

Fetomaternal Outcomes in Pregnancy with Previous Caesarean Section in Indian Scenario: A Prospective Observational Study Protocol

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Abstract

Obstetricians in developing countries appear generally reluctant to conduct vaginal delivery in women with a previous Caesarean because of lack of adequate facilities for optimal fetomaternal monitoring. Hence there is need to gain knowledge about fetomaternal outcome. The fetomaternal outcome in pregnant women with a history of previous caesarean section will be studied by this prospective observational study. Factors such as mode of delivery, incidence of vaginal delivery following LSCS, incidence of scar dehiscence/scar rupture and maternal mortality and morbidity will be observed and studied.

Keywords: Caesarean Section; VBAC (Vaginal Birth after Caesarian); Scar Dehiscence; Foetal Monitoring; Fetomaternal Outcome.

Introduction

Caesarean section is one of the common life-saving surgical interventions to save life of the mothers and/or the newborn during pregnancy and labour. The rate of caesarean section has increased dramatically world wide over the past three decades [1]. Fetomaternal outcome (FMO) may not only depend upon mode of delivery vaginal or through abdominal route (caesarean section) but in good antenatal care

as well [2]. Patients with previous caesarean section comprise a high risk group in obstetrics. It's a long standing medical dilemma as to mode of delivery in these patients.

Edwin Cragin had mentioned in 1916 that once a caesarean section always a caesarean section now holds good for recurrent cause such as contracted pelvis, previous classical caesarean section etc [3]. For non-recurrent cause it does not hold good but vaginal delivery is attempted in favourable obstetrical situation. On occasions caesarean section is carried out almost entirely in the interest of fetus, as sometime the decision is early and indication is obvious, as in cord prolapse and fetal hypoxia. However vaginal delivery in pregnancy with previous caesarean section is preferable at times with a very few exceptions. All the indications for caesarean section were divided into two groups namely, absolute and relative. In selected cases vaginal birth after caesarian (VBAC) can be tried but the risks of scar dehiscence, uterine rupture and other morbidities are more common in failed trial [4]. So this study is being under taken to assess the FMO in women with one previous caesarean section delivering at the tertiary care teaching hospital in India.

The Collection Supporting Literatures

Many studies have been conducted, which have shown that women who had undergone one caesarean section may be at increased risk of complications in the next pregnancy. These studies have suggested that FMO are related to the risk profiles of the mothers.

A prospective observational study was conducted on 300 pregnant women with one

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previous caesarean section to study the predictive factors and the outcome of trial of labour [5]. The data obtained were analysed according to mode and outcome of labour and was then subjected to statistical analysis. The success rate of trial of labour was found to be 53.6%. Favourable Bishop's score ($p = 0.000$), spontaneous onset of labour ($p = 0.005$) and history of previous delivery after caesarean ($p = 0.007$) were significantly associated with a successful outcome of trial of labour. Higher chances of vaginal delivery were found with breech as an indication of previous caesarean section, i.e. 67.1% as compared to 39% with non-progress of labour as an indication [5].

The rate of primary cesarean section (CS) is on the rise. More and more women report with a history of a previous CS. The prospective observational study was carried out in a tertiary care teaching hospital over a period of two years. One hundred pregnant women with a history of one previous LSCS were enrolled in the study. 85% cases had a successful VBAC and 15% underwent a repeat emergency LSCS for failed trial of vaginal delivery. Cervical dilatation of more than 3 cm at the time of admission was a significant factor in favor of a successful VBAC. Birth weight of more than 3,000 g was associated with a lower success rate of VBAC. The incidence of scar dehiscence was 2% in the present study. There was no maternal or neonatal mortality [6].

A prospective observational study was performed to determine maternal and perinatal outcomes of attempted VBAC following one previous Cesarean section [7]. Two thousand six hundred and ten women delivered in the center during the study period, of whom 395 had one previous Cesarean section. A total of 370 women with one previous Cesarean section had nonrecurrent indications, of whom 355 consenting pregnant women with one previous Cesarean section were studied. A majority of the women (320/355, 90.1%) preferred to have vaginal delivery despite the one previous Cesarean section. However, only approximately 54% (190/355) were found suitable for trial of VBAC, out of whom 50% (95/190) had successful VBAC. Ninety-five women (50.0%) had failed attempt at VBAC and were delivered by emergency Cesarean section while 35 women (9.8%) had emergency Cesarean section for other obstetric indications (apart from failed VBAC). There was no case of uterine rupture or neonatal and maternal deaths recorded in any group. Apgar scores of less than 7 in the first minute were significantly more frequent amongst women who had vaginal delivery when compared to those who had elective repeat Cesarean section ($P=0.03$) [7].

