



COMPARISON OF PERINATAL MORTALITY IN BREECH PRESENTATION DELIVERED VAGINALLY VERSUS CAESARIAN SECTION

Obstetrics & Gynaecology

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ABSTRACT

Introduction: Breech presentation is commonest malpresentation, occurs in 3–4% of term deliveries. Breech presentation is a longitudinal lie of the fetus with the caudal pole (buttock or lower extremity) occupying the lower part of the uterus and cephalic pole in the uterine fundus.

Aims: A comparative study of the perinatal mortality in breech delivery between vaginal versus C section.

Result: It was found that Antenatal work-up 1st visit was less in VD compared to LSCS which was statistically significant and antenatal work-up was significantly associated with VD. Antenatal work-up last visit was less in VD compared to LSCS which was statistically significant. In our study, Good bishop score was more in VD compared to LSCS which was statistically significant. We found that birth trauma was more in VD compared to LSCS which was statistically significant. It was found that asphyxia was more in VD compared to LSCS which was statistically significant. Vaginal maternal complications were more in VD compared to LSCS which was statistically significant.

Neonate NICU admission was more in LSCS compared to VD though it was not statistically significant. Neonate duration of NICU stay was more in VD compared to LSCS which was statistically significant. Poor APGAR SCORE was observed in VD compared to LSCS which was statistically significant. Neonate neurological morbidity was higher in VD compared to LSCS which was statistically significant.

Neonate birth trauma was higher in VD compared to LSCS which was statistically significant.

Conclusion: We concluded that birth trauma birth asphyxia, maternal complications, Neonate NICU admission, Neonate birth trauma and neurological morbidity were more in VD compared to LSCS in breech presentation.

KEYWORDS

Breech presentation, Caesarian Section, delivery and perinatal mortality

INTRODUCTION

Breech presentation is commonest malpresentation, occurs in 3–4% of term deliveries. Breech presentation is a longitudinal lie of the fetus with the caudal pole (buttock or lower extremity) occupying the lower part of the uterus and cephalic pole in the uterine fundus. Hall et al described it as “One of the greatest tests of obstetrics skill, the act of obstetric finding its full flower in proper handling of this problem.”¹

The predisposing factors for breech deliveries include maternal factors (fetopelvic disproportion, soft tissue dystocia, uterine anomalies; pelvic tumors (myoma, ovarianneoplasm, etc.), and grand multipara); placenta factors (placenta previa, cornual placenta); liquid factors (polyhydramnios, oligohydramnios); and cord, factors (very long cord and very short cord). Fetal factors include multiple pregnancies and congenital anomalies. Other purported risk factors include primiparity, female gender, maternal anticonvulsant therapy, older maternal age, fetal growth restriction, and previous breech presentation².

There are three types of breech presentation³.

1. Frank breech position (48 to 73%), both hips are flexed and both knees are extended.
2. Complete breech position (4.6 to 11.5%), both hips and both knees are flexed.
3. Incomplete breech position (12.4 to 40.5), one or both hips are not completely flexed

From the historical perspective, vaginal delivery of the persistent breech presentation had been the tradition since the first century A.D. During the last 20-30 years, management of breech has therefore been somewhat controversial⁴. There has been a long debate over the best mode of delivery for breech presentation at term. The wide ranges of management policies have been instituted with the aim of reducing maternal and perinatal morbidity - mortality.

There are advantages and disadvantages for each mode of delivery. Vaginal delivery has lesser blood loss, minimum surgical stress, quicker recovery, and hemodynamic stability while in the cesarean section predictability, planned delivery, timed delivery, and immediate availability of all personnel has its obvious advantage. When vaginal birth seems safe, spontaneous labor allows better estimation of the uterine contractility, fetus accommodation to maternal pelvis and monitoring with a partograph. Induced labor in breech presentation is usually not preferred. Though the recent evidence points towards neonatal outcome in planned caesarean section being better than vaginal breech birth yet vaginal breech birth is still considered a safe option for some women. Recommendations are based on physiology, practice experience and the management of patients with low complication rates.

