



ISSN: 0975-833X

Available online at <http://www.journalcra.com>

*International Journal of Current Research*  
Vol. 10, Issue, 10, pp.74193-74195, October, 2018

DOI: <https://doi.org/10.24941/ijcr.32548.10.2018>

INTERNATIONAL JOURNAL  
OF CURRENT RESEARCH

## RESEARCH ARTICLE

### FETOMATERNAL OUTCOME IN PREGNANCIES WITH PREVIOUS CASERAEAN AFTER CERVICAL RIPENING WITH FOLEYS CATHETER AND INDUCTION OF LABOUR

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#### ARTICLE INFO

##### Article History:

Received 19<sup>th</sup> July, 2018  
Received in revised form  
04<sup>th</sup> August, 2018  
Accepted 24<sup>th</sup> September, 2018  
Published online 30<sup>th</sup> October, 2018

##### Key Words:

Induction of Labour,  
Previous LSCS,  
Foleys Catheter.

#### ABSTRACT

**Background:** The ever rising caesarean rates in Obstetric practice are a method of serious concern. A very common indication of Caesarean is history of previous caesarean. One of the reasons for this is the caution that is to be used for use of prostaglandins in these patients for cervical ripening. There are alternate methods of cervical ripening well documented in literature. One of the methods is extra amniotic use of Foleys catheter for cervical ripening which may also induce labour. **Methods:** The study was carried out at a Government run Maternity Hospital in an urban setting with round the clock availability of caesarean section. 75 women who met the inclusion criteria were selected after consent was taken for cervical ripening and induction of labour. **Results:** Out of 75 women, 46 (61.3 %) had successful induction of labour resulting in vaginal delivery. The other 29 (38.7%) patients went for lower segment caesarean section (LSCS). Out of those who went for LSCS, 09 patients had meconium staining of liquor and were taken for LSCS. There were no cases of scar rupture. The Foleys catheter was expelled in an average of 12 hours in the unsuccessful group compared to 5.5 hours in the success group. **Conclusion:** The Foleys catheter is a safe, cheap and easy to use method of cervical ripening in pregnancies with previous LSCS. It significantly reduces the chances of repeat caesarean in patients with previous LSCS.

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**Citation:** Dr. Jai Pratibha Varshney, Dr. Atul Seth, Dr. Kedarnath, S. and Dr. Arunav Sharma. 2018. "Fetomaternal Outcome in Pregnancies with Previous Caseraean after Cervical Ripening with Foleys Catheter and Induction of Labour", *International Journal of Current Research*, 10, (10), 74193-74195.

## INTRODUCTION

The management of a pregnancy with regards to mode of delivery in cases with history of previous caesarean sections have always been a matter of interesting debate. There was a time when it was said, that one a caesarean, always a caseraean (Mishra *et al.*, 2014). Later, the scene changed to the other side completely and a lots of these patients went for induction of labour. The complications increased. Finally, a middle path with guidelines for trial of vaginal delivery after caesarean (TOLAC) were elucidated. Induction of labour involves cervical ripening to a favourable Bishops Score as a pre-requisite to success. The Cochrane review suggests that Foleys catheter is a safe and equally effective method as compared to prostaglandins in induction of labour (Jozwiak *et al.*, 2013). The added advantage of use of extra amniotic Foleys Catheter for cervical ripening and induction of labour is increased safety as compared to prostaglandins in pregnancies with history of previous caesarean (Ledingham *et al.*, 1999; Shi *et al.*, 2000).

## MATERIALS AND METHODS

The study was carried out at a Government run Maternity Hospital in an urban setting with round the clock availability of caesarean section. The patients were selected as per inclusion and exclusion criteria mentioned below.

#### Inclusion Criteria

- History of one previous LSCS
- Singleton pregnancy
- No associated co- morbidity
- Longitudinal Lie
- Period of gestation more than 39 weeks

#### Exclusion Criteria

- Previous > one caesarean
- Obstetric or medical co- Morbidity
- CPD
- Estimated fetal weight > 3.5 Kg

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- Previous uterine surgery like myomectomy, hysterotomy, classical or unknown method of caesarean.
- PROM

A prospective study was carried out over a period of one year. 75 women meeting the criteria were included in the study for TOLAC. The procedure was explained and consent taken. The patients were examined after completion of 39 weeks of gestation. The Bishops score was calculated. Those having a Bishops score of < 6 were taken for cervical ripening with Foleys Catheter. The catheter was placed extra amniotic after cleaning the vagina. The catheter tip was held by an artery forceps and was gently advanced through the cervix for about 5 cm. The balloon was inflated and pulled back so that it abutted the cervix. The Foleys catheter was strapped to the thigh. A NST trace was obtained. The patient was monitored in labour room. The Bishops score was re-assessed after 12 hours or if the patient went in labour earlier or she ruptured her membranes. The labour was later augmented if required with Inj Oxytocin infusion and ARM. The relevant data was collected as per the proforma and analysed.

## RESULTS

Out of 75 women, 46 (61.3 %) had successful induction of labour resulting in vaginal delivery. The other 29 (38.7%) patients went for lower segment caesarean section (LSCS).

