

Fetal Outcome in Breech Vaginal Delivery in Multi Gravida Patients

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ABSTRACT

Background: Fetal buttocks or feet positioned at the pelvic inlet are referred to as breech presentation. Both vaginal delivery and Caesarean section are options for them. Everyone agrees that breech deliveries are better handled by caesarian section than by vaginal delivery. Risk factors for breech presentation include uterine abnormalities, prematurity, foetal abnormalities, and repeated pregnancies. This research sought to ascertain the foetal fate in multigravida individuals undergoing breech vaginal birth.

Methods: This descriptive case series investigation was carried out at the Khyber Teaching Hospital in Peshawar, in the department of obstetrics and gynaecology. The study was conducted from October 2018 to April 2019, seven (07) months. Patients had thorough clinical examinations and lengthy history interviews. The selected patients were instructed to have normal labour under careful foetal and maternal monitoring supervision. All of the patients that experienced a regular delivery had their specific information entered into the database along with the intrapartum occurrences and immediate foetal outcomes. At five minutes, an apgar score was obtained. Brachial plexus damage, low birth weight, low apgar score, foetal distress, and stillbirth were among the foetal outcomes that were reported.

Results: As per fetal outcomes, 35 (16.21%) patients were recorded with low apgar score, 37 (17.05%) patients were registered with low birth weight, 69 (31.79%) patients were recorded with birth asphyxia, 27 (12.44%) patients were recorded with brachial plexus injury, 26 (11.98%) patients were registered with fetal distress and 23 (10.59%) patients were recorded with still birth.

Conclusion: This research shown that foetal morbidity comes from vaginal breech deliveries (VBD) of singleton term pregnancies. To prevent these difficulties in our local Khyber Pukhtunkhwa population, we thus highlight the necessity for special safeguards, including close monitoring of labour and enough preparedness for newborn resuscitation. This study may be useful in breech delivery decision-making by helping to personalise each choice by understanding the risks involved. Based on the findings, the technique of delivery in breech presentation should be determined.

Keywords: Breech, Vaginal Delivery, Singleton Term Pregnancies, Fetal Morbidity, Multi- Gravida.

INTRODUCTION

A foetus with breech presentation has its feet or buttocks closest to the cervix and is in a longitudinal lay. This occurs in 3-4% of all births. The percentage of breech deliveries decreases with increasing gestational age, from 22–25% of babies born before 28 weeks to 7–15% at 32 weeks to 3-4% at term¹. All breech presentations were made vaginally before 1959. Abdominal delivery has replaced this practice to reduce infant morbidity and mortality². Cervix incompletely dilated and a head that hasn't had enough time to conform to the maternal pelvis may cause foetal head entrapment. In 0–8.5% of vaginal breech births, this happens³.

Whyte et al. conducted a follow-up research on 923 kids who had taken part in the first multicenter trial in 2004⁴. In terms of baby mortality rates or neurodevelopmental delays at age 2 years, the authors observed no differences between the planned vaginal breech birth group and the planned caesarean delivery group. Similar to this, among the 917 participating moms in the initial study, there were no significant changes in maternal outcome between the 2 groups⁵.

In 2015, a meta-analysis of the three randomised studies described above was released. The results showed that planned caesarean birth was superior to scheduled vaginal delivery in terms of perinatal/neonatal mortality, below composite short-term outcome of neonatal fatality, or morbidity⁶. There has only been one prospective randomised trial on preterm breech births, and it only involved 38 people (28–36 weeks along with premature labour). 20 of these participants were randomly assigned to have a vaginal birth, whereas 18 were assigned to have an urgent caesarean section. 25% of women who tried vaginal birth had caesarean sections due to unsatisfactory foetal heart rate tracings. In the vaginal birth group, there were five newborn fatalities, while there was only one neonatal fatality in the caesarean delivery group. Three infants passed away from respiratory distress, two from foetal abnormalities, and one from sepsis⁷.

In a large cohort study from the Netherlands Perinatal Registry in 2015, about 8356 women with a preterm were recruited, with more than 75% of them planning a vaginal birth. In the sam study no appreciable difference was observed perinatal mortality between the planned vaginal birth and caesarean delivery groups. The subgroup giving birth at 28 to 32 weeks had a lower perinatal mortality rate (aOR 0.27, 95% CI 0.10 - 0.77) when a planned caesarean delivery was used. Once a composite of perinatal morbidity was taken into account, planned caesarean birth rekat with fair outcome⁸.

