

To determine the rate of success of external cephalic version in low-risk breech presentations and possible factors affecting its success in POF hospital, Wah Cantt.

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Abstract

Introduction: The caesarean section rate is on the rise for various reasons. One of the reasons is breech presentation. External cephalic version (ECV) is a procedure to manipulate the baby from breech to cephalic presentation externally through the maternal abdomen under ultrasound guidance. Success in ECV decreases the breech presentation and hence caesarean section rate.

Materials and Methods: This retrospective study was conducted by Wah Medical College in POF hospital from 10 Oct 2015- 10 Oct 2019. It included 56 women with low-risk singleton breech presentations from 36 weeks- 40 weeks (wks). ECV was performed by a single obstetrician in the labour room equipped with facilities of cardiotocograph and emergency caesarean section. Several successful ECVs & specific factors of the women & the baby (age, parity, amniotic fluid index, type of breech, engagement of breech, and position of the fetal spine) were chosen to observe their effect on the success of ECV.

Results: External cephalic version was successful in 27 (48.2%) & unsuccessful in 29 (51.8%) of women. Unengaged breech, multiparity & complete flexed breech (with p values 0.00, .001 & .001 respectively) had a statistically significant positive association with successful external cephalic version.

Conclusion: External cephalic version should be offered to all women with low-risk breech presentations. Knowledge of factors predictive of ECV success can be utilized in selecting cases for ECV & counselling the women regarding the success and failure of ECV.

Keywords: External cephalic version, factors affecting the success of External cephalic version.

Introduction

The prevalence of breech presentation is frequent in preterm babies (20%), it decreases at term (4%).¹ Term Breech Trial published in 2000 concluded that caesarean section is safer than assisted breech delivery in breech presentations. Since then, there has been a rise in caesarean rates for breech presentations.² Caesarean section rate has its complications such as anaesthetic complications, haemorrhage, sepsis & thromboembolism. We need to find ways to reduce the incidence of breech presentation to help decrease caesarean rate & its complications. The external cephalic version (ECV) procedure is one of the solutions. It is the manipulation of the fetus, through the maternal abdomen, to a cephalic presentation at term under ultrasound guidance. It is recommended by the American Congress of Obstetricians and Gynaecologists (ACOG) and the Royal College of Obstetricians and Gynaecologists (RCOG).^{3,4} ECV reduces the incidence of breech presentation and hence the rate of caesarean section. It should be offered to low-risk women at term with breech presentation.⁵ The success rates are variable ranging from 30-80%. The possible complications of ECV are emergency caesarean (0.5%), risk of rupture of membranes, placental abruption & transient CTG abnormalities. These complications seldom occur.⁶ External cephalic versions should be performed in centres where facilities for fetal monitoring & emergency caesarean section are available.⁵

A transverse and oblique lie of the babies can also be converted to a longitudinal and cephalic presentation by ECV. ECV can be performed in early labours as well. Tocolysis increases the success rate of ECV.^{7,8} It can be attempted in a non-cephalic 2nd twin after delivery of the 1st twin.⁹ If the ECV procedure fails, it can be reattempted.

The maternal and fetal factors which increase the chance of successful ECV are multiparity, unengaged breech, relaxed /normal uterine tone, increased liquor volume & use of tocolysis. The absolute contraindications to ECV are placenta previa, ruptured membranes, multiple pregnancy, uterine anomaly, or non-reassuring cardiotocograph.⁵ ECV is a safe procedure. It should be offered to low-risk women with breech presentation after informed consent.¹¹

Alternative measures like acupuncture, moxibustion, and postural methods are not effective in converting breech presentation to cephalic presentation at term and are not recommended.¹² ECV is not routinely practiced in all institutions. Most obstetricians are

reluctant to do ECV due to fear of injury to the baby or mother despite proven low complication rate & recommendation of RCOG & ACOG.¹³

Materials and Methods

In our study we aim to:

1. Determine the rate of success of external cephalic version (ECV) in low-risk pregnancies with breech presentations.
2. Assess specific factors affecting the success rate of the external cephalic version (ECV).

This retrospective study was conducted by Wah Medical College in POF hospital Wah Cantt (affiliated with WMC) from 10 Oct 2015- 10 Oct 2019 after approval from the ethical committee.

Inclusion Criteria:

Low-risk pregnancies with singleton breech presentations from 36-40 weeks were included in the study after taking informed consent from the couples for an external cephalic version.

Low-risk nullipara women from 36 weeks up to 40 weeks (wks) and low-risk multiparas, para (1-3) & para >3, from 37 weeks up to 40 weeks were included.

