Ashdin Publishing
Clinics in Mother and Child Health
Vol. 9 (2012), Article ID 235578, 3 pages
doi:10.4303/cmch/235578

Research Article

Neonatal Outcome of Term Breech Births: A 15-Year Review at the Yaoundé General Hospital, Cameroon

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Received 13 May 2012; Accepted 19 July 2012

Abstract The aim of this study was to describe the neonatal outcomes among term singleton infants with breech presentation delivered in Yaoundé, Cameroon, over a 15-year period. We conducted a cross-sectional analysis of data collected from March 1992 to March 2007 at the Yaoundé General Hospital, Cameroon. Of 249 term singleton infants in breech presentation, 73 (29.31%) were born by elective cesarean section and 176 (70.67%) were allowed for trial of vaginal delivery with 136 (54.61%) delivered vaginally and 40 (16.06%) delivered by intra-labor cesarean section. Compared to infants born by elective cesarean section, those delivered vaginally or by intra-labor cesarean section were more likely to have low 5-minute Apgar scores (4.1% vs. 17.77%; $P < .001$), require admission to neonatal unit (08.21.% vs. 13.63%; $P < .001$), and have an increased risk for perinatal mortality (0% vs. 05.68%; $P < .001$). Trial of vaginal delivery of term infants in breech presentation was associated with significantly increased risk of perinatal death and neonatal morbidity.

Keywords breech birth; vaginal delivery; cesarean section; perinatal mortality; Cameroon

1 Introduction

Breech presentation occurs in about 3% of all term singleton pregnancies [5]. Compared with a fetus with cephalic presentation, a breech fetus faces an increased risk of asphyxia from cord compression and of traumatic injury during labor and delivery of the shoulders and head [7]. The safest route of delivery for breech presentations has long been a topic of debate [1].

The Term Breech Trial, published in 2000, revealed that perinatal mortality or serious neonatal morbidity was significantly lower for the planned cesarean section group than for the planned vaginal birth group [4]. The publication of these results had a major effect on obstetrical practice, and resulted in the American College of Obstetricians and Gynecologists (ACOG) recommending the implementation of a policy of elective cesarean section for all breech presentations at term [2]. This recommendation led to a radical change in practice, with a cesarean delivery rate of 86.9% in the United States in 2002 for breech presentations at term [8].

However, in Europe (notably in France, Belgium, Ireland, Switzerland, and the Netherlands), planned vaginal breech delivery based on selected strict criteria remains relatively frequent with rates as high as 54% [3,13]. Goffinet et al. [3] reported that, in areas where planned vaginal delivery is a common practice and when strict criteria are met before and during labor, planned vaginal delivery of singleton fetuses in breech presentation at term remains a safe option that can be offered to women. In one study in Nigeria, the neonatal outcome between vaginal and cesarean births for fetuses presenting breech at term was not significantly different in terms of the neonatal mortality rate or neonatal intensive care unit admission rate [6].

In our hospital, the use of strict selection criteria for trial of vaginal breech delivery is lacking and has never been elaborated. The aim of this study was to describe the neonatal outcomes of term singleton breech births following either elective cesarean section or trial of vaginal delivery at the Yaoundé General Hospital over a 15-year period.

2 Methods

We retrospectively reviewed all breech presentation births recorded at the Yaoundé General Hospital from March 1992 to March 2007.

This hospital is a teaching hospital located in the urban setting of Yaoundé, capital of Cameroon situated in central Africa. The hospital receives patients from all parts of the country and mostly people from Yaoundé, the political capital of Cameroon. The health personnel of the maternity unit of this hospital include obstetrician/gynecologists, residents, midwives, and a medical psychologist. The decision to allow

for trial of vaginal breech delivery or elective cesarean section for breech presentation at term is taken by an obstetrician based on their personal experiences. Otherwise, in this maternity, vaginal breech delivery is conducted by a resident or midwife under the supervision of an obstetrician.

From the birth registers and the neonatal discharge summaries we identified respectively all term singleton breech deliveries and all term breech delivered infants transferred to the neonatal unit. The mode of delivery, cesarean or vaginal was also noted. The exclusion criteria were multiple pregnancies, antenatal fetal death, and major fetal congenital malformation such as anencephaly and hydrocephaly. The following variables were noted: parity, Apgar score at the 5th-minute, infants with fractured clavicles or humerus or brachial plexus nerve injuries, infants admitted in the neonatal unit, intrapartum deaths and early neonatal deaths within 24 hours following birth.

The sample size calculated using the incidence of breech delivery of 3% [5] was 45 with a confidence interval of 95%. In this study, 249 neonates were recorded during the study period.

The comparative neonatal outcomes between the infants delivered by elective cesarean section and those delivered vaginally or by cesarean section during labor were noted. Statistical analysis was performed with SPSS package version 16. The chi-squared test was used to compare the variables in the different groups. A P-value < 0.05 was considered to be statistically significant.

3 Results

The incidence of breech delivery at term during the 15-year period was 2.98%. Of the 249 term singleton breech births, 73 (29.31%) infants were delivered by elective cesarean section, 136 (54.61%) delivered vaginally, and 40 (16.06%) were born by intra-labor cesarean section.

Table 1 shows the mode of breech delivery among primiparous and multiparous women. The proportion of women planned for elective cesarean section was higher in the primiparous than in multiparous women (40.83% vs. 18.60%; OR $= 0.30$ (0.16–0.55); $P = .004$). And of those planned for trial of vaginal delivery, the proportion of successful vaginal delivery was significantly less in primiparous than in multiparous women (43.33% vs. 65.11%; $P = .007$).

