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# **Original Research Article**

# Maternal outcomes in patients with previous one lower segment caesarean section undergoing trial of labour: prospective observational study

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#### **ABSTRACT**

**Background:** The incidence of caesarean section is on the rise and has increased 2-3 folds from the initial rate of 10% during the last decade. The objective of the present study was to compare maternal outcomes in successful and failed trial of labour in women with previous one LSCS.

**Methods:** This prospective observational study was carried out in Department of obstetrics & Gynaecology, Sanjay Gandhi memorial Hospital, New Delhi during 2015-2016 and included 150 gravid women with previous LSCS. The study was undertaken during March 2015 to May 2016. The ethical committee approval for the study has been taken. **Results:** out of 150 patients who had given a trial of labour, 64.7% (97) underwent successful VBAC and 35.3 % (53) underwent emergency repeat LSCS. Majority of cases 59.3% were in age group <25 years followed by 36.7% in age group of 25-30 years. Most of the cases are para one 72.7% and remaining are multipara (27.3%). LSCS group: 83% para1 and 17% are multipara. VBAC group: 67.01 % para 1 and 32.9% multipara. There is no significant statistical difference between parity and mode of delivery. (p=0.591). Majority of cases 52.7% were in between 37-39 weeks and 47.3% cases were in between 39-42 weeks. Majority cases 89.3% had Bishop's score 4-6 and 10.7% had Bishops

Conclusions: This study reveals that successful VBAC rate was 64.7% and 35.3% emergency repeat caesarean section.

**Keywords:** Bishops, Lower segment caesarean section (LSCS), Maternal age, Parity, Score, Trial of labour, Vaginal birth after caesarean (VBAC)

#### INTRODUCTION

Caesarean section is the most common major operation performed on a healthy woman. The rates differ from institute-to-institute, but they vary from 10per cent to 50 per cent of all deliveries.<sup>1</sup>

Previous caesarean delivery became an ever increasing indication of caesarean birth. Vaginal birth after caesarean (VBAC) and trial of labour emerged as an option to reduce the alarmingly rising caesarean rates, to

reduce the medical costs and maternal morbidity. The most feared complication with the trial of labour is rupture of scar and its associated morbidity and potential mortality for mother and /or fetus. Safety of vaginal birth after caesarean has been established by many studies; under different clinical settings. Vaginal birth is successful in 75% of acceptable candidates.<sup>2</sup> The success of vaginal birth after caesarean depends to a small extent upon the indication for primary caesarean. The success rates are higher for non-recurrent indication like breech presentation, fetal distress than for recurrent indications

like dystocia or cephalo-pelvic disproportion. Vaginal birth is thrice more likely in woman who has achieved one previous vaginal delivery and is considered the most favorable prognostic factor.<sup>3</sup>

VBAC (Vaginal Birth after Caesarean)—trial of labour is successful in 70-76% of cases (RCOG-2007) incidence of scar rupture in lower segment scar is 0.2-1.5%.<sup>4</sup> Nevertheless, a previous caesarean section casts a shadow over any future pregnancies. Craigin's dictum of "once a caesarean section always a caesarean section" was modified by Pauerstein to once a caesarean, always a trial of labour.<sup>3</sup>

Therefore, vaginal birth after caesarean appears to be the most useful approach for reducing the caesarean rate. Vaginal delivery is associated with less risks, requires less anesthesia, poses a lesser possibility for postpartum morbidity like fever, blood transfusions, postpartum infections, involves a shorter hospital stay, is more affordable, and encourages earlier better bonding between mother and infant. The objective of study was to compare maternal outcomes in successful and failed trial of labour in women with previous one LSCS.

#### **METHODS**

This prospective observational study was carried out in Department of obstetrics and Gynaecology, Sanjay Gandhi memorial Hospital, New Delhi during 2015-2016 and included 150 gravid women with previous LSCS. 150 Pregnant women with previous one caesarean section admitted in labour room with 37 completed weeks without medical or obstetric complications and willing for (TOLAC) trial of labour after caesarean. The study was undertaken during March 2015 to May 2016.

#### Inclusion criteria

- Women with previous 1 LSCS,
- Cephalic presentation
- Singleton pregnancy
- Clinically adequate pelvis
- Gestational age > 37 weeks
- Inter delivery interval >24 months

#### Exclusion criteria

- Refusal of consent
- Women with > 1 previous LSCS
- Recurrent indication
- Women with multiple gestation
- Women with medical and obstetric complications during pregnancy
- Women with moderate and major degree CPD
- Baby weight > 3.5kg,
- Malpresentation
- Women at term with high floating head
- Women with IUGR

#### Oligohydramnios

Detailed history was taken on registration with respect to certain emographics and maternal characteristics like age, gravida, parity etc. A detailed past obstetric history was taken which included indication of LSCS, history of full term vaginal deliveries prior to or following previous caesarean section together with the birth weight of the babies and history of complications associated with previous sections like blood loss, blood transfusion, fever after LSCS, wound gape and duration of hospital admission.

General examination, systemic examination and obstetric examination were carried out. Subsequently they investigated for CBC, blood grouping, other specific investigations pertaining to medical high risk. For fetal assessment, ultrasonography and non-stress tests (NST) were done.

