



EXTERNAL CEPHALIC VERSION AND REDUCING THE INCIDENCE OF BREECH PRESENTATION

This is the first edition of this guideline. Methods of delivery for women with breech presentation is covered in RCOG Green-top Guideline No. 20b, *The Management of Breech Presentation*, published in December 2006.

1. Purpose and scope

External cephalic version (ECV) is the manipulation of the fetus, through the maternal abdomen, to a cephalic presentation. This guideline summarises the evidence regarding the routine use of ECV for breech presentation. The rationale behind ECV is to reduce the incidence of breech presentation at term and therefore the associated risks, particularly of avoidable caesarean section. The evidence concerning mode and technique of delivery of the persistent breech presentation is summarised in Green-top Guideline No. 20b, *The Management of Breech Presentation*.

2. Background

Breech presentation complicates 3–4% of all term deliveries and a higher proportion of preterm deliveries. It is more common where there has been a previous breech presentation. The incidence of caesarean section for breech presentation has increased markedly in the last 20 years and further¹ with the publication of the term breech trial.² This trial concluded that, at least for mortality and markers of intermediate term morbidity, elective caesarean section was safer for the fetus and of similar safety to the mother when compared with intention to deliver vaginally.³ This means that measures to reduce the incidence of breech presentation have become more important and that the effect of any such measure on the incidence of caesarean section will be more marked.

3. Identification and assessment of evidence

Evidence-based medicine reviews, including the Cochrane Register of Controlled Trials, were searched, together with the TRIP database for relevant randomised controlled trials, systematic reviews and meta-analyses. A search of Medline and PubMed (electronic databases) from 1966 to 2005 was also carried out. Search words included 'breech', 'external cephalic version', 'fetal', 'tocolysis' and 'tocolytic agents' and the search was limited to humans and English language.

4. External cephalic version

4.1 What is the impact of ECV on the incidence of breech presentation at delivery?

Women should be counselled that ECV reduces the chance of breech presentation at delivery.

A

ECV at term reduces the incidence of noncephalic presentation at delivery (RR 0.38, 95% CI 0.18–0.80, risk difference 52%, NNT 2).⁴ Spontaneous version rates for nulliparous women are approximately 8% after 36 weeks⁵ but less than 5% after unsuccessful ECV;⁶ success rates of ECV are 30–80%. Spontaneous reversion to breech presentation after successful ECV occurs in less than 5%.^{7,8}

Evidence level Ia

4.2 *What is the effect of ECV on the caesarean section rate?*

Women with a breech baby should be informed that attempting ECV lowers their chances of having a caesarean section.

A

Labour with a cephalic presentation following ECV is associated with a higher rate of obstetric intervention than when ECV has not been required.

B

ECV reduces the caesarean section rate by lowering the incidence of breech presentation (RR 0.55, 95% CI 0.33–0.91, risk difference 17%, NNT 6).⁴ Provision of an ECV service also reduces the caesarean section rates for breech presentation.⁹ This reduction was not necessarily seen when and where unidentified breeches were more likely to be delivered vaginally.¹⁰ In current practice, breech babies are increasingly delivered by caesarean section, so the effect is likely to be more marked than the randomised trials.^{11,12}

Evidence level Ia

This reduction is in spite of a two-fold increase in intrapartum caesarean sections for successfully turned babies,^{13,14} when compared with babies that were not breech at term. This is independent of an increased induction rate: both fetal and maternal indications for intervention are implicated.¹⁵ A small increase in instrumental delivery is also seen.

Evidence level III

4.3 *What is the success rate of ECV and what influences it?*

Women should be counselled that, with a trained operator, about 50% of ECV attempts will be successful but this rate can be individualised for them.

B

Results vary from 30% up to 80% in different series.^{7,16,17,18} Race, parity, uterine tone, liquor volume, engagement of the breech and whether the head is palpable, and the use of tocolysis, all affect the success rate.^{18,19} Published individual success rates may vary because of case selection as well as these factors. The highest success rates are seen with multiparous, non-white women with a relaxed uterus, where the breech is not engaged and the head is easily palpable.¹⁸ Success rates are also higher with increasing liquor volume^{16,20} but, in practice, very high liquor volume may be associated with spontaneous reversion. Maternal weight, placental position, gestation, fetal size and position of the legs make less difference and are probably not independent of other factors.¹⁸ An overall success rate of 40% for nulliparous, and 60% for multiparous women can usually be achieved.

