



Delivery in Breech Presentation: The Decision Making

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Received: 18 May 2010 / Accepted: 19 June 2012 / Published online: 16 October 2012
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Abstract

Objective To optimize the fetomaternal outcome using different modes of delivery in breech presentation.

Materials and Methods 265 women with different parity and gestational age having singleton breech were studied during Jan 2007 to Sep 2009 at Pt. J.N.M. Medical College and associated Dr. B.R.A.M. Hospital Raipur Chhattisgarh and were assigned to either planned or emergency cesarean section or trial of vaginal delivery after counseling. Fetomaternal outcome was compared in various modes of delivery.

Observations Incidence of breech presentation was 2.1 %, prematurity was the most common cause. 113 (42.6 %) women delivered vaginally. 54 (20.4 %) were planned for cesarean section. Emergency cesarean section was done in 98 (37 %). Although 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. ($p = 0.14$)

Conclusion In view of insignificant difference in the fetomaternal outcome balanced decision about mode of delivery on a case by case basis will go a long way in improving both foetal and maternal outcome. Regular drill and conduct of vaginal breech delivery should be pursued in all maternity hospitals.

Keywords Breech presentation · Caesarean section · Perinatal outcome

Introduction

About 3–4 % of all pregnancies have breech presentation at term. The management of term breech is highly controversial and varies among different institutions and even among different clinicians in the same institution. The decision to perform cesarean delivery is often based on personal experience or a fear of litigation.

From the historical perspective, vaginal delivery of the persistent breech presentation had been the tradition since the first century A.D. Intended vaginal delivery is the common practice in most developing countries. Probably, the obstetricians are also more conversant in the technique of assisted breech delivery. This protocol received a major setback in the year 2000 when Lancet published the results of the Term Breech Trial by Mary E Hannah, which clearly concluded that planned cesarean section is better than planned vaginal birth for the term fetus with breech presentation in terms of neonatal outcome [1]. Serious maternal complication was similar between the two groups. It evoked stinging criticism, itemizing the methodological errors and unsupportable conclusions [2]. There is an urgent need to evaluate it in context of the resource poor countries before accepting it as the “Last word.” An overall policy of planned cesarean section in all term breeches would prevent complications of vaginal delivery

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because there would be no vaginal breech delivery. This might result in shifting of the contemporary art of conducting such delivery to the shelves of medical history. On further analysis of the Term Breech Trial, an important interaction involved a country's perinatal mortality rate. In the countries with a low perinatal mortality rate, planned cesarean section had much greater benefits for the infant, whereas in countries where the perinatal mortality rate is high, the same benefits were much lower than the entire group as a whole. As many as 39 additional cesareans might be needed to avoid one serious infant morbidity or death in comparison to as few as seven additional cesarean sections in countries with a low perinatal mortality rate. This important observation is much more pertinent in countries with limited facilities for cesarean section.

Unfortunately, the number of obstetricians able to conduct the vaginal breech delivery is declining quite fast. If the trend continues, what will happen when a woman with breech presentation at term gets admitted in advanced labor at a center where cesarean section cannot be performed urgently and the obstetrician present has never conducted a vaginal breech delivery? It will indeed be a very sad day for our specialty.

As the controversy continues, repeated evaluations and reviews of management in this subset of women are needed. The present study was conducted with an objective to optimize the perinatal outcome, while keeping the art of conducting and training vaginal breech deliveries alive.

Materials and Methods

A total of 265 women with singleton breech presentation with >28 weeks gestational age were included in the present study during the period from Jan 2007 to Sep. 2009 (33 months).

On admission, the demographic profile of the women, as well as a detailed menstrual and obstetric history, was noted. General, systemic, and obstetric examination was carried out. All women were subjected to a routine investigation and obstetric ultrasonography and afterward, they were assigned to either cesarean section (planned/emergency) or vaginal delivery on the basis of the obstetric examination (clinical and sonographical) and the presence of complicating factors. Women having standard indications of cesarean section in breech like fetopelvic disproportion, hyperextension of the head, footling presentation, and associated complications (medical or obstetric) were assigned to the planned cesarean section group, whereas the remaining women having term breech were given a trial of vaginal breech delivery. The plan of delivery for the both term and preterm breech was discussed with the women and their attendants because of limited beds in the

intensive neonatal care unit as well as probable course and complication of vaginal delivery. A trial of vaginal delivery was given to those who consented to it.

Regular drills of vaginal breech delivery are conducted in the department. During a trial of vaginal delivery, monitoring of fetal heart rate and progress of labor was done. Assisted breech delivery was the method of choice, maintaining a principle of noninterference till the delivery of the scapula. The delivery of the extended arms was accomplished by Lovset's method, whereas the delivery of the aftercoming head was conducted by the Burns Marshall Method or Mauriceau Smellie Veit maneuver. After delivery, the baby was attended by the pediatrician and the Apgar Score at 1 and 5 min was noted and the baby was admitted to the neonatal intensive care unit if needed.

