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Pregnancy Outcomes in Women with Previous Cesarean Section: A Retrospective Analysis

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Abstract: There is an increased Cesarean section (CS) rate all over the world, which has formed a higher population of women who have undergone CS in the past. The outcome of pregnancies in this group would be vital to clinicians who may choose a vaginal birth after cesarean (VBAC) or a repeat CS. The present study is a review of maternal and neonatal outcomes in pregnancies with a history of CS, with the focus on delivery modes, complications, and neonatal mortality**.** It was a retrospective cohort study with health records of women who had prior CS delivered at Diyala, Iraq, hospitals between June 2022 and June 2023. The outcomes of the analysis were delivery mode (VBAC vs. repeat CS), maternal complications, and neonatal complications, placental pathology, and perinatal mortality**.** A data of clinical information on 130 patients was made. Fifty-eight percent had a repeat CS, and 42 percent tried VBAC with a 72 percent success rate. Repeat CS had a greater number of maternal complications than VBAC (15 vs. 8 per cent), particularly surgical site infections. There was no difference in neonatal outcomes, although infants born through VBAC had a higher Apgar score. The prevalence of previa was higher post-repeat CS (10% vs. 4%). Perinatal mortality was uncommon (<1%) and was associated with emergent CS. The rate of low labor induction reduced the success of VBAC by 18% less. To sum up, VBAC is still a possibility to some women, and its success rate and maternal morbidity are higher when compared to repeat CS.

Keywords: Cesarean section (cs), vaginal birth in post cesarean section, complications of mothers and neonatal outcomes.

INTRODUCTION

The outcome of pregnancy among women with a cesarean case (C -section) is a matter of major concern in obstetrics, particularly with the increasing prevalence of cesarean section throughout the world (Clarke, M. *et al*., 2015). In the last decades, we have acquired a lot of information about the impact of such a precedent birth in the surgical procedure and its consequences on subsequent pregnancies (Thomas, S. *et al*., 2016). This has been informed by the practice changes and clinical recommendations regarding the issue of vaginal birth after cesarean (VBAC) versus repeat cesarean section. There are significant implications of the method of delivery on the health of the maternal body and the health of the babies as well (World Health Organization, 2015; Lundgren, I. *et al*., 2016). The primary issue with pregnancy following a C-section is the possibility of utter uterine rupture, a major threat to both mother and child, which could cause additional morbidity and death in some situations. (Lumbiganon, P. *et al*., 2010)

Women who have undergone previous Cesarean delivery also have their results determined by various maternal conditions, including age, body mass index (BMI), and the health condition, general in nature, among others (Souza, J. P. *et al*., 2010). Such features may influence the method of delivery and the flow of pregnancy, including the risk of such conditions as gestational diabetes, high blood pressure, and placental issues (David, M. *et al*., 2009; American College of Obstetricians and Gynecologists, 1999). Assessing the risk profile of individual women can be used to improve care plans to suit a particular woman (Marshall, N. E. *et al*., 2011).

Women who have undergone C-sections are also influenced to make decisions by socio-psychological factors in the past (Betrán, A. P. *et al*., 2016). A cesarean birth may produce many mixed feelings of anxiety and fear to empowerment and control, among others (Abdel-Aleem, H. *et al*., 2013). Healthcare provider and family and community support have a critical impact on such experiences and may, to a large extent, influence the satisfaction of a woman with her delivery method and overall pregnancy outcome as well (Ferreira, E. C. *et al*., 2015).

VBAC might result in reduced maternal morbidity and faster recuperation than planned repeat cesarean delivery (Tan, J. K. *et al*., 2015). Women should be completely educated on the dangers of both VBAC and repeat cesarean section to enable them to decide on the choice that best suits their health objectives and conditions (Triunfo, S. *et al*., 2015).

