

## Vaginal Birth after Caesarean Section: A Study of 60 Patients with Spontaneous Onset of Labor Pain

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### Abstract

**Background:** Most women with a singleton pregnancy of cephalic presentation at 37+ weeks or later who have had a single prior lower segment cesarean delivery, with or without a history of prior vaginal birth, are candidates for planned VBAC and may be offered it for a trial of VBAC. **Objective:** The objective of this study is to determine the outcome of vaginal birth after caesarean section (VBAC) in a tertiary care hospital in Sylhet. **Methods:** This prospective study took place between April 2022 and February 2023 and lasted for a total of eleven months. A total of sixty patients were hospitalized in the gynecology and obstetrics department at North East Medical College, all of whom had a history of either one or two previous cesarean sections and were experiencing labor pain. 43 of these patients had their deliveries through the vaginal route. The remainder of the patients had cesarean sections because of fetal distress, scar tenderness, and the patient's wish during 1<sup>st</sup> stage of labor. **Results:** The VBAC success rate in this study was 71.67%. Among the 43 patients, the highest number of patients, 51.2%, came from the age range of 28-37 years, followed by 21 patients (48.8%), who were in the age category of 18-27 years. The majority of the patients (24, 55.82%) were in their second pregnancy, with 10 (23.25%) in their third pregnancy and 9 (20.93%) in their more than third pregnancy. Among the 43 patients, 42 (97.7%) had a previous caesarean section, while the remaining 1 patient (2.3%) had two previous caesarean sections. Most patients (58.14%) were admitted to the hospital between 35 and 38 weeks of pregnancy. Among the participants, 97.7% had normal placenta size, 88.4% had average bleeding, 79.1% had clear liquor and 97.7% had no scar rupture. The study shows an extremely low level of complication in VBAC. **Conclusion:** This study identified that, the success rate of vaginal birth after one caesarean section is very high. An evidence-based systematic review suggested that planned VBAC is a safe and appropriate mode of delivery for the majority of pregnant women with a single previous lower-segment caesarean delivery. **Keywords:** *Vaginal birth after C/S, Normal vaginal delivery, caesarean section.*

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## INTRODUCTION

Determining an acceptable caesarean delivery rate and what rate produces the best results for mothers and babies have been hotly contested topics. The overall caesarean delivery rate in England for the years 2012–2013 was 25.5%, with emergency caesareans accounting for more births than elective caesareans (10.7%). Wales, Northern Ireland, and Scotland all had caesarean deliveries at rates of 27.5%, 29.8%, and 27.3% in the years 2012–2013, respectively. Counseling women for

birth and handling birth after a caesarean section are crucial challenges [1].

A rate higher than 15% indicates overuse, according to the World Health Organization (WHO), which states that the optimal caesarean delivery rate should be between 5 and 15%. [2]. The prevalence of caesarean deliveries varies significantly across high- and low-income nations [3]. Worldwide, the prevalence of caesarean sections has increased from 7% in 1990 to 21% in the present, and it is anticipated that this rate will

grow even further in the future. The highest rates are predicted to be in Eastern Asia (63%), Latin America and the Caribbean (54%), Western Asia (50%), Northern Africa (48%), Southern Europe (47%), and Australia and New Zealand (45%) by 2030 if this trend continues. According to the report, this ratio is likely to rise over the next 10 years, with more than a third (29%) of all newborns expected to be delivered through caesarean section by 2030 [4].

In Bangladesh, cesarean deliveries made up about one-third of all births. The likelihood of a caesarean delivery was positively correlated with the women's education and family wealth. Working women had a 33% lower chance of having a Caesarean birth than non-working women [5].

Vaginal birth after a cesarean section can lessen the need for further cesarean sections since cesarean sections are not always necessary [6]. According to the Canadian Association of Midwives and the American College of Obstetrics, vaginal birth after cesarean is a safe and desired approach for the majority of women with a history of cesarean section. By choosing this procedure, you can increase both the mother and baby's overall safety, lower the danger of infection, reduce the need for anesthetic and hasten recovery time [7]. Normal vaginal delivery is a physiological and healthy procedure that requires minimum medical assistance and poses less risk to the mother's health. Creating the environment for a normal delivery entails safeguarding the mother's right to privacy while giving birth [8]. Contrarily, complications from cesarean sections can include maternal and neonatal morbidity and death in addition to wound infection, pelvic infection, pulmonary infection, urinary tract infection, pulmonary embolism, anesthesia, and more [9].

