JRMI
Journal of Rehman Medical Institute

Volume 9, No. 2
April - June 2023
www.jrmi.pk

ORIGINAL ARTICLE

Relationship of mode of delivery of breech presentation with fetal and maternal outcome in a tertiary care hospital

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Submitted
May 10, 2023
Accepted
June 14, 2023

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Citation: Zeb L, Malik A. Relationship of mode of delivery of breech presentation with fetal and maternal outcome in a tertiary care hospital. J Rehman Med Inst. 2023 Apr-Jun;9(2):22-5.

ABSTRACT

Introduction: Breech presentation of fetus is a common occurrence in gynecologic practice, and various causes have been attributed to its occurrence. The presentation itself, as well the mode of delivery in such cases affects the fetal and maternal outcome.

Objective: To determine the occurrence of breech presentation as well as the short-term maternal and fetal outcomes associated with its mode of delivery in a tertiary care hospital.

Materials & Methods: A descriptive study was carried out at the Department of Obstetrics & Gynecology of Lady Reading Hospital Peshawar, on retrospective data of all breech presentations from January l5, 2021, to December 3l, 2021. Details for demographic data, age of the patients, parity, period of gestation at birth, route of delivery, birth weight, neonatal admission, maternal and perinatal outcomes were collected from the hospitals records. SPSS 26 was used for descriptive data analysis, while the Chi Square test was used to identify associations, keeping $p \leq 0.05$ as significant.

Results: Breech presentation occurred in 394(5%) out of 7617 deliveries. Patients between age group of 20-35 years were 53% and patients >35 years of age were 32%; primigravids constituted 40% of cases. Majority were delivered vaginally (57%) compared to caesarean section (43%). ln babies delivered vaginally, perinatal morbidity was found to be 14.2% which was higher than the patients who had caesarean section (6%). Only 3.2% women had post-partum hemorrhage (PPH).

Conclusion: In order to have successful vaginal breech delivery with good fetal and maternal outcomes, and to decrease the percentage of caesareans being done for breech presentation it is very important to properly assess and select patients for breech vaginal delivery, strict fetal heart monitoring and implementing correct method of breech vaginal delivery.

Keywords: Breech Presentation; Delivery, Obstetric; Birth Weight; Cesarean Section.

The authors declared no conflict of interest. All authors contributed substantially to the planning of research, data collection, data analysis, and write-up of the article, and agreed to be accountable for all aspects of the work.

INTRODUCTION

Breech presentation among all the malpresentations is the commonest one and at term the incidence among singleton pregnancies is 3-4%1.lncidence at 28th week of pregnancy is about 20% and due to spontaneous version drops down to 5% at 34th week of pregnancy.[1]

Prematurity, oligohydramnios, uterine anomalies, fetal anomalies, and placenta previa, etc., are various causes of this malpresentation.[2]

Maternal as well as fetal morbidity is increased with breech presentation in any case of route of delivery.[2] Genital tract injuries are more common in mother in both breech vaginal and cesarean delivery while in fetus there are more chances of umbilical cord prolapse, prematurity and birth trauma in singleton term breech presentation the best route of delivery is disputable.[3]

In general, for planned breech vaginal delivery the perinatal mortality risk associated is just about 2/1000. Likewise for cephalic vaginal deliveries the risk is 1/1000 and for cesarean section after 39 weeks is 0.5/1000.[4] However these figures are amenable to change depending upon the level of health care practices and available facilities and socioeconomic conditions.

Hannah et al.,[5] in 2000 used the term breech trial, in which it was found that for singleton term breech, planned cesarean has lesser perinatal mortality and serious perinatal morbidity figures than to vaginal breech delivery. A similar result was published by Bin et al.,[6] in 2016 in a population based study.

The PREMODA study in 2006 which was published by Goffinet et al.,[7] showed that in case of neonatal morbidity (l.6% vs 1.45%) or perinatal mortality (08% vs 0.15%)[8] there is no difference between planned caesarean delivery and breech vaginal delivery.

