

Abnormal labour

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Overview

- Labour becomes abnormal when there is poor progress (as evidenced by a delay in cervical dilatation or descent of the presenting part) and/or the fetus shows signs of compromise
- Also, if there is a fetal malpresentation, a multiple pregnancy, a uterine scar or if labour has been induced, labour cannot be considered normal

- Progress in labour is dependent on the '3 Ps' : powers, passages, and passenger
- Abnormalities in one or more of these factors can slow the normal progress of labour

The
3P's

Poor progress in the first stage of labour

- Poor progress in the first stage of labour has been defined as cervical dilatation of less than 2 cm in 4 hours, usually associated with failure of descent and rotation of the fetal head
- It may relate to the powers, the passages or the passenger

1. Dysfunctional uterine activity 'powers'

- The most common cause of poor progress in labour
- The assessment of uterine contractions is most commonly carried out by clinical examination and by using external uterine tocography
- Intrauterine pressure catheters are available and give a more accurate measurement of the pressure being generated by the contractions, but they are invasive and rarely necessary
- **A frequency of three to five contractions per 10 minutes is usually considered ideal, with each lasting 45-60 seconds**

- If delay is **suspected**: offer amniotomy (artificial rupture of membranes) and repeat vaginal examination in 2 hours
- If progress was < 1 cm after 2 hours, delay is **confirmed**:
 1. Consider use of oxytocin
 - If oxytocin is used, ensure that the time between increments of the dose is no more frequent than every 30 minutes. Increase oxytocin until there are 4–5 contractions in 10minutes
 2. If progress fails to occur despite 4–6 hours of augmentation with oxytocin, a caesarean section will usually be recommended

2. Cephalopelvic disproportion (CPD) 'passages' and 'passenger'

- CPD implies anatomical disproportion between the fetal head and maternal pelvis (it can be due to a large head, small pelvis or a combination of the two relative to each other)
- **CPD can not be diagnosed definitively except after failed trial of labour**

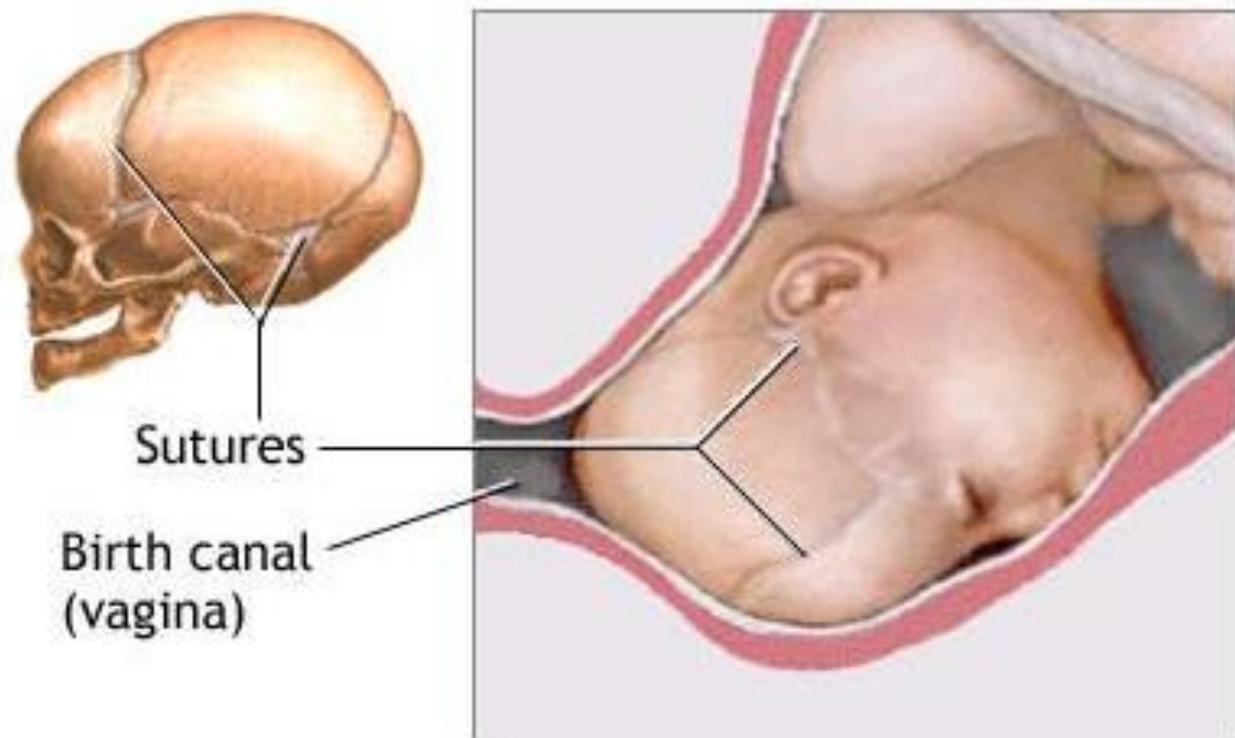
- Causes of CPD:

1. Large fetus (constitutional, GDM, postmaturity)
2. Abnormal fetal position (occipitoposterior)
3. Unusually small pelvis (previous fractures, metabolic bone disease)
4. Contracted pelvis
 - Pelvis of a size and/or shape that insufficient for vaginal delivery of a normal sized fetus
5. Obstructive masses in the maternal pelvis or in the fetus (hydrocephalus or fetal goitre)

