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Original Research Article

PERINATAL OUTCOME IN SUCCESSFUL VAGINAL BIRTH AFTER CESAREAN SECTION

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Abstract: *Successful vaginal birth has been reported in 60%–80% of cases reported in published studies of women attempting vaginal birth after a previous Cesarean section. The recommended criteria for selecting candidates suitable for VBAC are potentially applicable in tertiary centers in developing countries, but there are many inadequacies in meeting them in our environment. VBAC avoids major abdominal surgery, lowers the women's risk of postpartum morbidities like fever, blood transfusion, infections, and shorter hospital stay, and encourages earlier breastfeeding and better bonding between mother and neonate.* ***Objectives:*** *To determine the frequency of perinatal outcomes in successful vaginal birth after cesarean section (VBAC).* ***Methods:*** *Descriptive, case series study in the Department of Obstetrics & Gynecology, Lady Reading Hospital, Peshawar from August 2020 to February 2021. A total of 207 pregnant women with singleton pregnancy of cephalic presentation with successful vaginal birth after cesarean of gestational age 37-41 weeks were included. Patients with multiple pregnancies, ruptured uterus, placenta previa, and fetal malpresentation were excluded. After taking informed consent, all women were followed till delivery and perinatal outcome i.e. low birth weight, Apgar score<7 at 1 minute, and NICU admission was noted.* ***Results:*** *The age range in this study was from 18 to 40 years with a mean age of 29.32 ± 4.57 years. The majority of the patients 104 (50.24%) were between 31 to 40 years of age. The mean gestational age was 38.33 ± 1.17 weeks. The mean parity was 2.11 ± 0.82. In my study, the frequency of perinatal outcome in successful vaginal birth after the cesarean section was as follows; low birth weight in 15.94%, APGAR score<7 at 1 minute in 9.67%, and NICU admission in 14.01% neonates.* ***Conclusion:*** *This study concluded that the frequency of perinatal outcome in successful vaginal birth after cesarean section was as follows; low birth weight in 15.94%, APGAR score<7 at 1 minute is 9.67%, and NICU admission in 14.01% neonates.*

Keywords: Upper Cross Syndrome, Oswestry, Musculoskeletal

Introduction

The rate of cesarean section (CS) has increased worldwide leading to a higher number of women with previous uterine scar (1). For instance, a published 10-year review reported a rise in CS rate up to 80%, in Saudi Arabia increasing from 10.6% in 1997 to 19.1% in 2006 and the UK from 9% in 1980 to 25% in 20071. 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 a vaginal birth after a prior CS had around 73% of success rate (2). VBAC section has fewer complications and faster recovery compared with CS. Conflicting data exist concerning the safety of induction of labor (IOL) in women with previous single lower segment CS (LSCS). The greatest impact of a failed trial of VBAC is emergency CS3, (4). Successful vaginal birth has been reported in 60%–80% of cases reported in published studies of women attempting vaginal birth after a previous Cesarean section (5, 6). The recommended criteria for selecting candidates suitable for VBAC are potentially applicable in tertiary centers in developing countries, but there are many inadequacies in meeting them in our environment (7, 8). VBAC avoids major abdominal surgery, lowers the women's risk of postpartum morbidities like fever, blood transfusion, infections, and shorter hospital stay, and encourages earlier breastfeeding and better bonding between mother and neonate (8). In a study (9), the low birth weight babies were 20.5%, the Apgar score<7 at 1 minute was 24.1% and NICU admission was 5.1%. The mode of delivery of a baby after one LSCS is very important, as VBAC after two LSCS is still not being practiced in many parts of the world especially in underdeveloped or less developed countries (10). Trail of labor after cesarean is a reasonable choice for many women with VBAC success rates around 75% and complication rates less than 1% (11). In a study, out of 150 pregnant women with a history of previous LSCS, 39 (26%) underwent elective LSCS, the commonest indication being a previous pregnancy bad experience (38.46%). 111 (74%) underwent TOLAC out of which 77 (69.36%) had successful VBAC and 34 (30.63%) underwent repeat emergency LSCS. Maternal complications were higher in the Emergency LSCS group than in those who had a successful VBAC (17.64% vs.3.89%)). Neonatal complications were also higher in the Emergency LSCS group than in those who had a successful VBAC (2.95% vs. 0%). A similar study has shown the Apgar score >6 at 5 minutes after VBAC as 96.1% and after elective cesarean delivery as 97.43% while that of failed trial resulting in emergency LSCS was 79.41%. NICU admission was seen