Table 2 shows neonatal outcomes of breech deliveries in relation to the mode of delivery. Compared with breech presentation infants born by elective cesarean section, those delivered vaginally or by intra-labor cesarean section were significantly more likely to have low Apgar score at the 5th minute (score < 7), require admission to the neonatal unit and also more likely to have increased risk of perinatal mortality.

There were 9 cases of perinatal deaths for vaginal delivery, 1 case of neonatal death for intra-labor cesarean section indicated for a fetal distress, and no case for elective cesarean section. Five intrapartum deaths were attributed to birth trauma due to difficult delivery caused by nuchal extension in 3 cases and foetal macrosomia in 2 cases (infant weight: 4250 g and 4375 g). Also, intrapartum massive abruptio placenta with fetal death occurred in one case. Three early neonatal deaths occurred few hours after birth due to laborious vaginal delivery of an arm extended fetus. However, there was no significant difference in fetal birth trauma ($P < .06$) between the elective cesarean section group and vaginal delivery or intra partum cesarean groups.

The fetal birth traumas were mainly fractures of clavicle or humerus (8 cases) and brachial plexus nerve injuries (3 cases).

Table 1: Mode of breech delivery among primiparous and multiparous women.

Mode of breech delivery	Primiparous		Multiparous		
	n	%	n	%	P
Trial of vaginal delivery					
Vaginal delivery	52	43.33	84	65.11	.007
Intra-labor cesarean section	19	15.83	21	16.27	.8
Elective cesarean section	49	40.83	24	18.60	.004

4 Discussion

The incidence of breech delivery at term of 2.98% found in this study is comparable to the range of 2.4%–3% reported in studies in Nigeria, South Africa and Gabon [6, 9, 10, 11].

The findings in this study indicate that the risk of perinatal death for infants in breech presentation planned for trial of vaginal delivery was significantly higher than those planned for elective cesarean section. These results are different from the studies reporting no difference in the perinatal mortality in the two groups [3, 6, 11]. The higher perinatal mortality in the trial of vaginal delivery group than in elective cesarean section group may be due to the absence of the use of strict selection criteria in selecting cases of trial of vaginal delivery in our hospital and probably to some unskilled health attendants for vaginal breech delivery.

In the literature, different studies set the upper limit for fetal weight between 3800 g and 4000 g to allow breech delivery. Deflection of the fetal head in breech presentations places the fetus at risk of pronounced hyperextension during labor, which is a contraindication to vaginal delivery [3, 13]. In this study, two cases of perinatal deaths were the macrosomia infants (4250 g and 4375 g) and three cases were from fetus with nuchal extension. These cases of perinatal deaths could be the illustration of the absence of a well-defined selection criteria to allow for trial of vaginal delivery in our setting.

Low Apgar score at 5 minutes (< 7) occurred more frequently in the trial of vaginal delivery group than in elective cesarean section group (17.77% vs. 4.10%; $P < .001$).

Table 2: Neonatal outcomes in relation to the mode of delivery among term breech infants.

Mode of delivery	Mean birth weight	Apgar score < 7 at $5'$		Fetal birth trauma		Admission in neonatal unit		Perinatal mortality	
		n	%	n	%	n	%	n	%
Vaginal delivery or Intra-labor C/S*	3199 g $\pm$ 612	26	17.77	09	05.10	24	13.63	10	05.68
Elective cesarean section	3147 g $\pm$ 507	03	04.1	02	2.73	06	08.21	00	00
	$P < .04$	$P < .001$		$P < .06$		$P < .001$		$P < .001$	

*C/S= cesarean section; $5' = 5$ minutes.

Many other studies have reported similar results [1,4,6,11, 12]. This poorer Apgar score in the trial of vaginal delivery group could be attributed to the fact that breech fetus faces an increased risk of asphyxia from cord compression and of traumatic injury during labor and delivery of the shoulders and head [7]. However, the higher rate of admission to neonatal unit in the trial of vaginal delivery group than in the cesarean section group (13.63% vs. 8.21%; $P < .001$) is mainly due to higher rate of low Apgar score in this group.

The incidence of traumatic neonatal morbidity is not significantly different in the two groups ($P < .06$). This agrees with other finding reported by other authors [11,12]. It can be attributed to the fact that cases undergoing trial of vaginal delivery that showed any evidence of cephalopelvic disproportion such as slow progress in labor promptly have an emergency cesarean section. If such cases had been allowed to have vaginal deliveries, the chances are that traumatic birth injury would have occurred more frequently.

The limitations of this study include the use of previously collected data, which might be incomplete or inaccurate. Additionally, practice may have changed in the last five years. This is, however, a comprehensive, cost-effective, and non-invasive means of collecting data.

5 Conclusion

Trial of vaginal delivery of term infants in breech presentation is associated with increased risk of perinatal death and neonatal morbidity. Most of these perinatal deaths and neonatal morbidity were due to fetal macrosomia and nuchal extension.

Therefore, we recommended that trial of vaginal delivery of a term singleton breech fetus may be reasonable under hospital specific protocol guidelines for both eligibility and labor management.

It is also important to update the knowledge of obstetricians, midwives, and all personnel conducting deliveries, through a continuous medical education on how to conduct vaginal breech deliveries.

Acknowledgments We thank all the personnel of the maternity unit of Yaoundé General Hospital for recording the data of childbirths used in this study.

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