Section: Obstetrics and Gynaecology

Original Research Article

A RETROSPECTIVE STUDY ON THE FACTORS ASSOCIATED WITH SUCCESSFUL VAGINAL BIRTH AFTER CAESAREAN SECTION (VBAC) AT A TERTIARY CARE CENTRE

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ABSTRACT

Background: A Successful Trial of Labor after Caesarean section results in Vaginal Birth after Caesarean section (VBAC). Caesarean section in first pregnancy is not an indication for repeat caesarean section. There are some factors which will increase the chance of vaginal birth after a primary caesarean section. Those factors are to be analyzed and taken into account in deciding whether a mother with previous caesarean section can be allowed for vaginal birth in subsequent pregnancies. This study to analyze the indication for previous caesarean section, the nature of onset of labor pain to analyze the Bishop's score at the time of admission to analyze the Birth weight of the baby of mothers delivered by VBAC. **Materials and Methods:** This study is a retrospective study conducted at the Department of Obstetrics and Gynecology at Chengalpattu Medical College Hospital. The study period was from March 2022 to August 2024 a total of 32 patients who underwent Vaginal Birth after Caesarean Section was included in the study. **Result:** In the study it is found that the out of 32 mothers delivered through Vaginal birth after caesarean Section, All the mothers who had delivered had non recurrent indication for caesarean section and all had spontaneous onset of labor pains either labor progressed spontaneously or augmented with oxytocin. Out of 32 mothers, 10 were delivered at preterm (31%), while the remaining 22(69%) delivered at term. Out of the total mothers delivered 28% (9 mothers) had a Bishop's score of 8. 28% (9 mothers) had Bishop's score of 9, 25% (8 mothers) had Bishop's score of 10 and 19% (6 mothers) had Bishop's score of 11.97% of the babies weighed below 2500 grams. 13% (4 neonates) weighed less than 1500 grams, 54% (27 neonates) weighed between 1501 to 2500 grams, and 3% (1 neonate) weighed more than 2500 grams. 59% (19 neonates) were admitted in Neonatal Intensive Care Unit due to preterm, respiratory distress. Out of the total mothers delivered 3% (1) mother had Post-Partum Hemorrhage which was managed medically. **Conclusion:** In the study it is found that successful Vaginal Birth after Caesarean Section depends on the factors like mothers with non-recurrent indications for caesarean section, mothers who had gone into labor spontaneously; who had favourable Bishop's score and baby birthweight is adequate for the maternal pelvis. But due to low birth weight and preterm deliveries, the need for neonatal admissions was increased. With careful intrapartum Maternal and fetal monitoring, the occurrence of maternal complications can be reduced.

INTRODUCTION

A Successful Trial of Labor after Caesarean section results in Vaginal Birth after Caesarean section (VBAC). Caesarean section in first pregnancy is not an indication for repeat caesarean section. There are some factors which will increase the chance of vaginal birth after a primary caesarean section. Those factors are to be analyzed and taken into account in deciding whether a mother with previous caesarean section can be allowed for vaginal birth in subsequent pregnancies.[1]

Review of Literature

The history of Vaginal Birth after Caesarean section (VBAC) includes the following milestones:

- 1981: VBAC was recognized as a safe option after a previous low transverse Caesarean delivery
- 1985–1995: The VBAC rate increased by over 20%

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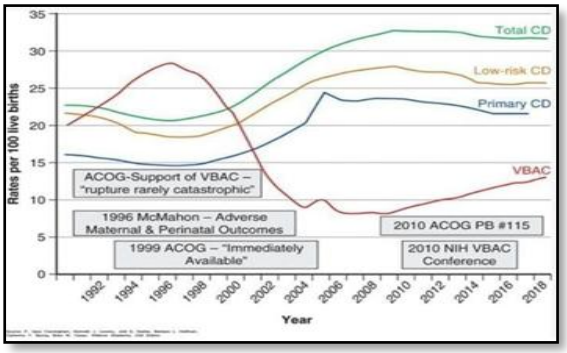
- 1996: The VBAC rate peaked at 28.3%
- 2000: The VBAC rate decreased by 27% from 1996

During the 1980s, a National Institutes of Health (NIH) Consensus Development Conference on Vaginal Birth after Caesarean section (VBAC) (1981) was convened, and the participants questioned the necessity of routine repeat caesarean delivery. With support and encouragement from the American College of Obstetricians and Gynaecologists, enthusiastic attempts were begun to increase the practice rate of Vaginal Birth after Caesarean section (VBAC). These attempts were highly successful, and VBAC rates rose from 3.4 percent in 1980 to a peak of 28.3 percent in 1996. This rate and a concomitant decline in total caesarean delivery rate for the United States are shown in the figure.



