

The Outcome of Planned Breech Vaginal Delivery among Obstetrics Patients Presenting at Tertiary Care Hospital, Karachi

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ABSTRACT

Background: Vaginal breech delivery (VBD) is known to be associated with more perinatal and maternal complications. The safest mode of delivery in case of breech presentation has long been a debate in obstetrics. Selective vaginal breech deliveries, proper technique of breech delivery, rigorous intrapartum monitoring and presence of experienced obstetrician and pediatricians are most important factors for good outcome in vaginal breech delivery without affecting the maternal and fetal well-being and helps in decreasing the caesarean section rate. Very few studies on the subject have been carried out in poor-resource settings. The aim of the study was to determine the outcome of planned breech vaginal delivery among obstetrics patients presenting at Tertiary Care Hospital, Karachi.

Study Design: This Cross sectional study was conducted at Department of Gynaecology and Obstetrics, Civil Hospital, Karachi for the duration of Six months from November, 2019 to May, 2020.

Subjects and Methods: Data was prospectively collected from patients after taking a verbal consent. 89 pregnant who met the diagnostic criteria were included. Quantitative data was presented as simple descriptive statistics giving mean and standard deviation and qualitative variables was presented as frequency and percentages. Effect modifiers were controlled through stratification to see the effect of these on the outcome variable. Post stratification chi square test was applied taking p-value of ≤ 0.05 as significant.

Results: A total of 89 patients were included in this study. Mean age, gestational age and duration of labour in our study was 31.78 ± 2.81 years, 37.72 ± 1.58 weeks and 10.72 ± 1.56 hours. Out of 89 patients, 11.2%, 23.6%, 12.4% neonates had had APGAR score < 7, NICU admission and brachial plexus injury.

Conclusion: Vaginal delivery of term breech fetus is a safe option in a carefully selected group of women. Pre-delivery assessment, vigilant labour monitoring and delivery by trained doctors can minimize poor fetomaternal outcome.

Keywords: Pregnancy, planned breech vaginal delivery, APGAR score.

INTRODUCTION

Breech presentation is when presents with buttocks or feet closest to the cervix. Breech presentation occur at term in an approximately 3% to 4% of singleton gestations¹. Overall rates of cesarean delivery for breech presentation increased from 50% before the Term Breech Trial to 80% soon after². Women with breech presentation at term can be offered external cephalic version (ECV) unless there is an absolute contraindication. Planned term vaginal breech birth is a reasonable option provided there are not fetal or maternal contraindications. A study done in Norway concluded that there was lower perinatal mortality as compared to that shown in TBT. The study emphasized that vaginal breech delivery was still a safe option provided proper and careful selection of patients were done, plus if the deliveries was conducted by experienced and trained obstetricians³. Thus, approximately 1/3 of fetus in breech position are still delivered vaginally in Norway⁴. In Cameroonian population study conclude that finding does not discount the role of vaginal breech delivery in resource poor settings, but emphasises the need for rigorous monitoring of Gynaecologist timely decision and adequate anticipation for neonatal resuscitation in order to reduce complication⁵⁻⁶. There are several maternal and fetal factors that predispose to a breech presentation for example, uterine anomalies, myomas, pelvic tumors, fetal anomalies, changes of amniotic fluid, placental localization, or length of umbilical cord that solely or in combination provoke fetal malpresentation⁷⁻⁸. Moreover, when fetal malposition in the form of breech presentation is repetitively presented in the same women.⁹ Nachiketha et al study evaluated fetal outcomes in patients who underwent planned vaginal delivery and found prevalence of APGAR score < 7 at 5 min (6%), NICU admission (13%) and brachial plexus injury (2%).¹⁰ Jadoon et al found outcome of APGAR score < 7 at 5 min (10%), NICU admission (0%) and brachial plexus injury (1%).¹¹ Habib et al study evaluated fetal outcomes and found prevalence of APGAR score < 7 at 5 min (4.4%), NICU admission (3.3%) and

brachial plexus injury (0%).¹² Bin et al study evaluated fetal outcomes in patients who underwent planned vaginal delivery and found prevalence of APGAR score < 7 at 5 min (4.3%), NICU admission (16.2%) and brachial plexus injury (7.4%).¹³ Therefore, it provides a strong rationale to study these outcomes which would improve the knowledge base of the obstetrician-gynecologists involved in the care. Moreover, Civil Hospital Karachi is a Tertiary Care Hospital catering to large number of patients coming from all over the country. Hence results from this study would form the benchmark that will be shared with other health care facilities, which will help in the development of management guidelines to reduce these outcomes.

