

## CHAPTER 12

# VAGINAL BREECH DELIVERY

### Learning Objectives

By the end of this chapter, the participant will:

1. List the selection criteria for an anticipated vaginal breech delivery.
2. Recall the appropriate steps and techniques for vaginal breech delivery.
3. Summarize the indications for and describe the procedure of external cephalic version (ECV).

### Definition

When the buttocks or feet of the fetus enter the maternal pelvis before the head, the presentation is termed a breech presentation.

### Incidence

Breech presentation affects 3% to 4% of all pregnant women reaching term; the earlier the gestation the higher the percentage of breech fetuses.

### Types of Breech Presentations

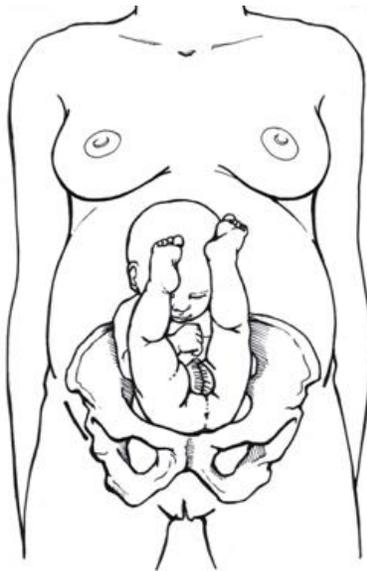


Figure 1 - Frank breech



Figure 2 - Complete breech



Figure 3 - Footling breech

In the frank breech, the legs may be extended against the trunk and the feet lying against the face. When the feet are alongside the buttocks in front of the abdomen, this is referred to as a complete breech. In the footling breech, one or both feet or knees may be prolapsed into the maternal vagina.

### Significance

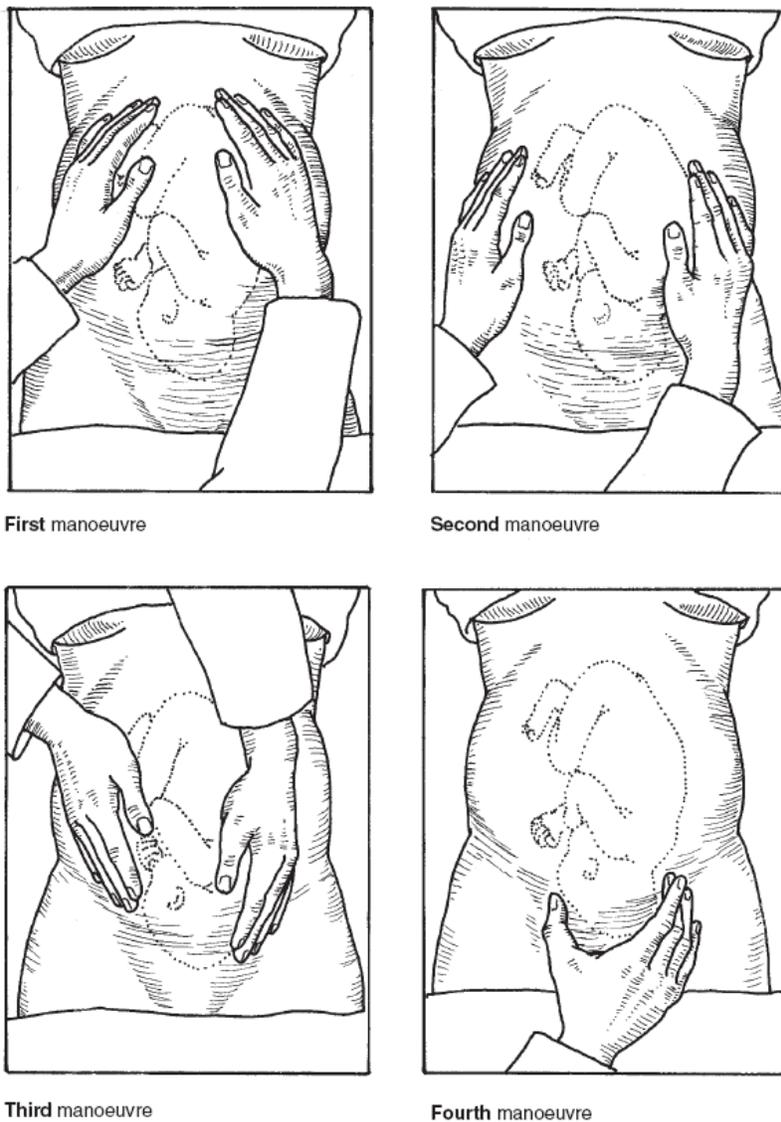
Breech presentation is associated with an increased frequency of perinatal mortality and morbidity due to prematurity, congenital anomalies (which occur in 6% of all breech presentations), and birth trauma and/or asphyxia.