**Table 1. Age Group Analysis**

S No	Age group (years)	Number of Cases	% of total	Successful Induction	%	Failed Induction	%
1	20-25	28	37.3	18	64	10	26
2	26- 30	39	52	26	67	13	13
3	>30	8	10.7	2	25	6	75
4	Total	75	100	46	61	29	38.7
5	Mean Age						

**Table 2. Nature of Previous LSCS – Elective / Emergency**

S No	Nature Of LSCS	Number	%
1	Elective	12	16
2	Emergency	63	84
	Total	75	100

**Table 3. Indication of Previous LSCS**

S No	Indication for previous LSCS	Number	%
1	Big Baby	2	2.7
2	Malpresentation ( Breech/ Transverse Lie)	4	5.3
3	Foetal Distress	35	46.6
4	Non Progress of labour	19	25.3
5	Failed Induction	15	20
	Total	75	100

**Table 4. Comparison of Present Outcome with Indication of Previous Caesarean**

S No	Indication for previous LSCS	Number	Successful Induction	%
1	Big Baby	2	1	50
2	Malpresentation (Breech/ Transverse Lie)	4	4	100
3	Foetal Distress	35	30	85.7
4	Non Progress of labour	19	6	31.5
5	Failed Induction	15	5	33.3
	Total	75	46	61.3

**Table 5. BISHOP score – Before and after Foleys insertion and comparison to success of induction**

S No		Before/ Final After Foleys Intervention	Mean BISHOP	% Change
1	Successful Induction	Pre Foleys Insertion	3.3	172
		Final After Foleys Intervention	9.0	
2	Failed Induction	Pre Foleys Insertion	3.0	93.3
		Final After Foleys Intervention	5.8	

**Table 6. Time Interval For Foleys Expulsion and correlation with outcome**

S No		Time Interval For Foleys Expulsion ( Mean time in Hours)
1	Successful Induction	5.5
2	Failed Induction	12

**Table 6. Mean Birth Weight and correlation with Outcome**

S No		Mean Birth Weight( Kg)		
1	Successful Induction	2.9		
2	Failed Induction	2.8		

**Table 7. Mean Gestational Age and correlation with Outcome**

S No		Gestational Age ( Weeks of gestation)
1	Successful Induction	39.8
2	Failed Induction	39.6

**Table 8. Indication for LSCS in current Pregnancy**

S No	Indication	Number	%
1	Foetal Distress	09	31
2	Failed Induction	20	68.9
	Total	29	100

## DISCUSSION

The conundrum of induction of labour in pregnancy with previous caesarean has generated lots of discussion over the past decades. There is a concern about use of prostaglandins for cervical ripening and induction of labour in these patients since there is a worry about hyperstimulation and scar rupture. The mechanical methods of cervical ripening, which include the Foleys catheter are more gentle but chances of infection may be high.<sup>5</sup> The balloon of the Foleys above the cervix causes mechanical dilatation and leads to cervical ripening and sometimes onset of labour (Heinemann *et al.*, 2008). Trials have been conducted which have shown equal efficacy between Foleys catheter and PgE2 inserts (Cromi *et al.*, 2012; Jozwiak *et al.*, 2011). The rate of success of induction of labour in pregnancy with previous LSCS has been reported to be varying from 50 to 75% (Agnew, 2009; Karjane *et al.*, 2006). We used the Foleys catheter placed extra amniotic above the cervix to ripen the cervix when the Bishops score was unfavourable.

**Demographic Profile:** Out of 75 patients taken for the study, 37.3 % patients were in 20 to 25 years age group, where as 52% patients were in 26 to 30 years age group. 10. 7 % patients were more than 30 years old. The success rate in both 20 to 25 and 26 to 30 years age group were comparable, 64 and 67 % respectively.

The demographic profile is comparable to earlier studies (Guinn *et al.*, 2000; Goldman *et al.*, 1999; Rouben *et al.*, 1993). Gestational Age: The mean gestational age in the successful group was 39.8 and in the failed induction group, it

was 39.6. There was no statistically significant difference between the two.

**Impact of Indication of Previous LSCS:** The patients who had previous LSCS because of big baby, foetal distress or malpresentation had a very good success rate of 50%, 85 % and 100% respectively. This was in contrast to those who had earlier LSCS due to non progress of labour or failed induction where the success rate was only 31.5 and 33.3 % respectively. This indicated inherent problem, either in the maternal pelvis or uterine contractility.

**Bishops Score and its effect on outcome:** The Bishops score has a great predictive value for the success. In the successful induction group, the Bishops score changed from mean of 3.3 to 9, a change of 172%. In the group where induction of labour failed, the mean change was from 3.0 to 5.8 only, showing a change of 93.3%. Thus, importance of Bishops score to predict the successful outcome is again evident.

**Time for Expulsion of Foleys catheter:** There was a statistically significant difference in the time taken for expulsion of Foleys in the successful and failed induction groups, 5.5 hrs as compared to 12 hours. The longer the Foleys stays in place, the better are the chances of success.

**Birth Weight:** The mean birth weight was not statistically different in the two groups.

## Conclusion

Induction of labour in properly selected patients with history of earlier LSCS can be taken for induction of labour with Foleys catheter with minimal complications and a good success rate. This can result in saving morbidity and mortality due to repeat surgery and anaesthetic complications. It will also prove to be financially beneficial and reduce the hospital stay.

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