

**Original article:**

## **A study of vaginal birth after cesarean section**

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### **ABSTRACT**

**INTRODUCTION:** Previous caesarean section (CS) is always considered as a risk factor and obstetric supervision must be initiated as soon as the pregnancy is confirmed.

**AIMS:** The study was planned to know the incidence of vaginal births after caesarean section, progress of labour & mode of delivery, success rate of trial of labour and causes of failure, the incidence of scar rupture and the patterns of maternal and perinatal morbidity and mortality.

**MATERIAL AND METHODS:** A prospective case control study of all patients of previous 1 LSCS during 1-year study period from July 2004 to June 2005, was carried out in Department of Obstetrics & Gynaecology, S.S.G. Hospital, Baroda. Out of 264 subjects coming to SSGH having previous 1 LSCS, 164 fulfilling the inclusion criteria and willing were selected for the study and evaluated by detailed history and examination.

**STATISTICAL ANALYSIS:** Chi square and percentage was applied for analysis of results.

**OBSERVATIONS:** Majority patients undergoing repeat CS were because of fetal distress, APH, PROM and CPD in our study. Among those given trial of labour, success rate was 84.1%. Incidence of scar rupture was 0.7% (1 case) and scar dehiscence was 1.2%. Prophylactic instrumental deliveries were carried out in study group so as to cut short 2<sup>nd</sup> stage. With proper monitoring, oxytocics and prostaglandins were used safely to induce and augment labour and success rate was 76.9%. Maternal and perinatal morbidity was more in repeat emergency CS group than VBAC group.

**CONCLUSION:** In selected women, a properly conducted trial of labour after previous 1 LSCS constitutes, the best and safest form of obstetric management. Now, the new Cragin dictum is 'Once a caesarean section, Always a hospital delivery'

**KEY WORDS:** VBAC, trial of labour, elective repeat cesarean, scar rupture, prophylactic instrumental vaginal delivery.

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### **INTRODUCTION**

Discussions about vaginal delivery after prior CD first appeared in the literature in 1916. Cragin, who is attributed with coining the phrase "once a cesarean, always a cesarean," described cases of women surviving vaginal birth after cesarean (VBAC) (1).

Previous caesarean section (CS) is always considered as a risk factor and obstetric supervision must be initiated as soon as the first menstrual period is missed. Pregnancy can be associated with significant risks for the mother and baby regardless of the presence of medical or obstetrical

complications. In the presence of complications such as hypertension, multiple gestation, or prior cesarean delivery; the risks to the health of the mother and baby increase. Numerous studies, including two published in *PLoS Medicine* (2,3), have shown that risks such as uterine rupture are higher for women attempting a trial of labour following a previous cesarean delivery than those having an elective repeat cesarean delivery; however, the overall risks are low in both groups.

An old Cragin dictum of 'Once a caesarean section, Always a caesarean' as was believed in 1980s, does not hold true anymore.

Major argument in favour of VBAC is to reduce maternal morbidity and mortality. Vaginal birth after a previous caesarean is a safe option for many women (4). However, the proportion of women who opt for vaginal delivery globally after a prior caesarean has decreased rapidly because of safety concerns (5).

#### AIMS OF THE STUDY

1. To study the incidence of vaginal births after caesarean section
2. To study the progress of labour & mode of delivery
3. To know the success rate of trial of labour and causes of failure
4. To know the incidence of scar rupture
5. To study the patterns of maternal and perinatal morbidity and mortality

#### MATERIAL AND METHODS

A prospective case control study of all patients of previous 1 LSCS during 1-year study period from July 2004 to June 2005, was carried out in Department of Obstetrics & Gynaecology, S.S.G. Hospital, Baroda.

#### OBSERVATIONS

**TABLE 1: Incidence of VBAC:**

STUDY GROUP	NO OF PATIENTS(N=164)	PERCENTAGE(%)
REPEAT CS	106	64.6
VBAC	58	35.4

Out of 164 patients, 35.4% delivered vaginally.

Out of 264 subjects having previous 1 LSCS, 164 were selected for the study and evaluated by detailed history and thorough clinical examination.

Subjects were compared with two control groups:

- 1) All undergoing repeat CS with controls undergoing primary CS.
- 2) Those of VBAC group with controls undergoing vaginal delivery.

All patients were given prophylactic antibiotics on admission, carefully monitored throughout labour and kept under observation in labour room for 3-4 hours post-partum. Patients with their babies were followed up in wards and for 6 weeks at postnatal clinic. Controls in vaginal births had similar characteristics in terms of height, weight, haemoglobin level and parity.

