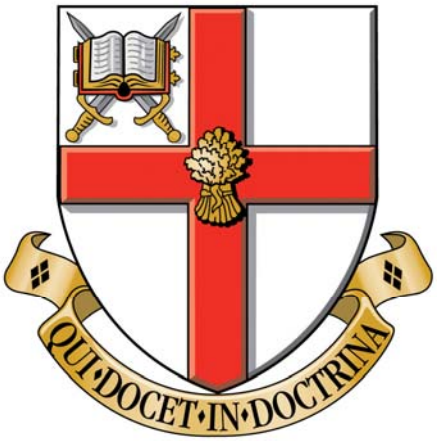

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Vaginal or caesarean delivery: How research has turned breech birth around?

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Introduction:

- Breech presentation occurs in 3-4% of singleton pregnancies at term (RCOG,2006)
- Over the last fifty years there has been a phenomenal shift in clinical practice from vaginal breech birth to caesarean section
- Worldwide the vast majority of breech babies are now delivered by planned caesarean section.

This presentation:

- Will explore the role of research evidence in supporting this change
- In particular, the impact of a single research trial ‘Term Breech Trial’ (TBT)
- Will discuss the on-going obstetric debate of the findings and recommendations of the ‘Term Breech Trial’ (TBT)
- Will highlight measures to reduce the incidence of breech presentation

Breech presentation:

- Extended or frank breech (most common 65%)
  - hips flexed, thighs against the chest, feet up by their ears
- Flexed or complete breech
  - Hips flexed, thighs against the chest, but knees also flexed with calves against the back of the thigh, feet just above the bottom
- Footling breech
  - As above, but hips not flexed so much, feet lying below the bottom

Breech presentation: >risk

- Woman has had a previous pregnancy
- H/O of previous breech presentation
- Multiple pregnancy
- Amniotic fluid (too much or too little)
- Shape of uterus abnormal
- Abnormal growths in the uterine wall (fibroids)
- Placenta praevia
- Prematurity

Risks with breech

- Higher risks than a cephalic presentation
  - > congenital abnormalities
  - birth asphyxia
  - birth injury

  (Albrechtsen, 1998; Pritchard & MacDonald 1980; Cheng & Hannah, 1993)

- > rate of cord prolapse in non-frank breech presentations

  (Broche et al, 2005)
  - Footling or flexed breech presentation: unfavourable for a vaginal breech delivery

  (RCOG, 2006)
- In general, breech presentation irrespective of mode of delivery is associated with > risk of subsequent infant physical or mental disability

  (Danielian et al, 1996)

Over the last fifty years:

- > trend towards the routine use of caesarean section (< poor outcomes)
- This trend coincided with the transition from home birth to hospital birth
- Statistics show > in CS for breech presentation particularly in primips was already happening prior to evidence from ‘Term Breech Trial’ (TBT)

‘Term Breech Trial’ (TBT)

- A multi-centred trial of planned caesarean section vs planned vaginal birth for breech presentation at term.
- It was undertaken at 121 centres in 26 countries
- Required a sample size of 2800 women with a singleton fetus in a frank or complete breech presentation
- Randomly assigned to planned caesarean section or planned vaginal birth.
- The primary outcomes were perinatal mortality, neonatal mortality, or serious neonatal morbidity
- and maternal mortality or serious maternal morbidity.

‘Term Breech Trial’ (TBT)

- Following an interim analysis when 1,600 women recruited
- Independent data monitoring committee recommended recruitment be stopped early owing to a significantly higher event rate than expected.
- Of the 1,041 women assigned to the planned CS group, 941 (90.4%) were delivered by CS
- Of the 1,042 women assigned to the planned VB

  591 (56.7%) delivered vaginally.
- (ITT) analysis of the findings reported that perinatal mortality, neonatal mortality or serious neonatal morbidity was found to be significantly lower in the planned CS group compared with the planned VB group.(17 of 1039 [1.6%] vs 52 of 1039 [5%]).
- There was no difference reported between the two groups in terms of maternal mortality or serious morbidity (41 of 1041 [3.9%] vs 33 of 1042 [3.2%]).

A Cochrane's Review

- There were two randomised controlled trials of vaginal versus caesarean delivery for breech presentation undertaken in the early 1980's (Collea et al, 1980; Gimovsky et al, 1983).
- A Cochrane Review of planned caesarean section for term breech delivery (Hofmeyr and Hannah, 2003) includes both of these trials,
- however, the majority of the data in this review and the meta analysis undertaken was collected from Hannah et al, (2000) in a large, multi-centred, randomised controlled trial; the Term Breech Trial.