A systematic review that was conducted in 2015 employed eight randomised trials of ECV at term to assess the effectiveness of the medication. ECV reduced caesarean sections by 40% and non-cephalic presentation at delivery by 60% in the same group of women compared to those who did not attempt ECV⁹. Despite the fact that the rate of caesarean section is reduced when ECV is performed than if it is not, the overall rate of caesarean section remains nearly twice as high after effective ECV because of dystocia and disturbing foetal heart rate patterns¹⁰. The only factor that was found to enhance the chance of instrumental delivery after a successful ECV was nulliparity¹¹.

Cook demonstrated that ECV has also been successful in the private practise environment, despite the fact that the majority of research of ECV has been conducted at university hospitals. 60 of the 65 patients who had term breeches received ECV. Of the 60 patients, 32 (53%) underwent effective ECV, while 23 (72%) underwent vaginal birth. The remaining eight (80%) breech pregnancies believed to be suitable for vaginal delivery experienced successful births. The proportion of vaginal delivery was approximately 48% with no significant morbidity¹².

There haven't been enough trials to determine if ECV raises the overall risk of perinatal mortality. In the Cochrane review from 2015, perinatal fatalities were found to be 2 of 644 in the group using ECV and 6 of 661 in the group not using ECV⁹.

According to an ACOG practise bulletin from 2016, all women who are close to term and present in breech position should be given the option of an ECV attempt if there are no

contraindications¹³. The Early External Cephalic Version 2 (ECV-2) trial, a global, multicenter, randomised clinical study, comparing ECV done at 34–35 weeks of gestation versus ECV performed at 37 weeks of pregnancy or more¹⁴. Although there is little data in both the previous research and a more recent one¹⁵. ACOG confirmed in 2010 that no significant adverse events happened in these series despite the inadequate data. A more considerable prospective cohort research that was published in 2014 found decreased vaginal delivery rates but equivalent success rates of ECV among women who had previously undergone caesarean sections. However, there were no instances of uterine rupture or other negative results¹⁶. A study reported that the effective in increasing the rate of cephalic presentation in labour and decreasing the caesarean delivery rate by about 25% in both nulliparous and multiparous women¹⁷. There was a dearth of information on the harmful consequences of other tocolytics. Nifedipine was the subject of a 2011 review, which revealed no improvement in the success of ECV¹⁸.

The current study will assist in developing local data on foetal outcomes in multigravida patients delivering breech vaginally in our population since different studies have produced disparate results and because no local research has been done on this subject. When particular measures are followed, this will assist us in lowering the impact of illness and the mortality rate related to breech vaginal birth. Findings will also encourage us to take specific measures, such as careful monitoring of labour and enough preparedness for newborn resuscitation, in order to prevent these consequences, such as discounting the impact of VBD in low-income regions.

MATERIAL AND METHODS

Study Design and Setting: This descriptive case series study was conducted in the Obstetrics and Gynecology department at Medical Teaching Institution, Khyber Teaching Hospital, Peshawar.

Duration of Study: The duration study was seven months from October 2018 to April 2019.

Sample Size: The sample size was 217 keeping the proportion of 17% proportion of fetal distress in breech presentation, confidence interval 95% and margin of error 5% and level of significance 5%. The patients were recruited through consecutive non-probability sampling technique.

Inclusion and Exclusion Criteria: The women with multigravida pregnancy, gestation of 36-40 week, women in active labor, breech presentation as confirmed by ultrasonography and age 20-30 years females were included in the study. While, the cases of multiple gestations confirmed through ultrasonography, footling breech confirmed through ultrasonography, clinically inadequate maternal pelvis confirmed through ultrasonography, preterm delivery < 37 weeks, ost-term pregnancies i.e > 42 Weeks (294 days), placenta praevia i.e placenta is lying low in uterus) confirmed through ultrasonography, and fetal anomaly incompatible with vaginal delivery were excluded from the study.

Ethical Approval and Consent Form: After study approval from the institutional ethical committee for this study. All the pregnant women, presenting to department of gynecology and obstetrics with breech presentation of their fetuses as diagnosed by ultrasonography, was included in the study according to the selection criteria. The subjects were informed of the purpose of the research & an informed consent was taken.

Data Collection: Patients were interviewed for their detailed history and went through thorough clinical examination. The selected patients were asked to go through the normal process of labor with strict watch on the fetal and maternal monitoring. All the patients that was delivering typically, their detailed data was registered in the data base along the intrapartum events and immediate fetal outcomes. Apgar score at 5 minutes was recorded. Fetal effects such as Low apgar Score, Birth asphyxia, Low birth weight, Brachial plexus injury, Fetal distress and Still birth will also be noted down. All the information was recorded on the specially designed proforma.