Achieving a successful Vaginal Birth after Caesarean section (VBAC) is an important strategy in reducing the rising rate of caesarean section and its associated morbidities. A planned VBAC refers to any woman who has experienced a prior caesarean who plans to deliver vaginally rather than by elective repeat Caesarean section while a vaginal birth (spontaneous or assisted) in a woman undergoing planned VBAC indicates a successful VBAC.[2] TOLAC (Trial of Birth after caesarean section) is the preferred choice for women who do not have several risk factors. The availability of an obstetrician and anaesthetist, operation theatre setup is mandatory in an institution for conducting this trial of birth. If the woman does not want vaginal birth her option should be taken into account. The increasing rate of caesarean delivery is worrisome from both a public health and individual patient perspective. Patients who undergo caesarean delivery not only have surgical risks in the index pregnancy, but also have increasing rates of maternal and neonatal morbidity with an increasing number of caesareans.[3] Risks of placenta accreta, maternal bowel injury, ureteral injury, cystostomy, hysterectomy and intensive care admission persistently rise with increasing number of caesarean deliveries. The American College of obstetricians and Gynecologists (ACOG) states that women with a history of one previous low transverse caesarean delivery, a clinically adequate pelvis, and no prior classical uterine scar or rupture are good candidates for a VBAC trial provided that they are at an institution with adequate resources including pediatricians and anesthetists apart from Obstetricians. Cephalopelvic disproportion is a recurrent indication for caesarean section. Non recurrent indications are fetal distress, malpresentation, oligohydramnios, post term, cord prolapse, Antepartum hemorrhage, multiple pregnancies, and failed induction significant predictors of successful VBAC were non-recurrent indications for the previous caesarean section.[4] A previous vaginal delivery and a non-recurrent indication for theprevious caesarean section are important predictors of VBAC. The primary cause of uterine scar is a previous caesarean.[5] Others include hysterotomy for IUD, myomectomy, laparotomy for uterine fibroid or anomalies. Globally, neonatal complications are rare regardless of the mode of delivery for women with previous caesareans. The risks of fetal, perinatal, and neonatal mortality during TOLAC are low. Ultrasound assessment of the risk of uterine rupture in women with uterine scars has not been shown to have any clinical utility and is therefore not recommended during pregnancy to help decide the mode of delivery. TOLAC should be encouraged for women with a previous vaginal delivery either before or after the caesarean, a favorable Bishop score or spontaneous labor, and for preterm births. For women with a fetus with an estimated weight of more than 4500 g, especially in the absence of a previous vaginal delivery and those with morbid obesity caesarean delivery must be preferred. Labor should be induced in woman with a previous caesarean only for medical indications. Induction of labor increases the risk of uterine rupture. Mechanical methods of induction have not been studied sufficiently. Misoprostol appears to increase the risk of uterine rupture strongly. The increased risk of uterine rupture associated with oxytocin use is dose-dependent. In the active phase, it is recommended that the total duration of failure to progress should not exceed 3 hours which when exceeded need a caesarean section. Epidural analgesia must be encouraged.

MATERIALS AND METHODS

Study Design

This study is a retrospective study conducted at the Department of Obstetrics and Gynaecology at Chengalpattu Medical College Hospital. The study period was from March 2022 to August 2024.

Sample Size

A total of 32 patients who underwent Vaginal Birth after Caesarean Section were included in the study.

Inclusion Criteria

Patients included in the study were those mothers admitted at Chengalpattu Medical College Hospital

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who had undergone Successful Vaginal Birth After one Caesarean section.

Exclusion Criteria

Patients who were excluded from the study are the mothers with more than one caesarean section.

Data Collection

Data were retrospectively collected from patient medical records. Information recorded included patient demographics, BMI at the time of first visit, gestational age, onset of labor pain, previous vaginal delivery, prior indication for caesarean section, Bishops score were taken.