According to Green-top Guideline No. 45 (2015), the majority of women with a singleton pregnancy of cephalic presentation at 37+0 weeks or beyond who have had a single prior lower segment caesarean delivery, with or without a history of previous vaginal birth, are appropriate for and may be offered the suitability for planned VBAC. Women who have had a previous uterine rupture, a classic caesarean scar, or other absolute contraindications to vaginal birth should not attempt a planned VBAC. A senior obstetrician should exercise prudence and make decisions for each individual patient in cases when the patient has complicated uterine scarring. After counseling by a senior obstetrician, women who have had two or more prior lower-segment caesarean births may be given the option of VBAC. This should cover the possibility of uterine rupture, maternal morbidity, and each patient's chance of a successful VBAC. The process of labor should take place where facility access to quick surgical delivery is present. Therefore the aim of the study is to determine the outcome of vaginal birth after cesarean section (VBAC) in a tertiary care hospital in Sylhet.

## METHODOLOGY

This prospective observational study took place between April 2022 and February 2023 and lasted for a total of eleven months. A total of sixty patients were hospitalized in the gynecology and obstetrics department at North East Medical College, Sylhet. All the patients who presented with spontaneous onset of labor with a history of previous one or two caesarean sections were included in this study. Labor was closely monitored by Pantograph. 43 of these patients had their deliveries completed through the vaginal route. Caesarean section was done when fetal distress (7) or scar tenderness (8) arose. In 1<sup>st</sup> stage, 2 patients had a caesarean section as they refused normal vaginal delivery. The data were analyzed by SPSS-23. After analysis, the data were presented in tables.

### Inclusion Criteria

- Patient with a history of previous caesarean section for the non-recurrent cause.
- Patient belonging to any age group and parity
- Patient admitted with spontaneous onset of labor pain

### Exclusion Criteria

- Associated medical disorders like anemia, PE, GDM, Heart disease, etc.
- Malpresentation
- History of postoperative wound infection following previous LUCS
- Details of the previous cesarean operation not available
- Contraindications to vaginal delivery like cephalo pelvic disproportion, major degree placenta previa
- Postdated pregnancy with an unfavorable cervix

## RESULTS

In this study among 43 patients, 22 (51.2%) patients were from the 28-37 years age group followed by 21 (48.8%) were in the age group 18-27 years. The Mean  $\pm$  SD was 27.48  $\pm$  4.14 (Table 1).

**Table 1: Age distribution of the patients (N=43)**

Age group	Frequency	Percentage (%)
18-27 Years	21	48.8
28-37 Years	22	51.2
Total	43	100
Mean $\pm$ SD	27.48 $\pm$ 4.14	

Table 2 shows the diagnoses of the patients at the time of admission. The majority of the patients (24, 55.82%) were in their second pregnancy, with 10 (23.25%) in their third pregnancy and 9 (20.93%) in their more than third pregnancy. Among the 43 patients, 42 (97.7%) had had a previous caesarean section, while the remaining 1 patient (2.3%) had had two previous caesarean sections. Most patients (58.14%) were

admitted to the hospital between 35 and 38 weeks of pregnancy.

**Table 2: Maternal characteristics on admission (N=43)**

Variables	Frequency	Percentage (%)
<b>Gravida</b>		
2 <sup>nd</sup> Gravida	24	55.82
3 <sup>rd</sup> Gravida	10	23.25
>3 <sup>rd</sup> Gravida	9	20.93
Total	43	100
<b>Cesarean Section</b>		
1 C/S	42	97.7
2 C/S	1	2.3
Total	43	100
<b>Gestational Age</b>		
<35 <sup>+</sup> weeks	8	18.60
35 <sup>+</sup> weeks-38 <sup>+</sup> Weeks	25	58.14
>38 <sup>+</sup> weeks	10	23.26
Total	43	100

Clinical findings on the patients reveal very little complexity (Table 3).

**Table 3: Clinical Findings of the Patients**

Placenta	Frequency	Percentage (%)
Normal	42	97.7
Small macerated	1	2.3
Total	43	100
<b>Bleeding</b>		
Average	38	88.4
More than average	5	11.6
Total	43	100
<b>Liquor</b>		
Clear	34	79.1
Deep meconium stained	6	14.0
Moderately stained	2	4.7
Nil	1	2.3
Total	43	100
<b>Scar Condition</b>		
Without injury	42	97.7
Rapture scare	1	2.3
Total	43	100

Among the 39 babies, 22 (56.41%) weighed less than 2.5 kg and the remaining 17 (43.59%) weighed between 2.5 kg to 3.5 kg (Table 4).

