

The Effect of Breast Crawl on the Third Stage of Labour

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Abstract

Background: Postpartum haemorrhage (PPH) is a major cause of maternal morbidity and mortality. In developing countries, about 1.2% deliveries are associated with PPH, out of which 3% die. In India, PPH accounts for about 30% maternal deaths. Early initiation of breastfeeding releases oxytocin, which stimulates uterine contractions, early placental separation, & reduction in the volume of blood loss. It helps in shortening the duration of the third stage of labour, thereby reducing postpartum haemorrhage and associated morbidity in puerperal patients. **Material and Methods:** To study the effect of standard breast crawl on early placental expulsion and blood loss in the third stage of labour, we did a prospective observational study on 300 patients. They were divided into two groups, i.e., cases and controls, who were parity matched. The standard breast crawl technique was initiated in the case group only. Patients from both groups were given active management of the 3rd stage of labour. The time taken for expulsion of placenta and the average amount of blood loss in both groups were recorded. **Results:** The study mentioned above examined the blood loss during the third stage of labor between the two groups. The findings indicated that the mean blood loss in the study group was 255.5 ± 49.06 ml, while in the control group, it was reported to be 283.5 ± 50.49 ml. The p-value obtained from the Paired T-Test was 0.0000018, providing strong evidence of a significant difference in the average blood loss between the case and control groups. **Conclusion:** In the above study, we observed that the breast crawl technique had a significant positive impact on the time of placental separation, amount of blood loss during delivery, and a reduction in postpartum haemorrhage.

Keywords: Breast crawl, third stage of labour, postpartum haemorrhage, blood loss.

Received: 30 June 2025

Revised: 01 July 2025

Accepted: 25 August 2025

Published: 22 September 2025

INTRODUCTION

BREAST CRAWL

The most natural behavior for a newborn is the breast crawl (BC). It was first reported at Sweden's Karolinska Institute in 1987 (Widström et al., 1987).^[1] The same writers expanded on this finding in 2011 and described nine predicted phases.^[2] The Breast Crawl is vital to the Indian state of Maharashtra's IYCF (Infant and Young Child Feeding) program. In collaboration with the State Government, State Nutrition Mission, Integrated Child Development Services (ICDS), Public Health Department, Breastfeeding Promotion Network of India (BPNI), NGOs, and Community-Based Organizations (CBOs), UNICEF has taken up this effort. This initiative has numerous benefits for both the mother and the newborn. Placing the baby skin-to-skin immediately after birth leads to the baby's movements towards the mother's nipple. The baby's kicks on the mother's abdomen stimulate uterine contractions, increasing the completeness of the delivered placenta and helping to reduce uterine atony and excessive blood loss.^[3] When the newborn engages in suckling during the breast crawl, it prompts a marked maternal oxytocin surge from the pituitary into circulation. This oxytocin helps to contract the uterus, expelling the placenta and reducing blood loss. Thus, the duration of the third stage of labour is reduced significantly.^[3] Maternal mortality is a key health indicator. Worldwide, PPH continues to contribute to significant maternal mortality and morbidity, mainly due to 'too little being done too late.'^[4] PPH is an obstetric emergency. It is the most common form

of major obstetric haemorrhage.^[5] Since the critical window for maternal mortality from postpartum hemorrhage is within the first 24 hours post-delivery, incorporating simple approaches like the breast crawl, alongside uterotonic therapy, can significantly reduce third-stage hemorrhage and PPH. Pamela K. Wiggins, International Board Certified Lactational Consultant, one of the pioneers in lactation consultation, rightly says, "Breastfeeding is a mother's gift to herself, her baby, and the earth".