MATERIAL AND METHODS

This Cross sectional study was conducted at Department of Gynaecology and Obstetrics, Civil Hospital, Karachi for the duration of Six months from November, 2019 to May, 2020. 89 pregnant women who met the diagnostic criteria were included. Quantitative data was presented as simple descriptive statistics giving mean and standard deviation and qualitative variables was presented as frequency and percentages. Effect modifiers were controlled through stratification to see the effect of these on the outcome variable. Post stratification chi square test was applied taking p-value of ≤ 0.05 as significant. By taking frequency of NICU admission 13%,¹⁰ margin of error = 7% and confidence level 'C.I'=95%. This sample size was calculated using the WHO software. Non-Probability consecutive sampling Technique was used to collect the data.

Inclusion criteria:

- Patients with gestational age ≥ 36 weeks (assessed by LMP and dating scan).
- Women with singleton pregnancy assessed on ultrasound scan.
- Fetus in breech presentation assessed on ultrasound scan.

- Age 20-40 years.

Exclusion criteria:

- Non consenting patients.
- Women with preexisting medical disorders such as type II diabetes mellitus, thyroid disease, essential hypertension, thrombophilia, chronic liver disease and cardiac disease.

Data collection procedure: This study was conducted after approval from College of Physicians and Surgeons Pakistan. Consenting cases meeting inclusion criteria were enrolled in the study from the Department of Gynaecology and Obstetrics, Civil Hospital, Karachi. Permission from the institutional ethical review committee was taken prior to conduction of study. Brief history about demographic information was taken at the time of admission from the patient. Booked patients underwent planed vaginal delivery for breech presentation as per operational definition. Outcome was assessed in terms of Apgar score of <7 at 5 minute, NICU admission and brachial plexus injury. The findings of quantitative variables (maternal age, gestational age and duration of labor) and qualitative variable parity, gravida, family monthly income, educational status and outcome (Apgar score of <7 at 5 minute, NICU admission and brachial plexus injury) as mentioned above was entered in performa attached as annexure.

Data Analysis Procedure: Data will be analyzed on SPSS Version 20. Mean and standard deviations for the quantitative variables like maternal age, gestational age and duration of labor was calculated. Frequencies and percentages for the qualitative variables like parity, gravida, family monthly income, educational status and outcome (Apgar score of <7 at 5 minute, NICU admission and brachial plexus injury) was calculated. Effect modifiers were controlled through stratification of maternal age, parity, gravida, family monthly income, educational status and duration of labor to see the effect of these on outcome variables. Post stratification chi square test was applied taking p-value of ≤ 0.05 as statistically significant.

RESULT

A total of 89 pregnant patients visiting Department of Gynaecology and Obstetrics, Civil Hospital, Karachi who met the inclusion and exclusion criteria were included in this study.

Out of 89 patients minimum age of the patient was 20 while maximum age of the patients was 40 years. Mean age in our study was 31.78 years with the standard deviation of ±2.81. Whereas, mean gestational age and duration of labour in our study was 37.72±1.58 weeks and 10.72±1.56 hours respectively. As shown in Table 1.

Table-1 Descriptive Statistics: n=89

Variable	Mean ± sd	Standard deviation	Min-max
Age (years)	31.78	±2.81	20-40
Gestational age (weeks)	37.72	±1.58	32-37
Duration of labour (hours)	10.72	±1.56	08-14

Frequency distribution of maternal age showed that out of 89 patients, 34 (38.2%) and 55 (61.8%) patients were in age group 20-30 years and 31-45 years respectively. Frequency distribution of duration of labour showed that out of 89 patients, 51 (57.3%) and 38 (42.7%) had duration of labour < 12 and > 12 hours respectively.

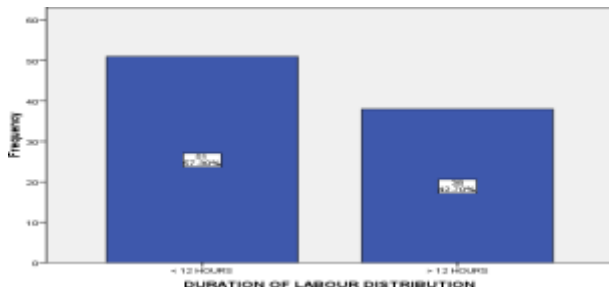


Figure-1; Duration of Labour Distribution; n=89

Frequency distribution of gestational age showed that out of 89 patients, 58 (65.2%) and 31 (34.8%) patients had gestational age < 38 weeks and > 38 weeks respectively.

