

ISSN (P): 2522-6614
ISSN (E): 2522-6622
© Gynaecology Journal
www.gynaecologyjournal.com
2020; 4(5): 78-82
Received: 17-07-2020
Accepted: 19-08-2020

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Trial of Labor after Cesarean (TOLAC) for Vaginal Birth after Previous Cesarean Section (VBAC) versus repeat cesarean section

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DOI: <https://doi.org/10.33545/gynae.2020.v4.i5b.684>

Abstract

Background: Allowing a woman with a previous cesarean birth a trial of labour is a controversial area. In 1916, Cragin popularized the dictum, “once a caesarean section, always a caesarean section”^[1] because of prevailing use of classical CS at that time.

Now due to lower segment caesarean section (LSCS), cesarean-related morbidity and mortality are significantly reduced. The dictum now is “once a caesarean section, can be given trial of labour in a well-equipped hospital”, The reasons which led to the reversal of the old dictum are based upon the newer concepts of the assessment of scar integrity, fetal well-being, and improved facilities of emergency CS^[2]. Nevertheless, a previous CS does cast a shadow over the outcome of future pregnancies^[3]. With present techniques and skill, the incidence of cesarean scar rupture in subsequent pregnancies is very low. The strength of the uterine scar and its capacity to withstand the stress of subsequent pregnancy and labor cannot be completely assessed or guaranteed in advance. These cases require the assessment and supervision of a senior obstetrician during labor^[4, 14]. Hence, the present study was undertaken to assess the success and safety of VBAC in selected cases of one previous LSCS and to evaluate the maternal and fetal outcome in these cases.

Material & Methods: This was a prospective observational study carried out in a tertiary care teaching institute Mahila Chikitsalya, J.L.N. Medical College, Ajmer during the period July 2019 to October 2019. The trial of vaginal delivery was continued till there was satisfactory progress. The trial was terminated by emergency repeat CS, when there was evidence of unsatisfactory progress, scar tenderness or fetal distress

Results: In the present study, 27 (54%) subjects underwent successful VBAC while 23 (46%) subjects had to undergo repeat LSCS due to failed vaginal trial of labour.

The success of VBAC in the present study was 54%. This result was comparable with the results of other studies reported by Phelan *et al.*,^[7] In our study, the rate of a repeat CS was 46% and commonest indication for that was fetal distress.

Limitations: The limitation of the study lies in the fact that the study was carried out in a tertiary care centre, where there is adequate manpower to supervise each delivery, reducing complication rates of VBAC. Similar results may not be replicated at centers other than tertiary care centers.

Conclusion: The old dictum “Once a caesarean always a caesarean” should be changed to “Once a caesarean always an institutional delivery”. Majority of the cases of previous CS done for non-recurrent indication can be delivered safely by the vaginal route, without any major complication to the mother and the newborn, in an institution having facilities for emergency CSs. It has been proved to be a safe alternative to repeat an elective CS in selected cases.

Keywords: Cesarean, scar rupture, TOLAC, trial of labour, VBAC

Introduction

Allowing a woman with a previous caesarean birth a trial of labor is a controversial area. In 1916, Cragin popularized the dictum, “once a caesarean section, always a caesarean section”^[1] because of prevailing use of classical CS at that time. Now due to lower segment caesarean section (LSCS), cesarean-related morbidity and mortality are significantly reduced. The dictum now is “once a caesarean section, can be given trial of labour in a well-equipped hospital”.

All over the world, the concern about the increasing rate of caesarean delivery, has focused on Trial of Labour after Caesarean Section (TOLAC) or Vaginal Birth after Caesarean (VBAC). An important consideration while contemplating trial of labour after caesarean is the risk of uterine rupture.