Evidence level III

4.4 *Does the use of tocolysis improve the success rate of ECV?*

The use of tocolysis with beta-sympathomimetics may be offered to women undergoing ECV as it has been shown to increase the success rate.

A

The use of tocolysis should be considered where an initial attempt at ECV without tocolysis has failed.

✓

The success rate of ECV is increased by the use of tocolysis. This has been proven with ritodrine, salbutamol and terbutaline but not with glyceryl trinitrate (GTN) as a patch or sublingually,²¹ or with nifedipine. Intravenous and subcutaneous routes can be used. Data on those women who benefit most are contradictory. Tocolysis is also beneficial where an initial attempt without it has failed²² and can be attempted immediately. However, this policy has not been compared to tocolysis

Evidence level Ia

for all. A simple protocol is to offer a slow intravenous or subcutaneous bolus of salbutamol or terbutaline either routinely or if an initial ECV attempt has failed. Women should be advised of the adverse effects of tocolysis with beta-2 agonists.

Evidence level Ia

4.5 What other methods can be used to increase the success rate of ECV?

Where ECV fails the possibility of a further attempt should be discussed.



A later, second attempt, particularly with a second operator or where the back has been in the midline, may lead to a small increase in overall success rates but tocolysis markedly increases the success rate at a second attempt if it has not been used first.²² Other methods employed to increase success rates include the application of noise to the abdomen (fetal acoustic stimulation) where the back is in the midline,²³ and regional analgesia, including after a failed initial attempt. For the latter, an increase in success rate is evident with epidural but not spinal analgesia.²⁴ As maternal pain might indicate a complication, concerns regarding safety remain.

4.6 When should ECV be offered?

ECV should be offered from 36 weeks in nulliparous women and from 37 weeks in multiparous women.



ECV before 36 weeks of gestation is not associated with a significant reduction in noncephalic births or caesarean section.²⁵ However, one controlled trial²⁶ randomised women, where low spontaneous version rates were anticipated, to ECV at 34–36 or at 37–38 weeks of gestation. This demonstrated a non-significant reduction in noncephalic births and caesarean section in the early ECV group, although fewer women in the delayed ECV group underwent an ECV and a larger trial investigating this is continuing. Importantly, the trial did not show an increased preterm labour rate and confirmed the safety of early ECV and the low spontaneous reversion rate in this group. With a spontaneous version rate of 8% in nulliparous breeches after 36 weeks of gestation⁵ and the very low complication rate, ECV from 36 weeks of gestation in nulliparous women therefore seems a reasonable compromise.

Evidence level IIb

There is no upper time limit on the appropriate gestation for ECV. Successes has been reported at 42 weeks of gestation⁷ and can be performed in early labour²⁷ provided that the membranes are intact.

4.7 Is ECV safe?

Women should be counselled that ECV has a very low complication rate.



Women should be alerted to potential complications of ECV.



ECV is rarely associated with complications. Nevertheless, a few case reports exist of complications such as placental abruption, uterine rupture and fetomaternal haemorrhage. Randomised controlled trials⁴ have reported no evidence of an increase in neonatal morbidity and mortality (RR 0.44, 95% CI 0.07–2.92) but are underpowered for these rare outcomes. Systematic reviews report a very low complication rate^{6,28} but are subject to the limitations of reporting bias. These, and large consecutive series,^{7,29} however, suggest a 0.5% immediate emergency caesarean section rate and no excess perinatal morbidity and perinatal mortality.

Evidence level III

ECV does not appear to promote labour⁷ but is associated with alterations in fetal parameters. These include a fetal bradycardia and a nonreactive cardiotocograph³⁰ that are almost invariably transient, alterations in umbilical artery and middle cerebral artery waveforms³¹ and an increase in amniotic fluid volume.³² The significance of these is unknown.

