



Study on feto-maternal outcome in term singleton pregnancies with breech presentation at tertiary care centre, Jodhpur

Manvendra Singh Choudhary, Rizwana Shaheen*

Department of Obstetrics and Gynecology, Dr. S. N Medical College Jodhpur, Rajasthan, India

Abstract

Background: Breech presentation is a longitudinal lie of the foetus with the caudal pole occupying the lower part of the uterus and cephalic pole in the uterine fundus. The prevalence of term breech presentation varies globally. Breech presentation and delivery have been classified as high risk because of the increased incidence of perinatal and maternal complications. Comprehensive obstetric care and intensive neonatal care play a crucial role to decrease complications related to breech delivery.

Objective: To evaluate feto-maternal outcome including mode of delivery in term singleton pregnancies with breech presentation.

Material and Methods: An observational study was conducted on all pregnant women with term singleton breech presentation. A rapid assessment was made to establish the stage of labor, status of membrane and condition of the foetus. Close surveillance of foetal heart rate and uterine contraction was monitored. Vaginal examination was done to know the state and dilation of cervix, type of breech and its status. Status of membranes and the pelvis with assessment of fetopelvic disproportion.

Results: The incidence of term breech delivery was 3.63%. The most common complication in term breech presentation was contracted pelvis (6%). The incidence of perinatal morbidity was 9% with maximum case of birth asphyxia (5%). The incidence of perinatal mortality was 8.48% among that in multigravida parity it was 7.4% and in primigravida it was 1.08%.

Conclusion: It is concluded that the balanced decision about the mode of delivery on a case by case basis as well as conduct, training and regular drills of assisted breech delivery will go a long way to optimize the outcome of breech presentation.

Keywords: breech presentation, caesarean section fetomaternal outcome, perinatal morbidity, perinatal mortality

Introduction

Breech presentation is a longitudinal lie of the foetus with the caudal pole (buttock or lower extremity) occupying the lower part of the uterus and cephalic pole in the uterine fundus. It has reported incidence of 3-4% at term^[1]. Breech presentation is the third important indication which has led to higher caesarean section rates in recent times all over the world^[2].

The prevalence of term breech presentation varies globally. In Malaysia the incidence was shown to be 3.8%, in India 2.1%, and in Cameroon it was found to be 2.98%^[3, 5]. Other studies from Nigeria and Ethiopia revealed the incidence of singleton term breech deliveries to be 2.6% and 4% respectively^[6, 7]. Comprehensive obstetric care and intensive neonatal care play a crucial role to decrease complications related to breech delivery^[8]. Pregnancies with breech presentation are associated with an increased risk of congenital disorders, such as foetal hydrocephalus^[9] and small-for-gestational-age (SGA) fetuses (birthweight <10th centile)^[10]. Although premature foetus shows an increased foetal mortality with breech presentation^[11].

Obstetricians have been long trying to reduce the excessive perinatal morbidity and mortality rates associated with the vaginal delivery of the breech fetuses. Various techniques have been employed for this. The most recent and most used one of this is Caesarean section. Proper case selection, vigilant intrapartum monitoring and proper technique can lead to successful vaginal breech delivery without compromising fetomaternal well-being and thus curtailing the percentage of caesarean section^[12].

As the controversy continues, repeated evaluations and reviews of management in this subset of women are needed. The present study was conducted to evaluate feto-maternal outcome including mode of delivery in term singleton pregnancies with breech presentation.

Material and Methods

Study Population: An observational study was conducted on all pregnant women with term singleton breech presentation in labor room of the Department of Obstetrics and Gynecology, Dr S N Medical College, Jodhpur, Rajasthan over a period of one year. A total 190 antenatal cases were taken who were admitted in labor room for delivery. The study was approved by the Institute Ethics Committee.

Inclusion Criteria

1. All pregnant women with singleton breech presentation more than 37 weeks of gestation who was presenting to labor room.

