Original Article *นิพนธ์ต้นฉบับ*

Singleton Breech Deliveries at Yasothon Hospital: A Retrospective Study

Wittaya Wattanaruangkowit
Yasothon Hospital

Abstract In this descriptive and retrospective analytic study at Yasothon hospital, the incidence of the breech was 2.95 percent of the total deliverie and 15.5 percent vaginal deliveries rate. Associated significance factors of the vaginal deliveries were multiparity, low birth weight and non private case. Maternal morbidities such as postpartum fever, obstetrics bleeding and blood replacement were be the risks of cesarean section. Factors affecting differences in made of deliveries were, apgar score at 1 minute and birth weight.

Key words: **Breech presentation, incidence, vaginal delivery, cesarean section**

Introduction

The incidence of breech presentation decreases from about 20 percent at 28 weeks of gestation to 3-4 percent at term, as most babies turn spontaneously to the cephalic presentation. This appears to be an active process whereby a normally formed and active baby adopts the position of “best fit” in a normal intrauterine space. Persistent breech presentation may be associated with abnormalities of the baby, the amniotic fluid volume, the placental localisation or the uterus. It may be due to an otherwise insignificant factor such as cornual placental position or it may apparently be due to chance. There is higher perinatal mortality and morbidity with breech than cephalic presentation, due principally to prematurity, congenital malformations and birth asphyxia or trauma[1]. There is a general consensus that planned cesarean section might be better than vaginal birth for the delivery of the fetus in reducing the associated perinatal problems or if a clinician experienced in vaginal delivery is not available[1-3]. In some studies, vaginal breech delivery has been associated with higher fetal morbidity and mortality rate compared with elective cesarean delivery. However, although cesarean delivery may

reduce the risk of adverse perinatal outcomes, it may increase maternal morbidity and cost of care[1,4].

In Yasothon hospital, cesarean delivery among breech presentation is not routinely practiced and vaginal breech delivery is still performed. The main objective of the present study was to determine the epidemiology and variety of breech deliveries in Yasothon hospital. In addition, factors associated with many patterns of breech deliveries as well as maternal and fetal complications were evaluated.

Methodology

A retrospective study was conducted at, Yasothon hospital with the approval of the Yasothon hospital ethic committee. Every woman with singleton breech presentation at the time of delivery and more than 28 weeks of gestation who had their deliveries at Yasothon hospital during January - September 2007 were enrolled.

Exclusion criteria were born before hospital arrival, indicated and have for elective cesarean delivery (such as placenta previa or previous cesarean delivery), fetal anomalies and dead fetus in utero.

A review of medical records and labor records were conducted among these women. Data that were reviewed included baseline characteristics, current and past obstetric history, maternal complications, obstetrical status at the time of labor room admission, types of breech presentation, route of delivery, and maternal and neonatal outcomes. Incidence of vaginal breech delivery was estimated. Various characteristics were compared between different routes of delivery to determine associated factors for vaginal breech delivery. Maternal and neonatal outcomes were also compared between different patterns of delivery as well.

In data analysis, descriptive statistics, t-test and Fisher's exact test were employed at 0.05 level of significance.

Results

During January - September 2007, the total deliveries in Yasothon hospital were 2,569 cases, total breech deliveries in singleton and gestational age not less than 28 weeks were 76 cases (2.95%), but a total of 76 women with breech presentation at the time of delivery and met inclusion criteria were recruited in the present study.

There were 5 women who met the exclusion criteria and the total of population became 71 cases.

Baseline characteristics of the pregnant women were shown mean (SD) maternal age = 24.87 (3.28) years, mean gestational age (SD) = 37.14 (2.01) weeks.

Table 1 Baseline characteristics of the pregnant women

Characteristics	n = 71
Maternal age (years) mean, (SD)	24.87 ± (3.28)
Parity	
0	41
1	23
> 1	7
Gestational age (weeks)	
≥ 37	42
33-36	18
28-32	11
mean, (SD) 37.14, (2.01)	
Type of breech presentation	
Footling breech	12
Non-footling breech	59
fetal birth weight (grams)	
> 3,000	22
2,500-3,000	38
< 2,500	11
Maternal medical complication	
no	65
yes	6
Private case	
no	37
yes	34

mulliparity, term pregnancy, non footling breech, and range of birth weight between 2,500-3,000 grams accounted for most of the pregnant (table 1).