MATERIALS AND METHODS

A prospective observational study was conducted at Dr. D. Y. Patil Medical College Hospital and Research Institute, Kadamwadi, Kolhapur, for 2 years from September 2019 to September 2021. A total of 300 patients were studied, divided into two groups, namely, the study group and the control group, using a simple randomization method (by the chit method), consisting of 150 patients each. Inclusion criteria- Patients undergoing full-term vaginal delivery, patients with hemoglobin level of ≥ 10 g/dL, patients in the age group of 20- 35 years, and

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DOI:
10.21276/amt.2025.v12.i3.84

How to cite this article: Suresh S, Pawar S, Garlapalli B. The Effect of Breast Crawl on the Third Stage of Labour. Acta Med Int. 2025;12(3):302-306.

willing to participate were included in the study.

Exclusion criteria

Patients who were delivering before 37 weeks (preterm), patients with IUGR babies, babies delivered by forceps or vacuum, patients with high-risk pregnancy, multiple pregnancy (twins, triplets), and placental disorders were excluded. Neonates whose APGAR score was less than 7 or who needed resuscitation were also excluded.

Methodology: A prospective observational study was conducted at Dr. D. Y. Patil Hospital and Research Institute, Kadamwadi, Kolhapur, to study the effect of breast crawl practice on the duration of the third stage of labour & the amount of blood loss. The enrolled patients and their relatives were informed about the procedure, and valid written informed consent was taken. The privacy of all patients was maintained. The patients participating in the study were divided by simple randomisation (by the chit method) into a study group and a control group, parity matched. Case histories of all these patients were recorded in detail. The patients in the control group were given only the active management of the third stage of labour as per WHO & FOGSI guidelines (Administering 10 IU of oxytocin intramuscularly, controlled cord traction, and uterine massage to prevent postpartum hemorrhage). In the study group, along with the active management of the third stage, the technique of standard breast crawl was also initiated. Once the baby was delivered, the umbilical cord was clamped and cut. With a clean dry towel, the baby was semidried, except for the hands, and activity and breathing of the baby were checked (APGAR Score). If the baby was well and had an APGAR Score of ≥ 7 , it was placed on the mother's abdomen with its feet just at the level of the pubic symphysis. It was made sure that both the mothers and baby's

chest were bare to ensure maximum skin-to-skin contact. They were covered together with a cloth, to keep them warm while continuing skin-to-skin contact. The baby's crawl towards the mother's nipple was observed. Care was taken to prevent the baby from falling. The time required for placental expulsion and blood loss during the third stage of labor was recorded. The duration of the third stage was categorized as 1–5, 6–10, or 11–15 minutes. Blood loss was quantified using the Brass-V drape and classified into 100–250 mL, 250–350 mL, and >350 mL. These patients were observed post-partum for one hour, and the results were noted.

Ethical consideration: The research was conducted after taking due ethical clearance from the institutional ethics committee before the beginning of the study. Written informed valid consent was obtained from all patients before they participated in the survey, with special consideration given to maintaining the privacy and confidentiality of all patients. The BRASS-V drape is available routinely in our setup to assess blood loss during the third stage of labor. So there was no extra financial burden on the enrolled patients.

RESULTS

In relation to the demographic variables, we found that 97 (64.67%), 51 (34%), and 2 (1.33%) mothers were in the age groups of 19 – 24 years, 25 – 30 years, and above 30 years, respectively. In the control group 99 (66%), 45 (30%) and 6 (4%) mothers were in the age group of 19 – 24 years, 25 – 30 years, above 30 years respectively. The study and control groups were parity matched, & as a result, the number of primigravida and multigravida patients was the same in both groups, 59 and 91, respectively.

Table 1: Frequency Distribution of Time taken for Placental Separation in Both Groups

Time for Placental Separation (min.)	Cases	Percentage (%)	Controls	Percentage (%)
1 to 5	27	18.00%	4	2.67%
6 to 10	114	76.00%	132	88.00%
11 to 15	9	6.00%	14	9.33%
Total	150	100.00%	150	100.00%

Table 2: Frequency Distribution of Amount of Blood Loss in Both Groups

Amount of Blood Loss (ml.)	Case	Percentage (%)	Control	Percentage (%)
100 to 250	86	57.33%	53	35.33%
250 to 350	62	41.33%	86	57.33%
350 +	2	1.33%	11	7.33%
Total	150	100.00%	150	100.00%