Exclusion Criteria: All pregnancies with

1. Ante partum hemorrhage
2. Severe pre-eclampsia
3. Eclampsia
4. Pregnancu with cephalic presentation
5. Transverse lie

Methodology

All women who present with term singleton breech presentation and delivering in the hospital and have complete records were included in the study. A detailed history with special reference to previous successful breech delivery was elicited. Her age, parity, antenatal care and efforts at external version was recorded. After routine general examination, abdominal examination was proceeded to look for the size of the uterus, frequency of the uterine contraction and foetal heart. A rapid assessment was made to establish the stage of labor, status of membrane and condition of the foetus. An IV infusion was established blood haemoglobin and blood grouping and Rh typing was done. Close surveillance of foetal heart rate and uterine contraction was monitored. Foetal heart was recorded every fifteen minutes. If we suspect foetal distress, continuous electronic monitoring foetal heart rate and uterine contraction was done. Vaginal examination was done to know the state and dilation of cervix, type of breech and its status. Status of membranes and the pelvis with assessment of fetopelvic disproportion.

Decision as to mode of delivery was made in all cases, taking into considerations, parity, previous obstetric history, weight of the baby and associated maternal complications as well as the type of breech, flexion of the foetal head, frequency of the uterine contraction and size of the maternal pelvis. During the process of labor, abdominal delivery was undertaken, when indication rose up. In certain cases, LSCS was done due to appropriate indications.

Statistical analysis

The data was analyzed using SPSS software and continuous variables were reported using mean and standard deviation. Categorical variables were reported using number and percentage. Chi square test was used to assess the association between categorical variables. Independent T test was used to compare the group means between control and study group. P=<0.05 was considered as significant.

Results

Over a period of one year 5500 delivery occurs in our hospital among that 200 were singleton breech deliveries. The incidence of term breech delivery was 3.63%. Among 200 singletons breech deliveries 108 (54%) were multigravida while 92(46%) were primigravida. The most common complication in term breech presentation was contracted pelvis (6%) followed by foetal malformation (3%) while the least was abruptio placenta (1%) In primigravida the major route of delivery was Caesarean delivery i.e. 69.56% while in multigravida the major route of delivery was vaginal delivery i.e. 55.55%.

The incidence of complicated or abnormal breech delivery was 12%. Among that incidence of extended arm was 4%, delay in descent of breech was 1.5%, arrest of after coming head was 6% and impacted breech was 0.5%. The incidence of assisted vaginal delivery was 90.91% and vaginal breech extraction was 9.09%. There was no spontaneous breech delivery.

The incidence of perinatal morbidity was 9% with maximum case of birth asphyxia (5%) and minimum cases of convulsion (1%). The total incidence of perinatal morbidity was higher in breech babies delivered by vaginal route 12.5% as compared to those

delivered by caesarean section which was 6.25%. In perinatal morbidity according to parity in multigravida it was 14.81% and in primigravida it was 2.17%.

The incidence of perinatal mortality was 8.48% among that in multigravida parity it was 7.4% and in primigravida it was 1.08%. The incidence of perinatal mortality in complete breech presentation was 3.44% in extended breech presentation was 1.69% and in footling breech presentation was 20.83%. Perinatal mortality in assisted breech delivery was 5.%, in extraction was 37.5% and in emergency caesarean section was 3.57%.

The incidence of congenital anomalies was 3%

Table 1: Incidence of complication seen in term breech presentation

| Complication associated with breech | Number | Percentage |
|-------------------------------------|--------|------------|
| Contacted pelvis | 12 | 6% |
| Fetal malformation | 06 | 3% |
| Placenta previa | 04 | 2% |
| HDOP | 04 | 2% |
| Abruptio placenta | 02 | 1% |

Table 2: Mode of delivery in breech cases

| Parity | Total cases | Vaginal delivery | | Caesarean delivery | |
|--------------|-------------|------------------|------------|--------------------|------------|
| | | Number | Percentage | Number | Percentage |
| Primigravida | 92 | 28 | 30.43 | 64 | 69.56 |
| Multigravida | 108 | 60 | 55.55 | 48 | 44.45 |
| Total | 200 | 88 | 100 | 112 | 100 |

