ORIGINAL ARTICLE

External Cephalic Version (ECV) for Breech Presentation at Term -Experience at Railway Hospital

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ABSTRACT

Objective: To assess the effectiveness of ECV in singleton breech presentation at term and to determine its effect on maternal, delivery and perinatal outcomes in women to whom the procedure was offered.

Study Design: A quasi experimental study

Place and Duration of Study: The study was carried out in the Department of Obstetrics and Gynaecology, Railway hospital, Rawalpindi, from August 2006 to December 2008.

Material and Methods: Eligible women, presenting with uncomplicated breech, between 37-41 weeks gestation, underwent ECV on day care basis. Fifteen minutes before the procedure, injection salbutamol 0.5 mg was administered. Cases with contraindication to ECV or salbutamol injection were excluded from the study. Success rate of ECV (in terms of conversion from breech to cephalic presentation at the completion of procedure confirmed through ultrasound) along with maternal, delivery and perinatal outcomes were assessed. Maternal and fetal demographic characteristics were also recorded as secondary outcome measures. For statistical analysis, SPSS version 10 was used and Chi-square test applied with a $p<0.05$ taken as significant.

Results: Of the 42 ECV procedures, 25 (59.5%) were successful. None of the patient suffered from serious maternal complications. Seven (16.7%) parturients complained of severe palpitations and 4 (9.5%) of marked discomfort during the procedure. Reversible fetal bradycardia was seen in 1 (2.4%) patient. Reversion to a non cephalic presentation occurred in two cases. Vaginal delivery was carried out in 21 patients out of the 25 who successfully underwent external cephalic version while all the patients with failed ECV underwent caesarean delivery. The 5 minute Apgar score was more than 8 in all except one baby.

Conclusion: Adverse maternal and fetal outcomes of breech presentation at term are rare and there was no increased risk of complications after external cephalic version. Findings provide important data to quantify the frequency of adverse outcomes that will help facilitate informed decision-making and ensure optimal management of breech presentation.

Keywords: *External cephalic version, breech presentation, pregnancy outcome*

Introduction

External cephalic version at more than or equal to 37 weeks gestation in suitable women with breech presentation was introduced in 1991 as a new management option.[1] The rate of breech presentations in the general population of parturients at term has remained unchanged at 3-4%. However, the recent finding that the fetus has an increased morbidity during a vaginal delivery when compared with Cesarean section[2] has driven obstetricians towards the decision that all breech presentations will be delivered surgically .Thus, the Term Breech Trial (2000) has impacted management with 3-4% increase in overall C/S rate. This is further supported by the finding of survey of centre collaborators (2003) 92.5% report change in practice to planned C/S .The morbidity of the mother with a breech presentation is not increased with a vaginal delivery; in fact the maternal morbidity associated with surgery is higher than after a vaginal delivery.[3, 4] Subsequent pregnancies are automatically deemed high risk due to the presence of a uterine scar.[5]

In an attempt to reduce the need for surgery with a breech presentation, the only option available in the current climate, where a vaginal delivery is out of the question, is to atempt to convert the fetal presentation from

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a breech to a vertex (head) presentation. The success rates of ECV vary from 30% in nulliparous women, to 67% in multiparous women.[6] The use of tocolytic agents has been shown to increase the success rate of ECV.[7]

This technique may result in the premature onset of labor, which would require emergent surgery, and there is also a risk of umbilical cord entanglement, prelabour rupture of membranes as well as placental abruption.[8] Following ECV, the fetus may spontaneously return to the breech position. Overall complication rates have ranged from 1-2 % & in recent studies with strict inclusion criteria no significant fetal or maternal morbidity occurred as a result of ECV.[9] In spite of these risks most women wish to avoid CS, preferring ECV - the only effective intervention to convert a breech fetus to cephalic presentation with the potential to help women avoid CS. The Royal College of Obstetricians and Gynecologists recommends that all women with an uncomplicated breech presentation at term should be offered ECV. Survey of centre collaborators (2003) further support this rationale by reporting a change in practice with 13.8% more practitioners offering/performing ECV. Unfortunately, the fact that versions are not practiced in all obstetrical departments is partly due to the embarrassing lack of expert knowledge on the part of some practitioners / clinicians and more importantly failure in adequately disseminating information regarding management options available to patients presenting with breech near term.

Probabilistic information on outcomes of breech presentation is important for clinical decision-making. The aim of the study was to assess the effectiveness of ECV in singleton breech presentation at term and to determine its effect on maternal, delivery and perinatal outcomes in women to whom the procedure was offered.

