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Original Research Article

Pregnancy outcome of external cephalic version in singleton pregnancy with breech presentation at term

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ABSTRACT

Background: Breech delivery is associated with poor perinatal outcomes irrespective of the route of delivery. External cephalic version can be a useful tool in management of breech presentation at term by converting it to a cephalic presentation. A study was conducted to evaluate maternal and neonatal outcome of external cephalic version in singleton pregnancies with breech presentation in third trimester.

Methods: A prospective observational study was carried out at a tertiary care hospital over a period of 2 years. This study included a total of 65 uncomplicated cases of breech presentation who fulfilled the inclusion criteria. External cephalic version was carried out after 36 weeks of period of gestation in primigravida and after 37 weeks in multigravida women. These patients were followed up till delivery and data was collected and analysed regarding the mode of delivery, maternal and fetal outcome.

Results: External cephalic version was successful in 41 patients with a success rate of 63%. Out of them, vaginal delivery could be achieved in 31 cases (75.6%) and LSCS was done for rest of the 10 cases. The success rate was higher in multigravida ladies compared to primigravida ladies. No major procedure related adverse event was noticed in our study.

Conclusions: External cephalic version is a very safe and easy procedure which can reduce the rate of cesarean delivery in singleton pregnancies with breech presentation. The results of this study are in favor of wider practice of this procedure in selected cases.

Keywords: Breech presentation, External cephalic version, Pregnancy

INTRODUCTION

Breech is the most common abnormal presentation constituting approximately 3-4% of all pregnancies at term. Breech delivery has a higher incidence of poor perinatal outcomes irrespective of the route of delivery. External cephalic version is an effective method to reduce the complications associated with breech presentation.¹ Version is a procedure in which the fetal presentation is altered by physical manipulation either substituting one

pole with another in a longitudinal presentation or by converting transverse or oblique lie to longitudinal. External cephalic version which implies the transabdominal procedure of version has been practiced since centuries and medical recording of these dates back to Hippocrates.

The need for external cephalic version has increased manifold in view of markedly increased caesarean delivery rates after the publication of term breech trial in

2000. This trial had reported a better perinatal outcome in cases of caesarean delivery when compared to vaginal breech delivery.² Moreover, the number of skilled operators with the ability to conduct safe vaginal delivery of breech fetuses continues to decline and the difficulties are compounded by the medicolegal concerns associated with it.³ The effects and associated risks of external cephalic version have been debated over the years. Hence, this study was undertaken to evaluate maternal and neonatal outcome of external cephalic version in singleton pregnancies with breech presentation.

METHODS

A prospective observational study was carried out at a tertiary care hospital in Maharashtra over a period of 2 years from January 2017 to December 2018. All patients with breech presentation after 34 weeks period of gestation detected during routine antenatal visit and fulfilling the inclusion criteria were included in the study. They were counselled about the procedure of external cephalic version; explained about the consequences and risks associated with the procedure.

Any women with contraindication to vaginal delivery were excluded. The exclusion criteria included multiple pregnancy, severe oligohydramnios (AFI <5 cm), polyhydramnios (AFI >25 cm), placenta previa, significant growth restriction, history of previous uterine surgeries including LSCS, uterine or fetal anomaly and history of recent vaginal bleeding. Patients with comorbidities like severe preeclampsia, pregestational diabetes mellitus, and heart disease were also excluded. A total of 65 uncomplicated cases fulfilling the criteria were included in the study. All the primigravida ladies underwent ECV between 36 to 37 weeks and multigravida between 37 to 38 weeks of period of gestation. Approval was obtained from the institutional ethics committee prior to the study. External cephalic version was carried out as a day care procedure. On arrival, bedside ultrasonography was performed to confirm the position of the foetus and to evaluate amniotic fluid for ruling out polyhydramnios or severe oligohydramnios. The placental location was determined and nuchal cord was ruled out before the manoeuvre. A written informed consent was obtained prior to the procedure. Authors used tocolytic in the form of nitroglycerine transdermal patch which was applied 2 hours prior to the procedure. Patients were asked to empty their

bladder and CTG trace was taken before attempting the procedure. Patient was put in supine position and external cephalic version was carried out under ultrasonography guidance. The procedure was abandoned after two attempts irrespective of the result. Patient was put under continuous electronic fetal monitoring for 2 hours after the procedure.