## External Cephalic Version

External cephalic version (ECV) is a procedure in which a fetus is turned in utero by manipulation of the maternal abdomen from a non-cephalic to cephalic presentation.

### Diagnosis of non-vertex presentation

Performing Leopold's manoeuvres during each third trimester prenatal visit should enable the health care provider to make diagnosis in the majority of cases. The abdominal examination is used to assess the presentation, position, and engagement of the fetus by using four different manoeuvres.



**Figure 4 - Leopold's manoeuvres: palpation of fetus in left occiput anterior position**

Reproduced from: *Managing prolonged and obstructed labour: Education material for teachers of midwifery*, second edition. World Health Organization, 2006. p. 51. available from [http://whqlibdoc.who.int/publications/2006/9241546662\\_4\\_eng.pdf](http://whqlibdoc.who.int/publications/2006/9241546662_4_eng.pdf)

## Technique

1. Palpate the fundus of the uterus to determine which fetal parts are in this portion of the uterus. In the case of a breech presentation, the hard round head will be felt.
2. Palpate either side of the abdomen to find the fetal back and limbs and assess size.
3. Palpate either side of the lower abdomen just above the pelvic inlet to determine if the head is flexed or extended.
4. Palpate just above the pubic symphysis for the presenting part. In a breech, the buttocks will be smaller in comparison to the head that was felt in the fundus. (This manoeuvre is sometimes called Pawlick's manoeuvre.)

Auscultation of the fetal heart with a Pinard fetoscope may also aid in confirming or ruling out breech presentation. In breech presentation, typically the fetal heart tones will be heard above the umbilicus. It is not possible to use a Doppler to aid in diagnosis as it detects sound from a wider range. A vaginal examination or ultrasonography may be performed to confirm the presentation, when in doubt.

## Timing of an external cephalic version

The best available evidence suggests that the ideal time to carry out ECV is after 37 weeks gestation (Hofmeyr et al, 1996). Under certain circumstances, it can be offered in labour. Studies are currently underway to determine if early ECV (i.e. at 34 to 35 weeks gestation) may offer further benefit without additional risk to the woman or her fetus (Hutton EK et al, 2003). Currently it is recommended that ECV should be performed at more than 36 weeks because:

- Spontaneous cephalic version often occurs before 36 weeks.
- Spontaneous podalic version after the procedure is rare after 36 weeks.
- Fetus will usually be mature if complications of ECV necessitate immediate delivery.

A meta-analysis of five randomized control trials (RCTs) comparing ECV at term to no attempt at ECV showed a significant reduction in non-cephalic births (RR 0.38, 95% CI 0.18–0.80) and cesarean section (RR 0.55, 95% CI 0.33–0.91). There was no significant effect on perinatal mortality (RR 0.51, 95% CI 0.05–5.54) or other measures of perinatal outcome (Hofmeyr et al, 1996).

In certain situations, ECV may be offered in early labour. This may be considered if the membranes are intact, and the breech is unengaged.

## Prerequisites

1. Singleton pregnancy
2. Gestational age  $\geq$  37 weeks
3. No contraindication to labour
4. Fetal well-being established prior to procedure
5. Assessment of amniotic fluid volume
6. Position of fetus known prior to procedure
7. Facilities for immediate delivery

## Contraindications

ECV should be avoided in a woman who is HIV positive. If the woman's status is unknown or she has a very low viral load, ECV may be considered based on available local resources. The health care provider needs to weigh the potential risks of mother-to-child transmission vs. vaginal breech delivery in the absence of cesarean section capability.

**Absolute contraindications**

1. Any contraindications to labour, e.g. placenta previa, non-reassuring fetal heart rate (FHR), or intrauterine growth restriction
2. Congenital abnormality (i.e. hydrocephalus)

**Relative contraindications**

1. Severe oligohydramnios
2. Hyperextension of the fetal head
3. Two or more previous cesarean sections
4. Morbid obesity
5. Active labour

There is no evidence to suggest that ECV is unsafe after one low transverse uterine incision or cesarean section.