Materials and Methods

It was a prospective study, carried out in the department of gynaecology and obsterics, Islamic International Medical College Trust, Railway hospital, Rawalpindi. A total of 42 patients with singleton breech presentation but otherwise uncomplicated pregnancies, between 37-41 weeks gestation, were offered ECV from August 2006 to December 2008. Type of breech was not considered a factor for suitability. Exclusion criteria included multiple pregnancy, antepartum haemorrhage, ruptured membranes, placenta previa, known uterine malformation, oligohydramnios (AFI < 8), fetal abnormality, previous caesarian section, active labour, intra uterine growth restriction, severe proteinuric hypertension, bad obstetric history, need for LSCS for any other indication & any contraindication to tocolysis such as maternal diabetes mellitus, cardiac & thyroid disease and patient's wishes after thorough counseling.

Each patient was fully explained regarding the procedure, its possible complications and an informed consent was taken. Immediately prior to the ECV procedure, the woman was reassessed to ensure she was still eligible for ECV, duration of pregnancy was between 37-41 weeks and the fetal presentation was confirmed by ultrasound. This ultrasound was used along with clinical assessments to determine any contraindications to ECV prior to each procedure. Fetal well-being was assessed

prior to the procedure by continuous fetal heart rate monitoring for 20 minutes. Fetal heart rate assessment was required to reveal a normal baseline rate, good variability, and no evidence of decelerations prior to ECV.

All ECV procedures were undertaken by experienced clinicians and in an environment where any complication could be appropriately managed. Two obstetricians, at least one of whom had experience with the procedure, performed the ECV, with the aid of ultrasound surveillance. The ECV procedure had to be halted if any of the following occurred: fetal bradycardia, placental abruption, and failure of ECV.

Injection salbutamol 0.5mg was administered intravenously to 22 and subcutaneous to 20 patients.

After detecting rise in maternal pulse, softening of uterus & easy palpation of fetal parts, external cephalic version was attempted under ultrasound guidance. Continuous uterine pressure was limited to 5 minutes while total uterine manipulation was limited to a maximum of 10 minutes. No more than 2 attempts were tried. After successful version, attitude was maintained manually for a few minutes. Fetal heart monitoring was done every 2 minutes throughout the procedure. The woman remained under supervision for at least one half hour following the procedure. Fetal well-being was assessed following the procedure by confirming fetal movement on ultrasound and by recording a reactive fetal heart rate on continuous fetal heart rate monitoring for 20 minutes. Fetal presentation was confirmed by ultrasound immediately following the procedure. Since Rhesus isoimmunization is a risk of ECV, non-sensitized Rh negative women were required to be provided with anti-D immunoglobulin following the procedure.

Clinical parameters including age, height in centimeters, parity, duration of pregnancy in weeks, estimated fetal birth weight and placental location were recorded. The occurrence of any complication such as PROM, APH, fetal distress, severe maternal tachycardia (>120 beats/min) with palpitation, sweating with hypoglycaemia and reversion of fetus to breech presentation were noted. Failure of ECV was followed by elective lower section caesarean section on completion of 38 weeks of gestation. On success of ECV women were discharged with weekly antenatal follow up to await spontaneous labor up to 41 weeks. Care after external cephalic version including mode of delivery was determined by the attending obstetrician. The care in labour ward was guided by departmental protocols. Mode of delivery, weight & sex of the baby was recorded at time of delivery. Fetal outcome was measured in terms of Apgar score at 5 mins.

The principal outcome measures of the study were success rate of ECV, its overall effect on maternal/ perinatal outcome and mode of delivery. Maternal and fetal demographic characteristics were also recorded as secondary outcome measures. For statistical analysis, SPSS version 17 was used and student t- test applied with a $p<0.05$ taken as significant.

Results

In our study 42 patients with singleton breech presentation between 37-41 weeks gestation but otherwise uncomplicated pregnancies fulfilled the inclusion criteria

and were offered external cephalic version (ECV). Overall success rate was 59.5% (25).Reversion to breech occurred in 1 patient (2.4%) who was diagnosed on follow up visit and repeat ECV was successful but the patient had caesarean delivery due to intrapartum fetal distress. Another patient had reversion to transverse lie after successful ECV but presented in labour and was found to have a bicornuate uterus on caesarean section.

The mean age of our patients was 26.2 years (SD=5.9) while the mean height was 157cm (SD=4.7). The parity of patients is shown in table 1. The mean parity of the patients with successful ECV was 1.8 while that of unsuccessful ECV was 0.3.The mean gestation at which ECV was performed was 38 weeks (SD=1.2). Intravenous tocolysis was done in 22 women (52.4%) while subcutaneous salbutamol was given to 20 patients (47.6%) prior to attempting ECV. Similar frequencies had successful ECV's in both the groups.