If fetal distress and arrest of progress in labor were suspected, the women were taken for emergency cesarean section. All the mothers and newborns were followed up for 7 days in the postnatal period. Data regarding the fetomaternal outcome were analyzed. Comparisons were made in terms of morbidity and mortality between groups of mothers and infants stratified by the mode of delivery.

Discussion

The incidence of breech presentation in the present study was 2.1 %. It varies from 3 to 4 % in various studies [3–8]. A majority of the women were unbooked (55.5 %) and nulliparous (40.4 %). 77.3 % women were having term pregnancy (Table 1).

Overall, 113 (42.6 %) women delivered vaginally, a majority of these were term. Planned cesarean section was done in 54 (20.4 %) for indications shown in Table 2. Since this is the largest teaching hospital in the state with a greater number of referrals, a majority of unbooked women get admitted in labor and therefore could not be assigned the mode of delivery before hand. Emergency cesarean section had to be resorted to in 98 (37 %) women for various indications. A comparatively larger number of women in our study delivered vaginally as compared to the Term Breech Trial (33.2 %) [1], and the difference was alarming from the largest series containing 10,0730 women with only 4.9 % delivering vaginally [6]. As we have a very limited neonatal intensive care unit, we motivated women with low birth weight babies to deliver vaginally, but only after obtaining due consent for the same. A large number of vaginal births provided us with the opportunity to train our residents to conduct the vaginal breech delivery and to avoid cesarean section, thereby reducing operative burden upon the already over-worked obstetrics units. It also prevented uterine scar in a woman whose dwindling chances of hospital delivery in the next pregnancy could have compromised her obstetric future.

Table 1 Demographic profile ($n = 265$)

	Number	%
Age (years)		
≤20	40	15.2
21–25	126	47.5
26–30	44	16.6
31–35	25	9.4
≥36	30	11.4
Parity		
Primi	107	40.4
Para I	71	26.7
Para II	52	19.5
Para III	27	10.2
>Para 4	08	3.2
Gestational age (weeks)		
28–32	27	10.2
33–36	33	12.5
37–42	197	74.3
>42	08	3.0
Booking Status		
Booked	118	44.5
Unbooked	147	55.5
Type of breech		
Frank	147	55.5
Complete	192	34.7
Footling	23	8.7
Knee	3	1.1

The incidence of overall neonatal morbidity was 3.4 % (Table 3), out of which 2.3 % was present in the vaginal delivery group, but this subgroup was constituted mainly by preterm babies (5 out of 9). Damage to soft tissue was sustained equally by the preterm infants of both the vaginal and cesarean groups (2 each). Such damage can be attributed to the fact that delivering the infants even by cesarean section is essentially the process of breech extraction. None of the injuries were life threatening.

Table 4 shows the overall incidence of perinatal mortality in the present study; it is 51 (19.2 %), out of which 40 (15.8 %) were found in the vaginal delivery group with only 13 (4.9 %) term and 27 (10.9 %) preterm deliveries. Only one (0.4 %) fatality was found in the planned cesarean section group in contrast to 10 (3.9 %) in the emergency cesarean section group. Perinatal mortality, neonatal mortality, and neonatal morbidity were significantly lower for the planned cesarean section group than for the planned vaginal birth group as reported by the Term Breech Trial and others [1, 6, 8–10]. In our study also, the perinatal mortality seems to be significantly higher in the vaginal delivery group, but since the primary objective of the study was to see the effect of mode of delivery on perinatal

Table 2 Mode of delivery (N=265)

Mode of delivery	N = 265 (%)	Term		Preterm	
		No.	(%)	No.	(%)
Vaginal	113 (42.6 %)	60	(22.7 %)	53	(20 %)
Planned cesarean section	54 (20.4 %)	51	(19.2 %)	03	(1.1 %)
Indication					
Fetopelvic disproportion	11 (4.2 %)				
Previous cesarean scar	19 (7.2 %)				
Placenta previa	4 (1.5 %)				
Contracted pelvis	4 (1.5 %)				
Ass. Medical disease	1 (0.4 %)				
Elderly primi	2 (0.8 %)				
Postmaturity	2 (0.8 %)				
Bad obstetric history	2 (0.8 %)				
Oligohydramnios	9 (3.4 %)				
Emergency c. section	98 (37 %)	94	(35.5 %)	04	(1.5 %)
Indication					
Fetal distress	18 (6.8 %)				
Failure to progress	11 (4.2 %)				
Cord prolapse	4 (1.5 %)				
Footling presentation	25 (9.4 %)				
Placenta previa	10 (3.8 %)				
Previous cesarean scar	30 (11.3 %)				

outcome, we have reassessed the perinatal mortality after excluding 24 cases of women admitted with intrauterine fetal demise (which also included 11 with congenital malformation). The adjusted number of 16 (6 %) is not significantly greater than the 11 (4.2 %) in the cesarean section group.