The APGAR score provides an accepted and convenient method for reporting the status of the newborn infant immediately after birth and the response to resuscitation if needed. Though APGAR score alone cannot be considered an evidence of asphyxia, it provides a standardized assessment for infants after delivery. The APGAR score comprises five components: 1) color, 2) heart rate, 3) reflexes, 4) muscle tone, and 5) respiration, each of which is given a score of 0, 1, or 2.

There is no consensus regarding the single best management of the term breech fetus in labour. We hereby compare outcome of term breech delivery between vaginal breech delivery and Cesarean section with respect to perinatal morbidity and mortality in the newborns.

AIMS AND OBJECTIVES

A comparative study of the perinatal mortality in breech delivery between vaginal versus C section.

OBJECTIVE :

- To assess intrapartum & early neonatal death
- To assess birth trauma in vaginal breech delivery.
- To assess the number of neonatal admissions in NICU.
- To assess the APGAR score after 1 min and after 5 min.
- To assess overall neonatal morbidity.

MATERIALS AND METHOD

Source Of Data: Main source of data are the ANC patients delivering via breech presentation in the department of obstetrics and gynaecology in Late baliram kashyap memorial medical college, dimrapal.

Study Design: Prospective clinical study

Sample Size: All PNC cases with duration from June 2018 to June 2020 who fulfill inclusion criteria. Minimal sample size:200.

Exclusion Criteria:

- 1 Mothers with preterm breech deliveries.
- 2 Congenital malformed breech deliveries, because congenital malformed fetus can have reduced survival so that can affect outcome of the fetus.
- 3 Pregnant females with medical disorder (k/c/o Hypertension, Diabetes mellitus, Respiratory disorders, hypertension, thyroid disorders, hemolytic disorders, respiratory disorders, cardiac disorders).
- 4 Intrauterine death
- 5 Multiple gestation.

STATISTICAL ANALYSIS:

For statistical analysis data were entered into a Microsoft excel spreadsheet and then analyzed by SPSS 24.0. and GraphPad Prism version 5. A chi-squared test (χ^2 test) was any statistical hypothesis test wherein the sampling distribution of the test statistic is a chi-squared distribution when the null hypothesis is true. Without other qualification, 'chi-squared test' often is used as short for Pearson's chi-squared test. Unpaired proportions were compared by Chi-square test or Fischer's exact test, as appropriate. p -value ≤ 0.05 was considered for statistically significant.

RESULT & DISCUSSION

Our study showed that in LSCS mode of delivery, 7(7.3%) patients were ≤ 20 years old, 26(27.1%) patients were 21-25 years old, 41(42.7%) patients were 26-30 years old, 19(19.8%) patients were 31-35 years old and 3(3.1%) patients were 36-40 years old. In VD mode of delivery, 8(7.7%) patients were ≤ 20 years old, 33(31.7%) patients were 21-25 years old, 51(49.0%) patients were 26-30 years old, 10(9.6%) patients were 31-35 years old and 2(1.9%) patients were 36-40 years old. Association of age in years vs. mode of delivery was not statistically significant ($p=0.3235$).

We found that in LSCS mode of delivery, 21(21.9%) patients had Parity M and 75(78.1%) patients had Parity P. In VD mode of delivery, 34(32.7%) patients had Parity M and 70(67.3%) patients had Parity P. Association of Parity vs. mode of delivery was not statistically significant ($p=0.0869$). In LSCS mode of delivery, 49(51.0%) patients were < 37 weeks and 47(49.0%) patients were > 37 weeks. In VD mode of delivery, 26(25.0%) patients were < 37 weeks and 78(75.0%) patients were > 37 weeks. Association of Gestational age vs. mode of delivery was statistically significant ($p<0.0001$).