**Risks**

1. Intrauterine death is rare but may occur secondary to cord accident, maternal-fetal hemorrhage, or may be unexplained
2. Placental Abruption
3. Rupture of the membranes
4. Stimulation of (pre-term) Labour
5. Fetal bradycardia
6. Isoimmunization

**External cephalic version procedure**

Obtain the woman's fully informed consent. This discussion should include the following information:

- A policy of offering ECV after 36 weeks will reduce the need for cesarean section surgery.
- Success is approximately 30% to 50%, and is dependent on the experience of the health care provider, as well as parity of the woman.
- The procedure may be safely repeated until the buttocks are deeply engaged in the pelvis, or rupture of membranes has occurred.
- Sedation and tocolysis may be used.

There are insufficient trials to assess the risks and benefits of epidural or spinal analgesia.

Assess fetal well-being prior to beginning the procedure. In addition to asking the woman about the fetus' movements, auscultate the fetal heart. If available, a 20 minute non-stress test or biophysical profile may also be carried out before the procedure is started.

Re-confirm the fetal position with careful abdominal palpation (Leopold's manoeuvres). If available, an ultrasound examination should be performed to confirm the position. In some settings, real-time ultrasound is done during the procedure to check progress and to monitor the FHR. In other settings, a second health care provider may monitor the fetus' well-being throughout the procedure using a Doppler or fetoscope.

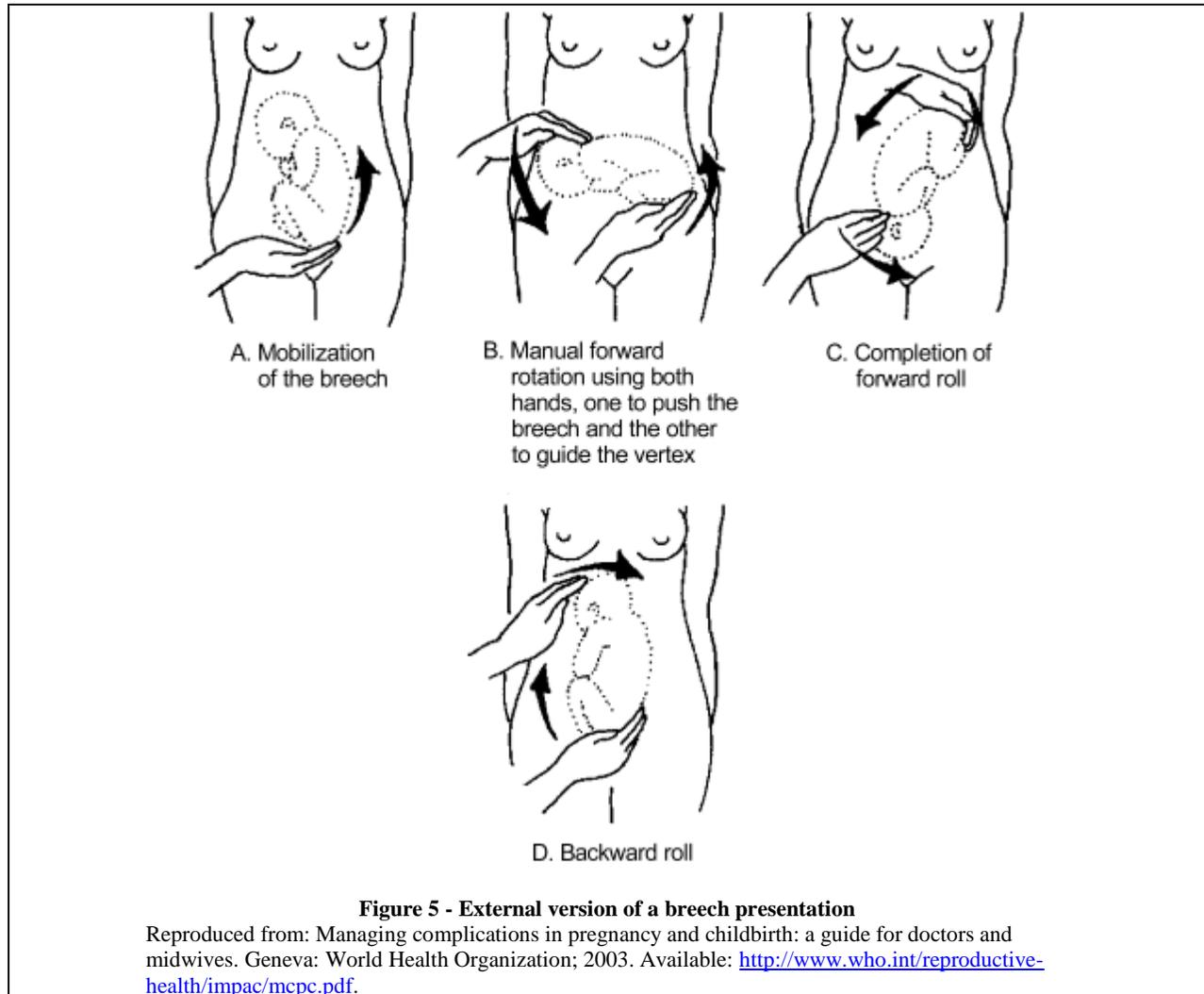
The abdomen may be lubricated with ultrasound gel or powder to make the procedure easier.

