

Outcome of External Cephalic Version in Terms of Success Rate and Fetomaternal Complications

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Objective: To assess the outcome of external cephalic version for management of breech fetuses at term in terms of:
• Success rate of ECV. • Feto maternal complications.

Design: Prospective interventional study.

Setting: Department of Obstetrics and Gynaecology, Unit-III, Services Hospital, a tertiary care centre in Lahore, Pakistan.

Patients: From July 19, 2007 to January 14, 2009, the study was conducted involving pregnant women with breech presentation between 37 – 41 weeks. An external cephalic version was carried out. Data was collected for identifying the success or failure of external cephalic version and feto maternal complications.

Main Outcome Measures: Maternal and fetal outcome measures assessed in terms of: • Success rate of external cephalic version. • Maternal and fetal complications.

Statistical Data Analysis: Collected Data was entered into SPSS (Statistical Package for Social Sciences) version 12.0 and analyzed descriptively. Mean and SD was calculated for quantitation variable like gestational age and percentages were calculated for qualitative variables like gravida, complication etc.

Results: Forty women were included in the study. External cephalic version was successful in 60% patients. The majority (70.83%) of this group achieved the vaginal delivery. The rate of caesarean section was 29.16%. The most common indication for caesarean section was fetal distress and failure to progress. There was no foetal or maternal adverse outcome except one in which membranes ruptured during the procedure. The majority of women were satisfied with external cephalic version.

Conclusion: External cephalic version has good success rate. External cephalic version is relatively safe, simple to learn and perform. Well equipped Obstetrics Units should routinely offer the procedure in selective cases. ECV helps to avoid a significant number of caesarean sections. Properly counseled women are satisfied with the procedure.

Keywords: External Cephalic Version. Breech Presentation. Success Rate. Fetomaternal Complications.

Introduction

External cephalic version has apparently been practiced since the time of Aristotle (384 – 322bc), who stated that many of his fellow authors advised midwives who were confronted with a breech presentation to “change the figure and place the head so that it may present at birth”. However external cephalic version eventually fell out of favour as a result of several concerns. There has been resurgence in popularity of external cephalic version over the last decade resulting from multiple factors. Firstly, fewer residents are being adequately trained in breech vaginal delivery. Secondly, Obstetrics has changed in a medicolegal environment in which many consider breech vaginal delivery a liability. Finally, health care providers have been pressured to consider the economic impact of caesarean birth.

Breech presentation complicates 3 – 4% of all term deliveries and a higher proportion of preterm deliveries.¹ It is more common where there has been a previous breech presentation. The incidence of caesarean section for breech presentation has increased markedly with the publication of

term breech trial.² The trial concluded that elective caesarean section is safer for the fetus and of similar safety to mother when compared with vaginal breech delivery.³ However, caesarean section is associated with higher maternal morbidity and mortality as well as financial costs and long term complications than vaginal delivery per se.⁴

External cephalic version is the option for fetuses in selected cases of breech presentation at term. A meta analysis of six randomized controlled trials has found it effective in reducing the number of breech deliveries by 87% and caesarean section by 64%.⁵ American college of Obstetrics and Gynaecologists and Royal college of Obstetricians and Gynaecologists recommended that ECV be offered to all suitable women at term with breech presentation.⁶ In our teaching tertiary care hospital, majority of the residents having the knowledge of ECV were not familiar with technique and had not performed it, which was similar to findings from a recent survey in England.⁷ Hence the study was designed to learn and gain expertise of performing ECV to all the staff members. This study aimed to assess the success

rate of ECV at term as well as the maternal and fetal complications.

Patients and Methods

During the mentioned period, total number of patients with breech presentation were 238 out of which 40 patient were selected for external cephalic version. Exclusion criteria included placenta previa or history of vaginal bleeding especially in the 3rd trimester, AFI < 6cm, fetal weight restriction, previous uterine scar, estimated fetal weight exceeding 4 kg, uterine malformation or if patient not willing for ECV despite thorough counseling. Approval for the study was given by Professor of the Unit. Informed consent was obtained after explaining each patient about the diagnosis, risks of malpresentation, the nature and risks of ECV, timing of ECV, predicted success rate (50%) and alternative options if ECV failed.