Data Analysis: Data was entered in Microsoft Excel 2020 and analyzed using SPSS Version 22.0. Mean and SDs were calculated for numerical variables like age, gestational age, apgar score, gravidity and parity. The frequencies and proportion were calculated for categorical variables like fetal outcomes (Low apgar score, Low birth weight, Birth asphyxia, Brachial plexus injury, Fetal Distress and Still Births). Fetal Outcomes was stratified among age, gestational age, apgar score, gravidity and parity in order to see effect modifiers. Post stratification chi square test was applied keeping P Value < 0.05 as significant. All result was presented in the form of graphs and tables.

RESULTS

The mean and SDs for age was 25+2.60, mean and SDs for gravidity was 3+0.45, mean and SDs for parity was 2+0.45, mean and SDs for period of gestation was 38+0.93 whereas mean and SDs for apgar score was 7+0.55. (Table No 1).

Table 1: Descriptive Statistics (n=217)

Mean SD for Age	25+2.60
Mean SD for Gravidity	03+0.45
Mean SD for Parity	02+0.45
Mean SD for Period of Gestation	38+0.93
Mean SD for Apgar Score	7+0.55

As per age distribution, 120 (55.29%) patients were recorded in 20-25 years age group while 97 (44.70%) patients were recorded in 26-30 years age group. (Table No. 2).

Table 2: Age Distribution (n=217)

Age Group	Frequencies	Percentages
20-25 YEARS	120	55.29%
26-30 YEARS	97	44.70%

As per fetal outcomes, 35 (16.21%) patients were recorded with low apgar score, 37 (17.05%) patients were registered with low birth weight, 69 (31.79%) patients were registered with birth asphyxia, 27 (12.44%) patients were registered with brachial plexus injury, 26 (11.98%) patients were registered with fetal distress and 23 (10.59%) patients were registered with still birth. (Table No.3)

Table 3: Frequencies And Percentages For Fetal Outcomes (n=217)

Fetal Outcomes	Frequencies	Percentages
Low Apgar Score	35	16.21%
Low Birth Weight	37	17.05%
Birth Asphyxia	69	31.79%
Brachial Plexus Injury	27	12.44%
Fetal Distress	26	11.98%
Still Birth	23	10.59%

Stratification of fetal outcomes with age, gestational age, apgar score, gravidity and parity are recorded at Table No. 4 to 8 respectively.

Table 4: Stratification Of Fetal Outcome With Respect To Age (n=217)

Fetal Outcomes		Age Groups		P Value
		20-25 Years	26-30 Years	
Low Apgar Score	Yes	17 (7.83%)	18 (8.29%)	0.382
	No	103 (47.46%)	79 (36.40%)	
Low Birth Weight	Yes	18 (8.29%)	19 (8.75%)	0.371
	No	102 (47.00%)	78 (35.94%)	
Birth Asphyxia	Yes	32 (14.74%)	37 (17.05%)	0.071
	No	88 (40.55%)	60 (27.64%)	
Brachial Plexus Injury	Yes	13 (5.99%)	14 (6.45%)	0.424
	No	107 (49.30%)	83 (38.24%)	
Fetal Distress	Yes	15 (6.91%)	11 (5.06%)	0.793
	No	105 (48.38%)	86 (39.63%)	
Still Birth	Yes	13 (5.99%)	10 (4.60%)	0.900
	No	107 (49.30%)	87 (40.09%)	

Table 5: Stratification Of Fetal Outcome With Respect To Gestational Age (n=217)

Fetal Outcomes		Gestational Age		P Value
		< 38 Wks	> 38 Wks	
Low Apgar Score	Yes	27 (12.44%)	08 (3.68%)	0.813
	No	137 (63.13%)	45 (20.73%)	
Low Birth Weight	Yes	26 (11.98%)	11 (5.06%)	0.409
	No	138 (63.59%)	42 (19.35%)	
Birth Asphyxia	Yes	54 (24.88%)	15 (6.91%)	0.529
	No	110 (5.06%)	38 (17.51%)	
Brachial Plexus Injury	Yes	22 (10.13%)	05 (2.30%)	0.445
	No	142 (65.43%)	48 (22.11%)	
Fetal Distress	Yes	20 (9.21%)	06 (2.76%)	0.864
	No	144 (6.45%)	47 (21.65%)	
Still Birth	Yes	15 (6.91%)	08 (3.68%)	0.221
	No	149 (68.66%)	45 (20.73%)	

Table 6: Stratification Of Fetal Outcome With Respect To Apgar Score (n=217)