Revised RCOG guidelines in 2017 clearly states that if there is proper case selection and availability of skilled intrapartum care then planned breech vaginal birth can be as prudent as planned cephalic vaginal birth.[4]

ACOG (Number 745)[8] and also RCOG (2017)[4] recommend that all the benefits and risks should be explained to the patient regarding both modes of delivery. For women having singleton term breech presentation, external cephalic version should be offered provided there are no contraindications.

The present study was conducted to document the management of breech presentation and the maternal and perinatal outcome regarding the mode of deliveries in our hospital.

MATERIALS & METHODS

The present descriptive study was conducted from November to December 2022, at the Department of Obstetrics & Gynecology, Lady Reading Hospital Peshawar, a busy tertiary care hospital of the Khyber Pakhtunkhwa province catering for a large population of obstetric patients; data were based on retrospective collection of hospital records from January 1, 2021, till December 31, 2021. Data collected from past hospital records included patients with singleton live breech presentation with gestational age between 37 and 42 wks. Patients with preterm pregnancies (less than 37 weeks), post term pregnancies (greater than 42 weeks), anomalous babies, twins, and intrauterine deaths were excluded.

Data were collected on predesigned Performa and included variables for demographic data, past and present obstetric history, route of delivery, birth weight, neonatal admission, maternal outcomes, and perinatal outcomes.

For data analysis SPSS version 26 was used for obtaining descriptive statistics for numerical and categorical variables. The Chi-square test and Fisher Exact test were used where applicable to determine the association between maternal and fetal characteristics, and perinatal outcomes, keeping p value ≤0.05 as significant.

RESULTS

During the period of study, there were 7617 total deliveries. The total number of breech deliveries between 37-42 weeks of gestation were 394, hence the occurrence of breech presentation was found to be 5.2%.

Table 1 shows the demographic data of patients; 15% of patients were ≤20 years old, 53% were in the age group of 20-35 years and 32% were >35 years old. Primigravida were 40% and multigravida were 60%. The majority of cases (82%) were between 37-40 weeks of gestation, as compared to 18% between 40-42 weeks.

Table 1: Demographic data of breech presentation patients (n=394).

Variables	No. of cases	Percentage
Age groups (years)		
< 20 Years	59	15
20 – 35 Years	209	53
> 35 Years	126	32
Parity		
Primigravida	157	40
Multigravida	238	60
Period of Gestation (weeks)		
37 – 40	323	82
40 - 42	71	18

Table 2 shows the obstetric data of patients with breech presentations. It was found that 43% of cases were delivered by caesarean section and 57% had vaginal delivery. Regarding the birth weights of babies, 22.6% were <2.5kg,while babies who had weight at the time of their birth between 2.5 -3.5 kg were 69.1%; 8.3% were greater than 3.5kg.

Table 2: Obstetric data of patients with breech presentation (n=394).

Variables	Number of cases	Percentage
Route of Delivery		
Vaginal	225	57
Caesarean Section	169	43
Birth weights (kgs)		
<2.5	89	22.6
2.5 – 3.5	271	69.1
>3.5	34	08.3

Perinatal complications of breech babies are shown in Table 3. A total of 80(20.3%) newborns were admitted to NICU; of the 169 patients who had caesarean section 12(07.1%) babies were admitted to NICU, whereas of the 225 cases delivered vaginally, 68(30.2%) were admitted to NICU. The common reasons for admission to NICU were because of respiratory distress and birth asphyxia (5 minute Apgar Score ≤3). The vaginal route carried a perinatal mortality rate of 14.2% compared to the caesarean section perinatal mortality rate of 6%.

Table 3: Perinatal complications of breech babies (n=394).

Complications	Route of Delivery		p value
	Vaginal (n=225)	Cesarean (n=169)	
NICU Admissions			
Number of cases	68	12	<0.001
Percentage	30.2	07.1	
Perinatal Mortality			
Number of cases	32	10	0.008
Percentage	14.2	06	

Table 4 demonstrates that perinatal complications in mothers included post-partum hemorrhage in 3.2%, and perineal injuries in 2% that contributed to maternal morbidity.