Statistical analysis: Descriptive statistics were utilized to summarize demographic and clinical characteristics of the study population. Analyses were performed using SPSS version 27.0.

RESULTS

In the study it is found that the out of 32 mothers delivered through vaginal birth after caesarean Section majority (25 mothers) are in the age group of 20 to 30 years (78%). While 2 of them, 6% were in teenage group and 5 of them, 16 % were elderly above 31 years. 75% of the mothers (24 mothers) were normal weight, out of the remaining 9% (3 mothers) were underweight and 16% (5 mothers) were overweight, and none were obese under the study. All the mothers who had delivered had non recurrent indication for caesarean section and all had spontaneous onset of labor pains either labor progressed spontaneously or augmented with oxytocin. Out of 32 mothers, 10 were delivered at preterm (31%), while the remaining 22(69%) delivered at term. Out of the total mothers delivered 28% (9 mothers) had a Bishop's score of 8, 28% (9 mothers) had Bishop's score of 9, 25% (8 mothers) had Bishop's score of 10 and 19% (6 mothers) had Bishop's score of 11.97% of the babies weighed below 2500 grams. 13% (4 neonates) weighed less than 1500 grams, 54% (27 neonates) weighed between 1501 to 2500 grams, 3% (1 neonate) weighed more than 2500 grams. 59% (19 neonates) were admitted in Neonatal Intensive Care Unit due to preterm, respiratory distress. Out of the total mothers delivered 3% (1) mother had Post-Partum Hemorrhage which was managed medically.

