

**BULE HORA UNIVERSITY COLLEGE
OF HEALTH SCIENCE AND MEDICINE
DEPARTMENT OF NURSING
FOR 3RD YEAR NURSING**

ABNORMAL LABOUR

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Fetal Malposition and Malpresentation

Objectives

- ✓ Define Malpresentation and malposition
- ✓ list Risk factors Malpresentation and malposition
- ✓ Discussion of malpresentation with their Management
- ✓ Discussion types of malposition with their management
- ✓ Define complication of labour

Introduction

Terminologies

1) Lie

The relation of the long axis of the fetus to that of the mother.

Longitudinal(99% of labors at term)- Cephalic or Breech

Transverse- the most unfavourable

Oblique lie - unstable

Int...

2) Attitude (fig 2)

Also called **posture** or **habitus**

The relative position of the **fetal head** to the **fetal spine**.

Flexed- a more convex posture , vertex presentation

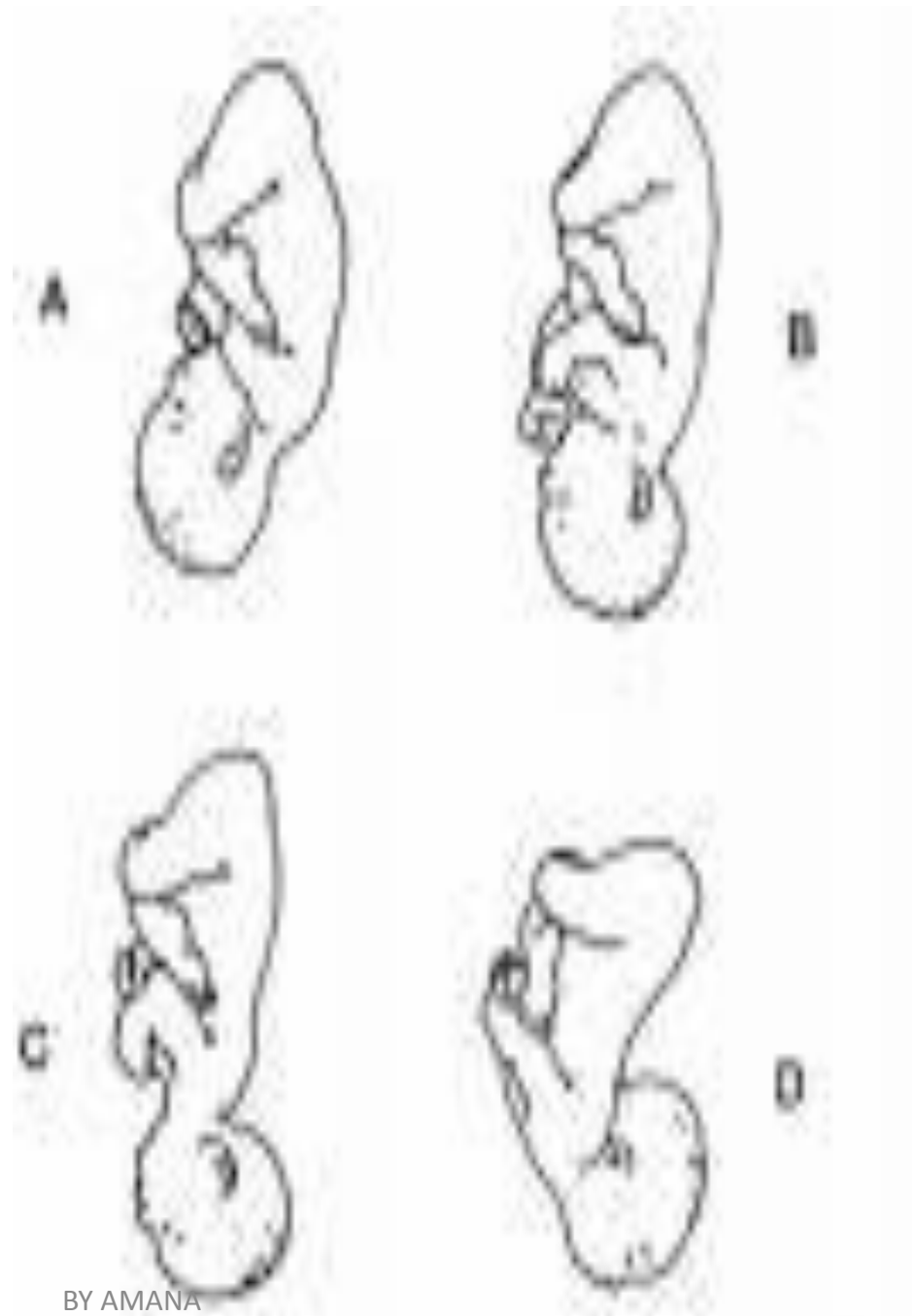
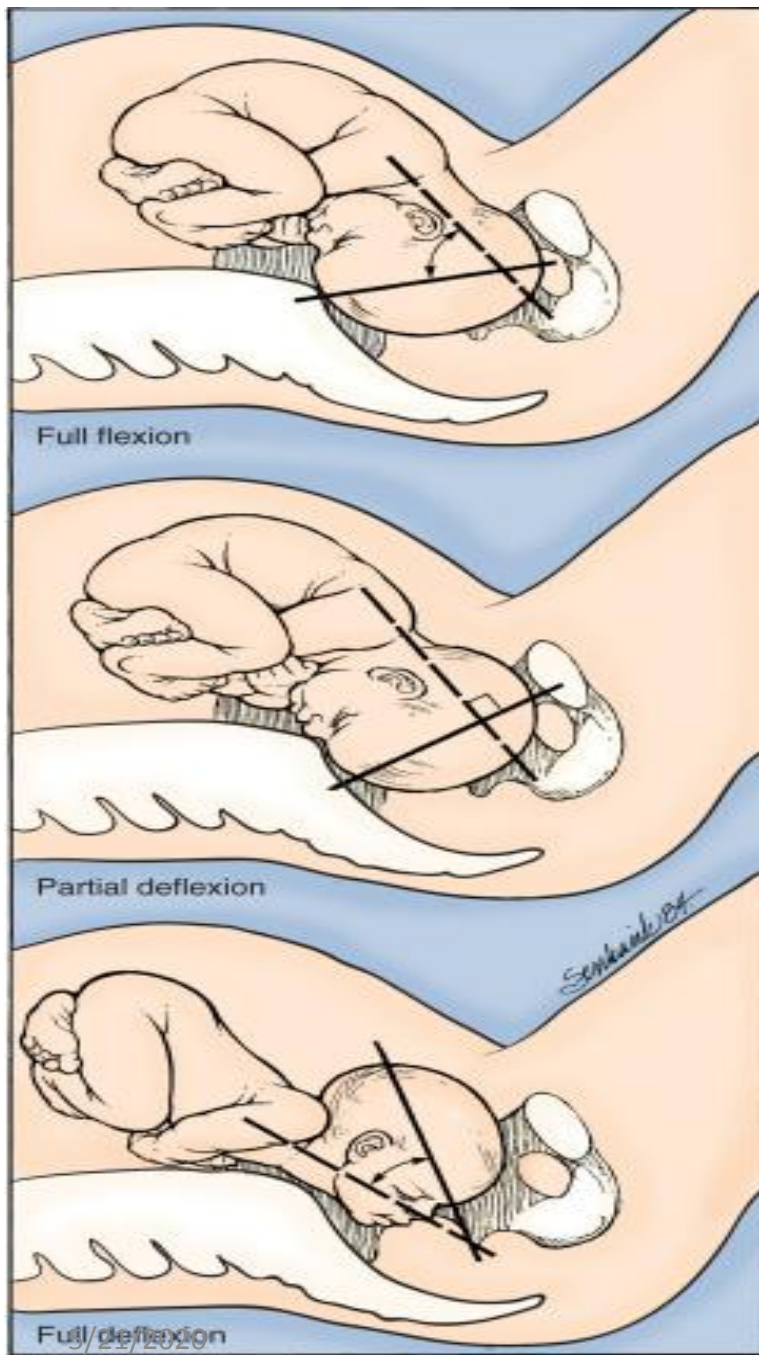
Military

Brow

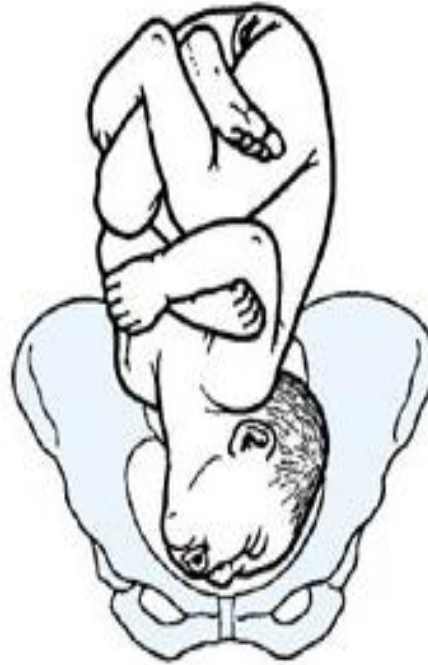
Extended (**D**)- a more concave posture- face presentation.