Table 3: Incidence of complicated breech

| Complications | Number | Percentage |
|-----------------------------|--------|------------|
| Extended arms | 08 | 4% |
| Delay in descent of breech | 03 | 1.5% |
| Arrest of after coming head | 12 | 6% |
| Impacted breech | 01 | 0.5% |

Table 4: Distribution of perinatal morbidity

| Diseases | Number | Percentage |
|------------------|--------|------------|
| Asphyxia | 10 | 5% |
| Birth injuries | 03 | 1.5% |
| Umbilical sepsis | 03 | 1.5% |
| Convulsion | 02 | 1% |

Table 5: Perinatal morbidity according to parity

| Parity | Total cases | Perinatal morbidity | |
|--------------|-------------|---------------------|------------|
| | | Number | Percentage |
| Primigravida | 92 | 02 | 2.17% |
| Multigravida | 108 | 16 | 14.81% |
| Total | 200 | 18 | 16.98% |

Table 6: Perinatal morbidity according to route of delivery

| Disease | Total number | Route of delivery | | | |
|------------------|--------------|-------------------|------------|-----------|------------|
| | | Vaginal | | Caesarean | |
| | | Number | Percentage | Number | Percentage |
| Asphyxia | 10 | 06 | 6.8% | 04 | 3.57% |
| Birth injuries | 03 | 02 | 2.27% | 01 | 0.89% |
| Umbilical sepsis | 03 | 02 | 2.27% | 01 | 0.89% |
| Convulsion | 02 | 01 | 1.13% | 01 | 0.89% |
| Total | 18 | 11 | 12.5% | 07 | 6.25% |

Table 7: Perinatal mortality according to parity

| Parity | Total cases | Perinatal morbidity | |
|--------------|-------------|---------------------|------------|
| | | Number | Percentage |
| Primigravida | 92 | 01 | 01.08% |
| Multigravida | 108 | 08 | 07.40% |
| Total | 200 | 09 | 08.48% |

Table 8: Perinatal mortality according to type of breech

| Type of breech | Cases | Number | Percentage |
|----------------|-------|--------|------------|
| Complete | 58 | 02 | 3.44% |
| External | 118 | 02 | 1.69% |
| Footling | 24 | 05 | 20.83% |
| Total | 200 | 09 | 25.96 |

Table 9: Perinatal morbidity according to route of delivery

| Type of delivery | Total number | Perinatal mortality | |
|---------------------|--------------|---------------------|------------|
| | | Number | Percentage |
| 1. Vaginal | 88 | 7 | 7.95% |
| Spontaneous | 00 | 0 | 0.00 |
| Assisted | 80 | 4 | 5% |
| Extraction | 08 | 3 | 37.5% |
| 2. Cesarean section | 112 | 2 | 1.79% |
| Elective | 56 | 0 | 00 |
| Emergency | 56 | 2 | 3.57% |
| Total | 200 | 9 | 4.5% |

Discussion

The present study was based on 200 term singleton breech presentation delivered in Dr S. N. Medical College, Jodhpur during a period of one year. In this study the incidence of term singleton breech delivery was 3.63% which was consistent with the study conducted by Tayyab Wasim *et al* [13] and Brown *et al* [14] who reported 3.8% and 4% respectively. However Bingham *et al* [15] and Ratna Panda *et al* [16] reported lower incidence than our value 2.5% and 2.65% respectively.

In this study the incidence of breech presentation was higher in multigravida 54% while in primigravida it was 46%. This is probably because of relative low tone of uterine musculature in multigravida favouring malrotation and subsequent breech presentation [17]. Our findings are close resembles with Airao B *et al* [17] 53%, Johnson *et al* [18] 60% and Gimovsky *et al* [19] 62%. In this study we found that 56% of term breech was delivered by caesarean section while 44% were delivered vaginally. Our findings are consistent with Singh A *et al* [4] who reported 57.3% of term breech was delivered by caesarean section. Various authors reported caesarean section was more common in their study [20, 22]. We also found that in primigravida the major route of delivery was caesarean delivery i.e. 69.56% while in multigravida the major route of delivery was vaginal delivery i.e. 55.55%. In the study by Nahid F *et al* [12] 54.26% of the patients with breech presentation delivered by caesarean section. However Gimovsky [19] and Bingham *et al* [15] preferred caesarean section as the mode of delivery with incidence of 74.2% and 71.2% respectively. Caesarean section has been advocated by many in the management of breech delivery due to increased incidence of traumatic vaginal birth injuries, increased incidence of umbilical cord accidents, difficult delivery of after coming head. In 90.9% of the cases delivered vaginally assistance was given to deliver them vaginally. In the rest 9.09% of patients breech extraction was done. In this study the incidence of