**Table 4: Birth weight of the Baby (n=39)**

Birth weight	Frequency	Percentage (%)
<2.5 kg	22	56.41%
2.5 kg to 3.5 kg	17	43.59%
>3.5 kg	0	0

Table 5 shows the complications and treatment methods that patients had after delivery. Among the 43 patients, 3 (6.98%) patients had Postpartum Hemorrhage, complete perineal tear 1 (2.33%), and 1<sup>o</sup>+2<sup>o</sup> Perineal Tear 4 (9.30%) patients. Postpartum hemorrhages were treated conservatively, and an episiotomy was needed for the five patients. The

remaining patients did not experience any complications after delivery. The conservative treatment for postpartum hemorrhages included the administration of medication and close monitoring of blood loss. Additionally, the episiotomy was performed to facilitate the delivery and prevent further tearing during childbirth.

**Table 5: Complications and treatment methods of the patients**

Complication	Frequency (%)	Treatment method
Postpartum Hemorrhage	3 (6.98%)	Treated medically
Complete Perineal Tear	1 (2.33%)	Immediate repair done
1°+2° Perineal Tear	4 (9.30%)	Immediate repair done

## DISCUSSION

In our study with 43 patients, the highest number of patients, 51.2%, came from the age range of 28-37 years, and the Mean SD was  $27.48 \pm 4.14$ . In previous research, the mean age of the studied women was  $29.30 \pm 6.70$  years [10]. The majority of patients (58.14%) were hospitalized to the hospital between weeks 35 and 38 of pregnancy in this study. The rate of successful VBAC increased (72.2%) with increasing gestational age, peaking at 37 weeks in a previous study [11]. Among the participants, 97.7% had normal placenta size, 88.4% had average bleeding, 79.1% had clear liquor and 97.7% had no scar rupture. Shipp *et al.*, reported that the rate of scar rupture was 2.3% [12]. Similarly, in another study, the rate of scar rupture was 2% [10].

Uncertainty over the success rates of VBAC is a major source of concern for both caregivers and pregnant mothers. Individual factors, including the presence of prior caesarean section, a history of prior vaginal birth, maternal characteristics, and current pregnancy state, all have an impact on success rates. Much research has been undertaken to study the factors that predict successful VBAC and the rates of success [13]. Another medical element causing caution about VBAC on both sides of the debate is the issue of safety. The impact of hazards against advantages on maternal and fetal features has received much attention [14-18]. According to the findings of a study by Narjes Noori, the rate of successful vaginal birth after one caesarean surgery was 92% (162 patients), while the incidence of failure was 8% (14 patients). In certain patients, the probability of a normal birth occurring after a caesarean section range between 60 and 80 percent [10].

According to one study, VBAC success rates with two previous caesarean births (VBAC success rates of 62-75%) and single prior caesarean birth (VBAC success rates of 62-75%) are comparable [19- 22]. Women who have never had a vaginal delivery should proceed with caution. Previous research has revealed that women who have had two previous cesarean deliveries and are choosing VBAC should be counseled about the success rate (71.1%), uterine rupture rate (1.36%), and maternal morbidity that is comparable to the repeat caesarean delivery option [23]. Previous vaginal delivery, particularly prior successful VBAC, is the single strongest predictor of successful VBAC, with an 85-90% planned VBAC success rate [24].

In the current study, sixty patients were hospitalized, and all of them had had one or two previous

cesarean procedures. 43 of these patients gave delivered vaginally. As a result, the VBAC success rate in this study was 71.67%. Pregnant women who have had a previous caesarean section and a history of one or more vaginal deliveries have an 85% chance of VBAC [1]. A prior study found a pooled VBAC labor success rate of 74%, while another study indicated a 73% VBAC labor success rate [25, 26]. An Australian cohort trial indicated a VBAC success rate of 43%, but when women who required elective caesarean after choosing for VBAC were excluded, the study showed a VBAC success rate of 59% [27].

Another study found that the rate of successful normal delivery after one caesarean section is 61%. Meanwhile, Ben Gal *et al.*, discovered that in their study of post-caesarean vaginal births, the success rate of post-caesarean normal delivery was 85%, while the failure rate was 15% [28, 29]. Different studies have found varying rates of vaginal birth following a C-section, but the most important finding in our study is the high success rate. Postpartum Hemorrhage (6.98%), full perineal tear (2.33%), and 1°+2° Perineal Tear (9.30%) were the most common complications of vaginal birth after c-section in this study. In a previous study Uterine rupture, bladder injury, or other serious operational complications such as bowel injury and uterine artery laceration are considered major problems [30].

