ORIGINAL ARTICLE

Outcome of 80 Cases of External Cephalic Version

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Summary

This is a prospective observational study of the outcome of 80 cases of external cephalic version (ECV) at term using terbutaline infusion. There were 55 primiparas and 25 multiparas. The successful ECV rate was 44% and 85% respectively. The majority (82%) of the patients with successful ECV delivered vaginally. Parity and type of breech were the two significant factors in the success of the procedure.

Key Words: External cephalic version, Terbutaline, Labour, Breech presentation

Introduction

Many obstetricians in this country are still not in favour of external cephalic version (ECV). This is despite the various studies in recent years that have shown its effectiveness in reducing the incidence of vaginal breech delivery and Caesarean section for breech presentation[1,2,3,4,5]. This study is a prospective observational study on the outcome of 80 cases of external cephalic version at term using terbutaline infusion at University Hospital, Kuala Lumpur between April 1994 and June 1996. This a final update of our study of which the outcome of the first 42 cases were reported earlier[6].

Method

All the patients were recruited from the University Hospital, Kuala Lumpur after 37 weeks of gestation. The contraindications for ECV in our study is as shown in Table I.

All patients with no contraindication and agreeable for ECV are admitted to the labour ward for the procedure. An ultrasound examination prior to the procedure is mandatory to exclude some of the contraindications and to confirm the type of breech. The patient is advised not to take any food on the morning of the procedure. Blood is also taken for full blood count, group and cross-matched. Cardiotocography is also done and a reactive trace is a prerequisite. All the external cephalic versions were

Table I
Contraindications to ECV in this study

I. When vaginal delivery is contraindicated e.g.
   1. Uterine scar integrity suspected -2 previous LSCS, Classical Caesarean section.
   2. Placenta praevia.
   3. Contracted pelvis.

II. When the risk of ECV is increased e.g.
   1. Severe pre-eclampsia.
   2. IUGR.
   3. Antepartum haemorrhage other than local causes.

III. When ECV is unlikely to succeed e.g.
   1. Oligohydramnios.
   2. Uterine abnormality.
   3. Twins.

ECV: external cephalic version
LSCS: lower segment Caesarean section
IUGR: intrauterine growth retardation

carried out by the author personally. A reactive post-ECV cardiotocograph is recorded prior to discharge from the labour ward and the patient is also given a foetal kick chart. Patients with failed external cephalic version are assessed for vaginal breech delivery and managed accordingly.

Technique of ECV

The patient is started on terbutaline infusion (7.5 ug/min) for 30 minutes in the labour ward. The bed is tilted 20° in the head down position to encourage disengagement of the breech.

The foetus is turned in the direction of forward roll whenever possible. The backward roll is attempted only if the forward roll is unsuccessful. Each attempt is not allowed to last more than 5 minutes. A maximum of 3 attempts is allowed with 10 minutes break in-between.

The foetal heart is auscultated every 2 minutes during the procedure. Disengagement of the breech is first carried out. The operator stands on the side of the patient in the direction of version of the foetal head. The poles are grasped with the fingers and turned gently with finger movements. Short pause during each attempt is useful for auscultation and for the foetus to adjust its posture which will facilitate version.

Successful version is confirmed with an ultrasound examination. The terbutaline infusion is stopped immediately and patient sits up. A post-ECV cardiotocograph recording is started immediately.

Results

A total of 80 cases of ECV were recruited into the study between April 1994 and June 1996. The outcome of the study is as shown in Table II. The overall success rate was 56% (45 patients). Of this group of 45 patients, 37 (82%) of them delivered vaginally. 8 patients had emergency Caesarean section for various indications. A large number of patients (71%) in the failed external cephalic version group opted for elective Caesarean section. Only 10 patients were agreeable for trial of breech of which 7 delivered vaginally.