It was found that in LSCS mode of delivery, 53(55.2%) patients had Antenatal work-up 1st visit. In VD mode of delivery, 20(19.2%) patients had Antenatal work-up 1st visit. Association of Antenatal work-up 1st visit vs. mode of delivery was statistically significant ($p<0.0001$). In LSCS mode of delivery, 58(60.4%) patients had Antenatal work-up booked / unbooked. In VD mode of delivery, 78(75.0%) patients had Antenatal work-up booked / unbooked. Association of Antenatal work-up booked / unbooked vs. mode of delivery was statistically significant ($p=0.0271$). In LSCS mode of delivery, 39(40.6%) patients had Antenatal work-up last visit. In VD mode of delivery, 21(20.2%) patients had Antenatal work-up last visit. Association of Antenatal work-up last visit vs. mode of delivery was statistically significant ($p=0.0016$).

We observed that in LSCS mode of delivery, 20(20.8%) patients were good, 15(15.6%) patients were Normal and 61(63.5%) patients were Poor. In VD mode of delivery, 101(97.1%) patients were good, 1(1.0%) patients were Normal and 2(1.9%) patients were Poor. Association of Antenatal work-up bishop score vs. mode of delivery was statistically significant ($p<0.0001$). In LSCS mode of delivery, 3(3.1%) patients had vaginal birth trauma. In VD mode of delivery, 19(18.3%) patients had vaginal birth trauma. Association of Vaginal birth trauma vs. mode of delivery was statistically significant ($p=0.0006$). In LSCS mode of delivery, 2(2.1%) patients had vaginal asphyxia. In VD mode of delivery, 14(13.5%) patients had vaginal asphyxia. Association of vaginal asphyxia vs. mode of delivery was statistically significant ($p=0.0030$).

Berghenegouwen LA et al.⁵ (2014) found that there is controversy on the preferred mode of delivery (vaginal delivery (VD) versus caesarean section (CS)) in preterm breech delivery in relation to neonatal outcome. While CS is supposed to be safer for the fetus, arguments against CS can be the increased risk of maternal morbidity, risks for future pregnancies, and costs. Moreover, neonatal respiratory distress syndrome occurs more frequently after CS compared to VD. They performed a systematic review and meta-analysis of non-randomized studies that assessed the association between mode of delivery and neonatal mortality in women with preterm breech presentation. The weighted risk of neonatal mortality was 3.8% in the CS group and 11.5% in the VD group (pooled RR 0.63 (95% CI 0.48–0.81)). They conclude that cohort studies indicate that CS reduces neonatal mortality as compared to VD.

Hellsten et al.⁶ (2003) did a non-concurrent observational longitudinal study, evaluation of 711 women who gave birth to singleton babies at term in breech presentation. They concluded vaginal delivery of fetuses in breech presentation was related to lower APGAR scores at 1

minute (RR=9.5 with 95CI: 2.3 to 40.3) and acidemia (arterial pH < 7) with RR=7.6 (95CI: 1.8 to 32.3).

Our study showed that in LSCS mode of delivery, 3(3.1%) patients had vaginal maternal complications (if any). In VD mode of delivery, 14(13.6%) patients had vaginal maternal complications (if any). Association of Vaginal maternal complications (if any) vs. mode of delivery was statistically significant ($p=0.0082$). In LSCS mode of delivery, 10(10.5%) patients had Caesarean birth trauma. Association of Caesarean birth trauma vs. mode of delivery was statistically significant ($p=0.0007$). In LSCS mode of delivery, 9(9.5%) patients had caesarean asphyxia. Association of caesarean asphyxia vs. mode of delivery was statistically significant ($p=0.0013$). In LSCS mode of delivery, 2(2.1%) patients had caesarean maternal complications (if any). Association of caesarean maternal complications (if any) vs. mode of delivery was not statistically significant ($p=0.1388$).