3) Position (fig 3)

The relationship of an arbitrarily chosen **portion of the fetal presenting part** to the **side of the maternal birth canal**



BY AMANA



Left Mento-Anterior

Right Mento-Anterior

Right Mento-Posterior

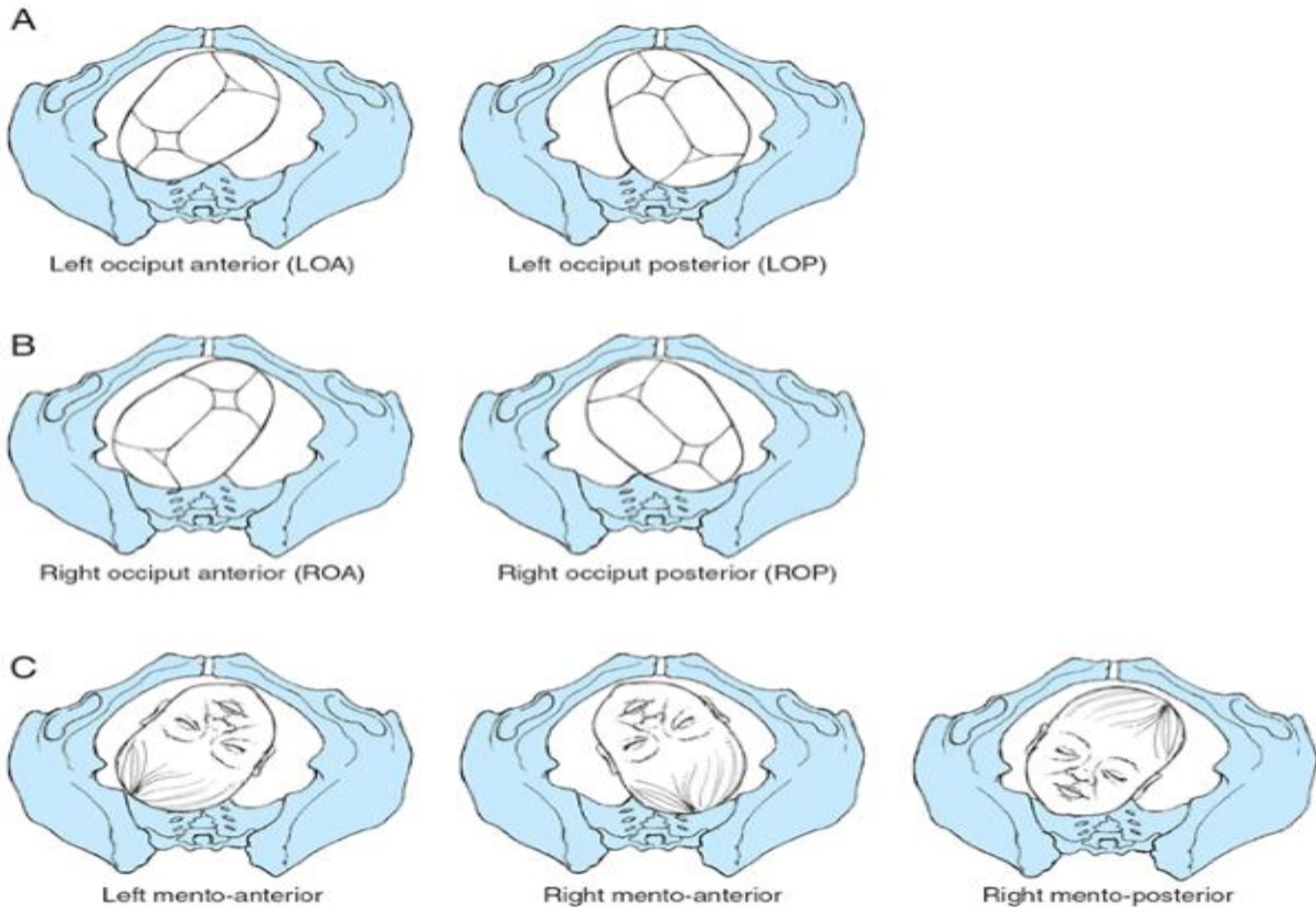


FIGURE 10-2 Occiput and face presentations in labor. A. Left positions in occiput presentations, with the fetal head viewed at a cross-section of the pelvis from below. B. Right positions in occiput presentations. C. Left and right positions in face presentations. (From Pritchard JA, MacDonald PC, Gant NF. Williams Obstetrics. 21st Ed. New York:

Int...

4) Fetal Presentation (fig 4)



Refers to which anatomical part of the fetus is **leading**, that is, is closest to the pelvic inlet of the birth canal.

- **Cephalic-**
- Breech
- Shoulder
- Compound

At or near term -

96% of babies are in a vertex position,
3.5% are in a breech presentation,
0.3% in a face presentation, and
0.4% are in a shoulder presentation.

Variation in Fetal Presentation

4



Longitudinal lie
Vertex presentation
28 week gestation
6-7 cm dilated

Longitudinal lie
Breech presentation
28 week gestation
6-7 cm dilated

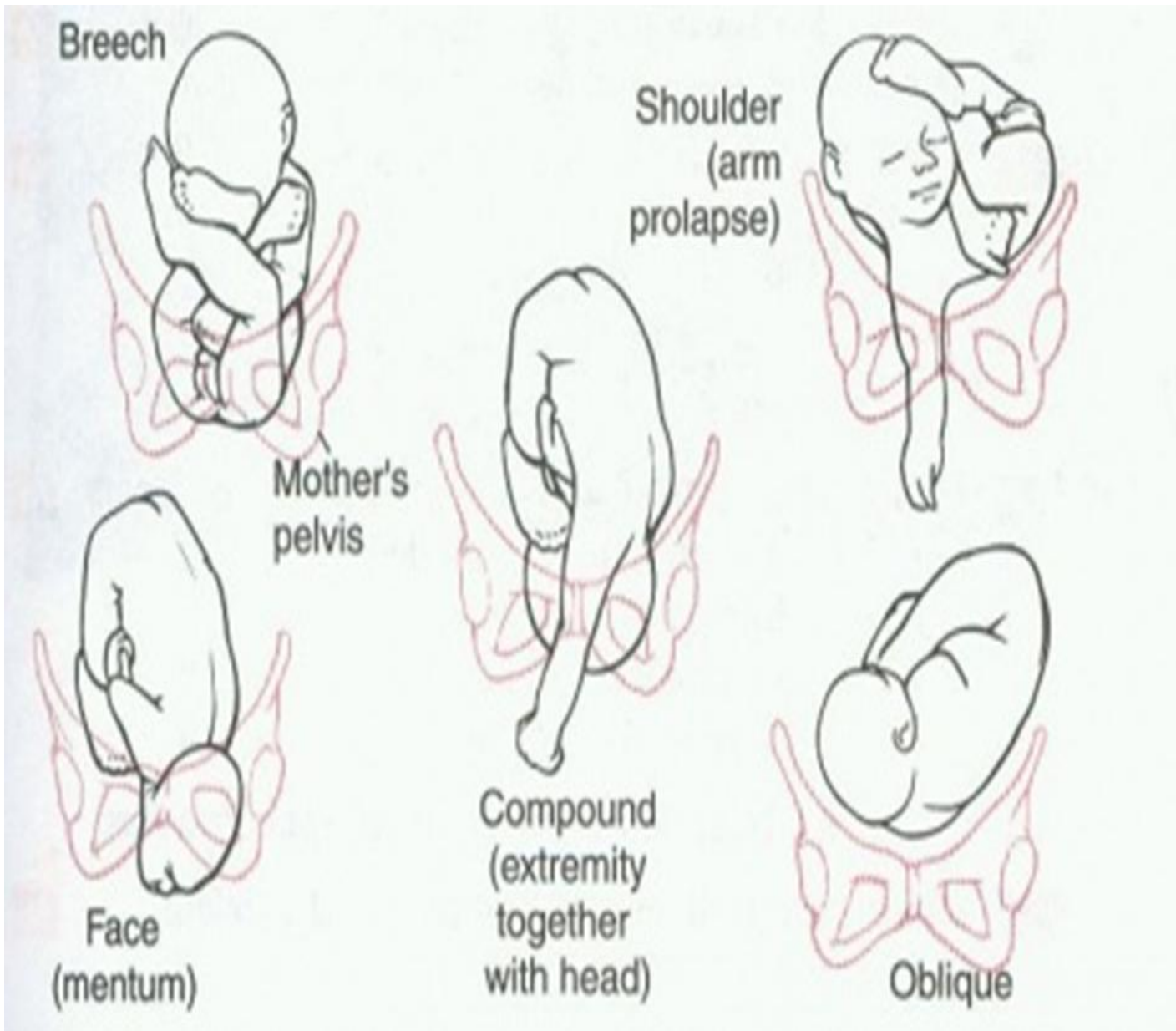
Transverse lie
Vertex presentation
28 week gestation
6-7 cm dilated

Int...

Classification of fetal presentations (fig 5)

- ✓ Cephalic presentation (head first):
 - Vertex (crown) — the commonest and associated with the fewest complications
 - Sinciput
 - Brow
 - Face
- ✓ Breech presentation (buttocks or feet first):
 - Complete breech
 - Footling breech
 - Frank breech
- ✓ Shoulder presentation
 - Arm
 - Shoulder
 - Trunk

❖ The normal position is a **vertical, cephalic** presentation with the fetal vertex **flexed** on the neck



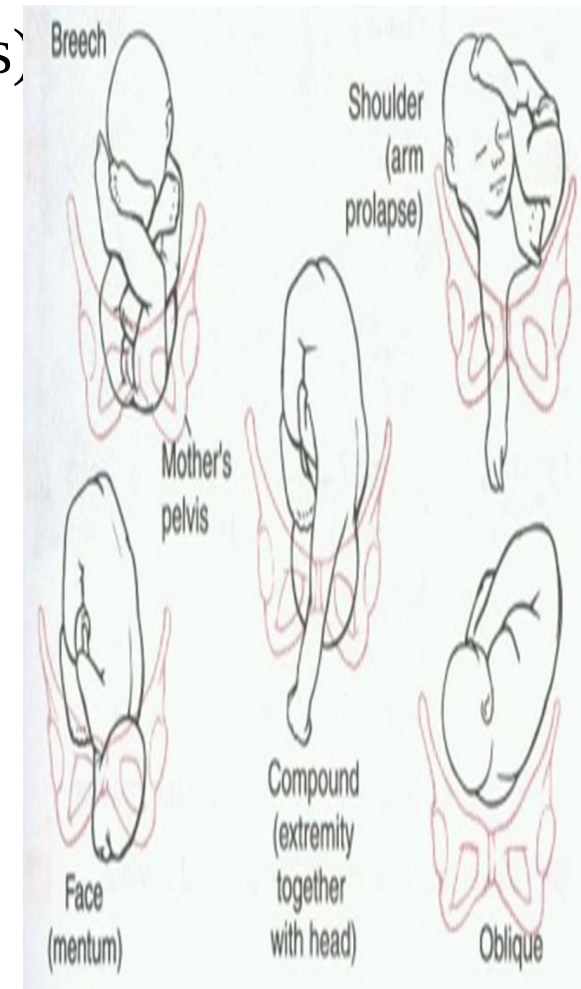
Malpresentation

Definition

- ✓ malus, bad, praesentare, to show
- ✓ an abnormal position of the fetus in the birth canal.
- ✓ faulty fetal presentation.
- ✓ Presentation of a part of a fetus other than the **back** of the head during parturition.
- ✓ Any deviation from the normal lie, presentation, or attitude.

