External Cephalic Version: First Report from Thailand

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Abstract

This prospective study was to preliminary report the safety and success rate of external cephalic version (ECV) in patients with breech presentation or transverse lie at 36 weeks of gestation or more. The aim of this procedure was to reduce the cesarean section rate from indication of breech presentation and transverse lie. This procedure was first started in the Obstetrics and Gynecology Department, Ramathibodi Hospital in June 1998. Thirty two patients were enrolled in this study. ECV was 65 per cent successful with the reversion rate of five per cent. There was no maternal or fetal complication related to this procedure. Factors associated with successful outcome in this study were the location of placenta, the position of fetal spine and the amount of amniotic fluid. A larger study is needed before the true success rate and the efficacy of this procedure can be apparent.

Key word : External Cephalic Version, Thailand, First Report

Over the past decades, the cesarean section rate for term breech presentation has continued to grow[1]. In Thailand, the cesarean section rate has continued to rise rapidly from 15 per cent in 1990 to 22 per cent in 1996 and breech presentation is one of the most common indications for cesarean section[2]. Most obstetricians still believe that cesarean section can reduce adverse outcome from vaginal breech delivery. Retrospective studies have shown that perinatal mortality and morbidity increase four and five times respectively comparing breech with vertex presentation[3,4]. External cephalic version (ECV) is receiving more attention as the way to reduce perinatal mortality and morbidity from breech delivery[5].

External cephalic version before term (usually at 30-34 weeks of pregnancy) was routinely practised in the past[5]. After mid 1970 the popula-

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rity declined because of perinatal mortality associated with the procedure and the perception of cesarean section as a better option than vaginal delivery[6]. In 1975 Saling et al[7] reported the successful outcome of ECV after 37 weeks of pregnancy with the use of tocolysis and this procedure has become widely accepted. ECV at term pregnancy has more benefit in that spontaneous version of breech to vertex usually occurs before 36 weeks, and the fetus is mature enough for emergency cesarean section in case of fetal distress from the procedure[8].

We decided to organize the ECV program as a pilot project and introduce it to the residency training program hoping that this procedure will be widely accepted and used in order to reduce the number of cesarean sections from breech presentation. The purpose of this study was to preliminary evaluate the safety and outcome of the first ECV program in Thailand.

MATERIAL AND METHOD

This prospective study was conduct in a tertiary university teaching hospital. The ECV program was introduced in June 1998. Non-private patients with breech presentation at ≥ 36 weeks of gestation with no contraindication according to ACOG criteria (Table 1)[9], were offered external cephalic version. The patients were counseled with regard to the advantages and disadvantages, including the safety and success rate of this procedure. Those who chose ECV were admitted as outpatients after fasting for 8 hours before the procedure. All of the ECV were conducted in the labor ward. An ultrasound examination was performed for all patients to exclude the contraindications and confirm breech presentation. A reactive cardiotocogram, according to standard criteria[10], was also a prerequisite for this procedure. The patients were then given 2.5 mg of terbutaline intravenously as a tocolysis for uterine relaxation to improve the outcome unless there was contraindication. External cephalic version, as described by Hofmeyer[11], was performed. A forward roll was attempted and if unsuccessful a backward flip was tried. A cardiotocography (CTG) was repeated following the ECV attempt, irrespective of the outcome. If the CTG was normal, the patients were allowed home and reviewed by one of the authors in the antenatal clinic until delivery.

Table 1. ACOG criteria for antepartum external cephalic version.

Contraindications
1) Compromised fetus
2) Oligohydramnios
3) Placenta previa
4) Premature rupture of membranes
5) Multiple gestation
6) Uterine anomaly
7) Unexplained uterine bleeding
8) Previous vertical uterine incision

RESULTS

We started the ECV program in June 1998. During the 3-month study period 32 external cephalic versions were performed in 30 patients with breech presentation and 2 patients with transverse lie. Demographic data of the patients are shown in Table 2. There were 14 nulliparous and 18 multiparous women. Tocolytics were used in all but one patient who had tachycardia.

