Aim: External cephalic version (ECV) is the main intervention for facilitating vaginal birth without increasing intrapartum mortality and neonatal morbidity in term breech pregnancies. We appraise the hypothesis that the introduction of a specialised ECV clinic reduces preventable caesareans without compromising neonatal well-being.

Methods: This is a prospective cohort study over a period of 3 years. Data were collected via attendance in the ECV clinic and women were followed up until the delivery and the postnatal period. Obstetric and neonatal notes were reviewed in order to assess obstetric data and fetal outcomes.

Results: 181 suitable women with singleton pregnancy were included in our sample, from which 28 opted for elective caesarean delivery. 81% of the eligible women underwent an ECV. From the 120 ECVs performed, 78 women were nulliparous and 42 multiparous. The ECV was successful in a total of 64 cases (54%), 49% in nulliparous and 62% in multiparous women. Following that, 78% delivered vaginally of which 25% needed instrumental delivery. There were not any adverse events during the ECVs and no woman underwent emergency caesarean section for fetal distress due to the procedure.

Conclusion: Our experience favours the ECV clinic, as it improves vaginal delivery rates with no obvious maternal and neonatal compromise. Cost-effectiveness and maternal satisfaction levels remain unknown. There is still room for improvement in detection, uptake and success ECV rates.

Introduction

Breech presentation occurs in around 20% of pregnancies at 28 weeks gestation and it is known to complicate 3–4% of all term pregnancies.1) The incidence of caesarean section for breech has increased remarkably in the last two decades since the Term Breech Trial proposed it as the safest mode of delivery.2–5) External cephalic version (ECV) has been established through numerous studies as an effective alternative modality in reducing non-cephalic presentations.6,7) ECV is referred to the manipulation of the fetus, through the maternal
Outcomes from dedicated ECV clinic

abdomen, to a cephalic presentation. The purpose of this method is to reduce avoidable caesarean sections without affecting neonatal morbidity and mortality.\(^8\),\(^9\)

Despite sparse clinical evidence to support the efficacy of a particular service model, large maternity institutions often consider a dedicated ECV clinic for delivering appropriate counselling. In this study we evaluate the effectiveness and safety of an ECV clinic and the feasibility in achieving vaginal birth.

Materials and methods

We conducted a prospective, single-centre, observational study in a tertiary University Hospital in London with approximately 6,500 deliveries per annum. Routinely, an ECV or an elective caesarean section is offered to breech presentations at term, in order to avoid vaginal breech delivery. Primary scope was to assess the success rate and mode of delivery following successful ECV. Secondary outcomes were uptake rates and adverse neonatal outcomes.

The study population included all women with fetus in non-cephalic presentation at > 34 + 0 weeks of gestation who were seen in the ECV antenatal clinic for assessment. Maternal characteristics, previous pregnancy outcomes, factors related to ECV procedure, and immediate complications following the ECV and upon discharge from the hospital were obtained from the antenatal appointments. Anonymised maternal demographics and pregnancy characteristics were compared between women with successful and unsuccessful ECV.

ECV clinic

Women were referred by obstetricians, general practitioners and midwives to maternity assessment unit for initial assessment or directly to the ECV clinic. Once the suspected breech was confirmed, women at > 34 + 0 weeks of gestation were encouraged to attend the midwifery-led ECV clinic. Appointments from 34 weeks allowed enough time for women to digest the information prior to a follow-up at 36 weeks, as well as offering women a chance to use alternatives such as moxibustion. Detailed obstetric history was recorded and, in the absence of absolute contraindications, an ECV pathway was commenced. Absolute contraindications included cases of major placenta praevia, when caesarean section was safest option, multiple pregnancies, recent rhesus isoimmunisation, vaginal bleeding, abnormal CTG, rupture of membranes and maternal decline.

Patient information leaflets were provided including the “Options for management of breech presentation at term”, by RCOG and the “External cephalic version for breech presentation at term” available at Trust’s website. Written consent was obtained prior to ECV clearly documenting the benefits, success rates and risks involved.

ECV procedure

All eligible women were given the option of ECV from 35 + 0 weeks of gestation in nulliparous and from 37 + 0 weeks in multiparous. There was no restriction in offering ECV in more advanced gestation. ECV was performed in labour ward by a specialist midwife or obstetrician, with facilities available for emergency caesarean. An ultrasound scan was used to assess the exact fetal position, prior to the procedure. A normal cardiotocograph (CTG) was a prerequisite before the ECV and was repeated upon completion. Anti-D immunoglobulin was administered prophylactically to all rhesus-negative women and Kleihauer test was performed in order to detect occult fetomaternal haemorrhage. Tocolysis was given with subcutaneous terbutaline 250 mcg, at least 10 minutes prior to commencing the ECV. The bed was adjusted to Trendelenburg position.

