Original Article

Perinatal Outcome of Baby Delivered Vaginally After Successful External Cephalic Version

Vaginal Delivery After Successful External Cephalic Version

Qurat ul Ain[1], Saira Khan[2] and Basharat Ahmad[2]

ABSTRACT

Objective: To assess the proportion of unfavorable birth-related events occurring after a successful fetal repositioning maneuver near expected delivery in pregnant individuals.

Study Design: Descriptive analytical evaluation study

Place and Duration of Study: This study was conducted at the Obstetrics and Women's Health Unit at Lady Reading Hospital, Peshawar, spanning from January through September of 2022.

Methods: The research encompassed 197 expectant participants who underwent effective manual fetal rotation to cephalic alignment. Postpartum evaluation involved identifying harmful neonatal indicators such as diminished Apgar performance—categorized as a score less than five at five minutes after birth (Annex II)—alongside the requirement for neonatal critical care admission. Criteria for neonatal intensive unit involvement included compromised breathing needing mechanical assistance, convulsive episodes, severe oxygen-deprivation-related encephalopathy, abnormal heart rhythms, or additional disorders needing specialized pediatric attention, including significant jaundice requiring blood-exchange treatment.

Results: Participants' ages ranged from 18 to 40 years, with an average age of 28.629±2.53 years, average pregnancy duration at 38.421±0.98 weeks, and mean childbirth count of 1.416±1.23. Reduced Apgar levels occurred in 5.1% of subjects, while critical newborn unit referral was necessary in 2.5%.

Conclusion: To summarize, executing a cephalic repositioning procedure at full term does not correlate with heightened newborn health complications or death risk.

Key Words: Fetal turning maneuver, Spontaneous childbirth, Birth condition rating, Newborn intensive treatment

Citation of article: Qurat ul Ain, Khan S, Ahmad B. Perinatal Outcome of Baby Delivered Vaginally After Successful External Cephalic Version. Med Forum 2025;36(6):9-12. doi:10.60110/medforum.360602.

INTRODUCTION

Manual fetal repositioning, often termed external cephalic version (ECV), represents a procedural technique where a fetus in breech alignment is guided into a vertex orientation through directed abdominal manipulation. Candidates who opt for this maneuver are commonly those who receive detailed procedural information, find reassurance in the documented safety profile, and are inclined toward experiencing vaginal parturition. In contrast, others may decline ECV due to apprehensions, insufficient medical briefing, or an inclination toward scheduled surgical birth.[1]

The central rationale for utilizing ECV is its capacity to elevate the occurrence of head-first fetal alignment at labor onset, thereby diminishing reliance on operative delivery. Evidence from a comprehensive systematic review conducted in which synthesized data from eight randomized trials involving 1,308 subjects, supports this claim.[2] Findings indicated that ECV substantially decreased the incidence of breech labor presentations by nearly 60% (Relative Risk [RR] 0.42, 95% Confidence Interval [CI] 0.29–0.61) and resulted in approximately a 40% reduction in surgical birth rates (RR 0.57, 95% CI 0.40–0.82) compared with those not receiving the intervention.

Nonetheless, post-ECV cesarean rates remain disproportionately high relative to individuals who initially present in spontaneous cephalic position. A 2014 synthesis of observational datasets highlighted that women with successful ECV were nearly twice as likely to undergo cesarean delivery as those with naturally aligned fetuses (21% vs. 11%; RR 2.19, 95% CI 1.73–2.76).[3] This elevation was predominantly attributed to intrapartum challenges like obstructed labor and non-reassuring cardiotocography.

The precise factors underlying labor dystocia following effective ECV are not fully delineated. One prevailing hypothesis posits that structural or biomechanical elements associated with breech presentation—such as elevated fetal station or diminished pelvic capacity—may concurrently predispose to birth obstruction.