ECV should be performed where facilities for monitoring and immediate delivery are available.



The standard preoperative preparations for caesarean section are not necessary for women undergoing ECV.



ECV should be performed where ultrasound to enable fetal heart rate visualisation, cardiotocography and theatre facilities are available. Cardiotocography should be performed after the procedure. Kleihauer testing is unnecessary³³ but anti-D immunoglobulin is normally offered to rhesus-negative women. Given the low complication rate, particularly when compared with labour, starvation, anaesthetic premedication and intravenous access are all unnecessary.

4.8 *Is ECV painful?*

Women should be advised that ECV can be painful and the procedure will be stopped if they wish.



ECV can be painful, with few women experiencing no discomfort and around 5% reporting high pain scores.^{22,33} The procedure may need to be stopped because of this. Reported experience of pain is greater where the procedure fails. Data on analgesia for ECV are lacking.

4.9 *What are contraindications to ECV?*

There are few absolute contraindications to ECV.



Absolute contraindications for ECV that are likely to be associated with increased mortality or morbidity:

- where caesarean delivery is required
- antepartum haemorrhage within the last 7 days
- abnormal cardiotocography
- major uterine anomaly
- ruptured membranes
- multiple pregnancy (except delivery of second twin).

Relative contraindications where ECV might be more complicated:

- small-for-gestational-age fetus with abnormal Doppler parameters
- proteinuric pre-eclampsia
- oligohydramnios
- major fetal anomalies
- scarred uterus
- unstable lie.

In one UK report without any adverse events, ECV was considered contraindicated in only 4% of women with a breech presentation at term.²² With an unstable lie, ECV is only logical in the context of a stabilising induction. There are few available data on this procedure, which should only be performed for a valid indication and may be associated with a significant intrapartum complication rate. The available data on ECV after one caesarean section are reassuring^{35,36} but are insufficient to confidently conclude that the risk is not increased.

Evidence level III

5. Increasing the uptake of ECV

Local policies should be implemented to actively increase the number of women offered and undergoing ECV.



Obstetricians and midwives should be able to discuss the benefits and risks of ECV accurately.



ECV may not be performed because breech is not diagnosed in about 25%³⁷ because the procedure is not offered or available, because it was refused or because it was not recommended.³⁸ Detection rates can be increased through reminders to women and staff;³⁹ ECV uptake rates can be increased by education of staff⁴⁰ and are likely to be improved by accurate dissemination of the benefits and risks.

Evidence level III

6. Alternatives to ECV

There is insufficient evidence to support the use of postural management as a method of promoting spontaneous version over ECV.

A

Moxibustion should not be recommended as a method of promoting spontaneous version over ECV.

A

There is no evidence to support the use of postural management in the management of the breech presentation.⁴¹ Moxibustion, burnt at the tip of the fifth toe (acupuncture point BL67) has been used to promote spontaneous version of the breech, with some success, and appears to be safe.⁴² However, pooled⁴³ and recent data⁴⁴ conclude that there is insufficient evidence to support its use, highlighting the need for good quality studies.

Evidence level Ia

7. Developing an ECV service

An ECV service, provided by appropriately trained clinicians, should be available to all women with a breech presentation at term.

C

All women undergoing ECV should be offered detailed information (preferably written) concerning the risks and benefits of the procedure. Consent may also be appropriate.

✓

ECV is best performed at a weekly session with access to ultrasound, cardiotocography and theatre facilities. ECV is not difficult and skills should be developed, if necessary, by visiting other hospitals. ECV can be performed by suitably trained midwives; experience with ultrasound is essential. Vigilance for breech presentation after 34 weeks is important. A proper understanding of the risks is essential for the obstetrician and midwife to allow accurate counselling. Local audit should be used to aid this.

8. Auditable standards

1. Antenatal detection of breech presentation.
2. Proportion of women with a breech presentation offered ECV.
3. Success rates of ECV.
4. Complications of/after ECV.
5. Maternal perceptions of ECV.