Table II
Outcome of External Cephalic Version (ECV)

Successful ECV	45 (56%)	Vaginal delivery	37 (82%)
		Emergency LSCS	8 (18%)
Failed ECV	35 (44%)	Elective LSCS	25 (71%)
		Trial of breech	10 (29%)
		a) Vaginal delivery	7
		b) Emergency LSCS	3
Total	80 (100%)		

Table III
Outcome of ECV in relation to parity

Primipara	55 (69%)	Successful ECV	24 (44%)
		Failed ECV	31 (56%)
Multipara	25 (31%)	Successful ECV	21 (84%)
		Failed ECV	4 (16%)

Chi-square test: p<0.001 (Outcome of ECV against parity)

Table IV
Outcome of External Cephalic Version with type of breech

Extended breech	37 (46%)	Successful ECV	15 (40%)
		Failed ECV	22 (60%)
Flexed breech	40 (50%)	Successful ECV	29 (73%)
		Failed ECV	11 (27%)
Footling breech	3 (4%)	Successful ECV	1 (33%)
		Failed ECV	2 (67%)

Chi-square test: p=0.013 (Non-flexed breech vs flexed breech)

Parity is a very strong factor on the outcome of ECV. The success rate of ECV for primipara is 44% compared to 84% for multipara. This is statistically significant as shown in Table III.

Flexed breeches had a significantly better success rate when compared to extended and footling breeches. The success rate was 73% for flexed breeches versus 40% for extended breeches as shown in Table IV.

The placental sites of the study group is as shown in Table V. This did not have a statistically significant effect on the outcome of ECV.

The birth weights of the newborn was also not statistically different between the successful ECV group and failed ECV group. The mean birth weights were 3169g and 2964g respectively. The heaviest newborn weighing 4200g was in the successful ECV group. The number of foetuses weighing less than 3000g was also not significantly different between the two groups (Table VI).

Discussion

The management of breech presentation has always been relatively controversial[7]. Vaginal breech delivery is associated with increased foetal morbidity and mortality[8,9,10,11,12]. However, in a carefully selected group of patients, vaginal breech delivery is an acceptable mode of management[7]. The outcome of these patients can be almost as good as foetuses in cephalic presentation. Different sets of strict criteria have been proposed as prerequisites for trial of vaginal breech delivery[1,13]. The true situation however is more complicated. The exclusion criteria themselves are not all universally accepted. A large group of patients would be excluded and advised for elective Caesarean section. Even in patients with acceptable features, the

Table V
Outcome of external cephalic version in relation to placental site

	Successful	Failure	Total
Lateral site	11	10	21
Posterior site	6	9	15
Fundal site	18	7	25
Total	45	35	80

Chi-square test: p=0.252
(Outcome of ECV against placental site)

Table VI
Effect of birth weight < 3000g on outcome of ECV

	< 3,000g	> 3,000g
Successful	21	24
Failed	18	17
Total	39	41

Chi-square test: p=0.673

generally quoted vaginal delivery rate for patients undergoing a trial of vaginal breech delivery is only 60%. The Caesarean section rate for breech term presentation has been quoted to range from as low as 33% to a high of 95%[2,14,15]. As a result of fear of vaginal breech delivery and the problem of high Caesarean section for breech presentation, external cephalic version at term using tocolytics has been advocated as an important solution to this problem.

External cephalic version has been shown to be effective in reducing the incidence of breech presentation in labour. It has been estimated that for every 100 ECV attempts there will be a reduction of 34 cases of vaginal breech delivery and 16 cases of Caesarean section for breech[5]. The success rate is generally quoted as 50%. However, this figure does vary depending on patient selection.

This is the first large scale local study on the outcome of external cephalic version at term using tocolytics. This is the recommended present mode of external cephalic version[7]. External cephalic version before 37 weeks as practiced in the 1970's is not recommended anymore as it has been shown not to be effective in reducing the incidence of breech presentation at term. This local study may be useful as a guide in the introduction of ECV in the management of breech presentation in the local setting.