It was found that in LSCS mode of delivery, 1(1.1%) patients had Antenatal maternal. In VD mode of delivery, 3(2.9%) patients had Antenatal maternal. Association of Antenatal maternal vs. mode of delivery was not statistically significant ($p=0.3526$). In LSCS mode of delivery, 7(7.4%) patients had Intranatal maternal. In VD mode of delivery, 9(8.7%) patients had Intranatal maternal. Association of Intranatal maternal vs. mode of delivery was not statistically significant ($p=0.7239$). In LSCS mode of delivery, 6(6.3%) patients had Postnatal maternal. In VD mode of delivery, 11(10.7%) patients had Postnatal maternal. Association of Postnatal maternal vs. mode of delivery was not statistically significant ($p=0.2735$).

We also found that in LSCS mode of delivery, 28(29.5%) patients had Neonate NICU admission. In VD mode of delivery, 22(21.4%) patients had Neonate NICU admission. Association of Neonate NICU admission vs. mode of delivery was not statistically significant ($p=0.1891$). In LSCS mode of delivery, 79(83.2%) patients were good and 16(16.8%) patients were Poor. In VD mode of delivery, 77(74.8%) patients were good and 26(25.2%) patients were Poor. Association of apgar score vs. mode of delivery was statistically significant ($p=0.0485$). In LSCS mode of delivery, 17(17.7%) patients had Neonate asphyxia. In VD mode of delivery, 9(8.7%) patients had Neonate asphyxia. Association of Neonate asphyxia vs. mode of delivery was statistically significant ($p=0.0571$).

Vlemmix et al.⁷ showed that Elective caesarean also reduced the risk of low APGAR scores (less than 7 at 5 minutes; OR 0.12, 95% CI 0.09–0.16) and neonatal 'trauma' (OR 0.24, 95% CI 0.15–0.37) compared with planned vaginal birth. The differences in mortality and morbidity persisted among different birth weights, with parity and with type of breech. The authors estimated that 338 additional caesarean sections were performed for each perinatal death prevented.

PREMODA study,⁸ compared that Planned vaginal birth showed significant increases in APGAR scores of less than 7 at 5 minutes (OR 3.20, 95% CI 1.93–5.3) and total injuries, most of which were clavicular fractures or haematomata (OR 3.90, 95% CI 2.40–6.34). However, there was no difference in neonatal unit admissions (OR 1.33, 95% CI 0.94–1.86), or a composite measure of mortality or serious neonatal morbidity (OR 1.10, 95% CI 0.75–0.61). This remained after adjustment for other factors associated with this outcome (adjusted OR 1.40, 95% CI 0.89–2.23).

Royal College of Obstetricians and Gynaecologists (RCOG) recommended that vaginal breech birth increases the risk of low APGAR scores and serious short-term complications, but has not been shown to increase the risk of long-term morbidity.

Vistad I et al.⁹ (2013) evaluated that brachial plexus injury, and cephalhematoma. The other infant had 5-minutes APGAR $\square < 4$. Twenty-nine in the planned vaginal group (10.0%) and eight in the planned caesarean section group (2.9%) ($p \square < 0.001$) were transferred to the neonatal intensive care unit. However, only one infant was admitted for ≥ 4 days. According to follow-up data (median six years) reported none of these infants had long-term sequelae.

Singh A et al.¹⁰ (2012) compared that perinatal morbidity and mortality was lower in caesarean section group as compared to vaginal delivery group, but the difference became statistically insignificant after adjustment for confounding factors ($p=0.14$).

Igwegbe AO et al.¹¹ (2010) compared that vaginal breech delivery was associated with significantly low APGAR score (score < 7) at 5-

minutes ($X^2=8.19$; $OR=8.80$, $P=0.004$), while mothers who were delivered through caesarean section had significantly, more morbidity ($X^2=3.14$, $OR=0.29$, $P=0.04$) compared to those who had vaginal delivery. Although assisted breech delivery was associated with more incidence of low APGAR score at 5-minutes, there was no significant difference in either the neonatal mortality rate or NICU admission rate.

Toivonen E et al.¹² (2012) compared that there was one maternal death due to a complicated CS in the planned CS group and none in the other groups. Mothers in the planned CS group suffered significantly more often from massive bleeding and needed transfusions. Vaginal delivery remains an acceptable option for breech delivery in selected cases.