This study showed comparison of various characteristics between each mode of delivery with use t - test for maternal age (year) and birth weight (gram), and Fisher's exact test for other variables. It was found that only multiparity and non private case were affecting decisions on vaginal delivery with statistical significances. The birth weights of babies that vaginally delivered were lower than those the cesarean section group (table 2).

It was found that differences of birth weight 1 minute apgar scores (<7) low between the two groups were statistically significant (table 3).

Discussion

Caesarean section for breech presentation has been suggested as a way of reducing the associated perinatal problems[1,3] A meta-analysis of infant outcomes after breech delivery showed higher risk of fetal injury or death in selected term breech infants allowed a trial of labor than in those selectively delivered by cesarean[5]. However, the increasing of cesarean section rate in breech presentation has not been associated with differential improvement in neonatal outcomes when compared with the outcomes of those with cephalic presentation[6].

Table 2 Comparison of various characteristics between different routes of delivery.

Characteristics	Vaginal route n = 11 cases	Cesarean section n = 60 cases	p-value
Mean maternal age (year) (SD)	25.54 (1.50)	24.75 (3.51)	0.464
Gestational age (weeks)			
≥ 37	4	38	0.068
< 37	7	22	
Parity			
0	2	39	<0.0045**
≥ 1	9	21	
Type of breech presentation			
footling	1	11	0.294
non-footling	10	49	
Fetal birth weight (grams)			
≥ 2,500	9	51	0.317
< 2,500	2	9	
Maternal medical complication			
no	9	56	0.187
yes	2	4	
Private case			
yes	2	32	0.027**
no	9	28	

t - test for mean of maternal age (year)
*Fisher's exact test for other variables, **p< 0.05*

Table 3 Comparison of maternal and neonatal outcomes between different routes of delivery

Characteristics	Vaginal route n = 11 cases	Cesarean section n = 60 cases	p-value
Puerperal fever			
no	9	56	0.187
yes	2	4	
Blood transfusion			
no	11	56	0.501
yes	0	4	
Birth weight (g) Mean (SD)	2,636.36, (171.8)	2,870.167, (246.2)	0.001**
Sex of baby			
female	6	32	0.255
male	5	28	
Apgar score at 1 minute			
< 7	7	11	0.0036**
≥ 7	4	49	
Apgar score at 5 minute			
< 7	1	0	0.154
≥ 7	10	60	
Neonatal death			
no	10	60	0.154
yes	1	0	

*t - test for mean of birth weight (gram), Fisher's exact test for other variables, **p< 0.05*

An argument against routine cesarean delivery for breech presentation has been the concern about risk of maternal complications. Recently, an international multicenter randomized trial reported improved neonatal outcomes with elective cesarean section compared to vaginal delivery in breech presentation at term, without an increased risk of maternal complications[7]. A recent publication by ACOG recommended that the patients with persistent breech presentation at term in a singleton gestation should undergo a planned cesarean delivery but does not apply to patients presenting in advanced labor in whom delivery is likely to be imminent[8]. However, controversy exists regarding the most appropriate management of the term breech presentation.

In this study, the incidence of vaginal breech delivery was about 15.5 percent (11/71). The reported rates of vaginal breech delivery were different between studies. The retrospective population-based cohort study of 100,667 in breech presentation at the time of delivery in California showed that 4.9 percent of these women delivered vaginally[9]. Another report of 1,021 cases of singleton breech in Miami found 14.4 percent vaginal breech delivery rate[4]. The rate has been reported to be as high as 57.4 percent from a retrospective study of 1,050 term singleton breech in Sweden[7]. The differences might be due to the differences in patient's characteristics and conditions in each population and the differences in the experiences of their care teams.

