Breech delivery and reducing its incidence – A literature review

Introduction

When assessing a foetus before birth one of the key factors to be determined is the presenting part in the pelvis. The vast majority of foetus’ approaching term lie longitudinally with either the head or breech down. A cephalic presentation is optimal for both maternal and foetal outcomes however around 3-4% of term deliveries and over 20% of 25 week deliveries present as breech.\(^1\) This represents somewhere in the region of 25,000 deliveries every year in the England and Wales\(^2\). Current guidelines from the Royal College of Obstetricians and Gynaecologists (RCOG) on the management of breech presentation (Green top 20b)\(^3\) were published in 2006 and although reviewed regularly have not been revised since then. Guidelines on External Cephalic Version and reducing the incidence of breech presentation (Green top 20a)\(^4\) were last revised in 2010. These guidelines are generally seen as the gold standard within the UK on the topics and these form the basis for any local guidelines that individual units may produce and maintain.

Aim

To appraise the most recent review data surrounding breech presentation management and assess the appropriateness of the current guidelines\(^3,4\).

Scope

This review has a limited scope and is not intended to be a complete literature review of the topic. A small selection of reviews have been chosen from a very limited time window with slightly different topics to produce a rounded look at as much of the guideline as possible. Despite this some areas are not considered as no evidence was available within the specified data set.

Summary of Current Guidelines
RCOG Green Top Guideline No. 20a – ECV at term

- ECV lowers chances of having caesarean section
- Labour with cephalic presentation after ECV has a higher rate of intervention when compared to spontaneous cephalic presentation
- Women should be informed that around 50% of ECV will be successful with varying degrees of intra personal variability
- ECV has a very low complication rate and women should be clearly informed of the risks and benefits as such
- The use of Tocolytic agents should be considered either routinely or after an unsuccessful attempt at the procedure.

RCOG Green Top Guideline No. 20b – Management of Breech Presentation

- Planned caesarean section carries a reduced perinatal mortality and early neonatal morbidity vs planned vaginal birth
- Planned caesarean section carries a small increased risk of serious immediate complications
- Vaginal breech delivery should take place where the facilities for emergency caesarean section exist
- Routine caesarean section should not be advised for delivery of preterm breech but should be discussed on an individual basis

Method

Medline was searched using a full database for review articles in the English language coded with breech as a keyword (with all subcategories) from the last 3 years. This search returned 26 results and from this 6 articles were assessed to be appropriate.

Results

It is always important as far as possible to understand why something happens and its aetiology. A review from earlier this year (Fruscalzo et al) looked at 14433 consecutive deliveries over 8 years at a tertiary centre in northern Italy. Of these 4.51% were breech presentation (n=651) and a number of risk factors were
identified. Early gestational age and low neonatal weight were relatively expected conclusions however a number of other factors were identified that may not have as simple an explanation. Increased maternal age, nulliparity and female neonatal gender were also associated with a higher incidence of breech presentation. Sub-Saharan maternal ethnicity was also found to be protective. With relatively large numbers involved and only one centre this is data of a high standard but would be improved with duplication of results from a similar study.

External Cephalic version (ECV) is the practice of attempting to change a breech presentation to a cephalic one using palpation of the abdomen. A Cochrane review of the evidence surrounding the use of ECV at term (36 weeks onwards) was published in 2012 and looked at seven studies totalling 1245 women. The individual evidence quality was poor however Cochrane reviews are widely accepted to be among the best forms of evidence on a given topic due to their robust and thorough methods. They concluded that a statistically significant and clinically meaningful reduction in non-cephalic presentation could be achieved by attempting ECV as well as a reduction in the rate of caesarean section. A statistically significant drop in perinatal death was not noted. Furthermore a study from the Chinese University of Hong Kong (Leung et al, 2012) concluded that ECV was a safe procedure that does not increase the risk of Intra-uterine death (IUD). They conducted a literature review and looked at 1078 consecutive ECV’s performed at the university hospital between 1994 and 2011. Overall the success rate was 72.8% and no IUD was noted within 24 hours in any case. One IUD occurred within 4 weeks of the procedure (0.09%) however this total falls considerably below the current England and Wales IUD rate of 4.7 per thousand however this is not directly comparable data, a review mentioned in this report from 2008 (Grootstholten et al) looked at 84 papers and identified 12 IUDs after ECV in 12,955 cases (0.09%) however this was compiled with a median case number of just 80 per paper. The aim of ECV is to reduce the rate of caesarean section. The current guidelines recommend offering this as it considered the safest form of breech delivery. A review published this year (de Hundt et al) looked at the mode of delivery after successful ECV and concluded that overall there was still an increased risk of both caesarean section (OR 2.2) and instrumental vaginal delivery (OR 1.7) when compared with women with a spontaneous cephalic presentation. Despite this the rate of caesarean section when
compared to women delivering with breech presentation after no or failed ECV was significantly reduced. They concluded that the number needed to treat for ECV to prevent caesarean section was 2.6 making it a very clinically effective and cost effective procedure. Success rates for ECV across all 11 studies averaged at 59%.