Table 3: Comparison of Time for Placental Separation in Two Groups

Group	Time for Placental Separation (Mean \pm SD)	P-value
Case	7.45 \pm 1.94	0.000154
Control	8.26 \pm 1.72	

Table 4: Comparison of the Average Amount of Blood Loss in the Two Groups

Group	Time for Placental Separation (Mean \pm SD)	P-value
Case	255.5 \pm 49.06	0.0000018
Control	283.5 \pm 50.49	

In our study among the cases, 27 patients (18%) took 1 to 5 minutes for placental separation, followed by 114 patients (76%) that took 6 to 10 minutes and lastly only 9 patients (6%) took 11 to 15 minutes time for placental separation. In the control group of the 150 patients, only four patients (2.67%) took 1 to 5 minutes for placental separation, 132 patients (88%) took 6 to 10 minutes, and 14 patients (9.33%) took 11 to 15 minutes. The p-value of the Chi-Square Test of Association was 0.0001, which indicates a significant association.

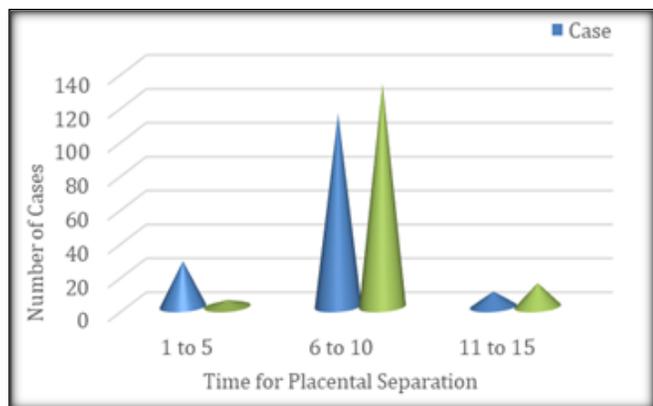


Figure 1: Distribution of Time for Placental Separation.

The study showed that 86 patients (57.33%) had a blood loss of 100 to 250ml, followed by 62 patients (41.33%) where the blood loss measured was between 250-350ml, and only 2 patients (1.33%) showed a blood loss of more than 350ml in the study group. On the other hand, in the control group of the 150 patients, 53 patients (35.33%) had a blood loss of 100 to 250ml, followed by 86 patients (57.33%) where the blood loss was 250-350ml, and 11 patients (7.33%) showed a blood loss of more than 350ml. Thus, more blood loss was noted in the control group compared to the study group. The p-value of the Chi-Square Test of Association was calculated to be 0.0001261. Therefore, we have sufficient evidence to conclude that a significant association was found.

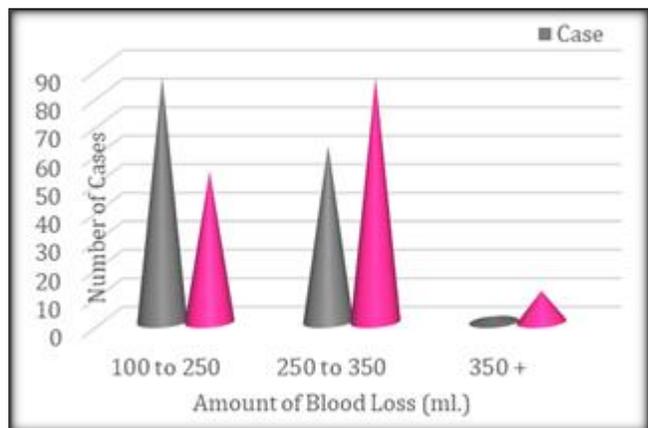


Figure 2: Distribution of the Amount of Blood Loss

The study further compared the mean time for placental separation between the groups. In the study group, the mean

duration was 7.45 ± 1.94 minutes, whereas it was 8.26 ± 1.72 minutes, indicating a longer separation time in the control group. The p-value of the Paired T-Test was 0.000154, which showed clinical evidence to conclude that there was a significant mean difference in time for placental separation between the two groups. The above study compared the amount of blood loss in the third stage of labour among the two groups. The comparison showed the mean average blood loss as 255.5 ± 49.06 ml in the study group, and in the control group, the mean average blood loss was estimated to be 283.5 ± 50.49 ml. The p-value of the Paired T-Test was 0.0000018. Thus, we had sufficient evidence to prove a significant mean difference in the average amount of blood loss between the case and control groups.

