Outcome of Singleton Term Breech Cases in the Pretext of Mode of Delivery

Fehmida Nahid (Department of Obstetrics and Gynaecology, Fatima Jinnah Medical College, Lahore.)

Abstract

Objective: A study was carried out to ascertain maternal and perinatal outcome of cases presented as breech versus their mode of delivery so that appropriate management strategy could be mapped out without compromising fetomaternal wellbeing.
Methods: The study was carried out in one of the units of the Department of Obstetrics and Gynaecology of Sir Ganga Ram Hospital, affiliated with Fatima Jinnah Medical College, from August, 1996 to July, 1999. Management of 352 singleton term breech cases was analyzed. Data gathered were socio-demographic variables, detailed obstetrical history, important features of index pregnancy type of breech presentation, selection of mode of delivery and reason for choosing a particular route of delivery, indications of elective or emergency caesarean sections in the cases applicable, fetal outcome and maternal complications.
Results: In 135 (38%) patients C-section (94 elective and 41 emergency) was done straightaway and trial of vaginal breech delivery was given to the remaining 217 (62%). Of these vaginal delivery could be done in 161 (74%) cases and 56 (26%) required caesarean section due to fetal distress and or failure to progress. About 32% primiparas could manage vaginally versus 55% multiparas while the ratio of caesareans done in both the groups was 68% vs 45%. A direct proportion was observed between C-section rate and neonatal birthweight. Route of delivery did not influence significantly neonatal outcome which become evident when no marked difference could be detected in. corrected neonatal mortality rates calculated for the groups having elective C-section, emergency section and vaginal delivery Perinatal mortality rate and corrected neonatal mortality rate of the study population and the same values computed for all the deliveries conducted during the study period were found to comparable. Maternal and neonatal complications were seen more frequently in the group requiring emergency caesarean section.
Conclusion: Proper selection of cases for vaginal delivery, vigilant intrapartum monitoring and employing proper technique of breech delivery have been established as the most important determinants for successful vaginal breech delivery without compromising fetomaternal well being and curtailing the percentage of caesareans being done for this malpresentation (JPMA 50:81,2000).

Introduction

About 3-4% of all deliveries are breech deliveries[1]. Management of term breech cases poses several controversial issues. Both mother and fetus are exposed to greater risks with breech presentation compared to cephalic presentation. Retrospective studies[2,3]. comparing breech and vertex presentations at term have shown perinatal mortality ratios of 4.3:1 to 2:1 and perinatal morbidity ratios of 5:1 (asphyxia), 4:1 (neurological problems) and 2.2:1 (traumatic damage). It has been proposed that presentation of fetus as a breech may be an expression of poor fetal quality or an already abnormally developed fetus[4].
Studies[4,5] showed corrected perinatal mortality to be three times higher in cases delivered vaginally as breech compared to vertex presentation and twelve fold increase in neonatal morbidity. Studies[3,6] comparing vaginal breech delivery at term with caesarean section showed perinatal mortality rate ratios of 1.9:1 to 0.56:1, perinatal morbidity rate ratios of 1.1:1 (asphyxisa) and 1.9:1 (fractures and

