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Original Research Article

COMPARISON BETWEEN NEONATAL OUTCOME OF VAGINAL DELIVERY AND CAESAREAN SECTION FOR BREECH PRESENTATION

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ABSTRACT

Background: *Breech presentation at term poses a significant obstetric challenge, often associated with increased neonatal morbidity. The mode of delivery in such cases remains a topic of clinical debate, with cesarean section usually preferred to minimize neonatal complications. However, comparative data on neonatal outcomes between vaginal and cesarean deliveries for breech presentations are still evolving, especially in resource-limited settings.* ***Objective:*** *To compare neonatal outcomes, specifically low Apgar scores, between vaginal delivery and cesarean section in term breech presentations.* ***Study Design:*** *Descriptive cross-sectional study.* ***Setting:*** *Conducted at the Department of Obstetrics & Gynecology, Saidu Group of Teaching Hospital, Swat, Pakistan.* ***Duration of Study:*** *21-07-2024 to 21-01-2025.* ***Methods:*** *A total of 145 women aged 18–40 years with singleton term pregnancies (37–41 weeks) presenting with breech were included. Participants underwent either vaginal delivery or cesarean section. Neonatal outcome was assessed based on the Apgar score at 5 minutes, with a score <7 considered low. Data analysis was conducted using SPSS version 24. Categorical variables were compared using the chi-square test, with a p-value ≤ 0.05 considered statistically significant.* ***Results:*** *Of the 145 participants, 49 (33.8%) underwent vaginal delivery and 96 (66.2%) had cesarean sections. A significantly higher proportion of neonates delivered vaginally had low Apgar scores at 5 minutes (14.3%) compared to those delivered via cesarean section (4.2%) (p = 0.02).* ***Conclusion:*** *Elective cesarean section for term breech presentation is associated with improved neonatal outcomes, as evidenced by a significantly lower incidence of low Apgar scores compared to vaginal delivery. These findings support the consideration of cesarean delivery as a safer option for breech presentations at term.*

Keywords: Breech Presentation, Vaginal Delivery, Cesarean Section, Neonatal Outcome, Apgar Score, NICU Admission

INTRODUCTION

The management of breech delivery, specifically the choice between vaginal as well as caesarean methods, has emerged as a highly contentious issue in obstetrics within recent years (1). While caesarean delivery is regarded as a safe method for addressing breech presentations, it is associated with elevated incidences of postpartum maternal morbidity within developed nations. Complications linked to this procedure include anaemia, urinary tract infections, wound dehiscence, endometritis, inflammatory issues, muscle pain, headaches, diminished sexual satisfaction post-delivery, digestive disturbances, fever, infections, bleeding disorders, and stress urinary incontinence. In 2000, a randomized multicenter study addressed the management of term breech delivery. The study discovered that elective caesarean sections yielded superior outcomes compared to vaginal deliveries for full-term fetuses in breech presentation, alongside maternal complications being comparable between the two groups (1-3).

The evidence indicates that the practice of elective caesarean sections was promoted in these presentations (4). The occurrence of a primary caesarean section during the first pregnancy has been linked to negative neonatal and maternal outcomes in later deliveries (5). Abandoning vaginal delivery to breech presentation in favour of caesarean sections indiscriminately denies women access to healthcare options (6, 7).

A study reported that planned caesarean section for term breech delivery decreased perinatal and neonatal mortality and serious neonatal morbidity. However, it was also associated with a slight increase in maternal morbidity compared to planned vaginal delivery. Authors recommended considering maternal preferences for vaginal delivery, potential risks including future complications of pregnancy, and the possibility of an external cephalic form (8). A study found that low Apgar score in vaginal delivery and caesarean section for breech presentation was 3.5% of infants (9).

Investigating the delivery method's potential impact on the neonate's long-term developmental outcomes is vital. Due to the paucity of literature on this subject on a regional level, the goal of this study is to compare neonatal outcome of vaginal delivery and caesarean section for breech presentation.

METHODOLOGY

Our study employed a descriptive design and was conducted at the Department of Obstetrics & Gynecology, Saidu Groups of Teaching Hospital, Swat [21-07-2024 to 21-01-2025]. The sample size was determined using the assumption of 3.5% case of lower APGAR score in vaginal delivery and CS from a previous study, keeping margin of error of 3% and 95% confidence level, yielding in 145 participants. A non-probability consecutive sampling technique was utilized to recruit women aged 18 to 40 with singleton pregnancies between 37 and 41 weeks of gestation and confirmed breech presentation through prenatal ultrasound or clinical examination.