Fetal Outcomes		Apgar Score		P Value
		< 5	> 5	
Low Apgar Score	Yes	35 (16.12%)	04 (1.84%)	0.0001
	No	03 (2.30%)	175 (80.64%)	
Low Birth Weight	Yes	10 (4.60%)	27 (12.44%)	0.138
	No	30 (13.82%)	150 (69.12%)	
Birth Asphyxia	Yes	17 (7.83%)	52 (23.96%)	0.107
	No	23 (10.59%)	125 (57.60%)	
Brachial Plexus Injury	Yes	08 (3.68%)	19 (8.75%)	0.805
	No	52 (23.96%)	158 (72.81%)	
Fetal Distress	Yes	02 (0.92%)	24 (11.05%)	0.132
	No	38 (17.51%)	153 (70.50%)	
Still Birth	Yes	01 (0.46%)	22 (10.13%)	0.065
	No	39 (17.97%)	155 (6.91%)	

Table 7: Stratification Of Fetal Outcome With Respect To Gravity Score (n=217)

Fetal Outcomes		Gravity		P Value
		< 2	> 2	
Low Apgar Score	Yes	08 (3.68%)	27 (12.44%)	0.347
	No	56 (25.08%)	126 (58.06%)	
Low Birth Weight	Yes	12 (5.52%)	25 (11.52%)	0.315
	No	52 (23.96%)	125 (57.60%)	
Birth Asphyxia	Yes	20 (9.21%)	49 (22.58%)	0.910
	No	44 (20.27%)	104 (47.92%)	
Brachial Plexus Injury	Yes	03 (1.38%)	24 (11.05%)	0.025
	No	61 (28.11%)	129 (59.44%)	
Fetal Distress	Yes	08 (3.68%)	18 (8.29%)	0.879
	No	56 (25.80%)	135 (62.21%)	
Still Birth	Yes	12 (5.52%)	11 (5.06%)	0.116
	No	52 (23.96%)	142 (65.43%)	

Table 8: Stratification Of Fetal Outcome With Respect To Parity (n=217)

Fetal Outcomes		Parity		P Value
		< 2	> 2	
Low Apgar Score	Yes	08 (3.68%)	27 (12.44%)	0.347
	No	56 (25.08%)	126 (58.06%)	
Low Birth Weight	Yes	12 (5.52%)	25 (11.52%)	0.315
	No	52 (23.96%)	125 (57.60%)	
Birth Asphyxia	Yes	20 (9.21%)	49 (22.58%)	0.910
	No	44 (20.27%)	104 (47.92%)	
Brachial Plexus Injury	Yes	03 (1.38%)	24 (11.05%)	0.025
	No	61 (28.11%)	129 (59.44%)	
Fetal Distress	Yes	08 (3.68%)	18 (8.29%)	0.879
	No	56 (25.80%)	135 (62.21%)	
Still Birth	Yes	12 (5.52%)	11 (5.06%)	0.116
	No	52 (23.96%)	142 (65.43%)	

DISCUSSION

Fetal buttocks or feet that are positioned at the pelvic inlet are referred to as breech presentation. Both vaginal delivery and Caesarean section are options for them. Everyone agrees that a caesarian procedure results in better newborn outcomes for breech deliveries than vaginal birth. The three types of breech presentation are footling or partial breech (10–30%), complete

breech (5–10%), and frank breech (most common, 50–70%). Breech presentation occurs in between three and four percent of newborns. Risk factors for breech production include prematurity, fibroids, CNS malformations, neck masses, aneuploidy, and hydrocephalus, and recurrent pregnancies¹. Wherever it is still feasible, vaginal delivery for breech presentation is advised, particularly in low-income countries where caesarean birth-associated maternal morbidity and death are essential concerns².

Since 2000, high-income nations have seen a marked rise in elective caesarean births for breech presentation, according to a systematic review. At the same time, planned vaginal delivery has been linked to a two- to five-fold higher risk of perinatal death and morbidity³.

A meta-study reveals that from 28% in 1999 to 78% in 2010, the caesarian birth rate for breech presentation rose. Vaginal birth was linked to perinatal fatalities (VD). Because there were more stillbirths among vaginal breech deliveries, the overall perinatal death rate, which was 5.8%, did not decrease. Mothers who had Caesarean deliveries suffered more bleeding than those who gave birth naturally¹⁹. Our study's foetal outcomes revealed that 69 (31.79%) patients had birth asphyxia, 35 (16.21%) had low apgar scores, 37 (17.05%) had low birth weights, 27 (12.44%) had brachial plexus injuries, 26 (11.98%) had foetal distress, and 23 (10.59%) had stillbirths. Other findings included low birth weights, brachial plexus injuries, foetal pain, brachial plexus injuries.