Types of Malpresentations (fig 5).pptx

- ✓ Face presentation (1/600 to 1/800 deliveries)
- ✓ Brow presentation (1/500 to 1/4000 deliveries)
- ✓ Breech presentation (1/33 deliveries)
- ✓ Shoulder presentation
- ✓ Compound presentation (1/1500 deliveries)
- ✓ Parietal bone presentation????????



Causes and risk factors

- ✓ Pendulous abdomen: laxity of the abdominal muscles.
- ✓ Pelvic tumours.
- ✓ Contracted pelvis
- ✓ Uterine anomalies as bicornuate, septate or fibroid uterus.
- ✓ Placenta praevia.
- ✓ Preterm fetus.
- ✓ Macrosomia.
- ✓ Multiple pregnancy.
- ✓ Congenital anomalies as anencephaly and hydrocephalus.
- ✓ Polyhydramnios.
- ✓ Coils of the cord around the neck - face presentation

Signs Suggestive of Malpresentations:

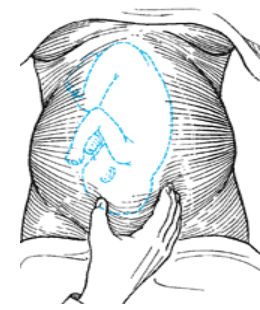
- ✓ Pendulous abdomen.
- ✓ Nonengagement of the presenting part in the last 3-4 weeks in primigravida.
- ✓ Premature rupture of membranes or its rupture early in labor.
- ✓ Delay in the descent of the presenting part during labor.

Methods used to diagnose fetal presentation:

- ✓ Abdominal palpitation,
- ✓ Vaginal examination,
- ✓ Locating the fetal heart beat on the abdomen, and
- ✓ Ultrasound scans and Radiography.

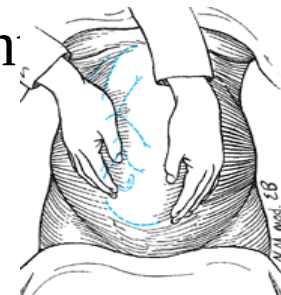
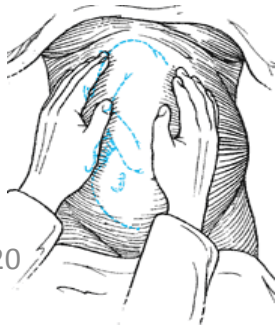


Diag...



1) Abdominal Palpation—Leopold Maneuvers

- ✓ The mother should be supine and comfortably positioned with her abdomen bared.
- ✓ Sensitivity for detecting non-cephalic presentation (breech, oblique, or transverse lie) by abdominal palpation at 35 to 37 weeks of gestation is only 70 percent
- ✓ These maneuvers may be difficult or impossible to perform and interpret if
 - ✓ The patient is obese,
 - ✓ If there is excessive amniotic fluid,
 - ✓ If the placenta is anteriorly implanted



Diag...

2) Vaginal Examination

- ✓ Inconclusive before onset of labor.
- ✓ With the onset of labor and after cervical dilatation, vertex presentations and their
- ✓ positions are recognized by palpation of the various sutures and fontanel.
- ✓ Face and breech presentations are identified by palpation of the facial features and the fetal sacrum, respectively.



3) Auscultation

- ✓ The region of the maternal abdomen in which fetal heart sounds are most clearly heard varies according to the **presentation** and the extent to which the presenting part has **descended**.
- ✓ Reinforce results obtained by palpation.

Diag...



4) Ultrasonography and Radiography

Ultrasonographic techniques can aid identification of fetal position, especially in obese women or in women with rigid abdominal walls.

In some clinical situations, the value of information obtained radiographically far exceeds the minimal risk from a single x-ray exposure.

Complications

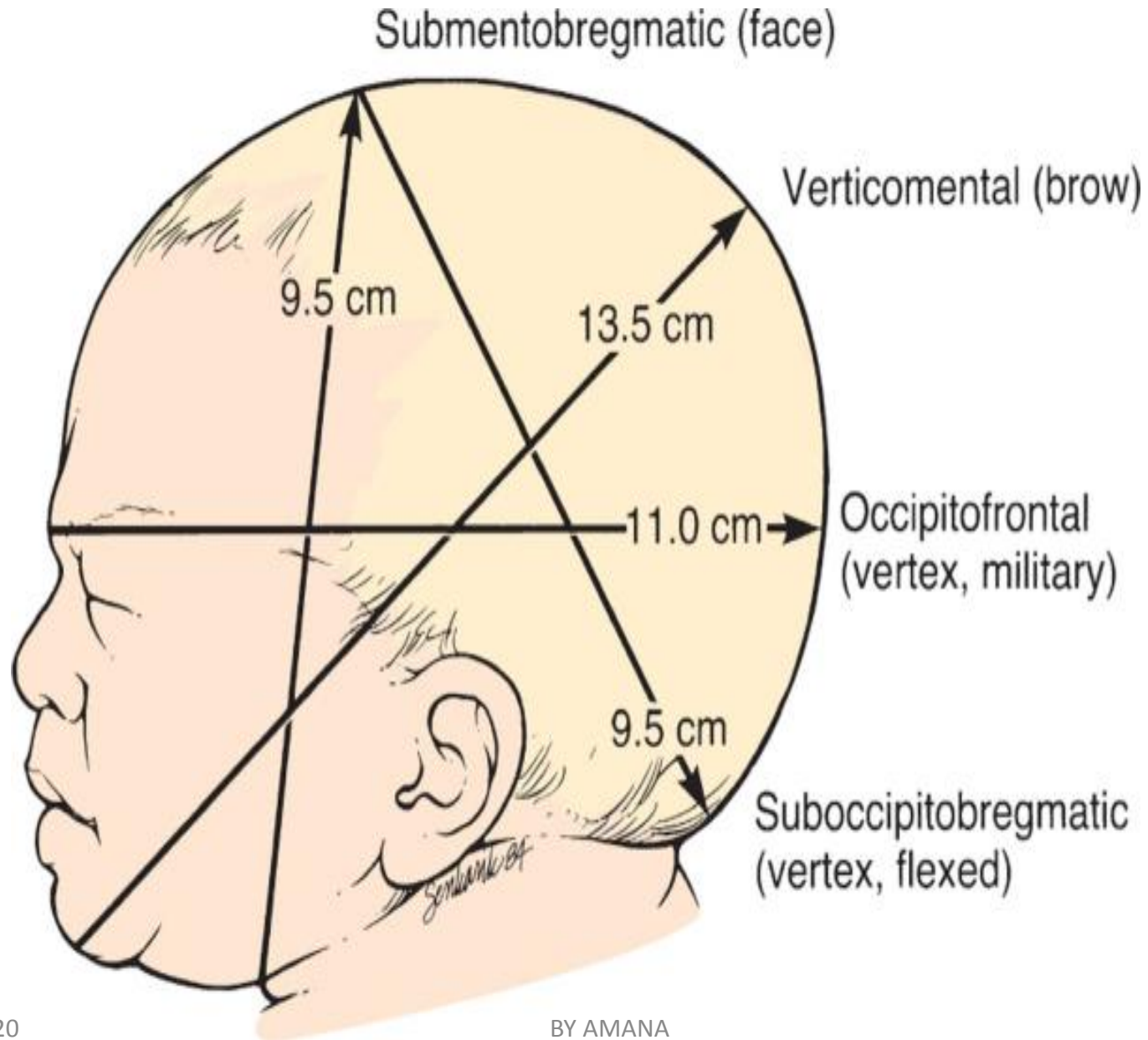
- ✓ Premature rupture of membranes or its rupture early in labor..
- ✓ Cord presentation and prolapse.
- ✓ Prolonged labor due to hypotonic or hypertonic inertia.
- ✓ Obstructed labor with higher incidence of rupture uterus.
- ✓ Increased incidence of instrumental and operative delivery.
- ✓ Increased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

Face Presentation

- ✓ **The Face-** is an area b/n the root of the nose and the supra-orbital ridges and the chin.

Face presentation-

- ✓ The head is hyperextended , the occiput is in contact with the fetal back and the chin (mentum) is presenting.
- ✓ presenting diameter submento bregmatic- 9.5cm([fig 6](#))
- ✓ 1) Primary face presentation- deflection has occurred before labor.
- ✓ 2) Secondary face presentation- deflection occurs in labor and is the more common one.



Face...

- ✓ The mentum is the point of designation
- ✓ Position- mentum anterior – commonest (60 percent)
 - mentum posterior (26 percent)
 - mentum transverse(15 percent)
- ✓ Incidence is about 0.2 percent, or 1 in 500 live births overall.
- ✓ Corrected perinatal mortality is about 2 to 3 percent.
- ✓ Early recognition of the face presentation is important.
- ✓ Perinatal mortality may be higher, with late diagnosis.

Face...

Diagnosis

Abdominal palpation

Diagnoses fewer than 1 in 20 infants.

Finding- the fetal cephalic prominence on the same side of the maternal abdomen as the fetal back and there is a marked depression b/n them([fig 9](#))

More easier if mentum posterior (dorso anterior).