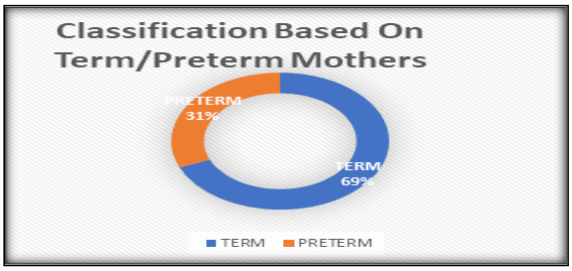

Figure 1: Classification Based on Term/Preterm Mothers

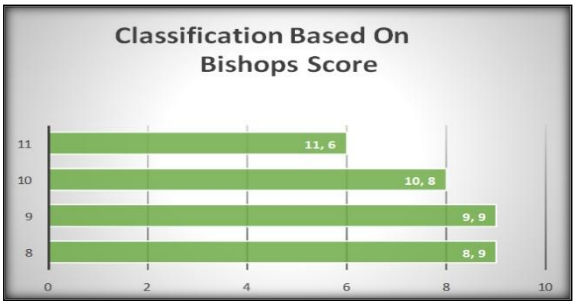

Figure 2: Classification Based on Bishops Score

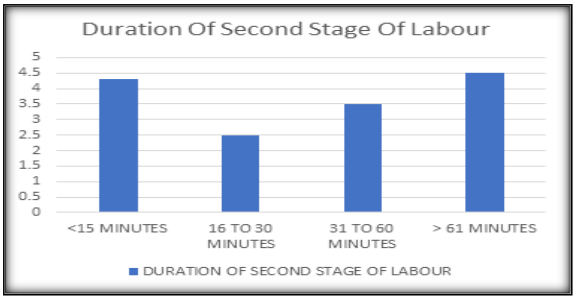

Figure 3: Duration of Second Stage of Labour

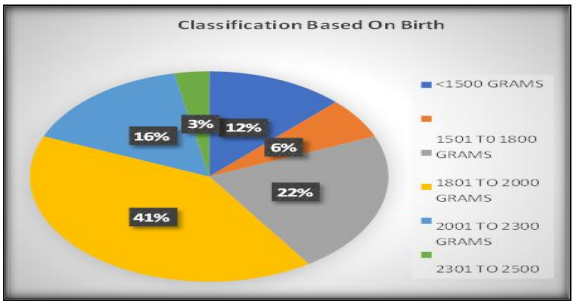

Figure 4: Classification Based On Birth Weight

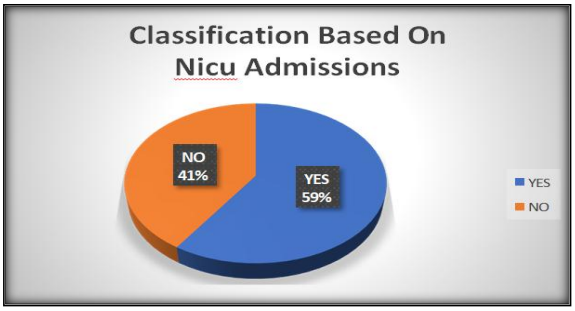

Figure 5: Classification Based On NICU Admissions

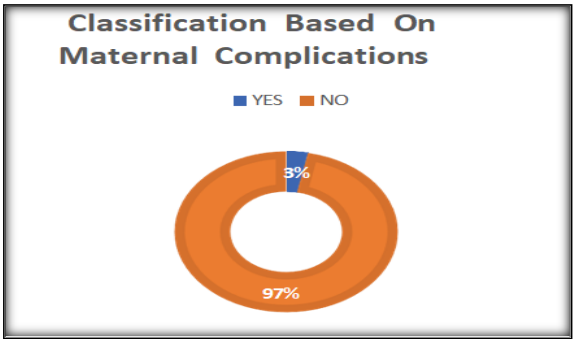

Figure 6: Classification Based On Maternal Complications

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Table 1: Maternal Age and BMI

Age	No of Mothers
<19 Years	2 (6%)
20 To 25 Years	13 (41%)
26 To 30 Years	12 (37%)
>31 Years	5 (16%)
BMI	
Underweight (<18.5)	3 (9%)
Normal Weight (18.5 To 22.9)	24 (75%)
Overweight (23 To 24.9)	5 (16%)
Obese	0

Table 2: Recurrent or Nonrecurrent Indication for Caesarean Section, Onset of Labor Pains

Indication For Caesarean Section	
Recurrent	0
Non-Recurrent	32 (100%)
Onset of Labor Pain	
Spontaneous	32 (100%)
Induced	0

Table 3: Classification Based on Term, Preterm Deliveries

Term/Preterm	Number of Mothers
Term	22 (69%)
Preterm	10 (31%)

Table 4: Classification Based on Bishop's Score

Bishop's Score	At The Time of Admission
8	9 (28%)
9	9 (28%)
10	8 (25%)
11	6 (19%)

Table 5: Duration of Second Stage of Labor

Duration of Second Stage of Labor	
<15 Minutes	2 (6%)
16 To 30 Minutes	8 (28%)
31 To 60 Minutes	14 (49%)
>61 Minutes	8 (28%)

Table 6: Classification Based On Birth Weight

Weight	
<1500 Grams	4 (13%)
1501 To 1800 Grams	2 (7%)
1801 To 2000 Grams	7 (23%)
2001 To 2300 Grams	13 (44%)
2301 To 2500 Grams	5 (10%)
>2501 Grams	1 (3%)

Table 7: Classification Based On NICU Admission.

Neonates Admitted In NICU	
Yes	19 (59%)
No	13 (41%)

Table 8: Maternal Complications.

Maternal Complications	
Yes	1 (3%)
No	31 (97%)

DISCUSSION

Trial of labor after Cesarean Section should be considered in women who have no contraindications. Identifying the best candidates using factors available to the obstetrician can increase VBAC success rate and minimize maternal morbidity. Recurrent indication for a caesarean delivery is defined as poor labor progress, secondary arrest, prolonged second stage, failed induction of labor and macrosomic baby. Non-recurrent indications include fetal distress, mal presentations, severe preeclampsia, placenta previa, and abruption placenta. A successful VBAC was associated with a spontaneous labor onset and a higher Bishop score. Birthweight also remains a significant factor. It is important to individualize the risk estimation for

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each patient in order to make the VBAC a safe choice

CONCLUSION

In the study it is found that successful Vaginal Birth after Caesarean Section depends on the factors like mothers with non-recurrent indications for caesarean section, mothers who had gone into labor spontaneously, who had favourable Bishop's score and baby birth weight is adequate for the maternal pelvis. But due to low birth weight and preterm deliveries, the need for neonatal admissions was increased. With careful intrapartum Maternal and fetal monitoring, the occurrence of maternal complications can be reduced.

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