Original Article

Beyond the Scar: VBAC vs ERCD – Exploring Best Delivery Option for Women with Prior Caesarean Sections

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Abstract

Objective: To evaluate the maternal and neonatal outcomes and risks associated with Vaginal Birth after Caesarean (VBAC) versus Elective Repeat Caesarean Delivery (ERCD), in order to determine the safest and most appropriate mode of delivery among women presenting with prior Caesarean section history.

Methodology: This is a randomized controlled trial conducted from ERCD from January to December 2023 at Obs $ Gynae Dept. Bahawal Victoria Hospital, Quaid-e-Azam Medical College Bahawalpur. A total of 150 to either VBAC or ERCD would be included. The results of maternal morbidity included bleeding, infection, and uterine rupture. Neonatal health was assessed using Apgar scores, NICU admission rates, and early neonatal mortality. Maternal satisfaction and postpartum depression were measured against the Edinburgh Postnatal Depression Scale (EPDS). SPSS version 26 was used for data entry and analysis.

Results: Mean age of 29.3 ± 3.8 years was in VBAC group and 28.15 ± 2.7 years in the ERCD group. Uterine rupture was significantly higher in the VBAC group (8% vs. 0%, p = 0.027), while hemorrhage >1000 ml was more frequent in VBAC (6.67% vs. 1.33%, p = 0.067) and infection rate was slightly higher in the VBAC group (4% vs. 2.67%). Additionally ERCD group showed better neonatal outcomes, including higher Apgar scores and fewer NICU admissions (8% vs. 30.67%) p = <0.05. However, uterine rupture was significantly more common in the VBAC group (8%, p = 0.027). Maternal satisfaction was similar in both groups, but postpartum depression was more frequent in the ERCD group (21% vs. 13%, p = 0.037).

Conclusion: ERCD observed to be the safer option overall, particularly in terms of neonatal outcomes and reduced maternal complications, while it may be associated with higher emotional costs, including an increased risk of postpartum depression. In parallel, VBAC offers the advantage of natural birth and similar maternal satisfaction but carries a higher risk of complications and require a strict monitoring.

Keywords: ERCD, VBAC, Previous scar, Uterine Rupture, Apgar score.

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Introduction

Vaginal birth after caesarean (VBAC) has come to the forefront as an important consideration in obstetric care in view of the increasing rates of caesarean deliveries and associated risks of repeat caesarean sections, with long-term complications of maternal health. Such a choice between attempting VBAC and opting for elective repeat cesarean delivery (ERCD) is quite complex and hence needs balancing of potential benefits and risks to the mother as well as the neonate. However, several factors decide it, including maternal medical history, clinical guidelines, and institutional policies.[1,6] VBAC has been advocated as a means to decrease the overall rates of cesarean delivery, since this procedure has late-life risks, including increased morbidity during later pregnancies.[2] Knowing these benefits on the other hand, a major concern regarding

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uterine rupture exists, particularly in women who have had multiple prior cesarean deliveries. This risk is significantly increased.[3] Hence, the decision between VBAC and ERCD is made by comprehensive risk assessment and individualized management.[4,7]

There exists, in recent times, variability shown to exist between VBACs in the success achieved depending on the policies and healthcare systems put in place, among other patient demographics and clinical practices. For instance, population-based case-control study showed the differences in VBAC outcomes, calling for variance in practice in obstetric care due to varying physician decisions for decades.[10] A good number of studies show that a successful VBAC is said to have less maternal morbidity and faster recovery times than ERCD. In fact, attempts at VBAC leading to an emergent cesarean delivery do indeed pose increased risks for adverse outcomes to both mother and neonate, making careful pre-delivery risk evaluation essential.[7,9] As of late, meta-analyses have only recently demystified the criteria for successful VBAC, thereby also paving the way for critical information in the area of clinical practices.[7] This fluid evidence keeps on underlining the necessity for individualized care and decision-making for enhanced VBAC results. The relative safety and effectiveness of VBAC vs. ERCD are altered by factors such as maternal age, BMI, history of obstetric exposures, and kind of care setting.[8,9] Regardless, it remains important to continue to educate counseling and make use of evidence-based guidelines for optimal mother and child results.[6,7]

With rising caesarean section rates, determining the safest and most effective delivery option for women with previous CS, VBAC or ERCD is critical. VBAC can reduce surgical risks and support quicker recovery, while ERCD offers predictability but with higher long-term complications. However this study aims to compare outcomes, inform clinical decision making, and guide patient-centred care, especially in resource-limited settings where such evidence is essential for optimizing maternal and neonatal health.