A cross sectional descriptive study was conducted in all women with one previous caesarean section

coming for delivery were identified [8]. Data on medical history, socio demographic and obstetric characteristics, decision on mode of delivery, and pregnancy outcomes were collected. There were 3285 deliveries during the study period, out of which 365 (11%) women had one previous caesarean section. Almost half (48%) of the women with one previous caesarean section attended antenatal care in the dispensaries and health centres. Trial of scar was decided in 80 (21.9%) women. A total of 278 women had the decision for repeat caesarean section made on admission whereby 180 (64.4%) were for emergency caesarean section and 98 (35.6%) were for elective caesarean section. A total 52 women delivered vaginally, 44 after trial of the scar and eight among women decided for emergency repeat caesarean section on admission. The incidence of uterine rupture was 2% and perinatal mortality ratio was 55 per 1000 live birth. In conclusion, a significant proportion of women delivering had one previous caesarean section among which few underwent trial of scar. Half of the women attended antenatal care in the dispensaries and health centres. Women with previous caesarean section should be encouraged to attend hospitals providing comprehensive emergency obstetric care. The quality of intrapartum monitoring should be audited to improve maternal and newborn outcome [8].

Retrospective cohort study of 308,755 Canadian women with previous cesarean delivery between 1988 and 2000 was conducted [9]. Occurrences of in-hospital maternal death, uterine rupture, and other severe maternal morbidity were compared between women with a trial of labor and those with an elective cesarean section were noted. The study reported, Rates of uterine rupture (0.65%), transfusion (0.19%), and hysterectomy (0.10%) were significantly higher in the trial-of-labor group. Maternal in-hospital death rate, however, was lower in the trial-of-labor group (1.6 per 100,000) than in the elective cesarean section group (5.6 per 100,000). The association between trial of labor and uterine rupture was stronger in low volume (1500) than in high volume (R500 births per year) obstetric units. Thus, trial of labor is associated with increased risk of uterine rupture, but elective cesarean section may increase the risk of maternal death [9].

A retrospective analysis of medical records of 151 women with previous one cesarean section were reported here [10]. In the study, those women with previous classical cesarean section and those with extreme prematurity were excluded. Of the 151 women, 115 were candidates for TOS. Of them, 96 (83.47%) had vaginal birth after cesarean (VBAC) and 19 (16.5%) had a repeat cesarean section. There were

four cases of primary postpartum hemorrhage (PPH) and two cases of scar dehiscence in the study group. No significant perinatal morbidity was observed. VBAC rate was significantly more in women who had prior vaginal deliveries, especially in those with previous VBAC. In carefully selected cases, trial of labour (TOL) after a prior cesarean is safe and often successful. A prior vaginal delivery, particularly, a prior VBAC are associated with a higher rate of successful TOL [10].

Aims of the Study

1. To determine the outcome of pregnancy in women with previous caesarean section
2. To estimate the maternal and Perinatal complication
3. To find the incidence of operative interference in patients with previous caesarean section
4. To find out fetal outcome like perinatal mortality and morbidity

Materials and Methods

This prospective observational study will recruit 100 pregnant women with previous LSCS between 36 and 40 weeks of gestation who come to the labour room of Maharishi Markandeshwar Institute of Medical Sciences and Research, Maharishi Markandeshwar University, Mullana, Haryana, India. The criteria of the patients for inclusion in the study will be of, pregnant women of gestational age 36 weeks and above, patients with previous LSCS, Patients in labour or not in labour. On admission a detailed history through examination and investigation of each patient will be done. Informed consent will be taken in each case. Gestational age will be calculated by LMP, per abdomen examination and USG. per vaginal examination will be done in all patients (except patients contraindicated) to assess the pelvis and state of cervix by system of Bishops, a pelvic scoring system of inducibility. Depending on the different criterion, the patients will be observed for progress of labour and outcome of labour. If the patients are selected for VBAC. The patients will be observed closely for vitals, pulse, BP, then monitoring of the fetal heart rate and any sign of scar dehiscence during labour.

Data Analysis

The collected data will be analyzed using statistical package for social science software version

20 (IBM SPSS version 20.0; Armonk, NY: IBM Corp). Continuous and categorical data were presented in the form of mean, standard deviation and percentage, while proportions were analyzed using the chi-square test. A p-value ≤ 0.05 will be considered to be statistically significant.

Discussion

Good fetal and maternal outcomes of labor will be recorded among women who had trial of previous caesarean section in Indian scenario in this study. Previous retrospective and prospective studies were not elaborated more from Indian studies. This study would overcome these limitations. The strengths of this work will be its prospective design which will enable verification of data directly from the women. The main weakness of this study would be of data collected from only one center and it might have been better to have more participating institutions to get a wider picture in the zone and country.

Conclusion

We hope this study would throw light on the fetomaternal outcomes such as mode of delivery, incidence of vaginal delivery following LSCS, incidence of scar dehiscence/scar rupture and maternal mortality and morbidity will be observed and studied.

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