Pelvic assessment was performed during early labour. The points assessed were sacral promontory reached or not, sacral curve, sacrosciatic notch, lateral pelvic walls, ischial spines and inter-spinous distance, sub pubic angle, diagonal conjugate and transverse diameter of pelvic outlet and following this decision regarding mode of delivery was taken.

Patients who were not willing for TOLAC and not fulfilling the criteria for TOLAC, placental abnormalities, placenta previa, cephalopelvic disproportion (CPD), nonvertex presentation, previous h/o postpartum sepsis and medical disorders planned for elective repeat caesarean section after 38 weeks.

Patients were planned for TOLAC and waited for spontaneous labour till 40 weeks if there was no medical or obstetrical high risk factor but definitely not allowed to go beyond EDD.

In patients with Bishop's score up to 6 cervical ripening was done with single PGE 2 gel (Dinoprostone gel PGE 2 0.5 mg) intravaginal or intracervical. Bishop's score was reassessed after 6 hours followed by augmentation of labour with oxytocin of 2mU/min drip (2 unit of oxytocin in 500 ml of ringer lactate) and was titrated to double every 30 minutes, from 3mlU/min to maximum of 36 mlU/minute. With aim of getting 3-4 uterine contractions every 10 minutes lasting for 40-45 seconds.

In patients with poor Bishops score (<6) even after more than 12hrs after induction was considered as failed induction & taken for emergency LSCS.

In patients with Bishop's score >6 induction of labour was done with oxytocin based on standard protocol.

Failed induction: it is defined as prolongation of latent phase for >12-18hrs after induction. Patients with failed induction were taken for emergency LSCS.

During labour, the previous history was checked and complete examination including general and abdominal examination.Blood samples were sent for cross matching and kept ready in case of emergency as soon as patient went into labour. Intravenous line was established. Patients were carefully monitored during labour with regular checking of the vital signs like maternal pulse rate and blood pressure. Scar tenderness was looked for.

Fetal heart rate monitoring was done by intermittent auscultation and external electronic fetal monitoring cardiotocography. Cervical machine dilatation. effacement and station of the head were noted serially for progress of labour. Also, character, duration and frequency of uterine contractions were monitored on Partograph. Early signs of scar dehiscence such as tachycardia, hypotension, abdominal tenderness, fetal heart rate alteration, loss of station of presenting part, palpation of fetal parts outside the uterus and symptoms such as acute abdominal pain and vaginal bleeding were watched for. Caesarean section was considered in cases of failed induction, non-progress of labour, scar tenderness, meconium stained liquor, non-reactive NST and fetal distress. All the patients were observed for complications like PPH, need of blood transfusion, infection, urinary tract infection, respiratory infections, haematoma formation, pyrexia. Care of wound, breast and perineum were given. Dressing checked on day 4 and stitches removed on day 8.

The neonatal outcomes, Apgar score at 1min and 5min, sign of birth asphyxia, NICU admission, jaundice, sepsis, RDS, MAS, hypoxic ischemic encephalopathy(HIE), evidence of birth trauma, perinatal mortality were noted. VBAC patients were discharged on day 2 of delivery and those delivered by Caesarean section were discharged on day 4 of surgery. Advice of contraception and postnatal follow up was done at 2 weeks after delivery.

# Methods of termination of pregnancy previous one LSCS:

• Spontaneous delivery,in cases where progress is smooth (successful trial of labour).

- Forceps/Ventouse, when indicated
- Caesarean section, in failed trial of labour when any fetal or maternal jeopardy is seen (failed trial is when patient will be taken for emergency LSCS in view of fetal distress, non-progress of labour, failed induction).

#### Data analysis

Data collected was entered in Microsoft Office Excel and analyzed by using SPSS version 13.0. Dependent variable frequencies, percentage, were calculated.

#### RESULTS

Out of 150 patients who had given a trial of labour, 64.7% (97) underwent successful VBAC and 35.3 %( 53) underwent emergency repeat LSCS Table 1.

Table 1: Distribution of study cases according to mode of delivery.

Mode of Delivery	Frequency	%
LSCS	53	35.3
VBAC	97	64.7
Total	150	100

Majority of cases 59.3% were in age group <25 years followed by 36.7% in age group of 25-30 years. The mean maternal age for the study group was  $23.57\pm2.14$  in LSCS cases and  $24.30\pm3.05$  in VBAC cases.

LSCS group: 67.9% (36/53) were in the age group of < 25 years, 30.2% (16/53) were in the age group of 25-30 years and 4% (6/53) were in the age group >30 years.

VBAC group: 54.6 % (53/97) were in the age group of < 25 years, 40.2% (39/97) were in the age group of 25-30 and 5.2 % (5/97) were in the age group >30 years. The study groups are comparable with respect to age. There is no significant statistical difference between age and mode of delivery. (p=0.088) Table 2.

Table 2: Distribution of the study cases according to maternal age and its relation to mode of delivery.