Methodology

This study was a randomized controlled trial that was conducted from January 2023 to December 2023, at gynae and OBS department of Bahawal Victoria Hospital, BWP, Quaide Azam medical College Bahawalpur, ethical approval letter no 1993/DME/QAMC,Bahawalpur. Study was conducted with a total sample size of 150 women with a singleton pregnancy in cephalic presentation at term (37–42 weeks of gestation), and those having no contraindications to vaginal delivery. All the women had more than one prior Caesarean deliveries, multi-fetal pregnancies, any contraindication to vaginal delivery, or any medical or obstetric condition deemed unsuitable for participation were excluded. Before to participation, all the patients were informed about the purpose of the study, and written informed consent was obtained from each case.

Participations were voluntary, and participants may withdraw at any time without any impact on their medical care. All personal information and data collected will be kept strictly confidential and used only for research purposes. Patients were equally divided into two groups, with 75 women in the VBAC group and 75 women in the ERCD group. Randomization occurred at the time of admission for delivery, using a computer-generated randomization sequence. Data were collected prospectively. Primary outcomes focused on maternal morbidity, including haemorrhage, blood loss, infection, and uterine rupture, while neonatal outcomes included Apgar score, NICU admission, neonatal mortality, patient satisfaction, and psychological wellbeing. Psychological evaluation was assessed using the Edinburgh Postnatal Depression Scale (EPDS). All the data were entered and analysed via SPSS version 26, using chi-square test and T- test, taking a p-value of $\leq$0.05 considered as significant.

Results

A total of 150 patients were enrolled and divided into two groups, with an estimated mean age of 29.3 ± 3.8 years in the VBAC group and 28.15 ± 2.7 years in the ERCD group. According to maternal outcomes, uterine rupture occurred in 6(8%) women in the VBAC group compared to 0% in the ERCD group, (p = 0.027), Hemorrhage > 1000 ml was observed in 5(6.67%) patients in the VBAC group versus 1(1.33%) patients in the ERCD group (p = 0.067). Infection rate was 4% in the VBAC group and 2.67% in the ERCD group, with no significant difference. (Table I)

Table I: Comparison of maternal outcomes in both groups. (n=150)

Outcome	VBAC GROUP N=75	ERCD GROUP N=75	P value
Hemorrhage >1000ml	5 (6.67%)	1 (1.33%)	0.067
Infection	3 (4%)	2 (2.67%	10.63
Uterine Rupture	6 (8%)	0 (0%)	0.027

Based on neonatal outcomes between the two groups, the ERCD group had significantly better Apgar scores at both 1 minute (7.73 ± 1.63 vs. 5.87 ± 2.14; p = 0.0003) and 5 minutes (8.16 ± 1.21 vs. 7.42 ± 1.93; p = 0.013) than the VBAC group. NICU admission rate was also significantly lower in the ERCD group (8%) compared to the VBAC group (30.67%) p-0.0006. Early neonatal mortality was higher in the VBAC group (12%) than in the ERCD group (4%), p = 0.073. (Table II)

Table II: Comparison of neonatal outcomes in both groups. (n=150)

Outcome	VBAC GROUP N=75	ERCD GROUP N=75	P value
Apgar Score (1 minute)	5.87 +/- 2.14	7.73 +/- 1.63	0.0003
Apgar Score (5 minute)	7.42+/- 1.93	8.16+/- 1.21	0.013
NICU admissions	23 (30.67%)	6 (8%)	0.0006
Early Neonatal mortality	9 (12%)	3 (4 %)	0.073

Maternal satisfaction was high in both groups, 86% in VBAC group and 90% in the ERCD group without significant difference (p = 0.45), while psychological outcomes was 13% of women in the VBAC group and 21% in the ERCD group had EPDS scores ≥10, indicating a significantly higher rate of postpartum depressive symptoms in the ERCD group (p = 0.037). (Table III)

Table III: Patient Satisfaction and Psychological Outcomes.