The present study found that the possibility of vaginal breech delivery increased if the pregnant

women were multiparous, lower birth weights and not private cases.

Some studies suggested that the criteria for selection of pregnant women for vaginal breech delivery included pelvic measurement, estimated fetal weight, and types of breech presentation[1,10]. Another study of 1,645 infants with breech presentation at term also showed that there were no significant difference in long-term morbidity between elective cesarean section and planned vaginal delivery in terms of severe handicap or other outcomes[11]. Previous report showed that the risk of cerebral palsy in relation to breech presentation at term was not related to the mode of delivery. On the contrary, the cerebral palsy linked to the higher rate of IUGR among breech infants[12]. In order to evaluate such effects of mode of delivery on long term outcomes of the infants with breech presentation, more studies with a large number of patients and a longer systematic follow up are required.

Halmesmaki E also suggested that multiparous patients had the possibility of safe vaginal breech delivery with continuous fetal heart rate monitoring. However, it depended on the experience of obstetricians who should have the possibility of supporting such a choice by the patient[13]. In the present study our obstetricians were not routinely use electronical continuous fetal heart rate monitoring.

The present study demonstrated that neonatal morbidities increased significantly among those delivered vaginally, including lower Apgar scores at 1 minute. In addition, these might be due to hypoxia and trauma during delivery as well. Similar results were also observed by others[2,4,5,7,9, 14].

In this study a case of 34 weeks gestational age frank breech and 1,720 grams second parity had antenatal care at a district community hospital, labor room admission with 10 cms cervical dilatation and membrane was ruptured. The obstetrician delivered by breech assisting in half an hour later. The 1 minute and 5 minute apgar score were 1 and 0, then it died. Neonatal death in a case in this study underlines fatal outcome of vaginal deliveries and agrees with many studies that suggest the trend of cesarean section will be the mode to reduces perinatal morta-lity[15,16], though it was not statistically significant.

And this study demonstrated that maternal morbidities increased among those delivered by cesarean section, including purpureal fever and breech delivery blood transfusion intra-or postoperatively (4 from 60) (table 3), but they did not show statistically significances. So large further study should be done to confirm that maternal risk factors and clarify some issues in the future.

The best mode of delivery for breech presentation will remain controversial until there will be the large randomized trials with selected outcomes, such as long term infant and maternal morbidity are conducted. At present, vaginal breech delivery could be performed safely without increasing maternal and neonatal morbidities with the use of appropriate protocols for patient selection, continuous fetal monitoring, and presence of experienced obstetricians and neonatologists[14].

In a secondary analysis of the data from the Term Breech Trial, adverse perinatal outcome was lowest with prelabour caesarean section and increased with caesarean section in early labour (latent phase), in active labour and vaginal birth. For women experiencing labour, adverse perinatal outcome was also associated with labour augmentation, birth weight less than 2.8 kg, longer time between pushing and delivery and no experienced clinician at delivery[15].

Hofmeyr GJ, Hannah ME studied in 2001 and proposed caesarean delivery occurred about 45 percent of those women allocated to a vaginal delivery protocol. Perinatal or neonatal death (excluding fatal anomalies) or serious neonatal morbidity was reduced with planned caesarean section[16].

There were some studies about the non-cephalicpresenting twins, Caukwell S and Murphy DJ[17] presented retrospective cohort study, neonatal morbidity after vaginal delivery was similar for noncephalic presenting and cephalic-presenting second twins, particularly at lower gestational ages. In a study that followed, Hogle KL, et al reviewed three cohort studies (1812 women) and one randomised controlled trial (120 women). It concluded that twins with twin A presenting as breech were less likely to have a low 5-minute Apgar score if they had a planned caesarean section[18]. That showed the benefit and safety of planned caesarean section for the breech fetus, even though, the present study cannot demonstrate the outcome of breech twin because the exclusion criteria had excluded them.