Vaginal examination: more commonly identifies it

Orbital ridge Malar prominences ,and mouth

The nose,

Chin

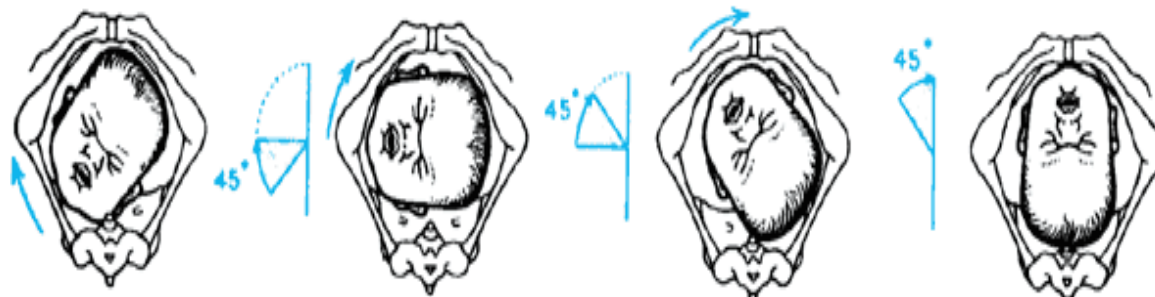
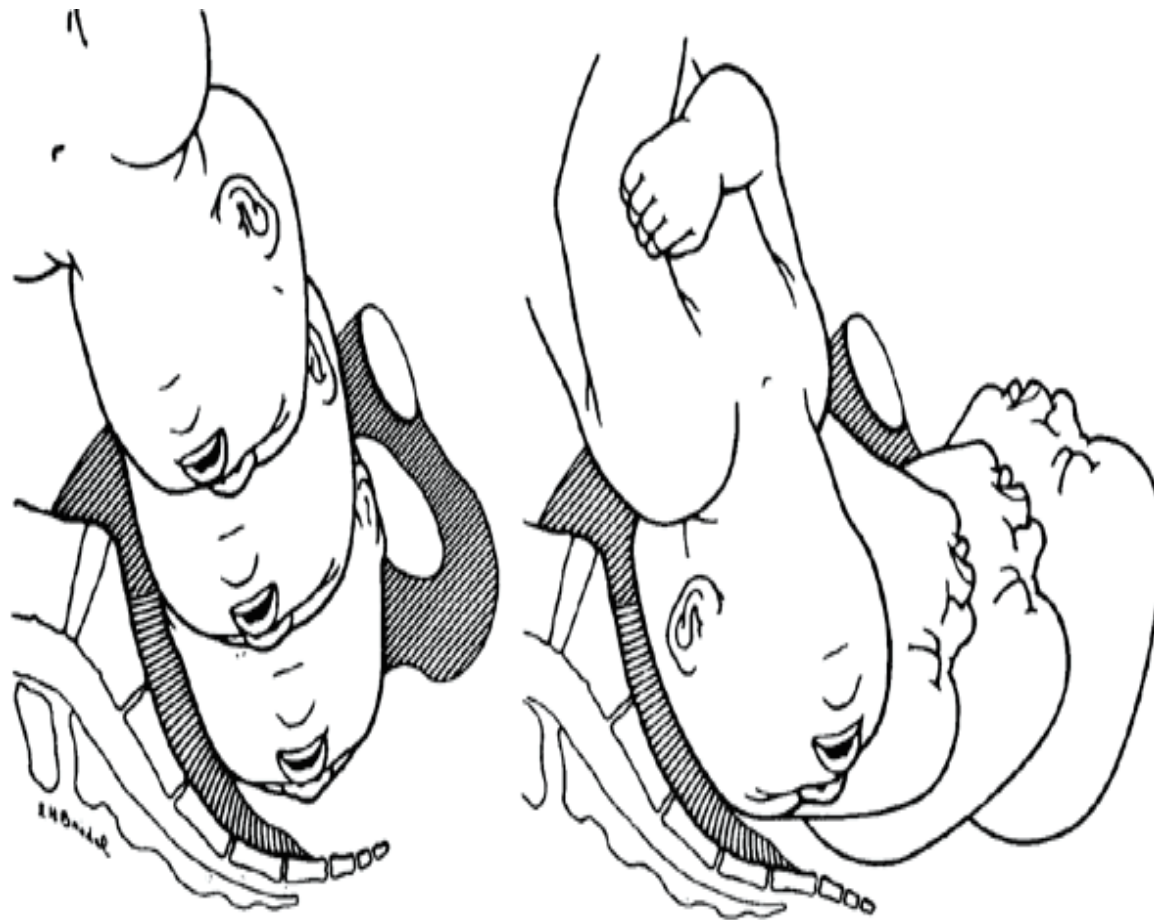
May be confused with breech presentation REMEMBER anus has sphincter tone & meconium stained, the mouth has sucking reflex.

anus is in line with the ischial tuberosities; mouth forms a triangle with the malar prominences

Face...

Causes ;

- ✓ -Any factor that favors **extension** or prevents **head flexion**.
- ✓ Marked **enlargement** of the neck or **coils of cord** about the neck.
- ✓ **Fetal Malformations**-Anencephaly, hydrocephaly, congenital bronchocele.
- ✓ **Contracted** pelvis(Inlet contraction), **very large** fetus.
- ✓ **Pendulous** abdomen
- ✓ **Occiputoposterior** vertex presentations are prone to change in attitude.
- ✓ 30 to 50 percent of mentum transverse and mentum posterior positions will spontaneously convert to the mentum anterior position during the course of labor.



Face...

Management;-

- ✓ Primary face presentation-

 - Assess pelvis

 - Assess fetal weight

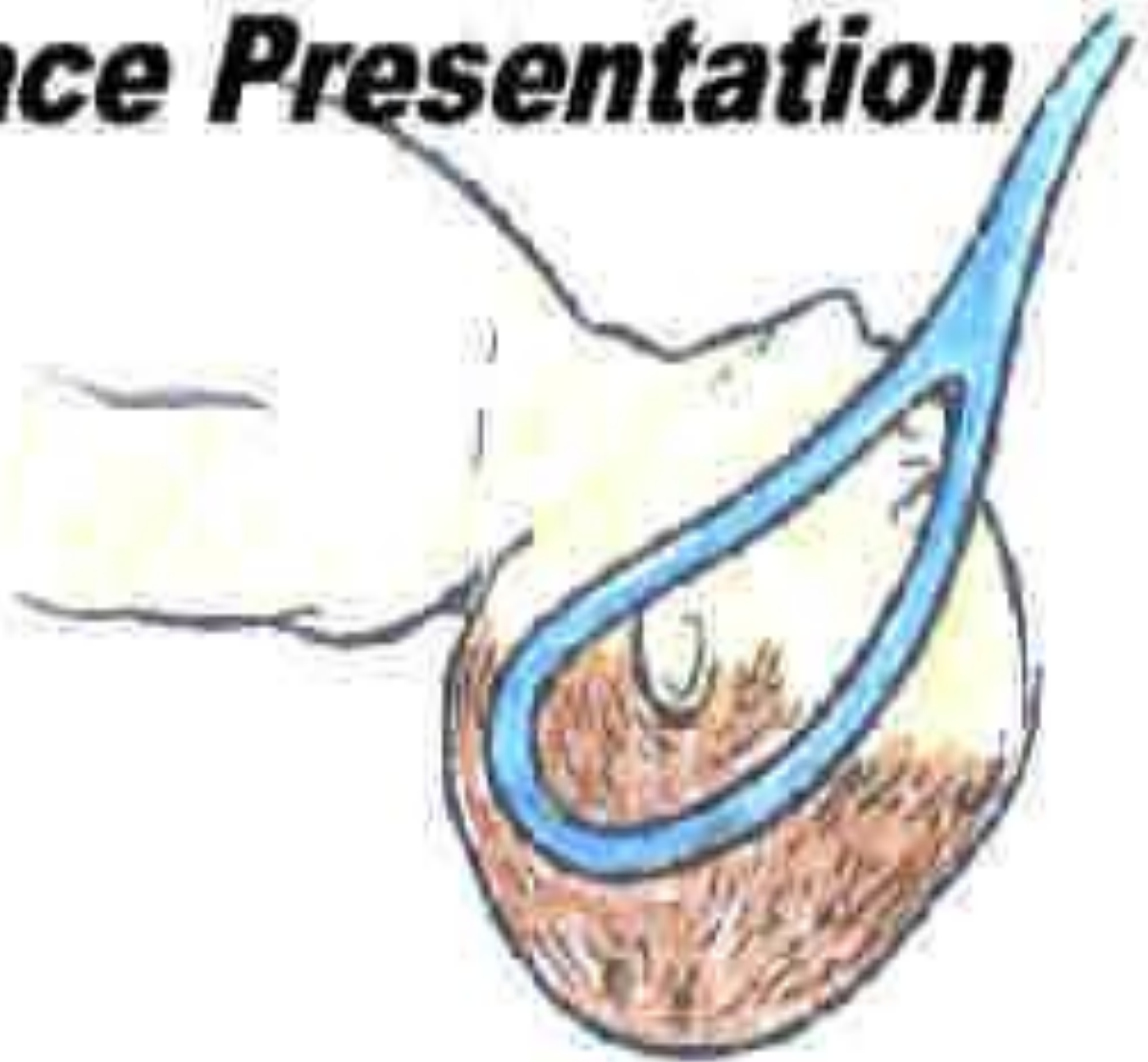
 - Antenatal correction to vertex

- ✓ Secondary face presentation

 - The prognosis for labor with a face presentation depends on the orientation of the fetal chin.

 - The widest diameter of the fetal head negotiating the pelvis in face presentation is the tracheobregmatic or submentobregmatic diameter, which is 0.7 cm greater than the suboccipitobregmatic diameter, or about 10.2 cm.