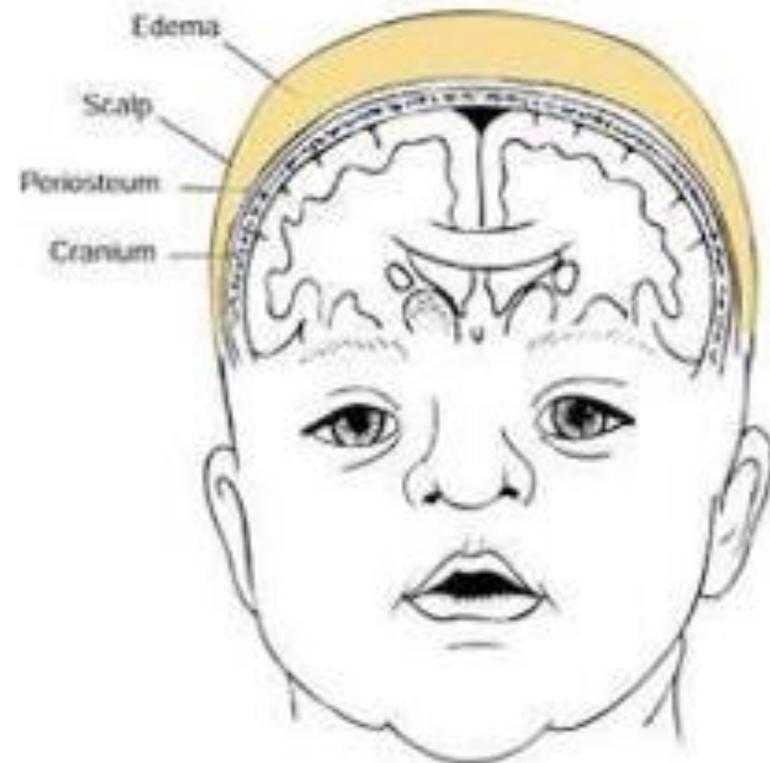
Findings suggestive of CPD

- Fetal head is not engaged.
 - Progress is slow or arrests despite efficient uterine contractions.
 - Vaginal examination shows severe moulding and caput formation.
 - Head is poorly applied to the cervix.
 - Haematuria.
-
- **Moulding:** pressure on the head caused by the tight birth canal may "mold" the head into an oblong rather than round shape (overriding sutures)
 - **Caput:** diffuse swelling of the fetal scalp caused by the pressure of the scalp against the dilating cervix during labour

Fetal head molding



Caput Succedaneum

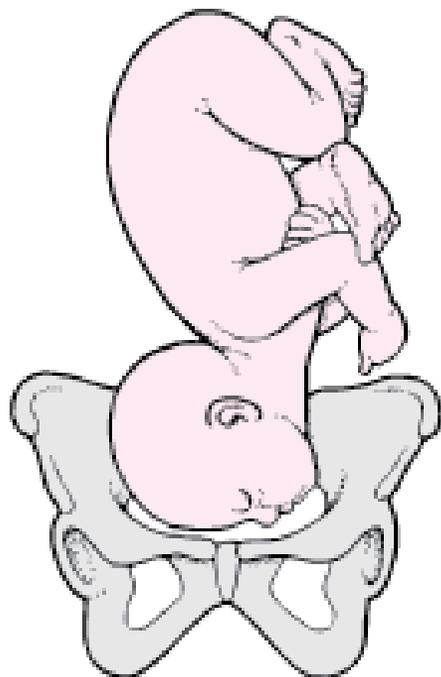


3. Malpresentation 'passenger'

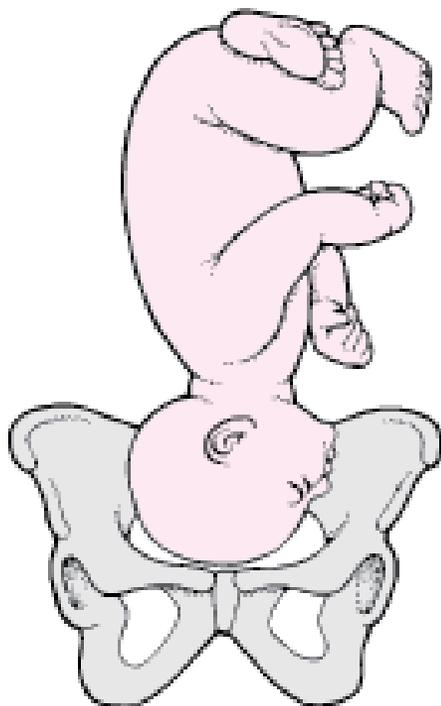
- A firm application of the fetal presenting part on to the cervix is necessary for good progress in labour

- **Risk factors** for malpresentation are conditions that decrease the polarity of the uterus, increase or decrease fetal mobility, or block the presenting part from the pelvis
 - Maternal factors include grand multiparity, pelvic tumors, uterine fibroids, pelvic contracture, and uterine malformations.
 - Fetal factors include prematurity, multiple gestation, polyhydramnios or oligohydramnios, macrosomia, placenta previa, hydrocephaly, aneuploidy, anencephaly, and myotonic dystrophy