neurological problems). Liberal use of caesarean section
was practised to improve perinalal outcome by preventing birth trauma and hypoxia associated with vaginal breech delivery. In some studiesU it has been claimed that perinatal outcome of abdominally delivered infants was superior to vaginal delivered ones even when all the criteria for vaginal breech delivery have been fulfilled. In caesarean deliveries for breech presentation, higher maternal morbidity and slightly higher mortality has been observed and risk increases in emergency C-section compared to elective surgery[6,7] and despite fivefold increase in caesarean section rate incidence of neonatal birth asphyxia and trauma remains unchanged[3]. Favourable neonatal outcome could not be achieved by C-section alone because technique of extracting a breech during C-section is essentially similar to the manoeuvres adopted during vaginal delivery. Since caesarean delivery cannot assure favourable fetal outcome so policy of elective C-section in all cases of breech presentation has become disputed and criteria to have safe vaginal breech delivery proposed which are pelvic adequacy, estimated fetal weight <3.6 gm, smooth progress of labour monitored by objective parameters and presence of staff skilled in the technique of vaginal breech delivery[9].
Adoption of these criteria alongwith the facilities available for vigilant intrapartum fetal monitoring, performing of C-section at shortest notice and marked improvement in the neonatal intenstive care unit have contributed greatly to embark upon safe vaginal breech delivery without compromising fetal well being. This study was carried out to analyze the outcome of breech presentation related to mode of delivery so that ways could be found for safe vaginal delivery with acceptable perinatal complications to contain escalating C-section rate and risks associated with a uterine scar in the setting of a developing country.

Patients and Methods

This observational analytical study was carried out in one ol' the units of the Department of Obstetrics and Gynaecologv of Sir Ganga Ram Hospital, affiliated with Fatima Jinnah Medical College. Lahore from August. 1996 to July, 1999. All singleton term breech cases that presented during the said period were enrolled and comprised the study population. Data collected included sociodemographic variables of the cases, detailed obstetrical history. important ftatures of index pregnancy, type of breech presentation, selection of mode of delivery and reason for choosing a particular route of delivery for a particular patient, indications of elective or emergency caesarean sections in the cases who underwent abdominal delivery, fetal outcome measured in terms of apgar score 5 minutes after birth, uncorrected perinatal mortality and neonatal mortality and morbidity and maternal complications. Records of perinatal morbidity and mortality were maintained till the patients were discharged from the hospital. Neonatal mortality directly related to breech delivery was calculated by excluding intrauterine deaths and intrapartum stillbirths occurring before coming to the study place and congenital malformation incompatible with life. Parturients were categorized in three groups: a. who had elective c-selection, b. the patients who underwent emergency caesarean section (caine in emergency) or had C-section after failed trial of vaginal delivery), c. cases who had vaginal breech delivery. Elective caesarean section was done in those cases who had some other obstetrical indication for carrying out this procedure apart from breech presentation. Indication of emergency C-section included cord prolapse, fetal distress and or failure to progress. Trial of vaginal breech delivery was planned for all multiparous women except those falling in group A and vaginal breech delivery was decided only for those prim iparas having estimated fetal weight less then 3.5 kg, pelvic adequacy beyond any doubt and not associated with any other obstetrical or medical complication. In patients undergoing trial of vaginal breech delivery no prognostic scoring system was used. The cases were subjected to different modes ol' management after thorough clinical and ultrasonic evaluation. In primiparas X-ray pelvimetry was not done as a routine and only few patients had this radiological examination. Type of breech presentation alone did not

influence the mode of delivery. Induction and/or augmentation was carried out where indicated. Assisted breech delivery was the method employed and well trained residents perfornied most of the vaginal breech deliveries. Burns-Marshall manoeveure was preferred for the delivery of afterconiing head and elective forceps applications was not instituted. Data sources included records of antenatal and postnatal wards, labour room, operation theatre and intensive care nursery.

Results

During the study period a total of' 10487 deliveries were carried out, of these 352 were singleton term breech deliveries giving a prevalence of 3.36%. Age of the study population varied from 19 to 4 I years with a mean of 23.4±1.2 years and parity ranging from zero to nine (mean 2.41-63). Breakdown of the study group in relation to age revealed that 54(15%) were of 20 years or less, 186 (53%) were between 21 to 35 and 112 (32%) were above 35 years. Analysis of parity distribution showed that 139 (40%) were nulliparous women, parity of 188 (53%) ranged between 1-4 and 25 (7%) were grandmultiparas. Only 88 (25%) were booked cases and 264 (75%) came in emergency without having any formal antenatal care. At the time of presentation 66 (18.75%) cases were not in labour, 172 (48.86%) came in early labour and rest of the 114 (32.39%) parturients came in advanced labour, some having manifestations of prolonged/obstructed labour and their associated complications. Extended or frank breech was diagnosed in 226 (64%) cases, 92 (26%) were cases of footling breech and 34 (10%) turned out to be complete or flexed breech.