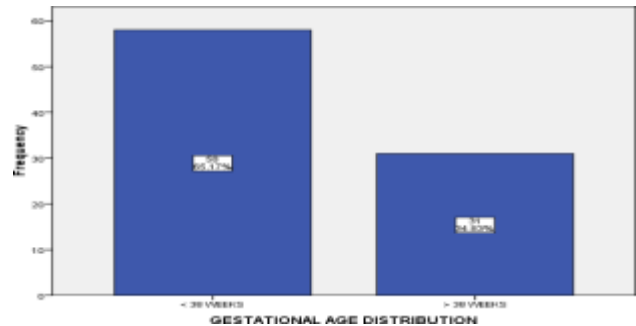


Figure-2 Gestaional Age Distribution n=89

Stratification for maternal age with respect to APGAR score < 7 showed that 03 (30%) and 31 (39.2%) patients who were in age group 20-30 years and did not have APGAR score < 7 respectively. Whereas 07 (70%) and 48 (60.8%) patients who were in age group 31-45 years and did not have APGAR score < 7 respectively. P-value was 0.42. As presented in Table 2.

Table-2: Apgar Score < 7 According To Age n=89

Age (years)	Apgar score < 7		Total
	Yes	No	
20-30	03 (30%)	31 (39.2%)	34 (38.2%)
31-45	07 (70%)	48 (60.8%)	55 (61.8%)
Total	10 (100%)	79 (100%)	89 (100%)
P-value	0.42		

Stratification for duration of labour with respect to APGAR score < 7 showed that 06 (60%) and 45 (57%) patients who had labour < 12 hours there neonates had and did not have APGAR score < 7 respectively. Whereas 04 (40%) and 34 (43%) patients who had labour > 12 hours there neonates had and did not have APGAR score < 7 respectively. P-value was 0.00. As presented in Table 3

Table-3: Apgar Score < 7 According To Duration Of Labour

Duration of labour (hour)	Apgar score < 7		Total
	Yes	No	
< 12	06 (60%)	45 (57%)	51 (57.3%)
> 12	04 (40%)	34 (43%)	38 (42.7%)
Total	10 (100%)	79 (100%)	89 (100%)
P-value	0.56		

Stratification for gestational age with respect to APGAR score < 7 showed that 07 (70%) and 51 (64.6%) patients who were in gestational group < 38 weeks did not have APGAR score < 7 respectively. Whereas 03 (30%) and 28 (35.4%) patients who were in gestational group > 38 week did not have APGAR score < 7 respectively. P-value was 0.51. As presented in Table 4.

Table-4: Apgar Score < 7 According To Gestational Age

Gestational age (weeks)	Apgar score < 7		Total
	Yes	No	
< 38	07 (70%)	51 (64.5%)	58 (65.2%)
> 38	03 (30%)	28 (35.4%)	31 (34.8%)
Total	10 (100%)	79 (100%)	89 (100%)
P-value	0.51		

Stratification for parity with respect to APGAR score < 7 showed that 04 (40%), 06 (60%) and 00 (00%) patients whose neonates had APGAR score < 7 were in parity group 1-2, 3-4 and > 4 respectively. Whereas 21 (26.6%), 58 (70.9%) and 02 (2.5%) patients whose neonates did not have APGAR score < 7 were in parity group 1-2, 3-4 and > 4 respectively. P-value was 0.61. As presented in Table 5.

Table-5: Apgar Score < 7 According To Parity

Parity	Apgar score < 7		Total
	Yes	No	
1-2	04 (40%)	21 (26.6%)	25 (28.1%)
3-4	06 (60%)	56 (70.9%)	62 (69.7%)
> 4	00 (00%)	02 (2.5%)	02 (2.2%)
Total	10 (100%)	79 (100%)	89 (100%)
P-value	0.61		

Stratification for gravida with respect to APGAR score < 7 showed that 04 (40%), 06 (60%) and 00 (00%) patients whose neonates had APGAR score < 7 were in gravida group 1-2, 3-4 and > 4 respectively. Whereas 16 (20.3%), 61 (77.2%) and 02 (2.5%) patients whose neonates did not have APGAR score < 7 were in gravida group 1-2, 3-4 and > 4 respectively. P-value was 0.34.

Stratification for maternal age with respect to NICU admission showed that 07 (33.3%) and 27 (39.7%) patients who were in age group 20-30 years did not have NICU admission respectively. Whereas 14 (66.7%) and 41 (60.3%) patients who were in age group 31-45 years did not have NICU admission respectively. P-value was 0.39. As presented in Table 6.

