

# Perinatal Outcome of Deliveries after One Previous Caesarean Section: A Prospective Study from Mid-west hilly Nepal

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## ABSTRACT:

**Introduction:** Contrary to the WHO recommended caesarean section (CS) rate of 15%, there is an alarming trend of increasing caesarean section rates. An important reason for this is repeat caesarean section (RCS). Vaginal birth after caesarean (VBAC) is one of the methods of reducing CS rates in women with history of previous CS. This study was done with the aim to see the maternal and fetal outcome among parturient with history of single previous caesarean section and to determine the rate of VBAC at Lumbini Medical College, Nepal. **Methods:** This is a prospective study done for a period of ten months. Seventy parturient fulfilling inclusion criteria of term pregnancy with single live fetus and history of one Lower Segment Caesarean Section (LSCS) were enrolled in the study. Patients meeting the criteria for VBAC were given trial of labour and others were taken for elective repeat CS. This cohort was analyzed further, with respect to age, parity, period of gestation, mode of delivery, indication for CS, maternal and fetal complications and outcomes. **Results:** VBAC was successful in 27.14% of patients (n=19) while the rest 51 (72.85%) underwent RCS. Indications for RCS was mainly scar tenderness 7 (13.7%), fetal distress 6 (11.7%), non progress of labour 6 (11.7%), meconium stained liquor 6 (11.7%) and post-dated pregnancy 6 (11.7%). Maternal morbidity was comparable in women undergoing RCS or VBAC. There was one still birth and one early neonatal death in each group due to complications of meconium aspiration. **Conclusion:** Patients with previous CS are at high risk of RCS. If trial of labor is allowed under careful patient selection and supervision, the rate of vaginal delivery after caesarean section can be increased safely. As there is no added perinatal morbidity and mortality in cases of VBAC as compared to RCS, VBAC shows the right way forward to decrease the rate of caesarean section.

**Keywords:** cesarean section • postpartum • repeat • trial of labor • vaginal birth

## INTRODUCTION:

Caesarean section (CS) is the most common surgery performed in modern obstetrics. Originally it was performed for maternal indications, but is now frequently done for fetal indications.<sup>1</sup> The CS rate has increased drastically over the past two

decades. According to these global study reports, a higher rate of CS was associated with a greater risk of maternal and perinatal morbidity and mortality, compared to vaginal delivery.<sup>2,3</sup> Increasing numbers of primary CS have led to an increase in population with history of prior caesarean delivery. Parturient with such history may be offered either planned Vaginal birth after cesarean (VBAC) or repeat caesarean section (RCS). It is hoped that by promoting VBAC, the incidence of CS will be reduced. Vaginal birth has less maternal and perinatal morbidity and mortality.<sup>2,3</sup>

Cragin's dictum "once a CS is always a CS" was a highly acceptable management guideline for the era when classical CS was the norm.<sup>4</sup> Now the dictum is "once a CS, always an institutional delivery". Therefore, recent clinical attention has focused on the role of trial of vaginal birth after

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caesarean (VBAC). Most published series indicate a success rate of VBAC between 60% to 80%.<sup>5-8</sup> Success is enhanced by careful patient selection prior to permitting VBAC. Ensuring integrity of the lower segment scar, adequacy of pelvis for safe passage of fetus, and ruling out a recurring cause is a must. Oxytocin may be used judiciously, ensuring prevention of hyper stimulation. Uterine dehiscence or rupture of uterine scar is the most serious complication of VBAC. It is life threatening for both mother and fetus with an incidence of 0.5 - 1.5% for scar rupture.<sup>1</sup>

This study was done with the aim of determining the maternal and fetal outcome among parturient with history of single previous caesarean section and to determine the rate of VBAC.

## METHODS:

This prospective study was undertaken for a period of 10 months (August 2013 to May 2014) in the department of Obstetrics and Gynecology at Lumbini Medical College Teaching Hospital after approval from the ethical committee of the institute. Parturient fulfilling inclusion criteria of term pregnancy with single live fetus and history of one previous LSCS were enrolled in the study. Patients with history of more than one previous LSCS were taken for elective LSCS and were not included in the study.