When considering preterm breech delivery the current evidence base is considerably poorer. A review published last year (To\textsuperscript{10}) concluded that protocols vary considerably and that there are none available with a sound evidence base behind them. As gestational age increases the advantages of caesarean section are deemed to increase with little increase in risk. At earlier gestations, especially those where fetal survival is in question, the risks to mother and subsequent pregnancies may lead to better overall outcomes with planned vaginal delivery although a relatively high proportion of these will become emergency caesarean sections. It is noted however that many specialists, including senior obstetricians, may be becoming more inclined to offer caesarean section as the skills needed for vaginal breech delivery are being used far more infrequently than is felt to be needed to maintain full competency. A further review from the Netherlands this year (Bergenhenegouwen et al\textsuperscript{11}) looked at morbidity and mortality from studies comparing vaginal delivery and caesarean section in breech foetuses between 25 and 36+6 weeks gestation. The evidence base was considered to be of low quantity and quality but overall they concluded that a 37% reduction in neonatal mortality was achieved through the use of caesarean section. Despite the poor evidence base it is unlikely that any large randomised controlled trial will be performed due to technical and ethical challenges surrounding the topic.

**Discussion**

Breech delivery clearly remains a topic with much potential for research. It is through large scale analytical studies such as Fuscalzo et al that we may be able to identify potentially modifiable risk factors for breech presentation and also try and understand why it occurs. It would also be possible for large scale studies such as this to also look at outcomes including method of delivery and success rates of any ECV that may have been offered. If this data was combined together with such numbers of patients it could prove to be a highly important source for developing and updating guidelines.
ECV is an essential tool in reducing the rate of caesarean section in breech presentations. Although vaginal delivery of a breech presentation should still be considered as an option, in reality it is now rarely planned within the UK due to the immediate risks. All the evidence to date suggests that ECV is a very safe procedure and is only very rarely associated with any problems beyond failure to succeed or maternal discomfort. Despite this, the majority of the very rare associated problems can be largely negated by a swift delivery and therefore ECV should only be undertaken in a unit where the facilities exist to carry out an emergency caesarean section. As ECV is almost always carried out at advanced gestation the risk to the foetus of such a delivery is likely to be low. The use of Tocolysis to aid ECV was not separated in any of the above reviews into a separate group however it was stated that the literature generally supports the suggestion that use of tocolytics aids success rates by relaxing the uterine muscle temporarily. The current RCOG guidelines suggest that local protocols should be followed on this matter and tocolytic agents should be given either routinely or after a failed attempt in order to improve the chances of a second attempt succeeding.

Preterm breech delivery is where most of the difficulty lies as the evidence is less clear. As gestational age decreases at delivery the risk benefit ratio of a caesarean section also decreases. There is a reduction in neonatal mortality associated with caesarean section however this may be associated with other factors than simply the mode of delivery. There is a large difference between a 25 week birth and a 36+6 one with overall neonatal survival increasing. There is a clear need for more observational studies in breech deliveries at this age group in order to better formulate evidence based guidelines.

Limitations

In line with the scope of this report only a small number of articles have been considered. Those that have are generally review articles, themselves considering a larger number of individual publications however there is likely to be further data out there that has not been included. Limiting to three years and the English language may also have led to some loss of inclusion however it was not possible to review all data and some limits had to be set at some point.
Conclusion and Recommendations

The evidence presented and briefly appraised in this report uniformly agrees with the existing guidelines published by the Royal College of Obstetricians and Gynaecologists. Although the key aspects of breech management and external cephalic version have been considered here it is by no means a complete review. A far more thorough literature search looking at an extended time period would be required for this and in many areas there is no new data published since the most recent guideline reviews. The literature should be regularly assessed for new evidence and updated accordingly.

It is clear that is only relatively small amounts of data being published on the topic and considerable amounts of what is published is of low evidence quality. There are clearly logistical and ethical challenges with producing gold standard randomised controlled trials however opportunities to conduct this sort of research should be taken. Other lower levels of research should also be conducted to improve the overall depth of evidence available.

Overall the existing evidence favours ECV being offered routinely in secondary care from 36-7 weeks and this is shown to be effective in reducing the rate of caesarean section despite a higher rate of intervention in those patients successfully turned. Planned caesarean section should be offered to all women presenting at term with a breech presentation however with the absence of other risk factors vaginal delivery should still be an option available to the patient with appropriate counselling on the risks of both options. With preterm breech presentations the evidence is less clear however the relatively fixed risks of caesarean section need to be carefully weighed up, especially in foetuses of a lower gestation where survival rates maybe be poorer.
References


3) Royal College of Obstetricians and Gynaecologists The management of breech presentations – Green top guideline No. 20b December 2006.
4) Royal College of Obstetricians and Gynaecologists *External cephalic version and reducing the incidence of breech presentation – Green top guideline No. 20a* December 2006.


7) Leung VKT, Suen SSH, Sahota DSS, Lau TK, Leung TY *External cephalic version does not increase the risk of intra-uterine death: a 17-year experience and literature review* J Matern-Fetal neon m 2012;25(9):1774-1778


10) To WWK *Optimal delivery for preterm breech foetuses: is there any consensus?* Hong Kong Med J 2013;19:251-7