Exclusion Criteria:

Women with < than 36 weeks gestation and >40 weeks (wks) gestation, refusal to ECV, with absolute contraindication to ECV⁵ & with medical and obstetric complications (i.e. scarred uterus, liquor <than 8 cm & > than 17 cm, fetal growth restriction, preeclampsia, gestational diabetes & abnormal cardiotocography) were excluded from the study.

Detailed clinical and ultrasound examinations of the selected women were done to confirm the eligibility for inclusion in the study. Specific clinical and ultrasonographic factors of the women & the baby (age, parity, amniotic fluid index (AFI), type of breech, engagement of breech, position of fetal spine) were chosen to observe their effect on the success of ECV. The cases were further divided regarding AFI into 2 groups. One group including cases with 11-17 cm AFI and the other group with 8-10 cm AFI to see their effect separately on ECV success. An external cephalic version was performed in the hospital setting with facilities available for fetal monitoring and emergency caesarean delivery. Cardiotocography (CTG) of the fetus for 30-40 min was done just before & after the procedure of ECV. ECV was performed according to the recommended ACOG protocol.¹⁴ It was done by a single experienced clinician. Fetal heart rate was checked periodically during the procedure. If the first attempt was unsuccessful, the women were given

injection terbutaline 0.25ug subcutaneously before the 2nd attempt. The ECV was stopped immediately if women experienced any pain. Maximum 3 attempts were done. The ECV was considered successful if the baby turned to cephalic presentation after the ECV attempt. The success or failure of the ECV procedure was confirmed by ultrasound (USG) just after the procedure. Anti D immunoglobulin was administered to RH-ve women after the procedure.

The women were kept under observation for 2-3 hours after ECV. Maternal and fetal wellbeing was monitored & observed for any complications like rupture of membranes, uterine contractions, vaginal bleeding, or fetal cardiotocographic abnormalities. If all was well, the women were allowed to go home after 2-3 hours with advice to come for an antenatal checkup after a week or to come back urgently if they experienced labour pains or loss of fluid /blood vaginally.

The women were followed up to their deliveries & observed for fetomaternal wellbeing & any reversion

to breech presentation during that time. Analysis was done on SPSS 22. Descriptive statistics were used to find out the frequency (percentages) of the data set. Chi-square test of association was used to find out the relationship between attempts and specific factors.

Results

Table 1: Rate of success of external cephalic version

	Number	Percent
Successful	27	48.2%
Unsuccessful	29	51.8%
Total	56	100.0%

The ages of the patients in the sample (n=56) ranged from 19-39 years with mean age up to 27.08.

Out of 56 ECV's attempted 27 (48.2%) were successful while 29 (51.8%) were unsuccessful.

Table 2: Association of maternal age, parity, amniotic fluid index (AFI), engaged/unengaged breech, type of breech, and position of fetal spine with successful & unsuccessful attempts

Factors	Successful attempt	Unsuccessful attempt	Total	P- value
AGE				
19-25 yrs	7 (12.5%)	17 (30.4%)	24 (42.9%)	.017
26-35 yrs	18 (32.1%)	12(21.4%)	30(53.6%)	
36-39 yrs	2 (3.6%)	0 (0.0%)	2 (3.6%)	
Parity				
Nullipara	4 (7.1%)	12 (21.4%)	16 (28.6%)	.001
Multipara 1-3	15 (26.8%)	17 (30.4%)	32 (57.1%)	
Multipara >3	8 (14.3%)	0 (0%)	8 (14.3%)	
Amniotic fluid index(AFI)				
AFI (11-17)	20 (35.7%)	19 (33.9%)	39 (69.6%)	.486
AFI (8-10)	7 (12.5%)	10 (17.9%)	17 (30.4%)	
Engagement				
Unengaged breech	27 (48.2%)	18(32.1%)	45 (80.4%)	.000
Engaged breech	0 (0.0%)	11(19.6%)	11 (19.6%)	
Type of breech				
Extended	6 (10.7%)	20(35.7%)	26 (46.4%)	.001
Complete flexed	21 (37.5%)	7(12.5%)	28 (50.0%)	
Footling	0 (0%)	2(3.6%)	2 (3.3%)	
Position of fetal spine				
Lateral (Lft/Rt)	23 (41.1%)	19 (33.9%)	42 (75.0%)	.044
Anterior	4 (7.1%)	6 (10.7%)	10 (17.9%)	
Posterior	0 (0.0%)	4 (7.1%)	4 (7.1%)	

The ages of the women included in the study ranged from 19-39 years. The older age of the women had a positive association with the successful external

cephalic version (ECV). Women with parity >3 had a strong association with successful ECV as compared to women with no previous children. Adequate liquor¹¹⁻¹⁷

appeared favourable for successful ECV than comparatively decreased liquor.⁸⁻¹⁰ In our study, none of the babies with engaged breech presenting part could be manipulated to the cephalic presentation while 27 of unengaged breech were turned to cephalic presentation. Out of type of breech presentation, the complete flexed breech was more favourable for ECV than extended or footling breech. The lateral position of the fetal spine whether left or right was more favourable for a successful version than the anterior or posterior position. Unengaged breech was the most favourable factor for successful ECV followed by multiparity & complete flexed breech. Unengaged breech, multiparity & complete flexed breech & had a statistically significant positive association with successful external cephalic version.