perinatal morbidity was 9% with maximum case of birth asphyxia (5%) followed by birth injuries and umbilical sepsis 1.5% each and the least was convulsion (1%). Our findings are in higher side as compared to other studies such as Airao B *et al* [17] 3%, Guiliani *et al* [23] 2.8% and Orji *et al* [24] 3.2%.

In this study we found that the total incidence of perinatal morbidity was higher in breech babies delivered by vaginal route 12.5% as compared to those delivered by caesarean section which was 6.25% which is consistent with the study conducted by Johnson *et al* [18] who reported similar findings.

In this study we found that in perinatal morbidity according to parity in multigravida it was 14.81% and in primigravida it was 2.17%. Our findings are in accordance with Johnson *et al* [18] who also noted a higher incidence of perinatal morbidity in multigravida (26.4%) as compare to primigravida (16.8%). This decrease incidence of perinatal morbidity in primigravida in our study can be attributed to liberal use of caesarean section in primigravida. Also the higher incidence of infants with higher birth weights contributed to increased perinatal morbidity in multigravidas. Breech delivery in multigravida should not be taken lightly due to increase birth weight, increase incidence of footling and complete breech in them and hence a liberalized policy of caesarean section in them can give a better foetal outcome. The overall incidence of perinatal mortality rate in our study was 4.5%. The incidence was more in multiparous i.e. 7.4% than the primiparous i.e. 1.08%. This difference was significant and was attributed to the observation of the liberal use of caesarean section as the preferred mode of delivery in primiparous patients than in multiparous. Also the incidence of perinatal mortality in multiparous women increased due to increased incidence of complicated breech in multiparous women. Similarly higher incidence of perinatal mortality in multiparous women was noted by Johnson *et al* [18] i.e. 2.23% in multigravida as compared to 0.3% in primigravida. However Gimovsky *et al* [19] reported a high perinatal mortality in primigravida 1.6% as compared to multigravida 0.7%. Study done by Airao B *et al* [17] 2018 70, Orji *et al* [24] and Igwegbe *et al* [25] show incidence of perinatal mortality was 3%, 3.2% and 5% respectively which is closely resembles to our study. In this study highest incidence of perinatal mortality was seen in breech extraction (37.5%) followed by assisted breech delivery (5%). This indicated a need to exercise greater concern to improve the technique and selection of cases for extraction of breech.

Conclusion

Caesarean section decreases the risk of adverse perinatal outcome due to both problems of labour and problems of delivery for the singleton foetus in breech presentation at term compared with vaginal delivery. Vaginal breech delivery in multigravida women has good perinatal outcome than vaginal breech delivery in primigravida women. It is concluded that the balanced decision about the mode of delivery on a case by case basis as well as conduct, training and regular drills of assisted breech delivery will go a long way to optimize the outcome of breech presentation.

