



STUDY OF NATURAL BIRTH IN CAESAREAN DELIVERY AT A TERTIARY CARE CENTRE.

Obstetrics & Gynaecology

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KEYWORDS

INTRODUCTION

Skin-to-skin contact during cesarean birth has been promoted since almost two decades, there is an increasing discussion on altering other elements to conventional cesarean birth to promote patient engagement and satisfaction, encourage immediate and successful breastfeeding and bonding, to provide positive birth experience to women. (1) These cesareans have been described as gentle cesarean by (Magee, Battle, Morton, & Nothnagle, 2014), natural cesarean (Smith, Plaat, & Fisk, 2008), family centered birth (Schorn, Moore, Spetalnick, & Morad, 2015), and the Charite' cesarean birth (Armbrust, Hinkson, von Weizsäcker, & Henrich, 2016).

A cesarean section is one of the most common surgical procedures performed in the world. Surgical, anesthetic and antiseptic approaches differ depending on clinical situations and doctors preferences [1]. Although birth is a major life event for parents; parental involvement during CS is often not a focus. Therefore Smith et al. described a new technique termed "natural" CS in which parental participation, slow delivery and direct skin-to-skin contact are important aspects [2,3]. This early mother infant interaction has a positive impact on breast feeding, bonding and reduces crying. Early STS positively affects cardio respiratory stability of the newborn and also blood glucose levels [8-10].

Increasing evidence shows that women undergoing caesareans have a less satisfactory childbirth experience than those delivering vaginally and are more prone to postnatal depression, bonding difficulties and unsuccessful breastfeeding. [6,7]. As ours is a tertiary care centre catering to maximum number of populations with around 20,000 deliveries per year and 27% caesarean section rate. To improve the experience of women having uncomplicated caesareans, we planned to determine the beneficial effects of natural birth in caesarean delivery, maternal satisfaction, the need for resuscitation required to newborn, APGAR score, maternal and neonatal outcome.

MATERIALS & METHODS-

Present study was a comparative, observational study conducted in the department of Obstetrics & Gynecology of Government medical college and Hospital Aurangabad, a tertiary care hospital in Marathwada region of Maharashtra India. Study duration was from Sept 2022 to Feb 2023 (6 months). Ethical approval for the study was obtained by the institutional Ethical Committee.

Inclusion Criteria:

Low-risk Pregnant women, 19-35 years of age with singleton, term pregnancy with cephalic presentation, posted for LSCS and willing to participate in the study

Exclusion Criteria:

1. High risk pregnancy
2. Abnormal presentation
3. Previous classical CS
4. Preterm pregnancy
5. Patients not willing to participate in study

Study protocol was explained to eligible pregnant women, in local language. A written informed consent was taken for participation, questionnaire was explained along with Modified Likert-Scales for

documentation of findings.

Baseline demographic data was collected (age, gestational age, obstetric history, details of previous obstetric events, significant medical/ surgical history) & relevant laboratory investigations were done. Anaesthetic fitness was taken for the procedure. In surgical theatre, pregnant women were randomly allocated (by chit method) to natural birth in CS group and conventional CS group.

In surgical theatre, assessment was done for baseline vital parameters and preloading was done with RL solution. All LSCS were done under spinal anaesthesia as per standard operating procedures of anaesthesia department, under all aseptic conditions.

