External Cephalic Version at Bhumibol Adulyadej Hospital

WIBOOL RUANGCHAINIKOM, M.D.*,
CHINDA CHAREONPORN, M.D.*

Abstract

To study the success rate and identify the factors influencing the success rate of external cephalic version (ECV) at Bhumibol Adulyadej Hospital. The subjects were seventy-two, singleton, pregnant women with non-vertex presentation who were at least thirty-six weeks of gestation and had attended the antenatal care clinic between October 1,1997 and September 30, 1999. The success rate of ECV was 75.68 per cent. AFI and fetal weight significantly affected the success rate of ECV, other factors did not. Conclusion: ECV is a safe procedure with a high success rate in selective cases. ECV, thus, is an effective alternative practice for non - vertex presentation which can also reduce the rate of breech delivery and cesarean section.

Key word : External Cephalic Version, Success Rate, Non-Vertex Presentation

RUANGCHAINIKOM W, CHAREONPORN C
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Perinatal mortality and morbidity are increased in persistent breech presentation. Retrospective study comparing breech and vertex presentation at term have shown a perinatal mortality rate ratio of 4.3:1 to 2:1 and a perinatal morbidity rate ratio of 5:1 (asphyxia), 4 :1 (neurological problem), and 2.2:1 (traumatic damage)[1-3]. The overall neonatal mortality and morbidity resulting from trauma were increased significantly in the planned vaginal delivery groups[4]. So cesarean section is increased for persistent breech presentation at term.

External cephalic version (ECV) is an interesting procedure for the management of breech presentation at term. Once the vertex presentation is achieved, the chances for a vaginal delivery increase and any danger inherent in a breech delivery can be avoided.

* Department of Obstetrics and Gynecology, Bhumibol Adulyadej Hospital, Bangkok 10220, Thailand.

The aim of this study was to observe the success rate for ECV and to gain some insight into factors associated with the success rates of ECV.

MATERIAL AND METHOD

During the study period from October 1, 1997 to September 30, 1999, all parturients attending the obstetric unit at Bhumibol Adulyadej Hospital, a Thai Royal Air Force Hospital, having completed 36 or more gestational weeks with singleton non vertex fetus, were offered a trial of ECV after informed consent. These patients underwent a complete general and obstetric history and examination, together with a non stress test to assess fetal well being and tocography. Our contraindications for the ECV in the study were

1. Previous uterine scar and uterine abnormality.
2. Placenta previa.
3. Ruptured membranes.
4. Labour pain.
5. Fetal anomaly.
6. Fetal distress.
7. Multiple gestation.

In the remaining parturients, ECV was attempted following these preparatory steps.

a) Written consent to the procedure was obtained from all patients attempting ECV.

b) Physical examination, including general status, weight, blood pressure, pulse rate, heart sound, lung fields and abdominal scar as well as palpation of the abdomen and uterus. Both fetal heart rate tracing and uterine contractions were recorded.

c) Ultrasound was performed. The exact fetal position, amniotic volume and placental site were noted.

d) Tocolysis was achieved by intravenous terbutaline (Bricanyl). A single dose (0.3-0.5 mg) was administered before ECV was attempted.

The procedure was performed under double set up conditions, NPO 6 hours, operation facilities were immediately available. After assessing the exact fetal position, the operators gently displaced the breech from the pelvic brim superiorly, then by applying simultaneous circular steady pressure on the head, neck and upper back of the fetus with one hand and the breech of fetus with the other hand in a forward somersault direction and backward somersault direction if the first attempt failed.

Fetal heart activity was mornitored every 1 minute by real time ultrasound during the operation. The post operative non-stress test was assessed. Antenatal care, management of labour and delivery did not differ from other parturients.

RESULT

Seventy two parturients were identified as having a non-vertex fetus in the 36th gestation week or after in the study period. Two parturients had done ECV twice. Successful ECV was achieved in 75.68 per cent of the attempted versions (56/74), of which 18 parturients had an unsuccessful version, and 5 parturients (6.75%) in the successful group were lost to follow-up. Thirty parturients with successful ECV deliveried vaginally and nineteen parturients in this group had cesarean section for various indications. Sixteen parturients in the failed ECV group, had elective cesarean sections. Only two parturients were suitable and agreeable for a trial of vaginal breech delivery as shown in Table 1.

