ORIGINAL ARTICLE

Outcome of Induction of Labour With Intracervical Foley Catheter In Women With Previous One Caesarean Section

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ABSTRACT

Objective — *To compare the rates of vaginal delivery after one caesarean section in mechanically induced and spontaneous labour.*

Study design — *Cross Sectional Study.*

Place & Duration of study — *Department of Obstetrics and Gynecology Unit–II, Jinnah Postgraduate Medical Centre Karachi, from January 2011 to July, 2011.*

Methodology — *Pregnant women with one previous caesarian section were included in the study after informed consent. They were divided into two groups. Group I included women in whom labour occurred spontaneously. Those women who did not enter into labour up to 40 weeks of gestation were put into group II. They were induced with intracervical Foley catheter. Satisfactory outcome measure was the vaginal birth.*

Results — *A total 112 patients were included. Significant difference was not observed between groups in relation to mode of delivery (Chi square = 1.09, p=0.57). Out of 112 pregnant women, satisfactory outcome was observed in 74 (66.1%), which was not significant between the two groups (66.1% vs. 66.1% p=0.999).*

Conclusion — *Mechanical induction of labour in patients with previous one caesarean section is the reasonable option, when patients are carefully and properly selected, coupled with vigilant intrapartum monitoring.*

Key words — *Mechanical induction of labor, Vaginal birth after caesarean section (VBAC), Ruptured uterus.*

INTRODUCTION:

There is global concern about the increasing caesarean section rate. Repeat caesarean section is considered to be the major factor contributing to this. Craigin's dictum, **"**once a caesarean always a caesarean" [1] which dominated obstetrics practice for nearly 70 years must be abandoned and replaced by once a caesarean, always a hospital delivery. In 1984, the American College of Obstetrics and Gynecology (ACOG) revised Craigin's recommendations to encourage trial of scar for women who had low transverse uterine scar.[2-3]

The National Institute of Health (NIH) consensus committee on caesarean section recommends that in women with documented low transverse incision vaginal birth can be safely attempted in a hospital with appropriate facilities. Prompt emergency caesarean section facility in properly selected cases should permit a safe trial of scar and vaginal birth. VBAC reached a peak 67% in 1996 and then declined to 13% and 9.2% in 2003 and 2004 respectively because the increased risk of uterine rupture became apparent.[4-5]

ACOG in 2004 discouraged the use of oxytocin or prostaglandins to induce labour in women with prior caesarean delivery and the use of Foley catheter

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for cervical ripening was not mentioned.[6] The issue of induction of labour with prior caesarean delivery remained controversial. Guidelines for VBAC of 2005 mentioned that a Foley catheter may be used safely to ripen the cervix in women planning a trial of labour after caesarean section and postdate is not a contraindication to trial of labour after caesarean section.[7]

In spite of guideline the induction of labour in women with previous one caesarean section is not widely carried out in our set up. This study was conducted to provide evidence as to the safety of intracervical Foley catheter in such cases. It was designed to compare the rates of vaginal delivery after one caesarean section in mechanically induced and spontaneous labour.

METHODOLOGY:

This cross sectional study was conducted from January 2011 to July 2011 in the Department of Obstetrics and Gynecology Unit–II, Jinnah Postgraduate Medical Centre Karachi. Pregnant women were selected from outpatient department. The eligibility criteria was defined as pregnant women at 37 to 40-plus weeks of gestation with prior one caesarean delivery, single fetus with cephalic presentation, clinically adequate pelvis, and Bishop score of 5 or more. Exclusion criteria were additional uterine scar, anomalies and previous uterine rupture, previous classical caesarean section. Foetuses with congenital anomalies on ultrasound, malpresentation like breech, shoulder or face, intrauterine dead foetus and patients who had medical problems like anaemia (Hb% < 10gm %), diabetes mellitus, asthma, hypertension, cardiac diseases, thyroid disorders and liver diseases, were also excluded.

Informed written consent was taken from all the patients. The data was collected on the predesigned performa. Patients who entered into spontaneous labour were kept in group I, while patients in group II were induced with intra cervical Foley catheter. They were monitored with maternal pulse, blood pressure, foetal heart rate (FHR), uterine contractions, scar tenderness, colour of the liquor for early detection of impending uterine scar rupture and foetal distress.

Mechanical induction was carried out with 26 Fr Foley catheter passed through the internal cervical os with the help of Cusco's speculum and balloon filled with 60 ml sterile water. Traction applied in downward and backward direction and catheter anchored to the patient's thigh with sticking plaster. When uterine contractions started leading to cervical dilatation and expulsion of balloon, then augmentation of labour was done with oxytocin and close monitoring continued.

The data were entered and analyzed into statistical packages for social science (SPSS 15). Frequency and percentage were computed for categorical variables like booking status, parity, Bishop score, mode of delivery and outcome with respect to the each group. Mean and standard deviation were computed for age, parity, gestational age and Bishop score. Chi square test was applied to compare proportion difference between groups for outcome while independent sample t test was applied to compare mean difference between the groups for age, gestational age, parity and Bishop score. Stratification was used to control the effect of modifiers like age, gestational age, parity and booking status on the outcome. The p value <0.05 was considered as level of significance.