Because of concerns about this complication, the rate of attempted TOLAC continues to fall all over the world. However, practice of multiple repeat caesareans is also not without risk as complications such as morbidly adherent placenta (placenta praevia, accreta), increase with the increasing number of prior caesarean deliveries. Also, the absolute risk of uterine rupture is low and the latest guidelines recommend that most women with one prior low transverse caesarean scar should be offered trial of labour [5, 15]. It is therefore important to identify women who may be at an increased risk of an adverse event if TOLAC is attempted. Therefore, selection criteria should be established in order to minimise the risk. TOLAC is a safe practice provided the candidates are appropriately selected. The majority of studies concerning the success or failure rate of TOLAC are from the developed world [6, 12, 13]. The set standards of practice that have resulted from these studies might not be applicable in the developing world where electronic fetal monitoring or 1:1 doctor/nurse patient ratio may not be available for women undergoing TOLAC. Thus, the present study was carried out to assess the factors affecting trial of labour after one caesarean section and the outcome of TOLAC in a busy tertiary care hospital in India.

Material & Methods

This was a prospective observational study carried out in a tertiary care teaching institute Mahila Chikitsalya, J.L.N. Medical College, Ajmer during the period July 2019 to October 2019.

This hospital gets referrals of high-risk cases from neighbouring villages also.

The unbooked cases got admitted either early or late in labour. The booked cases were admitted

Around 38th week. 50 cases of a previous CS that fulfilled the selection criteria were enrolled in the study.

Those patients with cervical dilatation of >3cm were augmented with oxytocin and remaining cases were induced with single instillation of cerviprim gel 0.5 mg intracervically after an informed consent.

Partogram was maintained. The trial of vaginal delivery was continued till there was satisfactory progress. The trial was terminated by emergency repeat CS, when there was evidence of unsatisfactory progress, scar tenderness or fetal distress.

Inclusion criteria

All patients with previous 1 LSCS for a non-recurrent indication.

Patient willing for VBAC.

Patients with

- Gynaecoid pelvis
- Average size baby
- Vertex Presentation
- No cephalopelvic disproportion
- Lower segment transverse caesarean
- History of previous uneventful post operative period.
- Good uterine scar were decided upon vaginal delivery.

Exclusion Criteria:

- Previous classical incision on the uterus.
- Previous two or more LSCSs, with other uterine scars.
- History of previous rupture of the uterus or scar dehiscence.
- Contracted pelvis.
- Anemia & pregnancy induced hypertension
- Other medical or obstetrical complications.

Selected Clinical Factors Associated with Trial of Labor after Previous Cesarean Delivery (TOLAC) Success Increased probability of Success for TOLAC/ VBAC (Strong Predictors)

- Prior Vaginal Birth
- Spontaneous Labor
- Factors that increase the chance of successful Vaginal Birth After Cesarean (VBAC) include previous vaginal delivery, previous VBAC, previous cesarean delivery for non-vertex presentation, and spontaneous onset of labor

Decreased Probability of Successful Vaginal Birth After Cesarean (VBAC) (Other Predictors)

- Recurrent Indication for Initial Cesarean Delivery (labor dystocia)
- Increased Maternal Age/ Advanced Maternal Age (AMA)
- Non-white Ethnicity
- Gestational Age greater than 40 weeks
- Maternal Obesity
- Preeclampsia
- Short inter pregnancy Interval
- Increased Neonatal Birth Weight

Contraindication to Trial of Labor After Cesarean Section (TOLAC)

- Vasa previa or complete placenta previa
- Transverse fetal lie
- Umbilical cord prolapse
- Previous classical cesarean delivery
- Active genital herpes infection
- Previous myomectomy entering the endometrial cavity

Results

Successful VBAC in terms of literacy

Total number of cases (50)	Success Vbac	%of Success
Literate	20	74.08%
Il-literate	7	25.92%

