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Evaluating Successful Pregnancy Outcome in Women Undergoing Trial of Labour after Caesarean Section (TOLAC)

Shazia Iffet, Ayesha Arif, Sadaf Moin, Surayya Jabeen, Samina Rehan

ABSTRACT:

Objective: To determine the successful pregnancy outcome in women who opted for trial of labour after one lower segment transverse caesarean section (TOLAC).

Study Design and Setting: Descriptive cross-sectional study. Department of Obstetrics and Gynaecology, Combined Military Hospital Abbottabad, from Nov 2022 to April 2023.

Methodology: 54 pregnant women were included in our study who had previously undergone one lower segment caesarean section more than 18 months back. They were booked at their first visit, briefed and counselled for trial of labour after caesarean section (TOLAC), and were advised to await spontaneous labour till 40 completed weeks of gestation and in case of failure of onset of labour then for induction of labour. Data was collected in terms of successful vaginal birth/repeat caesarean section and fetomaternal outcome.

Results: In our study, 54 women agreed for trial of labour who had one caesarean section more than 18 months back. Vaginal birth was successful in 39 women (72.22%). Gestational age, BMI, and age of the woman did not show any significant effect on trial of labour. Factors leading to successful outcome include previous vaginal delivery, spontaneous onset of labour, favourable bishop score, women who are keen for vaginal delivery.

Conclusion: The study concluded that most pregnant women prefer labour trial after one CS. Adequate counselling and briefing of women reduce their anxiety, and help them to make decisions about their preferred mode of delivery.

Keywords: Artificial induction of labour, bishop score, CS, TOLAC,

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INTRODUCTION:

Women undergoing caesarean delivery have a higher mortality and morbidity rate compared to those having spontaneous vaginal delivery. In Pakistan, the caesarean delivery rate has exceeded (10-15%) the recommended level by WHO.[1] With this alarming increase in the rate of caesarean delivery worldwide, several attempts have been made to reduce the rate. Pregnant women with previous one caesarean delivery, who opted for trial of labour is called to undergo TOLAC, which is now becoming an accepted practice both by the women and treating obstetricians.

Options have been proposed to the pregnant women after one caesarean section (CS), either to opt for trial of labour after caesarean (TOLAC) or go for elective repeat caesarean section (ERCS) and therefore increase their morbidity and mortality associated with high order caesarean. Current caesarean section rate worldwide represents 95.5% of the world's live births as of 2018. The global CS rate was 21.1% with average of 8.2%, 24.2% and 27.2% in the least, less and more developed regions, respectively.

Trial of labour after caesarean section has been proposed as an option of reducing the increasing caesarean rate worldwide.[1,2] Recent data shows that it is a well-established evidence-based practice with success rate varying from 60% -80% (2) and its safety has been demonstrated in various studies .[3] Elective repeat caesarean section (ERCS), although safe, is not devoid of adverse outcomes like placenta previa, morbidly adherent placenta (accreta, increta), bladder and bowel injury and increased neonatal respiratory morbidity.[4,5]

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Complications of trial include risk of scar dehiscence and rupture, which is associated with increase in maternal and foetal morbidity and mortality can be life-threatening for both the mother and baby .[6] Careful selection of the patient with appropriate counselling and briefing at every antenatal visit reduces their apprehension and anxiety. Fear of opting trial can be over come by explaining two major key aspects, one is to provide the woman with her individual 70%-80% chance of success and secondly, a conversation about maternal and neonatal risks and benefits associated with trial are the key steps for the successful outcome. Previous vaginal delivery, spontaneous onset of labour, favourable bishop score at the time of delivery, less apprehension and willingness of the patient and obstetrician are factors involved in its success in literature.

Therefore, a study was planned to determine the success rate of trial and its effect on fetomaternal outcome in our dependant clientele. Results of our study will help to offer trial to all pregnant women with previous one caesarean delivery in our general population and by exploring these factors, we can strengthen our counselling services and thus reduce the CS rate among this subset of women, which contributes maximum to the rising CS statistics.

