**Breech presentation**

A **breech presentation** is when the fetus presents buttocks or feet first (rather than head first – a cephalic presentation).

It has significant implications in terms of delivery – especially if it occurs at term (>37 weeks). Breech deliveries carry a higher perinatal mortality and morbidity, largely due to birth asphyxia/trauma, prematurity and an increased incidence of congenital malformations.

In this article, we shall look at the risk factors, investigations and management of a breech presentation.

**Types of Breech Presentation**

In a breech presentation, the fetus presents ‘bottom down’. There are three main types, depending on the position of the legs:

* **Complete (flexed) breech** – both legs are flexed at the hips and knees (fetus appears to be sitting ‘crossed-legged’).
* **Frank (extended) breech**– both legs are flexed at the hip and extended at the knee. This is the most common type of breech presentation.
* **Footling breech**– one or both legs extended at the hip, so that the foot is the presenting part.

Approximately 20% of babies are breech at 28 weeks gestation. The majority of these revert to a cephalic presentation (head down) **spontaneously**, and only 3% are breech at term.



Fig 1 – The different types of breech presentation.

**Etiology and Risk Factors**

Most breech presentations seem to be chance occurrences. However, in up to 15% of cases, it may be due to fetal or uterine causes. The **risk factors** are listed below:

|  |  |
| --- | --- |
| **Uterine** | **Fetal** |
| MultiparityUterine malformations (e.g. septate uterus)FibroidsPlacenta praevia  | PrematurityMacrosomiaPolyhydramnios (raised amniotic fluid index)Twin pregnancy (or higher order)Abnormality (e.g. anencephaly) |

**Clinical Features**

The diagnosis of breech presentation is of limited significance prior to **32-35 weeks** (as the fetus is likely to revert to a cephalic presentation before delivery).

Breech presentation is usually identified on **clinical examination**. Upon the palpating the abdomen, the round fetal head can be felt in the upper part of the uterus, and an irregular mass (fetal buttocks and legs) in the pelvis.

Breech presentation can also be suspected if the fetal heart is **auscultated higher** on the maternal abdomen.

In around 20% of cases, breech presentation is not diagnosed until labour. This can present with signs of fetal distress, such as **meconium-stained liquor**. On vaginal examination, the sacrum or foot may be felt through the cervical opening.

**Differential Diagnosis**

There are two main differential diagnoses for a breech presentation:

* **Oblique lie** – the fetus is positioned diagonally in the uterus, with the head or buttocks in one iliac fossa.
* **Transverse lie** – the fetus is positioned across the uterus, with the head on one side of the pelvis and the buttocks on the other. The shoulder is usually the presenting part.

The other important diagnosis to consider is **unstable lie**. This is where the presentation of the fetus changes from day-to-day (and can include breech presentation). Unstable lie is more likely if there is known polyhydramnios or the woman is multiparous.

**Investigations**

Any suspected breech presentation should be confirmed by an**ultrasound scan** – which can also identify the type of breech (flexed/extended/footling). It can also reveal any fetal or uterine abnormalities that may predispose to breech presentation.

**Management**

At term, the options for management of breech presentation are (i) external cephalic version; (ii) Caesarean section; or iii) vaginal breech birth.

**External Cephalic Version**

**External cephalic version** is the manipulation of the fetus to a cephalic presentation through the maternal abdomen. This, if successful, can enable an attempt at vaginal delivery.

It has an approximate **40%** success rate in a primiparous woman, and a 60% success rate in a multiparous woman. In contrast, only 10% of breech presentations spontaneously revert to cephalic in primiparous women.

Complications of ECV include transient fetal heart abnormalities (which revert to normal), and rarer complications such as more persistent heart rate abnormalities (e.g fetal bradycardia), and **placental abruption**. The risk of the woman needing an emergency Caesarean is around 1/200.

External cephalic version is contraindicated in individuals with a recent antepartum haemorrhage, ruptured membranes, uterine abnormalities, or previous Caesarean section.



Fig 2 – External cephalic version.