Successful VBAC in terms of literacy

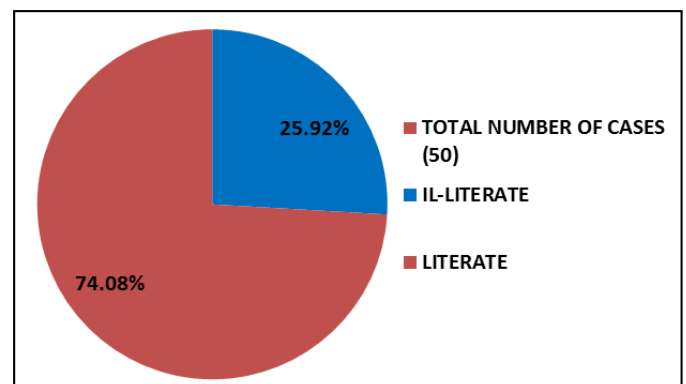


Fig 1: Successful VBAC in terms of literacy

Literate patient received good post operative care in previous caesarean and they are well aware about the consequences of previous caesarean so admitted 38 weeks of gestational age, so VBAC is more successful in literate patient (Fig 1)

Mode of delivery following trial of vaginal birth after cesarean section (Fig 2)

In the present study, 27 (54%) subjects underwent successful

VBAC while 23 (46%) subjects had to undergo repeat LSCS due to failed vaginal trial of labour.

8 (88.9%) out of 9 subjects with previous indication of foetal distress had successful outcome.

While in 12 (85.7%) out of 14 subjects with previous indication of NPOL had to undergo emergency LSCS.

Out of 11 subjects with previous indication of failed induction 7 (63.6%) showed failure in this trial also.

S. No	Mode of delivery	No. of cases (n=50)	Percentage
1	Spontaneous vaginal delivery	27	54
2	Repeat lower segment caesarean section	23	46

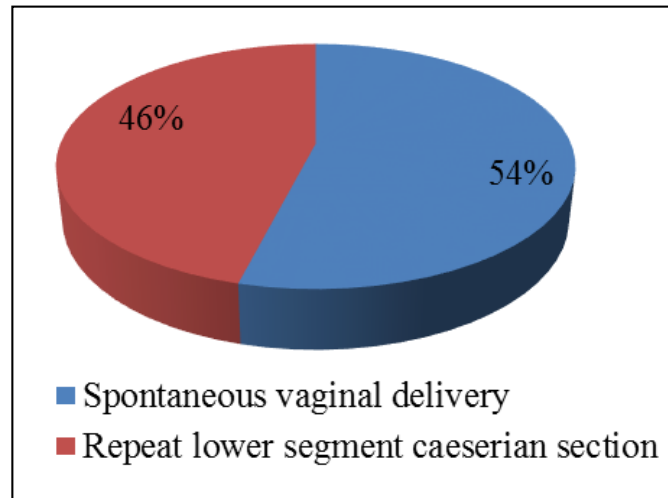


Fig 2: Mode of delivery following trial of VBAC

Indication of previous caesarean section and outcome of trial of VBAC in present pregnancy (Fig 3)

S.No.	Indication of Previous Caesarian Section	No. of cases (n=50)	Successful vbac (n=27)	%	Emergency lscs (n=23)	%
1	Foetal distress	9	8	88.9	1	11.1
2	Cephalopelvic disproportion	4	3	75	1	25
3	Breech	5	4	80	1	20
4	Failed induction	11	4	36.4	7	63.6
5	Non progress of labour	14	2	14.3	12	85.7
6	Oligohydramnios	7	6	85.7	1	14.3

Fig 3: Indication of previous caesarean section and outcome of trial of VBAC in present pregnancy