- These results have had a huge impact on the rising caesarean section rate in many countries.

Impact of (TBT)

- Within a few months (TBT) had transformed obstetric practice worldwide (Turner, 2006).
- Glezerman (2006) stated ‘rarely in medical history have the results of a single research study so profoundly changed practice’.
- Within 2 months following publication of the (TBT) results the overall CS rate for breech presentation in Holland is reported to have increased from 50% to 80% (Reitberg et al, 2005).
- In New South Wales, Australia the rate of VB birth declined from 17% in 1999 to 14% in 2000 and 4.5% in 2001 (Roberts et al, 2003).

Impact of (TBT)

- A survey of all obstetricians practising in Australia and New Zealand, 72% reported routinely offering vaginal breech birth for uncomplicated singleton breech pregnancies prior to the publication of the TBT, after this rate declined to 20% (Phipps et al, 2003).
- A survey of TBT collaborators, from 80 centres, in 23 countries, reported a 92.5% changed rate in clinical practice to planned CS for all term breech babies (Hogle et al, 2003).
- In 2001, the ACOG, recommended planned CS for women with a persistent breech presentation
- In 2001, the RCOG, also recommended a planned CS for an extended or frank breech presentation.

Criticism and controversy

- Criticisms on the clinical conduct, interpretation and applicability of the results of the TBT and subsequent Cochrane's review worldwide have been voiced by some non western countries.
- These criticisms have caused a subsequent controversy.
- The RCOG (2006) have recently published a more balanced set of guidelines to incorporate these concerns

TBT: Publications

- There are several publications reporting the findings of this trial:
- the primary paper, which reported outcomes at delivery (Hannah et al, 2000),
- A paper reporting outcomes at three months (Hannah et al, 2002)
- 2 papers reporting maternal and child outcomes at two years (Hannah et al, 2004; Whyte et al, 2004).
- A paper reporting the financial costs of planned caesarean section versus planned vaginal birth in the Term Breech Trial (Palencia et al, 2006).

Controversy: TBT

- Roberts et al (2004) ‘decades of controversy over the safe management of breech birth at term were resolved by the ‘Term Breech Trial’.
- The primary paper was fast-tracked for publication (Lancet) and in print 6 months after recruitment stopped. This fast tracking approach and peer review criteria has recently been challenged (Bewley and Shennan, 2006).
- Susan Bewley did recommend in view of the importance of the results that it was not fast-tracked until detailed queries were addressed
- In particular issues around the differential findings and implications for resource rich and poor countries.

The TBT debate

- It is well recognised that all studies inevitably have limitations and it would have been helpful for the Term Breech Trial authors to be more transparent and highlight the possibility of variation in study selection criteria, skill of the operator, optimal care etc… as much of the debate is now around these issues.

Limitations of the (TBT)

- Limitations highlighted by some critics are:
- Violation of inclusion criteria
- Incompatible variation of standard of care between participating centres
- Most cases of perinatal mortality were not related to mode of delivery
- Conclusions that are based on various categories of neonatal morbidity
- Problems associated with labour, not mode of delivery
- (Glezerman,2006; Turner, 2006).

CEMACH (2000)

- The seventh annual report of the Confidential enquiry into Stillbirths and Deaths in infancy reported the most avoidable factor in causing breech stillbirths and death among breech babies was sub-optimal care in labour, in particular, with respect to the assessment of fetal wellbeing (CEMACH, 2000).

Violation of inclusion criteria

- Many of the 121 centres involved in the TBT were in North America, where prior to the TBT, 13% of breech presentation at term was delivered vaginally (Lee et al, 1998).
- However, individual centre rates of vaginal breech delivery at baseline were not reported
- TBT achieved an overall successful VB rate of 57% by asking those centres with VB rates under 40% in the labour group to increase the rate or withdraw from participation (University of Toronto Maternity Infant and Reproductive Health Research Unit, 1996).
- Many centres would have increased the VB rate significantly to participate in the study and this increase would constitute a significant bias (Kotaska, 2004).

Appropriate methodology?

