Fetal malpresentation

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Abstract

Breech presentation is the most commonly encountered malpresentation. Since publication of the Term Breech Trial that showed benefits for the fetus in undertaking caesarean section, there has been a large shift in practice. Nonetheless the fact remains that most babies will not be compromised by planning a vaginal birth, and maternal requests for vaginal delivery are not unreasonable. Many preterm fetuses and second twins presenting breech are still delivered vaginally, and the art of vaginal breech delivery must not be lost. Skills can be taught with the use of mannequins. Fetal malpresentations other than breech are infrequently encountered, and there is little evidence to guide practice. Face presentations pose few problems in labour except where the mentum remains posterior. Brow presentation does not automatically equate to the need for caesarean section, as some will correct as labour progresses. Shoulder presentation is encountered with transverse lie, with the attendant risk of cord prolapse and fetal compromise should labour ensue. There is a place for attempting external version if the membranes are intact, with immediate facilities for caesarean section if unsuccessful. If caesarean section is undertaken it is important to keep the membranes intact when opening the uterus to allow easier manipulation and delivery.

Keywords breech presentation; brow presentation; external cephalic version; face presentation; malpresentation; transverse lie

Introduction

Malpresentations of the fetus often present uncertainties with respect to management. This article will cover breech presentation as well as the less commonly encountered shoulder, face, brow, compound and cord presentations. Much of the literature has concentrated on the breech presentation, with continuing controversy surrounding management. There is far less published on the other malpresentations in recent times. Hence much of the discussion here relates to a consensus of opinion rather than an evidence base.

The definitions can appear ambiguous, so an explanation of the terminology used is presented first. The term *presentation* refers to that part of the fetus presenting to the lower pole of the uterus. It can more precisely be defined by the *presenting part*, i.e., that part of the presentation that lies in close proximity to the internal os of the cervix. Thus the usual presentation is cephalic, and the presenting part is the vertex or occiput. The *position* refers to the relationship of the presenting part to the maternal pelvis. The *denominator* is the fetal reference point used in defining position and is the occiput when the presentation is cephalic and the head is flexed. The degree of flexion or extension of the fetal head with respect to the trunk refers to the *attitude* of the head.

The terms presentation and presenting part are often used interchangeably. Malpresentation, strictly a presentation that is not cephalic, should be confined to breech and shoulder presentation (the latter occurring with a transverse lie). However, it conventionally incorporates face and brow presenting parts which could be regarded as malpositions as they actually represent changes in attitude of the fetal head (see Table 1).

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Breech presentation

Background

The management of the breech presentation is undoubtedly the most discussed and written about of all malpresentations. The management has changed quite dramatically following publication of the Term Breech Trial in October 2000. This has provided us with the best evidence to date on which to base our counselling of women with a breech presentation at term. Nonetheless, the dramatic change in practice that followed the Trial's publication has been increasingly questioned after publication of the longer-term outcomes and critical review of the original data.

Breech presentation accounts for 3–4% of births at term. More than 6% are breech at 32 weeks. Three quarters of term breech babies are breech at 32 weeks, thus most undiagnosed breeches represent misdiagnosis rather than spontaneous version. The sensitivity of clinical examination for detection of non-cephalic presentation is not good (70% in a recent cross-sectional analytical study). A higher prevalence of obesity may be a contributory factor. Nonetheless it highlights the need for the practitioner to focus on the importance of assessing presentation at each visit from 36 weeks' gestation (even 32 weeks') until delivery.

Breech presentation itself appears to be a marker for poor perinatal outcome. It has been shown that nearly 20% of term breech babies, irrespective of mode of delivery, had some degree of handicap when followed to 4–5 years of age. There have been suggestions that this poorer long-term outcome may be antenatal in origin, as it has been shown that breech babies exhibit intrauterine behavioural differences when compared to their cephalic counterparts.

Terminology

Attitude	Presentation	Presenting part	Denominator
Well flexed	Cephalic	Vertex	Occiput
Deflexed[a]	Cephalic	Sinciput	Occiput
Extended	Cephalic	Brow	–
Hyperextended	Cephalic	Face	Mentum

[a]Usually found with occipitoposterior position

Table 1

There are certain factors that predispose to breech presentation, although a majority of women with a breech presentation exhibit none of these. These factors are as follows:

- advancing maternal age;
- nulliparity;
- prematurity;
- multiple pregnancy;
- previous breech presentation;
- placenta praevia;
- uterine anomaly;
- fetal anomalies.

Intrauterine growth restriction and oligohydramnios are also more common in breech babies, but whether this is cause or effect is unclear.