1. Department of Gynae and Obs, Lady Reading Hospital Peshawar.
2. Private Practitioners, Peshawar.

Correspondence: Saira Khan, Consultant Gynaecologist, Private Practitioner, Peshawar.
Contact No: 03479147755
Email: saira1022@yahoo.com

Received: November, 2024
Reviewed: December-February, 2025
Accepted: April, 2025

Additionally, parity status plays a critical role in delivery outcomes, with multiparous individuals more frequently achieving vaginal delivery post-ECV compared to nulliparous counterparts.[1]

Empirical research supports varied neonatal outcomes. A clinical assessment led by Rosman AN identified that roughly 6.9% of infants exhibited reduced Apgar scores after successful ECV.[4] Conversely, El-Toukhy T and colleagues observed no such neonatal compromise in their cohort.[5] Furthermore, Son M and associates, in a 2018 study, documented a 3.3% rate of NICU admissions post-ECV[6]. Overall, ECV remains effective in minimizing breech births and reducing cesarean incidences. It also contributes positively to maternal well-being and lowers financial burdens on healthcare infrastructure. Recognizing these benefits, the Royal College of Obstetricians and Gynaecologists advises offering ECV to all patients with uncomplicated term breech gestations.[7]

Despite such endorsements internationally, outcome-specific data regarding ECV from the Pakistani demographic remain limited. Existing national studies have primarily emphasized maternal over neonatal metrics. Addressing this research gap, the current investigation seeks to quantify the rate of negative perinatal outcomes following a successful ECV procedure.

METHODS

This analytical observational survey was implemented within the Obstetric and Gynecologic Division of Lady Reading Hospital, Peshawar, during the interval of January to September 2022. The sample included 197 expectant individuals whose pregnancies were managed with effective external head-turning procedures. After parturition, the neonates were assessed for undesirable clinical results, such as a reduced Apgar rating—characterized as a score under 5 at five minutes post-birth—and the necessity for intensive neonatal unit admission. NICU transfer criteria comprised respiratory compromise requiring mechanical breathing assistance, convulsions post-delivery, profound oxygen-deprivation-related brain injury, disturbances in cardiac rhythm, and other significant neonatal disorders, including acute jaundice needing blood exchange therapy, or any situation demanding evaluation and care by specialized newborn services.

RESULTS

Participant ages ranged between 18 and 40 years, with an average age calculated at 28.629±2.53 years. The typical duration of pregnancy was measured at 38.421±0.98 weeks, while the mean number of previous births was found to be 1.416±1.23, as detailed in Table 1. A decreased Apgar rating was identified in 5.1% of cases, as presented in Table 2. Admission into the neonatal critical care unit occurred in 2.5% of neonates, according to Table 3.

Table No.1: Distribution of Average Values for Age, Gestational Duration, and Birth History (n = 197)

Parameter	Mean ± SD
Chronological Age (in years)	28.629 ± 2.53
Weeks of Pregnancy at Delivery	38.421 ± 0.98
Previous Deliveries (Parity)	1.416 ± 1.23

Table No.2: Occurrence and Percentage of Neonates Exhibiting Suboptimal Apgar Scores (n = 197)

Low Vitality Rating	Count	Percentage
Confirmed	10	5.1%
Absent	187	94.9%
Aggregate	197	100%

Table No.3: Proportion and Frequency of Newborns Transferred to Specialized Neonatal Units (n = 197)

NICU Transfer Required	Total Cases	Proportion (%)
Yes	5	2.5%
No	192	97.5%
Overall	197	100%

Table No.4: Breakdown of Low Apgar Scores According to Maternal Age Group

Maternal Age (Years)	Reduced Apgar	Normal Apgar	p-value
18–30	10 (6.7%)	140 (93.3%)	0.069
>30	0 (0%)	47 (100%)	
Total	10 (5.1%)	187 (94.9%)	

Table No.5: Association Between Gestational Length and Apgar Score

Gestation Period (Weeks)	Low Apgar Count	Normal Apgar	p-value
37–38	6 (5.5%)	103(94.5%)	0.760
39–40	4 (4.5%)	84 (95.5%)	
Combined Total	10 (5.1%)	187(94.9%)	

Table No.6: Relationship Between Previous Childbirths and Apgar Results

Parity Level	Low Apgar Cases	Normal Apgar	p-value
0–2 Births	10 (6.9%)	134 (93.1%)	0.049
More than 2	0 (0%)	53 (100%)	
Total	10 (5.1%)	187 (94.9%)	

Table No.7: Analysis of NICU Admissions by Age Bracket

Maternal Age Group	NICU Needed	Not Needed	p-value
18–30	5 (3.3%)	145(96.7%)	0.205
Above 30	0 (0%)	47 (100%)	
Aggregate	5 (2.5%)	192(97.5%)	

Breakdown analysis of negative birth-related events based on maternal age, pregnancy duration, and delivery history is presented in Tables 4 through 8.

