

Outcome of Mechanical Induction of Labour in Patients with Previous One Caesarean Section

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Abstract

Background:To determine the role of mechanical induction with cervical Foley's in reducing the rate of repeat caesarean section.

Methods: In this observational study women who had previous one LSCS with vertex presentation, gestational age b/w 37-40 weeks, previous caesarean to delivery interval >18 months and bishop score >5 were included. Women not consenting for mechanical induction of labour, medical disorders like diabetes, hypertension, preterm and postdates pregnancy, multiple pregnancy, intra uterine growth retardation (IUGR) and who had absolute indication for repeat caesarean section were excluded. Eighty patients who fulfilled the inclusion criteria and had properly defined indication for TOLAC were included in the study. After assessment of Bishop Score they were induced with cervical foley's. Primary outcome measure was Vaginal Birth After Caesarean-section (VBAC), secondary outcomes were induction to delivery interval, maternal and fetal complications, indications for LSCS, NICU admission and patient's satisfaction.

Results :A total of eighty patients were induced with cervical foley's. Out of these patients the successful VBAC was observed in 58 (72.5%). Among them spontaneous VBAC in 55 (68.8%) patients and ventouse delivery in 3 (3.8%). Emergency LSCS for different indications in 22 (27.5%), mean induction to delivery interval was 8.75 hours, Scar rupture was reported in only one (1.25%), 5 (6.3%) newborn babies were admitted in NICU, 6 (7.5%) had PPH. Majority (95%) were found satisfied.

Conclusion: Mechanical induction with cervical Foley's in patients with previous one caesarean section is a reasonable option to reduce the rate of repeat LSCS, provided there is careful selection of the cases antenatally and vigilant intra-partum monitoring.

Key words : Mechanical induction of labour, Trial of labour after caesarean (TOLAC), Scar rupture, NICU admission

Introduction

Worldwide caesarean section rate is increasing alarmingly. Repeat caesarean section is a major contributing factor to this Craigin's dictum "once caesarean always a caesarean".¹ TOLAC has a short history of around fifty years. This option became available for pregnant mothers when obstetricians started abandoning Craigin's statement and replaced by "once a caesarean always a hospital delivery".² In 1984 the American College of Obstetrics and Gynecology encouraged trial of labour for women who had previous lower segment caesarean section, provided the best possible method is used for induction of labour in previously scarred uterus. RCOG guideline 2005 for VBAC mentioned the role of cervical Foley's in women with previous one caesarean section. Most professional societies do not recommend use of pharmacological agents such as oxytocin as it prolongs induction to delivery interval.^{3, 4} Although prostaglandins significantly improve bishop score but there is increased risk of scar rupture. ACOG in 2004 discouraged use of oxytocin and prostaglandins to induce labour because of increased risk of complications.^{5, 6}

Initially use of Foley's catheter was recommended in patients with intrauterine fetal demise and anomalous babies. There is insufficient information from RCT's about best method of induction for TOLAC.⁷ There is evidence from different studies that frequency of scar dehiscence is far less than what is thought in trial of labour after previous one LSCS. Success rate in suitable candidates of TOLAC is 75-85% with risk of rupture of 0.5% which will influence the future obstetrical career of a woman.⁸ Women who are willing for VBAC should be encouraged for trial of labour, provided there are no known contraindications for vaginal birth.^{9, 10}

There should be close maternal supervision during labour to avoid complications in order to reduce the rate of repeat caesarean delivery¹¹.

Patients and Methods

This descriptive cross sectional study was carried out in Izzat Ali Shah Hospital (IASH-MCH) affiliated with Wah Medical College, Wah Cantt, over a period of 2 years from Jan,2015 till Dec,2017. Eighty patients who fulfilled the inclusion and exclusion criteria and had properly defined indications for TOLAC were admitted for induction of labour. All women with previous 1 caesarean section at gestational age between 37-40 weeks with vertex presentation, previous caesarean to delivery interval >18 months and bishop score >5 were included. Women not consenting for mechanical Induction of labour, >1LSCS, medical disorders like diabetes, hypertension, preterm and postdates pregnancy, multiple pregnancy, IUGR and who had absolute indication for repeat caesarean section were excluded. Bishop score was assessed. Patient was directed to empty her bladder, placed in dorsal supine position. Under all aseptic measures Foley's catheter of 26 Fr was introduced through the endocervical canal and its balloon was inflated with 50 ml normal saline. The catheter was fitted onto the internal os and it was anchored with thigh for traction by applying sticking plaster. Patients were then observed closely with strict fetal heart rate monitoring. The bishop score was reassessed when uterine contraction started or earlier if foley's expelled and after 6 hours otherwise. In patients who went into active labour artificial rupture of membranes was performed to augment the labour. The outcome was analyzed in terms of induction to delivery interval, mode of delivery, indication for LSCS, maternal / fetal complications and NICU admission. Mean and standard deviation were computed for categorical variables like age, duration of marriage, gestational age, previous LSCS to VBAC interval, Bishop score and induction to delivery interval.