- Glezerman (2006) has recently suggested the need for another trial as the results obtained in the Term Breech Trial were not meaningful because of inadequate clinical set up and the 2 year follow study results are in contrast to the earlier findings.
- RCT's do improve the quality of evidence to guide clinical practice but when applied to complex phenomena they have limitations.
- Kotaska (2004) has challenged the randomised trial methodology as an inappropriate method to use when evaluating complex phenomena and case studies of VB birth should be taken into consideration.

Other issues: research & breech birth

- Complex patient populations,
- Poorly quantifiable variations between individuals present difficulties
- Complex procedures requiring skill and clinical judgement present difficulties
- Alternative methods to reduce the risk of breech presentation at term
- **Ultimately,** women's preferences, views and experiences must be considered and her wishes respected.

Implications for Clinical practice

- Caesarean section is not without risks but has the pendulum swung too far towards routine caesarean section for breech presentation.
- It appears that many obstetricians, policy makers, midwives and women have accepted this intervention and it has become routine practice.
- The long term outcomes are unknown and the worldwide implications of adopting this practice as routine needs to be considered.
- How many countries can sustain a planned CS policy for breech presentation and for how long?
- The risks and benefits debate is ongoing and much of the challenges and criticisms have come from other parts of the world.

The on-going debate!

- Reitberg et al, (2005) reports a policy of routine planned CS has been followed by improved neonatal outcomes.
- Schutte et al (2007) however, asserts that planned CS for breech presentation does not guarantee the improved outcome of the child and may increase risks to the mother.
- The Dutch Maternal Mortality Committee registered and evaluated four maternal deaths following planned CS for breech presentation, from 2000-2002, 7% of the total direct maternal mortality in that period (Schutte et al, 2007).

< incidence of breech presentation

- Turning a baby to a cephalic presentation will reduce the risks associated with breech and increase a woman's chance of having a normal birth.
- Alternative methods such as External Cephalic Version (ECV) and Moxibustion therapy that can be used as preventative ways to reduce the incidence of breech presentation
- Important for midwives to have in-depth knowledge and an understanding of alternative methods that may help reduce the incidence of breech presentation at term.

External Cephalic Version:

- (ECV)- Manipulation of the baby, through the mother's abdomen to a cephalic presentation.
- Should be performed where ultrasound, cardiotocography and theatre facilities are available.
- ECV is one of the few obstetric interventions for which there is evidence that its use leads caesarean section rates to fall (Hutton and Hofmeyer (2006).
- Appears to be generally well tolerated, safe, non-invasive, painless and gives women another option prior to ECV.

Evidence: ECV

- Risks are rare but can happen such as:
- Premature rupture of membranes
- Fetal tachycardia or bradycardia
- Placental abruption
- Premature labour
- ECV is usually offered at 36 to 38 weeks to turn breech babies and approximately,
- 50% of ECV attempts are successful when the practitioner is experienced in the procedure.
- Overall success rate between 30-80%

(RCOG, 2006).

Moxibustion therapy

- Used in Chinese medicine for centuries. Claimed success rate of 85-90% (Cardini, and Weixan 1998).
- It is the burning of moxa made from the herb Mugwort
- Dried leaves compacted and rolled like a cigar is lit and burned at a specific acupuncture point Bladder 67, located at the outer corner of the little toe of each foot.
- Moxibustion –used for its deep heat properties that alter the flow of energy to the uterus and fetus encouraging the baby to turn
- Appears to be generally well tolerated, safe, non-invasive, painless and gives women another option prior to ECV.
- advantage of this therapy is that the woman's partner or a relative can be easily taught how to administer the treatment

Cochrane review by Coyle et al (2005)

- Reported that moxibustion reduced the need for ECV (RR 0.47, 95% CI 0.33 to 0.66)
- Decreased the use of oxytocin before or during labour for women who had vaginal deliveries (RR 0.28, 95% CI 0.13 to 0.60).
- Moxibustion may be helpful in turning a breech baby when applied to the little toe
- There was insufficient evidence to support its use in clinical practice and recommended further research and well designed randomised controlled trials in moxibustion.

Conclusions:

- By choice or default vaginal breech births will continue to take place, which means attention is still warranted to skills, techniques and preventative measures
- Caesarean section is not without risks; it is associated with increased maternal morbidity and mortality and increases risks to subsequent pregnancies.
- The research concerning Term breech trial has certainly made a huge impact on the management of breech presentation mode of delivery throughout the world and there is no other area of research that has such an impact in such a short period of time.