Patients with multiple gestations along with pre-existing gestational diabetes mellitus or hypertensive disorders and intrapartum hemorrhage exceeding 1000 mL for cesarean sections or 500 mL for vaginal deliveries were screened out. Following ethical approval, the patients gave their informed consent. Demographic information was recorded, including age, body mass index, socio-economic standing, education level, employment status, and residence. Neonatal outcomes were evaluated based on five-minute Apgar scores, with a score below seven considered a low Apgar score. A consultant obstetrician with at least five years of post-fellowship experience supervised the process. Data collection was recorded using a

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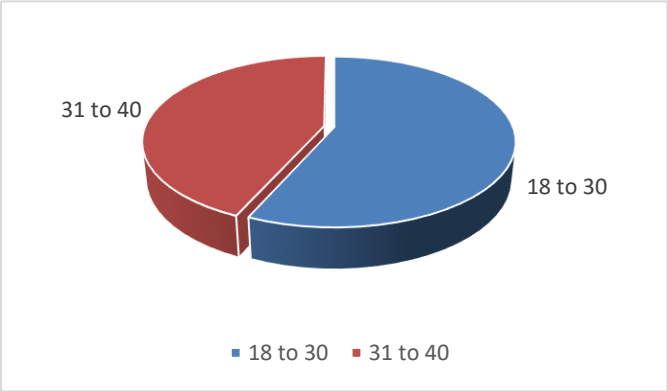
structured proforma. Statistical analysis was conducted with SPSS 22, where numerical variables were presented as mean and standard deviation, while categorical variables were presented with frequencies and percentages. Stratification was applied to control for effect modifiers using the Chi-Square test, keeping the P value notable at < 0.05.

RESULTS

The average age of the patients was 29.21 ± 6.642 years, ranging from 18 to 40 years. Gestational age at delivery averaged 38.95 ± 1.314 weeks, with a minimum of 37 weeks and a maximum of around 41 weeks. The participants' mean body mass index (BMI) was 25.8460 ± 1.33240 kg/m², varying between 23.18 and 28.31 kg/m². Figure 1 presents the age distribution of the patients, while Table 1 presents the demographic profile of the patients.

Regarding the mode of delivery, 49 (33.8%) patients underwent vaginal delivery, while a larger group, 96 (66.2%) had cesarean sections (Table 2). We found differences between the delivery methods when examining neonatal outcomes regarding low Apgar scores defined as less than seven at 5 minutes. Among the vaginal delivery group, 7 (14.3%) newborns had low Apgar scores leaving 42 (85.7%) with scores of 7 or higher. In comparison, among the cesarean section group, only 4 (4.2%) newborns had low Apgar scores, while around 92 (95.8%) had scores of 7 or above. The difference was statistically notably (P = 0.02). Stratification of other parameters can be seen at table no 3.



. **Figure 1: Age distribution (Years)**

Table 1: Demographic profile

Demographics		N	%
Socio-economic status	Lower class (< 50K Rs/Month)	56	38.6%
	Middle class (50 to 100K Rs/Month)	72	49.7%
	High (> 100K Rs/Month)	17	11.7%
Education status	Educated	69	47.6%
	Uneducated	76	52.4%
Occupation status	Employed	36	24.8%
	Unemployed	109	75.2%
Area of residence	Urban	76	52.4%
	Rural	69	47.6%

Table 2: Distribution of patients according to the mode of delivery

Mode of delivery	N	%
Vaginal	49	33.8%
Caesarean section	96	66.2%

Table 3: Comparison of various parameters according to the mode of delivery

Parameters		Mode of delivery				P-Value
		Vaginal		Caesarean section		
		N	%	N	%	
Low APGAR score	Yes	7	14.3%	4	4.2%	0.02
	No	42	85.7%	92	95.8%	
Socioeconomic status	Lower class (<50K Rs/Month)	16	32.7%	40	41.7%	0.53
	Middle class (50 to 100K Rs/Month)	26	53.1%	46	47.9%	
	High(>100K Rs/Month)	7	14.3%	10	10.4%	
Education status	Educated	22	44.9%	47	49.0%	0.64
	Uneducated	27	55.1%	49	51.0%	
Occupation status	Employed	9	18.4%	27	28.1%	0.19
	Unemployed	40	81.6%	69	71.9%	
Area of residence	Urban	29	59.2%	47	49.0%	0.24
	Rural	20	40.8%	49	51.0%	
Age distribution (Years)	18 to 30	33	67.3%	49	51.0%	0.06
	31 to 40	16	32.7%	47	49.0%	
BMI (Kg/m2)	18 to 24.9	17	34.7%	26	27.1%	0.34
	> 24.9	32	65.3%	70	72.9%	
Gestational age (weeks)	37 to 39	31	63.3%	60	62.5%	0.92
	40 to 41	18	36.7%	36	37.5%	