### Limitations of the Study

1. Scar thickness before pregnancy or before labor can't be seen due to the lack of expertise of the Sonographer
2. Lack of continuous electric monitoring

## CONCLUSION

According to the findings of this study, the probability of having a successful vaginal birth following one or more cesarean sections is quite high. A comprehensive evaluation based on the evidence revealed that planned vaginal birth after cesarean is a safe and suitable mode of delivery for the majority of expectant women who have had a single previous lower-segment caesarean delivery.

## REFERENCES

1. Royal College of Obstetricians & Gynaecologists. (2015). Birth after previous caesarean birth. *Green-top guideline*, (45).
2. Mía, M. N., Islam, M. Z., Chowdhury, M. R., Razzaque, A., Chin, B., & Rahman, M. S. (2019). Socio-demographic, health and institutional determinants of caesarean section among the

- poorest segment of the urban population: Evidence from selected slums in Dhaka, Bangladesh. *SSM-population health*, 8, 100415.
3. Festin, M. R., Laopaiboon, M., Pattanittum, P., Ewens, M. R., Henderson-Smart, D. J., & Crowther, C. A. (2009). Caesarean section in four South East Asian countries: reasons for, rates, associated care practices and health outcomes. *BMC pregnancy and childbirth*, 9(1), 1-11.
  4. World Health Organization. Caesarean section rates continue to rise, amid growing inequalities in access. 2021. Available from: <https://www.who.int/news/item/16-06-2021-caesarean-section-rates-continue-to-rise-amid-growing-inequalities-in-access>.
  5. Kumar, P., & Sharma, H. (2023). Prevalence and determinants of socioeconomic inequality in caesarean section deliveries in Bangladesh: an analysis of cross-sectional data from Bangladesh Demographic Health Survey, 2017-18. *BMC Pregnancy and Childbirth*, 23(1), 1-14. <https://doi.org/10.1186/s12884-023-05782-4>
  6. SadieYaz, R., Mitra, A. (2005). [Assessment of normal vaginal birth after cesarean section and its effect on pregnancy outcomes]. *Iran J ObstetGynecolInfertil*. 8(2). Persian.
  7. Creswell, J. W. (2017). Research Design: Qualitative, Quantitative and Mixed Methods Approaches. 4th ed. New York, USA: SAGE Publication.
  8. Alimohammadzade, K., & Mohebi, S. (2013). Systematic review of research papers in the recent three decades on the “reasons of cesarean section” and population health management strategies in Iran. *Women's strategic studies*, 16(61), 7-57.
  9. Vedadhir, A. H., Sadati, M., & Taghavi, S. (2012). Childbearing as a socio-cultural problem: Construct realistic reflection of cesarean section in Tabriz. *Anthropol Res Iran*, 2, 111-35.
  10. Noori, N., Ghasemi, M., Dashipour, A., Dastgerdi, M., & Parnian, G. (2022). Outcome of Vaginal Birth After Cesarean Section (VBAC). *Zahedan Journal of Research in Medical Sciences*, 24(3). <https://brieflands.com/articles/zjrms-119030.html>
  11. Seffah, J. D., & Adu-Bonsaffoh, K. (2014). Vaginal birth after a previous caesarean section: current trends and outlook in Ghana. *Journal of the West African College of Surgeons*, 4(2), 1.
  12. Shipp, T. D., Zelop, C. M., Repke, J. T., Cohen, A., & Lieberman, E. (2001). Interdelivery interval and risk of symptomatic uterine rupture. *Obstetrics & Gynecology*, 97(2), 175-177.
  13. Melamed, N., Segev, M., Hadar, E., Peled, Y., Wiznitzer, A., & Yogeve, Y. (2013). Outcome of trial of labor after cesarean section in women with past failed operative vaginal delivery. *American journal of obstetrics and gynecology*, 209(1), 49-e1.
  14. Landon, M. B., Hauth, J. C., Leveno, K. J., Spong, C. Y., Leindecker, S., Varner, M. W., ... & Gabbe, S. G. (2004). Maternal and perinatal outcomes associated with a trial of labor after prior cesarean delivery. *New England Journal of Medicine*, 351(25), 2581-2589.
  15. Smith, G. C., Pell, J. P., Cameron, A. D., & Dobbie, R. (2002). Risk of perinatal death associated with labor after previous cesarean delivery in uncomplicated term pregnancies. *Jama*, 287(20), 2684-2690.
  16. Tan, P. C., Subramaniam, R. N., & Omar, S. Z. (2007). Labour and perinatal outcome in women at term with one previous lower-segment Caesarean: A review of 1000 consecutive cases. *Australian and New Zealand journal of obstetrics and gynaecology*, 47(1), 31-36.
  17. Signore, C., Hemachandra, A., & Klebanoff, M. (2006). Neonatal mortality and morbidity after elective cesarean delivery versus routine expectant management: a decision analysis. *Semin Perinatol*, 30, 288-95.
  18. Hook, B., Kiwi, R., Amini, S. B., Fanaroff, A., & Hack, M. (1997). Neonatal morbidity after elective repeat cesarean section and trial of labor. *Pediatrics*, 100, 348-53.
  19. Macones, G. A., Cahill, A., Pare, E., Stamilio, D. M., Ratcliffe, S., Stevens, E., ... & Peipert, J. (2005). Obstetric outcomes in women with two prior cesarean deliveries: is vaginal birth after cesarean delivery a viable option?. *American journal of obstetrics and gynecology*, 192(4), 1223-1228.
  20. Miller, D. A., Diaz, F. G., & Paul, R. H. (1994). Vaginal birth after cesarean: a 10-year experience. *Obstetrics & Gynecology*, 84(2), 255-258.
  21. Caughey, A. B., Shipp, T. D., Repke, J. T., Zelop, C. M., Cohen, A., & Lieberman, E. (1999). Rate of uterine rupture during a trial of labor in women with one or two prior cesarean deliveries. *American journal of obstetrics and gynecology*, 181(4), 872-876.
  22. Spaans, W. A., van der Vliet, L. M., Röell-Schorer, E. A., Bleker, O. P., & van Roosmalen, J. (2003). Trial of labour after two or three previous caesarean sections. *European Journal of Obstetrics & Gynecology and Reproductive Biology*, 110(1), 16-19.
  23. Tahseen, S., & Griffiths, M. (2010). Vaginal birth after two caesarean sections (VBAC-2)—a systematic review with meta-analysis of success rate and adverse outcomes of VBAC-2 versus VBAC-1 and repeat (third) caesarean sections. *BJOG: An International Journal of Obstetrics & Gynaecology*, 117(1), 5-19.
  24. Landon, M. B., Leindecker, S., Spong, C. Y., Hauth, J. C., Bloom, S., Varner, M. W., ... & National Institute of Child Health and Human Development Maternal-Fetal Medicine Units Network. (2005). The MFMU Cesarean Registry: factors affecting the success of trial of labor after previous cesarean delivery. *American journal of obstetrics and gynecology*, 193(3), 1016-1023.
  25. Guise, J. M., Berlin, M., McDonagh, M., Osterweil, P., Chan, B., & Helfand, M. (2004). Safety of