in 8.10% of TOLAC compared to 2.56% in elective repeat LSCS. Perinatal mortality after emergency cesarean delivery was 2.95% and 0% after VBAC (12).

Although previous studies have been done on this locally the available data is very scarce and research must be required in this regard for proper management of these particular patients and arrangements of all necessary measures for better perinatal outcomes. Since earlier detection of the fetuses at risk, one should have a clear protocol to diagnose the disease and follow the policy of active management, i.e. antenatal fetal surveillance and elective early delivery. Moreover, a proper protocol can be designed for these patients for antenatal monitoring and proper management plans to reduce the morbidity and mortality of the fetus.

Methodology

This Descriptive, cross-sectional study was done in the Department of Obstetrics & Gynecology, Department of Obstetrics & Gynecology, Lady Reading Hospital, Peshawar from August 2020 to February 2021. A total of 207 women presenting to the Department of Obstetrics & Gynecology, Lady Reading Hospital, Peshawar, fulfilling the inclusion criteria were selected. After taking informed consent, all women were followed till delivery and perinatal outcome i.e. low birth weight, Apgar score <7 at 1 minute, and NICU admission was noted. All women with singleton pregnancy of cephalic presentation with successful vaginal birth after cesarean. Gestational age 37-41 weeks. Age 18-40 years. Multiple pregnancies (assessed on ultrasonography). Patients with suspected ruptured uterus. Fetal malpresentation. Patients with placenta praevia. Patients with more than previous one cesarean section.

Results

The age range in this study was from 18 to 40 years with a mean age of 29.32±4.57 years. The majority of the patients 104 (50.24%) were between 31 to 40 years of age. Mean gestational age was 38.33±1.17 weeks. The mean parity was 2.11±0.82. In our study, the frequency of perinatal outcome in successful vaginal birth after cesarean section was as follows; low birth weight in 15.94%, APGAR score <7 at 1 minute in 9.67%, and NICU admission in 14.01% neonates. (Table 1)

Table 1: Perinatal Outcomes of Neonates

Perinatal outcome		Frequency	%age
Low birth weight	Yes	33	15.94
	No	4	84.06
APGAR score <7 at 1 minute	Yes	20	9.67
	No	187	90.34
NICU Admission	Yes	29	14.01
	No	178	85.99

Table 2 comparison of perinatal outcomes between neonates born at 37-38 weeks and those born at 39-41 weeks gestation reveals notable differences in certain measures. Regarding low birth weight, 14.4% (18 neonates) of those born at 37-38 weeks had a low birth weight, compared to 18.3% (15 neonates) of those born at 39-41 weeks; however, this difference was not statistically significant (p=0.454). In terms of APGAR scores, none of the neonates born at 37-38 weeks had an APGAR score below 7 at 1 minute, whereas 24.4% (20 neonates) born at 39-41 weeks did, which was a statistically significant difference (p=0.0001). NICU admission rates also differed significantly between the two groups: 23.2% (29 neonates) born at 37-38 weeks required NICU admission, while none of the neonates born at 39-41 weeks needed NICU care (p=0.0001). These findings suggest that gestational age may play a role in certain perinatal outcomes, particularly APGAR scores and the need for NICU admission. (Table2)