The first attempt may be made without uterine relaxation. Success may increase in subsequent attempts with the use of uterine relaxants. Nitroglycerin has been given in the same dose used for treating uterine hyperstimulation, although its efficacy is inconclusive and there have been reported side effects (Hofmeyr et al, 2004).

- No good evidence is available to support the use of IV nitroglycerin
- Sublingual nitroglycerin is not recommended by a Cochrane review because four small trials showed no efficacy and it was associated with significant side effects (Hofmeyr et al, 2004) (Bujold et al, 2003a) (Bujold et al, 2003b).

In the initial ECV attempt, the direction of rotation should be so that the fetus "follows its nose" (i.e. a forward roll) (Cunningham et al, 2005). Proceed as follows:

- Dislodge the buttocks from the pelvis, pushing upwards and then laterally.
- Grasp the head and direct it downwards.
- Slowly rotate the fetus by pushing upwards and to the side of the fetal back with the hand holding the buttocks, at the same time guiding the head downwards and to the opposite side.
- When the head reaches a lower level than the buttocks, manoeuvre the head over the pelvic inlet.
- If the forward roll attempt fails, a backward flip (i.e. the opposite direction) may be attempted.



Administer Rh immunoglobulin 300 µg to unsensitized Rh-negative women, where available.

Stop the procedure if the woman is too uncomfortable or the FHR is non-reassuring. Most non-reassuring FHR patterns will resolve. Ask the woman to turn onto her left side. Reassess the FHR every 5 minutes. If the FHR does not stabilize within the next 30 minutes, deliver by cesarean section.

It is recommended that fetal health monitoring be continued for a minimum of 20 minutes after an attempted ECV, whether or not the procedure was successful. Many health care providers have the woman walk for a short period (15 to 20 minutes) following the procedure, and then return to be examined to determine if version was successful. If version was successful, the woman should continue to receive antenatal care and await labour. If version was not successful, then discuss appropriate arrangements for her ongoing care including repeated attempts at ECV, and/or choice of delivery method.

The woman should be given advice about when to return to her health care provider. The woman should be encouraged to report any changes in fetal movement pattern, if she believes the baby has returned to the previous presentation, onset of contractions, and rupture of membranes, bloody show, or other signs of labour.

### **Intrapartum Management of Breech Presentation**

The management of the breech presentation continues to be controversial. Studies show that the standard of care for breech delivery is a cesarean section when available. In 2000, the Term Breech Trial was published. (Hannah et al, 2000) This trial was a multicentre RCT. Women, who were recruited from developed and developing countries with breech singleton pregnancies at term, were randomized to either a planned cesarean section or a planned vaginal birth. The trial was stopped early after the review of an interim analysis that showed a large reduction in risk of perinatal or neonatal mortality or serious neonatal morbidity with planned cesarean section. The final results (developed and developing countries) showed the rate of perinatal or neonatal mortality or serious neonatal morbidity to be 1.6% in the planned cesarean group and 5.0% in the planned vaginal birth group. Perinatal death was also reduced in the planned cesarean group (0.3% vs. 1.3%, RR 0.23, 95% CI: 0.07–0.81).

A Cochrane review of planned cesarean section for term breech delivery includes the findings from the Term Breech Trial and two prior much smaller trials, and confirms these findings. In the total sample (worldwide), perinatal or neonatal death (excluding fatal anomalies) was reduced overall (RR 0.29, 95% CI 0.10–0.86) with a policy of planned cesarean section (Hofmeyr, 2003).

### **Cochrane review of planned cesarean section for term breech delivery**

#### **In developed countries**

	<b>Planned CS</b>	<b>Planned vaginal birth</b>
Perinatal or neonatal death <sup>1</sup>	0/641 (0.0%)	4/694 (0.6%)
Serious short-term neonatal morbidity	2/514 (0.4%)	29/511 (5.7%)

Cochrane review, 2003

The reviewed trials indicate that a policy of planned cesarean section compared with planned vaginal was associated with a decrease in perinatal or neonatal death and/or neonatal morbidity. Among survivors, there was no significant difference in outcomes at age 2. As the long-term outcome following perinatal morbidity appeared good, the most relevant outcome is the reduction in perinatal and neonatal death. Based on this meta-analysis of all trials, one death would be prevented for every 112 cesarean sections planned.