Results:

Average age of samples was 26.81±3.58 years, the duration of marriage was 5.67±3.05 years, the gestational age was 39.30±0.79 weeks, mean Bishop score was 6.15±0.67, the average interval from previous LSCS to VBAC was 29.95±8.27 months, and average induction to delivery interval was 8.79±2.30 hours (Table 1). The overall successful VBAC was observed in 58 (72.5%) patients, out of whom 55 patients (68.75%) had spontaneous delivery (Table 2). Scar rupture was reported in 1.25%, 7.5% had PPH, 95% patients were found satisfied (Table 2). Out of 80 patients 7.5% had PPH (Table 3). Out of 22 emergency

LSCS the commonest indication was failure to progress 36.36% (Table 4). In present study 61.5% patients despite of low Bishop score i.e. 5, delivered vaginally which is encouraging (Table 5)

Table 1: Baseline Characteristics of Studied Samples (n=80)

Characteristics	Mean	S.D
Age(years)	26.81	3.58
Duration of Marriage (years)	5.67	3.05
Gestational Age(weeks)	39.30	0.79
Bishop Score	6.15	0.67
Previous LSCS to VBAC interval (months)	29.95	8.27
Induction to Delivery Interval (hours)	8.79	2.30

Table 2: Outcome Measures of Studied Samples

	N	%
Successful VBAC	58	72.5
Spontaneous VBAC	55	68.8
Ventouse Delivery	3	3.8
Emergency LSCS	22	27.5
NICU Admission	5	6.3
Scar Rupture	1	1.25
PPH	6	7.5
Patient satisfaction	76	95

Table-3 Complications In Studied Sample (n=11)

Complications	No	%age
PPH	6	7.5
Scar dehiscence	2	2.5
Vaginal wall tears	2	2.5
Scar rupture	1	1.25

Table 4: Indications for emergency LSCS (n=22)

Indications of LSCS	N	%age
Failure to progress	8	36.36%
Fetal distress	5	22.72%
Failed Induction Of Labour	3	13.63%
Grade III Meconium	2	9.09%
Brow Presentation	1	4.54%
2 nd Stage Failure	1	4.54%
APH	1	4.54%
Scar Tenderness	1	4.54%

Table 5: Relationship of Bishop Score with Mode of Delivery

Bishop score	No of patients	VBAC	LSCS
5	13	08	05
6	42	30	12
7	25	19	06

Discussion

The progressive rise in the caesarean section rate was the main stimulus for the trial of labour in carefully selected patients with previous one LSCS. The best method of induction in a scarred uterus is still a challenge for obstetricians, as there are no clear recommendations and guidelines till date. However all over the world large multicentre studies are ongoing to find out the safest method of induction in previous one LSCS in women who are willing for TOLAC. Induction of labour is not recommended by ACOG in patients with previous two caesarean sections.¹²

About 90% of the women with previous one LSCS are having repeat caesarean section mostly because of two reasons, first is avoidance of induction of labour by obstetrician because of the increased risk of complications, especially scar rupture, secondly women refuse trial of labour because of their previous traumatic experience and fear of emergency repeat caesarean section¹³.

Pakistan is a developing country with limited resources, where only 0.5 to 0.8% of its GDP is spent on health in contrast to recommendation by WHO which is at least 6%.¹⁴ Unnecessary repeat caesarean puts huge burden on national & individual's economy. In our country VBAC is conducted only if patient comes in spontaneous labour. Although induction & augmentation poses high risk of scar rupture, but these are not contraindicated. Mechanical method of induction carries low risk in women undergoing VBAC¹⁵.

Our study was conducted on 80 patients with previous one LSCS and it demonstrated that mechanical induction with foley's is a safe option. The rate of normal vaginal delivery was 72.5%, this is comparable to most of the studies which indicate that 60-80% of women can have successful VBAC.¹⁶

In present study there was increase in success rate in terms of vaginal deliveries with increasing bishop score. 61.5% patients despite of low Bishop score i.e. 5, delivered vaginally which is encouraging. The average interval from previous LSCS to VBAC was 29.95±8.27 months which showed that success of VBAC increases with increasing interpregnancy interval.

Jozwiak M in his study of 2014 concluded that there is significantly greater vaginal birth rate following foley's induction with reduced risk of scar rupture¹⁷. We encountered with only one case of ruptured scar (1.25%), that is comparable to his results.

A study from US found no difference in rupture rate following spontaneous and induced labour, compared to a study by Fitzpatrick et al that showed an increased risk with induction.^{18,19} A Norwegian study on patients with previous 1 LSCS resulted in 0.5% uterine rupture & they recommended mechanical instead of medical induction by prostaglandins.²⁰

In developing countries like ours it is better to give trial of induction of labour in carefully selected patients with favourable bishop for mechanical induction & no absolute contraindication for vaginal delivery.²¹ Induction of labour can be performed in selected hospitals with proper facilities for foeto-maternal monitoring. The healthcare personnels should be trained to manage such cases so that there is no increased risk to mother and foetus.

Conclusion

1. Mechanical induction of labour is a safe and successful procedure in previous one LSCS patients due to non recurrent cause.
2. Proper counseling in antenatal period, careful selection of the patients and vigilant intrapartum monitoring is a key to achieve successful VBAC and reduce the rate of repeat caesarean section.

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