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# Implementation of Trial of Labour (VBAC) for Reduction in Repeat Caesarean Section Rate

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**Abstract:** ***Introduction: Majority of maternity hospitals follow a dictum of once a caesarean section, always a caesarean section, especially in private hospitals in India. This unscientific trend has resulted in increase in repeat caesarean sections. Trial of labour in properly selected cases result in uneventful vaginal delivery, thus reducing the rate of caesarean section and its related complications. Methods: A 12 weeks short term QI project was undertaken to find out the incidence of trial of labour in cases of previous caesarean section and their outcome at tertiary care teaching hospital with state of art labour room and operation theatre facilities. Various reasons for low rate of trial of labour were identified by using fish bone used for root cause analysis. Necessary interventions were undertaken to increase the rate of trial of labour and their outcome was measured. Results: It was observed in baseline analysis that that only 20 percent case of previous caesarean section were given trial of labour. The percentage of women with trial of labour increased to 36 percent after 12 weeks of intervention. The success rate of trial of labour increased from 20 percent to 44 percent. There was no increase in maternal and perinatal morbidity and mortality following implementation of QI project. Conclusion: Judicious case selection and proper monitoring during labour resulted into high success rate of trial of labour without adversely affecting maternal and perinatal outcome. This in turn resulted in reduction of rate of repeat caesarean section and its associated morbidity and mortality.***

**Keywords:** VBAC, previous caesarean

## 1. Introduction

The prevalence of caesarean sections has been steadily increasing since the turn of the twenty-first century and is still very high. [1, 2] First-time mothers and those who have already undergone a caesarean section appear to prefer the procedure more than ever. Worldwide caesarean delivery rates have increased dramatically. This problem is brought on by an increase in unplanned caesarean sections and a gradual fall in the caesarean section threshold. [1] Vaginal birth after cesarean section (VBAC) is one of the strategies developed to control the rising rate of cesarean sections (CSs). It is a trial of vaginal delivery in selected cases of a previous CS in a well- equipped hospital. ] In 1916, Cragin popularized the dictum, “once a caesarean section, always a caesarean section”. [2] That was the era of the classical CS. In the present era of lower segment caesarean section (LSCS), cesarean- related morbidity and mortality are significantly reduced. The dictum now is “once a caesarean section, always an institutional delivery in a well equipped hospital”

However, reoperation is characterised by prolonged surgery, increased difficulty, high rates of intraoperative blood transfusion, thromboembolism, and postoperative infection, as well as poorer incision healing after surgery and higher rates of urinary retention, pelvic adhesions, and other complications compared to those of the initial caesarean section [4,5], which not only compromises the safety of the mother and child but also results in a serious decline in the quality of life. These women and obstetricians have focused on the viability and safety of vaginal labour in pregnant women with scar uteri, which is why TOLAC (trial of labour after caesarean section) has decreased over the past ten years. [6]

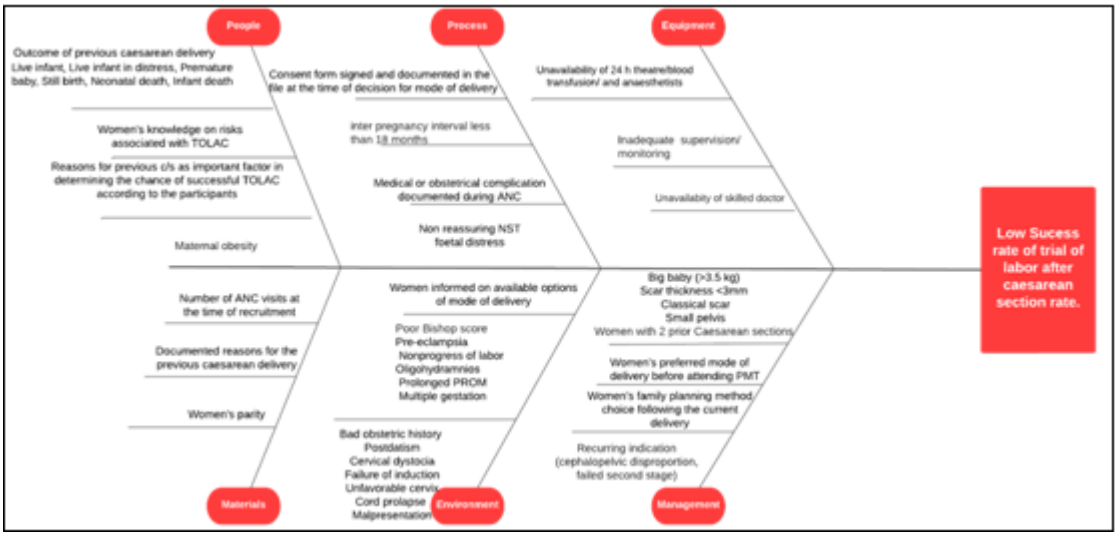
## 2. Material and methods

This prospective observational study was conducted at the Dept. of Obstetrics and Gynaecology, Pravara Institute of Medical Sciences (DU), Loni, Ahmednagar, Maharashtra.