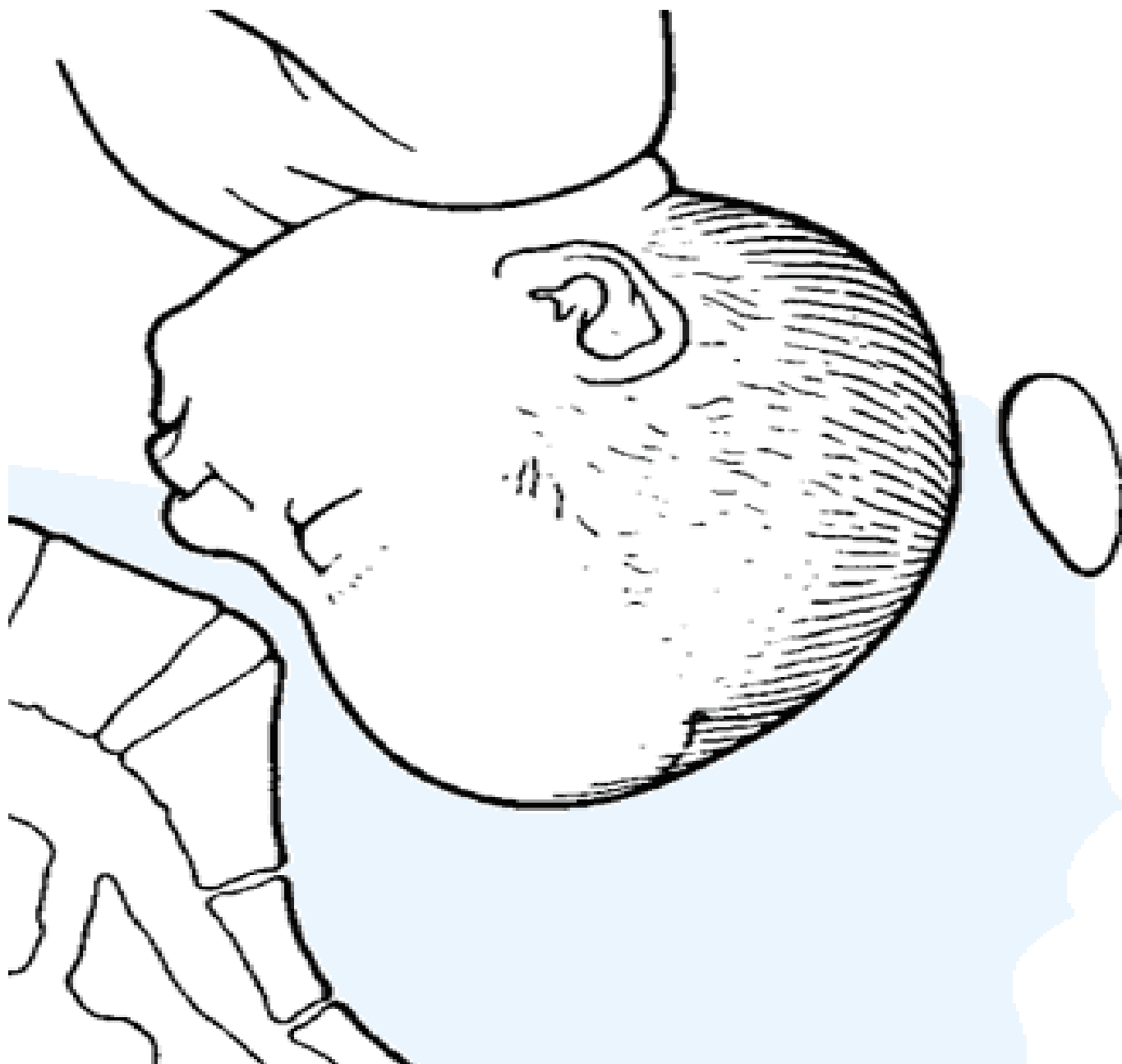
Face Presentation



Brow Presentation

The Brow

- ❖ Is an area bounded on one side by the anterior fontanelle and the coronal sutures and on the other side by the root of the nose and supra-orbital ridges of the either side([fig 11](#))
- ❖ The most unfavourable of all cranial presentation
- ❖ The presenting diameter is mentovertical, the longest cranial diameter = 13cms.
- ❖ Occupies a position midway between full flexion (occiput) and extension (mentum or face).
- ❖ Engagement of the fetal head and subsequent delivery cannot take place as long as the brow presentation persists except when the fetal head is small or the pelvis is unusually large



Brow...

Diagnosis

- ✓ Abdominal palpation- recognized when both the occiput and chin can be palpated easily.
- ✓ Vaginal examination- The frontal sutures, large anterior fontanel, orbital ridges, eyes, and root of the nose, neither mouth nor chin is within reach.
- ✓ Commonly unstable and often converts to a face or an occiput presentation.
- ✓ The earlier the diagnosis is made, the more likely conversion will occur spontaneously.

Brow...

- ✓ Incidence varies widely, from 1 in 670 to 1 in 3,433, averaging about 1 in 1,500 deliveries
- ✓ The frontal bones are the point of designation.
- ✓ Frontum anterior is reportedly the most common position at diagnosis, occurring about twice as often as either transverse or posterior positions.
- ✓ Corrected perinatal mortality varies from 1 to 8 percent.

Brow...

Management;-

Expectant management –

- ✓ Spontaneous conversion vertex or face.
- ✓ Persistent brow presentation- Successful vaginal delivery
- ✓ only possible in an extremely small or macerated infant, or with an unusually large maternal pelvis.
- ✓ Frontum posterior-the face in the region of the base of the nose is fixed against the pubis and the anterior fontanelle and the rest of the head sweep over the perinium.
- ✓ Frontum anterior- the chin remains posterior and spontaneous delivery is impossible.
- ✓ Cesarean delivery- If a brow presentation persists and/or obstructed labor.
- ✓ 5/21/2020 Augmentation and instrumental delivery are contraindicated.

Breech Presentation

- ✓ The term breech is probably derived from the word *britches*, which described a cloth covering the loins and thighs.
- ✓ The buttocks of the fetus enter the pelvis before the head.
- ✓ Is more common remote from term.
- ✓ Persists in only about 3 to 4 percent of singleton deliveries([fig 12](#))



Breech...

Etiology risk factors

Fetal- predominant

- ✓ Prematurity (commonest)
- ✓ Multiple fetuses
- ✓ Congenital anomaly- Hydrocephaly, anencephaly

Maternal- less common

- ✓ Uterine anomalies, and
- ✓ pelvic tumors
- ✓ Placenta previa
- ✓ Hydramnios,
- ✓ Uterine relaxation associated with great parity,
- ✓ Oligohydramnios,
- ✓ Previous breech delivery,

Breech...

Classification[\(fig 13\)](#)

- ✓ **Frank breech presentation-**
- ✓ **Complete breech presentation-**
- ✓ **Incomplete breech** Kneeling , Footling breech is an incomplete breech with one or both feet below the breech.

Prognosis

- ✓ Both mother and fetus are at greater risk with breech presentation compared with cephalic presentation.

Maternal Morbidity

- ✓ Higher maternal morbidity and slightly higher mortality.
- ✓ Greater frequency of operative delivery, including cesarean delivery.
- ✓ More with emergency surgery instead of elective cesarean delivery.



Frank Breech



Complete Breech



Footling Breech

Breech...

Perinatal Morbidity and Mortality

Considerably worse than when in a vertex presentation.

The major contributors to perinatal loss are

- ✓ Preterm delivery,
- ✓ Congenital anomalies, and
- ✓ Birth trauma- ICH, spinal cord injury, rupture of visceral organs
- ✓ Asphyxia

Congenital abnormalities were identified in 6.3 percent of breech deliveries compared with 2.4 percent of nonbreech deliveries.

Breech...

- ❖ Perinatal mortality was higher in breech (3 times cephalic) infants even after correction for gestational age, congenital defects, and birth weight.-(16-22 per thousand)
- ❖ Breech presentation is a consequence of poor fetal quality.

Management

Deciding route of delivery before onset of labor is critical

Options :

- ✓ ECV with vaginal birth
- ✓ Cesarean section
- ✓ Trial of labor with Vaginal delivery

Breech...

Cesarean section

Universal cesarean section decreases the perinatal mortality with the expense of maternal mortality and morbidity esp in subsequent pregnancies.

So, it shall be applied in a more selective way.

- ✓ A large fetus.
- ✓ Any degree of contraction or unfavorable shape of the pelvis.
- ✓ A hyperextended head.
- ✓ When delivery is indicated in the absence of spontaneous labor (some clinicians use oxytocin augmentation).
- ✓ Uterine dysfunction (some use oxytocin augmentation).
- ✓ Incomplete or footling breech presentation.

Breech...

An apparently healthy and viable preterm fetus with the mother in either active labor or in whom delivery is indicated(GA-24-34wks).

- ✓ Severe fetal growth restriction.
- ✓ Previous perinatal death or children suffering from birth trauma.
- ✓ Elderly primi
- ✓ A request for sterilization.
- ✓ Lack of an experienced operator.
- ✓ If the Breech score is 0-4.

Breech...

Trial of labor for vaginal delivery

- ✓ Frank
- ✓ GA>34w
- ✓ FW=2000-3500gr
- ✓ Adequate pelvis
- ✓ Flexed head
- ✓ Nonviable fetus
- ✓ No indication
- ✓ Good progress labor

Breech...

Vaginal delivery

- ✓ Skilled operators
- ✓ Ability to safely select and vaginally deliver breech fetuses .
- ✓ Medicolegal concerns-:
 - it is uncertain who will teach future generations about this technique.
 - It is feared that vaginal breech deliveries will become a lost art.
- ✓ Patient in lithotomy position
- ✓ Generous episiotomy

Breech...

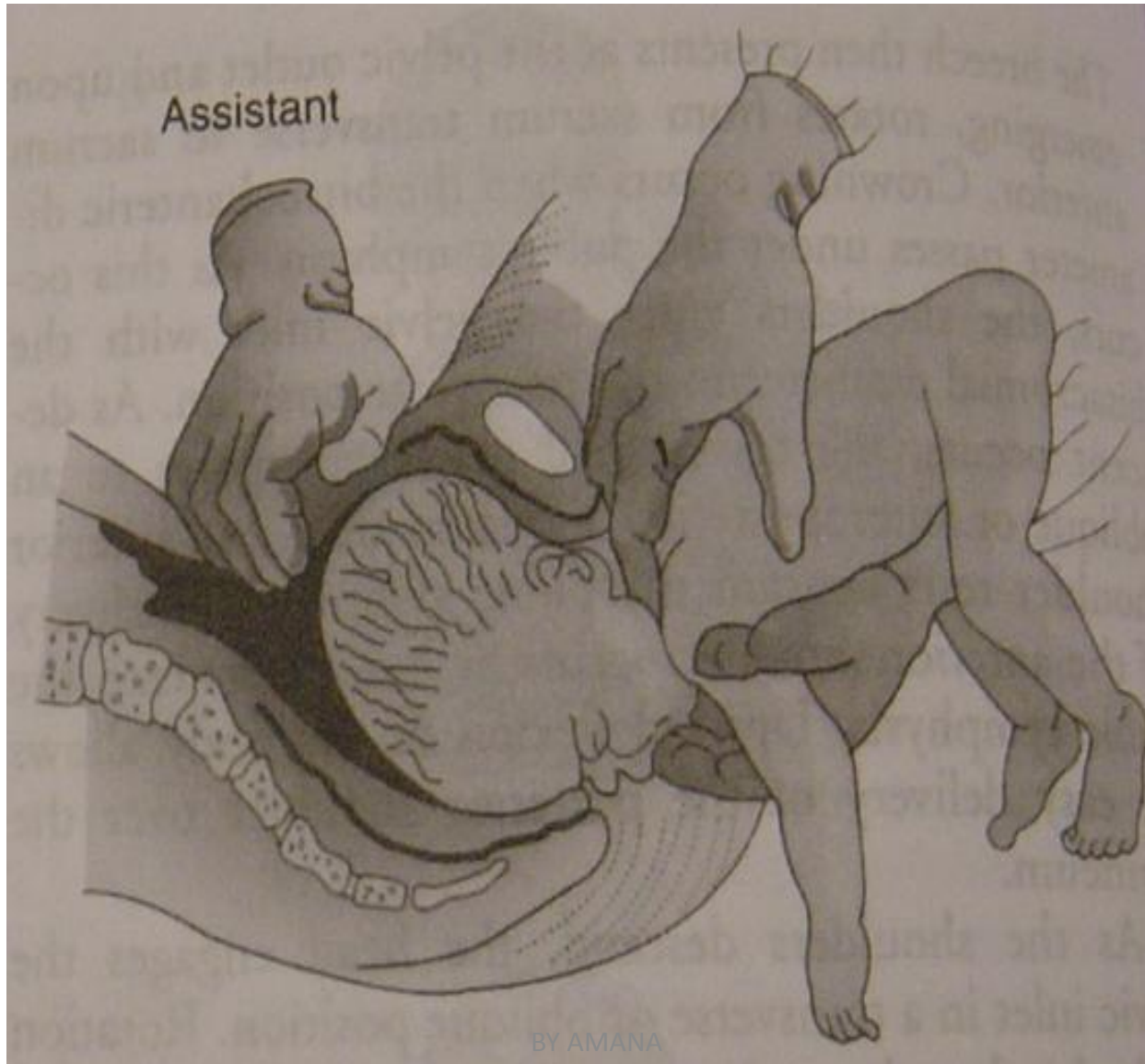
There are three general methods of breech delivery through the vagina:

