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Original Research

To study Maternal and Perinatal outcome of Vaginal birth after cesarean (VBAC)

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ABSTRACT
Introduction- The incidence of cesarean deliveries is elevated in numerous regions globally. Vaginal birth after cesarean section (VBAC) refers to an attempt at vaginal delivery in specific situations of prior cesarean delivery within a properly prepared medical facility. It provides specific benefits compared to a repeat cesarean section. The aim of present research is to study maternal and perinatal outcome of vaginal birth after cesarean (VBAC).
Material and methods- The prospective interventional study was conducted among 60 pregnant women with previous cesarean section at department of obstetrics and gynecology, GMC, Jammu during the study period of one year. All the maternal and neonatal outcome were evaluated and analysis was done by using SPSS version 25.0
Results- Out of 60 patients 85% (51) had vaginal delivery and rest 15% (9) went through emergency c-section. Maximum patients were in the age group of 25-29 years 27 (45%) and least were in the age of 19 years 2 (3.3%).Majority 42 (70%) cases were second gravida, 15 (25%) were third gravida and 9 (15 %) were gravida >3. Indication of performing emergency C-section were signs of scar dehiscence & imminent scar rupture like tachycardia, BPV etc. was 2 (22.2%) and prolonged labor in 3 (33.3%) patients respectively, fetal distress in 3 (33.3%) and cord prolapsed in 1 (11.1%) patients. The duration of hospital stay associated with successful vaginal delivery was less (2.5 days) as compared to the emergency c-section (7.1 days). There were more maternal and perinatal morbidity in cases with emergency c-section as compared two VBAC group.
Conclusion – In meticulously chosen patients and appropriate conditions, VBAC can be safely implemented, thus reducing the increasing prevalence of cesarean sections.
Keywords- maternal, mode of delivery, neonate, perinatal, vaginal birth after cesarean

INTRODUCTION

Dr. Edward Craigen's 1916 assertion, “Once a caesarean, always a caesarean,” acknowledged elective repeat caesarean section as the standard of care.[1] The elevated incidence of classical cesarean sections, inadequacies in blood banks, and limited resources for fetal monitoring rendered his assertion a cogent argument for that era. In recent years, there have been modifications in the sort of uterine incision with other technological advancements. It facilitated accurate monitoring of the fetus and mother, rendering vaginal birth following cesarean a reasonably straightforward procedure for both the patient and the healthcare professional. Numerous studies have demonstrated the relative safety of vaginal delivery for most women following a low transverse cesarean surgery.[2]

Consequently, vaginal delivery following a cesarean section seems to be the most effective strategy for decreasing the cesarean rate. Vaginal delivery entails reduced risks, necessitates minimal anesthesia, presents a lower likelihood of postpartum morbidity such as fever, blood transfusions, and infections, results in a shorter hospital stay, is more cost-effective, and fosters earlier and improved bonding between mother and infant. Numerous studies have indicated a success rate of 60%-80% for vaginal birth after cesarean (VBAC) in women who had previously undergone a cesarean section.[3]

Cesarean delivery rates are also related to some adverse effects like risks associated with a major abdominal surgery, safely pursuing vaginal delivery following cesarean with qualified practitioners in suitable environments may be a viable strategy to mitigate the escalating global cesarean birth rates [4]. Numerous studies indicate that maternal morbidity is significantly higher in recurrent caesarean sections compared to vaginal deliveries.[5] The danger of mortality in subsequent pregnancies is not promptly acknowledged. Therefore, VBAC should be promoted in well equipped facilities that provide 24-hour access to a blood bank, anesthesiologists, and specialist obstetricians. The aim of present research is to study maternal and perinatal outcome of vaginal birth after cesarean (VBAC).

MATERIAL AND METHODS

The prospective interventional study was conducted at department of obstetrics and gynecology, GMC, Jammu during the study period of one year. Ethical clearance was taken from institutional ethics committee before commencement of study. Patients were asked to sign an informed consent form after explaining them the complete procedure.

Through convenient sampling a total of 60 pregnant women with previous cesarean section admitted to department were selected on the basis of inclusion and exclusion criteria.

