BKM Public Health & Community Medicine
Berita Kedokteran Masyarakat

Volume 40 **Number** 3, 2024, **Pages** e10422
DOI: 10.22146/bkm.v40i03.10422

A case report of unsuccessful VBAC in primary care: highlighting the lesson learned

Nafi'atul Ummah[1]*, Achmad Zani Agusfar[2,3], Siti Musrifah[2]

Submitted:
November 4th, 2023
Accepted:
February 23rd, 2024
Published:
March 27th, 2024

[1]Indonesian Reproductive Medicine Research and Training Center, Jakarta, Indonesia

[2]Department of Obstetrics and Gynecology, Alia Hospital, Jakarta, Indonesia

[3]Faculty of Medicine and Health Sciences, Universitas Muhammadiyah Jakarta, Indonesia

***Correspondence:**
nafiatulummah62@gmail.com

Abstract

Purpose: To delve into the patient's attempt at vaginal birth after cesarean section (VBAC) in the primary care center and to highlight the importance of the primary care center for women opting for VBAC. **Methods:** This case report describes a woman with unsuccessful VBAC in primary care. Informed consent was obtained before the study. **Results:** A woman in her mid-thirties with a history of a prior cesarean section and a failed trial of labor was referred to the hospital at 40 weeks gestational age due to prolonged labor. The patient was referred to the hospital after 14.5 hours of trial labor in primary care. After delivery, the patient had urinary retention caused by pelvic nerve injury. The newborn baby had an APGAR Score of 3/5 and was treated in the Neonatal Intensive Care Unit (NICU) with respiratory distress syndrome and meconium aspiration syndrome. **Conclusion:** Vaginal birth after cesarean can be done by considering its indications and contraindications. However, it is recommended to perform VBAC in hospitals equipped with emergency cesarean facilities, in which the cesarean section can be done within 30 minutes after the decision has been made. Primary care centers have a role in educating patients, providing guidance, and selecting patients for referral. This case also highlights the importance of a holistic approach to social obstetrics, addressing medical, social, economic, and systemic factors. By doing so, healthcare systems can ensure equitable access to timely and appropriate care, ultimately enhancing the well-being of pregnant women and improving VBAC success rates.

Keywords: failed VBAC; primary care; trial of labor; vaginal birth after cesarean; VBAC

INTRODUCTION

Over the last decade, there has been a significant increase in the global rate of cesarean section (CS) deliveries, affecting approximately one-third of women [1]. This rate has surged from 5% in 1970 to 30% in 2005, peaking at 32.9% in 2009 and remaining at 31.9%, in 2016 [2]. The World Health Organization (WHO) advises that CS rates should not exceed 10% and only be performed when medically necessary due to potential complications [3]. Efforts have been made to reduce repeat cesarean deliveries by promoting vaginal

birth after a previous cesarean (VBAC), which has shown better outcomes for both mothers and infants compared to elective repeat cesarean deliveries [4].

Successful VBAC rates range from 60% to 95% [5–8]. Key factors influencing success include prior vaginal delivery,, cervical status, pelvic fit, and maternal age [9,10], with a successful prior vaginal delivery being the best predictor [7,11]. Despite higher risks like uterine issues, some opt for a Trial of Labor After Cesarean (TOLAC) for a quicker recovery, natural birth, and faster bonding and breastfeeding [12,13]. The patient in this case report also opted for VBAC; however, her journey toward VBAC faced challenges. This case report delves into the patient's attempts at VBAC in primary care. It highlights the importance of the primary care center for women opting for vaginal birth after a cesarean section.

CASE PRESENTATION

Patient information: A woman in her mid-thirties, G2P1A0, was referred to the hospital at 40 weeks gestational age due to prolonged labor with a prior cesarean delivery. She had experienced contractions since a day before admission and was initially monitored at a primary care center, where she had complete cervical dilatation at 19:00, prompting the initiation of labor. There was no history of premature rupture of membranes in this pregnancy. However, the baby was not born, and the primary care center sought a referral at 5:48 the day after. Contacts were made with the destination hospital, and the patient was accepted for referral at 06:54.