Exclusion criteria were:

- Abnormal presentation.
- Multiple pregnancy.
- Known previous classical / T incision.
- Severe pre-eclampsia, Eclampsia.
- Severe anemia and other medical disorders.
- Pregnancy less than 37 weeks.
- Early conception.

**TABLE 2: Maternal Height Distribution:**

HEIGHT IN CMS	REPEAT CS(N=106)		VBAC(N=58)	
	NO	PERCENTAGE	NO	PERCENTAGE
<130-140	26	24.4%	03	5.2%
>140-150	55	51.8%	32	55.5%
>150	25	23.8%	23	39.3%

In repeat CS group, 24.4% had height between  $\leq$  130-140 cms and in VBACS group 94.8% had height more than 140 cms.

**TABLE 3: Indication of previous CS affecting outcome:**

INDICATIONS	REPEAT CS		VBAC	
	NO	PERCENTAGE	NO	PERCENTAGE
<b>a)RECURRENT</b>	<b>49</b>	<b>46.3%</b>	<b>07</b>	<b>12.06%</b>
<b>CPD</b>	<b>42</b>		<b>07</b>	
<b>Contracted pelvis</b>	<b>05</b>		<b>00</b>	
<b>b)NON-RECURRENT</b>	<b>36</b>	<b>33.9%</b>	<b>51</b>	<b>87.9%</b>
<b>FETAL DISTRESS</b>	<b>29</b>		<b>43</b>	
<b>MALPRESENTATION</b>	<b>05</b>		<b>07</b>	
<b>OBSTRUCTED</b>	<b>00</b>		<b>01</b>	
<b>LABOR</b>	<b>01</b>		<b>00</b>	
<b>SEVERE OLIGO</b>	<b>01</b>		<b>00</b>	
<b>PLACENTA PRAEVIA</b>				
<b>UNKNOWN</b>	<b>21</b>	<b>19.8%</b>	<b>00</b>	

Twelve percent of patients with recurrent indication for caesarean had successful labour trial.

**TABLE 4: Success rate of trial of labour:**

STUDY GROUP	N=164	
	NO	PERCENTAGE
ELECTIVE LSCS	06	5.8%
EMERGENCY LSCS	89	50.6%

TRIAL OF LABOR	69	43.6%
REPEAT CS	11	15.9%
VBAC	58	84.1%

Hence, among 43.6% cases given trial of labour, 84.1% delivered vaginally.

**TABLE 5: Outcome of trial of labour:**

TRIAL OF LABOR(N=69)	REPEAT CS	VBAC
INDUCTION(13)	<b>03</b>	<b>10(76.9%)</b>
AUGMENTATION(26)	<b>06</b>	<b>20(76.9%)</b>
OXYTOCIN(04)	01	03
CERVIPRIME(10)	02	08
ROM(12)	03	09
NO INTERVENTION(30)	<b>02</b>	<b>28(93.2%)</b>

76.9% of patients undergoing induction and augmentation of labour delivered vaginally successfully.

**TABLE 6 : Causes of failure of trial of labour:**

CAUSES	N=11	PERCENTAGE
FETAL DISTRESS	04	36.4%
NOPL	02	18.2%
THREATENED SCAR RUPTURE	02	18.2%
UNDIAGNOSED CPD	02	18.2%
RUPTURE UTERUS	01	9%

So, main causes of failure of the trial of labour were fetal distress, non-progression and threatened scar rupture. Incidence of scar rupture was 0.7% (1 out of 164).

**TABLE 7: Mode of delivery in VBAC group :**

MODE OF DELIVERY	STUDY(N=58)	CONTROL(N=58)
1)INSTRUMENTAL	39(67.2%)	24(41.3%)
VACUUM	23	15
FORCEPS	16	09
2)SPONTANEOUS	19(32.8%)	34(58.7%)

Rate of instrumental deliveries was 67.2% in study group.It was observed that labour pattern of patients in VBACS group with no previous vaginal delivery were similar as in primigravida and in those with previous vaginal delivery were same as of multigravida.

**TABLE 8: Incidence of maternal morbidity in abdominal delivery :**

MORBIDITY PATTERN	STUDY GROUP N=106	CONTROL GROUP N=94	P-VALUE
1)WOUND COMPLICATIONS	14(25%)	19(32.7%)	0.175
2)PYREXIA	12(21.4%)	09(15.5%)	0.99
3)NAUSEA &VOMITING	14(25%)	12(20.5%)	0.81
4)SHOCK	02	00	
5)POST-PARTUM ANAEMIA	02	00	
6)BREAST ENGORGEMENT	04	04	
7)RESPIRATORY COMPLICATIONS	04	03	
8)MISCELLANEOUS	04	00	
Total	56(52.8%)	47(53.4%)	

Morbidity rate was almost same in both groups and the difference was not statistically significant.