The criteria for elective repeat caesarean section (RCS) were: birth spacing of less than 18 months, estimated fetal weight of more than four kgs on ultrasonography, postdated pregnancy, malpresentation, antepartum haemorrhage, presence of medical disorders, and recurrent indications like cephalopelvic disproportion.

Patients who did not have any of the above indications for RCS, were planned for VBAC after informed consent. Only those patients with spontaneous onset of labour were given a trial of labour after caesarean (TOLAC) but induction of labour was not done in any patients.

All patients undergoing RCS or TOLAC were monitored throughout intrapartum or intraoperative period and upto 48 hours postpartum. This cohort was analyzed with respect to age, parity, period of gestation, mode of delivery, indication for previous CS and repeat CS, any intrapartum complications and maternal and fetal outcomes.

Data entry and analysis was done in SPSS 11. Mean, standard deviation, percentage and Pearsons chi-square test was used to analyze the data.  $P < 0.05$

was considered as significant.

## RESULTS

During this period, there were 2851 deliveries, out of which 569 patients underwent caesarean section. Thus the CS rate at this institute for the study period was 19.95%. Seventy patients (2.45%) among the 2851 delivered had history of one previous CS which were included in this study. All patients had birth spacing of more than two years.

Most patients ( $n=62$ ) were aged between 21 to 30 years which is the period of maximum fertility (Table 1). The mean age was 24.84 years ( $SD=3.81$ ).

Table 1. Age distribution of women with one previous LSCS

Age in Years	n (%)
<20	5 (7.1)
20 – 25	37 (52.8)
26 – 30	25 (35.71)
31- 35	2 (2.8)
>35	1 (1.4)
<b>Total</b>	<b>70 (100)</b>
Mean age = 24.84 yrs, $SD = 3.81$	

Sixty two women in this cohort were second gravidae with one living issue. Remaining eight women were multipara with history of single CS performed for placenta previa, pregnancy induced hypertension and abnormal presentation. Repeat CS (RCS) was done in 51 cases (72.85%). Of these, 34 were emergency CS. Spontaneous vaginal delivery (VBAC) was achieved in 19 (27.14%) patients (Table 2). Two patients required vacuum delivery.

Table 2. Mode of delivery in women with one previous LSCS

Mode of delivery	n (%)
Repeat CS	51 (72.85)
Elective caesarean section	17
Emergency caesarean section	34
Vaginal birth after caesarean section	19 (27.14)
Assisted vaginal delivery (Vacuum)	2 (2.85)
<b>Total</b>	<b>72 (100)</b>

Fetal distress, breech presentation and non-progress of labor were the main indications for CS in the previous pregnancy (Table 3). Repeat caesarean section was indicated mainly for scar tenderness, fetal distress, non progress of labour, and meconium stained liquor with oligohydramnios (Table 4).

Table 3. Indication of previous caesarean section and mode of delivery in this pregnancy

Indication	n (%)	RCS	VBAC	P
Breech presentation	12 (17.1)	7	5	$X^2=.33$ , $p=.56$
Fetal Distress	13 (18.5)	7	6	$X^2=.08$ , $p=.78$
Non progress of labour	10 (14.2)	8	2	$X^2=3.6$ , $p=.058$
Gestational Hypertension	5 (7.1)	4	1	
Placenta praevia	4 (5.7)	4	0	
Premature rupture of membranes	4 (5.7)	3	1	
Cord prolapse	2 (2.8)	1	1	
Cephalopelvic disproportion	6 (8.5)	6	0	
Unknown	14 (20)	11	3	
<b>Total</b>	<b>70 (100)</b>	<b>51</b>	<b>19</b>	$X^2=14.63$ $p<.001$

Table 4. Indications for repeat CS

Indications	n (%)
Scar tenderness	7 (13.7)
Fetal distress	6 (11.7)
Meconium stained liquor with oligohydramnios	6 (11.7)
Non progress of labour	6 (11.7)
Post date pregnancy	6 (11.7)
Cephalo-pelvic disproportion	5 (9.8)
Premature rupture of membranes	4 (7.8)
Breech presentation	3 (5.8)
Gestational hypertension	3 (5.8)
Placenta praevia	3 (5.8)
Polyhydramnios	2 (3.9)
<b>Total</b>	<b>51 (100)</b>

Regarding the maternal outcome, there was postpartum haemorrhage in four patients who underwent RCS and in one patient who underwent VBAC, controlled in both cases by uterotonic drugs and fresh blood transfusion. Hospital stays of patients after RCS varied between 6 to 7 days. All patients who had VBAC were discharged after 48 hours. None of the VBAC group had scar tenderness or rupture. Three patients, all in the VBAC group, had puerperal pyrexia controlled by antibiotics. There were no maternal deaths.