Inclusion criteria-

1. Inter pregnancy interval >=18 months
2. Multiple gestation with first fetus with vertex presentation
3. Gestational age>=34 weeks.
4. Lower uterine segment incision in previous caesarean.
5. Pregnancy with one or two previous LSCS.
6. Postdated pregnancy with previous LSCS.

Exclusion criteria-

1. Gestational age <34 weeks.
2. History of wound sepsis or dehiscence in previous LSCS.
3. Previous classical incision, other uterine scars or undefined scars (Eg: - Myomectomy scar).
4. History of previous uterine rupture or scar dehiscence.
5. Pregnancy associated with other medical complications (eg- DM, HTN, Asthama, Heart Disease, Renal Disorder, Seizure Disorder).
6. History of complete perineal tear.
7. Uterine malformations (Congenital or acquired).
8. Interpregnancy duration< 18 months.

A comprehensive history was acquired, focusing on past obstetric details, any history of vaginal birth after cesarean (VBAC), reasons for previous cesarean sections, whether they were elective or emergency, the duration of labor, and the stage at which the cesarean section was performed. In the event of an emergency cesarean, the indication for a previous caesarean and any perioperative or postoperative difficulties encountered should be noted. Any notable personal or familial medical history was also investigated. A comprehensive general and per vaginal examination was conducted in all instances.

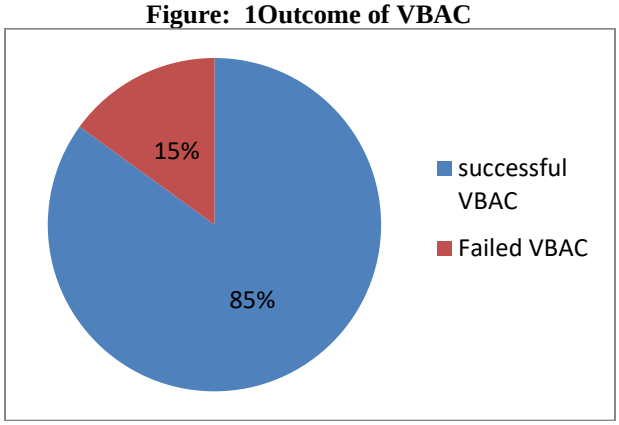
On admission, standard and specialized investigations were conducted as required, and one unit of blood was procured and cross-matched. All patients were monitored during labor. A partogram was created to monitor the progression of labor. All patients who underwent successful vaginal delivery were monitored during the immediate puerperium for any complications. If, during the trial of vaginal delivery, the patient had difficulties such as scar soreness, symptoms of imminent rupture, inadequate progress of labor, or fetal distress, an emergency lower segment cesarean section (LSCS) was performed. Upon discharge, a general examination, vaginal examination, and speculum examination were conducted. Patients were contacted for a follow-up after six weeks. Following birth, routine nasopharyngeal suction was performed on all newborns. The APGAR score was assessed at one and five minutes. Any employed resuscitative procedures were documented. All neonates underwent a comprehensive examination. All infants were monitored at six (6) weeks.

The data was aggregated and the results were rigorously evaluated. The statistical analysis was conducted using the Chi-square test and the Z test. A P value of less than 0.05 was deemed statistically significant.

RESULTS

Out of 60 patients 85% (51) had vaginal delivery and rest 15% (9) went through emergency c-section as shown in figure 1.

Figure: 1Outcome of VBAC



Maximum patients were in the age group of 25-29 years 27 (45%) and least were in the age of 19 years 2 (3.3%).Majority 42 (70%) cases were second gravida, 15 (25%) were third gravida and 9 (15 %) were gravida >3. The most common mode of delivery was vaginal in 51 (85%) and 9 (15%) as shown in table 1.