Each woman was admitted in the maternity ward / labour room at 8:00am after overnight fasting. Antenatal record was again reviewed. Blood group and Rhesus factor was looked. Operating theatre personnel informed in case of emergency caesarean section. A modified biophysical profile was performed (CTG and AFI). The woman was asked to empty her bladder before the procedure. The woman was placed in approximately 10 – 20 degrees trendelenburg position to facilitate cephalad displacement of breech. No tocolytic agent was used. The breech was first disengaged by gentle pressure on both sides of the presenting breech. Thereafter, a forward roll was attempted by two operator technique. If that was unsuccessful, a backward roll was attempted. At the most, three attempts were made over fifteen minutes during which the procedure was usually successful. A short pause during each attempt allowed for auscultation of fetal heart as well as the fetus to adjust its posture which facilitated the procedure. After ECV each patient was kept 2-4 hours for observing abdominal pain, vaginal bleeding and CTG. The patient was then discharged with advise for weekly visit until delivery. The patients with failed ECV were offered either caesarean section or assisted vaginal breech delivery.

The procedure was abandoned if there was excessive maternal discomfort, repeated failing attempts or evidence of foetal compromise on monitoring.

Table 1:

Parity	External cephalic version	
	Successful	Failed
Primi Gravida	09 (37.50%)	10 (62.50%)
Gravida 2 – 4	10 (41.66%)	04 (25.00%)
Gravida ≥ 5	05 (20.83%)	02 (12.50%)
Total	24 (60.00%)	16 (40.00%)

Table 2:

Gestational Age	External cephalic version	
	Successful	Failed
37 weeks	13 (54.16%)	08 (50.00%)
38 – 39 weeks	09 (37.50%)	07 (43.75%)
40 – 41 weeks	02 (08.30%)	01 (06.25%)
Total	24 (60.00%)	16 (40.00%)

Table 3:

Mode of Delivery	Mode of Delivery	
	Successful ECV n=24	Failed ECV =16 *
Cephalic Vaginal Birth	17/24 (70.83%)	-
Assisted Breech Delivery	-	02 (12.50%)
Caesarean Section	7/24 (29.16%)	12 (75.00%)

*2 lost in follow up

Results

Majority of the patients enrolled for ECV were 20 – 25 years of age with only one patient 18 years of age. Approximately two third (21) patients were multigravida. All the patients were between 37-41 weeks gestation. All the patients had breech presentation, out of which 28 were flexed and 12 extended. The majority of the patients had an unremarkable antenatal record. There was one multigravida patient who had cardiac disease (mitral stenosis) and NYHA-II grade. All patients were Rhesus blood group positive.

Table 4:

Age of Patient	External cephalic version	
	Successful	Failed
< 20 years	-	1
21 – 25 years	08	08
26 – 30 years	08	05
31 – 35 years	06	02
≥ 36 years	02	-
Total	24 (60%)	16 (40%)

Table 5:

Type of Breech	External cephalic version	
	Successful	Failed
Flexed Breech	20	06
Extended Breech	04	10
Total	24 (60%)	16 (40%)

Table 6:

Fetal Weight	External cephalic version	
	Successful	Failed
2 – 2.5 kg	06	03
2.6 – 3.5 kg	16	10
≥ 3.5 kg	02	03
Total	24 (60%)	16 (40%)

Table 7:

	External cephalic version	
	Successful	Failed
Thick abdominal wall	01	02
Extended Breech	03	08
Anxious	02	05
Tense abdominal wall		07
Engaged Breech	06	05
Fetal Weight		

There were 6320 deliveries during the study period, 250 patients had malpresentation among which 238 (3.5%) had breech presentation. Forty patients were selected for ECV. Twenty four (60%) of the 40 patients achieved successful ECV with lower success rate in primigravida than multi-gravida (37.5% vs 62.5%). Reversion to breech occurred in only one case which was diagnosed on follow up visit and ECV was repeated with success. Of those with successful version 70.83% (17/24) achieved a vaginal delivery. The remaining 7 cases underwent caesarean section due to varied indications (mainly fetal distress manifested by non reassuring CTG and poor progress). In the failed ECV group, two women (12.5%) out of 16 underwent assisted vaginal breech delivery, 75% caesarean section and two were lost in follow up. There were no maternal and perinatal complications related to the procedure except in one who had rupture of membranes followed by emergency caesarean section. There was no maternal or perinatal mortality.

All babies had APGAR Score of more than 7/10 at 5 minutes.