In her previous pregnancy four years ago, she had a cesarean section at full-term gestational age due to premature rupture of membranes, with her baby weighing 3000 grams. The newborn spent two days in the NICU before discharge. This previous experience led her to desire a vaginal birth for her second pregnancy, resulting in her opting for a trial of labor. She had six antenatal care visits throughout her pregnancy, two involving obstetricians and four with midwives. All physical examinations and four ultrasound assessments during these visits remained within normal ranges.

Clinical Presentation: The patient's physical examination results are weight 60 kg, height 155 cm, BMI 24.97 kg/m^2, and vital signs within the normal range. Fundal height measured 36 cm, and the fetal heart rate was 170 beats per minute. From the vaginal examination, there was complete cervical dilatation, the head positioned at Hodge II, and the presence of green-colored amniotic fluid. Laboratory results showed leukocytosis and neutrophilia (**Table 1**).

Table 1. Laboratory results

	Results	Reference range	Unit
Hemoglobin	12.7	11.7-15.5	g/dL
Erythrocyte	4.7	3.80-5.20	10^6/µL
Hematocrit	37	35-47	%
Leucocyte	18.84	3.60-11.00	10^3/µL
Thrombocyte	430	150-440	10^3/µL
MCV	80	80.0-100.0	fL
MCH	27	26.0-34.0	pg
MCHC	34	32.0-36.0	%
LED	20	<20	mm/ hour
Differential count			
Basophil	0	0-1	%
Eosinophil	1	2-4	%
Neutrophil Band	1	3-5	%
Neutrophil Segment	86	50-70	%
Lymphocyte	4	20-40	%
Monocyte	8	2-8	%
Bleeding Time	3	1-6	minute
Clotting Time	9	1-12	minute

Diagnostic Assessment: The patient was diagnosed as G2P1A0 at 40 weeks gestational age, presenting with prolonged labor and a previous history of cesarean delivery.

Therapeutic Intervention: The patient received a prophylactic dose of 1 gram of cefotaxime and underwent emergency cesarean delivery due to persistent fetal tachycardia.

Follow-up and Outcomes: The patient had difficulty urinating on the second day after delivery. An abdominal ultrasound confirmed a full bladder, and with the insertion of a urinary catheter, there was a production of 1800 ml of urine. A urologist suspected a pelvic nerve injury due to prolonged labor and recommended continued catheter use and bladder training. On the third day after delivery, the patient showed normal vital signs, minimal pain, a dry wound, and no bleeding. She was discharged with a urinary catheter and instructed to return for a follow-up seven days after delivery.

During follow-up, the patient consulted with obstetricians twice and a urologist once. Obstetric exams were normal, and the ultrasound examination showed no issues. The patient's urinary sensation improved over time. During the urologist visit 15 days

post-delivery, the patient revealed significant improvement, leading to catheter removal and the suggestion of Kegel exercises. The baby had an APGAR score of 3/5, weighed 3415 grams, and measured 50 cm in height. The baby spent ten days in the Neonatal Intensive Care Unit (NICU) with respiratory distress syndrome and meconium aspiration syndrome.

DISCUSSION

VBAC involves women with a history of cesarean delivery opting for vaginal delivery instead of repeat cesarean [2]. Most women who have previously undergone cesarean delivery with a low-transverse incision are considered suitable candidates for VBAC. VBAC might be a feasible choice in cases where a woman has had a single previous cesarean delivery with a low transverse incision [4].

VBAC failure carries significant risks, including uterine rupture, maternal morbidity, mortality, blood transfusion, hysterectomy, endometritis, and perinatal morbidity and mortality [14]. People who have had a previous classical or T-incision cesarean, a uterine rupture, or extensive trans-fundal uterine surgery and people who should not have a vaginal delivery (for example, because they have a placenta previa) are not suitable candidates for VBAC [4].