She was discharged to home if the CTG trace was reassuring. Inj anti D was administered to all Rh-negative mothers. Those with failed ECV were offered elective caesarean at 39 completed weeks and those with successful ECV were induced 3 days after their due date as per the hospital protocol. These patients were followed up till delivery and data was collected regarding the mode of delivery, maternal and fetal outcome.

Statistical analysis

The data retrieved was analysed at the end of the study.

RESULTS

In this study, a total of 65 patients underwent external cephalic version out of which the procedure was successful in 41 patients yielding a success rate of 63% (95% CI: 62.01-63.09) (Figure 1). In the present study, 52 women (80%) were in the age group of 20-30 years and the average age of study population was 26 years. Out of the 65 women, 24 women were nulliparous, 35 were primipara and rest 6 were multipara. The distribution of the study population as per their age group and parity has been illustrated in Table 1.

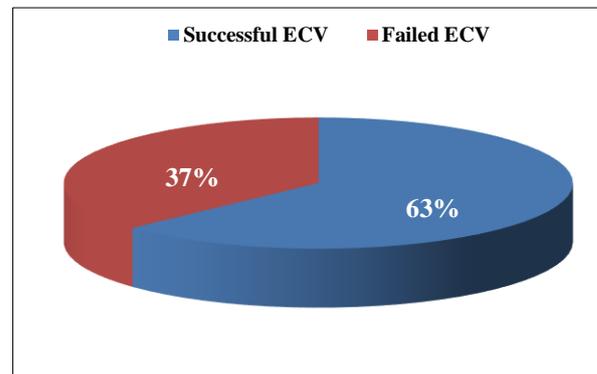


Figure 1: Outcome of External Cephalic Version

Table 1: Distribution of parity with age.

Age (years)	Nulliparous	Primiparous	Multiparous	Total
≤20	01	01	Nil	02
21-25	10	13	01	24
26-30	11	15	02	28
>30	02	06	03	11
Total	24	35	06	65

Table 2: Outcome of external cephalic version with parity.

Parity	Success	Failure	Total
Nulliparous	9	15	24
Primiparous	27	08	35
Multiparous	05	01	06
Total	41 (63%)	24 (37%)	65 (100%)

Table 3: Complications associated with external cephalic version.

Complication	Frequency
Non reassuring fetal heart rate	11
Onset of labour within 24 hours	02
Reversion to breech	01
Fetal distress requiring LSCS	Nil
Fetal death /abruptio placentae	Nil

In this study, ECV was successful in 83% (95% CI: 82.93-83.07) of multiparous women (5 out of 6) and 77% (95% CI: 76.92-77.08) of primiparous women (27 out of 35) in contrast to only 38% (95% CI: 37.90 - 38.10) of nulliparous women (09 out of 24). The association of parity with success of ECV has been depicted in Table 2.

Out of the 41 successful cases of external cephalic version, spontaneous reversion to breech before delivery was noticed in only one of the cases and elective LSCS was conducted for the same lady. Vaginal delivery could be achieved in 31 cases (75.6%) and LSCS was done for rest of the 9 cases. Caesarean delivery was undertaken for fetal distress in 3 cases, for failed induction in 5 cases and for deep transverse arrest in the remaining one of the women. Out of the 24 cases of failed external cephalic version, spontaneous version was observed in two cases which underwent vaginal delivery subsequently. Twenty-two cases persisted as breech presentation of which twenty-one cases underwent caesarean delivery but assisted breech delivery was conducted in one of the women as she presented in advanced labour. The mode of delivery is illustrated in Figure 2.

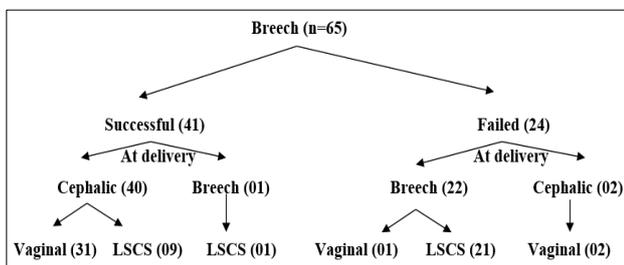


Figure 2: Mode of delivery.