Natural birth in CS group - Under all aseptic precautions procedure started. Uterine incision was followed by lowering the drape and raising the head of the table to enable the mother to watch the birth.. This procedure was only performed if no complications (bleeding, problems with delivery of the babies head). A low transverse uterine incision was extended bluntly and the membranes ruptured. The operator then introduces the index and middle finger in to incision along which the head slides out. As the fetal head enters the abdominal incision, the operative field is cleaned of blood. Injection oxytocin 20 units in 500ml NS or RL initiated. The shoulders are then gently released through the uterine incision as the uterine contractions spontaneously push the baby out, in manner similar to vaginal delivery. The operator does not attempt any fundal pressure. Then basis followed by the surgeon was hands-off, as the baby auto-resuscitates: breathing air through the exteriorised mouth and nose, while its trunk still *in utero* remains attached to the placental circulation. The delay of a few minutes allows pressure from the uterus and maternal soft tissues to expel lung liquid, which imitate as vaginal delivery. Then the baby's shoulders are eased out, frequently delivers his/her own arms with an expansive gesture. Concurrently, the baby's body tamponades the uterine incision, minimizing bleeding. The baby is then left supported for up to a minute, allowing the mother to observe her child. The half-delivered fetus frequently cries but if not, the obstetrician observes its breathing, colour, tone and movement to indicate wellbeing. The rest of the delivery is achieved through a combination of passive expulsion by the contracting uterus and active assistance: the baby wriggles out while its head and torso are supported by the obstetrician. This enables the mother to watch the birth and ascertain the sex of her baby at the same time as the delivery team, replicating the situation at vaginal birth. Once the baby is delivered, well being again confirmed. The assistant scrubbed nurse clears the mother's clothing from her chest, and positions herself at the top, beside the mother to receive the baby directly from the surgeon to prevent contamination. The baby was kept prone between the mother's breasts with cord intact, dried with a sterile warmed towel and kept warm with fresh towels. After putting the baby on the mother's naked breast, physiological based cord clamping applied ie placenta allowed to deliver with uterine contractions on its own and then only cord clamped. Rest of the surgical steps are the same as in conventional technique.

Conventional CS group - Under all aseptic precautions procedure started. Abdomen opened by Pfannenstiel incision.

After delivery all babies were attended and examined by

neonatologist. Standard post-operative care was provided in recovery room and then in postnatal ward. Various intraoperative and postoperative findings were noted in proforma after surgery. Duration of CS (in minutes), Average blood loss, Complications (PPH – blood loss more than 1 liter, surgical site infection), Mean APGAR score (at 1 min/ 5 min), transient tachypnea of newborn, NICU admission (within 24 hours after birth) were noted.

The main aim was on the assessment of patients' satisfaction with the caesarean section and their subjective birth experience. Parameters regarding the birth experience, the expectations towards the birth, breast-feeding aspects as well as subjective parameters associated with the CS were assessed using modified Likert scales (range from 1 to 7). Patients were separately interviewed with a standardized questionnaire between the second to fourth postoperative day. The questionnaire included the questions regarding the birth experience, the early skin to skin contact and aspects regarding breast feeding (e.g. problems with lactation, day of lactation and importance of breast feeding).

Data was collected, compiled in Microsoft excel sheet and analysis was performed using SPSS 21 (SPSS Inc. Chicago, IL). For continuous variables, differences between groups were presented as mean with standard deviation (SD) or mean difference. Dichotomous or categorical outcomes were pre-sented as numbers and percentages with relative risks. Data was analyzed with Student's t-test, Chi-square test as applicable. A p values of 0.05 was considered statistically significant.

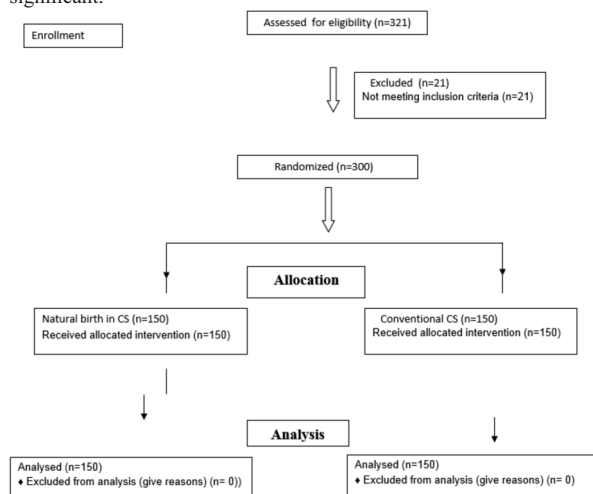


Figure 1. Flowchart of randomization process

RESULTS

Total number of deliveries in the above period were 7814. A total of 2109 had undergone CS, the incidence of CS being 27%. 300 pregnant women satisfying study criteria were randomly allocated to Natural birth in CS (n=150) and Conventional CS (n=150). We compared age (years), parity, gestational age at delivery (weeks), previous vaginal birth, previous CS among two groups, difference was not statistically significant ($p < 0.05$).