For the mother, planned cesarean section was associated with a modest increase in short-term maternal morbidity. Outcomes at 2 years were similar between the two groups. The effects of cesarean section on longer-term outcomes, such as risks related to the scarred uterus, have not yet been addressed, nor have the cost implications (Hannah et al, 2004).

In all countries, but particularly in developing countries, and for reasons including patient choice, unsafe cesarean section conditions, advanced labour, or error in diagnosis, it is important that the skills of vaginal breech delivery be taught to and retained by all health care providers.

<sup>1</sup> Excludes fetal anomalies

### **Selection criteria**

The following are the selection criteria for planned vaginal breech delivery:

1. There is insufficient data on which to base a recommendation for frank or complete breech presentations when the estimated birth weight is more than 4,000 grams.
2. Planned vaginal birth could be recommended for either frank or complete breech presentations at 36 weeks gestation or more and/or when the estimated birth weight is 2,500 to 4,000 grams.
3. Planned vaginal birth could be offered for either frank or complete breech presentations at 31 to 35 weeks gestation and/or when the estimated birth weight is 1,500 to 2,500 grams.

The woman's wishes, in collaboration with the attending health care providers' judgment, should determine which delivery method is the most appropriate course of action.

Ultrasonography, when available, also provides the following useful information for decision-making:

- Amniotic fluid assessment
- Cord position
- Assessment for congenital anomalies
- Confirms placenta localization

Several criteria were examined and were felt not to be important in the selection of a patient for a trial of labour. These included parity, maternal age, pelvimetry, and medical and/or obstetrical complications.

### **Intrapartum management**

Where possible, women with a fetus in breech position should be referred to health care provider with experience with vaginal breech delivery and/or a facility that has a cesarean section capability. The primary health care provider should have an assistant immediately available to resuscitate the newborn. No systematic evidence exists on the outcomes of breech birth outside the hospital setting.

Head entrapment is a possibility with a baby in breech presentation. This is more likely to occur with a preterm baby. However, all health care providers undertaking responsibility for vaginal breech deliveries need to be aware of this possibility and have a plan for intervention. This may involve the use of the Mauriceau-Smellie-Veit manoeuvre, the application of forceps, or symphysiotomy.

The following intrapartum management issues should be taken into account when a vaginal breech delivery is considered:

- Induction of labour
- Augmentation of labour
- Duration of labour
- Intrapartum fetal monitoring
- Analgesia–anesthesia
- Amniotomy (artificial rupture of membranes)
- Delivery technique
- Intrapartum consultation

### **Management in labour**

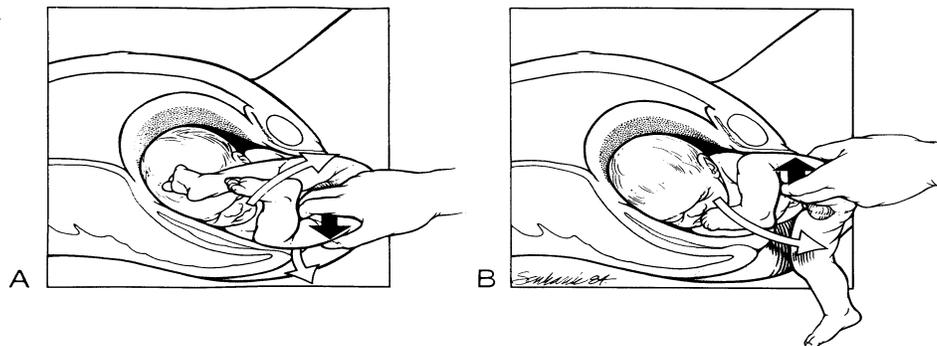
- Admission to a maternity unit in early labour or immediately after rupture of membranes
- Appropriate fetal monitoring
- Epidural for the usual indications
- Amniotomy for same indications as vertex presentation
- Immediate vaginal examination at rupture of membranes to rule out cord prolapse
- Assess labour progress and expect same progress as in vertex presentation

**Management at delivery**

- Experienced health care provider in newborn resuscitation should be present at the delivery
- Maternal bladder should be emptied just prior to delivery
- Selective episiotomy is preferable to routine episiotomy
- Ideally, a maternity health care provider with experience in breech delivery should be involved
- Forceps, if available, may be helpful to deliver the head

**Technique for vaginal breech delivery**

1. Explain the necessity of effective pushing in the second stage of labour.
2. Ensure adequate analgesia.
3. Spontaneous descent and expulsion to the umbilicus should occur with maternal pushing **only . . . DO NOT PULL ON THE BREECH!**
4. Rotation to the sacrum anterior position is desired and may be facilitated.
5. Episiotomy may be considered once the anterior buttock and anus are “crowning.”
6. If the legs do not deliver spontaneously, perform the Pinard manoeuvre. Do not attempt to extract the legs until the popliteal fossae are visible.