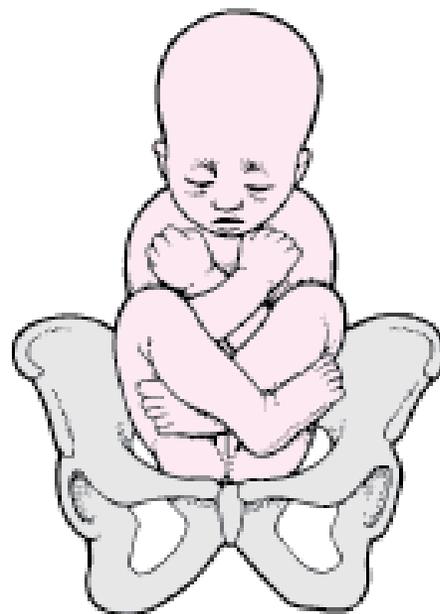
Face



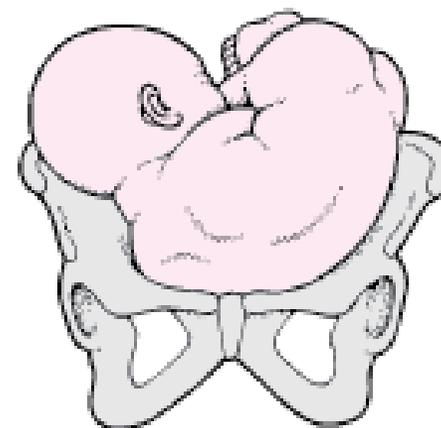
Brow



Breech



Shoulder



Abnormal Presentations

- Breech presentation

- Breech presentation occurs when the cephalic pole is in the uterine fundus
- The incidence of breech presentation is 30% of pregnancies at 28 weeks' gestation, and 3-4% of term pregnancies in labour

- The three types of breech presentation are the following:
 - Frank breech (50-70%) occurs when both hips are flexed and both knees are extended.
 - Complete breech (5-10%) occurs when the fetus is flexed at the hips and flexed at the knees.
 - Incomplete, or footling breech (10-30%) occurs when the fetus has one or both hips extended

Variations of the breech presentation



Complete
breech



Incomplete
breech



Frank
breech



Footling

- Risks of breech presentation include:
 - Cord prolapse (15% in footling breech, 5% in complete breech, and 0.5% in frank breech)
 - Head entrapment
 - Spinal cord injury (with neck hyperextension)

- Delivery of a fetus in a breech presentation:
 1. External cephalic version and then allow vaginal delivery
 2. Cesarean section
 3. Breech vaginal delivery

- **External cephalic version:**

- External cephalic version (ECV) is the manipulation of the fetus, through the maternal abdomen, to a cephalic presentation
- Indication is persistent breech presentation at term. The version is performed to avoid malpresentation in labour
- Done at 36-37 weeks' gestation

- Spontaneous version from breech to cephalic at term is about 8%
- Overall success rates are greater for multiparous women (60%) than for nulliparous women (40%)
- Reversion from cephalic to breech after successful ECV is rare (3%)

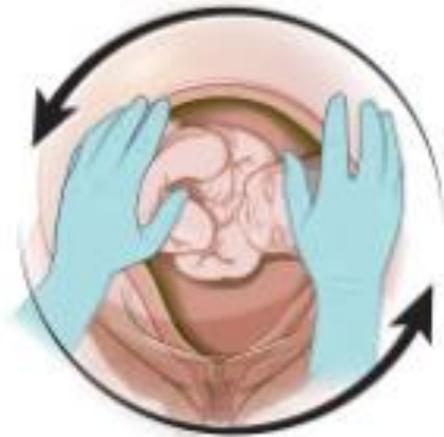
- Risks of ECV include:
 - The most common “risk” is failed version
 - Compromised umbilical blood flow
 - Placental abruption
 - Fetal distress
 - Fetal injury
 - Premature rupture of membranes
 - Fetomaternal bleeding

- Prerequisites include reactive nonstress test and informed consent
- Ultrasonographic guidance is an important adjunct to confirm position and monitor FHR
- Tocolysis and spinal or epidural anesthesia may improve success rates

- Contraindications to external cephalic version include conditions in which labour or vaginal delivery would be contraindicated
- Version is not generally recommended in cases of ruptured membranes, third-trimester bleeding, oligohydramnios, multiple gestations, or after labour has begun



Breech position



Transverse lie



Head-down position

Version is generally accomplished by applying a liberal amount of lubrication to the maternal abdomen, then transabdominally grasping the fetal head and fetal breech, and manipulating the fetus through a forward or backward roll

- After the procedure, the patient should be monitored continuously until the FHR is reactive, no decelerations are present, and no evidence of regular contractions exists
- Rh-negative patients should receive Rh o (D) immune globulin after the procedure because of the potential for fetomaternal bleeding

- **Breech vaginal delivery:**

- It poses increased risk of fetal asphyxia, cord prolapse, and mortality. Planned vaginal breech delivery is not routinely offered but with careful selection and evaluation may be permitted