**Caesarean Section**

If the external cephalic version is unsuccessful, contraindicated, or declined by the woman, current UK guidelines advise an elective **Caesarean delivery**.

This is based on evidence that perinatal morbidity and mortality is higher in cases of planned vaginal breech birth (compared to Caesarean) in **term babies**. There is no significant difference in maternal outcomes between the two groups.

The evidence for **preterm babies** is less clear, but generally C/S is preferred due to the increased head to abdominal circumference ratio in preterm babies.

**Vaginal Breech Birth**

A woman may still choose to aim for a **vaginal breech delivery**. Additionally, a small proportion of women with breech presentation present in advanced labour – with vaginal delivery the only option.

A **contraindication** to vaginal breech delivery is footling breech, as the feet and legs can slip through a non-fully dilated cervix, and the shoulders or head can then become trapped.

The most important advice when conducting a vaginal breech delivery is “**hand off the breech**”. This is because putting traction on the baby during delivery can cause the fetal head to extend, getting it trapped during delivery. The fetal sacrum does need to be maintained anteriorly, which can be done by holding the fetal pelvis. However, occasionally the baby does not deliver spontaneously, and some specific manoeuvres are required:

* **Flexing the fetal knees**to enable delivery of the legs.
* **Using Lovsett’s manoeuvre**to rotate the body and deliver the shoulders.
* **Using the Mauriceau-Smellie-Veit (MSV) manoeuvre**to deliver the head by flexion**.**
	+ The delivery of the aftercoming head can be challenging, but if MSV fails forceps can be used.

**Complications**

A major complication of breech presentation is **cord prolapse** (where the umbilical cord drops down below the presenting part of the baby, and becomes compressed). The incidence of cord prolapse is 1% in breech presentations, compared to 0.5% in cephalic presentations.

Other complications include:

* Fetal head entrapment
* Premature rupture of membranes
* Birth asphyxia – usually secondary to a delay in delivery.
* Intracranial haemorrhage – as a result of rapid compression of the head during delivery.

**Summary**

* 3% of babies are in breech presentation at term (>37 weeks), with a higher incidence in preterms.
* The main implication of breech presentation is on delivery.
* External cephalic version may be offered to turn the baby via the maternal abdomen to cephalic presentation. This is successful in around 50% of cases.
* If the baby remains breech, the options for delivery are by Caesarean section or vaginal breech.
* Current guidelines recommend Caesarean delivery, but a vaginal breech birth is possible with an experienced obstetrician or midwife.

**Malposition and Malpresentations**

Left and right occipito-anterior are the only normal presentations and positions.

* Malposition: occipito-posterior.
* Malpresentations: anything except vertex as face, brow, breech, shoulder, cord and complex presentations.

**Causes of Malpresentations and Malpositions**

* Defects in the powers:
	+ Pendulous abdomen: laxity of the abdominal muscles.
	+ Dextro-rotation of the uterus: rotation of the uterus in anti-clock wise favours occipito-posterior in right occipito-anterior position.
* Defects in the passages:
	+ Contracted pelvis.
	+ Android pelvis.
	+ Pelvic tumours.
	+ Uterine anomalies as bicornuate, septate or fibroid uterus.
	+ Placenta praevia.
* Defects in the passenger:
	+ Preterm fetus.
	+ Intrauterine foetal death.
	+ Macrosomia.
	+ Multiple pregnancy.
	+ Congenital anomalies as anencephaly and hydrocephalus.
	+ Polyhydramnios.
	+ Coils of the cord around the neck favours face presentation.

**Signs Suggestive of Malpresentations**

* Pendulous abdomen.
* Nonengagement of the presenting part in the last 3-4 weeks in primigravida.
* Premature rupture of membranes or its rupture early in labour.
* Delay in the descent of the presenting part during labour.
* Vaginal examination, X-ray or ultrasonography are more conclusive.

**Complications of Malpresentations and Malpositions**

* Premature rupture of membranes or its rupture early in labour.
* Cord presentation and prolapse.
* Prolonged labour due to hypotonic or hypertonic inertia.
* Obstructed labour with higher incidence of rupture uterus.
* Increased incidence of instrumental and operative delivery.
* Increased incidence of trauma to the genital tract.
* Increased incidence of postpartum haemorrhage and puerperal infection.
* Increased incidence of perinatal mortality.