DISCUSSION

The average maternal age in the current study was 29.21 ± 6.642 years, comparable to findings from other studies. A study reported a maternal age of 29.53 years, similar to our research. The gestational age at delivery in our study averaged 38.95 ± 1.314 weeks, aligning with previous reports where the mean gestational age was 38.33 years (10). These findings suggest a general consistency across studies regarding the timing of delivery in breech presentation.

Regarding delivery mode, 33.8% of patients in our study had vaginal delivery, while 66.2% had cesarean sections. This distribution is aligned with that reported by Zejnullahu et al., where 18.3% of patients had a successful vaginal breech delivery. In comparison, 52.1% underwent elective cesarean section, and 29.5% had an emergent cesarean section (10). Another study by Bevilacqua et al. found that planned cesarean delivery significantly reduced neonatal morbidity compared to vaginal breech delivery supporting the observed trend of increasing cesarean delivery rates for breech presentation (11).

Apgar scores serve as an essential indicator of neonatal safety. In the current study, 14.3% of newborns delivered vaginally had low Apgar scores (<7 at 5 minutes), whereas only 4.2% of newborns delivered through cesarean section had similarly low scores (P = 0.02). A study by Chaudhary et al. reported similar findings, with mean Apgar scores at 1 and 5 minutes being 6 and 7 for vaginal breech deliveries and 6 and 8 for cesarean breech deliveries (12). Another study by Fajara et al. exhibited a notable association between mode of delivery and Apgar scores, with cesarean-delivered neonates consistently showing higher scores at 1 and 5 minutes (13).

In their Zejnullahu et al. reported that NICU admission rates were notably higher in the vaginal delivery group (10). Additionally, Bevilacqua et al. found that respiratory distress and NICU admissions were notably higher in neonates delivered vaginally, reinforcing the potential risks associated with vaginal breech delivery (11). Zejnullahu et al. also found a noteworthy association between vaginal delivery and increased birth trauma, with no reported cases in the elective cesarean group (10). Similarly, Fajara et al. conducted a meta-analysis that confirmed cesarean delivery significantly reduces the

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risk of birth trauma (13). These reports from various studies suggest that patients undergoing vaginal breech delivery, their neonates have potential risks of developing the complications above, in our research. However, we did not evaluate these outcomes, they present a clear understanding of the complications linked with vaginal breech birth. From our findings and the findings from the studies above, elective cesarean delivery seems to be the safer option for breech presentation at term as it potentially reduces neonatal adverse impacts without substantially increasing maternal complications. However, Zejnullahu et al., argue that vaginal breech delivery remains a viable option in carefully selected cases with experienced obstetricians and strict selection criteria (10).

CONCLUSION

Elective cesarean delivery for breech presentation at term was found to be linked with better neonatal outcomes with only 4.2% of neonates having low Apgar scores as compared to 14.3% in vaginal deliveries. However, we suggest further trials should be conducted across multiple centers to evaluate both modes' adverse long-term impact.

DECLARATIONS

Data Availability Statement
All data generated or analyzed during the study are included in the manuscript.
Ethics approval and consent to participate
Approved by the department Concerned. (35-ERB/024)
Consent for publication
Approved
Funding
Not applicable

CONFLICT OF INTEREST

The authors declared an absence of conflict of interest.

AUTHOR CONTRIBUTION

NABILA MUSLIM (Postgraduate Resident)
Manuscript Writing, Conception of Study, Development of Research Methodology Design, Study Design, Data Collection, Manuscript revisions, and final approval of manuscript
PARVEEN NAVEED (Associate professor)
Conception of Study, Final approval of manuscript.
Data entry, data analysis, and drafting an article.
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Literature Review & Critical Input
TABASSUM (Assistant Professor)
Literature Review & Critical Input
NASEEM KHAN (Postgraduate Resident)
Literature Review

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