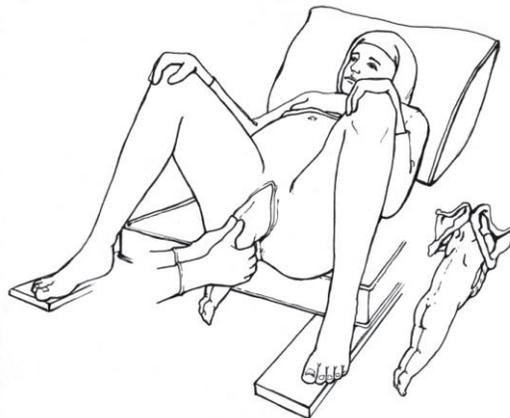


**Figure 6 - Pinard manoeuvre**

Reproduced from: Gabbe SG et al. *Obstetrics: normal and problem pregnancies*. 2<sup>nd</sup> ed. p. 479

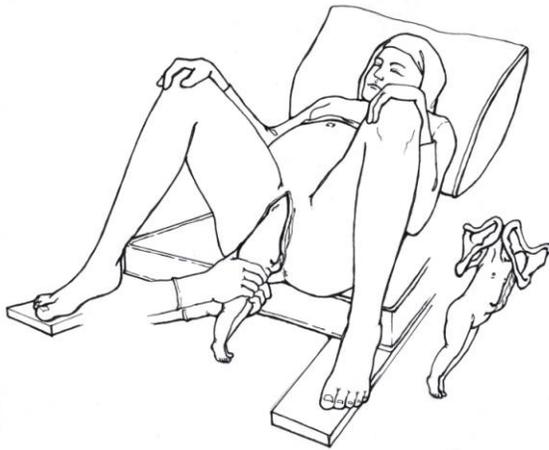
The Pinard manoeuvre is accomplished by inserting two fingers along one extremity to the knee, which is then pushed away from the midline (abducted) at the same time as flexing the leg at the hip. This causes spontaneous flexion of the knee and delivery of the foot.

7. Support the baby around the hips and have the woman push until the scapulae are visible. Do not hold the baby by the flank or abdomen, as this may cause kidney or liver damage. Do not pull on the breech or compress the woman’s abdomen. Maintain flexion of the fetal head by keeping the body below the horizontal.

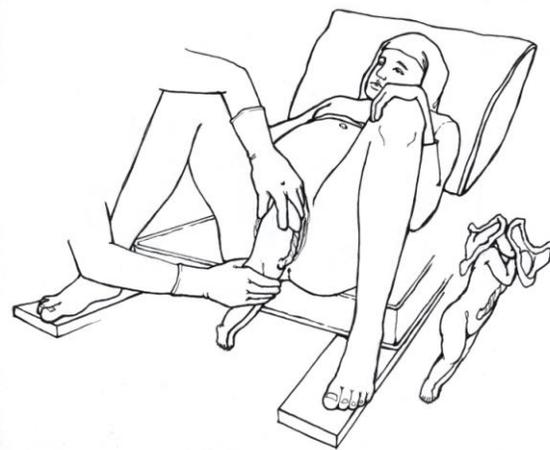


**Figure 7- Supporting the baby**

8. Rotate the body to facilitate delivery of the arms over the chest (Loveset manoeuvre).



Step 1



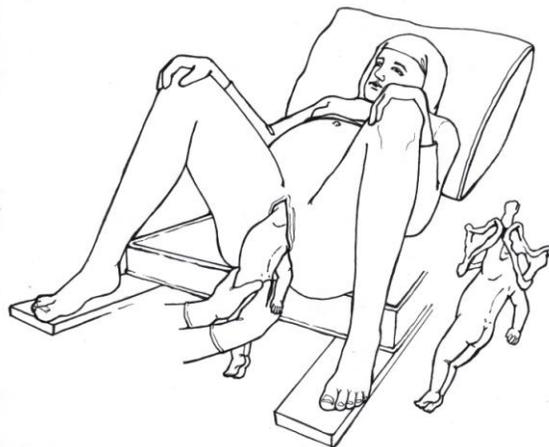
Step 2



Step 3



Step 4



Step 5



Step 6

9. Support the baby to maintain the head in a flexed position. Suprapubic pressure may help. Maternal expulsive efforts should be encouraged.