**OCCIPITO-POSTERIOR POSITION**

**Definition**

It is a vertex presentation with foetal back directed posteriorly.

Incidence

10% at onset of labour.

Right occipito-posterior (ROP) is more common than left occipito-posterior (LOP) because:

* The left oblique diameter is reduced by the presence of sigmoid colon.
* The right oblique diameter is slightly longer than the left one.
* Dextro-rotation of the uterus favours occipito-posterior in right occipito-anterior position.

**Etiology**

* The shape of the pelvis: anthropoid and android pelvises are the most common cause of occipito-posterior due to narrow fore-pelvis.
* Maternal kyphosis: The convexity of the foetal back fits with the concavity of the lumbar kyphosis.
* Anterior insertion of the placenta: the fetus usually faces the placenta (doubtful).
* Other causes of malpresentations: as
	+ placenta praevia,
	+ pelvic tumours,
	+ pendulous abdomen,
	+ polyhydramnios,
	+ multiple pregnancy.

**Diagnosis**

*During pregnancy*

* *Inspection:*
	+ The abdomen looks flattened below the umbilicus due to absence of round contour of the foetal back.
	+ A groove may be seen below the umbilicus corresponding to the neck.
	+ Foetal movement may be detected near the middle line.
* *Palpation:*
	+ Fundal grip:
		- The breech is felt as a soft, bulky, irregular non-ballotable mass.
	+ Umbilical grip:
		- The back felt with difficulty in the flank away from the middle line.
		- The anterior shoulder is at least 3 inches from the middle line.
		- The limbs are easily felt near, or on both sides, of the middle line.
	+ First pelvic grip:
		- The head is usually not engaged due to deflexion.
		- The head is felt smaller and escapes easily from the palpating fingers as they catch the bitemporal diameter instead of the biparietal diameter in occipito-anterior.
	+ Second pelvic grip:
		- The head is usually deflexed.
* *Auscultation:*
	+ FHS are heard in the flank away from the middle line.
	+ In major degree of deflexion, the FHS may be heard in middle line.
* Ultrasonography or lateral view x-ray.

*During labour*

In addition to the previous findings vaginal examination reveals:

* The direction of the occiput.
* The degree of deflexion.

**Mechanism of Labour**

A certain degree of deflexion is present due to:

* Opposition of the two convexities of the foetal and maternal spines prevents flexion and promotes deflexion.
* The longer biparietal diameter (9.5cm) enters the narrow sacro-cotyloid diameter (9cm) while the shorter bitemporal diameter (8cm) enters the longer oblique diameter (12cm).

As a result of deflexion, the occipito-frontal diameter 11.5 cm enters the pelvis leading to delayed engagement.

Taking in consideration the rule that the part of the fetus that meets the pelvic floor first will rotate anteriorly, the degree of deflexion determines the mechanism of labour as follow:

Normal mechanism (90%)

Deflexion is corrected and complete flexion occurs. The occiput meets the pelvic floor first, long anterior rotation 3/8 circle occurs bringing the occiput anteriorly and the fetus is delivered normally.

Abnormal mechanism (10%)

* Deep transverse arrest (1%):
	+ In mild deflexion, the occiput rotates 1/8 circle anteriorly and the head is arrested in the transverse diameter.
* Persistent occipito-posterior (3%):
	+ In moderate deflexion, the occiput and sinciput meet the pelvic floor simultaneously, no internal rotation and the head persists in the oblique diameter.
* Direct occipito-posterior (face to bubis) (6%):
	+ In marked deflexion, the sinciput meets the pelvic floor first, rotates 1/8 circle anteriorly and the occiput becomes direct posterior.
		- In deep transverse arrest and persistent occipito-posterior no further progress occurs and labour is obstructed as the head cannot be delivered spontaneously.
		- In direct occipito-posterior, the head can be delivered by flexion supposing that the uterine contractions are strong and there is no contracted pelvis. However, perineal lacerations are more liable to occur as:
			* the vulva is distended by the large occipito-frontal diameter 11.5 cm,
			* the perineum is overstretched by the large occiput.