Several variables, including gestational age, parity, body mass index, presentation, location of placenta, amniotic fluid index, position of fetal spine and engagement of fetal part, were analyzed by unpaired *t*-test, Fisher's exact test and chi-square analysis for successful and unsuccessful version. There was no significant difference in gestational age, parity, body mass index, presentation, and engagement of presenting part. There were significant differences in success with location of placenta, amniotic fluid index, and position of fetal spine. Those having successful versions were significantly more likely to have posterior placenta, lateral position of spine and higher amniotic fluid index.

Twenty one of thirty two or 65.6 per cent of the patients had successful ECV. Twenty of them were successful from forward roll and the rest by backward flip. There was no maternal or fetal complication during and after versions. One of the patients had spontaneous reversion after the procedure which represented 5 per cent reversion rate. All of the unsuccessful cases presented in labour with breech presentation. Seven of 21 successful ECV were delivered by cesarean section, two from non progress of labour and five from fetal distress, including one reversion case. Five of 11 unsuccess-

Table 2. Demographic characteristics.

	Mean±SD	Range
Maternal age (years)	29.2± 5.3	19-41
Gravida	2.2± 1.0	1-5
Parity	0.7± 0.7	0-2
GA at ECV (weeks)	37.6± 1.0	36-40
EFW at ECV (grams)	2927.7± 361.5	2300-3600
GA at delivery (weeks)	39.2± 1.2	37-42
Fetal birthweight (grams)	3109.7± 340.7	2390-3620

ECV = external cephalic version, GA = gestational age, EFW = estimated fetal weight

Table 3. Characteristics of patients who had successful and unsuccessful external cephalic version.

	Successful ECV (n=21)	Unsuccessful ECV (n=11)
Clinical and historical		
Gestational age (weeks)	37.6±1.1	37.5±0.8
Parity		
Nulliparous (%)	7 (21.9)	7 (21.9)
Multiparous (%)	14 (43.8)	4 (12.5)
Body mass index (kg/m^2)	25.0±4.4	26.2±3.0
Ultrasound		
Presentation		
Frank breech (%)	16 (50.0)	6 (18.8)
Complete breech (%)	3 (9.4)	5 (15.6)
Transverse lie (%)	2 (6.3)	0
Location of placenta*		
Posterior (%)	12 (37.5)	2 (6.3)
Anterior (%)	9 (28.1)	9 (28.1)
Amniotic fluid index* (cm)	10.0±1.5	8.6±1.4
Position of fetal spine*		
Anterior or posterior (%)	2 (6.2)	10 (31.3)
Lateral (%)	19 (59.4)	1 (3.1)
Clinical examination		
Engagement of fetal part		
No (%)	11 (34.4)	3 (9.4)
Yes (%)	10 (31.3)	8 (25.0)

* statistically significant $p < 0.05$

ful versions were delivered by breech assisting. One had elective cesarean section with the indication of primigravida and 4 by emergency cesarean section due to non progress of labour and one for fetal distress. There was one fetal birth asphyxia, Apgar score 2, 6 at 1 and 5 minutes after being delivered by breech assisting. The others were normal. There were no maternal postpartum complications.

Table 4. Effect of external cephalic version on presentation at delivery and route of delivery.

	Successful ECV (n=21)	Unsuccessful ECV (n=11)
Presentation		
Cephalic (%)	20 (62.5)	0
Breech (%)	1 (3.1)	11 (33.1)
Route of delivery		
Vaginal delivery (%)	14 (43.4)	6 (18.6)
Cesarean section (%)	7 (21.7)	5 (15.5)

DISCUSSION

This study was a pilot project which aimed to introduce external cephalic version at term to obstetricians and residents in the Obstetrics and Gynaecology Department as an alternative way for the management of breech presentation. The overall cesarean section rate in our center is 28 per cent which is considered high compared to developed countries. One of the most common indications for caesarean section is breech presentation especially breech primigravida. Since the practice here is to do a repeat cesarean section in subsequent pregnancies, we hope that by doing ECV it will help to reduce the cesarean section rate.