Discussion

The success rate of the external cephalic version (ECV) varies in different studies depending on the case selection and experience of the operator.

In the present study, the success rate of ECV was 48.2% while unsuccessful ECVs were 51.8%. Our success rate is close to that of most of the units (50%) in the UK^{15,16}, and the success rate of a study conducted by Bewley S et al (46%).¹⁷ However our success rate is less than that quoted by ACOG (58%) and some other studies by O.A. Hussain (53.9%), Deepika N (54.54%)^{14,18,19}, while more than the studies by Natalie Kew (37%) and Rita Mendes Silva (43%).^{8,20} There were no complications regarding the version except transient slightly decreased fetal heart rate variability on post-ECV cardiotocograph (CTG) in 2 cases which became normal within 15 minutes. This finding is similar to other studies concluding low complication rates of ECV.^{21,22} There was no emergency caesarean or immediate initiation of labour pains post ECV in our study. Although there was a complaint of slight discomfort which vanished just after the procedure.

There was one case of reversion that was successfully converted to a cephalic presentation on repeat ECV.

Though ECV is a safe procedure there is a wide range of success rates in ECV. If factors responsible for ECV success are identified, it would help in counselling the women regarding the success and failure of the procedure. The results of studies are variable regarding factors predictive of ECV success, with specific factors significant in some while insignificant in other studies. Yet no definite predictive model /clinical scoring system for ECV success can be used

in obstetric practice due to controversies in the results but different studies provide useful data regarding indicators of the success of ECV.

We observed the association of age, parity, unengaged/engaged breech, amniotic fluid index, type of breech, and position of the fetal spine with successful ECV. Parity, unengaged breech, and complete flexed breech showed a statistically significant association with successful ECV in the present study. This result is consistent with results in other studies, especially of association of parity and unengaged breech with successful ECV.^{23,24} The possible explanation of increased success in multiparity could be due to decreased uterine tone and unengaged presenting part in such cases.

In our study, the type of breech also showed significant association with successful ECV similar to results of Tasnim et al & Burgos et al^{25,26} but contrary to the Newman predictive scoring which suggested an insignificant association of type of breech with ECV success. In our sample, we had 24 extended breech, out of which 19 remained breech & only 5 converted to cephalic on ECV. Indeed it was difficult to turn the baby due to hindrance in the movement of the head due to the extended legs of the baby in extended breeches in practice, while easier to turn the complete breech due to overall flexed attitude. Out of 26 complete breech 19 were turned to cephalic presentation.

The amniotic fluid index (AFI) is a frequently considered factor in relevance to successful ECV. Increased liquor increasing and decreased liquor decreasing the chances of successful version.^{11,13} We excluded the cases with < than 8 cm AFI and > than 17 cm AFI to avoid any adverse consequence like rupture of membranes, initiation of labour pains, etc. on manipulation solely due to abnormalities of the liquor itself. We divided the included cases into 2 groups regarding the AFI: with AFI, 11-17 cm & AFI, 8-10 cm. The second group representing relatively decreased liquor than the other group. Our results did not show a significant association of AFI with successful ECV but the group with relatively decreased AFI had a lesser number of successful ECVs. Another study found that AFI lower than 10 cm is associated with lower ECV success rates but the association was not significant.²⁶ Maternal age and position of the fetal spine did not have a significant association in relation to the success of ECV in our study. Although there were more successful ECVs in the older age group than the younger age and fetal spine in lateral positions than the anterior and posterior positions. As

our hospital mostly attends to entitled patients from the Wah factories, a relatively small sample size was the limitation in our study & many cases had been further excluded from the study on the basis of exclusion criteria.

Conclusion

The external cephalic version has a considerable success rate (48.2% in our study). It should be offered to all low-risk women with breech presentations to avoid complications of breech delivery and to decrease the caesarean section rate as the procedure has very low complication rates. Knowledge of factors predictive of ECV success can be utilized in selecting cases for ECV & counselling the women regarding the success and failure of ECV. Hopefully one day, we will be able to create a practically applicable model of factors predictive of the success of ECV by utilizing data from such studies.

Our results supported multiparity, unengaged breech, and complete flexed breech as successful predictors of the external cephalic version.

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