Vaginal delivery of breech was carried out in 161 (45.74%) cases and 191 (54.26%) had caesarean section. Emergency C-section was done in 97 patients and 94 had elective caesarean section. Of the 97 cases of emergency C-section, 4 I came to the study place with some maternal and or fetal problems jeopardizing feto-maternal well-being and they had C-section straightway without being subjected to trial of vaginal breech delivery. The remaining 56 were selected for vaginal delivery but C-section was done due to failure to progres and/or fetal distress. Of the 217 cases offered vaginal delivery, 161 (74.19%) could be managed vaginally and 56 (25.81%) ended in emergency C-section. Various indications of elective C-section done in 94 women included previous one or more C-section 32 (34%), primibreech with estimated fetal weight >3.5 kg, 21(22.34%), inadequate pelvis for breech delivery 11 (11.70%), placenta praevia and fetal macrosomia >4 kg in multiparous women each 9 (9.57%) and miscellaneous category (breech presentation associated with some other obstetrical or medical complication and cases of bad obstetrical history and precious pregnancy 12 (12.77%).

Table 1. Mode of delivery according to parity of the cases.

Mode of delivery	Primipara (136)	Multiparas (216)	Total (352)
Vaginal delivery	43 (31.62%)	118 (54.63%)	161 (45.74%)
Emergency C-Section	40 (29.47%)	57 (26.39%)	97 (27.56%)
Elective C-Section	53 (38.97%)	41 (18.98%)	94 (26.70%)

Table 1 shows the relationship between parity and mode of delivcry. About 32% primiparas had breech delivery as opposed to 55% multiparous women. Rate of emergency caesarean was comparable between the two groups hut elective C-sections were carried out more frequently in primiparas. Of 161 vaginal breech deliveries 27% occurred in primiparous women and 73% in multiparas and oF the I 9 I caesarean sections there were 49% primiparas versus 51% multiparas (Table 1).

Table 2. Mode of delivery versus birthweight.

Birth weight in kg	Vaginal delivery (n=161)	Emergency caesarean (n=97)	Elective caesarean (n=94)	Total (n=352)
<2	21 (13.04%)	3 (3.09%)	-	24 (6.82%)
2.1-3	110 (68.32%)	48 (49.48%)	38 (40.43%)	196 (56.68%)
3.1-4	29 (18.01%)	37 (38.14%)	49 (52.13%)	115 (32.67%)
<4	1 (0.62%)	9 (9.28%)	7 (7.45%)	17 (4.83%)

In Table 2 breakdown of neonatal birth weight in relation to mode of delivery is depicted. Caesarean section rate escalated (both emergency and elective) with increasing birth weight. Frequency oF C-section in cases having birth weight <3 kg was 89/220 (40.45%) as opposed to 102/132 (77.27%) in cases with birth weight more than 3 kg (Table 2). Immediate fetal outcome determined by apgar score 5 minutes after birth is given in Table 3.

Table 3. Relationship between apgar score at 5 minutes and mode of delivery.

Apgar score at 5 minutes after birth	Vaginal delivery (n=161)	Emergency caesarean (n=97)	Elective caesarean (n=94)	Total (n=352)
≤3	28 (17.39%)	6 (6.19%)	3 (3.19%)	37 (10.51%)
4-6	29 (18.01%)	11 (11.34%)	2 (2.13%)	42 (11.93%)
≥7	104 (64.60%)	80 (82.47%)	89 (94.68%)	273 (77.56%)

Details of gross perinatal mortality rate and corrected neonatal mortality rate in relation to mode of delivery are shown in Table 4.