		Mode of Del	Mode of Delivery			
Age Groups Total (%	Total (%)	LSCS		VBAC	VBAC	
		Frequency	<b>%</b>	Frequency	%	
<25 years	89 (59.3)	36	67.9	53	54.6	
25 - 30 years	55 (36.7)	16	30.2	39	40.2	0.220
>30 years	6 (4)	1	1.9	5	5.2	0.238
Total	150 (100)	53	100	97	100	
Mean ± SD		$23.57 \pm 2.14$		$24.30 \pm 3.05$		0.088

Majority of cases are para one 72.7% and remaining are multipara (27.3%). LSCS group: 83% para1 and 17% are multipara. VBAC group: 67.01 % para 1 and 32.9% multipara

There is no significant statistical difference between parity and mode of delivery. (p=0.591).

Majority of cases 52.7% were in between 37-39 weeks and 47.3% cases were in between 39-42 weeks. Majority

cases 89.3% had Bishop's score 4-6 and 10.7% had Bishops score >6.

LSCS: In LSCS group 38.8% (52/53) of cases had a Bishop's score 4-6 and 6.3% (1/53) had > 6.

VBAC: In VBAC group 61.2 % (82/97) of cases had a Bishop's score 4-6 and 93.8 % (15/97) had > 6. There is statistical significant association between mode of delivery and Bishop's score > 6 at the time of admission. (p=0.001)

Table 3: Distribution of studied cases according to parity and mode of delivery.

		Mode of Deliv	Mode of Delivery			
Parity	Total (%)	LSCS	LSCS		VBAC	
		Frequency	%	Frequency	%	
1	109 (72.7)	44	83	65	67.01	
2	38 (25.3)	7	13.3	31	31.9	0.501
3	3 (2)	2	3.7	1	1.0	0.591
Total	150	53	100	97	100	

Table 4: Distribution of studied cases according to Bishop's score and mode of delivery.

		Mode of Delivery				
Bishop's Score on admission	Total	LSCS		VBAC		P Value
		Frequency	<b>%</b>	Frequency	%	
4 - 6	134 (89.3)	52	38.8	82	61.2	
> 6	16 (10.7)	1	6.3	15	93.8	*0.011
Total	150	53	35.3	97	64.7	

#### DISCUSSION

Trial of labour and vaginal birth after caesarean is being increasingly offered to patients as an option and practiced by obstetricians worldwide. Acceptance has become wide spread in the light of various studies demonstrating efficacy and safety of vaginal birth after caesarean in a variety of clinical settings. Vaginal birth after caesarean and trial of labour has been shown to reduce incidence of postpartum infection, length of hospital stay and hence, significant medical cost savings.

The main emphasis today is making VBAC a safer option in carefully selected group of cases suitable for trial of labour. Various factors predict the success of trial of labour as, indication of primary caesarean, its post-operative course, number of previous sections, any previous VBAC. In present study most of the patients belonged to age group 20-25 years (59.3%) followed by 25-30 years (36.7%). The reason being that attendance of ANC OPD is maximum in this age group & study concluded that there is no significant statistical difference between mode of delivery and maternal age groups (P = 0.238). A comparable study by Vardhan shakti et al, showed that 29.5% were in 20-25 years and 40% were in

age group 25-30, the difference was not found to be statistically significant. Similar results were obtained in study of Jitesh S et al, Islam A et al, Chaudhari DR et al, Monohar R et al, Singh N et al. 5-10

Most of the patients were para one 109 (72.7%), 38 (25.3%) were second para and rest 3 (2%) were multipara. The results showed no statistical significance between mode of delivery and parity of patients. (P=0.591). A comparable study by Alsayegh AK et al, Jitesh S et al, Qahtani NA et al, Monohar R et al, shows similar results. 5,6,9,11,12

We have included patients with gestational age >37 weeks up to 42 weeks, period of gestation. Most of cases were 37-39 weeks 79 (52.7%) and 71 (47.3%). Similar results were obtained in study of Shakti V et al, Jitesh S et al, Alsayegh AK et al.<sup>5,6,11</sup>

In the present study out of 150 patients who were allowed for trial of vaginal delivery, the Bishop's score was between 4-6 in 134 (89.3%) cases and >6 in 16 (10.7%) cases. In this study patient who had a Bishop's score >6 at the time of onset of labour had more chance of having a successful vaginal delivery. (P=0.01) Similar results

were obtained in study conducted by Monohar R et al, Mishra N et al, Singh RS et al. 9,13,14 The above table

showed that our study results are about similar to results of Mishra N study.

Table 5: Comparison of Bishop's score of present study with different studies.

Bishop's score	Monohar R et al.,	Nigamananda Mishra et al.,	Rashmi S Singh et al.,	Present study
4-6	60(89.3%)	14(82.35%)	23(33.82%)	134(89.3%)
>6	87(59.18)	6(17.65%)	15(66.1%)	16(10.7%)

#### **CONCLUSION**

This study reveals that successful VBAC rate was 64.7% and 35.3% emergency repeat caesarean section. We conclude that patients with Bishop's score >6 at the time of admission had more chance of successful VBAC (p=0.01). We conclude that success rate of VBAC was higher in patients undergoing spontaneous onset of labour compared to induced patients.

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