References

1. 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;112:205-9.
2. 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;356:1375-83.
3. Hofmeyr GJ, Hannah ME. Planned caesarean section for term breech delivery. *Cochrane Database Syst Rev* 2003;(3): CD000166.
4. Hofmeyr GJ, Kulier R. External cephalic version for breech presentation at term. *Cochrane Database Syst Rev* 2000;(2): CD000083.
5. Westgren M, Edvall H, Nordstrom L, Svalenius E, Ranstam J. Spontaneous cephalic version of breech presentation in the last trimester. *Br J Obstet Gynaecol* 1985;92:19-22.
6. Collaris RJ, Oei SG. External cephalic version: a safe procedure? A systematic review of version-related risks. *Acta Obstet Gynecol Scand* 2004;83:511-18.
7. Impey L, Lissoni D. Outcome of external cephalic version after 36 weeks' gestation without tocolysis. *J Matern Fetal Med* 1999;8:203-7.

8. Wallace RL, VanDorsten JP, Eglinton GS, Mueller E, McCart D, Schiffrin BS. External cephalic version with tocolysis. Observations and continuing experience at the Los Angeles County/University of Southern California Medical Center. *J Reprod Med* 1984;29:745-8.
9. Coltart T, Edmonds DK, al-Mufti R. External cephalic version at term: a survey of consultant obstetric practice in the United Kingdom and Republic of Ireland. *Br J Obstet Gynaecol* 1997;104:544-7.
10. Nwosu EC, Walkinshaw S, Chia P, Manasse PR, Atlay RD. Undiagnosed breech. *Br J Obstet Gynaecol* 1993;100:531-5.
11. Vandenbussche FP, Oepkes D. 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;112:1163.
12. Royal College of Obstetricians and Gynaecologists Clinical Effectiveness Support Unit. *National Sentinel Caesarean Section Audit Report*. London: RCOG Press; 2001.
13. Chan LY, Tang JL, Tsoi KF, Fok WY, Chan LW, Lau TK. Intrapartum cesarean delivery after successful external cephalic version: a meta-analysis. *Obstet Gynecol* 2004;104:155-60.
14. Vezina Y, Bujold E, Varin J, Marquette GP, Boucher M. Cesarean delivery after successful external cephalic version of breech presentation at term: a comparative study. *Am J Obstet Gynecol* 2004;190:763-8.
15. Chan LYS, Leung TK, Fok WY, Chan LW, Lau TK. High incidence of obstetric interventions after successful external cephalic version. *BJOG* 2002;109:627-31.
16. Boucher M, Bujold E, Marquette GP, Vezina Y. The relationship between amniotic fluid index and successful external cephalic version: a 14-year experience. *Am J Obstet Gynecol* 2003;189:751-4.
17. Nor Azlin MI, Haliza H, Mahdy ZA, Anson I, Fahya MN, Jamil MA. Tocolysis in term breech external cephalic version. *Int J Gynaecol Obstet* 2005;88:5-8.
18. Lau TK, Lo KWK, Wan D, Rogers M. Predictors of successful external cephalic version at term: a prospective study. *Br J Obstet Gynaecol* 1997;104:798-802.
19. Hofmeyr GJ, Sadan O, Myer IG, Galal KC, Simko G. External cephalic version and spontaneous version rates: ethnic and other determinants. *Br J Obstet Gynaecol* 1986;93:13-16.
20. Haas DM, Magann EF. External cephalic version with an amniotic fluid index ≤ 10 : a systematic review. *J Matern Fetal Neonatal Med* 2005;18:249-52.
21. Hofmeyr GJ. Interventions to help external cephalic version for breech presentation at term. *Cochrane Database Syst Rev* 2004;(1):CD000184.
22. Impey L, Pandit M. Tocolysis for repeat external cephalic version after a failed version for breech presentation at term: a randomised double-blind placebo controlled trial. *BJOG* 2005;112:627-31.