- ✓ Spontaneous breech delivery- The infant is expelled entirely spontaneously without any traction or manipulation other than support of the infant.
- ✓ Assisted or Partial breech extraction- The infant is delivered spontaneously as far as the umbilicus, but the remainder of the body is extracted or delivered with operator traction and assisted maneuvers, with or without maternal expulsive efforts.
- ✓ Total breech extraction- The entire body of the infant is extracted by the obstetrician.

Assisted or partial breech extraction

- ❖ Delivery of buttocks and legs-
- ❖ Delivery of arms and shoulder :Lovset
- ❖ Delivery of aftercoming head
 - ❖ MSV([fig 14](#))
 - ❖ forceps([fig 15](#))

Mauriceau-Smellie-Veit



Piper forceps application



Breech...

Complete breech extraction

Indications:

- Fetal distress in 2nd stage of labor
- Cord prolapse or entanglement around the leg
- Need for expedite delivery of the 2nd twin

Complicated breech deliveries

- Breech arrested at the pelvic floor or impacted low in the pelvic cavity
 - r/o big baby or pelvic constriction
 - Power problem- augment
 - Extraction- options
 - Traction with fingers
 - Bringing down a leg and extraction
 - In dead fetus- traction with hook
- Extended arms-
- Nuchal displacement of the arm or arms

Breech...

Risks of vaginal breech delivery-

- ✓ An entrapped head
- ✓ Nuchal arms :
 - Present in 0-5% of vaginal breech deliveries.
 - Present in 9% of breech extractions.
 - Result in neonatal trauma in 25% of cases.
- ✓ Intracranial hemorrhage- secondary to tentorial tears- as a result of sudden excessive pressure on the aftercoming head.
- ✓ Cervical spine injury is observed predominantly with a
 - ✓ hyperextended head.
- ✓ Cord prolapse- occurs in 7.5% of all breeches.
 - 0-2% occur with frank breech,
 - 5-10% occur with complete breech, and
 - 10-25% occur with footling breech. Cord prolapse

Shoulder Presentation

- ✓ Occurs in transverse lie, where the shoulder is usually the part of the fetus that enters the pelvic inlet, with the head lying in one iliac fossa and the breech in the other.
- ✓ Occurs in approximately 1 in 300 cases, or 0.33 percent of pregnancies at term.
- ✓ Prematurity is often a factor, with abnormal lie reported to occur in about 2 percent of pregnancies at 32 weeks, or six times the rate found at term.



Shoulder...

- ❖ Persistence of a transverse, oblique, or unstable lie beyond 37 weeks requires a systematic clinical assessment and a plan for management.
- ❖ Cord prolapse occurs 20 times as often with abnormal axial lie as it does with a cephalic presentation.
- ❖ Early diagnosis improves fetal outcome- fetal loss rate of 9.2 percent with an early diagnosis versus a loss rate of 27.5 percent with a delayed diagnosis.
- ❖ Maternal deaths are usually related to
 - infection after premature rupture of membranes,
 - hemorrhage secondary to abnormal placentation,
 - complications of operative intervention,
 - traumatic delivery.

Shoulder...

Diagnosis

- ✓ Usually is made easily, often by inspection alone.
- ✓ The abdomen is unusually wide, whereas the uterine fundus extends to only slightly above the umbilicus.
- ✓ No fetal pole is detected in the fundus, the lower pole of the uterus is empty (in no or early labor), and the ballotable head is found in one iliac fossa and the breech in the other.
- ✓ The position of the back is readily identifiable.
- ✓ Can be –dorso anterior- commonest
 - dorsoposterior
 - dorsosuperior
 - dorsoinferior
- ✓ When the back is anterior, a hard resistance plane extends across the front of the abdomen.

Shoulder...

Management

Factors to consider include

- The position of the placenta,
- Length of gestation,
- Viability of the fetus,
- Whether labor has begun, and
- Whether membranes have ruptured.

Options

- Expectant
- Active
 - ECV
 - Cesarean section
 - Vaginal delivery

Shoulder...

Expectant

- In the absence of other factors for expedicious delivery, 80% may revert to longitudinal lie.

External cephalic version (ECV)

- Better than expectant or other intervention
- 60-70% success rate

Cesarean delivery

- Patients with coexistent placenta previa must be delivered by cesarean.

Shoulder...

Vaginal delivery

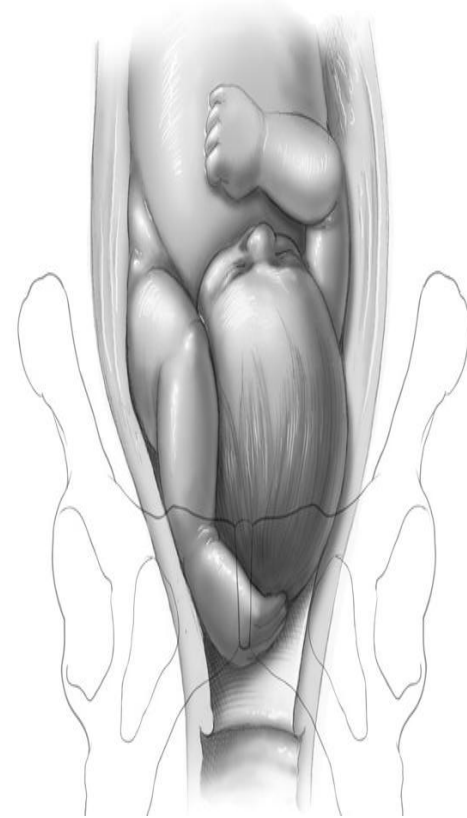
✓ Spontaneous delivery- three manners

Spontaneous version-

- ✓ Spontaneous rectification- to cephalic
- ✓ Spontaneous version- to breech
- ✓ Spontaneous evolution- rare, occurs in -very premature and dead fetuses very premature, alive with roomy maternal pelvi the shoulder of the fetus is driven into the pelvis and becomes fixed underneath the symphysis, while the trunk, breech and limbs are driven past, finally the other shoulder and head escape.

Compound Presentation

- ❖ An extremity prolapses alongside the presenting part, with both presenting in the pelvis simultaneously.
- ❖ May involve one or more extremities (eg, hand, arm, foot) with the vertex or the breech.
- ❖ Majority are represented by the fetal hand or arm presenting with the vertex.
- ❖ If foot is alongside the head, the child is generally premature or macerated and the uterus firmly retracted over the child's trunk.



Compound...

- ✓ Complicates from 1 in 700 to 1 in 1000 deliveries.
- ✓ Is more likely to occur when the pelvis is not fully occupied by the fetus because of low birth weight, multiple gestation, polyhydramnios, or a large pelvis.
- ✓ During labor after successful version has been reported several times and seems to occur only rarely- impaction of head b/n extended legs.

Compound...

- ✓ High perinatal mortality 9-19% 2^o to-
Cord prolapse ,
Prematurity, and
Birth injury.
- ✓ Should be considered this when the head remains high or unengaged after rupture of membranes or when there is a delay in the active phase.
- ✓ Diagnosis is by palpation during a cervical examination, typically during early labor.

Compound...

Management

- ✓ **Observation-** the presenting part will simply push the extremity aside or the fetus will retract the extremity as labor progresses.
- ✓ **Gentle manipulation-** of the small part upward into the uterine cavity with simultaneous fundal pressure to effect descent of the vertex or breech.(**debatable**)
- ✓ There is consensus that oxytocin should be avoided.
- ✓ **Cesarean section-** If the compound presentation doesn't resolve spontaneously or with gentle manipulation.

Malposition

Persistent Occiput Posterior Position

- ✓ May be normal in early labor, with approximately 10–20% of fetuses in occiput posterior position at onset of labor.
- ✓ In 87% of cases, the head rotates to the occiput anterior position when it reaches the pelvic floor. If no rotation, dystocia may occur.
- ✓ Approximately two-thirds of cases presentation at delivery occur through malrotation during the active phase of labour
- ✓ The mechanism of this fetopelvic disproportion is partial deflexion of the fetal head.
- ✓ Its presentation may result from a contracted anthropoid or android pelvis or insufficient uterine action.

Etiology and risk factors

Cause not known

Risk factors

- ✓ Nulliparity
- ✓ Maternal age greater than 35 years
- ✓ Obesity
- ✓ African-American race
- ✓ Previous OP delivery
- ✓ Decreased pelvic outlet capacity
- ✓ Gestational age ≥ 41 weeks
- ✓ Birth weight ≥ 4000 g

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Diagnosis can be

- ✓ Made by digital examination,
- ✓ ultrasound examination is both useful and accurate .

The OP position can prolong the first and second stages of labor.