Table 2: Comparison of Perinatal Outcomes Based on Gestational Age

		37-38 weeks (n=125)	39-41 weeks (n=82)	P-value
Low birth weight	Yes	18	15	0.454
	No	107	67	
APGAR score <7 at 1 minute	Yes	00	20	0.0001
	No	125	62	
NICU Admission	Yes	29	00	0.0001
	No	96	82	

Discussion

Globally, high rates of cesarean section (CS) are an issue of public health concern (13). According to the World Health Organization (WHO) in 2015, CS rates in women who had a previous CS ranged between 78.1 and 79.4% in high-income countries, 85.2 and 87.5% in middle-income countries, and 63.2 and 72.1% in low-income countries14. Previous CS is one of the main indications for CS in sub-Saharan Africa (15, 16). Even when the decision is made for a trial of labor (ToL), there are conflicting recommendations about how to manage both labor and delivery, for instance about augmentation of labor. Doctor and patient preferences vary widely and fear of litigation is increasing, causing variations in clinical management (17-19).

I have conducted this study to determine the frequency of perinatal outcomes in successful vaginal birth after cesarean section. In my study, the frequency of perinatal outcome in successful vaginal birth after cesarean section was as follows; low birth weight in 15.94%, APGAR score <7 at 1 minute in 9.67%, and NICU admission in 14.01% of neonates. In a study, out of 150 pregnant women with a history of previous LSCS, 39 (26%) underwent elective LSCS, the commonest indication being a previous pregnancy bad experience (38.46%). 111 (74%) underwent TOLAC out of which 77 (69.36%) had successful VBAC and 34 (30.63%) underwent repeat emergency LSCS. Maternal complications were higher in the Emergency LSCS group than in those who had a successful VBAC (17.64% vs.3.89%)). Neonatal complications were also higher in the Emergency LSCS group than in those who had a successful VBAC (2.95% vs. 0%). A similar study has shown the Apgar score >6 at 5 minutes after VBAC as 96.1% and after elective cesarean delivery as 97.43% while that of failed trial resulting in emergency LSCS was 79.41%. NICU admission was seen in 8.10% of

TOLAC compared to 2.56% in elective repeat LSCS. Perinatal mortality after emergency cesarean delivery was 2.95% and 0% after VBAC12. In a study9, the low birth weight babies were 20.5%, Apgar score <7 at 1 minute was 24.1%, and NICU admission was 5.1%.

In another study20, out of 4131 women who came for delivery, 435 (11%) had scarred uteri. ToL, which often started at home or health centers without appropriate counseling, occurred in 297/435 women (68.3%), while 138 women (31.7%) were delivered by ERCS. ToL was successful in 134/297 (45.1%) women. There were no maternal deaths. Twenty-eight out of all 435 women with a scarred uterus (6.4%) sustained severe acute maternal morbidity (puerperal sepsis, postpartum hemorrhage, uterine rupture), which was higher in women with ToL (n = 23, 7.7%) compared with women who had an ERCS (n = 5, 3.6%): adjusted odds ration (aOR) 1.4 (95% CI 1.2–5.4). There was no difference in neonatal admissions between women who underwent ToL (n = 64/297; 21.5%) and those who delivered by ERCS (n = 35/138; 25.4%: aOR 0.8; CI 0.5–1.6). The majority of admissions were due to perinatal asphyxia that occurred more often in infants whose mothers underwent ToL (n = 40, 13.4%) compared to those who delivered by ERCS (n = 15, 10.9%: aOR 1.9; CI 1.6–3.6). Perinatal mortality was similar among infants whose mothers had ToL (n = 8; 27/1000 ToLs) and infants whose mothers underwent ERCS (n = 4; 29/1000 ERCSs) (20).