Prematurity was the largest factor contributing to perinatal mortality. After excluding 31 (11.7 %) preterm births, the statistical difference between the term breech delivery in the vaginal delivery versus the cesarean section was not significant ($p = 0.14$), although definitely higher for the vaginal group. The planned cesarean group at term pregnancy had a significantly better perinatal outcome ($p = 0.001$), but the emergency cesarean section group did not prove to have the same advantage.

There was no maternal death in either group. Maternal morbidity in the cesarean section group was 3.4 % and in the vaginal group, it was 4.2 %. The difference was not significant statistically ($p = 0.5$).

Table 5 depicts the comparable data of various studies after the Term Breech trial and shows a gradually increasing trend toward vaginal breech delivery, although almost universally concluding planned cesarean section to be better for the perinatal outcome. Our study is also in accordance with them, but the opportunity to plan the mode of delivery

Table 3 Neonatal morbidity in relation to different modes of delivery (N-265)

Perinatal morbidity	No. of morbidity	Vaginal delivery (N = 113)		Planned c.s. (N = 54)		Emergency c.s. (N = 98)	
		Term	Preterm	Term	Preterm	Term	Preterm
Fracture clavicle	1	–	1	–	–	–	–
Fracture humerus	1	–	1	–	–	–	–
Dislocation of hip	1	–	0	–	–	–	1
Erbs palsy	1	–	1	–	–	–	–
Damage to soft tissue and laceration	5	1	2	–	–	–	2
Total	9 (3.4 %)	1 (0.4 %)	5 (1.9 %)	–	–	–	3 (1.1 %)

p value of preterm vaginal versus preterm cesarean section = 0.08 (nonsignificant)

Table 4 Perinatal mortality in correlation with different modes of delivery (*n* = 265)

Causes of perinatal mortality	No. of mortality	Vaginal delivery (N = 113)		Planned c.s. (N = 54)		Emergency c.s. (N = 98)	
		Term	Preterm	Term	Preterm	Term	Preterm
Intrauterine fetal demise	24	8	16	–	–	–	–
Prematurity	09	0	7	–	–	–	2
Birth asphyxia	06	2	0	–	–	4	0
Septicemia	06	1	3	–	–	1	1
Intraventricular Hemorrhage	01	1	0	–	–	–	–
Cord prolapse	05	1	1	1	–	2	–
Total	51 (19.2 %)	13 (4.9 %)	27 (10.2 %)	1 (0.4 %)	–	7 (2.6 %)	3 (1.1 %)

p value (after excluding intrauterine demised) of vaginal versus cesarean section = 0.24 (nonsignificant)

Table 5 Comparison of fetomaternal outcomes in different studies

S. no.	Authors	Years	No. of women	Mode of delivery			PN Morbidity		Neonatal Mortality	
				Vaginal	CS		Vaginal	CS	Vaginal	CS
					Planned	Emergency				
1	Hannah et al. [1]	2000	2083	691 (33.2 %)	941 (45.2 %)	451 (21.6 %)	–	–	5.0 %	1.6 %
2	Giuliani et al. [9]	2002	699	–	–	–	2.3 %	0.5 %	0	0
3	Gilbert and Hicks [6]	2003	100,730	4,952 (4.91 %)	60,418 (60 %)	35,297 (35.1 %)	5.7–33.9 (OR)	–	9.2 (OR)	–
4	Jukka et al. [12]	2003	986	455 (46.1 %)	396 (40.2 %)	135 (13.7 %)	1.2 %	0.5 %	–	–
5	Bassaw et al. [10]	2004	344	187 (54.3 %)	157 (45.7 %)	–	2.6 %	0.6 %	1.2 %	0.3 %
6	Bushra et al. [7]	2004	265	148 (55.8 %)	78 (29.4 %)	39 (14.8 %)	–	–	–	–
7	Abasiatai et al. [5]	2004	–	69.34 %	30.66 %	–	–	–	–	–
8	Goffinet et al. [11]	2006	8,105	1796 (22.2 %)	5579 (68.8 %)	730 (9 %)	1.4 (OR)-	1.1 (OR)	–	–
9	Nordin et al. [8]	2007	165	–	–	–	–	–	7.3 %	0.6 %
10	Present study	2009	265	113 (42.6 %)	54 (20.4 %)	98 (37 %)	8 (3 %)	2 (0.7 %)	40 (15.1 %)	11 (4.1 %)

before labor is not provided to the obstetrician in a referral hospital like ours, and emergency cesarean section yielded comparable results in terms of perinatal outcome, a point also made by others [7, 11, 12]. We therefore recommend a very balanced decision regarding the mode of delivery in the tertiary centers of developing countries.

Conclusion

When assisted vaginal breech delivery is accomplished after proper selection and counseling for women with breech presentation, cesarean section in preterm as well as term pregnancy can be avoided because the difference in

terms of perinatal mortality and morbidity rates is not significant statistically between the vaginal and overall cesarean section groups after adjustment for confounding factors like prematurity and intrauterine fetal demise. Planned cesarean section is undoubtedly better. In countries where the majority of cesarean sections for breech presentation are done in emergency, a trial of vaginal delivery yields comparable results. Therefore, 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 in countries like ours.

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