Table 4. Fetal outcome versus mode of delivery.

Uncorrected	Perinatal Mortality Rate		
	Vaginal Delivery (161)	Emergency C-Section (97)	Elective C-Section (94)
Still Birth (31)*	23	7	1
Neonatal deaths (6)	3	2	1
Perinatal deaths (37)	26	9	2
PNMR per 1000 births	161/1000 births	93/1000 births	21/1000 births
Aggregated PNMR/1000 births	105 per 1000 births		
Corrected	**Neonatal Mortality Rate**		
	Vaginal delivery (137)	Emergency C-Section (89)	Elective C-Section (93)
Neonatal deaths	2	1	1
Neonatal mortality rate per 1000 births	15/1000 births	11/1000 births	10/1000 births
Aggregated neonatal mortality rate per 1000 births	13 per 1000 births		

* Including 24 intrauterine deaths and 7 stillbirths that occurred during labour.

There were 321 (91.19%) live born babies and 31 (8.81%) were stillborn which included 24 intrauterine deaths and 7 intrapartum stillbirths coming to the study place in advanced labour with fetal demise, Of the 321 neonates born alive, 27 (8.41%) required admission to intensive neonatal care

nursery and six expired (4 had birth asphyxia and 2 had congenital malformations incompatible with life). There were 37 perinatal deaths and composite perinatal mortality rate was I 05 per 1000 births and corrected neonatal mortality rate (deaths related directly to breech delivery) was 12.54 per 1000 births (excluding 31 stillbirths and 2 neonatal deaths due to major congenital malformations). During the study period gross perinatal mortality rate ranged from 76 to 92 pci' 1000 births and corrected neonatal mortality rate was around 14 per 1000 births, There were 13 congenitally malformed babies Cable 4).

Neonatal complications observed are tabulated in Table 5. In 9.66% (31/321) cases different complications occurred with highest rate in the group who had emergency caesarean section (Table 5).

Table 5. Neonatal morbidity versus mode of delivery.

Complications Encountered in newborn babies	Vaginal delivery (138)	Emergency C-Section (90)	Elective C-Section (93)
Neonatal Hypoxia	7	9	2
Birth Trauma	2	1	-
Convulsions	2	1	-
Septicemia	2	2	-
Jaundice	1	1	1
Total	14 (10.14%)	14 (15.56%)	3 (3.23%)

Maternal problems documented are depicted in Table 6.

Table 6. Breakdown of maternal morbidity in relation to mode of delivery.

Maternal complications documented	Vaginal delivery (161)	Emergency C-Section (97)	Elective C-Section (94)
Aneasthesia problems	-	5	1
Post partum haemorrhage	6	13	4
Infective morbidity	9	19	5
Urinary tract infection	2	9	3
Genital tract infection	7	4	1
Wound infection	-	6	1
Trauma to genital tract	3	5	1
Total	18 (11.18%)	42 (43.30%)	11 (11.70%)

About 20% mothers developed some complications which were more frequent in those cases who required emergency caesarean section (Table 6).

Discussion

The prevalence of breech presentation coniputed was 3% while other studyes[1,3,10,11] revealed a range from 2% to 6%. Parity distribution of the cases showed that 40% were primiparous and 60% were multiparous women, The corresponding figures in other studies[11,12] were 34% and 66% and 53% and 47% respectively. About 25% were booked cases and 75% came in emergency compared with 57% booked and 43% unhooked cases recorded in another study[12].

Ratio of vaginal breech delivery versus caesarean section was 46%:54% which diflered mailcedly from the ratios of 76% vs 24% and 87%: I 3% obtained in the settings[10,12] having obstetric population of enti rely different nature from ours and where availability of well structured and systematically planned maternity services has been assured. Elective caesarean section was carried out in 27% of cases similar to 33% revealed in a study[13] but only 5% recorded in another study[10], the major indication in both the instances was breech presentation with prior C-section accounted for 34% to 40%. High rate of elective caesarean section was attributed to breech presentation associated with previous caesarean scar, estimated fetal weight >3.5 kg and borderline pelvis. Around 38% (135/352) cases could not be subjected to trial of vaginal breech delivery which contributed to relatively higher overall caesarean

section rate in our cases.