References

1. De Cherney A, Nathan L, Goodwin T, Laufer N. Current Obstetrics and Gynecology. New York: Mc Graw Hill Medical, 2007.

2. Studd J. Pioneers in obstetrics and gynaecology: William Smellie. *The Diplomat*. 1994; 1:153-4.
3. Nordin NM. An audit of singleton breech deliveries in a hospital with a high rate of vaginal delivery. *Malays J Med Sci*. 2007; 14(1):28.
4. Singh A, Mishra N, Dewangan R. Delivery in breech presentation: the decision making. *J Obstet Gynaecol India*. 2012; 62(4):401-5.
5. Ngowa J. Neonatal outcome of term Breech births: a 15-year review at the Yaounda General Hospital, Cameroon. *Clin Mother Child Health*, 2012. <https://doi.org/10.4303/cmch/235578>.
6. Ojiyi EE, Dike EI, Okeudo C, Anolue FC, Uzoma O, Uzoma MJ *et al*. Outcome of singleton term breech deliveries at a University Teaching Hospital in Eastern Nigeria. *Webmed Central Obstet Gynaecol*. 2011; 2(12):002543.
7. Mekbib T. Breech delivery and foetal outcome: a review of 291 cases. *Ethiop Med J*. 1995; 33(3):175-82
8. The Society of Obstetricians and Gynaecologists of Canada. SOGC clinical practice guideline: Vaginal delivery of breech presentation. Guideline 226. *J Obstet Gynaecol Can*. 2009; 31(6):557-66.
9. Rayl J, Gibson PJ, Hickok DE. A population-based case-control study of risk factors for breech presentation. *Am J Obstet Gynecol*. 1996; 174:28-32.
10. Fruscalzo A, Londero AP, Salvador S, Bertozzi S, Biasioli A, Della MM *et al*. New and old predictive factors for breech presentation: our experience in 14 433 singleton pregnancies and a literature review. *J Matern Fetal Neonatal Med*. 2014; 27:167-72.
11. Demol S, Bashiri A, Furman B, Maymon E, Shoham-Vardi I, Mazor M *et al*. Breech presentation is a risk factor for intrapartum and neonatal death in preterm delivery. *Eur J Obstet Gynecol Reprod Biol*. 2000; 93:47-51.
12. Nahid F. Outcome of singleton term breech cases in the pretext of mode of delivery. *J Pak Med Assoc*. 2000; 50:81-5
13. Wasim T, Wasim ZA, Majrooh MA. Singleton vaginal breech delivery at term: maternal and perinatal outcome. *Annals*. 2017; 23(1):1-4.
14. Brown C, Bowes W, Brien O. Breech delivery. Evaluation of the method of delivery on perinatal result and maternal morbidity. *Am J Obstet Gynecol*. 1979; 135:965.
15. Bingham P, Hird V, Lilford RJ. Management of the mature selected breech presentation: an analysis based on the intended method of delivery. *Br J Obstet Gynecol*. 1987; 94(8):746-52.
16. Ratna Panda. Singley on breech delivery. *JMSCR*. 2018; 6(2):703-8.
17. Airao B, Sharma VM, Zala RA, Vasava V. Fetomaternal outcome in breech delivery. *Int J Reprod Contacept Gynecol*. 2018; 7:2480-5
18. Johnson Carl. Breech presentation at term. *Am J Obstet Gynecol*. 1970; 106:865
19. Gimovsky M, Paul R. Singleton breech presentation in labor. *Am J Obstet Gynecol*. 1980; 143:733.
20. Hannah ME, Hannah WJ. Planned caesarean section versus planned vaginal birth for breech presentation at birth: a Randomized multicentric trial. TBT collaborative group. *Lancet*. 2000; 356(9239):1375-83.
21. Gilbert WM, Hicks SM. Vaginal versus caesarean delivery for breech presentation in California: a population based study. *Obstet Gynaecol*. 2003; 102(5):911-7.
22. Uotila J, Tuimala R, Kirkinen P. Good perinatal outcome in selective vaginal breech delivery at term. *Acta Obstet Gynaecol Scand*. 2005; 84(6):578-83.
23. Giuliani A, Schöll WM, Basver A, Tamussino KF. Mode of delivery and outcome of 699 term singleton breech deliveries at a single center. *Am J Obst Gynecol*. 2002; 187(6):1694-8.
24. Orji EO, Ajenifuja KO. Planned vaginal delivery versus caesarean section for breech presentation in Ile-Ife, Nigeria. *East African Medi J*. 2003; 80(11):589-91.
25. Igwegbe AO, Monago EN, Ugboaja JO. Caesarean versus Vaginal Delivery for Term Breech Presentation: a comparative analysis. *Afr J Biomed Res*. 2010; 13(1):15-8.