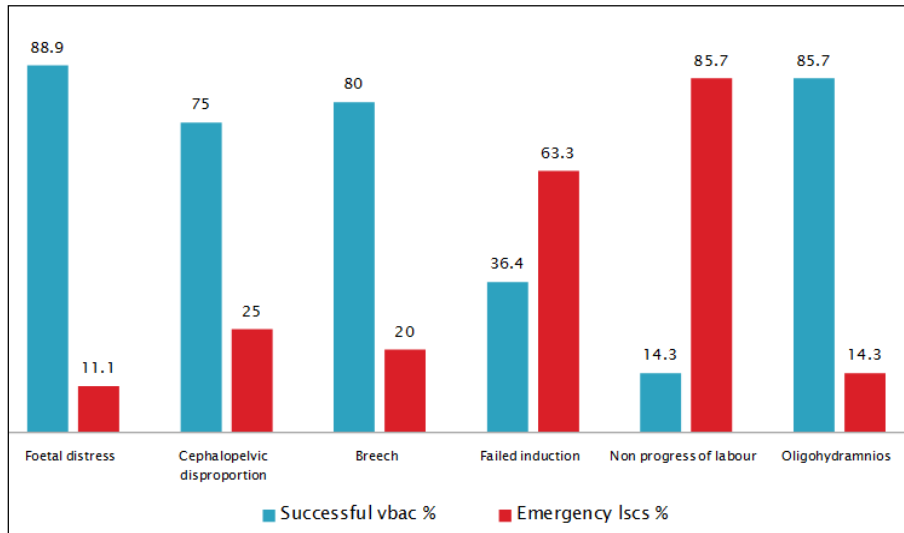


Fig 4: Outcome In Terms Of Successful VBAC

Discussion

With the significant rise in the incidence of primary CS for various indications, an increasing proportion of the pregnant women coming for antenatal care report with a history of a previous CS.

These women belong to a high-risk group due to the risk of a scar rupture.

There is controversy regarding the mode of delivery in these cases. Assessment of the individual case with regard to the possibility of a successful VBAC is necessary while taking the decision.

Some suggest an elective CS for such cases, whereas others choose a trial of labor. Many take a middle route, that is, individualization of case. By far, the greatest problem in subsequent labor is the integrity of the uterine scar.

Uterine rupture has the potential for causing serious harm to the pregnant woman as well as the baby. This is the most important risk to be noted, but the advantage which the vaginal delivery imparts largely outweighs the risks associated with a repeat CS.

The success of VBAC in the present study was 54%. This result was comparable with the results of other studies reported by Phelan *et al.*,^[7] In our study, the rate of a repeat CS was 46% and commonest indication for that was fetal distress.

In the present study, The success rate of VBAC in previous CS for fetal distress cases was 89%. Similar results (68%) have been reported by Hoskins and Gomez *et al.*^[8]

The success rate of VBAC in cases with a previous CS for cephalopelvic disproportion was 75% in the present study, which was similar to reported by Jansen *et al.*^[9] (65%)

In this study, the success of VBAC in cases with a previous CS done for breech presentation was 80%. Studies by Jansen *et al.*^[9] have reported similar results. The interval between the previous cesarean and the present pregnancy was more than two years in 90% cases, whereas it was less than two years in 10% of the cases.

Shipp *et al.*^[10] studied to relate inter delivery interval to risk of uterine rupture during a trial of labor after prior cesarean delivery. He reported that for interdelivery intervals up to 18 months, the uterine rupture rate was 2.25% compared with 1.05% with intervals of 19 months or longer.

In the present study, the incidence of scar dehiscence was 0 and there was no maternal and neonatal mortality in this study.

The success rate of VBAC was significantly higher (80%) in cases with cervical dilatation of more than 3 cm as against less

than 3cm (20%) at the time of admission. Demianczuk *et al.*,^[11] reported similar findings in their studies. Many women do not accept sterilization even during the second CS especially rural uneducated population. This decision exposes them to the development of complications related to scar rupture in subsequent pregnancy and labor. If women are explained about the option of VBAC and told about the risk associated with a repeat CS, many CSs can be avoided.

So conducting VBAC deliveries has a special significance among the rural uneducated population.

Limitations

The limitation of the study lies in the fact that the study was carried out in a tertiary care centre, where there is adequate manpower to supervise each delivery, reducing complication rates of VBAC.

Conclusion

The old dictum "Once a caesarean always a caesarean" should be changed to "Once a caesarean always an institutional delivery".

Majority of the cases of previous CS done for non-recurrent indication can be delivered safely by the vaginal route, without any major complication to the mother and the newborn, in an institution having facilities for emergency CSs.

It has been proved to be a safe alternative to repeat an elective CS in selected cases.

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