High risk cases are referred to this hospital from nearby towns and villages. A retrospective review of hospital birth data showed that there were roughly 10,000 deliveries there each year with a CS rate of between 25 and 30%. Selected from the outpatient department (booked) or from labour (booked/ unbooked) were a total of 100 cases of a prior CS. Unbooked patients who showed up for labour without being scheduled were then evaluated for a TOLAC after receiving their informed written consent. Booked cases were routinely followed up in the prenatal clinic. Institutional ethical committee approval was obtained before the start of the study. After receiving informed written consent, cases with a single prior transverse lower uterine segment scar and a large enough pelvis were included in the study. The following cases were excluded from the study: those with a contracted pelvis or cephalopelvic disproportion, a previous classical or inverted T-shaped incision on the uterus, a history of two or more LSCSs with other uterine scars, a history of prior uterine rupture or scar dehiscence, and those with other medical or obstetrical complications related to pregnancy. The study included a total of 60 cases that met the eligibility requirements. For TOLAC, appropriate prenatal counselling was provided. If the women who were admitted to the ward at 40 weeks did not experience the spontaneous commencement of labour, the consultant/head

of the unit administered a foley's catheter induction after evaluating their clinical and pelvic conditions. A second USG was performed after admission to determine the scar thickness and the estimated weight of the foetus. All instances that were chosen for TOLAC were continuously watched electronically while working. With the help of a modified WHO partogram, labour was evaluated.

A 12 weeks short term QI project was undertaken to find out the incidence of trial of labour in cases of previous caesarean section and their outcome at tertiary care teaching hospital with state of art labour room and operation theatre facilities. Various reasons for low rate of trial of labour were identified by using fish bone used for root cause analysis. Necessary interventions were undertaken to increase the rate of trial of labour and their outcome was measured.




Statistical analysis: Structured Pro-forma were used to collect pertinent data on mother and foetal factors, such as the outcome of the current pregnancy, age, parity, and the time between this pregnancy and the prior LSCS. Statistical analysis was carried out using SPSS software (version 21.0).

## 3. Results

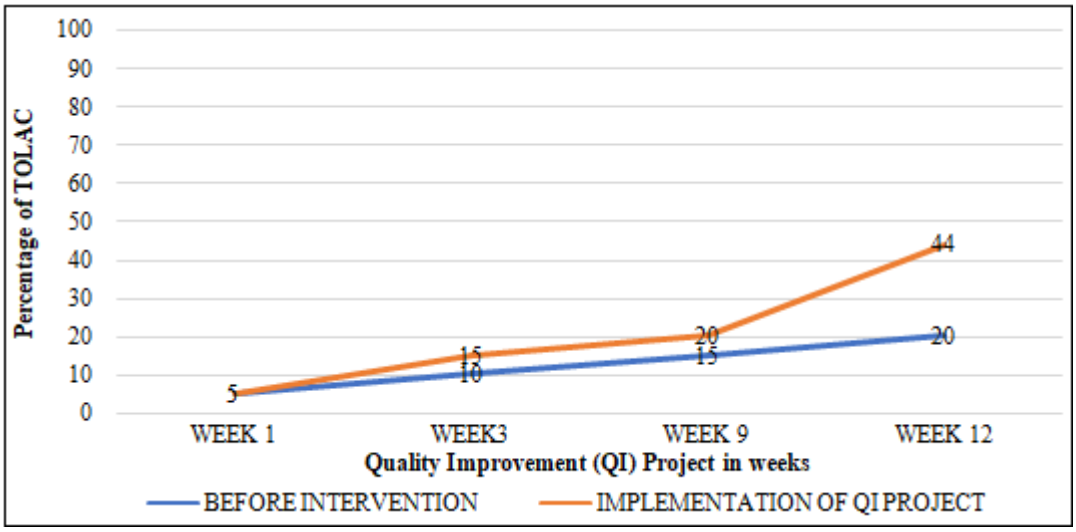
**Table 1:** Different parameters

| | No. of cases | Percentage (%) |
|---|---|---|
| Age | | |
| 21 – 25 | 21 | 21 |
| 26 – 30 | 60 | 60 |
| > 30 | 19 | 19 |
| Parity | | |
| 1 | 75 | 75 |
| 2 | 13 | 13 |
| 3 | 12 | 12 |
| Gestational age + weeks | | |
| 37 to 37 + 6 | 45 | 45 |
| 38 to 38 + 6 | 33 | 33 |
| 39 to 39 + 6 | 18 | 18 |
| > 40 | 4 | 4 |
| Mode of delivery | | |
| VBAC | 78 | 78 |
| EM LSCS | 22 | 22 |
| Birth weight (Kg.) | | |
| < 2.5 | 25 | 25 |
| 2.5 – 3.0 | 68 | 68 |
| > 3 | 7 | 7 |

**Table 2:** Indication of repeat cesarean section

| Indication of repeat cesarean section | No of cases (n=22) | Percentage (%) |
|---|---|---|
| Non progress of labor | 6 | 27.27 |
| Failed induction | 5 | 22.73 |
| Fetal distress | 11 | 50 |

It was observed in baseline analysis that that only 20 percent case of previous caesarean section were given trial of labour. The percentage of women with trial of labour increased to 36 percent after 12 weeks of intervention. The success rate of trial of labour increased from 20 percent to 44 percent. There was no increase in maternal and perinatal morbidity and mortality following implementation of QI project.