Discussion

This study was conducted in Services Hospital, a tertiary centre located in the centre of Lahore. The majority of patients was of low or middle socioeconomic status, high parity, good understanding and took part in decision making. Only options considered for breech at term were assisted vaginal delivery and planned elective caesarean in our unit. However the rate of elective caesarean section was increased in view of term breech trial. ECV, being an important option was never considered in the management of term breech. Considering the above mentioned situation, ECV was planned and carried out in the form of present study.

In the study conducted in our setting the patients selected for ECV were between 37-41 weeks. Contrary to the standard recommendations for performing ECV at 37-38 weeks, we included patients up to 41 weeks. Reasons being firstly, it is a referral centre. Secondly, many patients not having regular antenatal care and are presenting only at or after their Expected Date of Delivery (EDD). Thirdly, lack of education in spite of counseling at 37 weeks, still patients not reporting and presenting at 40-41 weeks. Moreover the unit is very busy as compared to studies conducted in developed countries. So it was cost effective to include patients up to 41 weeks if they fulfill the criteria.

Timing of ECV was preferably selected around 37-38 weeks to avoid iatrogenic pre-maturity in case of emergent caesarean section. However few patients were included after 38 weeks as well when they fulfill the criteria for the reason mentioned above.

Success rate of our ECV is 60%. Literature review⁸ of 25 studies on the efficacy of external cephalic version calculated an overall success rate of 63.3% with a range of 48-77% which is also similar to ours. The favourable ECV success rate achieved by us could be attributed to the fact that most patients were multiparous, reason being relaxed uterus and lower tone of abdominal muscles. Comparable success rate of 67.5% was attained in study conducted at hayyatabad complex, Peshawar (Pakistan Hayyatabad)⁹.

There was 40% failure rate of ECV in our study. Nulliparity strongly predicted failure of ECV in our study (25%) and tocolysis per se was not used to improve the success rate. Other causes of failure were late booker, uncooperative, deeply engaged breech.

Of the successful ECV patients, 70.83% achieved vaginal delivery, 29.16% were delivered by caesarean section, which was almost similar to the 28% annual base line caesarean section rate for our hospital. Caesareans were resorted mainly of foetal distress (manifested by non reassuring CTG finding) and poor progress of labour. The caesarean section after successful ECV is very likely related to foetal or maternal factors (10-11) rather than consequence of ECV.

Regarding failed ECV patients, 75% were delivered by caesareans section, while only two (12.5%) had assisted breech delivery as they were allowed to had so after full assessment. Repeat ECV was successfully carried out in one patient in whom reversion was found at one week follow up visit, thereby increasing overall success rate as also mentioned in J. Studd, progress in obstetrics and Gynaecology¹².

In ECV failed patients, we offered repeat ECV, an emergency caesarean section or allowed to await spontaneous labour and have assisted vaginal breech delivery.

Transient fetal bradycardia occurred in 4 fetuses during the ECV procedures which recovered in 5-10 minutes over 2 hours observation after the procedure. This has also been shown by two systematic reviews which found that the most frequently reported foetal complication of ECV was transiently abnormal CTG pattern (ranging from 1-47% with a mean incidence of (5-7%) (10-13). Transient foetal bradycardia usually last for 5 minutes but could be as long as 1 hour.¹⁴ That is why, no emergency caesarean section was done for such transient bradycardia as all patients were observed after the ECV.

We encountered one case of ruptured membranes during the procedure without cord prolapse. She had emergency caesarean section and resulted in good APGAR Score. This is contrary to the recent review, in which no case of cord prolapse after an ECV was reported like ours.¹⁷

Uncommon complications reported in the literature are very rare and include fetomaternal haemorrhage (3.7%), vaginal bleeding (0.5%), persistent pathological CTG readings (0.4%) and placental abruption (0.1-0.4%).¹⁰⁻¹³ Therefore ECV should be considered a safe procedure.^{1,2,6,10,12-14}

In our series, there were no significant Perinatal or maternal complications but they do happen that is why a version is performed in a hospital where we can have an emergency caesarean section if needed. Version has a very small risk for causing bleeding that could lead to mixing of blood of the mother and foetus. Therefore a pregnant woman with Rh-negative blood is given Rh immune globulin injection to prevent Rh sensitization. We encountered no such patient in our study.

Conclusion

ECV is a valuable though under used option in the management of breech presentation at term. It is a relatively safe procedure, simple to learn and perform. Vigilance for breech presentation after 34 weeks is important. A proper understanding of the risk is essential for the obstetrician to allow accurate counseling. All well equipped obstetric units should offer ECV to suitable woman at term with breech and other mal presentations.

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