Our study showed that In LSCS mode of delivery, 1(1.0%) patients had Neonate birth trauma. In VD mode of delivery, 9(8.7%) patients had Neonate birth trauma. Association of Neonate birth trauma vs. mode of delivery was statistically significant ($p=0.0135$). In LSCS mode of delivery, 1(1.0%) patients had Neonate neurological morbidity. In VD mode of delivery, 4(3.8%) patients had Neonate neurological morbidity. Association of Neonate neurological morbidity vs. mode of delivery was not statistically significant ($p=0.2043$).

It was found that in LSCS, the mean Age (mean $\pm$ s.d.) of patients was 27.4792 ± 4.5212 . In VD, the mean Age (mean $\pm$ s.d.) of patients was 26.7019 ± 3.9851 . Difference of mean Age with mode of delivery was not statistically significant ($p=0.1979$). In LSCS, the mean neonate duration of NICU stay (mean $\pm$ s.d.) of patients was 3.7586 ± 1.9394 . In VD, the mean neonate duration of NICU stay (mean $\pm$ s.d.) of patients was 5.0435 ± 1.8210 . Difference of mean neonate duration of NICU stay with mode of delivery was statistically significant ($p=0.0184$).

Table: Distribution Of Mean Neonate Duration Of Nicu Stay: Mode Of Delivery

Neonate duration of NICU stay	LSCS	29	3.7586	1.9394	1.0000	7.0000	3.0000	0.0184
	VD	23	5.0435	1.8210	3.0000	10.0000	5.0000	

Table: Association Between Caesarean Maternal Complications (if Any), Antenatal Work-up 1st Visit And Antenatal Work-up Booked / Unbooked : Mode Of Delivery

		MODE OF DELIVERY			Chi-square value	p-value
		LSCS	VD	TOTAL		
caesarean maternal complications (if any)	NO	93	103	196	2.1905	0.1388
	Row %	47.4	52.6	100.0		
	Col %	97.9	100.0	99.0		
	YES	2	0	2		
	Row %	100.0	0.0	100.0		
	Col %	2.1	0.0	1.0		
Antenatal work-up 1st visit	TOTAL	95	103	198	27.8786	<0.0001
	Row %	48.0	52.0	100.0		
	Col %	100.0	100.0	100.0		
	NO	43	84	127		
	Row %	33.9	66.1	100.0		
	Col %	44.8	80.8	63.5		
Antenatal work-up booked / unbooked	YES	53	20	73	4.8790	0.0271
	Row %	72.6	27.4	100.0		
	Col %	55.2	19.2	36.5		
	TOTAL	96	104	200		
	Row %	48.0	52.0	100.0		
	Col %	100.0	100.0	100.0		

CONCLUSION

It was found that Antenatal work-up 1st visit was less in VD compared to LSCS which was statistically significant and antenatal work-up was

significantly associated with VD.

Antenatal work-up last visit was less in VD compared to LSCS which was statistically significant.

In our study, Good bishop score was more in VD compared to LSCS which was statistically significant.

We found that birth trauma was more in VD compared to LSCS which was statistically significant.

It was found that asphyxia was more in VD compared to LSCS which was statistically significant.

Vaginal maternal complications were more in VD compared to LSCS which was statistically significant.

Neonate NICU admission was more in LSCS compared to VD though it was not statistically significant. Neonate duration of NICU stay was more in VD compared to LSCS which was statistically significant.

Poor APGAR SCORE was observed in VD compared to LSCS which was statistically significant.

Neonate neurological morbidity was higher in VD compared to LSCS which was statistically significant.

Neonate birth trauma was higher in VD compared to LSCS which was statistically significant.

We concluded that birth trauma birth asphyxia, maternal complications, Neonate NICU admission, Neonate birth trauma and neurological morbidity were more in VD compared to LSCS in breech presentation.

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