The increased C-section rates also led to some population health efforts to reduce the number of unneeded surgical births (Hansen, A. K. *et al*.,

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2008). The idea of promoting evidence-based practice that will help in the safe delivery of a baby is necessary to enhance the maternal outcome and resolve the overall impact of the rising rates of surgery in childbirth care (Vogel, J. P. *et al*., 2015). Investigations in different groups and environments will shed more light on the issues that predispose pregnancy outcomes among women who have had a prior cesarean section.

METHODOLOGY

The research presented is a retrospective cohort study, which will be done in one of the tertiary-care obstetric facilities between June 2022 and June 2023. It aimed at determining the pregnancy outcomes among women who have at least one previous cesarean section (CS).

The researchers enrolled all those women who had a singleton pregnancy and one past CS and had delivered the baby at the center in the course of the study. We removed those with more than one gestation, surgery in the uterus other than a low-transverse CS, major fetal defects, and incomplete medical records. One hundred and thirty women who fit the requirements were the end sample (n = 130).

We derived delivery information out of hospital records. Mothers' age, parity, prior CS, onset of labor, mode of delivery, VBAC success or failure, maternal complications, newborn outcomes, placental defects (previa, accreta), and perinatal death were among the variables that were recorded.

The major consequence was the mode of delivery during the current pregnancy in the form of vaginal birth after cesarean (VBAC) and repeat CS. The success of VBAC referred to a vaginal delivery among the women who tried a trial of delivery following cesarean delivery (TOLAC). Less than 37 completed gestation weeks of gestation was considered a preterm delivery. Inter – pregnancy interval was also determined as the period between the last menstrual date of the index pregnancy and the last date of the preceding CS birth.

Statistical analysis of data was managed by use of SPSS 24.0. The variables of the type listed in the continuous form (maternal age, birth weight) were reported as mean, standard deviation, and the variables of the type presented as frequencies and percentages (parity, delivery mode). The rate of VBAC success included the rate of successful VBAC tries out of the total CS attempts.

RESULTS

Table 1. Maternal characteristics.

Characteristic	Number (n=130)	Percentage (%)
Maternal Age (Mean ± SD)	29.4 ± 4.8 years	
Parity		
Primiparous	42	32.3%
Multiparous	88	67.7%
Inter - pregnancy Interval		
<18 months	35	26.9%
≥18 months	95	73.1%

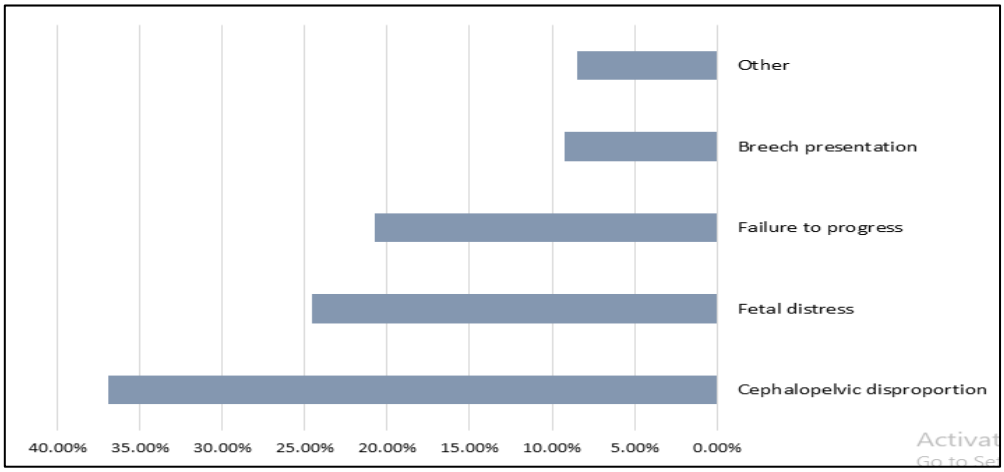

Figure 1. Distribution of the main indicators of undergone to caesarean section.