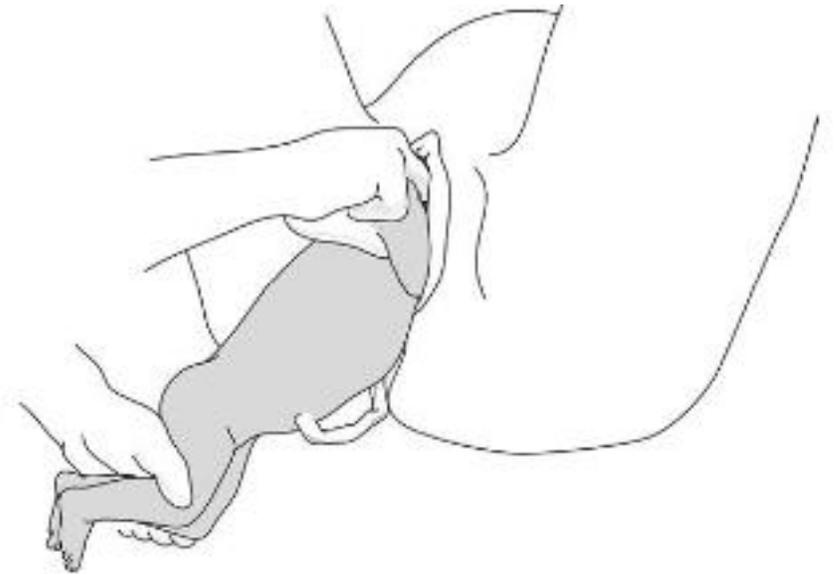
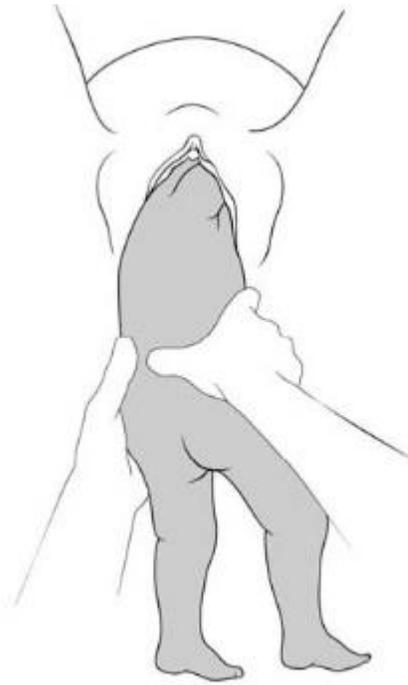
- A trial of labour may be attempted if:
 - The breech is frank or complete
 - The estimated fetal weight is ≤ 3800 g
 - Pelvis is deemed adequate
 - The fetal head is flexed
 - Anesthesia is immediately available
 - The fetus is continuously monitored
 - A pediatrician is available
 - An obstetrician is available who is experienced with vaginal breech delivery

- In breech presentation, the fetus usually emerges in the sacrum transverse or oblique position
- As crowning occurs (the bitrochanteric diameter passes under the symphysis), an episiotomy can be considered
- When the umbilicus appears, place fingers medial to each thigh and press out laterally to deliver the legs (**Pinard manoeuvre**)
- The fetus should then be rotated to the sacrum anterior position, and the trunk can be wrapped in a towel to allow for application of downward traction. When the infant's scapulae appear, the arms can be delivered