Table: 1 Baseline characteristics of patients

Baseline characteristics		Frequency (%)
Age (in years)	19	2 (3.3)
	20-24	18 (30)
	25-29	27 (45)
	30-34	9 (15)
	Above 35	4 (6.7)
Gravidity	G2	42 (70)
	G3	15 (25)
	G4	6 (10)
	>=G5	3 (5)
Mode of delivery	Vaginal	51 (85)
	C -section	9 (15)

Indication of performing emergency C-section in cases with failed VBAC were signs of scar dehiscence & imminent scar rupture like tachycardia, BPV etc. was 2 (22.2%) and prolonged labor in 3 (33.3%) patients respectively, fetal distress in 3 (33.3%) and cord prolapsed in 1 (11.1%) patients as shown in table 2.

Table: 2 Indication of emergency C-section in cases with failed VBAC

Indication	Frequency (%)
Signs of scar dehiscence & imminent scar rupture like tachycardia, BPV etc.	2 (22.2)
Prolonged labor	3 (33.3)
Fetal distress	3 (33.3)
Cored prolapse	1 (11.1)

One patient in our study had anesthesia related complication. Two patients (22.%) had emergency CS & two (3.9%) had successful VBAC. One patient (1.9%) had vaginal tear. Five patients received blood transfusion; out of them three were those who had emergency CS (33.3%). In our study three patients had scar dehiscence out of which two were taken for emergency c-section (22.2%) and one (1.9%) had VBAC. Three patients had scar rupture out of which two were taken for emergency c-section (22.2%) and one (1.9%) had VBAC. When comparing successful & failed VBAC group on the basis of late complications the febrile morbidity in our study was seen in 8 patients. Puerperal sepsis was observed more often in patients with failed trial of vaginal delivery as compared to successful VBAC (22.2% vs. 0%). In our study, patients who were taken for emergency c-section had slightly lesser incidence of U.T.I than patients with successful VBAC (11.1% vs. 7.8%). The skin incision complications were noticed more in patients undergoing emergency c-section (11.1%) as compared to patients who had successful VBAC (1.9%). Further, the duration of hospital stay associated with successful vaginal delivery was less (2.5 days) as compared to the emergency c-section (7.1 days) as shown in table 3

Table: 3 Comparison of maternal outcome between successful VBAC and emergency c-section

Characteristics	Successful VBAC (n=51)	Emergency c-section (n=9)	P value
Immediate complications			
Anaesthesia related complications	0	1 (11.1)	-
PPH	2 (3.9)	2 (22.2)	0.040
Cervical/vaginal tears	1 (1.9)	0	-
Blood transfusion	2 (3.9)	3 (33.3)	0.003
Scar dehiscence	1 (1.9)	2 (22.2)	0.010
Scar rupture	1 (1.9)	2 (33.3)	0.020
Late complications			
Febrile morbidity	3 (5.8)	5 (55.5)	0.001
Puerperal sepsis	0	2 (22.2)	-
UTI	4 (7.8)	1 (11.1)	0.234
Skin incision complications	1 (1.9)	1 (11.1)	0.032
Hospital stay	2.5±1.1	7.1±1.3	0.03

In our study, 2 of neonates had a low APGAR score of <7 at 5 minutes. Two neonate from successful VBAC patient (3.9%) & two (33.3%) from failed VBAC suffered from respiratory distress. In our study, 33.3% neonates were admitted in NICU in emergency c-section cases as compared to successful VBAC (3.9%) as shown in table 4.

Table: 4 Perinatal outcome

Characteristics	Successful VBAC (n=51)	Emergency c-section (n=9)	P value
APGAR score at 5 minute <7	1 (1.9)	1 (11.1)	0.001
Respiratory distress	2 (3.9)	3 (33.3)	0.053
TTN	0	1 (11.1)	-
Infection	0	1 (11.1)	-
NICU stay	2 (3.9)	3 (33.3)	0.020
Neonatal death	0	0	-

DISCUSSION

The incidence of cesarean deliveries is increasing worldwide. Women with a history of cesarean delivery may select for either a repeat cesarean birth (RCB) or a vaginal birth after cesarean (VBAC), if both alternatives are accessible. Both techniques of delivery entail risks and benefits; nevertheless, suitably chosen women can frequently attain a vaginal birth following cesarean without significant poor maternal and newborn outcomes, provided they are in an environment equipped to handle problems.[6]

The aim of present research is to study maternal and perinatal outcome of vaginal birth after cesarean (VBAC). The prospective interventional study was conducted at department of obstetrics and gynecology, GMC, Jammu during the study period of one year among 60 pregnant women with previous cesarean section.