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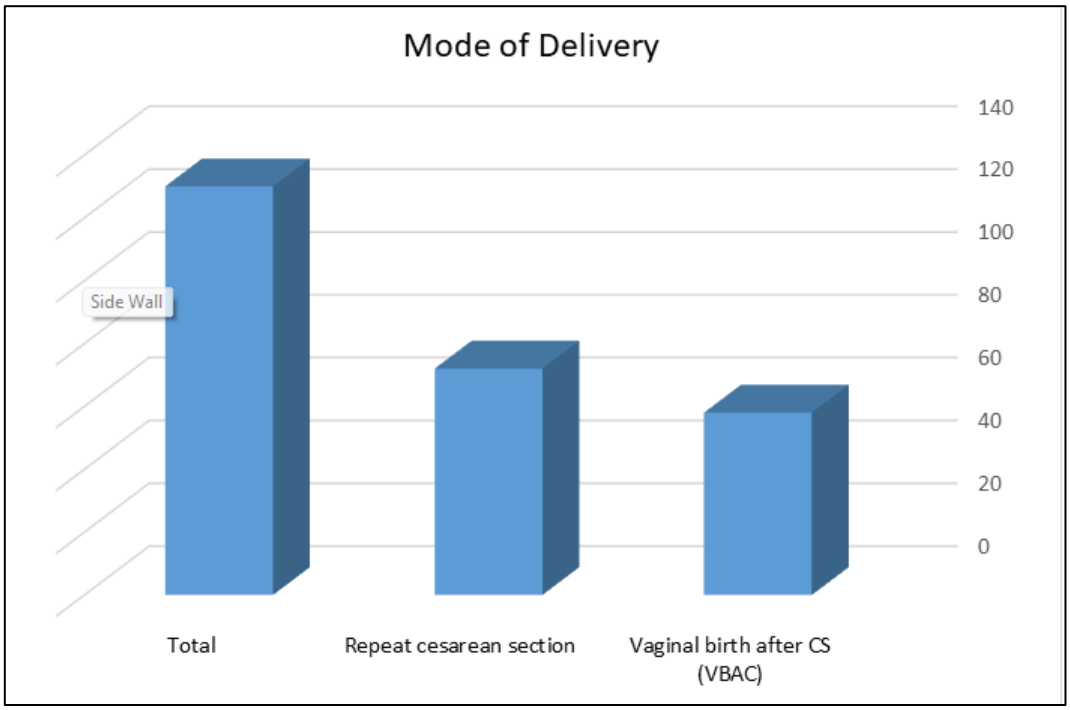

Figure 2. Mode of delivery.