A calm environment was maintained with dimmed lights and relaxing music. Women were discouraged from conversing and instead were instructed to spend up to 20 minutes focusing on breathing techniques often used in yoga. We found this routine very useful in relieving anxiety, reducing abdominal muscle tension and increasing maternal satisfaction. Lubrication of the abdomen with gel used to decrease discomfort. After dislodging the breech, three attempts with forward or backward roll toward the maternal pelvis were allowed. In cases of poor tolerance or undue abdominal pain, the procedure was abandoned. None of our cases was done with a regional anaesthetic block, but Entonox was available should require.

Results

In a 3-year period, 190 women with singleton pregnancy were reviewed in the clinic. For nine women, ECV was contraindicated and elective caesarean delivery was offered. ECV was declined by 28 women, despite appropriate counselling. A number of women were lost to follow-up or moved to another hospital. In the end, the uptake rate was 81%, and 120 of the eligible women underwent an ECV. From the 120 ECVs performed, 78 women were nulliparous and 42 multiparous. The ECV was successful in a total of 64 cases (54%), 49% in nulliparous and 62% in multiparous. No adverse events occurred and no woman underwent emergency Caesarean for fetal distress during the ECV. We routinely performed ECVs in women with one previous caesarean section.

Most women (75%) delivered vaginally following
successful ECV: 68% of nulliparous women and 85% of multiparous women. A total of 25% needed instrumental delivery. Following a successful ECV, women who laboured underwent emergency caesarean section in 22% of the cases. There was no significant difference between the groups in terms of low Apgar score, need for admission or duration of admission into special care unit. Apart from a few cases of transient fetal bradycardia, there were no adverse neonatal or maternal incidents such as placental abruption, cord prolapse, uterine rupture, antepartum haemorrhage, fetomaternal haemorrhage, stillbirth, or NICU admission, due to ECV related complications.

ECV was not successful in 56 women (46%). Interestingly, spontaneous version rates for nulliparous women were 13% after 37 weeks, but only 5% after unsuccessful ECV. Unsuccessful ECV cases underwent caesarean section as per hospital’s policy.

Targeted multidisciplinary support seems to lessen the likelihood of breech presentation at term. Our findings confirm that obstetric outcomes are also improved in non-vertex presented babies. Of the few variables explored nulliparity and increased body mass index were the main variables associated with poor success.

Discussion

With an approximately 54% success rate and no major complications, it seems safe to assume that ECV considerably, as well as safely, reduces non-cephalic presentation at term and subsequently caesarean sections for this indication. ECV services could have a valuable role in large obstetric units, as this implementation can reduce the incidence of both diagnosed and undiagnosed breech presentation at term, as also shown in other studies. This could be even simply accredited to increased awareness in antenatal detection of breech presentation.

The overall uptake rate of ECV in our unit was 81%. Labour after ECV is reported to be associated with a slightly increased rate of caesarean section and instrumental delivery when compared with spontaneous cephalic presentation. However, in our series, the 22% intrapartum caesarean section rate is similar primiparous with fetuses spontaneously in cephalic presentation at term.

The fact the vaginal birth rates are high after successful version advocates support for decision to undergo ECV as they tend to be more satisfied with childbirth than women with planned caesarean section.

Further research could explore ways to improve levels of woman’s unwillingness to uptake ECV, the success rates or its use with relative contraindications, as criteria for ECV suitability are still to be universally established. Possible barriers towards ECV include fear of pain and safety concerns. These reservations could be clearly overcome with provision of written information leaflets and explanations based on local success rates and adverse incidents. In order to increase the women’s eagerness for ECV and whilst we promote a proactive approach, use of educational videos might be of some help.

In our ongoing study, there is an apparent improvement in the numbers of high-risk emergency caesarean sections and unplanned vaginal deliveries for breech babies. Better maternal outcomes were not linked to any ominous neonatal complications. The care providers in the ECV clinic report increased confidence in the antenatal consultation and documentation of the proposed management options. The initial financial burden of implementing specialised ECV clinic should be balanced against the enhanced recovery and reduced hospital stay and cost in women who avoid a caesarean section for breech babies.