23. Johnson RL, Elliott JP. Fetal acoustic stimulation, an adjunct to external cephalic version: a blinded, randomized crossover study. *Am J Obstet Gynecol* 1995;173:1369-72.
24. Macarthur AJ, Gagnon S, Tureanu LM, Downey KN. Anesthesia facilitation of external cephalic version: a meta-analysis. *Am J Obstet Gynecol* 2004;191:1219-24.
25. Hutton EK, Hofmeyr GJ. External cephalic version for breech presentation before term. *Cochrane Database Syst Rev* 2006;(1):CD000084.
26. Hutton EK, Kaufman K, Hodnett E, Amankwah K, Hewson SA, McKay D, Szalai JP, Hannah ME. External cephalic version beginning at 34 weeks' gestation versus 37 weeks' gestation: a randomized multicenter trial. *Am J Obstet Gynecol* 2003;189:245-54.
27. Ferguson JE 2nd, Dyson DC. Intrapartum external cephalic version. *Am J Obstet Gynecol* 1985;152:297-8.
28. Nassar N, Roberts CL, Barratt A, Bell JC, Olive EC, Peat B. Systematic review of adverse outcomes of external cephalic version and persisting breech presentation at term. *Paediatr Perinat Epidemiol* 2006;20:163-71.
29. Ben-Arie A, Kogan S, Schachter M, Hagay ZJ, Insler V. The impact of external cephalic version on the rate of vaginal and caesarean breech deliveries: a 3-year cumulative experience. *Eur J Obstet Gynecol Reprod Biol* 1995;63:125-9.
30. Hofmeyr GJ, Sonnendecker EW. Cardiotocographic changes after external cephalic version. *Br J Obstet Gynaecol* 1983;90:914-18.
31. Leung TY, Sahota DS, Fok WY, Chan LW, Lau TK. External cephalic version induced fetal cerebral and umbilical blood flow changes are related to the amount of pressure exerted. *BJOG* 2004;111:430-5.
32. Brost BC, Scardo JA, Newman RB, Van Dorsten JP. Effect of fetal presentation on the amniotic fluid index. *Am J Obstet Gynecol* 1999;181:1222-4.
33. Karantanis E, Alcock D, Phelan LK, Homer CS, Davis GK. Introducing external cephalic version to clinical practice. *Aust N Z J Obstet Gynaecol* 2001;41:395-7.
34. Fok WY, Chan LW, Leung TY, Lau TK. Maternal experience of pain during external cephalic version at term. *Acta Obstet Gynecol Scand* 2005;84:748-51.
35. Flamm BL, Fried MW, Lonky NM, Giles WS. External cephalic version after previous caesarean section. *Am J Obstet Gynecol* 1991;165:370-2.
36. de Meeus JB, Ellia F, Magnin G. External cephalic version after previous caesarean section: a series of 38 cases. *Eur J Obstet Gynecol Reprod Biol* 1998;81:65-8.
37. Leung WC, Pun TC, Wong WM. Undiagnosed breech revisited. *Br J Obstet Gynaecol* 1999;106:638-41.
38. Caukwell S, Joels LA, Kyle PM, Mills MS. Women's attitudes towards management of breech presentation at term. *J Obstet Gynaecol* 2002;22:486-8.
39. Roberts CL, Cameron CA, Nassar N, Raynes-Greenow CH. A simple patient-initiated intervention to increase antenatal detection of breech presentation at term. *Paediatr Perinat Epidemiol* 2004;18:371-6.
40. Burr R, Johanson R, Wyatt J, Watt I, Jones PA. A randomised trial of an intervention package designed to promote external cephalic version at term. *Eur J Obstet Gynecol Reprod Biol* 2001;100:36-40.
41. Hofmeyr GJ, Kulier R. Cephalic version by postural management for breech presentation. *Cochrane Database Syst Rev* 2000;(3):CD000051.
42. Cardini F, Weixin H. Moxibustion for correction of breech presentation: a randomised controlled trial. *JAMA* 1998;280:1580-4.
43. Coyle ME, Smith CA, Peat B. Cephalic version by moxibustion for breech presentation. *Cochrane Database Syst Rev* 2005;(2):CD003928.
44. Cardini F, Lombardo P, Regalia AL, Regaldo G, Zanini A, Negri MG, et al. A randomised controlled trial of moxibustion for breech presentation. *BJOG* 2005;112:743-7.