Antenatal management

Considering the low spontaneous version rate, it would seem prudent to follow up any breech detected after 32 weeks with an ultrasound scan at 36 weeks. If the fetus is still breech at this point the scan should document fetal biometry and amniotic fluid volume, the placental site, position of the fetal legs, and attitude of the neck. Trying to ascertain the presence of a nuchal cord is difficult and rarely undertaken. The scan should also look for any anomalies previously undetected, and in appropriate situations an umbilical artery doppler measurement may be indicated.

The three management options available at this point should be discussed with the woman. These are external cephalic version (ECV), vaginal breech delivery, and elective caesarean section. Following the results of the Term Breech Trial, emphasis should focus on undertaking ECV.

External cephalic version (ECV)

ECV has been shown to reduce the risk of caesarean section without apparent risk to the fetus. Success rates vary but in our unit exceed 50% (with better success in multigravid women). The reversion rate is low. Predictors of unsuccessful version include engaged presenting part, difficulty palpating the fetal head, and increased uterine tone (more common in primiparous women).

Current practice suggests that ECV should be performed later than 37 completed weeks. However, a recent pilot study showed improved success rates between 34 and 37 weeks without any increase in procedure-related complication rates, and a larger trial is ongoing.

ECV should be performed using a tocolytic, as this has been shown to improve the success rate. The tocolytic should be a β-sympathomimetic. Terbutaline 250 μg is easy to administer by the subcutaneous route. In our unit ultrasound is undertaken just prior to ECV to confirm the presentation and locate the fetal spine. A cardiotocograph (CTG) is undertaken before attempting the procedure. The fetal heart is auscultated during the procedure, either by placing a transducer on the abdomen and leaving it in situ, or a helper intermittently placing the transducer on the maternal abdomen. The woman is laid flat but with a lateral tilt, having ensured that she has emptied her bladder and is comfortable. The breech is elevated from the pelvis and one hand used to manipulate this upward in the direction of a forward roll. The other hand applies gentle pressure to flex the fetal head and bring it down toward the maternal pelvis. The procedure should last no more than 10 minutes. It is important to undertake a CTG after the procedure, and to administer anti-D if the woman is rhesus-negative.

Contraindications to ECV include known fetal compromise, ruptured membranes, recent antepartum haemorrhage, and major uterine anomaly. Pre-eclampsia, intrauterine growth restriction (IUGR), oligohydramnios, and major anomaly are relative contraindications. Existing data suggest that ECV following one previous caesarean section is safe. ECV in the context of an unstable lie is usually not justified as spontaneous reversion is likely, unless a stabilizing induction of labour is to be undertaken.

Complication rates with ECV are low and include placental abruption and significant feto-maternal haemorrhage. Transient fetal heart rate abnormalities are not uncommon. The incidence of procedure-related emergency caesarean section is less than 1%. Interestingly, labour with a cephalic presentation following ECV appears to be associated with a higher obstetric intervention rate.

Maternal discomfort is not uncommon and may occasionally cause abandonment of the procedure.

Mode of delivery

If ECV fails, or is not appropriate, and caesarean section is not indicated for other reasons, then women should be counselled regarding elective caesarean section and planned vaginal delivery. This is where the Term Breech Trial has been most helpful. It showed that planned caesarean section confers a two-third reduction (relative risk 0.33, 95% confidence interval 0.19–0.56) in perinatal mortality, neonatal mortality, or severe short-term neonatal morbidity without significantly increasing serious maternal morbidity. There is a 1% increased risk of perinatal death with vaginal birth, and 2.4% increased risk of serious neonatal morbidity. Thus the recommendation was for planned caesarean section with a term breech fetus. However, it should also be noted that a Cochrane meta-analysis that includes the Term Breech Trial does reveal a modest increase in short-term maternal morbidity with caesarean section.

Critics of the Term Breech Trial state that the protocol for vaginal delivery in the trial would not meet the acceptance of most units within the United Kingdom. Electronic fetal monitoring was not universally employed. Ultrasound to detect growth-restricted babies was not rigorously employed. Induction and augmentation are controversial management strategies that were allowed in the trial. An active second stage exceeding 90 minutes occurred in some cases, and there were larger babies in the vaginally delivered group that may have contributed to poorer outcome. A secondary analysis showed adverse perinatal outcome in those who laboured was associated with induction and augmentation of labour, prolonged active second stage, and an inexperienced operator at delivery. Observational studies have highlighted the need for strict selection criteria for labour, an intrapartum protocol that excludes induction and augmentation, a low threshold for caesarean section should dystocia develop, and an experienced obstetrician for delivery. With these factors in place, planned vaginal birth of the singleton breech would appear to be a safe option for women.

A 2-year follow up of the Term Breech Trial showed no statistically significant difference when assessing death or abnormal neurodevelopment. This has lent support to advocates of vaginal birth in selected cases. Some have gone so far as to call for a further randomized controlled trial with stricter selection criteria.