

**Original Article****Evaluation of Reasons of Failure of Trial of Labor for Better Prognosis of VBAC**

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**ABSTRACT**

**Objectives** The present study was conducted to determine the reasons of failure of VBAC after previous one caesarean section.

**Study Design:** Descriptive type of study.

**Place and Duration of Study:** This study was carried out in the department of obstetrics and gynecology Ayub Teaching Hospital Abbott Abad from 21 October, 2007 to 20 April, 2008.

**Materials and Methods:** The study population included 201 cases that were declared eligible for TOL having only one previous CS for non recurrent cause, a low transverse uterine scar, and adequate pelvis. All the findings were noted and recorded on predesigned proformas. Data was analyzed on SPSS version 10. Descriptive statistics were used to calculate Mean and standard Deviation for age, frequencies for abnormal lie, fetal distress, failure to progress, placenta previa, and other maternal or fetal causes of failed trial. Chi square test was used to test for significant difference of frequencies between groups; the student T test was used for significant

**Result** A total of 201 patients with previous one caesarean section were admitted. VBAC was successful in 60 patients, the rest i.e. 77 patients were given trial of labor but failed. Among them 20(26%) failure was due to scar tenderness in the prospective pregnancy, 15(19.5 %) patients had emergency lower segment CS for failure to progress, 8(10.4%) patients had another CS for fetal distress, 6(7.8%) had CS for impending rupture, 1(1.3%) had failed trial of labor due to rupture of uterus and 4(5.2%) had scar dehiscence.

**Conclusion:** Results show that trial of labor in patients with previous one caesarean section due to non-recurrent causes is safe and has a success rate of 43.7%, which brings a hope to check the existing rate of CS.

**Key Word:** Caesarean section CS, trial of labor TOL, Vaginal birth after caesarean section.

**INTRODUCTION**

The incidence of CS varies between 10% and 20% in most developed countries. The incidence of Caesarean section in tertiary care hospitals of Pakistan is very rightly higher than this (30-35%) because a very high number of unbooked cases land in emergency after having been mismanaged outside

Provided there are no contraindications, a woman with previous one transverse lower segment caesarean section should be offered a trial of labor (TOL) with appropriate discussion of risks and benefits.<sup>3</sup> The risk factors for failure of TOL are increased maternal age, obesity, fetal macrosomia and uterine rupture. The risk factors for uterine rupture are increased maternal age, postpartum fever after the previous caesarean; short inter delivery interval, history of at least two previous caesarean deliveries, unicornuate, bicornuate, didelphic and septate uterine malformations and a history of classical incision.<sup>4</sup>

There is a 2.7 fold increase risk of placenta previa. Placenta accreta and placenta increta are associated

with significant maternal morbidity including post partum hemorrhage and peri partum hysterectomy, complication of blood transfusion, infection, damage to bladder and bowel, deep vein thrombosis, transient tachypnoea difficulty in conceiving a further child.

Indications of previous CS, operative technique for CS, incisions both abdominal & uterine, complication of CS related to anesthesia, hemorrhage, urinary tract injuries, post operative complications like transient ileus, urinary tract infection, thromboembolism, wound infections, psychological complication, anesthesia complication and the risk of uterine rupture are the guidelines for decision of TOL.

Peri natal mortality and morbidity associated with vaginal delivery after CS is attributable to uterine rupture.<sup>104</sup> The fear of uterine rupture dates back to time when classical uterine incision was used.<sup>44</sup> Now a days transverse incision in lower uterine segment is used which is a stretchy and fibrous part of the uterus so there are less chances of rupture and hemorrhage.

On the other hand previous vaginal delivery is the most favorable prognostic factor for a successful VBAC

The American college of obstetricians and Gynecology issued a consensus statement supporting vaginal birth after caesarean section as a safe and acceptable care option.