APPENDIX

Clinical guidelines are: 'systematically developed statements which assist clinicians and patients in making decisions about appropriate treatment for specific conditions'. Each guideline is systematically developed using a standardised methodology. Exact details of this process can be found in Clinical Governance Advice No. 1: *Guidance for the Development of RCOG Green-top Guidelines* (available on the RCOG website at www.rcog.org.uk/clingov1). These recommendations are not intended to dictate an exclusive course of management or treatment. They must be evaluated with reference to individual patient needs, resources and limitations unique to the institution and variations in local populations. It is hoped that this process of local ownership will help to incorporate these guidelines into routine practice. Attention is drawn to areas of clinical uncertainty where further research may be indicated.

The evidence used in this guideline was graded using the scheme below and the recommendations formulated in a similar fashion with a standardised grading scheme.

Classification of evidence levels	Grades of recommendations
Ia Evidence obtained from meta-analysis of randomised controlled trials.	A Requires at least one randomised controlled trial as part of a body of literature of overall good quality and consistency addressing the specific recommendation. (Evidence levels Ia, Ib)
Ib Evidence obtained from at least one randomised controlled trial.	B Requires the availability of well controlled clinical studies but no randomised clinical trials on the topic of recommendations. (Evidence levels IIa, IIb, III)
IIa Evidence obtained from at least one well-designed controlled study without randomisation.	C Requires evidence obtained from expert committee reports or opinions and/or clinical experiences of respected authorities. Indicates an absence of directly applicable clinical studies of good quality. (Evidence level IV)
IIb Evidence obtained from at least one other type of well-designed quasi-experimental study.	Good practice point
III Evidence obtained from well-designed non-experimental descriptive studies, such as comparative studies, correlation studies and case studies.	<input checked="" type="checkbox"/> Recommended best practice based on the clinical experience of the guideline development group.
IV Evidence obtained from expert committee reports or opinions and/or clinical experience of respected authorities.	

This guideline was produced on behalf of the Guidelines and Audit Committee of the Royal College of Obstetricians and Gynaecologists by:

Mr LWM Impey MRCOG, Oxford and Professor GJ Hofmeyr FRCOG, East London, South Africa

and peer reviewed by:

Mr Alok K Ash FRCOG, Consultant Obstetrician, Guy's and St Thomas' Hospital; British Association of Perinatal Medicine; British Maternal and Fetal Medicine Society; Dr AN Griffiths MRCOG; Cardiff; Professor M Hannah, Sunnybrook and Women's Hospitals, Ontario; Dr B Kumar MRCOG, Wrexham; Obstetric Anaesthetists Association; RCOG Consumers' Forum; Royal College of Midwives; Dr DM Siassakos, Specialist Registrar, Southmead Hospital, Bristol; Mr PJ Thompson FRCOG, Birmingham; Dr Evelyn Verheijen, Specialist Registrar, Royal Blackburn Hospital.

The Guidelines and Audit Committee lead peer reviewers were:

Mr SA Walkinshaw FRCOG, Liverpool and Dr RG Hughes FRCOG, Edinburgh.

The final version is the responsibility of the Guidelines and Audit Committee of the RCOG, unless otherwise indicated.

DISCLAIMER

The Royal College of Obstetricians and Gynaecologists produces guidelines as an educational aid to good clinical practice. They present recognised methods and techniques of clinical practice, based on published evidence, for consideration by obstetricians and gynaecologists and other relevant health professionals. The ultimate judgement regarding a particular clinical procedure or treatment plan must be made by the doctor or other attendant in the light of clinical data presented by the patient and the diagnostic and treatment options available.

This means that RCOG Guidelines are unlike protocols or guidelines issued by employers, as they are not intended to be prescriptive directions defining a single course of management. Departure from the local prescriptive protocols or guidelines should be fully documented in the patient's case notes at the time the relevant decision is taken.

Valid until December 2009
unless otherwise indicated