



ORIGINAL ARTICLE

Outcome of pregnancy in previous cesarean section comparing elective versus trial of labor (VBAC) at KRL Hospital, Islamabad.

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ABSTRACT... Objective: To determine fetomaternal outcome in patients with cesarean section and comparing outcome following TOLAC and elective repeat cesarean delivery. **Study Design:** Descriptive, Cross-sectional study. **Setting:** Department of Obstetrics & Gynecology, Kahuta Research Laboratory (KRL) Hospital, Islamabad. **Period:** 10th September 2019 to 9th March 2020. **Material & Methods:** 93 pregnant women of gestational age 37-42 weeks with previous transverse cesarean section were included. Patients with a history of multiple pregnancies, ruptured uterus, placenta previa, polyhydramnios or oligohydramnios, and fetal malpresentation were excluded. In each patient, the labor trial was done; if not possible, then a cesarean section was done on the elective list. Each case was done by the researcher herself in the presence of a consultant gynecologist and the mode of delivery (vaginal/cesarean), was noted. After this fetal outcome i.e. live birth (yes/no), NICU admission (yes/no), and Apgar score >6 at 5 minutes (yes/no) was noted. **Results:** Maternal outcomes in a previous cesarean section was found to be a cesarean section in 60 (64.52%) and VBAC in 33 (35.48%), an APGAR score >6 at 5 minutes after VBAC was seen in 100.0% and after elective cesarean delivery in 81.67% of neonates. NICU admission is 0.0% in TOLAC compared to 20.0% with elective repeat LSCS. Live birth after emergency cesarean delivery was seen in 93.33% and 100% after VBAC. **Conclusion:** This study concluded that the maternal outcome in a previous cesarean section was found to be a cesarean section in 64.52% and VBAC in 35.48% of women and fetomaternal outcome following TOLAC is better.

Key words: Fetomaternal Outcome, Previous One Cesarean Section, TOLAC.

INTRODUCTION

Worldwide cesarean rates increase tremendously from up to 40% in the last few decades.¹ Identifiable causes include previous history of the cesarean section leading to almost one-third (32%) of cesarean deliveries.^{1,2,3} Fetal indications include fetal distress and arrest in descent with maternal indications like advanced maternal age and multiple pregnancies.⁴

ACOG recommendations emphasize in counseling patients with a history of the previous scar should be encouraged to take trial if there are no absolute contraindications.^{1,5} Women having one scar opting for the trial can lead to VBAC or can go for elective cesarean section, both modes of delivery have risks to the mother as well as to

the newborn.⁶

Trial of labor is now practiced in many countries including developing ones also, but trial after two scars does not encourage in developing countries.⁷ For most of the women VBAC due to fewer complications rate of 1% and higher success rates of 75%.⁸ One of the study⁹ conducted on 150 pregnant women, 26% (39) went for cesarean section due to previous bad experiences during the trial of labor, while 74% (116) opted for VBAC out of which 77 (69.36%) accounts vaginal birth and 34(30.63%) had emergency cesarean section. Fetomaternal complications high in cesarean group (17.64% vs.3.89%) & (2.95% vs. 0%), comparable findings as in study⁹ having VBAC 96.1% vs. Elective

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repeat cesarean 79.41% with perinatal mortality rate 0% in VBAC deliveries.⁹

Two observational studies conducted on VBAC noted success rates up to 73.4% and 75.5%^{10,11} with 0.7% and 0.9% having symptomatic impending uterine rupture.¹⁰ VBAC is a big dilemma for most of the patients due to the complications rate but after successful counseling now becoming common where full continuous fetomaternal monitoring is available.¹² Risk of uterine rupture can easily be avoidable after ruling out risk factors i.e labor induction, increased maternal age, cephalopelvic disproportion, and non-Caucasian race.¹³

Cesarean rates increased in our society, adversely affecting the fetomaternal outcomes in the next pregnancies. Our study focused local problems in determination of women with prior cesarean section on account of delivery mode i.e. vaginal birth after cesarean section, elective repeat cesarean section, and emergency cesarean section. It will compare fetal outcomes following VBAC and repeat cesarean and identification of problems influencing outcomes. Based on the findings local settings protocol should be design in selecting patients fit to go for trial of labor with prior cesarean section.

MATERIAL & METHODS

It was a descriptive, cross-sectional study, done at the department of Obstetrics & Gynecology, KRL Hospital, Islamabad for 6 months 10th September 2019 to 9th March 2020. The sample size calculated by the formula $(n = Z^2P(1-P) / d^2)$

Where $z=1.96$, $p=26\%$,⁹ and $d=10\%$. 93 patients included, sampling done through non-probability, consecutive sampling. Inclusion criteria were all pregnant women of gestational age 37-42 weeks with one cesarean section, Singleton pregnancy having confirmed cephalic presentation (assessed on ultrasound), maternal age 18-40 years. Exclusion criteria includes multiple pregnancies (assessed on ultrasound), more than one cesarean section, history of rupture uterus, fetal malpresentation (assessed on ultrasound), known placenta previa (assessed

on ultrasound), history of myomectomy (uterine scar), patients with classical incision cesarean, current polyhydramnios or oligohydramnios, prematurity with gestational age less than or equal to 36+6 weeks, patients with uncontrolled Diabetes Mellitus and currently diagnosed IUGR (intrauterine growth restriction) on the scan.