Conclusion

Summarizing, this study supports the use of dedicated ECV clinic as a safe approach in the antenatal management of women with breech pregnancies at term. In an ECV clinic, women can have individualised care, with evidence-based information promoting vaginal delivery. Prompt antenatal referral and involvement of enthusiastic obstetricians and midwives can improve the acceptance rate and increase the confidence in women to attempt ECV. As with all uncommon clinical events, small studies may fail to detect them; therefore women should be informed about the limitations of the information provided, and make responsible decisions based on local figures. The risks of a preventable caesarean section can be avoided via the ECV route. The importance of clear documentation and careful case selection is paramount. Trainees should embrace the opportunities to improve their ECV technique and remain aware of undiagnosed breech pregnancies.

Unless obstetric units in the future start to consider and facilitate vaginal breech deliveries again, dedicated ECV clinic in tertiary centres appears to be the right pathway to increase vaginal birth rates. The cost-effectiveness in smaller units, the ways to increase antenatal detection, improved maternal satisfaction and achieving higher success rates are topics for further research projects. The clinical effectiveness should be an area of regular review via scheduled clinical audits.
Declarations

Disclosure of competing interests

The authors declare that they have no competing interests.

Ethical approval

The study was registered with the institutional audit department at the Chelsea and Westminster Ethics committee. Formal ethical approval and consent procedures were not required.

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Authors’ contributions

All authors significantly participated in the study that is reported as well as making substantial contributions. KP and SM conceived the original idea and designed the study protocol. LK and NS performed the majority of the ECVs and prospectively organised the data acquisition and recorded the study databases to a format suitable for analysis. KP wrote the initial paper draft and with SM engaged in the analysis and interpretation of the data. All authors took part in revising the text and critically analysing the content. All authors approved the final manuscript.

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References

1. Impey LWM, Murphy DJ, Griffiths M, Penna LK on behalf of the Royal College of Obstetricians and Gynaecologists. External Cephalic Version and Reducing the Incidence of Term Breech Presentation. BJOG. 2017; DOI:10.1111/1471-0528.14466.
2. Rietberg CC, Elferink-Stinkens PM, Visser GH. The effect of the Term Breech Trial on medical intervention behaviour and neonatal outcome in The Netherlands: an analysis of 35,453 term breech infants. BJOG. 2005; 112: 205–209.
3. Hutton EK, Hannah ME, Barrett J. Use of external cephalic version for breech pregnancy and mode of delivery for breech and twin pregnancy: a survey of Canadian practitioners. J Obstet Gynaecol Can. 2002; 24: 804–810.
4. Hannah ME, Hannah WJ, Hewson SA, Hodnett ED, Saigal S, Willan AR. Planned caesarean section versus planned vaginal birth for breech presentation at term: a randomised multicentre trial. Term Breech Trial Collaborative Group. Lancet. 2000; 356: 1375–1383.
5. Lee HC, El-Sayed YY, Gould JB. Population trends in cesarean delivery for breech presentation in the United States, 1997–2003. Am J Obstet Gynecol. 2008; 199: 59.e1–59.e8.
6. Hofmeyr GJ, Kulier R, West HM. External cephalic version for breech presentation at term. Cochrane Database Syst Rev. 2015; 4: CD000083.
7. Bogner G, Hammer BE, Schausberger C, Fischer T, Reisenberger K, Jacobs V. Patient Satisfaction with Childbirth and External Cephalic Version. Archives of Gynecology and Obstetrics. 2013; 289: 523–531.
8. American College of Obstetricians and Gynecologists. External cephalic version. Practice Bulletin No. 161. A. Obstet Gynecol. 2016; 127: e54–e61.
9. The Royal Australian and New Zealand College of Obstetricians and Gynaecologists (RANZCOG) The Management of Breech Presentation at Term, July 2016.
10. Beuckens A, Rijnders M, Verburgt-Doeleman GH, Rijninks-van Driel GC, Thorpe J, Hutton EK. An observational study of the success and complications of 2546 external cephalic versions in low-risk pregnant women performed by trained midwives. BJOG. 2016; 123: 415–423.
11. Rodgers R, Beik N, Nassar N, Brito I, de Vries B. Complications of external cephalic version: a retrospective analysis of 1121 patients at a tertiary hospital in Sydney. BJOG. 2017; 124: 767–772.
12. Rosman AN, Guijt A, Vlemmix F, Rijnders M, Mol BW, Kok M. Contraindications for external cephalic version in breech position at term: a systematic review. Acta Obstet Gynecol Scand. 2013; 92: 137–142.