Table 4: Perinatal complications of mothers with breech presentation (n= 394).

Complications	No. of cases	Percentage
Postpartum Hemorrhage	13	3.2
Perineal Injuries	08	0

DISCUSSION

In our hospital, a large number of patients had breech vaginal deliveries because majority of these patient either presented to the hospital in advanced stages of labor, or were unbooked that led to failure to plan elective cesarean section on time, and some because of social and financial issues refused cesarean section, although the protocol of the hospital for patients with breech presentations at term is to opt for a cesarean section.

The main focus of this study was to learn about the short-term maternal and perinatal outcomes in patients who have single term

vaginal breech delivery. The breech presentation prevalence was found to be 5.2%, other studies showed a range of 2% to 6%.[9-11] Age distribution of the patient was found to be between 18 to 41 years. Majority(53%) were of age between 20-35 years. Study carried out by Abduljabbar et al.,[12] showed similar results that age distribution was between 17 to 42 years with a mean of 28.96 ± 6.49 years. A study conducted by Panda R, et al.,[13] showed 76.3% between the age range of 20-30 years; 52.60% of patients were primigravida and 47.4% were multipara. In other studies, the corresponding figures were 40% & 60%,[14] and 46.4% & 63.4%,[15] respectively. Most (82%) patients were between the gestational age 37-40 weeks. The mean period of gestation at delivery was 39 weeks with 71(18%) women being postdates. No patient was beyond 42 weeks period of gestation. This is similar to another study[15] where 17.9% patients were beyond the due date of delivery. In our study 43% of patients had caesarean section and 57% had breech vaginal delivery. There was one Cameroonian study in which just 33.3% of patients underwent Cesarean delivery.[16] In another study[12] 76% vs 24% was the ratio of vaginal breech delivery versus C-section. In our analysis, 55% of caesarean sections were patients who were primigravida. However, in another study, Wanjari et al.,[17] have stated incidence of 20.5% of C-section of primigravida patients.

NICU admission was found in 68(30.2%) cases out of the 225 cases who underwent vaginal delivery; 12(7.1%) cases had NICU admission out of the 169 cases who had caesarean section. Our study showed that in patients who underwent breech vaginal delivery, perinatal morbidity is higher as compared to those who underwent caesarean section. An increased rate of perinatal mortality compared to other studies[18-20] among breech vaginal deliveries was found in our analysis. In patients who had period of gestation > 40 weeks or babies who weighed <2.5kg perinatal mortality rate was increased. It was reported by Conde-Agudelo et al.,[21] that the risk of fetal death increases gradually with gestational age beyond 39 weeks and is minimum at 39 weeks. Whatever the route of delivery is chosen, in contrast to term cephalic babies singleton term breech pregnancies turn up to have poorer consequences.[22] Poor perinatal outcomes (24 cases, 6.59%) were reported by the PREMODA Study Group[7] and Azria et al.[23] Because of prebooking and preplanning of cases, rates of morbidity were lesser in their study. Adverse events were more common in women with who were more than 30 years old, period of gestation >40 weeks, and birth weight <2.5kg. Our study reported PPH in 3.2% of women and perineal injuries in 2% of women. The most common cause of PPH was atonic uterus. Wasim and colleagues [24] reported similar incidence of PPH but Dohbit et al.,[20] reported higher rate of 13.2%.

Demonstration sessions on breech vaginal deliveries have been conducted for the purpose of training of residents after this study results. Senior resident or consultant on duty in labor room does the proper assessment of women who has to undergo breech vaginal deliveries. Because unavailability of operating room was also the contributing factor in most patients undergoing breech vaginal deliveries, the request for provision of another operating room has also been made. With these implementations it is expected that in future we will have better outcomes of breech vaginal deliveries.

CONCLUSION

In this study, more cases of breech presentation were delivered vaginally. ln patients who had breech vaginal delivery the perinatal morbidity is higher as compared to caesarean section, but maternal and perinatal morbidity is not totally eliminated by cesarean section.

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