The trend of caesarean section for the breech fetus has presented by a study of Olof Alexandersson et al[19]. The cesarean section rate increased from 75.3 percent in 1999 to 86.0 percent in 2001, due to an increase in planned abdominal deliveries. The study described a change in term breech deliveries practice in Sweden following evidence-based documentation arguing in favor of term breech deliveries by cesarean section.

The later study, Vranjea M and Habekb D concluded less-traumatizing actions during vaginal delivery of breech presentation have less harmful consequences and therefore better perinatal outcome. Incidence of Apgar score <7 and lower arterial cord blood pH value rise with the aggressiveness of the mode of vaginal delivery used[20]. The presented study in Yasothon hospital did not show the details of the subgroup of vaginal deliveries because of the small number of sample size.

In a more longer term for the breech fetus, an intention-to-treat observational analysis, there were no overall differences in neurodevelopmental outcome at 2 years of planned vaginal delivery for breech presentation at term[21] The incidence of breech presentation at term is about 3-4 percent of singleton deliveries and external cephalic version (ECV) can play a role[22]. There were some studies about success rates of the external cephalic version (ECV)[23-25]. The latest authors concluded ECV is a safe procedure with a high success rate in selective cases and benefits of external cephalic version are reduced maternal morbidity and mortality from surgery. In Yasothon hospital, our obstetricians had adopted ECV because cesarean section can be done within the appropriate time.

Conclusion

From the data of this study, there were singleton breech deliveries about 2.95 percent of total deliveries. The proportion of vaginal breech delivery was 15.5 percent. There was a case of neonatal death in the group of vaginal deliveries. The factors that associated with vaginal breech delivery included weight, multiparity, and private case. Maternal morbidities such as postpartum fever, obstetrical bleeding and need blood component replacement may be the risks of cesarean section group. However, onlyone unusual neonatal mortality was reported in among those delivered vaginally. Appropriate patient selection and care during labor and delivery might improve such adverse outcomes and infants with breech presentation might be safely delivered vaginally. Larger studies should be conducted

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บทคัดย่อ **การคลอดทารกท่าก้นครรภ์เดี่ยวที่โรงพยาบาลยโสธร: การศึกษาย้อนหลัง**

วิทยา วัฒนเรืองโกวิท
กลุ่มงานสูติศาสตร์นรีเวชวิทยา โรงพยาบาลยโสธร

วารสารวิชาการสาธารณสุข **2552; 18:1621–8.**

การศึกษาย้อนหลังเชิงพรรณนา และเชิงวิเคราะห์นี้ แสดงอุบัติการของการคลอดทารกท่าก้นครรภ์เดี่ยวที่โรงพยาบาลยโสธร เท่ากับ ร้อยละ 2.95 ของการคลอด ทั้งหมดนี้คลอดทางช่องคลอดร้อยละ 15.5 ปัจจัยที่พบว่ามีความสัมพันธ์กับการคลอดทารกท่าก้นครรภ์เดี่ยวทางช่องคลอดนี้ได้แก่ การเคยผ่านการคลอดมาก่อนแล้ว น้ำหนักตัวทารกต่ำ และการไม่มีสูติแพทย์ดูแลเป็นพิเศษ ปัจจัยที่มีผลกระทบต่อทารกในกลุ่มนี้ที่มีความสำคัญทางสถิติ คือ คะแนนแอพการ์ ที่นาทีที่ 1 และน้ำหนักทารก ความเสี่ยงที่อาจเป็นได้ของการผ่าตัดคลอดทารกท่าก้นครรภ์เดี่ยวทางหน้าท้อง คือ การสูญเสียเลือดจนอาจต้องได้รับเลือดทดแทน และการมีไข้ในระยะหลังคลอด อย่างไรก็ตามควรมีการศึกษาวิเคราะห์เรื่องนี้ที่กว้างขวางต่อไปเพื่อให้เกิดมีน้ำหนักทางสถิติที่สูงขึ้น

คำสำคัญ: **การคลอดทารกท่าก้น, อุบัติการ, คลอดทางช่องคลอด, การผ่าตัดคลอดทารกท่าก้นทางหน้าท้อง**