METHODOLOGY:

A cross sectional study was carried out in Department of Obstetrics and Gynaecology of Combined Military Hospital Abbottabad, for the duration of six months from November 2022 to April 2023. Women were selected by consecutive sampling technique. After institutional ethical committee approval (vide reference no.CMHAtd-ETH-85-Gynae-23), trial was offered to all women fulfilling the inclusion criteria. According to the departmental protocol.

Inclusion criteria:

Age 18-40 years.

- Women with previous one uncomplicated lower segment transverse caesarean section for nonrecurrent cause (foetal distress, placenta previa, post term pregnancy, failed induction, malpresentation, malposition).
- With single cephalic pregnancy at term (37 weeks - 40 completed weeks).
- Clinically adequate pelvis.
- In spontaneous labour.
- Willing to undergo induction of labour at 40 completed weeks.

Exclusion criteria:

- Women with previous uterine scar of unknown site.
- Medical comorbidities.
- IUGR.
- Post-term pregnancy (than 42 weeks).

Those willing to undertake TOLAC, will wait till 40 completed weeks for spontaneous labour, or artificially induced (with cervical foleys or prostaglandin E2) at 40 weeks if spontaneous labour does not occur. At the time of admission, they were subjected to a detailed history and abdominal and vaginal examination was done. Demographic and obstetrical factors (age, BMI, weight, height, gestational age, apprehension of the patient to undergo trial, indication of previous caesarean section) were noted. Written informed consent was taken in labour room. Intrapartum risk assessment including bishop score at admission, partogram maintenance to monitor progress of labour and scar tenderness was done and fetomaternal outcome was recorded. Emergency caesarean delivery was considered in case with scar tenderness, foetal distress, failed progress. Data was analysed using SPSS21. Descriptive statistics were calculated, followed by the secondary analysis of the suspected maternal and obstetrical factors of unsuccessful TOLAC.

RESULTS:

A total of 54 women were recruited for the study, who were fulfilling the inclusion criteria. Out of 54 women 39 (72.22%) have a successful trial of labour, and the trial was unsuccessful in 15 (27.78%) women who had to undergo repeat Caesarean section (LSCS) for various indications. Demographic characteristics of all the participants were noted on Table-1. On the basis of demographic information, there was no significant (p-value > 0.05) difference between women in group A (successful TOLAC) then those in group B (with failed trial leading to LSCS) on the basis of maternal age, gestational age and presenting complaints. Mean BMI was lower in group A. Mean value of Bishop score of 6 at the time of admission was found to be significant (p-value < 0.05) and favourable in group A (4.41 ± 2.26) as compared to (2.93 ± 1.03) group B.The distribution of spontaneous labour, induction of labour and duration of labour showed no significant (p-value > 0.05) difference between both groups as elaborated in table 2. Neonatal outcome like birth weight, Apgar score and gender showed that there is no significant (p-value > 0.05) effect in both groups. The apprehension of the patient undergoing trial was a significant contributor for its success. The rate of less apprehension was significantly (p-value < 0.05) higher in group A (89.7% vs. 20%) as compared to group B. The results also showed that there was no significant (p-value > 0.05) effect of previous indication of caesarean on success of trial as elaborated in table 2.

The univariate logistic regression analysis was done to see the effect of demographic characteristic of the women on successful trial and it was observed that age and gestational age did not show any significant (p-value > 0.05) effect. The bishop score of 6 was found to be significantly (p-value < 0.05) associated with successful trial. The results showed that bishop score has negative relationship with trial, and it plays a preventive role with odds ratio 0.64. It showed that the odds of successful trial decreases by 0.447 with one-unit decrease in bishop score. Similarly, induction, birth weight and baby gender were independent of trial outcome and did not show any effect as elaborated in table 3.