Outcomes	VBAC GROUP N =75	ERCD GROUP N=75	P value
Maternal Satisfaction Score	64/75 86%	67/75 90%	0.45
Edinburgh Postnatal Depression Scale (EPDS) EPDS ≥ 10	13%	21%	0.037

Discussion

The global rise in surgical births has led to initiatives aimed at lowering cesarean frequencies, labor attempts following a previous cesarean have become a potential substitute for planned repeat procedures.[11] However, current literature on the relative results of these choices shows mixed findings, largely because each carries distinct benefits and potential harms.[11] This study was conducted to evaluate the maternal and neonatal outcomes and risks associated with VBAC compared to ERCD, aiming to determine the safest and most suitable mode of delivery for women with a history of prior caesarean section. In our findings, ERCD emerged as the overall safer option, particularly in terms of neonatal outcomes and reduced maternal complications; however, it may be linked to greater emotional burden, including a higher incidence of postpartum depression. Conversely, VBAC offers the benefit of a natural birth and comparable maternal satisfaction, but is associated with a higher risk of complications such as hemorrhage and uterine rupture. In this study, the incidence of uterine rupture was notably higher in the VBAC group compared to the ERCD group, aligning with previous research that highlights this increased risk in VBAC attempts.[11,14]

Comparatively İzbudak G et al[13] reported that there was no meaningful statistical variation observed between the VBAC and ERCD groups in terms of uterine rupture, scar separation, postpartum bleeding, blood transfusion requirements, or wound infections (p > 0.05). Kalburgi et al[14] found that the blood transfusion and premature membrane rupture were not linked to either group, while VBAC had better APGAR scores and shorter hospital stays than LSCS (p < 0.01).

Allameh T et al[15] also reported that the VBAC and spontaneous vaginal delivery are associated with improved maternal and neonatal outcomes, offering greater safety and higher satisfaction than cesarean section. These results indicate that the choice between VBAC and ERCD involves a balance of benefits and risks. While VBAC may offer a shorter recovery period and reduced likelihood of long-term issues such as placental abnormalities, it carries greater immediate maternal risks, including uterine rupture and significant bleeding.

Additionally in this study neonatal outcomes were significantly better in the ERCD group, where higher Apgar scores and notably lower NICU admission rates among neonates delivered via ERCD, consistent with previous studies suggesting superior short-term neonatal outcomes with elective repeat cesarean deliveries.[16,17] However, neonatal mortality rates were similar in both groups, indicating that the observed differences are primarily related to immediate post-delivery conditions rather than long-term neonatal health. VBAC, while associated with increased short-term risks, may carry fewer long-term complications and has been reported to be more cost-effective for low-risk women compared to ERCD. This makes VBAC a valuable option from a health economics perspective, especially for healthcare systems operating under financial constraints.[7,16] In the comparison of this study

Horgan R et al[18] reported that there was no significant difference between the two groups in terms of NICU admissions or 5-minute Apgar scores below 7.

This study found high maternal satisfaction in both groups 86% in the VBAC group and 90% in the ERCD group with no statistically significant difference (p = 0.45). However, psychological outcomes differed, with 13% of women in the VBAC group and 21% in the ERCD group scoring ≥10 on the Edinburgh Postnatal Depression Scale (EPDS), indicating a significantly higher rate of postpartum depressive symptoms in the ERCD group (p = 0.037). These findings align with the study by Cleary-Goldman et al[19] which reported notable variations in patient satisfaction across four delivery groups when comparing current experiences to a prior cesarean (p = 0.001). Women who achieved successful vaginal birth reported the highest satisfaction, while those who underwent intrapartum caesareans showed the least improvement. Still, 92% of the latter group expressed satisfaction with attempting a vaginal delivery.

Similarly, Moysiadou et al[20] found that more than half of the women felt very happy and satisfied during pregnancy and childbirth, with 35% to 40% reporting little to no fear. However, there were no studies found regarding postpartum depression between these delivery groups with prior C-section. Overall this study highlights the importance of individualized care and shared decision-making between patients and healthcare providers. While VBAC may be a valuable option for selected women, it carries notable risks, particularly regarding uterine rupture and neonatal complications. In contrast, ERCD appears to offer greater safety and predictability, especially in resource-limited settings. Though based on few significant limitations like relatively small sample size, being conducted at a single center study and long-term maternal and neonatal outcomes were also not assessed, hence the findings cannot by apply as finally conclusive. Though future large-scale, multicenter and long-term follow up studies are recommended to validate these findings and guide evidence-based clinical practice.

Conclusion

Study concluded that ERCD appears to be the safer option overall, particularly in terms of neonatal outcomes and reduced maternal complications, while it may be associated with higher emotional costs, including an increased risk of postpartum depression. In parallel, VBAC offers the advantage of natural birth and similar maternal satisfaction but carries a higher risk of complications such as haemorrhage and uterine rupture. Therefore, while VBAC may be appropriate for carefully selected candidates under strict monitoring, ERCD remains the more reliable and safer choice, especially in settings with limited emergency response capabilities. The increased risk associated with VBAC can be minimized through proper patient selection and attentive intrapartum care. Overall findings highlighted the importance of providing empathetic care and support to all mothers, regardless of their chosen mode of delivery.

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