The ultrasonography carried out prior to the procedure revealed that the placenta was posterior / fundoposterior in 23 (54.8%), anterior / fundoanterior in 16 (38.1%) and fundal in position in only 3 (7.1%) cases. The mean estimated fetal birth weight (EFBW) was 3 kg (SD0.33gm). The mean EFBW of patients with successful ECV was 2.96kg while that of unsuccessful ECV was 3.1 kg.

There was only 1 (2.4%) case of transient fetal bradycardia which recovered within 5 minutes. Seven (16.7%) parturient complained of severe palpitations and 4 (9.5%) of marked discomfort during the procedure. About 28 (66.7%) did not have any complaint.

Vaginal delivery was carried out in 21 patients out of the 25 who successfully underwent external cephalic version. One patient was lost to follow up after successful ECV. Caesarean delivery was necessary in rest of the three women, two of whom had reversion to non-cephalic presentation. All the patients with failed ECV underwent caesarean section.

Table I: Parity of the patients

Parity	Number of patients	Percentage
Nullipara	24	57.1
Multipara	15	35.7
Grandmultipara (>4)	03	7.2
Total	42	100

The 5 minute Apgar score was more than 8 in all except one baby delivered by LSCS due to fetal distress in whom it was 6, but the score improved to 10 at 10 mins of birth. Twenty two (52.4%) babies were male while 19 (45.2%) had female sex. The mean weight at birth was 3.25 kg, minimum & maximum being 2.8 & 4 kg respectively.

Discussion

Breech presentation is the most common malpresentation affecting at least 20 000 babies per year in the UK alone. It is the third most common indication for caesarean section (C/S) following previous caesarean section and labour dystocia. Approximately 87% of breech presentations in the United States result in cesarean delivery.[10] External cephalic version (ECV) has been clearly shown to decrease the incidence of breech presentation at term, thereby reducing the elective caesarean section rate. The Royal

College of Obstetricians and Gynaecologists (RCOG) and American College of Obstetricians and Gynecologists currently recommend that all women with an uncomplicated singleton breech presentation at term should be offered ECV. Trial of ECV is cost-effective when compared to a scheduled cesarean for breech presentation provided the probability of successful ECV is at least more than 32%.[11]

This is in line with our case series where the success of ECV was 59.5%.

In spite of this as well as recommendations by professional bodies, acceptance of ECV among both clinicians and consumers appears to be limited, apparently because of fears over safety.[12]

Apart from only one case of reversible fetal bradycardia, there was no remarkable perinatal complication in our study. About 17% of patients complained of severe palpitations and 10% of marked discomfort during the procedure. The low frequency of complications in our series is matched by other studies[13] which suggest that women should be counseled that ECV is extremely safe but has a 0.5% risk of emergency caesarean section at the time of the procedure.[14] In fact women with a breech-presenting fetus at term and previous caesarean delivery, who desire a trial of labor, should be counseled regarding the accumulating evidence about the efficacy and apparently safety of this procedure and may be offered an ECV attempt.[15]

External cephalic version at 3435 weeks versus 37 or more weeks of gestation increases the likelihood of cephalic presentation at birth but does not reduce the rate of caesarean section and may increase the rate of preterm birth.[16] So in our study, ECV was offered only to patients between 37-41 weeks.

In our case series there was no significant difference in maternal and fetal demographic features. However, multipara tended to have a better chance of a successful ECV as in other studies.[17]

Twenty one out of the 24 patients who were followed up after a successful ECV had a normal vaginal delivery in our study. This is in concordance with other studies exhibiting successful pregnancy outcome after ECV.[18] However, certain other studies show that pregnancies after a successful external cephalic version at term are not the same as those with cephalic presentation. They are at higher risk of both dystocic labor and fetal distress and therefore require close intrapartum monitoring.[19]

In our case series there was no difference in the success of ECV whether tocolysis was carried out by subcutaneous or intravenous salbutamol. Currently, various options to improve the success rate of ECV are being explored in research trials. Moxibustion treatment[20] due to its simplicity and combined spinal-epidural analgesia due to its efficacy are being extensively studied.[21]

Conclusion

Adverse maternal and fetal outcomes of breech presentation at term are rare and there was no increased risk of complications after external cephalic version in our study. Findings provide important data to quantify the frequency of adverse outcomes that will help facilitate informed decision-making and ensure optimal management of breech presentation.

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