Table No.8: Evaluation of NICU Requirement by Weeks of Gestation

Gestational Window (Weeks)	NICU Yes	NICU No	p-value
37–38	2 (1.8%)	107 (98.2%)	0.485
39–40	3 (3.4%)	85 (96.6%)	
Total Cases	5 (2.5%)	192 (97.5%)	

DISCUSSION

Within this investigation, 5.1% of newborns demonstrated diminished vitality scores at five minutes post-delivery, while 2.5% required transfer to specialized neonatal care facilities. In contrast, Rosman AN and collaborators reported a 6.9% occurrence of suboptimal Apgar indices after successful fetal rotation maneuvers.[4] Conversely, El-Toukhy T's team observed no instances of reduced Apgar performance in their findings.[5] A separate report by Son M in 2018 cited a 3.3% frequency of neonatal intensive care utilization.[6]

Our observations closely reflect historical research outcomes. A comprehensive synthesis by Collaris and associates detailed a range of complications arising from fetal repositioning procedures, including fleeting irregular fetal heart tracings, maternal bleeding, premature placental detachment, umbilical cord complications, emergency operative births, and intrauterine deaths.[7] Nonetheless, the total frequency of such complications remained limited, with wide inconsistencies in case definitions and documentation across included sources. Notably, these adverse results pertained solely to individuals undergoing fetal turning, with no comparative data from non-intervention groups.[8]

Similarly, Grootscholten et al. aggregated data from multiple studies, identifying an overall post-procedure complication frequency of 6.1%, with severe events occurring in only 0.24% of instances[9]. However, this review emphasized outcomes between successful versus unsuccessful repositioning attempts, without fully addressing the broader question of whether the intervention should be attempted initially.

In contrast, our work adds depth to the existing literature by examining an expanded set of perinatal outcomes in a more diverse sample population. Hofmeyr et al., through a Cochrane database evaluation involving four randomized controlled studies encompassing 1,308 subjects, compared outcomes in individuals undergoing attempted fetal repositioning to those eligible but untreated. No meaningful statistical differences emerged regarding neonatal health indicators, such as vitality scoring, venous blood acidity (pH < 7.20), NICU utilization, or perinatal loss. However, the majority of these parameters were secondary in nature, and only specific segments of the total cohort were evaluated for each outcome: 428 for Apgar scores, 368 for NICU transfer, and 52 for umbilical pH, with fetal death tracked universally.[2]

Though descriptive in methodology, our investigation enhances insight into ECV-associated neonatal implications by assessing a broader scope of clinically meaningful birth outcomes in a more comprehensive cohort.[10]

Several constraints affect interpretation of our data. First, the maneuver's success rate in our dataset stood at 40%, a figure on the lower side of existing published ranges, potentially limiting generalizability to environments with improved success metrics or differing procedural workflows. Second, although adverse infant outcomes were infrequent, their prevalence was still elevated relative to expectations, especially given the shortfall in targeted recruitment numbers. Third, the non-randomized nature of this analysis introduces intrinsic selection distortion.[11,12] Those seen as better suited for repositioning were more likely to be chosen, which may affect external validity. This is supported by noticeable demographic variances—individuals who underwent the procedure were more often previously pregnant and had reduced body mass index values at delivery than those excluded. While multivariate modeling was employed to adjust for observed disparities, residual bias due to unmeasured variables cannot be definitively ruled out.[13]

CONCLUSION

To conclude, attempting external cephalic version (ECV) at term does not lead to a higher risk of complications for the newborn or mother. Although predicting the outcome of the procedure remains uncertain, performing ECV significantly lowers the likelihood of requiring a cesarean section compared to waiting for spontaneous correction. Therefore, current evidence continues to support the recommendation that ECV should be offered when a breech presentation is identified at term.

Author's Contribution:

Concept & Design or acquisition of analysis or interpretation of data:	Qurat ul Ain, Saira Khan
Drafting or Revising Critically:	Qurat ul Ain, Basharat Ahmad
Final Approval of version:	All the above authors
Agreement to accountable for all aspects of work:	All the above authors

Conflict of Interest: The study has no conflict of interest to declare by any author.

Source of Funding: None

Ethical Approval: No. 558/LRH/MTI Dated 11.08.2020

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