Table 1. General characteristics

Characteristics	Natural birth in CS (n=150) (Mean ± SD)	Conventional CS (n=150) (Mean ± SD)	P value
Age (years)	24.52 ± 3.55	23.82 ± 4.14	0.611
Parity	0.94 ± 0.61	0.94 ± 0.72	0.72
Gestational age at delivery (weeks)	38.92 ± 1.45	39.34 ± 1.21	0.676
Previous vaginal birth	0.24 ± 0.23	0.29 ± 0.28	0.83
Previous CS	1.02 ± 0.32	1.22 ± 0.24	0.79

Table 2-Secondary outcome of both the procedures

	Natural birth in CS (n=150) (Mean ± SD) / No. of cases (%)	Conventional CS (n=150) (Mean ± SD) / No. of cases (%)	P value
Duration of CS (in minutes)	36.65 ± 9.84	32.98 ± 11.72	0.064

Average blood loss	438 ± 162	487 ± 132	0.072
Complications			
PPH	2 (1.33 %)	4 (2.67 %)	0.82
Surgical site infection	1 (0.67 %)	1 (0.67 %)	--
Mean APGAR score			
At 1 min	8.21 ± 1.3	7.67 ± 1.6	0.26
At 5min	8.62 ± 1.2	8.54 ± 1.3	0.44
Transient tachypnea of newborn	0	2 (1.33 %)	--
NICU admission (within 24 hours after birth)	0	1 (0.67 %)	--

Table 3 Result of the questionnaire for birth experience in two groups (on modified Likert's scale- based on interview taken on Day 3)

	Natural birth in CS (n=150) (Mean ± SD)	Conventional CS (n=150) (Mean ± SD)	P value
Birth experience (mother)	8.12 ± 1.54	7.05 ± 1.62	0.023
Did the birth meet your expectations?	7.76 ± 1.49	6.62 ± 1.23	0.002
Experience of early skin to skin contact	8.49 ± 0.78	6.01 ± 1.34	0.001
Duration of Procedure Was it short?	8.20 ± 1.63	8.11 ± 1.56	0.43
How was the care provided during the whole procedure?	8.29 ± 1.44	8.01 ± 1.22	0.65
Birth satisfaction compared to previous CS	8.28 ± 1.02	7.21 ± 1.36	0.013
Breastfeeding satisfaction	8.64 ± 0.84	7.25 ± 1.01	0.019

DISCUSSION

This prospective randomized study showed no increased adverse maternal and neonatal outcomes when doing natural birth in CS. In addition to maternal satisfaction, we found several other benefits of natural birth in CS like only 1 neonates admitted to the NICU, No TTN in any neonate. Early initiation of breastfeeding. Out of 310 cases only 4 cases (1.2%) had atonic PPH, and 9(2.7%) cases had surgical site infection. Only 48 (28.2%) out of 170 health care workers knew about natural birth in CS. indicating necessity of awareness about the procedure in HCW's.