Out of 60 patients 85% (51) had vaginal delivery and rest 15% (9) went through emergency c-section. Comparable to present study VBAC success rate was 61.4% in study conducted by Shah Jitesh Mafatlal et al.[7] study conducted by Latika et al found that out of total 50 patients, 39 (78%) had successful vaginal delivery and 11(22%) patients had failed vaginal delivery and underwent emergency LSCS.[8]

Maximum patients were in the age group of 25-29 years 27 (45%) and least were in the age of 19 years 2 (3.3%). This aligns with the findings of Minsart et al, which indicate that the highest incidence of successful VBAC occurs in those aged under 35 years. [9] Majority 42 (70%) cases were second gravida, 15 (25%) were third gravida and 9 (15 %) were gravida >3. This is attributable to the prevailing trend among parents who prefer nuclear families and limit their offspring to two or three, allowing for enhanced care. [10]

In our analysis, the predominant indication for emergency cesarean delivery was fetal distress, which aligns with the findings of Merill et al (40%).[11] The subsequent most prevalent signs among our participants were scar discomfort, followed by protracted labor. The findings are corroborated by Allahabadia's study, which found a 33% greater percentage of patients who underwent emergency caesarean sections due to the arrest of the active phase of

labor.[12] In the research conducted by Finley and Gibbs 0.73% patients underwent cesarean sections due to issues associated with uterine scars, specifically scar dehiscence and scar rupture. [13]

One subject in our study suffered anesthetic complications. Two patients (22.%) had emergency CS and two (3.9%) underwent VBAC. One patient (1.9%) developed vaginal tear. Five patients had blood transfusions, including three emergency CS patients (33.3%). Two of our three scar dehiscence patients (22.2%) had emergency c-sections and one (1.9%) underwent VBAC. Two of three scar rupture patients (22.2%) had emergency c-sections and one (1.9%) had VBAC. Eight participants in our study had greater morbidity compared to successful and failed VBAC patients due to late complications. Failure to vaginally deliver was associated with puerperal sepsis (22.2%) compared to success (0%). Our study found that emergency c-section patients had 11.1% U.T.I, compared to 7.8% for VBAC patients. Emergency c-section patients had greater skin incision issues (11.1%) than VBAC patients (1.9%). Compared to emergency c-sections (7.1 days), vaginal deliveries (2.5 days) required fewer hospital stay. Pai Madhukar et al. asserted that the risk associated with a cesarean section conducted in an emergency context may be heightened due to various variables.[14] The results of our investigation were analogous to those conducted by Shakti et al., Naef et al., and Phelan et al.[15-17] The research conducted by Pramod Kumar et al., which indicated that the average hospital stay was 1-2 days for successful vaginal deliveries and 8-12 days for instances involving emergency LSCS.[18]

Two newborns in our study had a low APGAR score of <7 at 5 minutes. Both successful VBAC (3.9%) and unsuccessful VBAC (33.3%) neonates had respiratory distress. In emergency c-sections, 33.3% of newborns were admitted to the NICU, compared to 3.9% for VBAC. Results of study by Ganitha G showed the mean birth weight of 28526 ± 390 grams in neonates in trial of labour group.[19] Comparable results were documented in the research conducted by Socol & Paceman.[20]

CONCLUSION

A woman obtaining a vaginal birth after cesarean (VBAC) experiences advantages such as a brief hospital stay, less morbidity, and lower costs; yet, failure may necessitate an emergency cesarean section, potentially leading to maternal and fetal morbidity. Elective repeat cesarean section carries intrinsic hazards associated with significant intra-abdominal surgery. Women should be offered the opportunity for vaginal birth after cesarean (VBAC) with diligent monitoring, and if necessary, should have emergency lower segment cesarean section (LSCS) based on minimum indications, since this is the optimal approach for managing past cesarean deliveries.

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