DISCUSSION

This study aimed to understand the effect of breast crawl on the third stage of labour by observing the time taken for the expulsion of the placenta and measuring the amount of blood loss during this stage. This has been attributed mainly to the action of oxytocin. This was supported by various studies conducted by Chua et al. (1994) and Uvnas-Moberg et al. (2014), which stated that the physiological explanation as to why breast crawl helps to prevent PPH is that both early suckling and skin-to-skin contact stimulate the release of endogenous oxytocin.^[6,7] which, when released, enhances the uterine contractions. We also observed that in the experimental group, it was found that the duration of the third stage was less than 10 minutes in 141 patients (94%) out of 150 patients as compared to 136 (90.6%) patients in the control group who took 1-10 minutes for placental separation which suggested that the duration of third stage of labour was shortened in the study group. Our study results also revealed that the mean duration of third stage was 7.45 ± 1.94 minutes and 8.26 ± 1.72 minutes in the experimental and control groups respectively. The p-value of paired T-Test was found to be 0.000154, which provided sufficient evidence to conclude that significant mean difference of time for placental separation was found between cases and controls. These findings are consistent with an experimental study by Jenifer et al. (2015), which evaluated the effect of early suckling on the third stage of labor among parturient women. Using a quantitative research design, the study reported a mean duration of 9.63 ± 0.62 minutes for the third stage in the intervention group (approximately 8–10 minutes), compared with 11–13 minutes in the control group. So, it was concluded that there was a significant association between early suckling and the third stage of labour at p value of 0.007.^[8] Magann et al. (2010) conducted a study on the length of the third stage of labor and its association with postpartum hemorrhage. Over 24 months, 6,588 vaginal deliveries were recorded in a tertiary obstetric hospital, with postpartum hemorrhage occurring in 335 cases (5.1%). The risk of hemorrhage increased significantly with prolonged third stage: at 10 minutes (OR 2.1, 95% CI 1.6–2.6), at 20 minutes (OR 4.3, 95% CI 3.3–5.5), and at 30 minutes (OR 6.2, 95% CI 4.6–8.2). Receiver operating characteristic curve analysis identified 18 minutes as the optimal threshold for predicting hemorrhage risk. The authors concluded that a third stage exceeding 18 minutes is significantly associated with postpartum hemorrhage, with the odds increasing more than sixfold after 30 minutes.^[9] Buckley et al. (2010), in a study on