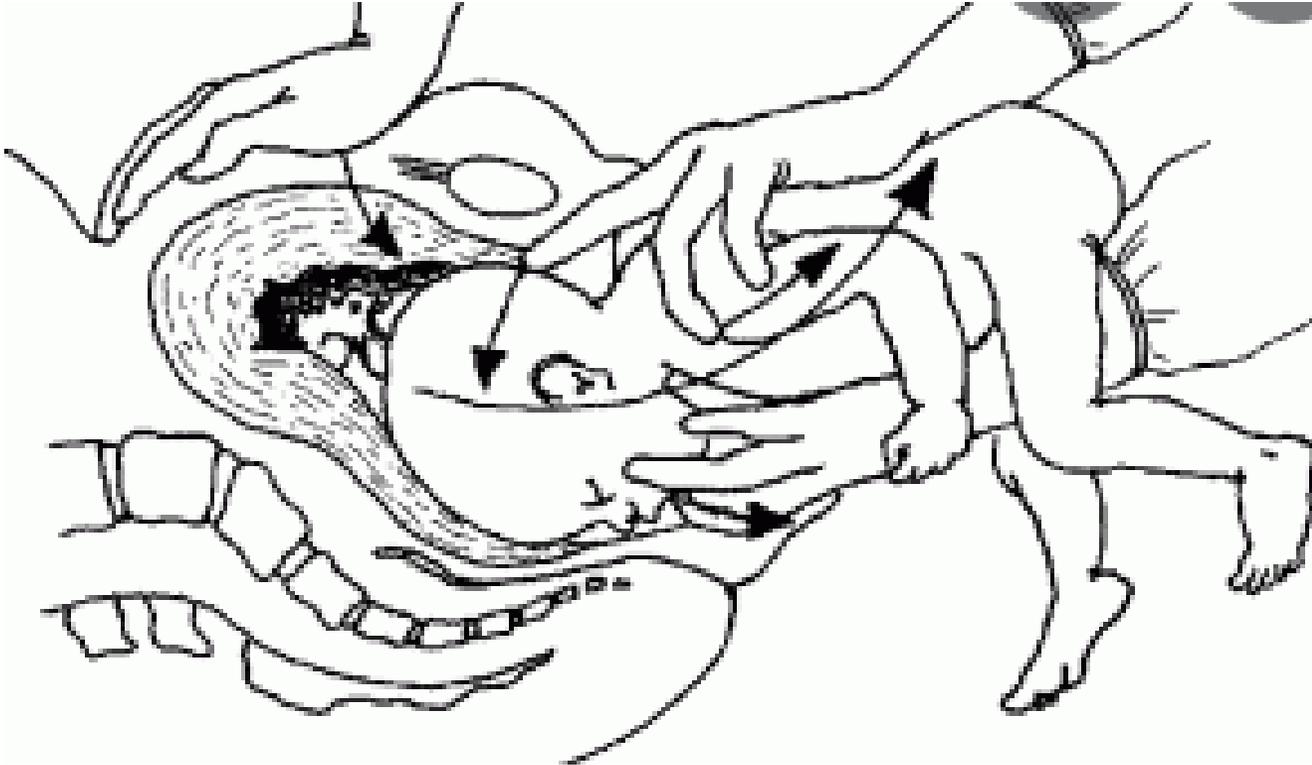


Pinard manoeuvre

- The fetus is rotated so that the shoulder is anterior, the humerus followed down, and each arm swept across the chest and out (**Lovset manoeuvre**).
- If the head does not deliver spontaneously, the head may be flexed by placing downward traction and pressure on the maxillary ridge (**Mauriceau-Smellie-Veit manoeuvre**). Direct vertical suprapubic pressure may also be applied. Piper forceps may be used to assist in delivery of the head.



Lovset manoeuvre



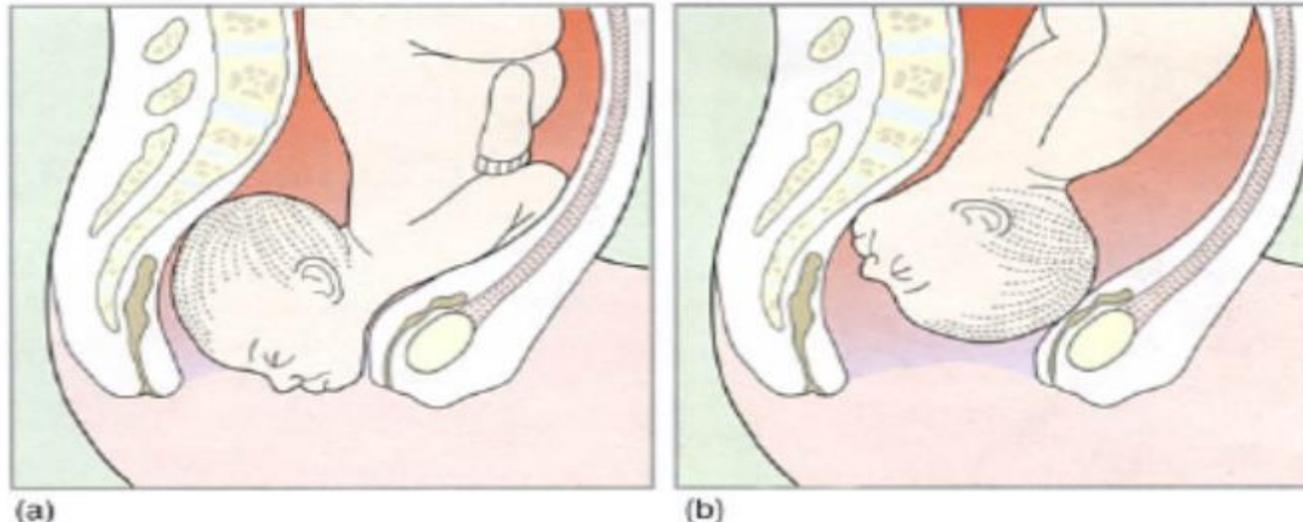
Mauriceau-Smellie-Veit manoeuvre

- Face presentation:

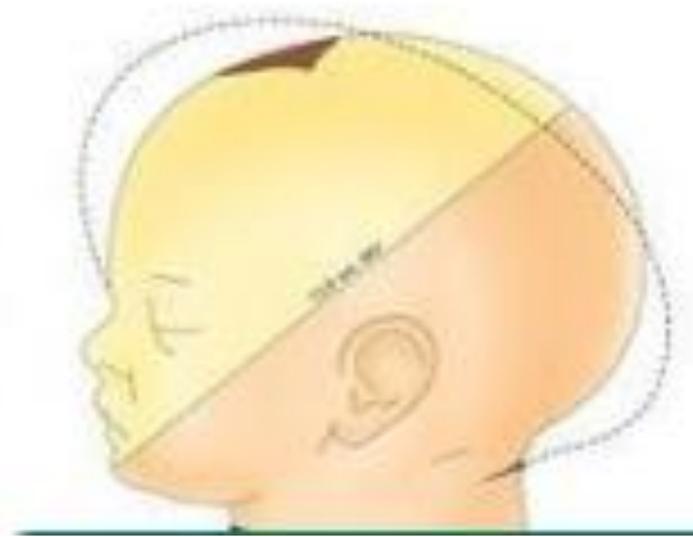
- Face presentation results from extension of the fetal neck. The chin (mentum) is the presenting part
- Occurs in about 1 in 500 labours
- Face presentation may be diagnosed by vaginal examination or ultrasonography

- The fetus must be mentum (chin) anterior for a vaginal delivery to allow for flexion of the fetal head and successful vaginal delivery. Mentum posterior should be managed by Cesarean delivery

Face:presentation .a)mento-anterior delivery (possible
.b mento-posterior delivery) .(impossible