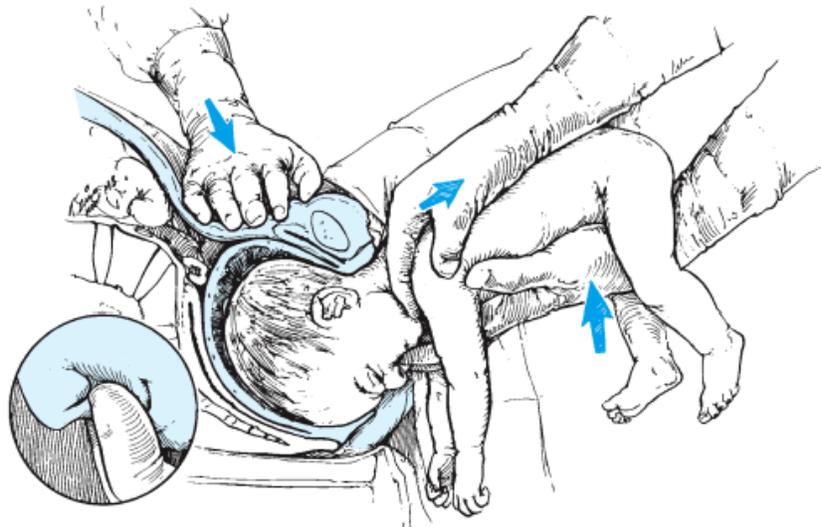
10. The body should be supported in a horizontal position or allowed to hang until the nape of the neck appears at the introitus (vaginal opening.).



**Figure 8 - Allowing the baby to hang until the nape of the neck appears**

11. Deliver the head.

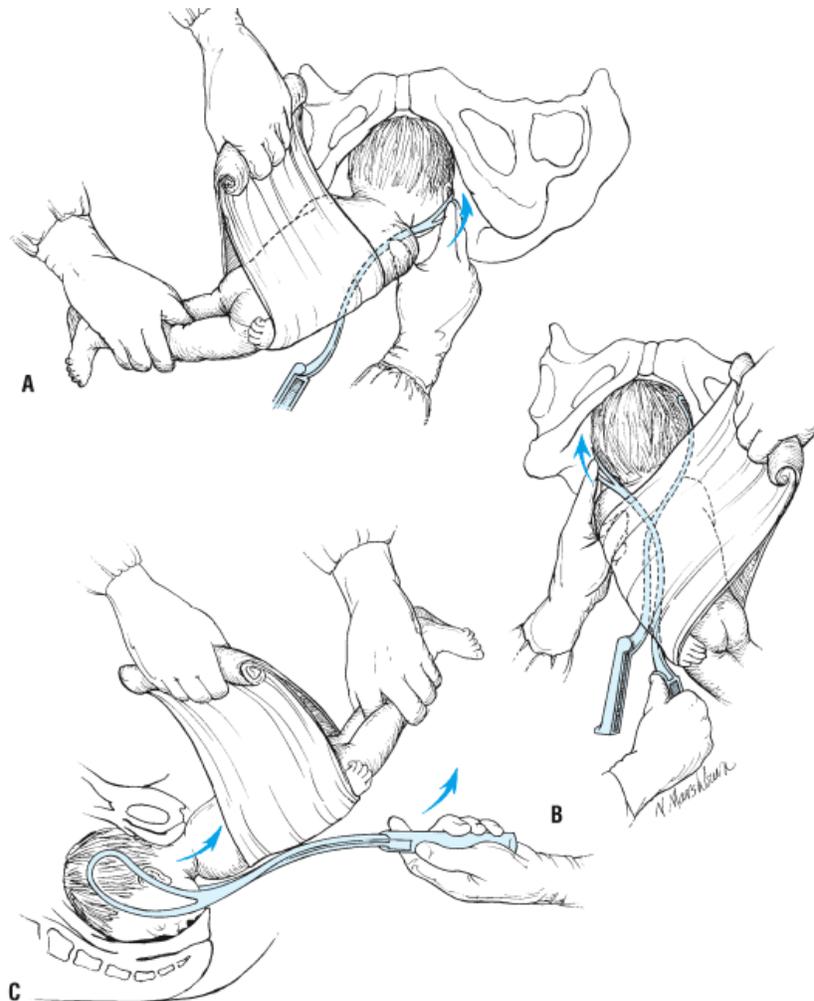
- a) Mauriceau-Smellie-Veit manoeuvre: Maintain the head in flexion by placing the attendant's fingers over the chin and malar eminences. An assistant may help the delivery by providing suprapubic pressure, as traction is applied primary health care provider.



