. Among 96 successful vaginal deliveries, 89 women had spontaneous vaginal delivery while seven had assisted delivery with ventouse. Here, ventouse delivery was mainly used to cut short the second stage of labor, and that occurred in 5 cases (71.43%). The most common reason for ERCS was the non-availability of previous operative notes which was quite relatable to the present study. The other common indications included malpresentation, patient requests, and suspected cephalopelvic disproportion (CPD) [11]. Concerning pregnancy outcome, fetal distress occurred in 7.0%, 30.0%, and 5.0% of patients in no trial of scar, successful VBAC, and failed VBAC respectively. Failure to progress was seen in 12.0%, 18.0%, and 5.0% of patients in no trial of scar, successful VBAC, and failed VBAC respectively. In terms of antepartum hemorrhage, 2.0%, 7.0%, and 1.0% of patients respectively. Moreover, malpresentation was seen in 3.0%, 10.0%, and 2.0% of patients with no trial of scar, successful VBAC, and failed VBAC respectively. Another study showed successful vaginal delivery was achieved in 70% of the patients and repeat emergency cesarean section was carried out in 30% of the patients. Leading indication for repeat cesarean section was failure to progress, fetal distress, and scar tenderness. No maternal and fetal complications occurred [12]. Moreover, the success rate of TOL was 73% in another study. A non-recurrent indication for previous CS, such as malpresentation and fetal distress was associated with a higher success rate of vaginal birth after cesarean (VBAC) compared to recurrent indications, such as cephalopelvic disproportion (CPD) and failure to progress (FTP) [13]. Regarding maternal morbidity, 94.0% of women did not show any major complications, 3.0% of women had a post- partum hemorrhage, followed by 2.0% of patients experienced scar dehiscence, and only 1.0% experienced adherent placenta in this study. A study conducted by another author portrayed a similar picture to this study where, absolute rates of severe maternal morbidity and mortality were low but significantly higher after attempted vaginal birth after cesarean delivery compared with elective repeat cesarean delivery (10.7 v. 5.65 per 1000 deliveries, respectively; adjusted RR 1.96, 95% CI 1.76 to 2.19). Adjusted rate differences in severe maternal morbidity and mortality, and serious neonatal morbidity and mortality were small (5.42 and 7.09 per 1000 deliveries, respectively; number needed to treat 184 and 141, respectively) [14]. However, in another study, of 25,005 women with a history of the previous cesarean, 13,706 (54.9%) attempted VBAC. The composite outcome occurred in 300 (2.1%) women attempting VBAC. Using logistic regression analysis, prior abdominal surgery (odds ratio [OR] 1.58, 95% confidence interval [CI] 1.2 to 2.1), augmented labor (OR 1.78, 95% CI 1.29 to 2.46), and induction of labor (OR 2.03, 95% CI 1.48 to 2.76) were associated with an increased risk of the composite outcome [15]. The benefits associated with a trial of labor in a patient with a prior cesarean birth far outweigh the risks. So, the policy of "once a cesarean section, always a cesarean section" should be unrestrained [16]. Provided there are no contraindications, a woman with 1 previous transverse low-segment Caesarean section should be offered a trial of labor (TOL) with an appropriate discussion of perinatal risks and benefits [17].

### Limitations of the Study

The study was conducted in a single hospital with a small sample size. So, the results may not represent the whole community.

## CONCLUSION

This study concluded that, in carefully selected cases, vaginal delivery after a previous one cesarean section was safe and successful. This study also found that women's wishes and the presence of conditions favorable for vaginal delivery influenced the selection of patients for this procedure.

**Funding:** No funding sources.
**Conflict of Interest:** None declared.
**Ethical Approval:** The study was approved by the Institutional Ethics Committee.

## RECOMMENDATIONS

A trial of labor after one cesarean section should be encouraged in most women who are willing to attempt it, provided no obstetric contraindication exists. Furthermore, women who have undergone previous cesarean deliveries should go to hospitals for delivery. Hospitals should increase access to in-hospital care provided by midwife/obstetrician teams during VBACs. Moreover, further studies should be conducted involving a large sample size and multiple centers in this regard.