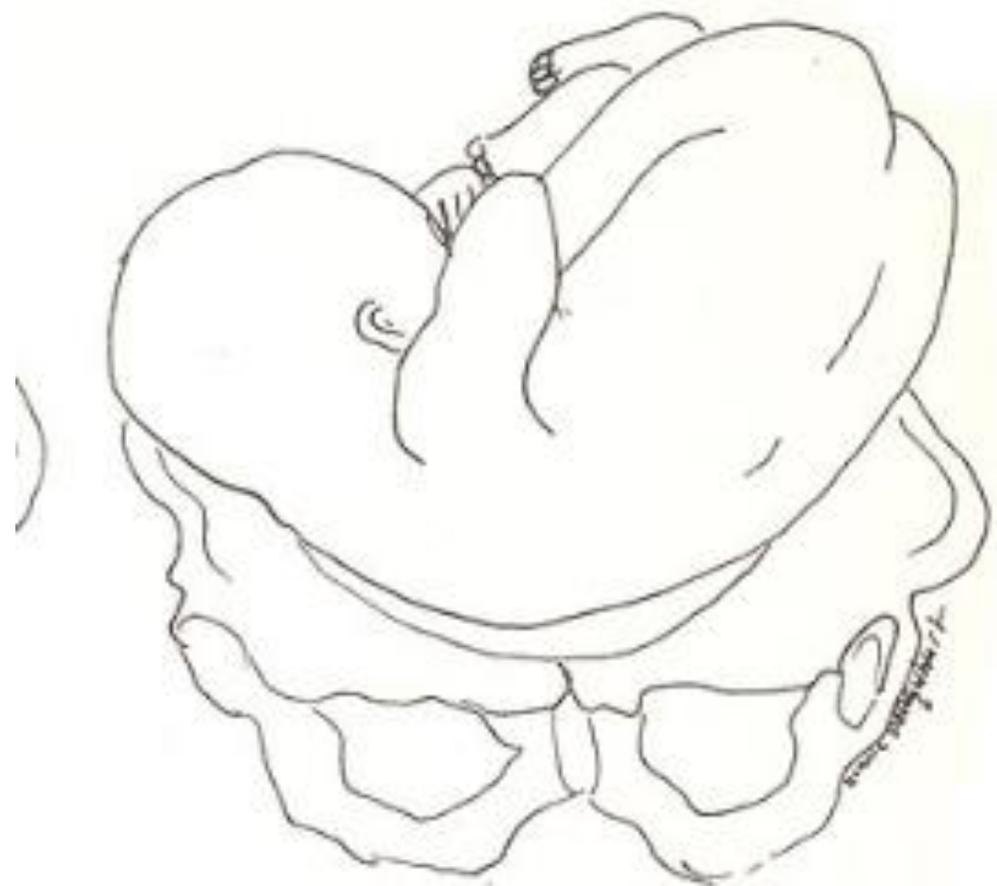


- **Brow presentation:**
- Brow presentation results from partial deflexion of the fetal neck
- The majority of cases spontaneously convert to a flexed attitude
- A vaginal delivery of a persistent brow presentation is not possible and managed by cesarean section