Trial of vaginal breech delivery succeeded in 74% patients and 26% required C-section. Similar figures were obtained in another analysis, 70% patients and 30% respectively" whereas results of other studies[10,13] gave the ratios o144%:56% and 91%:9% respectively. Major reason for failure of trial of vaginal breech delivery was fetal distress and/or failure to progress.

Breakdown of parity related to mode of delivery showed that 32% of our primiparas delivered vaginally and 68% needed C-section close to the figures (35% vs 65%) given for this group in anothcr study" but difference was observed when the same statistics for the multiparous women were analysed, 45%:55% in our study compared with 70%:30% in the reference study". Major causes of greater rate of C-section observed in our multiparas were increased percentage of cases with prior uterine scars. estimated fetal weight >3.5 kg and breech presentation complicated by some other obstetrical or medical complications. In a study[12] it has been shown that parity did not influence mode of deliveiy as same ratios of vaginal and abdominal deliveries were observed irrespective of parity. Rate of emergency C-section was comparable between prim iparous and multiparous groups but elective caesarean section was carried out more frequently in former category of cases and it was in accordance with the figure found in another study" but frequency of emergency section was shown to be doubled in prim iparous patients in another report[10].

Increased tendency of C-section was shown with higher birthweight particularly in primiparas. This policy was adopted to minimize fetal birth asphyxia and trauma. It has been recommended that vaginal breech delivery should not be planned if estimated fetal weight is >3.6 kg even the pelvis is adequte as underestimation of fetal weight is common[1]. It is beneficial that fetal weight to be judged by two experienced examiners independently and should be considered with ultrasonic based fetal weight estimation.

Gross perinatal mortality rate cakulated was 105 and corrected neonatal mortality was 13 per 1000 births compared with 171 and 65 per 1000 births respectively detected in a study carried out under similar circumstances11. Neonatal mortality rate related directly to breech delivery was comparable to the figure documented in a study[12] where X-ray pelvimetry was performed before giving trial of vaginal breech delivery and quite similar to the rate of 14 per 1000 reported in a study[10] where neither X-ray pelvimetry nor any prognostic system was used like our study. The prevalence of congenital malformation among breech presentation detected was 3.7% as opposed to 1.44% and 6.3% reported in other studies[10,14].

Neonatal morbidity occurred more frequently in the group undergoing emergency C-sect ion as the cases came in advanced labour after being mishandled, resulting in various fetomaternal complications, some of which were life threatening and this also resulted in increased maternal morbidity in the said group. A study[15] showed that neonatal apgar score and cord blood acid base values of vaginal delivered breeches differed markedly from those who had elective C-section but ultimate fetal outcome was not worsened by these differences[16].

In conclusion remarkable success rate of trial of vaginal breech delivery was achieved without compromising perinatal outcome in a group of properly selected cases in the presence of limited available resources. Overall C-section rate in the cases presented with this malpresentation could be lowered down further by scrutinising the indications of elective caesarean sections closely and improving our matern tv services particularly antenatal area so that percentage of emergency C-section required for fetomaternal jeopardy could be curtailed.

Neonatal complications associated with vaginal breech delivery can he controlled to a great extent by imparting proper training to the residents in the technique of breech delivery. Complications associated with breech presentation can be eliminated by carrying out external cephalic version in properly selected cases. Around 16% reduction in C-section rate was reported after introducing external cephalic

version in a group of properly itidicated parturients[7]. Immediate outcome of external eephal ic version can be predicted by easily available clinical variables like parity, ease with which head can be palpated, engagement of breech and amount of amniotic fluid[18,19].

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