RESULTS:

A total of 112 patients were included. The mean age of the patients was 27.75 ± 3.94 year (95% CI: 27.01 - 28.49). Similarly the mean gestational age of the women was 39.20 ± 1.06 weeks (95% CI: 39 - 39.40). Average age, parity and Bishop scores were not significant between the groups while the mean gestational age was significantly low in group-I than group-II (38.54 ± 1.06 weeks vs. 39.86±0.52 weeks; p=0.002). Of the total women, 80.4% were booked and 19.6% were non-booked. This was not significant (Chi-square= 0.91, p=0.34). Regarding parity status, primipara were 66 (58.9%) and 39 (34.8%) had 2 to 3 children and in 7 (6.3%) women parity ranged between 4 to 7 (table I).

The rate of caesarean section was 33.9% (38/112), instrumental deliveries 17.9% (20/112) and vaginal deliveries 48.2% (54/112). With respect to groups, rate of vaginal delivery in group-I was 51.8% and in group-II 44.6%. Similarly rate of instrumental delivery in group-I and II were 14.3%, 21.4% respectively. The rate of caesarean section in group-I and II was 33.9%. Significant difference was not observed between groups in relation to the mode of delivery (Chi square= 1.09, p=0.57). No uterine rupture occurred in this study.

Out of 112 pregnant women, satisfactory outcome was observed in 74 (66.1%) cases. Significant difference was not observed in satisfactory outcome between the groups (66.1% vs. 66.1% - p=0.999) as shown in table II. Effect of age, parity, booking status and gestational status was also computed after stratification but no significant difference was observed.

Table I: Characteristics of The Women				
Variables	**Mean ±SD**	**95% CI**	**Median (IQR)**	**Max- Min**
Age (Year)	27.75 ± 3.94	27.01 - 28.49	28 (5)	39 - 19
Parity	1.68 ± 1.07	1.48 - 1.88	1 (1)	7 - 1
Gestational Age (Weeks)	39.20 ± 1.06	39 - 39.40	40 (1)	41 - 37
Bishop Score	5.84 ± 0.83	5.68 - 6.00	6 (1)	7 - 5

Table II: Comparison of Outcome Between the Groups				
Outcome	**Group - I n=56**	**Group-II n=56**	**Total**	**p-Value**
Satisfactory	37(%)	37(%)	74(%)	0.999
Unsatisfactory	19(%)	19(%)	38(%)	

Chi square = 0.0001 df=1

DISCUSSION:

The caesarean section rate in our unit in last 3 years was 23%. This is apparently high if compared to WHO recommended rate. This study was therefore conducted to find out success of method of induction of labour in select group of pregnant women. Iintracervical Foley is reported as safe and inexpensive method for induction of vaginal birth after caesarean section.[7-9] According to a study the rate of vaginal birth in spontaneous labour was 78% and in Foley catheter group 56%. The risk of uterine rupture was 1.1% in spontaneous labour group and 1.6% in Foley catheter group.[10]

Pakistan is a developing country with meager resources. A high burden of caesarean section rate is an unnecessary burden. A postal survey done in England on induction of labour showed that 93% consultants would offer induction of labour at term or post term for women with previous one caesarean section.[11] A national survey conducted in Wales as to the options on induction of labour in women with previous one caesarean section, majority of the respondents pointed out that they would offer induction of labour in patients with previous one caesarean section.[12]

A study reported no significant difference in maternal and perinatal morbidity when obstetric outcomes of those who received oxytocin were compared with those who did not.[13] The rate of normal vaginal delivery after one caesarean section in our study was 66.1%. This is comparable to most of the studies which indicate that 60-80% of women can achieve a vaginal delivery following a previous lower uterine segment caesarean section.[14,15]

The percentage of repeat caesarean section in our study remained low (33.9%) due to strict inclusion criteria. Most of the caesarean sections were done due to foetal distress. In our study there was no case of failed induction, non progress of labour and impending rupture during trial of labour. Vigilant FHR monitoring was done by foetal heart rate auscultation with Pinard foetoscope. Electronic foetal heart rate monitoring was also carried out intermittently, keeping in mind the high risk nature of labour, to pick up any abnormality in the FHR earlier for timely intervention. There was no maternal mortality in our study neither was any intrapartum and early neonatal death.

Most of the published data suggest the incidence of uterine rupture during labour following a lower segment caesarean section as <1%.[16,17] In our study no uterine rupture occurred due to vigilant monitoring. In developing countries like Pakistan it is better to give trial of labour in patients who do not have absolute contraindication for vaginal delivery.[14] Healthcare personnels should therefore be trained regarding management of the cases with previous caesarean section. Trial of labour in such cases should be critically analyzed so that no increased risk to mother and foetus occur.

CONCLUSIONS:

Mechanical induction of labour in patients with previous one caesarean section due to non-recurrent cause was safe and most often successful. The rate of caesarean section therefore can be reduced. To achieve good results adequate facilities and skilled staff including doctors, paramedics and vigilant monitoring are required.

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