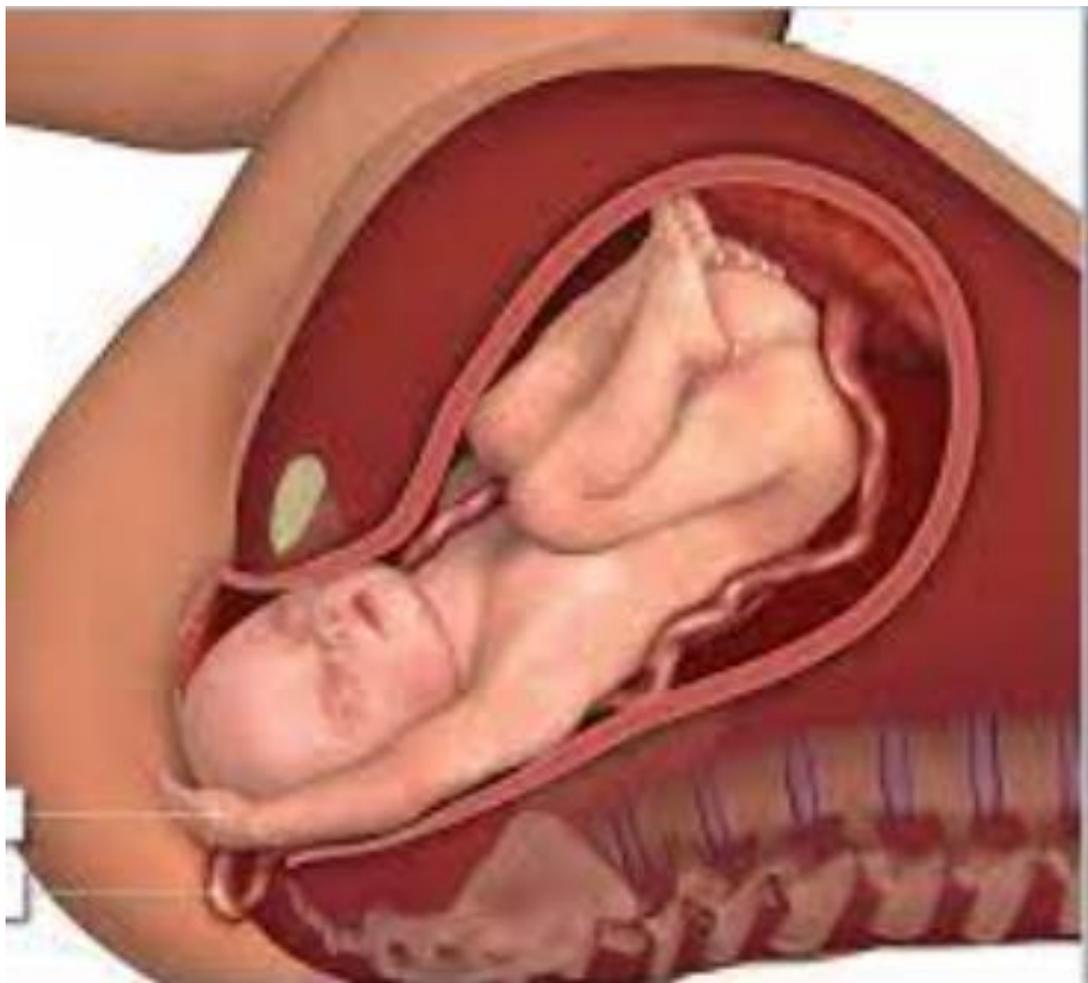
- **Shoulder presentation:**

- Shoulder presentation occurs as the result of a transverse or oblique lie of the fetus and the causes of this abnormal presentation include placenta praevia, high parity, pelvic tumour and uterine anomaly
- Delivery should be by caesarean section.
- Delay in making the diagnosis risks cord prolapse and uterine rupture



- Compound presentation:
- Compound presentation occurs when an extremity prolapses beside the presenting part
- Fetal risks are cord prolapse in 10% to 20% of cases and birth trauma including neurologic and musculoskeletal damage to the involved extremity

- The prolapsing extremity should not be manipulated
- Continuous fetal monitoring is recommended because compound presentation can be associated with occult cord prolapse
- Spontaneous vaginal delivery occurs in 75% of vertex/upper extremity presentations
- Cesarean section is indicated in cases of non-reassuring FHT, cord prolapse, and failure of labour to progress



Presentation	Management
Breech	Vaginal delivery \pm ECV/ Caesarean section
Face	Vaginal delivery (chin- anterior)/ Caesarean section)chin- posterior)
Brow	Caesarean section

Poor progress in the second stage of labour

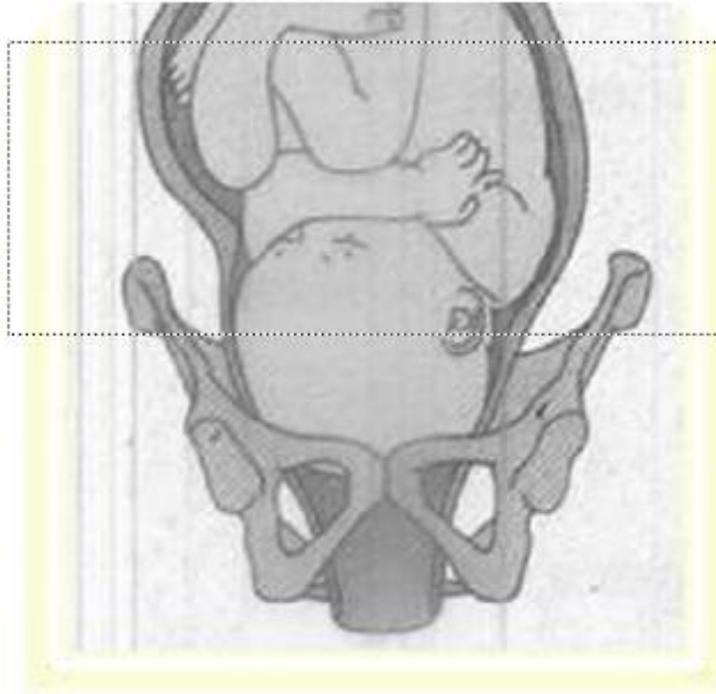
- Birth of the baby is expected to take place within 3 hours of the start of the second stage in nulliparous women and 2 hours in parous women
- Delay is diagnosed if delivery is not imminent after 2 hours of pushing in a nulliparous labour and 1 hour for a parous woman

- **Secondary dysfunctional uterine activity ('powers'):**
- A common cause of second stage delay, and may be exacerbated by epidural analgesia
- If no mechanical problem is anticipated, the treatment is with rehydration and intravenous oxytocin

- **'Passages':**

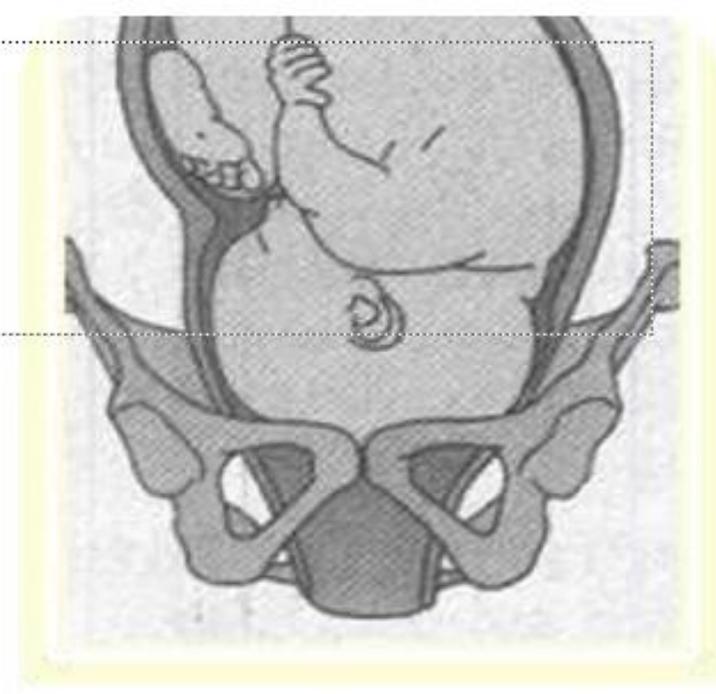
- Delay in the second stage can occur because of a narrow midpelvis (android pelvis), which prevents internal rotation of the fetal head
- It may also occur due to a resistant perineum, particularly in a nulliparous woman