To predict outcomes in VBAC, a previous study devised a VBAC prediction tool for term pregnancies, excluding race and ethnicity as variables. The model demonstrated outstanding alignment between predicted and observed probabilities. When applied to the entire analytical cohort, it yielded an AUC of 0.75 (95% CI: 0.74–0.77) [15]. The predictor variables include maternal age, height, weight, body mass index, previous vaginal delivery, prior cesarean indication, gestational age, hypertensive disorder during pregnancy, cervical dilation, cervical effacement, and fetal station [15]. In clinical settings, obstetricians can measure lower uterine segment thickness by ultrasound to select patients for VBAC with minimal risk of uterine rupture. A systematic review concluded that a lower uterine segment >3.65 mm thick is associated with a lower risk of uterine rupture [16].

This patient met the majority of the criteria for a trial of labor. She had a previous low-transverse cesarean delivery four years ago and has no history of uterine surgery or rupture. Her previous cesarean was due to a premature membrane rupture, not labor arrest. She had a singleton pregnancy with a cephalic presentation at term gestational age. According to VBAC success predictor, her estimated chance of VBAC success was 79.4% (95% CI: 0.74–0.84). The ultrasound results showed no data regarding the measurement of the patient's lower uterine segment thickness.

The patient attempted VBAC in primary care. Primary care centers, as the first level of health care, should be able to screen pregnant women. Normal pregnancy can be treated in primary care centers. However, high-risk pregnancies should be treated in hospitals with specialized doctors. Patients with a history of previous cesarean sections should receive counseling regarding future methods of delivery. Early counseling can be done in primary care centers involving midwives or doctors. Midwives can influence pregnant women about their health choices [17]. Hence, they should have sufficient knowledge and skills in maternal care and clinical guidelines [18]. Healthcare providers in primary care centers should educate patients about the risks and success factors of VBAC. Patients opting for VBAC should be referred to obstetricians for a complete examination and assessment [19].

Upon referral to the hospital, the patient had been in labor for 14.5 hours, thus leading to unfavorable conditions. The delay in referral results from the delay in making decisions and getting to the referral location [20]. Individual factors, including patient preferences and their social support systems, play a significant role in decision-making regarding referrals and treatment acceptance. In some cases, patients may be hesitant to accept referrals due to personal reasons such as fear, mistrust, or logistical challenges.

The patient, healthcare providers, or primary care personnel may have wished to further attempt vaginal birth before considering a referral. Healthcare providers must engage in patient-centered care, understanding and addressing these factors to improve patient compliance and outcomes [21].

Our patient lives in an urban area where transportation is accessible, but traffic is common. Geographic factors that may have influenced the delayed referral include traffic jams. This patient also comes from a middle-income class, having Badan Penyelenggara Jaminan Sosial Kesehatan (BPJS), or Social Health Insurance Administration Body, as health insurance. Economic factors did not seem to have influenced the delayed referral of this patient.

In general, geographic and socioeconomic factors can contribute to delayed referrals. Patients may need more travel time to reach specialized healthcare facilities due to inadequate transportation and poor road conditions, thus increasing the risk of delays [22]. Additionally, socioeconomic factors can affect a patient's ability to seek timely medical care, in which case the patient considers the cost of health services [23]. When these time delays accumulate, it results in

even later referrals. To minimize treatment delays, it is recommended to perform VBAC in hospitals equipped with emergency cesarean facilities within a timely interval to minimize maternal and fetal risks [14,24]. It is advisable to initiate an emergency cesarean within 30 minutes after the decision is made [25,26].

The delayed referral highlights disparities in healthcare access and quality [27,28]. The coordination and response with the destination hospital may vary based on geographical location, available resources, and healthcare infrastructure [29]. These disparities can lead to delays in accessing specialized care, impacting the health outcomes of pregnant individuals [30]. Administrative processes at healthcare facilities can inadvertently contribute to delays in care. The time taken for administrative tasks, such as paperwork, insurance verification, and bed allocation, can be crucial in urgent medical situations. Streamlining administrative processes and ensuring efficient healthcare systems can help reduce these delays. Addressing delayed referrals in social obstetrics necessitates attention to healthcare policy and advocacy efforts. Advocacy for improved healthcare access, reduced administrative burden, and enhanced patient education can help mitigate referral delays and improve maternal outcomes.