**Factors favour long anterior rotation**

* Well flexed head
* Good uterine contractions.
* Roomy pelvis.
* Good pelvic floor.
* No premature rupture of membranes.

Causes of failure of long anterior rotation

* Deflexed head.
* Uterine inertia.
* Contracted pelvis: rotation of the head cannot easily occur in android pelvis due to projection of the ischial spines and convergence of the side walls.
* Lax or rigid pelvic floor.
* Premature rupture of membranes or its rupture early in labour.

**Management of Labour**

First stage

* Exclude contracted pelvis.
* Exclude presentation or prolapse of the cord.
* Inertia and prolonged labour are expected so oxytocin may be indicated unless there is contraindication.
* Contractions are sustained, irregular and accompanied by marked backache which needs analgesia as pethidine or epidural analgesia.
* Avoid premature rupture of membranes by:-
	+ rest in bed,
	+ no straining,
	+ avoid high enema,
	+ minimise vaginal examinations.
* The other management and observations as in normal labour.

Second stage

* Wait for 60-90 minutes.
* During this period:
	+ Observe the mother and fetus carefully.
	+ Combat inertia by oxytocin unless it is contraindicated.
* Contraindications of oxytocins:
	+ Disproportion.
	+ Incoordinate uterine action.
	+ Uterine scar e.g. previous C.S, hysterotomy, myomectomy, metroplasty or previous perforation.
	+ Grand multipara.
	+ Foetal distress.
* One of the following will occur:
	+ Long internal rotation 3/8 circle:
		- occurs in about 90% of cases and delivery is completed as in normal labour.
	+ Direct occipito-posterior (face to pubis):
		- occurs in about 6% of cases.
		- the head can be delivered spontaneously or by aid of outlet forceps.
		- Episiotomy is done to avoid perineal laceration.
	+ Deep transverse arrest (1%) and persistent occipito-posterior (3%):
		- The labour is obstructed and one of the following should be done:
			* Vacuum extraction (ventouse):
				+ Proper application as near as possible to the occiput will promote flexion of the head.
				+ Traction will guide the head into the pelvis till it meets the pelvic floor where it will rotate.
			* Manual rotation and extraction by forceps:
				+ Under general anaesthesia the following steps are done:
				+ Disimpaction: the head is grasped bitemporally and pushed slightly upwards.
				+ Flexion of the head.
				+ Rotation of the occiput anteriorly by the right hand vaginally aided by,

Rotation of the anterior shoulder abdominally towards the middle line by the left hand or an assistant.

Fix the head abdominally by an assistant, apply forceps and extract it.

* + - * Rotation and extraction by a forceps:
				+ Kielland’s forceps:

Single application for rotation and extraction of the head as this forceps has a minimal pelvic curve.

* + - * + Barton’s forceps:

Originally was designed for deep transverse arrest.

It has a hinge in one blade between the blade proper and shank to facilitate application.

The axis of the handle to that of the blades is 55o i.e. the angle of the pelvic inlet to the outlet.

It is used for rotation only then conventional forceps is applied for extraction unless it has an axis traction piece so it can be used for rotation and extraction.

* + - * + Scanzoni double application:

The conventional forceps is applied to rotate the occiput anteriorly then the forceps is removed and reapplied so that the pelvic curve of the forceps is directed anteriorly and extract the head.

This method is out of modern obstetrics as it is hazardous to the mother and fetus.

* + - * + N.B. The head should be engaged for manual or forceps rotation to be done.
			* Caesarean section:
				+ It is indicated in:

Failure of the above methods.

Other indications for C.S. as;

contracted pelvis,

placenta praevia,

prolapsed pulsating cord before full cervical dilatation, and

elderly primigravida.

* + - * Craniotomy:
				+ if the fetus is dead.

Actually speaking, the methods used in modern obstetrics are vacuum extraction and Caesarean section.

Complications

See complications of malpresentations and malposition (mentioned before).