Table 1. Outcome of ECV at Bhumibol Adulyadej Hospital.

Delivery ECV	Vaginal delivery	Cesarean section	Total
Successful group	32*	19	51 + (5)
Failed group	2*	16	18
Total	34	35	69 + (5)

$\chi 2 = 13.251$ *
$p = 0.000$
(5) = lost to follow-up

All of the post operated non-stress tests were reactive and none of the parturients delivered in our hospital, whether successful or not, had an adverse outcome.

In our study, all cases of successful ECV were subsequently found to be present at delivery in a vertex presentation and none in the failed ECV group had a spontaneous reversion after attempting ECV.

Successful ECV was significantly associated with vaginal delivery ($\chi 2 = 13.251$, $p= 0.000$) as shown in Table 1 and the chance of success was also enhanced through a vaginal delivery as opposed to a cesarean delivery. The cesarean section rate for

the successful ECV group was 37.25 per cent. In contrast, the cesarean rate after unsuccessful ECV was as high as 88.88 per cent.

Birth weight was converse to a significant degree, with successful ECV. The mean birth weights in the successful group were higher than those of the failed group, statistically as shown in Table 2.

Table 2. Birth weight and group of ECV.

Birth weight ECV	Mean (g)	Maximum (g)	Minimum (g)
Successful ECV	3,240.31	4,220	1,740
Failed	2,948.15	3,045	2,230

Student T – test P =0.013

Oligohydramnios was diagnosed before attempting ECV in 8 cases (10.8%), and no ECV was successful. All of them were associated with intrauterine growth retriction. As there were 56 successful versions in the 66 cases with normal amniotic fluid volume with ECV, the difference was statistically significant ($p<0.0001$) (Table 3).

In our study, maternal weight did not have any effect on the outcome. The mean maternal weight was not statistically different between the successful and failed group as shown in Table 4.

The effect of parity on the success rate of ECV was examined. The parity had no significant effect on the success rate of the procedure (Table 3).

The gestational age at which the ECV was carried out had no significant effect on the success rate of the procedure. (Table 3). Placental site was examined as another possible factor in the success rate of ECV. A total of 29 cases of anterior placenta were diagnosed by the pre- ECV ultrasound examination. When the success rate of these cases (79.31%) was compared to the cases of other placental sites (73.33%), the difference was not statistically significant (Table 3).

Table 4. Maternal weight and group of ECV.

Maternal weight ECV	Mean (kg)	Maximum (kg)	Minimum (kg)
Successful ECV	63.65	79.3	47.5
Failed	64.62	82.1	51.2

Student T – test P =0.600

DISCUSSION

In our hospital there are approximately 8,000 deliveries a year. Our incidence of breech presentation at term ranges from 3-4 per cent which is comparable to most figures nationwide. Because the increasing cesarean section rate for breech presentation is a problem faced by most hospitals, there is renewed interest in techniques such as ECV and vaginal breech delivery.

ECV at term is widely but not universally accepted as a valuable obstetric procedure, capable of lowering breech-related birth morbidity and perinatal mortality.

In retrospect, 245 attempted versions previously studied, there were no serious complications encountered. All fetuses in this study were subsequently delivered without significant morbidity and no cases of perinatal mortality were recorded[5]. This conclusion is supported by other studies, in-

Table 3. Success rate of ECV and associated factors.

Factors associated the success rate of ECV		Success rate (%)	$\chi 2$	P
Parity	Primirara	69.56	2.466	0.166
	Multipara	85.71		
Gestational ages	< 39 weeks	71.93	1.891	0.169
	> 39 weeks	88.23		
Placental site	Anterior	79.31	0.312	0.577
	Non-anterior	73.33		
AFI	< 5	0	Fisher's Exact Test	<0.0001
	≥5, <25	84.85		

AFI < 5 = oligohydramnios

cluding our study, both utilizing and not utilizing tocolysis with ritodrine(6-10).