After permission from the concerned institution ethical committee (ERC-17/03/03), 93 pregnant women presented to the KRL Hospital, Islamabad fulfilling required criteria included. After proper counselling for possibility of cesarean section during the trial, informed written consent taken. In each patient, the labor trial was done; if not possible, then a cesarean section was done on the elective list. Each case was done by the researcher herself in the presence of a consultant gynecologist and the mode of delivery (vaginal/cesarean), was noted. After this fetal outcome i.e. live birth (yes/no), NICU admission (yes/no), and Apgar score >6 at 5 minutes (yes/no) was noted (as a per-operational definition) in the vaginal and cesarean delivery group. Data saved through special designed performa.

Statistical analysis done by SPSS version 22.0. Maternal age, gestational age, gravida, and parity considered in calculating mean and standard deviation. Frequency and percentage were calculated for prior vaginal delivery (yes/no), prior VBAC (yes/no), mode of delivery (cesarean/vaginal), NICU admission, live births, and Apgar score >6 at 5 minutes. NICU admission, live births, and APGAR score >6 at 5 minutes were compared between the vaginal and cesarean delivery groups. Chi-square test applied, p-value ≤ 0.05 considered significant. Factors like age, gestational age, gravida, parity, prior vaginal delivery, and prior VBAC modified through stratifications.

RESULTS

The majority of the patients in this study were between 31 to 40 (51.61%) years of age. Mean gestational age was 38.35 ± 1.19 weeks (91.40%). The distribution of patients according to prior vaginal delivery and VBAC is shown in Figures-1 & 2 respectively.

In this study, 64.52% of patients had repeat LSCS while 35.48% of women had VBAC as shown in Figure-3. APGAR score >6 at 5 minutes was seen in all babies after VBAC but after elective LSCS, 81.67% of neonates had an APGAR score >6. This difference is significant with a p-value of 0.009. A significant difference (p=0.006) was also found in NICU admission. 20% of babies after elective repeat LSCS were admitted compared to non-after VBAC. Live birth after LSCS was seen in 93.33% and 100% after VBAC. (Table-I & II). Maternal outcomes concerning age groups are shown in Table-III and found significant difference between different age groups having p-value of 0.031. Table-IV shows that gestational age has also a significant effect on maternal outcome (p-value = 0.034).

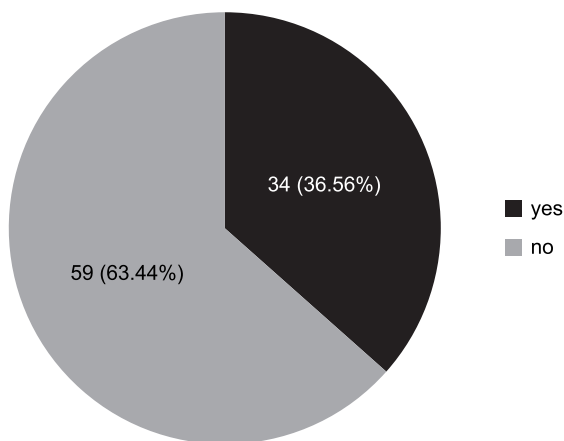


Figure-1. Distribution of patients according to prior vaginal delivery (n=93).

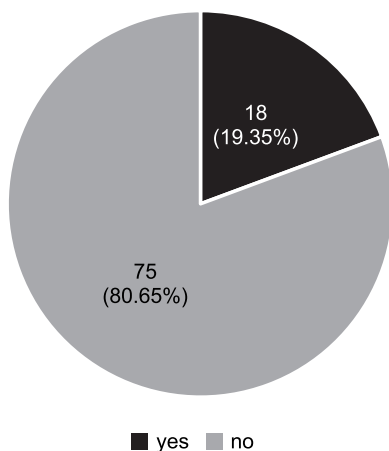


Figure-2. Distribution of patients according to prior VBAC (n=93)

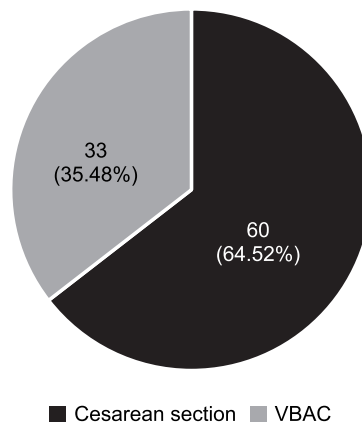


Figure-3. Maternal outcome of pregnancy in previous one cesarean section (n=93).