In a local study 21, out of 62 patients included in the study, 21 (33.3%) deliveries were vaginal, either assisted or spontaneous, while the remaining 41(66.1%) had an emergency repeat c/section. In the successful VBAC group, one patient each had Partial Scar Dehiscence, PPH, blood transfusion, and puerperal pyrexia. In the emergency C/section group, 24 patients had blood transfusions, 8 had puerperal pyrexia and 7 had PPH. In the successful VBAC group, two neonates each had a low Apgar score and needed ICU admission while in the emergency C/section group, 6 neonates needed ICU admission and 5 had a low Apgar score (21). Najmi RS carriedout a study at Sir Ganga Ram Hospital Lahore in 1999 to determine the mode of delivery following one c/section and to establish significant factors influencing outcome (22). In this study about 59% delivered vaginally of which more than 33% were with nonrecurrent causes. Another study by Saeed et al showed the rate of delivery of about 67.9 % (23). These studies coincide with the conclusion that a trial of labor after a prior low transverse c/section in women without ongoing contraindications is safe for most women.

Singh S et al24 in his study on 200 cases 122 patients underwent vaginal birth after Cesarean (VBAC) accounting for 61% and 78 patients underwent 2nd LSCS (76 emergency LSCS and 2 elective LSCS). Out of 76, 55 patients were given trials of VBAC but failed and ended up in C-Section showing a success rate of 68.92% for VBAC (122 out of 177). Adhesions were found in 21 patients out of 78 (26.92%) who underwent LSCS. Uterine rupture was seen in 2 patients out of 200 cases (1.0%). Scar dehiscence was seen in 6 out of 78 patients (7.69%). Post-partum Hemorrhage was seen in only 20 (10%) patients. Pre-term Pregnancy occurred in 16 (8%) patients. Caesarean Hysterectomy had to be done in 3 (1.5%) patients. Placenta Previa was seen in 6 out of the 200 patients (3%) and placenta accrete was seen in1 patient (0.5%). Out of 200 patients, 2 twins were born. The total number of babies born was 201. 8 IUDs occurred out of 201 babies (3.98%) and a total of 25 out of 193 live babies (12.95%) required admission to the Neonatal Intensive Care Unit out of which 2 babies died (24).

In a study done in Nigeria, two thousand six hundred and ten women delivered during the study period, of whom 395 had one previous Cesarean section. A majority of the women (320/355, 90.1%) preferred to have vaginal delivery despite the one previous Cesarean section. However, only approximately 54% (190/355) were found suitable for trial of VBAC, out of whom 50% (95/190 had successful VBAC. Ninety-five women (50.0%) had failed attempts at VBAC and were delivered by emergency Cesarean section while 35 women (9.8%) had emergency Cesarean section for other obstetric indications (apart from failed VBAC). There was no case of uterine rupture or neonatal and maternal deaths recorded in any group. Apgar scores of less than 7 in the first minute were significantly more frequent amongst women who had vaginal delivery when compared to those who had elective repeat Cesarean section (P=0.03) (25).

Conclusion

This study concluded that the frequency of perinatal outcome in successful vaginal birth after cesarean section was as follows; low birth weight in 15.94%, APGAR score <7 at 1 minute in 9.67%, and NICU admission in 14.01% of neonates. So, we recommend that a definite and safe management protocol be designed for the selection of patients who are fit to undergo a trial of labor after a previous cesarean section.

Declarations

Data Availability statement
All data generated or analyzed during the study are included in the manuscript.

Ethics approval and consent to participate
Approved by the department concerned. (IRBEC-tCJD-033/20)

Consent for publication
Approved

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Conflict of interest

The authors declared the absence of a conflict of interest.

Author Contribution

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Coordination of collaborative efforts.
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Conception of Study, Development of Research Methodology Design, Study Design, Review of manuscript, final approval of manuscript.

Conception of Study, Final approval of manuscript.
SAADIA BANO (Associate Professor)
Manuscript revisions, critical input.
Coordination of collaborative efforts.
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Data acquisition, and analysis.
Manuscript drafting.

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