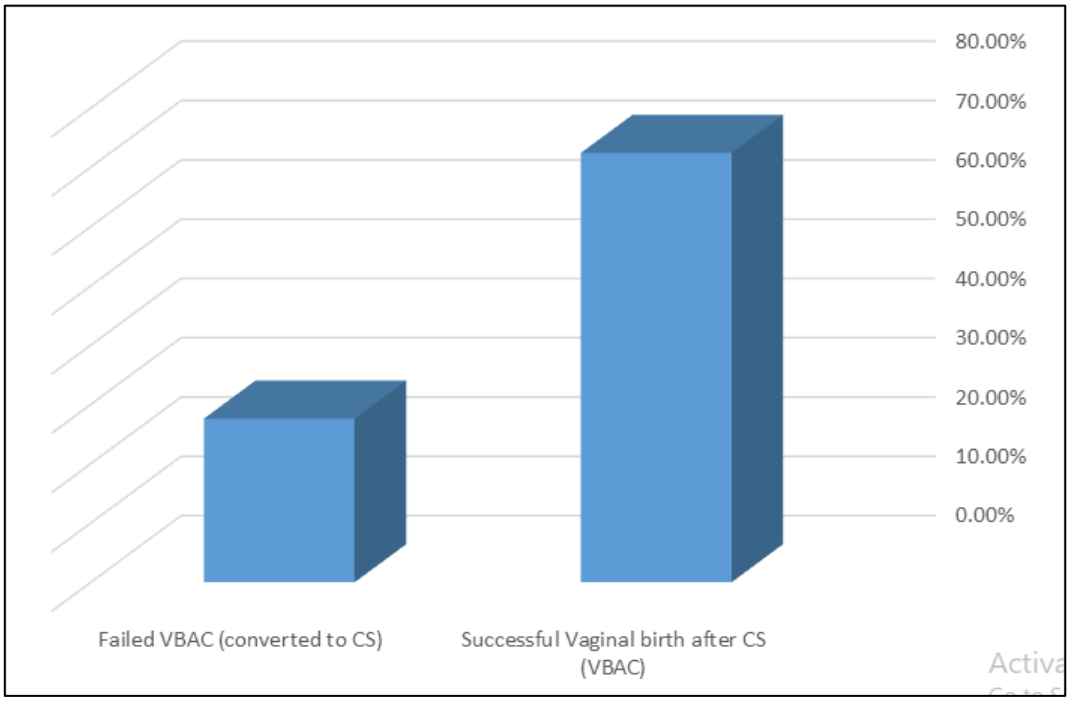

Figure 3. Assessment of clinical outcomes of success rates in vaginal birth after CS (VBAC).

Table 2. Enroll clinical findings of maternal complications into women.

Complications	Number	Percentage (%)
Uterine rupture	4	3.1%
Postpartum hemorrhage	9	6.9%
Surgical site infection	7	5.4%
None	110	84.6%

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Table 3. Determining the clinical neonatal outcomes.

Outcome	Number	Percentage (%)
Birth weight (Mean ± SD)	3.2 ± 0.5 kg	
APGAR Score (5-min)		
≥7	122	93.8%
<7	8	6.2%
NICU admission	11	8.5%

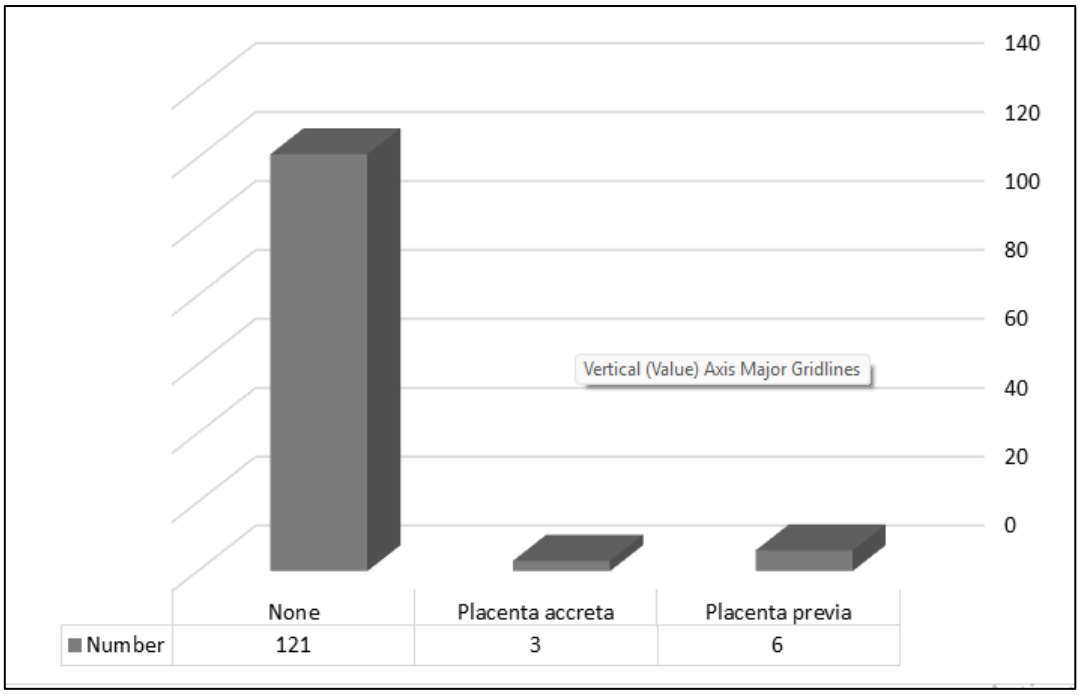

Figure 4. Identifying the hospitalization outcomes of placental abnormalities.