The cause of the failure of procedure was attributed to maternal obesity (3 cases), engaged breech (3 cases), higher estimated fetal weight (2 cases), and anterior placenta (6 cases). However, the exact cause of failure

could not be ascertained in rest of the cases. An interesting observation was that ECV was successful in all four women with borderline oligohydramnios (AFI <8cm).

The complications associated with this procedure are very low as shown in this study. Most commonly reported complication was non-reassuring fetal heart rate pattern in the CTG trace after the procedure which lasted for few hours and required continuous monitoring till the trace showed reassuring pattern. Other complications seen in this study is given in Table 3.

The average weight of neonates in this study was 2.85 kg with weight of largest neonate with successful ECV being 3.8 kg. The one-minute Apgar score was less than 5 in two cases which included one case of assisted breech delivery. Both the babies required NICU care subsequently.

DISCUSSION

The success rate observed in this study (63%) is in accordance with most of the related studies conducted in India.^{4,5} The success rate varied markedly along with parity from 38% in nulliparous to 83% in multiparous women. The procedure failed in 24 women; out of which 15 were nulliparous lady. These findings support the hypothesis of increased success rate with parity as shown in different other studies.^{4,6}

Spontaneous reversion to breech presentation after successful ECV can occur in very few cases and only one instance was recorded in this study. Similarly, spontaneous version after failed ECV was reported in two cases after failed attempt in this study. It is postulated that manipulation during the procedure may itself be a stimulus for the fetus to undergo spontaneous version.

Vaginal delivery could be achieved in 75.6% (31 out of 41) of successful ECV cases which would have undergone LSCS otherwise in the absence of the procedure. This was similar to the vaginal delivery rate reported in studies conducted by Malhi R et al (83.3%) and Vedpathak et al (88%) and significantly higher when compared to study conducted by Kathpalia et al (50%).^{4,6} As inferred from this study; external cephalic version is an effective method in reducing the rate of cesarean delivery in cases of breech presentation. This benefit holds higher significance as it also reduces the rate of secondary cesarean delivery in future pregnancies in these women. This finding is in accordance to the published systematic review of Cochrane database which states that ECV at term reduces both the incidence of breech delivery and cesarean delivery.^{7,8}

The cause of the failure of external cephalic version could not be determined in most of the cases. However, anteriorly placed placenta and maternal obesity are two noticeable hindrances in the success as they make the

grasping of podalic pole difficult during the procedure. Other probable causes were breech engaged in pelvis, reduced liquor volume and high expected fetal weight. Authors used nitroglycerine transdermal patch as tocolytic in this study for achieving uterine quiescence during the maneuver. While many studies have used terbutaline, nifedipine, salbutamol or ritodrine for increasing the success rate, other studies have discouraged the use of tocolytic for ECV.⁹⁻¹¹

The complications associated with external cephalic version are very rare and mainly benign.¹² This study showed transient CTG abnormality in 17% of cases which were self-limiting. No patient required emergency cesarean delivery for CTG abnormality. The retrospective analysis conducted in Australia on 1121 patients that underwent ECV had reported five (0.45%) cases of serious complications which included one case each of placental abruption and fetal distress, two cases of cord prolapse after the onset of labour and one case of fetal death.¹³ No major complication was reported in this study.

In this study, the rate of NICU admission of this study population was similar to that for cephalic presentation at the hospital. However, it is not feasible to comment on this due to limited sample size of this study.

One important finding of this study was about the lack of awareness among pregnant women about external cephalic version. Only two patients had ever heard of the procedure before being enrolled for the study and the procedure. This highlights the need for better health education among pregnant women and acceptance of the procedure among health professionals.

CONCLUSION

To conclude, external cephalic version is an extremely useful procedure in reducing the rate of caesarean delivery in cases of breech presentation and hence the morbidity associated with it. This study proves that ECV is a very safe procedure in experienced hands with good success rate and minimal complications which can be tackled easily if required. Balanced counselling should be done regarding the known risks of caesarean section and benefits of external cephalic version.

The results of this study are in favour of the practice of this dying art. There is a requirement of educating both patients and health care professionals about this novel procedure. Authors are of the opinion that external cephalic version should be made a part of the protocol for management of breech presentation at term prior to deciding for caesarean delivery.

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Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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