In a situation as described, the most prudent course of action is to refer the patient to a healthcare facility with the necessary resources, such as the availability of obstetricians, pediatricians, anesthesiologists, and a fully equipped operating room staffed with skilled personnel [31]. Primary care centers have a role in educating patients, providing guidance, and selecting patients for referral [19]. Healthcare providers ought to provide education to patients with a history of cesarean sections, emphasizing the importance of consultations with obstetricians to ensure effective and safe birth planning.

CONCLUSION

Vaginal birth after a cesarean can be done by considering its indications and contraindications. It is recommended to perform VBAC in hospitals equipped with emergency cesarean facilities in which the cesarean section can be done within 30 minutes after the decision has been made. Primary care centers have a role in educating patients, providing guidance, and selecting patients for referral. Patients opting for VBAC should have a complete examination and assessment with obstetricians. This case highlights the importance of a holistic approach to social obstetrics, addressing medical, social, economic, and systemic factors. By doing so, healthcare systems can ensure equitable access to timely and appropriate care, ultimately enhancing the well-being of pregnant women and improving VBAC success rates.

REFERENCES

1. Hamilton BE, Martin JA, Osterman MJ. Births: Preliminary Data for 2015. National Vital Statistics Reports. 2016;65(3):1–15.
2. Habak PJ, Kole M. Vaginal Birth After Cesarean Delivery. [Updated 2023, July 17]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2023 Jan-. Available from: [Website]
3. WHO Statement on cesarean section rates. Reproductive Health Matters. 2015;23(45):149-50.
4. ACOG Practice bulletin no. 115: Vaginal birth after previous cesarean delivery. Obstetrics & Gynecology. 2010;116(2 Pt 1):450-63.
5. Biraboneye SP, Ogutu O, van Roosmalen J, Wanjala S, Lubano K, Kinuthia J. Trial of labor or elective repeat cesarean delivery: are women making an informed decision at Kenyatta National Hospital? BMC Pregnancy Childbirth. 2017;17(1):260.
6. Li YX, Bai Z, Long DJ, Wang HB, Wu YF, Reilly KH, et al. Predicting the success of vaginal birth after cesarean delivery: a retrospective cohort study in China. BMJ Open. 2019;9(5):e027807.
7. Uno K, Mayama M, Yoshihara M, Takeda T, Tano S, Suzuki T, et al. Reasons for previous Cesarean deliveries impact a woman's independent decision of delivery mode and the success of trial of labor after Cesarean. BMC Pregnancy Childbirth. 2020;20(1):170.
8. Febia E, Sitorus JT, Yeni CM, editors. Success of vaginal deliveries among women in labor with previous cesarean section: Analysis of 50 cases. Proceedings of The Annual International Conference, Syiah Kuala University-Life Sciences & Engineering Chapter; 2011.
9. Dodd JM, Crowther CA, Huertas E, Guise JM, Horey D. Planned elective repeat cesarean section versus planned vaginal birth for women with a previous cesarean birth. Cochrane Database of Systematic Reviews. 2013(12):Cd004224.
10. Eden KB, McDonagh M, Denman MA, Marshall N, Emeis C, Fu R, et al. New insights on vaginal birth after cesarean: can it be predicted? Obstetrics & Gynecology. 2010;116(4):967-81.
11. Siraneh Y, Assefa F, Tesfaye M. Feto-maternal outcome of vaginal birth after cesarean and associated factors among mothers with previous cesarean scar at Attat Lord Merry Primary Hospital, Gurage Zone, South Ethiopia. Journal of Pregnancy and Child Health. 2018;5(5):390.