Table 4. Classification of gestational age during the delivery period.

Category	Number	Percentage (%)
Preterm (<37 weeks)	14	10.8%
Term (≥37 weeks)	116	89.2%

Table 5. Denoting of labor findings during pregnancy time.

Induction Status	Number	Percentage (%)
Induced labor	37	28.5%
Spontaneous labor	93	71.5%

Table 6. Enroll clinical outcomes of 130 women in perinatal mortality.

Parameters	Number	Percentage (%)
Stillbirth	2	1.5%
Early neonatal death	1	0.8%
Live births	127	97.7%

DISCUSSION

The 72.4 percent VBAC success rate is within the standard 60-80 percent range of other studies of France and Spain (Pattinson, R. *et al*., 2009; Tracy, S. K. *et al*., 2007). The predominant cause of the initial CS in our cohort was cephalopelvic disproportion, cephalopelvic disproportion was 36.9%, but the second most frequent was fetal distress (24.6%). Previous research findings indicate that a yes CS that was conducted due to a non-recurring cause (fetal distress or breech presentation) has more chances of success than a yes CS that was conducted due to failure to progress or CPD, which can be recurring. The fact that among all the trials of labor after cesarean (TOLAC), 27.6 % of the cases resulted in another cesarean section demonstrates the need to carefully select and counsel our patients on the probability of success depending on the personal history (Morlando, M. *et al*., 2013).

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Another factor that can be modified and has outcomes is the interpregnancy interval (IPI). The fact that 73.1 per cent of women in our data had an IPI of 18 months and higher is good. Reduced IPIs (less than 1824 months) are invariably associated with an increased risk of uterine rupture and a reduced likelihood of VBAC success in meta-analysis. The percentage of women whose IPI is below 18.9 months (26.9 percent) is indicating a higher-risk population that needs particularly close attention during TOLAC (Green, L. *et al*., 2016).

The central issue in determining the choice of TOLAC or ERCS is the maternal complication profile. The most dreaded complication was uterine rupture, which happened in 3.1 percent of the cohort, high compared to the 0.5 percent often quoted as the risk of elective repeat cesarean, but within the 0.5 -1.0 percent range of TOLAC in Britain. Others were post-partum bleeding (6.9%) and surgical site infections (5.4%). The rates of placenta previa (4.6) and accreta (2.3) were greater than in the general obstetric population, a known outcome following previous uterine surgery. There is a high risk of accreta spectrum disorders when there are numerous prior CSs (Souza, J. P. *et al*., 2011)

The overall outcome in neonatal was quite encouraging. Mean birth weight was considered normal, and 93.8% of the babies had a 5-minute APGAR of 7 or more. The NICU admission percentage of 8.5% percentage is within the expected ranges in a mixed population of preterm and term. One of the most significant findings is the preterm rate of delivery of 10.8 9 percent since preterm birth is one of the leading causes of neonatal morbidity. Studies conducted in Germany have revealed a marginally larger risk of preterm birth in women who have undergone a previous CS, probable because of multifactorial causes such as indicated delivery because of conditions such as previa or spontaneous onset (Crowther, C. A. *et al*., 2012; Peristat, E. 2010; Marshall, N. E. *et al*., 2011)

Though the absolute risk is low, planned ERCS is linked with a smaller risk of perinatal mortality than TOLAC, but this benefit is in part compensated by a small increase in risk of respiratory morbidity in the term newborns born following elective CS (26). In the 28.5% of the examined pregnancies, induction of labor (IOL) was employed (Foureur, M. *et al*., 2017).

CONCLUSION

VBAC is associated with reduced maternal morbidity and fewer future pregnancy complications as compared to ERCS. A failed TOLAC, however, has more morbidity than planned ERCS. We have supported the statement that, in the case of numerous women who have already had one unsuccessful cesarean section, the TOLAC is safe and reasonable, with the necessary emergency care measures and mutual decision-making.

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