**TABLE 9: Incidence of morbidity in vaginal delivery:**

MORBIDITY PATTERN	STUDY		CONTROL	
	NO	%	NO	%
1)VAGINAL LACERATION	04	25	04	30.7
2)CERVICAL TEARS	04	25	01	7.2
3)EPISIOTOMY EXTENSION	02	12.5	05	39.6
4)GAPING OF EPISIOTOMY	00	00	00	00
5)UTI	04	25	02	15.3
6)LOCAL INFECTION	02	12.5	01	7.2
TOTAL	16		12	

Out of 58 patients of VBACS group, 16 (27.6%) had some complications that is less as compared with 52.8% in repeat CS group.

**TABLE 10: Neonatal morbidity:**

NEONATAL OUTCOME	REPEAT CS		VBAC	
	STUDY	CONTROL	STUDY	CONTROL
1)BIRTH ASPHYXIA	05(33.3%)	12(48%)	02(20%)	10(40%)
2)HYPERBILIRUBENEMIA	02	01	03	05
3)SEPTICEMIA	03(20%)	04(18.8%)	02(20%)	04(16%)
4)MECONIUM ASPIRATION	01	03	03	00
5)SUPERFICIAL INFECTION	02	02	00	03
6)MISCELLANEOUS	00	00	00	03
TOTAL	13(14.1%)	22(25%)	10(17.2%)	25(51%)

Neonatal morbidity is more in control group as majority had birth asphyxia. Late septicemia is seen more in study group (20%).

Perinatal mortality was predominantly because of birth asphyxia and septicemia and was 5.6% in repeat CS group and 5.1% in VBAC's group.

## DISCUSSION

Majority patients undergoing repeat CS were because of fetal distress, APH, PROM and CPD in our study. Among those given trial of labour, success rate was 84.1%. Incidence of scar rupture was 0.7% (1 case) and scar dehiscence was 1.2%. In studies by Fitzpatrick K. et al(2) and Crowther C. et al(3), estimated incidence of uterine rupture was approximately 1 in 500 women planning VBAC and 1 in 1000 women planning ERCP (elective repeat cesarean delivery).

Prophylactic instrumental deliveries were carried out in study group so as to cut short the 2<sup>nd</sup> stage. With proper monitoring, oxytocics and prostaglandins were used safely to induce and augment labour and success rate was 76.9%. Maternal and perinatal morbidity was more in repeat CS group than VBAC group and that too more in emergency CS cases in the present study.

It has been reported that the risks of fetal or infant death, or serious adverse infant outcomes, were significantly lower in planned elective repeat cesarean (0.9%) versus the planned VBAC group (2.4%). For women with a prior cesarean, the risk of uterine rupture, as found in these studies, is between 0.1% and 0.2%. (2,3)

Risk and success of VBAC can be better categorized using a validated prediction model (6). The risk is not static, but changes during pregnancy and intra-partum as the patient condition changes and new factors develop.

As per various data published, maternal death rates did not differ between TOL (trial of labour) and ERCD (elective repeat cesarean delivery). Two large population-based studies reported an

increased risk of perinatal death associated with TOL, but they differ in the magnitude of risk. (90/10,000 TOL versus 50/10,000 ERCD (7) compared with 12.9/10,000 TOL versus 1.1/10,000 ERCD (8,9). There is insufficient evidence regarding the effect of TOL and ERCD on APGAR score and respiratory morbidity. No study measured infant death directly attributable to a mother's choice of TOL or repeat CD.

Rates of infection were increased in ERCD versus TOL (8.6 to 9.73 percent versus 6.6 to 6.79 percent) (7,10). Studies that performed subgroup analyses for TOL with and without vaginal delivery consistently reported that rates of infection were significantly higher in women who had a TOL but ultimately had a cesarean delivery. The best evidence suggests that hysterectomy rates do not differ between TOL and ERCD (7).

## CONCLUSION

In considering whether to attempt a TOL or ERCD, patients, clinicians, payors, and policymakers are confronted with the dilemma of weighing the likelihood of probabilities for vaginal delivery and health outcomes for each option.

There is no direct evidence comparing the risks and benefits of TOL relative to ERCD in similar patients. Several fair and good quality cohort studies provide indirect evidence about the relative benefits and harms associated with each route.

In selected women, a properly conducted trial of labour after previous 1 LSCS constitutes the best and safest form of obstetric management.

Now, the new Cragin dictum is 'Once a caesarean section, Always a hospital delivery'.

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