Fetomaternal Outcome		Frequency	%age
Live birth	Yes	89	95.70
	No	04	4.30
NICU Admission	Yes	12	12.90
	No	81	87.10
Apgar score	>6 at 5 minutes	82	88.17
	<6 at 5 minutes	11	11.83

Table-I. Distribution of patients with other confounding variables (n=100)

		Cesarean (n=60)	VBAC (n=33)	P-Value
Live birth	Yes	56	33	0.129
	No	04	00	
NICU admission	Yes	12	00	0.006
	No	48	33	
Apgar score	>6 at 5 minutes	49	33	0.009
	<6 at 5 minutes	11	00	

Table-II. Comparison of the fetomaternal outcome following TOLAC and elective repeat cesarean delivery.

Age (years)	Maternal Outcome		P-Value
	Cesarean	VBAC	
18-30	34	11	0.031
31-40	26	22	

Table-III. Stratification of maternal outcome with respect to age groups.

GA (weeks)	Maternal Outcome		P-Value
	Cesarean	VBAC	
37-39	55	25	0.034
40-41	05	08	

Table-IV. Stratification of maternal outcome with respect to gestational age.

DISCUSSION

According to WHO, globally Cesarean section rates increasing now becoming a public health issue even in middle and low income countries ranges upto 82%, increasing rate of cesarean sections (CS) has become a public health concern.⁴ After decision done for trial of labor with history of previous scar, recommendations are conflicting between management of labor, delivery and whether augmentation should be done or not. Due to obstetrical complications healthcare preferences now changing due to litigations faced from patients.¹⁵

In underdeveloped countries, TOLAC vary between 37 and 97%, with success rate ranges 70-80%.^{16,17} Criteria mostly emphasized in labor trial after previous scar include single previous cesarean scar having transverse uterine incision with single fetus.^{5,10...16,17} Uterine rupture morbidity associated with TOLAC is a big concern, 16 different believes regarding immorality to offer TOLAC to woman especially in low resource settings , some believe that no exposure to TOLAC exposes fetomaternal increased risks of morbidity and mortality.^{15,16,17}

Study conducted for determination of fetomaternal outcome with history of previous cesarean section and to compare the fetomaternal outcome following TOLAC and elective repeat cesarean. Maternal outcome of pregnancy in the previous cesarean section was found to be a cesarean section in 60 (64.52%) and VBAC in 33 (35.48%) women. In contrast to our results, a study⁹ conducted by Patel S. et al in which 150 pregnant women had a history of previous LSCS had an overall cesarean section rate of 48.6%. Out of these 150 women, 39(26%) underwent elective LSCS, the commonest indication being horrible situation faced in last pregnancy (38.46%).

In another study¹⁵, conducted at Ruhengeri district hospital in Rwanda, 4131 women came for delivery, out of these 435 had history of previous scar. TOLAC, when started at health centers without taking consent having no proper counselling occurred in 297/435 women (68.3%), vaginal delivery was successful in 134/297

(45.1%) women. The cesarean section rate in the previous scar was 69.1% which is in comparison with our cesarean section rate of 64.52%, no morbidities. 28 out of 435 women accounts maternal morbidities including puerperal sepsis, postpartum hemorrhage, uterine rupture, higher in VBAC (n = 23, 7.7%) compared to elective repeat cesareans (n = 5, 3.6%).

Najmi RS noticed mode of delivery following one LSCS and significant identifiable risk factors helped in achieving VBAC, 59% were delivered vaginally.²⁰ Saeed et al showed a rate of VBAC 67.9 %.¹⁸ Both studies conclude that trial after a prior LSCS in women is safe for most women. Singh S et. al¹⁹ taken 200 patients, 122 patients delivered vaginally after Cesarean (VBAC) accounting for 61% and 78 patients underwent LSCS (76 emergency LSCS and 2 elective LSCS).

In this study, the fetal outcome was accessed by APGAR score and NICU admission. APGAR score >6 at 5 minutes was seen in all babies after VBAC but after elective cesarean delivery, 81.67% of neonates had APGAR >6. This difference is significant with a p-value of 0.009. A significant difference (p=0.006) was also found in NICU admission. 20% of babies were admitted after elective repeat LSCS compared to no admission after VBAC. Live birth after cesarean delivery was seen in 93.33% and 100% after VBAC with a p-value of 0.129 statistically insignificant. In comparison to our results, a study by Patel-S-et al 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 a 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.⁹

No significant results in NICU admissions in women with TOLAC delivery (n = 64/297; 21.5%) and those delivered by ERCS (n = 35/138; 25.4). Most of the admissions accounts for perinatal asphyxia in TOLAC group (n = 40, 13.4%) compared to group with ERCS (n = 15, 10.9%: aOR 1.9; CI 1.6–3.6). Perinatal mortality

was almost similar with TOLAC (n = 8; 27/1000 TOLACs) and ERCS (n = 4; 29/1000 ERCSs).¹⁶

CONCLUSION

This study concluded that the maternal outcome in previous one cesarean section was found to be a cesarean section in 64.52% and VBAC in 35.48% of women, and fetomaternal outcome following VBAC is better as compared to elective repeat cesarean delivery. So, we recommend that a definite and safe management protocol should be designed for the selection of patients who are fit to undergo TOLAC.

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3	Filza Habib	Sample collection.	Filza
4	Hasina Sadiq	Editing.	Hasina
5	Maria Habib	Sample collection.	Maria
6	Munazza	Sample collection.	Munazza