Recommendations of the American College of Obstetricians and Gynecologists for (1999) for selection of candidates for vaginal birth after caesarean delivery are:

1. One or two prior low transverse cesarean delivers
2. Clinically adequate pelvis
3. Physician immediately available throughout active labour capable of monitoring labor and performing and emergency cesarean delivery.
4. Availability of anesthesia and personnel for emergency cesarean delivery.<sup>6</sup>

## MATERIALS AND METHODS

This descriptive study was conducted in department of Gynecology and Obstetrics of Ayub Teaching Hospital Abbott Abad from 21<sup>st</sup> October 2007 to April 20, 2008. A total of 201 cases of previous one C S were admitted during the study period and 137 were given TOL. Patients with only one previous C S for a non recurrent cause, a low transverse uterine scar, adequate pelvis, single fetus with vertex presentation, estimated weight of the baby less than 3.8 kg and no contraindication for TOL, or medical or obstetrical complications were included in the study. The data was collected through proforma.

Data was analysed using SPSS version 11 and descriptive statistics were used to calculate Mean and Standard Deviation for age, Frequencies for fetal distress, failure to progress and other maternal or fetal causes of failure of trial. Data was presented as tables. Chi square test was used to test for significant difference of frequencies between groups; the students T test was used for significant difference of means between groups. P value of  $\leq 0.5$  was considered significant.

## RESULT

Out of 201 patients, 60 patients delivered vaginally and VBAC was successful. 43 patients had elective lower segment caesarean section, whereas 21 patients were not given trial of labor due to additional medical disorders/obstetrical emergencies. The rest i.e. 77 patients were given trial of labor but failed. So N=77

Ages of patients ranged from 18-40 years, with a mean  $\pm$  standard deviation (SD) age of  $24.83 \pm 4.99$  years, with 95% confidence interval (CI) of 1.42-2.11. Seven (9.1%) cases were below 20 years of age, 57(74%) between 21-30 years, and 13(16.9%) case sin 31-40 years age group.

**Table No.1 Patients by Age Group:**

Age Group	Number	%
Below 20	7	9.1
21-30	57	74.0
31-40	13	16.9
Total	77	100.0
Mean $\pm$ SD	27.83 $\pm$ 4.99	
95% CI	1.42-2.11	

In this context, 70(90.9%) patients had no history of previous vaginal births. Three (3.9%) patients had previous one vaginal birth, 2 (2.6%) patients had history of previous 2 vaginal births and 2 (2.6%) patients had a history of more than 2 vaginal births after one CS.

**Table No.2: Number of Previous Vaginal Deliveries**

Previous Vaginal Deliveries	Number	%
One	3	3.9
Two	2	2.6
More	2	2.6
None	70	90.9
Total	77	100.0

A total of 20(26%) patients had failed trial of labor due to scar tenderness in the prospective pregnancy, 15(19.5%) patients had emergency lower segment CS for failure to progress, 8(10.4%) patients had another CS for fetal distress, 6(7.8%) had CS for impending rupture, 1(1.3%) had failed trial of labor due to rupture of uterus and 4(5.2%) had scar dehiscence.

**Table.3. Patients by Reasons of Failure**

Reasons for Failure	Number	%
Borderline pelvis	3	3.9
Intrauterine growth restriction	1	1.3
Oblique lie	1	1.3
Obstructed labour	4	5.2
Ruptured uterus	1	1.3
Scar dehiscence	4	5.2
Scar tenderness	20	26.0
Pre-eclampsia	1	1.3
Twin pregnancy	1	1.3
Breech presentation	2	2.6
Brow presentation	2	2.6
Decreased fetal movements	2	2.6
Failed induction	1	1.3
Failure to progress	15	19.5
Fetal distress	8	10.4
Fetal macrosomia	5	6.5
Impending rupture	6	7.8
Total	77	100.0

**Table-4. Reasons for Failure versus Type of Previous Caesarean Section**

		Type of previous Caesarian Section		Total
		Emergency	Elective	
Reasons for Failure	Borderline pelvis	3	0	3
	Intrauterine growth restriction	0	1	1
	Oblique lie	1	0	1
	Obstructed labor	4	0	4
	Ruptured uterus	0	1	1
	Scar dehiscence	3	1	4
	Scar tenderness	15	5	20
	Pre-eclampsia	0	1	1
	Twin pregnancy	0	1	1
	Breech presentation	1	1	2
	Brow presentation	1	1	2
	Decreased fetal movements	2	0	2
	Failed induction	1	0	1
	Failure to progress	13	2	15
	Fetal distress	7	1	8
	Fetal macrosomia	5	0	5
Impending rupture	6	0	6	
Total		62	15	77