In a research, 103 (33%) of 310 breech delivery patients experienced a successful vaginal birth, while the remaining 67% underwent a caesarean delivery. 52% of newborns were female, 35% were multigravida, one person suffered a postpartum haemorrhage, and no occurrences of maternal death were recorded. The rate of episiotomy was 65%, perineal trauma was 1%, and the frequency of cervical tears was 4.9%. The results of the pregnancy showed that 102 (99%) newborns were delivered alive and 97% had healthy APGAR scores²⁰. According to foetal outcomes in our study, 69 (31.79%) patients were recorded as having birth asphyxia, 35 (16.21%) patients had low apgar scores, 37 (17.05%) patients had low birth weights, 27 (12.44%) patients had brachial plexus injuries, 26 (11.98%) patients had foetal distress, and 23 (10.59%) patients had stillbirths. 4-6 VBD was shown to be substantially linked with protracted labour (OR 8.05; 95% CI 3.00 to 11.47; P0.001) and newborn asphyxia (OR 10.24; 95% CI 4.92 to 21.31; P0.001). This was true even when the aforementioned parameters were followed. The increased prevalence of dystocia connected to this presentation may have led to this discovery¹¹.

The findings suggest that neonatal mortality in VBD and VCD was comparable (2% vs. 0%; P=0.2). This could be explained that the trial was carried out at a referral hospital with an expert obstetric team, as well as the use of cardiocography, a digital foetal monitoring and controlling system, to easily spot alerts of a troubling foetal situation during vaginal delivery of a breech baby. These findings of this study are consistent with previous research that found no difference in perinatal mortality after breech delivery in areas with limited facilities^{12, 21}. In a similar research context in Cameroon, however, Kemfang Ngowa et al¹³. They discovered a significant perinatal mortality rate (P value=0.01) for breech babies, which might be attributed to the absence of defined selection criteria for VBD in their dataset. They saw perinatal mortality in cases of macrosomia, nuchal extension, dystocic labour, and placental abruption, all of which were ignored in the current sample. In our study, 69 (31.79%) patients experienced birth asphyxia, 35 (16.21%) patients had low apgar scores, 37 (17.05%) patients had low birth weights, 27 (12.44%) patients had brachial plexus injuries, 26 (11.98%) patients had foetal distress, and 23 (10.59%) patients had stillbirths.

In line with other research from both high-income and low-income environments, breech-born neonates were more likely to have birth asphyxia than those who gave birth vaginally to a healthy baby (47% vs. 8%; P0.001)^{14, 22}. This may be due to the

higher risk of hypoxic-anoxic events from head entrapment, fast decompression of the head, and other delivery injuries that breech fetuses are susceptible²³. According to foetal outcomes in our study, 69 (31.79%) patients were recorded as having birth asphyxia, 35 (16.21%) patients had low apgar scores, 37 (17.05%) patients had low birth weights, 27 (12.44%) patients had brachial plexus injuries, 26 (11.98%) patients had foetal distress, and 23 (10.59%) patients had stillbirths. We also looked back over a 5-year period to assess the outcomes of VBD in a low-income country where caesarean delivery cannot be generalised as the mode of delivery for all breech presentations due to the high financial cost and the largely insufficient surgical infrastructure in most health facilities. These assessments were based on specific singleton term VBD selection criteria and statistical analysis to remove bias. The study contributes significantly to the ongoing debate on VBD safety in Sub-Saharan Africa.

According to the results of our study, Even when breech delivery standards are followed, VBD of singleton term pregnancies is still associated with a significant rate of maternal and perinatal morbidity. This study does not refute the efficacy of VBD in resource-constrained settings, but it does emphasise the importance of tight labour monitoring, timely decision-making, and adequate preparation for infant resuscitation in order to minimise these repercussions. External cephalic version should also be employed and encouraged in this resource-constrained circumstance to convert breech to cephalic presentations and reduce newborn and maternal morbidities associated with VBD. Refresher training sessions for healthcare personnel should be organised to lessen the risk of brachial plexus injuries.

CONCLUSION

This study came to the conclusion that foetal morbidity occurs during vaginal breech deliveries (VBD) of singleton term pregnancies. In order to prevent these difficulties in our local Khyber Pukhtunkhwa population, highlight the necessity for special safeguards such close monitoring of labour and enough preparedness for newborn resuscitation.

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