DISCUSSION:

Caesarean sections are becoming more common in both developed, developing and underdeveloped countries, leading to three fourth increase in short term and long term maternal morbidity and mortality as compared to vaginal deliveries.[7]

One in five babies is delivered by caesarean section in Pakistan. The most recent report of Pakistan demographic and health survey (PDHS) shows a rapid increase in the rates of caesarean deliveries from 14% in 2012-13 to 22% in 2017-18.[8]

Primary Caesarean section rate is increasing in Pakistan because of feasible access and availability of health care facilities at private and public hospitals, over diagnosis of foetal distress due to the use of continuous electronics foetal monitoring (CEFM),more liberal use of CS for breech presentation, growth retardation, multiple gestation and prematurity.

The main aim of our study is to find out the success rate of TOLAC at tertiary care centres with the facility of vigilant fetomaternal monitoring during labour and various contributors which can predict its success. BMI was significantly lower in the successful trial group compared to the unsuccessful group, and the number of women with

Table-1:

Variables	B	P-value	OR [Exp(B)]
Age	0.081	0.269	1.08
BMI	0.691	0.104	2.00
Gestational age	0.240	0.219	1.27
Bishop score of 6	-0.447	0.029	0.64
Duration of labour in (hrs)	0.080	0.311	1.08
INDUCTION		**0.079**	
PG2	2.079	0.018	8.00
Cervical Foleys	2.303	0.018	10.00
PG2/Foleys	-18.90	0.999	0.00
Birth weight	0.111	0.835	1.12
Baby gender	0.229	0.708	1.26

Table-2:

Characteristics	TOLAC (Group A)		LSCS (Group B)		P-value
	Frequency	Percentage	Frequency	Percentage	
Age of patient					
Mean ± SD	27.67 ± 3.90		29.07 ± 4.7		0.316
Body Mass Index					
Normal weight	32	82.1	9	60.0	0.227
Overweight	4	10.3	3	20.0	
Obese	3	7.7	3	20.0	
Gestational age					
Mean ± SD	37.97 ± 2.66		38.93 ± 1.49		0.101
Presenting complaints					
Pain abdomen	7	17.9	2	13.3	0.450
Labour pain	13	33.3	3	20.0	
Leaking	3	7.7	0	0	
IUD	2	5.1	0	0	
Preterm labour	3	7.7	1	6.7	
PROM	3	7.7	2	13.3	
Nil	8	20.5	7	46.7	
Bishop score of 6					
Mean ± SD	4.41 ± 2.26		2.93 ± 1.03		0.019
Induction					
PG2	10	25.6	8	53.3	0.016
Cervical Foleys	5	12.8	5	33.3	
PG2/Foleys	4	10.3	0	0	
Nil	20	51.3	2	13.3	
Duration of labour (hrs)					
Mean ± SD	7.55 ± 4.25		8.80 ± 3.49		0.316
Spontaneous					
Yes	20	20	5	33.3	0.236
No	19	19	10	66.7	
Total	**39**	**39**	**15**	**100.0**	

Figure 1: Mode of Delivery in Patients opting for TOLAC

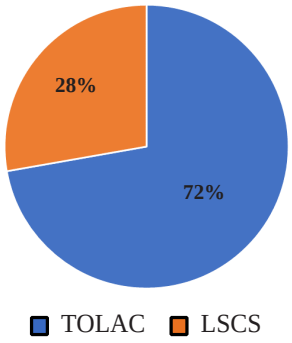
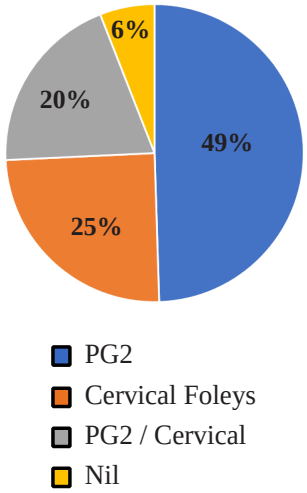