**Figure 9 - Delivery of the aftercoming head using the Mauriceau manoeuvre**

Reproduced from: Breech presentation and delivery. In: Cunningham FG et al. *Williams obstetrics*. 22nd ed.

- b) Use forceps if needed. Piper's forceps were specifically designed for this purpose.



**Figure 10 - Piper forceps for delivery of the aftercoming head**

Reproduced from: Breech presentation and delivery. Cunningham FG et al. *Williams obstetrics*. 22nd ed.<sup>1</sup>

#### 12. Technique

- a) The fetal body is elevated using a warm towel and the left blade of the forceps is applied to the aftercoming head.
- b) The right blade is applied with the body still elevated.
- c) Forceps delivery of the aftercoming head is completed. Note the direction of movement shown by the arrows.

#### Head entrapment

Entrapment of the after coming head in a breech presentation is a very rare complication. It may occur with greater frequency with a preterm baby.

Delivery may be accomplished by symphysiotomy or by rapid cesarean section when attempts to deliver the after coming head are unsuccessful. Information on how to perform a symphysiotomy is found in Chapter 13 Shoulder Dystocia.

During preterm breech delivery, the trunk of the preterm baby may deliver through an incompletely dilated cervix. In this situation, lateral cervical incisions have been used to release the after coming head. Similar rates of head entrapment in the preterm fetus have been described for vaginal and abdominal delivery.

### **Care after Breech Delivery**

- Active Management of the Third Stage of Labour (AMTSL)
- Prepare for newborn resuscitation
- Umbilical arterial blood gas analysis, where laboratory facilities exist
- Examination for maternal trauma
- Examination for neonatal trauma
  - Examine the hips of the newborn with care at the time of the initial newborn exam
  - Repeat the examination in the immediate neonatal period and prior to discharge from care
- Review birth with the family
- Documentation

### **Documentation of Breech Delivery**

The indication, complete review of risks and benefits for vaginal delivery, and consent must be clearly and completely documented in all cases. A contemporaneous written note and a dictated operative record are recommended. The note must indicate whether the vaginal delivery was planned or was an incidental emergency vaginal birth.

This is a suggested format for a chart note. Detailed notes should be incorporated into both the woman's and the baby's charts. This suggested format may also serve as a template to dictate a delivery summary. If the woman was referred from another lower-level health care facility, this information should be included in a report letter to be sent to the referral facility.

- Date and time of birth
- Name of physician or other primary health care provider and experience with vaginal breech delivery
- Date and timing of ECV attempts and experience of health care provider
  - Use of tocolysis Yes/NO Drug used: \_\_\_\_\_
- Record of informed discussion with the woman of the risks, benefits, and options
- Type of breech at onset of labour
- Assessment of maternal pelvis
- Assessment of the FHR and contractions
- Type of analgesia or anesthesia used (if any)
- Manoeuvres performed to deliver baby
- Use of episiotomy, description and timing, details of repair
- Estimated time from birth to umbilicus to birth of head
- Delivery of aftercoming head:
  - Mauriceau-Smellie-Veit manoeuvre Yes/No
  - Forceps Yes/No
  - Symphysiotomy Yes/No
- APGAR scores
- Results of cord blood analysis, if done
- Neonatal resuscitation activities, if needed
- Description of maternal and neonatal injuries (if any)

**Key Messages**

1. The decision to perform an ECV involves providing informed choice to the woman regarding risks, benefits, and health care provider competencies
2. When a woman presents with a breech baby, a vaginal delivery should be encouraged if she meets the criteria.
3. Health care providers should develop and maintain their skills in vaginal breech delivery.

*Suggestion for Applying the Sexual and Reproductive Rights Approach to this Chapter*

Even in settings where cesarean section is easily available, take time to consider which mode of deliver is best for the woman and her baby. The woman should be fully involved in the decision-making process.

Health care providers may experience anxiety when responsible for managing a vaginal breech delivery. Experience will help to reduce stress. No matter how stressful the situation is for the health care provider, it is important to remember to care for the women with sensitivity.

Modifications to delivery techniques that will increase the woman's sense of dignity include having the woman place her feet onto the edge of the bed or delivery table or to use foot supports with her buttocks hanging over the edge of the table rather than using the lithotomy position with stirrups.

**Resources:**

- Breech presentation and delivery. In: Cunningham FG, Hauth JC, Leveno KJ, Gilstrap L, Bloom SL, Wenstrom KD, editors. Williams obstetrics. 22nd ed. New York: McGraw-Hill Medical Publishing Division; 2005. p.565-86.
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