Table-6: Nicu Admission According To Age; n=89

Age (years)	Nicu admission		Total
	Yes	No	
20-30	07 (33.7%)	27 (39.7%)	34 (38.2%)
31-45	14 (66.7%)	41 (60.3%)	55 (61.8%)
Total	21 (100%)	68 (100%)	89 (100%)
P-value	0.39		

DISCUSSION

Breech presentation is defined as the initial entrance of the gluteal region of the fetus into the maternal pelvis and is the most common abnormal fetal presentation. It is a challenge in obstetric management and is associated with increased perinatal morbidity and mortality. The predisposing factors for breech presentation are prematurity, multiple gestation, multiparity, fetal hydrocephalus, oligohydramnios, polar placenta, placenta previa, gestational diabetes, history of breech delivery, short umbilical cord, low birth weight, uterine anomalies, congenital anomaly, previous cesarean delivery, and pelvic tumors. Breech presentation has an increased risk of neonatal mortality compared with the overall birthing population. Much attention has been focussed on the optimal mode of delivery for breech-presenting babies. Regardless of mode of delivery, there are increased risks of adverse maternal or neonatal outcomes associated with breech presentation.

A retrospective observational study done in Kims HUBLI. Primary outcomes of study included neonatal mortality, morbidity and Low 5-minute Apgar score, admission to neonatal intensive care unit, maternal morbidity. Out of 100 multigravida cases selected, who delivered vaginally. Perinatal mortality was 6%. Maternal morbidity was 2%, both patients had postpartum hemorrhage. Delivery of breech fetus when labor and delivery is supervised and conducted by experienced obstetrician lowers neonatal morbidity, maternal morbidity and mortality.¹⁴

Another study looked for maternal and neonatal

complications. Maternal complication included any genital tract trauma during delivery while neonatal complications were perinatal mortality, low Apgar score (less than eight at 5 minutes) and birth trauma. There were a total 3977 deliveries during this study period, 145 breech presentation (incidence 3.6%). Out of those, 100 were included in the study. All were unbooked cases, 87% were multigravida while 13% were primigravida. An Apgar score of eight was recorded in 87% babies while 10% had an Apgar score of less than eight after 5 minutes. There were 3 still births and one neonatal death. Aggregated perinatal mortality rate was 40/1000 live births. Only one baby had birth trauma (Erb's paralysis) during vaginal breech delivery. Ninety seven (97%) mothers had no complications while only 3 (3%) had complications. Out of these, one had cervical tear and 2 had vaginal tears.¹⁵

Another study included 1243 deliveries, including 674 breech presentations at term (incidence of breech 6%). Out of 178 successful vaginal breech deliveries, 8 (4.49%) neonates had AS <7 at 5 min, and 6 (3.37%) neonates needed NICU admission. There were no cases of birth trauma or perinatal morbidity. Maternal complications occurred in only 5 (2.8%) patients, 2 (1.1%) having perineal tears, 2 (1.12%) retained placenta and one (0.56%) case of post partum haemorrhage. Vaginal breech delivery can be safely undertaken without compromising maternal and neonatal outcome if strict criteria are met before and during labour.¹⁶

Another study included Of 10133 women with term breech singleton pregnancies, 5197 (51.3%) were classified as eligible for vaginal breech delivery. Of these, 6.8% intended vaginal breech birth, 76.4% planned caesarean section and intention could not be determined for 16.8%. Women intending vaginal delivery had higher rates of neonatal morbidity (6.0% vs 2.1%), neonatal birth trauma (7.4% vs 0.9%), Apgar <4 at one minute (10.5% vs %), Apgar <7 at five minutes (4.3% vs 0.5%) and neonatal intensive care unit/special care nursery admissions (16.2% vs 6.6%) than those planning caesarean section. Increased perinatal risks remained after adjustment for maternal characteristics. Severe maternal morbidity (1.4% vs 0.7%) and post-partum readmission (4.6% vs 4.0%) were higher in the intended vaginal compared to planned caesarean births, but these differences were not statistically significant.¹⁷

CONCLUSION

Vaginal delivery of term breech foetus is a safe option in a carefully selected group of women. Pre-delivery assessment, vigilant labour monitoring and delivery by trained doctors can minimize poor foeto-maternal outcome. Offering a trial of vaginal breech delivery to strictly selected and well-counselled patients remain an appropriate option. It also decreases the rate of operative delivery for this malpresentation. This will not only help retain skills of vaginal breech delivery but also reduce poor foeto-maternal outcome in the events of an unexpected breech delivery.

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