Figure 2: Mode of artificial induction



BMI =25kg/m2 was high in unsuccessful group. Cheng et al, and Srinivas et al[9,10] analysed the relation between maternal age and trial success. Both the studies concluded that women more than 35 years of age were more likely to have failed trial. In our study, the mean age was similar, so it does not show any association between increasing maternal age and failed trial. The overall chance of successful TOLAC is greater in women who had spontaneous onset of labour with Bishop score of more than 6 than those who were induced artificially. Failure of induction of labour has been supported by Sondgeroth et al in his study.[11] The success rate in our study is more in women who went into spontaneous labour with favourable Bishop score 6 at the time of admission, implying that modified Bishop score is an important contributor for success.[12,13]Another study found that the successful trial group had a considerably lower mean gestational age then the unsuccessful group.[14] The number of women admitted in labour with a gestation of less than 40 weeks was much greater in the unsuccessful group.[15] Study showed that the success of TOLAC is dependent on several contributing factors including parity, bishop score of more then 6 and spontaneous labour at the time of admission.[16] The labour induction has negative effect on success of trial and directly increases the chance of failure.[18] It is pertinent to mention that the findings of our study is consistent with those of Grobman et al.[19]

The challenges we face in our study associated with TOLAC outcome cannot be ruled out. Despite all consideration, the estimation of its success was affected by patient willingness, apprehension to opt for trial, Bishop score vis-à-vis patient needing proper counselling and encouragement.[20] Therefore, giving full chance of having successful trial to women who are very apprehensive, fearful, and less willing to opt for TOLAC should be done by facilitating and helping them in decision making which ultimately affects the success estimation.

CONCLUSUON:

The current study concluded that women prefer trial of labour (TOLAC) after one caesarean section (CS). Adequate information, counselling and support could impact their choice of delivery. In carefully selected women, trial of labour is safe and often successful with less maternal and foetal morbidity. We intend to conduct the study with much larger sample size regarding preferences and actual mode of delivery might be useful for future research and diverse datasets to establish significant association.

Table 3: Comparison of foetal and maternal characteristics in both groups

Characteristics	TOLAC (Group A)		LSCS (Group B)		P-value
	Frequency	Percentage	Frequency	Percentage	
Birth weight					
Mean ± SD	3.02 ± .60		3.06 ± .58		0.838
Apgar score					
Mean ± SD	7.26 ± 2.31		7.47 ± .91		0.735
Baby gender					
Boy	16	41.0	7	46.7	0.707
Girl	23	59.0	8	53.3	
Apprehension of patient undergoing TOLAC					
Yes	35	89.7	3	20.0	0.000
Refused trial of labour	0	0.0	3	20.0	
Very Apprehensive	1	2.6	1	6.7	
Failed progress	0	0.0	5	33.3	
Meconium 2	0	0.0	2	13.3	
Meconium 3	0	0.0	1	6.7	
Nil	3	7.7	0	0.0	
Indication of previous scar					
Breech	6	15.4	5	33.3	0.460
Placenta Previa	4	10.3	3	20.0	
Failed progress	15	38.5	3	20.0	
Transverse lie	2	5.1	0	0.0	
Twins	1	2.6	0	0.0	
Foetal distress	7	17.9	4	26.7	
APH	3	7.7	0	0.0	
Abruption	1	2.6	0	0.0	
Total	**39**	**100.0**	**15**	**100.0**	

Authors Contribution:
Shazia Iffet: Conception, study design, drafting the manuscript, approval of the final version to be published.
Ayesha Arif: Data analysis, data interpretation, critical review, approval of the version to be published.
Sadaf Moin: Data analysis, data interpretation, critical review, approval of the version to be published.
Surayya Jabeen: Data analysis, critical review, approval of final version to be published.
Samina Rehan: Proof reading, write up, approval of the final version to be published.

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