The neonatal outcome in women undergoing RCS and VBAC is depicted in Table 5.

Table 5. Neonatal outcome

Variables	n (%)	RCS	VBAC
Weight in grams			
<2500	12 (17.1)	6	6
2501-3500	48 (68.5)	37	11
>3500	10 (14.2)	8	2
NICU admissions	10 (14.2)		
Meconium aspiration	6	1	5
Presumed sepsis	4	2	2
Still birth	1 (1.4)	1	0
Neonatal death	1 (1.4)	0	1

## DISCUSSION:

The past two decades have witnessed a tremendous increase in the use of caesarean delivery, which is one of the most important changes to have occurred in operative obstetrics, because of its safety, fewer hassles and elimination of exhaustive trials of labour.

At its inception, CS was performed for maternal indications. In current practice, CS is performed mostly in the interest of the fetus.<sup>1</sup> Good NICU care has made it possible to salvage many preterm and small for date neonates. In present day obstetrics, avoidance of difficult instrumental delivery has also added to the rising rate of CS.

CS on demand for neither medical nor obstetric causes is controversial, but continues to increase the number of CS. In our institute it is not encouraged. So, the increased RCS rate and need for VBAC trial is essentially due to a rising primary CS rate. A study by Indian Council of Medical Research in 33 tertiary care institutions noted that average CS rate increased from 21.8% in 1993-1994 to 25.4% in 1998-1999.<sup>2</sup> WHO recommends a CS rate of 15%.<sup>2,3</sup> The CS rate in our study was 19.95%. The difference was not statistically significant ( $X^2[N=2851, df=1] = 0.31, p=.31$ ).

VBAC has been advocated as a safe and practical means of reducing the overall CS delivery rate. More than 20000 women with history of CS delivery undergoing a trial of labour have been studied with successful vaginal delivery rate ranging from 50% to 80%.<sup>1,5</sup> The rate of vaginal delivery after one CS was 27.14% in our study, which is much less than international figures averaging 70%. A likely reason for this finding is that at our institution, TOLAC is given only in those patients who have spontaneous onset of labor. Induction of labour is not done for patients with history of CS.

On 26<sup>th</sup> of October 1998, ACOG updated its guidelines concerning VBAC. The committee on obstetrics, maternal and fetal medicine stated that "the concept of routine RCS birth should be replaced by specific indications for subsequent abdominal delivery, and in the absence of any contraindication, a woman with previous Cesarean section (PCS) with low transverse incision should be counseled and encouraged to attempt labour in her current pregnancy".<sup>9</sup> Sing Justin et al. have reported a rate of 6% for forceps delivery in women undergoing VBAC and a rate of 5% for use of vacuum extractor.<sup>10</sup> In our study two of the VBAC cases required instrumental delivery. Wing et al. have reported the risk of scar dehiscence to be greater in cases induced with misoprostol or oxytocin.<sup>11</sup> At our institute, induction of labour is not done for patients with previous uterine surgery. Trial of VBAC is reserved for patients with spontaneous onset of labor, and judicious augmentation with oxytocin was done.

Therefore, there was no case with disruption of previous caesarean scar in our study.

Chances of success with TOLAC are greater if patient had prior vaginal delivery, prior birth after CS, spontaneous onset of labor, favorable cervix and non recurring cause.<sup>11</sup> In our study, chances of VBAC was high with birth weight less than 3.5kg, and with non recurring indication for previous LSCS like fetal distress and breech presentation.

## CONCLUSION:

Patients with previous CS are at high risk of RCS. If trial of labor is allowed under careful patient selection and supervision, the rate of vaginal delivery after caesarean section can be increased safely. As there is no added perinatal morbidity and mortality in cases of VBAC as compared to RCS, VBAC shows the right way forward to decrease the rate of caesarean section.

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