The results of the present study states that the natural birth in CS improves the birth experience and leads to a higher satisfaction with the birth compared to a conventional CS. It seems to be a safe procedure for mother and newborn with no differences in perinatal outcome. The early STS contact is therefore important for the mother and was reported to feel "good to very good" in the majority of the cases. SSC and early initiation of breastfeeding provided. Also, less problems with breast-feeding has been reported and a higher percentage overall of successful breast-feeding. Overall, patients felt better treated by the whole staff involved and perceived the abdominal delivery process as shorter and more satisfying. The majority of the interviewed patients would choose the natural birth in CS in a future pregnancy in the need of another CS

To our knowledge this is the second study presenting results on maternal and neonatal outcomes of the natural birth in CS. Other strengths are the relative large sample size and the single center design eliminating bias due to differences in procedural approach of the natural birth in CS.. The 'natural birth' in caesarean technique has evolved as a series of measures to mimic the situation at vaginal birth, where birth attendants encourage early skin-to-skin contact, facilitate physiological resuscitation. Randomized trials demonstrate that early skin-to-skin contact increases the rate and duration of breastfeeding, reduces infant crying and improves maternal affection. Although recommended by both the Royal College of Nursing and National Institute for Clinical Excellence, [2,9]. this has hitherto proved refractory to implement at caesarean section against a background of ritualized obstetric and midwifery routines. [5]. There is emerging evidence that STS contact seems to influence nervous system state organization and motor system modulation of the newborn infant shortly after delivery [10–13]. The time immediately after the birth is also a sensitive period for programming, releasing, and unlocking infant and maternal behavior. Both the process of bonding and breastfeeding will have a determining influence on the state of the infant's health and his or her emotional development [10–13]. The best

way to promote a good start to life is to initiate (STS) contact immediately after the cesarean. Respiratory complications like transient tachypnoea of the newborn are more common after elective caesarean than vaginal delivery, [10–12] in which retained lung liquid is implicated, as is the lack of catecholamine and cortisol surge associated with vaginal birth.¹⁰ The uterine incision-to-delivery interval was usually within the 1-2 minutes for 246(79.3%) cases formerly recommended for optimal neonatal condition. [11] Birth is timed when the baby is completely expelled from its mother's womb, natural caesarean babies often achieve a healthy Apgar score before they are actually born. Thermal care warrants attention., [13] the theatre environment is different from that of a labour room. Air conditioning may increase heat loss through convection drafts, even when ambient temperature is maintained. Following conventional delivery, the baby is routinely placed under the radiant heat of the warmer before being swaddled. We warm and cover the baby on the mother's chest and maintain theatre temperature $\neq 25^{\circ}\text{C}$. To establish that the mother's chest is a safe place for the baby while the woman is undergoing surgery, we ensure that the mother wishes to have the baby there and is in a fit state to do so., and an important practice point is that the midwife remains at the head end helps support the baby after delivery..Perhaps, the biggest obstacle to implementation was reluctance of staff to change roles and give up rituals. A multidisciplinary team approach is key. The surgeon, the anaesthetic team and staff nurse need to accept that what is good practice at a vaginal birth is also achievable in theatre. An initial staff concern that the technique would delay a busy operating list, with no opportunity to weigh, check and dress the baby or complete the paperwork until the end of the operation, was assuaged once the staff had witnessed the benefits of a 'natural birth in 'cesarean section.

CONCLUSION

Caesarean section has few disadvantages such as difficult delivery of the head, atonic PPH and TTN. This technique effectively addresses these major concerns. Uterine contractions facilitate easy delivery of the head. Spontaneous expulsion ensures sufficient uterine action to prevent atonicity and allows 'physiological auto-resuscitation' of the infant by squeezing the fluid out of the chest similar to vaginal delivery. Physiological based cord clamping allows smoother cardiopulmonary transition. Minimal handling of tissues also results in decreased postoperative discomfort. Caesarean section rates are rising worldwide, and indeed, now exceed one-third of deliveries. Given the negative effect that caesareans, whether indicated or discretionary, have on maternal satisfaction, bonding and breastfeeding. To provide positive birthing experience to pregnant women in LSCS with maintaining safety, we describe this evolving approach, suitable for global export. More studies are now indicated on the effects of naturalising this most unnatural form of birth.

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