12. Fenwick J, Gamble J, Hauck Y. Believing in birth–choosing VBAC: the childbirth expectations of a self‐selected cohort of Australian women. Journal of Clinical Nursing. 2007;16(8):1561-70.
13. Shorten A, Shorten B, Kennedy HP. Complexities of choice after prior cesarean: a narrative analysis. Birth. 2014;41(2):178-84.
14. Neff MJ. ACOG Releases guidelines for vaginal birth after cesarean delivery. American family physician. 2004;70(7):1397-401.
15. Grobman WA, Sandoval G, Rice MM, Bailit JL, Chauhan SP, Costantine MM, et al. Prediction of vaginal birth after cesarean delivery in term gestations: a calculator without race and ethnicity. American Journal of Obstetrics & Gynecology. 2021;225(6):664. e1-. e7.
16. Swift BE, Shah PS, Farine D. Sonographic lower uterine segment thickness after prior cesarean section to predict uterine rupture: A systematic review and meta‐analysis. Acta Obstetricia et Gynecologica Scandinavica. 2019;98(7):830–41.
17. McNeill J, Lynn F, Alderdice F. Public health interventions in midwifery: A systematic review of Systematic Reviews. BMC Public Health. 2012;12(1).
18. Firoozi M, Tara F, Ahanchian MR, Latifnejad Roudsari R. Health Care System Barriers to Vaginal Birth after Cesarean Section: A Qualitative Study. Iranian Journal of Nursing Midwifery Research. 2020;25(3):202-211.
19. Carauleanu A, Tanasa IA, Nemescu D, Socolov D. Risk management of vaginal birth after cesarean section (Review). Experimental and Therapeutic Medicine. 2021;22(4):1111.
20. Ministry of Health Republic of Indonesia. Pertolongan Persalinan Oleh Tenaga Kesehatan Efektif Turunkan AKI di Indonesia [Internet]. Ministry of Health Republic of Indonesia; 2010. Available from: [Website].
21. Mantel JL, Fowler LR. Patient Referral Failure. Health Matrix. 2022;32:1.
22. Laksono AD, Wulandari RD, Rohmah N, Rukmini R, Tumaji T. Regional disparities in hospital utilisation in Indonesia: A cross-sectional analysis data from the 2018 Indonesian basic health survey. BMJ Open. 2023;13(1).
23. Wulandari RD, Laksono AD, Prasetyo YB, Nandini N. Socioeconomic disparities in hospital utilization among female workers in Indonesia: A cross-sectional study. Journal of Primary Care & Community Health. 2022;13:215013192110726.
24. Mekonnen BD, Asfaw AA. Predictors of successful vaginal birth after a cesarean section in Ethiopia: a systematic review and meta-analysis. BMC Pregnancy and Childbirth. 2023;23(1):1-12.
25. Schauberger C, Chauhan S. Emergency cesarean section and the 30-Minute Rule: Definitions. American Journal of Perinatology. 2008;26(03):221–6.
26. Leung TY, Lao TT. Timing of cesarean section according to urgency. Best Practice & Research Clinical Obstetrics & Gynaecology. 2013;27(2):251–67.
27. Treleaven E, Pham TN, Le DN, Brooks TN, Le HT, Partridge JC. Referral patterns, delays, and equity in access to advanced pediatric emergency care in Vietnam. International Journal for Equity in Health. 2017;16(1):215.
28. Laksono AD, Wulandari RD, Rohmah N, Rukmini R, Tumaji T. Regional disparities in hospital utilisation in Indonesia: a cross-sectional analysis data from the 2018 Indonesian Basic Health Survey. BMJ open. 2023;13(1):e064532.
29. Mahendradhata Y, Trisnantoro L, Listyadewi S, Soewondo P, Marthias T, Harimurti P, et al. The Republic of Indonesia health system review. Health systems in transition. 2017;7(1).
30. Carvalho OMC, Junior ABV, Augusto MCC, Leite Á JM, Nobre RA, Bessa O, et al. Delays in obstetric care increase the risk of neonatal near-miss morbidity events and death: a case-control study. BMC Pregnancy Childbirth. 2020;20(1):437.
31. Royal College of Obstetricians and Gynaecologists. Birth after previous cesarean birth [Internet]. Royal College of Obstetricians and Ginaecologists; 2015. Available from: [Website].