The overall success rate is 55% which is similar to the general quoted rate[14,16,17,18]. This study group has a high proportion of primipara (59%) compared to other studies. This is because University Hospital uses primipara as a pre-selected criteria for acceptance into its booking antenatal clinic. The success rate will definitely be better with a more normal booking system which has a lower proportion of primipara.

Patients with successful ECV had a Caesarean section rate of 18%. This is comparable to the background Caesarean section rate of 20% in the University Hospital, Kuala Lumpur. The Caesarean section rate in the University Hospital is high as it is a tertiary referral centre with a large number of complicated cases. A more appropriate comparison will be with the background Caesarean section rate of patients with breech presentation. The Caesarean section rate in the group with failed ECV is high with 71% opting for elective Caesarean section. The reason for this high incidence of elective Caesarean section is unknown but the postulated reasons are as shown in Table VII. As a result of this, the overall Caesarean section rate for the ECV study group is 45% which is still much lower than the Caesarean section rate for patients with breech presentation in the University Hospital (65%).

Table VII
Possible reasons for high rate of elective Caesarean section after failed external cephalic version (ECV)

1. Patient self-selection – already bias against vaginal delivery.
2. Bias selection of patient by doctors to the ECV study.
3. Psychological effect of failed ECV on patient.
4. Psychological effect of failed ECV on obstetrician.

Some obstetricians may argue that ECV is not necessary in obstetric units where the Caesarean section rate for breech presentation is low. It has however been shown that introduction of an extensive ECV programme will lower the Caesarean section rate for breech even in units where the Caesarean section rate is low. ECV is a safe procedure with an estimated risk of less than 1%[7]. ECV is definitely safer than vaginal breech delivery. As such if ECV can reduce the incidence of vaginal breech delivery even without reducing the Caesarean section rate, ECV has a definite role in such obstetric units.

Parity has a very strong influence on the success of ECV. The success rate for primipara is 56% compared to 84% for multipara. In view of the significant difference in success rate, the effect of parity should be reported as the overall success rate will depend on the proportion of primipara in the study group. ECV is however definitely worthwhile in the multipara group[19,20].

In this study, flexed breeches had a significantly better outcome compared to extended and footling breeches which is also similar to other studies. This is because

flexed breech is usually not deeply engaged and is easier to turn.

We did not find any effect of the birth weights on the outcome of ECV. This is similar to most of the other studies[19]. We decided to use birth weights instead of estimated foetal weight in view of the inaccuracy of the estimate. All the patients delivered within 2 weeks of the ECV procedure.

The placental site was also not found to have a significant effect on the outcome of ECV. This is in contrast to the analysis of the first 42 cases of ECV in the study where fundal placental site had a significantly better successful ECV rate when compared to non-fundal placentas[6].

There was no emergency Caesarean section for foetal distress during the ECV procedures for the 80 cases. There were 4 cases of transient bradycardia which did not need any intervention. There was only one case of spontaneous reversion after a successful ECV. This patient was a multipara with a lax uterus. She was readmitted for a repeat ECV as recommended by some authors[21]. However, when she was readmitted, the foetus had reverted spontaneously to cephalic presentation.

Previous Caesarean section is not considered a contraindication for ECV by many authors[22]. However, as this was the first time ECV at term using tocolytics was introduced on a large scale basis locally, we decided to be extra cautious and use it as an exclusion criteria.

The use of tocolytics is generally recommended so as to facilitate the procedure[2,3,15]. It is true that a few studies have shown that it may not be needed[23,24], however most of the recent studies have shown it to be useful[25]. The dosage used in this study is a modification of our tocolytic regime for premature labour. An intravenous dose of 100 ug or subcutaneous dose of 250 ug may be used instead.

External cephalic version at term with tocolytics is not used routinely in the management of breech presentation in Malaysia. It has been shown to be safe and effective. It is time that we start to reintroduce its use more widely and acquire the simple skill that is needed.

Acknowledgement

I would like to thank Prof. S. Raman for reading through the article and the advice given to me.

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