## REFERENCES

1. Bangal, V. B., Giri, P. A., Shinde, K. K., & Gavhane, S. P. (2013). Vaginal birth after cesarean section. *North American journal of medical sciences*, 5(2), 140.
2. Guise, J. M., Denman, M. A., Emeis, C., Marshall, N., Walker, M., Fu, R., Janik, R., Nygren, P., Eden, K. B., & McDonagh, M. (2010). Vaginal birth after

cesarean: new insights on maternal and neonatal outcomes. *Obstetrics & Gynecology*, 115(6), 1267-78.
3. Kiwan, R., & Al Qahtani, N. (2018). Outcome of vaginal birth after cesarean section: A retrospective comparative analysis of spontaneous versus induced labor in women with one previous cesarean section. *Annals of African medicine*, 17(3), 145.
4. Ugwu, G. O., Iyoke, C. A., Onah, H. E., Egwuatu, V. E., & Ezugwu, F. O. (2014). Maternal and perinatal outcomes of delivery after a previous Cesarean section in Enugu, Southeast Nigeria: a prospective observational study. *International Journal of Women's Health*, 301-305.
5. Birgisdottir, B. T., Hardardottir, H., Bjarnadottir, R. I., & Thorkelsson, T. (2008). Vaginal birth after one previous cesarean section. *Laeknabladid*, 94(9), 591-7.
6. Senturk, M. B., Cakmak, Y., Atac, H., & Budak, M. S. (2015). Factors associated with successful vaginal birth after cesarean section and outcomes in rural area of Anatolia. *International Journal of Women's Health*, 7, 693.
7. Gyamfi, C., Juhasz, G., Gyamfi, P., & Stone, J. L. (2004). Increased success of trial of labor after previous vaginal birth after cesarean. *Obstetrics & Gynecology*, 104(4), 715-9.
8. Cahill, A. G., Stamilio, D. M., Odibo, A. O., Peipert, J. F., Ratcliffe, S. J., Stevens, E. J., Sammel, M. D., & Macones, G. A. (2006). Is vaginal birth after cesarean (VBAC) or elective repeat cesarean safer in women with a prior vaginal delivery?. *American journal of obstetrics and gynecology*, 195(4), 1143-7.
9. Patel, R. M., & Jain, L. (2010). Delivery after previous cesarean: short-term perinatal outcomes. In *Seminars in perinatology*, (Vol. 34, No. 4, pp. 272-280). WB Saunders.
10. Scott, J. R. (2011). Vaginal birth after cesarean delivery: a common-sense approach. *Obstetrics & Gynecology*, 118(2), 342-50.
11. Balachandran, L., Vaswani, P. R., & Mogotlane, R. (2014). Pregnancy outcome in women with previous one cesarean section. *Journal of clinical and diagnostic research: JCDR*, *8*(2), 99.
12. Taj, G., Sohail, N., Cheema, S. Z., Zahid, N., & Rizwan, S. (2008). Review of study of vaginal birth after caesarean section (VBAC). *Annals of King Edward Medical University*, 14(1), 13.
13. Tripathi, J. B., Doshi, H. U., & Kotdawala, P. J. (2006). Vaginal birth after one caesarean section: analysis of indicators of success. *Journal of the Indian Medical Association*, *104*(3), 113-115.
14. Young, C. B., Liu, S., Muraca, G. M., Sabr, Y., Pressey, T., Liston, R. M., & Joseph, K. S. (2018). Mode of delivery after a previous cesarean birth, and associated maternal and neonatal morbidity. *Cmaj*, *190*(18), E556-E564.
15. Scifres, C. M., Rohn, A., Odibo, A., Stamilio, D., & Macones, G. A. (2011). Predicting significant maternal morbidity in women attempting vaginal birth after cesarean section. *American journal of perinatology*, *28*(03), 181-186.
16. Phelan, J. P., Clark, S. L., Diaz, F., & Paul, R. H. (1987). Vaginal birth after cesarean. *American journal of obstetrics and gynecology*, *157*(6), 1510-1515.
17. Martel, M. J., & MacKinnon, C. J. (2005). Guidelines for vaginal birth after previous Caesarean birth. *Journal of obstetrics and gynaecology Canada: JOGC= Journal d'obstétrique et gynécologie du Canada: JOGC*, 27(2), 164-88.