Chi-Square Tests			
	Value	DF	Asymp. Sig. (2-sided)
Pearson Chi-Square	25.307 <sup>a</sup>	16	.065
Likelihood Ratio	25.594	16	.060
N of Valid Cases	77		

Effects of previous CS indications on reasons of failure of VBAC are summarized in table A total of 62 (80.51%) patients had emergency CS previously, while 15 (19.48%) patients had elective CS previously. In this study 15 (75%) of patients had failed trial of labor due to scar tenderness having emergency CS previously while 5 (25%) had failed trial of labor having elective CS previously. Similarly, 13 (86.66%) patients had failed trial due to failure to progress having emergency CS previously and 2 (13.33%) patients had failed trial having elective CS previously. These 7 (87.5%) patients had failed trial due to fetal distress having emergency CS previously and 1 (12.5%) patient had failed trial due to fetal distress having elective CS.

There is no significant difference at 5% level between previous CS and reasons of failure in this regard.

## DISCUSSION

The objective of this study was to determine the reasons of failure of vaginal birth after previous one CS. It was observed in the study that 20 (26%) of patients had failed trial due to scar tenderness, 15 (19%) patients due to failure to progress, 8 (10.4%) due to fetal distress followed by impending uterine rupture, and scar dehiscence respectively. Only 1 (1.3%) patient, the TOL failed due to uterine rupture, which was repaired successfully. Similarly there was no adverse outcome in patients with scar dehiscence as well as scar tenderness. This observation is similar to two studies conducted in Nishter Medical College Multan in 2005 and in department of Gynecology, Ayub Teaching Hospital Abbottabad regarding the reasons of failure to achieve VBAC

Other factors observed were the indications of previous CS and their effects on failure of VBAC. In this study, maximum patients (18.2%) had previous CS due to fetal distress, 15.6% had previous CS for breech presentation followed by failure to progress respectively. Taj et al also found the same indications of previous CS in their study in 2008, where the trial of vaginal delivery was carried out on 100 patients. The same reasons were also observed in another study conducted by Hassan<sup>1</sup>.

In our study 90.9% of patients failed to deliver vaginally who had no previous vaginal births, which indicates that the more the number of previous vaginal births, more are the chances of successful vaginal delivery after previous one CS<sup>53</sup>.

No maternal death was recorded in this study. Only one (1.29%) patient had ruptured uterus while 4 (5.19%) had scar dehiscence. The observation of no maternal mortality in our study is because majority of the patients selected in this study had spontaneous onset of labor, which is a good prognostic sign for successful vaginal birth.

The rising rate of CS has been a problem for the obstetrician and this can be dealt in two ways for reduction. Firstly, by reducing the primary CS rate and secondly by attacking the repeat CS incidence. The risks, which are more threatening to the obstetrician when permitting TOL in patients, are fear of uterine rupture with threat of damage to mother and fetus, and possible subsequent litigation. Secondly many obstetricians consider CS safe as compared to vaginal delivery<sup>116</sup>. A number of studies have been conducted with highly successful outcome of vaginal delivery but still reports are there about uterine rupture and scar dehiscence.

Enkin et al analyzed some studies that qualified according to their criteria, revealed in their work a uterine rupture/dehiscence rate of 1.5% for elective repeat CS and 1.7% for overall women undergoing TOL<sup>16</sup>.

It is also observed in this study that patients who had been operated upon previously for breech presentation, fetal distress or other mal-presentations had more chances of successful vaginal delivery, compared to those with dystocia, cephalo-pelvic disproportion. This observation is comparable to global literature<sup>52</sup>.

## CONCLUSION

Results show that trial of labor in patients with previous one caesarean section due to non-recurrent causes is safe and has a success rate of 43.7%, which can be further increased by encouraging the patients to make decisions about VBAC. Therefore, properly selected patients of vaginal birth after caesarean section should be offered facilities of Operation Theater, anesthesiologist, pediatrician, and blood transfusion services in the hospital.

In the management of patients with previous CS, regular and intensive antenatal care is required to reduce maternal and fetal, morbidity and mortality.

It was also concluded from this study that risk of repeat CS arises because of an increased rate in the previous CS in non-booked obstetric patients. In this way growing rate of caesarean section will be decreased, which is one of the most important issues in modern obstetrics.

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