The success rate of term ECV ranges from 35 per cent(11) to 97 per cent(7). Our success rate of 75.68 per cent was highly comparable to most studies(12-15). The high proportion of vaginal deliveries (62.75%) in the successful ECV group comparing this rate to the failed ECV group (11.11%) and this rate in the group of non vertex fetus that had no ECV intervention, showed its possible favourable outcome in decreasing the cesarean section rate.

The factors associated with successful ECV were evaluated. Our study showed that only birthweight and amniotic fluid index (AFI) were important factors in the outcome, however, most of these factors are controversial.

In our study, the maximum maternal weight was 82.1 kg. And had no significance on the success rate of the procedure in accordance with other reports(16,17). But one author found obesity to be associated with a higher failure rate(18). The authors assume that abdominal wall thickening may be the questionable factor and will need further studies to confirm this.

The possible reason for increasing fetal weight is associated with greater success of ECV such as:

1) An improved ability to manipulate the fetus(19).

2) Interconnected by amount of amniotic fluid which is often less than normal in the SGA fetus(5) according to our data. (Table 2). Gestational ages had no significant effect on the success rate of the procedure, again in accordance with other reports(20). The actual gestational ages are apparently less important than the amount of amniotic fluid or the size of the fetus, both of which were found to contribute significantly to the success of the procedure.

The placental site was not found to have a significant effect on the outcome of ECV as was found by Fianu et al(21). This is in contrast to other studies(20,22) that demonstrated an adverse effect on the outcome for the anteriorly placental site.

This report shows the effectiveness of ECV at term in clinical practice and hopes to promote its use. The number of cases in the study is not enough to confirm the safety of the procedure. However, the risk is generally considered small as reported by various authors(5,11,23,26) ECV at term using tocolytics should be part of the routine management of breech presentation in view of its effectiveness.

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การหมุนเปลี่ยนท่าทารกเป็นท่าศีรษะทางหน้าท้องที่โรงพยาบาลภูมิพลอดุลยเดช

วิบูลย์ เรืองชัยนิคม, พ.บ., จินดา เจริญพร, พ.บ.**

เพื่อศึกษาอัตราความสำเร็จและปัจจัยที่เกี่ยวข้องกับอัตราความสำเร็จของการหมุนเปลี่ยนท่าทารกเป็นท่าศีรษะทางหน้าท้องที่โรงพยาบาลภูมิพลอดุลยเดช ในสตรีตั้งครรภ์ทารกท่าก้นหรือท่าขวาง ครรภ์เดี่ยว อายุครรภ์มากกว่าหรือเท่ากับ 36 สัปดาห์ ฝากครรภ์ที่โรงพยาบาลภูมิพลอดุลยเดช ตั้งแต่ 1 ตุลาคม 2540 ถึง 30 กันยายน 2542 อัตราความสำเร็จเท่ากับร้อยละ 75.68 พบว่าปริมาณน้ำคร่ำและน้ำหนักทารก สัมพันธ์กับอัตราความสำเร็จอย่างมีนัยสำคัญ โดยสรุปหัตถการนี้มีความปลอดภัยและมีอัตราความสำเร็จสูงหากทำในสถานที่เหมาะสม ทั้งยังอาจสามารถลดอันตรายจากการคลอดทารกท่าก้นทางช่องคลอดและสามารถลดอัตราการผ่าตัดคลอดของทารกท่าก้นและท่าขวาง

คำสำคัญ : การหมุนเปลี่ยนท่าทารกเป็นท่าศีรษะทางหน้าท้อง, อัตราความสำเร็จ, ทารกท่าก้นและท่าขวาง

วิบูลย์ เรืองชัยนิคม, จินดา เจริญพร
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* กองสูตินรีกรรม, โรงพยาบาลภูมิพลอดุลยเดช, กรุงเทพ ฯ 10220