Cochrane Database showed the evidence that external cephalic version at term reduces both breech delivery and cesarean section for breech presentation[5]. Our study provided evidence supporting this data. The overall success rate in our program was 65.6 per cent which compares favorably with that of previous reports[12-15]. Although Lau et al reported a success rate of 77 per cent[13], in a larger series there was a lower successful outcome, ranging from 45 per cent[8] to 58 per cent[14]. We used tocolysis in all cases unless there was contraindication. There has been abundant evidence in randomized trials demonstrating an improved success rate if tocolysis was used in this procedure[15,16]. There was no maternal or fetal complication related to this procedure in this series.

Factors affecting the outcome in our study were the location of placenta, the position of the spine and the amount of amniotic fluid. Although gestational age, parity, maternal body mass index, presentation, and engagement of presenting part did not have a statistically significant impact on the outcome in this series, nevertheless multiparous

pregnancy seems to have a more favorable outcome than nulliparous pregnancy while tranverse lie and frank breech have a better outcome than complete breech. A larger sample may give a more different outcome. Several studies have given controversial results. The possible affecting factors include nulliparous, non-frank breech, anterior placenta, decreased amniotic fluid, anterior or posterior located spine, and engagement of the presenting part[8,12,17]. Breech presentation has different mechanical factors from transverse lie. ECV in transverse lie seems to have a high rate of reversion[18]. In this study, 2 cases of transverse lie had successful ECV without reversion.

Our preliminary study has shown that external cephalic version is a safe and successful procedure. It can be used to help reduce the cesarean section rate and fetal morbidity from vaginal breech delivery. With proper training, it is not difficult to do ECV and this should become a standard procedure in tertiary centers in the near future. However, there must be constant audit to see the risk and benefit in each center that carries out this procedure.

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การหมุนเปลี่ยนท่าทารกทางหน้าท้อง : รายงานแรกของประเทศไทย

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รายงานนี้เป็นการศึกษาถึงความปลอดภัยและอัตราความสำเร็จของการหมุนเปลี่ยนท่าทารกทางหน้าท้อง (External cephalic version) ในหญิงตั้งครรภ์ที่ทารกมีก้นเป็นส่วนนำหรือทารกอยู่ในท่าขวาง และมีอายุครรภ์ 36 สัปดาห์ขึ้นไป โดยหวังว่าจะเป็นวิธีการหนึ่งในการลดอัตราการผ่าตัดคลอดทางหน้าท้องของมารดาที่ทารกมีก้นเป็นส่วนนำ, และท่าขวาง วิธีการนี้เริ่มนำมาใช้ในภาควิชาสูติศาสตร์-นรีเวชวิทยา คณะแพทยศาสตร์โรงพยาบาลรามาธิบดี ในเดือนมิถุนายน 2541 มีหญิงตั้งครรภ์เข้าร่วมในโครงการ 32 ราย อัตราความสำเร็จของการหมุน 65.6% โดยมีอัตราการหมุนกลับเป็นท่าก้น 5% ไม่พบภาวะแทรกซ้อนของการหมุนต่อทั้งมารดาและทารก ปัจจัยที่มีผลต่อความสำเร็จของการหมุนเปลี่ยนท่าทารกในการศึกษานี้คือ ตำแหน่งของรก, ตำแหน่งของกระดูกสันหลังทารก และปริมาณน้ำคร่ำ ผลกระทบของการหมุนเปลี่ยนท่าทารกต่อการลดอัตราการผ่าตัดคลอดทางหน้าท้องเป็นสิ่งที่จะต้องทำการศึกษาต่อไป

คำสำคัญ : การหมุนเปลี่ยนท่าทารกทางหน้าท้อง, ประเทศไทย, รายงานแรก

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