## 4. 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. The obstetrician is always in a dilemma regarding the mode of delivery in these cases.

Out of the 100 patients who were observed, the majority (60%) belonged to the 26–30 age range. In contrast, Vardhan Shakti et al. found that 105 of their patients (40%) were mostly between the ages of 26 and 30. [7] Seventy-five percent of the 100 patients who were observed were para 1, followed by 13 para 2 and 12 para 3 patients or more. In a study by Puja Puri et al., the parity ranged from para 1 to para 3, and the gestational age spanned from gestational age 2 to gestational age 6. [8] The greatest number of patients in a different study by Rajita S. Jani et al. was 45 (90%) and 45 (90%) of them were para 1 and para 2, while only 5 (10%) patients fell into greater parity. [9] We found that 27 (45%) of the women had a POG between 37+0 and 37+6 weeks, which was consistent with research by Shah Jitesh Mafatlal et al. [10] Only 13.33% of the 60 births had a gap of less than 2 years, compared to 41 (68.33%) who had one between 2-4 years. Short intervals are linked to a higher risk of uterine rupture in women with TOLAC, according to Conde-Agudelo et al systematic's assessment of 22 observational studies. [11] In our study, we saw that 6 out of 22 women (27.27%) experienced foetal distress or an irregular foetal heart rate as the reason for a caesarean section, with failure to induce labour and labour not progressing as equal contributors (23.08%). This was in agreement with Vardhan Shakti et al's study, which found that foetal distress was the primary reason for 99 women's previous

caesarean section (41.7%) and 77% of women with foetal distress as the primary reason for a previous caesarean section (Chhabra S et al's study, 77% of women with foetal distress as the primary reason for a previous caesarean section, 12%). In our study, we found that only 10 women. Prior successful VBAC was discovered to be related with successful VBAC in a study by Malede Birara et al. [13] In a research by Rahman R et al., cases with cervical dilatation of 4 cm or more as opposed to less than 4 cm at the time of admission had a considerably greater success rate for VBAC (88.89% against 62.50%). In the current study, the success rate of TOLAC in patients who had previously undergone a normal vaginal birth was greater than 88.89%. According to studies by Landon et al, Kraiem et al, Whiteside DC et al, and Bedoya et al, having previously delivered vaginally was the best indicator of a successful VBAC. [14,15] The current study found no maternal mortality. A low Apgar score (5), a sign of neonatal morbidity, was found in 5% of infants. 13 of the remaining infants were delivered via emergency CS after a failed TOLAC. Three CS were done for scar dehiscence, four were done for foetal distress, and the rest were done because the induction didn't work and the labour didn't advance.

The neonatal intensive care unit was kept for all three of the newborns who had poor Apgar scores. They were breastfed, given prophylactic antibiotics, and released from the hospital with their moms. In this trial, there was no perinatal mortality. Beyond 39+0 weeks of gestation (the optimum time for an ERCS delivery), having a planned VBAC increases the prospective risk of antepartum stillbirth by 10 per 10,000 while waiting for spontaneous labour. [16] Although gestation and other factors are taken into account, there is still a higher risk of stillbirth linked with VBAC in women who have previously had a caesarean section compared to those who have not. The study findings show that few women chose TOLAC and even fewer were making an informed decision. Most women preferred repeat caesarean delivery before attending ANC Dept. of Obstetrics and Gynaecology, Pravara Institute of Medical Sciences (DU), Loni, Ahmednagar, Maharashtra and this was significantly associated with the patient's choice after ANC counseling. Equally, women's mode of delivery was

significantly linked with the preference of the counselling doctor and their qualification. Women appear to know little about their mode of delivery. However, this study did not establish an association between preferred mode of delivery and women's demographic characteristics (age, educational level, marital status, occupation, parity) and number of antenatal visits. A small number of women chose TOLAC probably because of inadequate information and influence of the counselling doctor from ANC.

The unending dilemma of an obstetrician is about the management of subsequent labor, once the patient has a scar on the uterus. 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 for the attendant in subsequent labor is the integrity of the uterine scar. [6] 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.

## 5. Conclusion

Judicious case selection and proper monitoring during labour resulted into high success rate of trial of labour without adversely affecting maternal and perinatal outcome. This in turn results in reduction of rate of repeat caesarean section and its associated morbidity and mortality.

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