- vaginal birth after cesarean: a systematic review. *Obstetrics & Gynecology*, 103(3), 420-429.
26. Mozurkewich, E. L., & Hutton, E. K. (2000). Elective repeat cesarean delivery versus trial of labor: a meta-analysis of the literature from 1989 to 1999. *American journal of obstetrics and gynecology*, 183(5), 1187-1197.
27. Crowther, C. A., Dodd, J. M., Hiller, J. E., Haslam, R. R., & Robinson, J. S. (2012). Birth After Caesarean Study Group. Planned vaginal birth or elective repeat caesarean: patient preference restricted cohort with nested randomised trial. *PLoS Med*, 9(3), e1001192.
28. Wells, C., Cunningham, F., Lockwood, C. Choosing the route of delivery after cesarean birth. Massachusetts, USA: UpToDate; 2015, [updated 2021; cited 2021]. Available from: <https://www.uptodate.com/contents/choosing-the-route-of-delivery-after-cesarean-birth>.
29. 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. [PubMed ID: 23641377]. [PubMed Central ID: PMC3624716]. <https://doi.org/10.4103/1947-2714.107537>.
30. Macones, G. A., Peipert, J., Nelson, D. B., Odibo, A., Stevens, E. J., Stamilio, D. M., ... & Ratcliffe, S. J. (2005). Maternal complications with vaginal birth after cesarean delivery: a multicenter study. *American journal of obstetrics and gynecology*, 193(5), 1656-1662.