- ✓ The labors are more likely to undergo interventions, and more delivery-related complications,
- ✓ Neonatal complications associated with delivery in the OP position include
 - a higher risk of five-minute Apgar score less than 7
 - umbilical artery acidemia ,
 - meconium-stained amniotic fluid
 - birth trauma , and neonatal intensive care admission

MANAGEMENT

- ✓ Expectant management, multiparous women with persistent OP fetuses are more likely to achieve spontaneous vaginal delivery than nulliparas (55 to 57 versus 26 to 29 percent)
- ✓ The management of a definite arrest of descent of the OP fetus is less clear. Options include:
 - Rotation to OA position manually or with forceps
 - Operative delivery from OP position
 - Cesarean delivery.

PERSISTENT OCCIPUT TRANSVERSE

- ✓ Persistent OT position as an OT position that persists for an hour after complete cervical dilatation.
- ✓ Some of these fetuses (usually very small ones) will deliver in the OT position. Others will rotate later in the second stage, after the fetal head reaches the pelvic floor
- ✓ The remainder remain OT and experience an arrest, defined as no descent after one hour of active pushing.

high transverse arrest (above station +2) and

deep transverse arrest (below station +2)

- ✓ ETIOLOGY
 - ✓ results from either constraint to OA or OP rotation by the bony pelvis
 - ✓ more common with the platypelloid or android pelvis
 - ✓ Inadequate power

MANAGEMENT OPTIONS

- Expectant management
 - Partial or complete spontaneous rotation may still occur, which would make any subsequent intervention easier if intervention is required.
 - If hypocontractile uterine activity is present, contractions may be augmented with oxytocin.
- Manual rotation
 - should probably not be attempted before complete cervical dilation.
 - It is more likely to be successful in parous women than nulliparous.
 - Manual rotation can be performed by grasping the fetal head along the lambdoid sutures with the operator's index and middle fingers, flexing and slightly dislodging the vertex, and

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- Instrumental rotation
 - Considered for deep transverse arrest.
 - If forceps are chosen, we prefer Kielland forceps to manage persistent OT position.
- Cesarean delivery
 - High transverse arrest is usually managed by cesarean delivery.
 - For deep transverse arrest, is also sometimes indicated despite adequate uterine contractions and maternal pushing efforts.

Parietal Bone Presentation

- Also called as Asynclitism, or Obliquity
 - Lateral flexion of head
 - Sagittal Suture not in midline of vaginal canal halfway between the symphysis pubis and the sacrum.
 - One parietal bone is at a lower level than the other.
- Is beneficial in bringing the shorter subparietal supraparietal diameter (9 cm) to enter the pelvis instead of the longer biparietal (9.5 cm).
- Slight degree of asynclitism may occur in normal labour.

Parietal Bone...

(1) Anterior parietal bone presentation (***Naegele's obliquity***): -

- The anterior parietal bone is lower and the sagittal suture is near to the promontory.

- It occurs more in multigravidas due to laxity of the abdominal wall. - It occurs also in contracted flat pelvis.

(2) Posterior parietal bone presentation (***Litzmann's obliquity***): -

- The posterior parietal bone is lower and the sagittal suture is near to the symphysis.

- It occurs more in the primigravidas due to tense abdominal wall.

Parietal Bone...

- Anterior parietal bone presentation is more favorable because;
 1. The head lies more in the direction of the axis of the pelvic inlet. During correction of asynclitism, the head meets only the resistance of the sacral promontory while in posterior parietal bone presentation the head meets the resistance of the whole length of the symphysis pubis.
 2. In posterior parietal bone presentation the head stretches the anterior wall of the lower uterine segment with liability to rupture.
- The diagnosis can be made by palpating the caput on the anterior parietal bone of fetus through vagina.

Parietal Bone...

Management

– Correction-

- The head may be adjusted manually lifting the baby's head upward if posterior or moving it downward if anterior.
- Having the mother climb up and down a flight of stairs may easily correct the asynclitism.
- If no stairs are available, suggest that she duck walk: while being supported, the mother bends her knees, broadens her stance, and walks, swaying from side to side, rotating her hips out and forward.
- Trick- have the mother place one foot on an elevated surface, with the lifted foot higher than the other knee.
 - This position is held for several contractions and then the alternate leg is elevated.

Multiple Pregnancies



Multiple pregnancies

- ✓ Are the development of more than one fetus in the uterus.
- ✓ Accounts 3% of all pregnancies
- ✓ In vitro fertilization & ovulation induction increases the incidence of higher order multiple pregnancies.
- ✓ But the natural occurrence of higher order multiple pregnancies are rare

Multiple pregnancy cont`d...

Types of multiple pregnancies

- ✓ Twin - two fetuses developed in the uterus simultaneously
(*common*)
- ✓ Triplet - three fetuses
- ✓ Quadruplet - four fetuses
- ✓ Quintuplet - five fetuses

Multiple pregnancy cont`d...

A. Twin pregnancy

- Depending on the number of ova involved, it is divided into two
- a. Dizygotic twin (fraternal)** – accounts for 2/3 of total twin pregnancy
 - Two independent ova which come
 - ✓ Either from ***each ovary at the one ovulatory time***, or
 - ✓ From the ***same ovary at one ovulatory time***
 - Usually have separate placentas
 - Their sex may be the same or different.
 - Have different genetic content. *The babies bear only fraternal resemblance to each other (that of brothers and sisters from different birth - fraternal twin*

Multiple pregnancy cont`d...

Factors that increase the incidence of dizygotic twin

- Grand parity
- Ovulation induction
- Family history - especial on the maternal side
- Increased maternal age (peak age 35-40yrs)
- Assisted reproductive technology (ART)
- High fertility
- Conceive as soon as cessation of long OCP
- Increased height and weight of the mother

Multiple pregnancy cont'd...

- b. Monozygotic twin (identical)** -Account 1/3 of all pregnancies
 - Uni-ovular/identical twin (*Single ova + single sperm - **single zygote***)
 - Have identical genetic material –*The same blood group*
 - Always of the **same sex**
 - **different finger print**
 - The incidence is constant throughout the world (b/n 2.3 - 4/1000 pregnancies)
 - Unlike dizygotic twins, there are **no known risk factors**
 - They have **one/two placenta** but number of **chorion and amnion** depends on the **time** of cell division - fertilized ova divides **mitotically** into separate zygote.

The placentation and development in uniovular twins depend on the time when division occurs as follow

- ✓ 0-3 days 2 placentas, 2 chorions, 2 amnions & 2 umbilical cords as binovular twins but 2 identical twins (monozygotic). 23%
- ✓ 4-8 days One placenta, one chorion, 2 amnions & 2 umbilical cords with vascular connections. 75%
- ✓ 9-12 days One placenta, one chorion, one amnion & 2 umbilical cords (monoamniotic monochorionic).

Higher fetal loss due to cord entanglement.1%

✓ >12 days Conjoined twins (monsters)

Superfecundation: is fertilisation of two ova produced in the same menstrual cycle by two spermatozoa deposited in two separate acts of coitus.

Superfoetation: is fertilisation of two ova produced in two different menstrual cycles by two separate spermatozoa.

Actually, this cannot occur in human as ovulation is suppressed once pregnancy occurs.

During pregnancy by USS

- Very accurate in the first trimester, two sacs, presence of thick chorion between amniotic membrane.
- Less accurate in the second trimester the chorion become thin and fuse with the amniotic membrane.
- Different sex indicates dizygotic twins.
- Separate placentas indicates dizygotic twins

Multiple pregnancy cont`d...

Diagnosis of twin pregnancy

a. History -

- Increased nausea and vomiting
- History of twinning - more common in maternal side
- History of ovulation induction - treatment for infertility
- Palpitation and shortness of breath
- Tendency of swelling of legs, varicose vein & hemorrhoids
- Unusual rate of abdominal enlargement
- Excessive fetal movement - may be noticed by experienced parous women

Multiple pregnancy cont`d...

b. Physical examination

On inspection –

- Barrel shaped uterus (elongated uterus)

On palpation –

- The fundal height may be greater than expected for the calculated GA specifically after the 20th weeks of gestation.
- The presence of two fetal poles (head or breech), multiple fetal limbs.
- Lateral palpation may reveal two fetal backs or limbs on both sides.
- On pelvic palpation, one fetus may lie behind the other and make palpation difficult.

Multiple pregnancy cont`d...

On auscultation

- Simultaneous hearing of FHB located at separate spots with difference of 10 beats/minute heard with two midwives at the same time

Multiple pregnancy cont`d...

c. Investigations

Ultra sound –

- Two heads at 15 weeks when the outline of the head will be noted
- It can help to confirm the diagnosis and checks for: -
 - Gestational age
 - Malformation of the fetus
 - Determines the zygosity of the twin
 - Locations of the placenta
 - Amniotic fluid status
 - Presentation of the fetus
 - Lie of the fetus
 - Attitude of the fetus
 - Viability of the fetus

Multiple pregnancy cont`d...

X-Ray

- May be used after the 12th week of gestation.

Biochemical test

- ***hCG*** – quantitative analysis.
- Prevalence of anemia on laboratory examination

Weight measurement

- If weight is unusually increased beyond the calculated GA with no pre-eclampsia & obesity, it is suggestive of multiple pregnancy.

Multiple pregnancy cont`d...

Differential diagnosis

- Polyhydramnios
- Big baby
- Ovarian tumor with pregnancy
- Ascites with pregnancy
- Wrong date (LNMP)
- In early pregnancy full bladder

Complications of Multiple Gestation

Maternal

- Anemia
- Hydramnios
- Preeclampsia
- Preterm labour
- Postpartum hemorrhage
- Cesarean delivery

Fetal

- Malpresentation
- Placenta previa
- Abruption placentae
- Premature rupture of the membranes
- Prematurity
- Umbilical cord prolapse
- Intrauterine growth restriction
- Congenital anomalies

Specific Complications in Monochorionic Twins

TWIN-TWIN transfusion.

- ✓ Results from vascular anastomosis between twins vessels at the placenta
- ✓ Occurs in 10% of monochorionic twins.
- ✓ Chronic shunt occurs ,the donor bleeds into the recipient so one is pale with oligohydraminose while the other is polycythemic with hydraminose.
- ✓ If not treated death occurs in 80-100% of cases.

Possible methods of treatment:

- ✓ Repeated amniocentesis from recipient.
- ✓ Indomethacin.
- ✓ Fetoscopy and laser ablation of communicating vessels.