- **Malposition 'passenger':**
- Any position other than occipitoanterior
- Complicates around 10% of labours



Occiput Posterior

Arrested labor may occur when the head does not rotate and/or descend. Delivery may be complicated by perineal tears or extension of an episiotomy.



Occiput Transverse

It is the incomplete rotation of OP to OA results in the fetal head being in a horizontal or transverse position (OT).

- Occipitoposterior:

- Abnormal position of the vertex where occiput is posterior over the sacro-iliac joint or directly over the sacrum
- Persistent occipitoposterior results from failure of rotation

- Diagnosis : prolonged second stage of labour
 - Abdominal exam: flat lower abdomen, difficult to palpate fetal back, fetal limbs are palpable anteriorly, and fetal heart may be heard in the flanks
 - Vaginal exam: posterior fontanel towards the sacro-iliac joint, anterior fontanel is easily felt if flexed head, marked moulding with caput and difficulty to assess station and position

- 90% spontaneous rotation to OA, specially if good uterine contractions, adequate pelvis, and average fetal size
- Management: instrumental delivery or CS if deep arrest

Management options for delay in the second stage of labour:

- Continued pushing with encouragement.
- Regular reviews of progress and fetal wellbeing.
- Oxytocin to augment contractions.
- Episiotomy for a resistant perineum.
- Instrumental vaginal birth (forceps or ventouse/vacuum).
- Caesarean section.

Obstructed labour

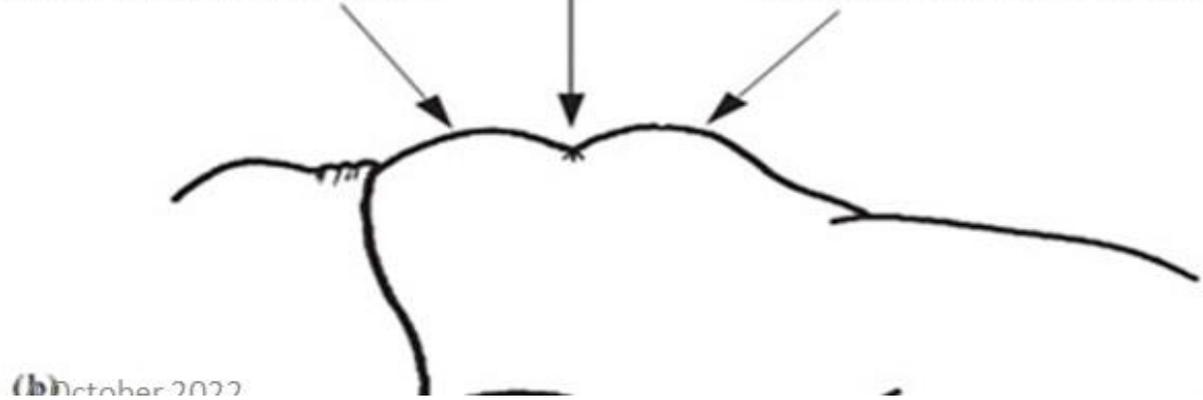
- Is arrest of vaginal delivery of the fetus due to mechanical obstruction
- It occurs when the uterus is contracting strongly, but there is arrest of cervical dilatation and descent of the fetal head
- **Bandl's ring** is a late sign of obstructed labour, the depression can be seen on the abdomen at the level of the umbilicus. It signifies impending rupture of the lower uterine segment.



Normal shape of the abdomen



Retracted upper uterine segment, Bandl's ring, Distended lower uterine segment



- Complications :

- Uterine rupture
- Recto-vaginal & vesico-vaginal fistula
- Pelvic floor injury
- Pelvic organ prolapse
- Intrapartum infection
- Nerve injury
- Caput seccudenum

- Management:

- Stabilisation

- Delivery by cesarean section

Precipitate labour

- Strong and frequent contractions causing abnormally rapid progress of labour and delivery
- Risk factors :
 - Strong uterine contractions
 - Small sized baby
 - Minimal soft tissue resistance
 - Previous history of precipitate labour

- Management:

- Discontinue oxytocin
- Episiotomy? (to avoid ICH and birth canal injuries)
- Observe mother for PPH after delivery

- Maternal complications:
 - Laceration: Cervix, vagina, and perineum.
 - Uterine inversion – PPH
 - Uterine atony – PPH
 - Amniotic fluid embolism
 - Infection (as a result of unsterile delivery)
- Fetal complications:
 - Intracranial hemorrhage
 - Fetal distress
 - Delivery in inappropriate place

Thank you!

- References:

1. Obstetrics by Ten Teachers
2. THE JOHNS HOPKINS MANUAL OF GYNECOLOGY AND OBSTETRICS
3. NICE clinical guideline 190: Intrapartum care for healthy women and babies