the third stage of labor, reported that practices such as skin-to-skin contact, early suckling, or both, stimulate the release of high levels of oxytocin. This surge of oxytocin not only facilitates the neonate's initial attempts at breastfeeding but also enhances uterine contractions, promoting placental separation and uterine involution. Consequently, oxytocin plays a dual role in reducing the risk of postpartum hemorrhage and fostering maternal–infant bonding, both of which are vital for neonatal survival. Hence, the breast crawl technique benefits mothers by inducing oxytocin release, thereby supporting uterine contraction and minimizing blood loss. Tiwari V, Singh N et al in their study on breast crawl found that out of 200 babies, 166 were able to successfully crawl within 50min. 95% mothers had early expulsion of placenta. 93% mothers did not experience postpartum anemia while the uterine size decreased in 96% mothers on follow up after 2 weeks. Their conclusion was that breast crawl prevents postpartum hemorrhages, anemia, breast feeding failure & confers sense of wellbeing to the mothers, proving that breast crawl is beneficial.^[10] Appasani Leela sireesha, Shrikant Warade et al conducted case control study on 100 women who underwent vaginal delivery at full term. They found that breastfeeding was actively initiated in 84% of new-borns of cases while 60% of newborns from control group needed assistance for the same. There was significant reduction in mean duration of 3rd Stage of labor in cases (10.28±1.05minutes) as compared to that for controls (12.34±1.61 minutes). They also found that mean time of separation of placenta was significantly less in cases (6±2.08 minutes) as compared to controls (8.02±2.74 minutes). A significantly lower mean blood loss was observed in the cases compared to the controls (281.60±77.25 ml). They concluded that breast crawl is an effective method to initiate early breast feeding, to reduce the duration & blood loss of third stage of labor, as well as time of separation of placenta.^[11] In a quasi-experimental research on breast crawl initiation in 60 primipara women, Afaf Hassan Ahmed et al indicated a notable reduction in the average blood loss (312.67 ± 51.154 ml) following delivery and a shorter duration of the third stage of labor (12.75 ± 4.858 min) in the study group, in contrast to the control group, which exhibited averages of (357.50 ± 43.127 ml & 20.25 ± 5.217 min) respectively. Furthermore, the findings demonstrated a significantly higher total score for breastfeeding initiation and bonding among 80% and 90% respectively of the study group, compared to 0% and 10% respectively of the control group. Thus they concluded that breast crawl considerably decreased blood loss following delivery, shortened the length of the third stage of labor, improved the initiation of breastfeeding, and fostered a strong bond between mother and baby.^[12] Manisha, Jagriti Priya et al conducted a study to evaluate the effectiveness of early initiation of breast feeding on outcome third stage of labour on 100 patients (50 cases & 50controls) undergoing vaginal delivery. The average duration of the third stage and the quantity of blood loss were recorded as 7.30±1.31, 9.50±2.58 and 197.60±60.93, 298.98±71.77 for the experimental and control groups, respectively. The mean differences observed were 2.20 minutes and 101.38 ml in the experimental group compared

to the control group.^[13] A Prishanthini Anto and Manjubala Dash in their study on 60 intranatal mothers (30 In Experimental Group, 30 in Control Group) observed that the average duration of the third stage was 10.27 ± 2.92 minutes in the control group and 3.57 ± 1.52 minutes in the experimental group. The average blood loss was 302.67 ± 33.41 ml in the control group compared to 198.33 ± 25.74 ml in the experimental group, showing a mean difference of 6.7 minutes and 104.34 ml between the two groups. They inferred that early initiation of breast feeding has a positive effect on duration of third stage and the amount of blood loss.^[14] 120 parturient women in third stage of labour were studied by S, Sumithra to evaluate the effectiveness of early suckling on third stage of labour. The mean score of blood loss in the experimental group was 1.23 with SD 0.46 and the mean score in the control group was 1.61 with SD 0.66 indicating significant reduction in the amount of blood loss during third stage of labour in the experimental group as compared to control group. The Latch score and maternal satisfaction score was also found to be 100 percent among experimental group. Thus they concluded that early suckling was the most safe and most effective intervention during third stage of labour which not only increases the maternal- neonate bonding but also stimulates uterine contraction.

CONCLUSION

The study above clearly shows that the breast crawl plays a significant role in the third stage of labour. The study findings help us conclude that breast crawl is an effective intervention in reducing the duration and decreasing the amount of blood loss in the third stage of labour. Early suckling and skin-to-skin contact stimulate oxytocin release, which strengthens uterine contractions, facilitates early placental expulsion, shortens the duration of the third stage of labor, reduces blood loss, and decreases the requirement for uterotonics. It also led the newborn to attach to the nipple and enabled early initiation of breastfeeding, ending with a successful breastfeeding, and a longer duration of the first breastfeeding. In addition to the above effects, it also showed that newborns who had the breast crawl had better temperature regulation, reducing the incidence of hypothermia, and showed better mother and child bonding.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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