Other Complications in Monochorionic Twins:

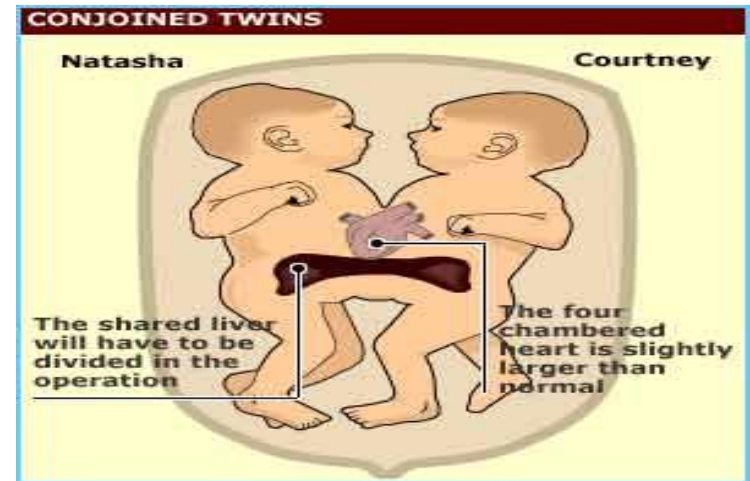
- ✓ Congenital malformation. Twice that of singleton.
- ✓ Umbilical cord anomalies. In 3 – 4 %.
- ✓ Conjoined twins. (**Siamese twins**)

Rare 1:70000 deliveries.

The majority are thoracopagus

Conjoined twins → Types

- * Anterior (thoracopagus).
- * Posterior (pygopagus).
- * Cephalic (craniopagus).
- * Caudal (ischopagus).



✓ *PNMR of monochorionic is 5 times that of dichorionic twins(120 VS 24/ 1000 births)*

Multiple pregnancy cont`d...

Management of twin pregnancy

A. Ante partum management

- Nutritional advice to take more calories, proteins & vitamins
- Supplementation of iron and folic acid
- Frequent ANC follow up (careful fetal monitoring)
- Increase bed rest
- Limit physical activities
- Education on hospital delivery
- ***Early referral*** - to prevent complication
- Decide on the mode of delivery

Multiple pregnancy cont`d...

B. Intra partum Management

- The labor should be attended in the **hospital** at w/c emergency C/S is available to save the mother and the fetus from unforeseen complications
- a. Management during the 1st stage of labor**
 - Secure IV infusion
 - Blood should be cross matched
 - Close monitoring of V/S of the mother, uterine contraction and FHB
 - Monitor the progress of labor
 - Augmentation is contra indicated before the delivery of the first twin

Multiple pregnancy cont`d...

b. Management during the 2nd stage of labor -

- Deliver the first twin
- Immediately following the delivery of the 1st twin, perform abdominal palpation to determine the lie of the 2nd twin and auscultate the FHB
- Assess also the degree of vaginal bleeding

Method Of Delivery

Vertex- Vertex (50%)

- Vaginal delivery, interval between twins not to exceed 20 minutes.
- Augmentation is possible after delivery of 1st twin if the contraction is inadequate through IV

Vertex- Breech (20%)

- ✓ **“Twin A”** can be delivered vaginally and
- ✓ **“Twin B”** may be managed by one of the following methods as indicated
 - Assisted breech delivery
 - C/S if the above failed

Method Of Delivery...

Breech- Vertex(20%)

- ✓ Safer to deliver by CS to avoid the rare interlocking twins(1:1000 twins).

Breech-Breech(10%)

- ✓ Usually by CS.

Multiple pregnancy cont`d...

C. Management during the 3rd stage of labor.

- The third stage of labor should be managed actively.
- Careful delivery of the placenta & membrane with subsequent examination

d. Postnatal advice on – postnatally advise the mother on: -

- Nutrition
- Breast feeding
- Neonatal care
- Postnatal appointment

Cord presentation and prolapse

Definition :

- ✓ Is a situation in which the umbilical cord is felt anterior to the fetal presenting part on vaginal examination.
- ✓ If the membranes are intact it is a cord presentation while with ruptured membranes it is identified as a prolapsed cord.
- ✓ As long as the membranes are not ruptured, the risk of compression and asphyxia is low.
- ✓ Cord prolapse can occur in vertex and frank breech presentations(0.5%); complete breech (5%); footling breech (15%) and shoulder presentation (20%).

Etiology of Cord Prolapse

- ✓ Malpresentations in labor
- ✓ PROM
- ✓ Amniotomy with a high fetal station
- ✓ Polyhydramnios with sudden membrane rupture
- ✓ Second twin delivery
- ✓ Internal podalic version
- ✓ Cephalopelvic disproportion in labor

Complications of Cord Prolapse

- ✓ Cord compression and constriction of umbilical vessels due to cold exposure outside the introitus can lead to fetal asphyxia and death.
- ✓ Partial cord occlusion may give the fetus some time but in complete cord occlusion the fetus can die of asphyxia in 5-7 minutes if cord compression is not immediately relieved.
- ✓ There is increased maternal risk from cord prolapse because of emergency operative vaginal or abdominal delivery performed in order to salvage the fetus.

Diagnosis of Cord Presentation/Prolapse

- ✓ Vaginal exam- cord hanging outside the introitus; felt in the vagina or inside the cervix anterior to the presenting part
- ✓ In all malpresentations, a careful search for cord presentation or prolapse should be made
- ✓ Occult cord prolapse can only be diagnosed by detection of abnormal fetal heart rate patterns
- ✓ In cases of malpresentations, sonographic search can also be made for cord anterior to the fetal presentation

Outline of Management of Cord Presentation/Prolapse

Immediate management	Delivery
If cord is pulsating: •Put mother in knee-chest position •Initiate oxygen administration by face mask 5L/min •Insert bladder catheter and infuse the bladder with 0.5L of saline •Replace the cord into the vaginal canal (not into the uterus) •Push fetal presenting part upwards via the examining hand in the vagina to relieve compression of the cord by the presentation •Prepare for immediate delivery	Non-pulsatile cord: •Manage as any other labor as the cord prolapse will not alter the course of labor Pulsatile cord: Second stage of labor: •Expedite delivery by forceps delivery if other conditions for forceps delivery are met. •Breech extraction if other conditions for breech extraction are met. •Internal podalic version with breech extraction if sudden prolapse during delivery of second twin. First stage of labor: •Expedited caesarean delivery.

COMPLICATIONS OF LABOUR

Premature Rupture of the Membranes(PROM)

- ✓ Membrane rupture that occurs spontaneously before the onset of labor.
- ✓ Complicates about 8% to 10% of pregnancies.

Term PROM

Preterm PROM, occurring before 37 weeks' gestation

- ✓ PROM at any gestational age is associated with brief latency from membrane rupture to delivery and increased risks for perinatal infection and umbilical cord compression due to oligohydramnios.
- ✓ Prolonged PROM is rupture of membranes for > 12

Etiology & Pathogenesis

- ✓ Pathogenesis of PPRM is not well understood.
- ✓ With advancing gestational age, changes in collagen content and type, & intercellular matrix, & cellular apoptosis result in structural weakening of membrane.
- ✓ With onset of contractions, the amniochorionic membrane is subject to additional physical strain that can lead to membrane rupture.

Risk Factors

- ❖ Connective tissue disorders
- ❖ Urogenital tract infection,
- ❖ Abnormal genital tract colonization,
- ❖ Chorioamnionitis, recent coitus,
- ❖ Low socioeconomic status,
- ❖ Uterine over-distention, 2nd & 3rd -trimester bleeding,
- ❖ Low body mass index ($<19.8 \text{ kg/m}^2$),
- ❖ Maternal cigarette smoking, cervical conization or cerclage
- ❖ Past history of PROM
- ❖ Multiple pregnancy
- ❖ Polyhydramnios
- ❖ Iatrogenic:- Amniocentesis, External cephalic version

Clinical Course of PROM

- ✓ **A hallmark of PROM is brief latency from membrane rupture to delivery.**
- ✓ Latency increases with decreasing gestational age at membrane rupture.

DIAGNOSIS

Involves clinical history and physical examination, as well as laboratory evaluation.

History — Sudden "gush" of clear fluid from vagina.

- ✓ Followed by persistent uncontrolled leakage .
- ✓ Some patients have only small, intermittent leakage
- ✓ May soak clothing or bedding
- ✓ Fluid may be seen on clothing or on sanitary pads
- ✓ Fluid can usually be seen at the introits

DIAGNOSIS ...

❖ **Physical examination-**

Direct observation of amniotic fluid coming out of the cervical canal or pooling in the vaginal fornix.

General examination to rule the presences of maternal and fetal infection

❖ **Speculum examination**

❖ **Digital examination should be avoided**

❖ **Ultrasound and other tests (nitrazine/ferning)are confirmatory**

Investigations

- Complete blood count
- CRPs
- U/A
- Ultrasonography-
 - Oligohydraminous is strong confirmatory evidence of PROM
 - BPP
 - Presentation
- Amniocentesis –lung maturity,

Management of PROM- Determinants

- ✓ Gestational age
- ✓ Fetal well being
- ✓ Presence or absence of infection
- ✓ Availability of NICU facility
- ✓ Fetal lung maturity test results
- ✓ Presence of complications such as cord prolapse
- ✓ Labor

Management

- ❖ Timing of delivery: At 34 weeks
- ❖ Term PROM:-Prompt induction of labor in women with term PROM .
- ❖ Compared to expectant management, induction of labor is associated with small reductions in maternal and neonatal infection rates and lower treatment costs, but no increase in cesarean delivery.
- ❖ :Start antibiotics if >12hrs.

Management of near term PROM (34-37 wks GA)

- ✓ Induction or expectant management are acceptable management options depending on local resources
- ✓ Consider antenatal steroids & prostaglandin for cervical ripening, if possible, before induction

Management of Pre term PROM(<34 wks)

Admit the woman to a hospital.

Expectant management is preferred

Principles of expectant management includes:-

- ✓ Avoid digital cervical (pelvic) examination
- ✓ Advise bed-rest
- ✓ Complete pelvic rest- to avoid infection
- ✓ Prophylactic antibiotics
- ✓ Use of steroids,
- ✓ Surveillance for infections

Corticosteroid Administration

- ✓ A single course of antenatal corticosteroids
- ✓ Betamethasone (12 mg IM every 24 hr for two doses) or
- ✓ Dexamethasone (6 mg IM every 12 hours for four doses)

Tocolysis

- ✓ Prophylactic tocolysis Vs Therapeutic tocolysis
- ✓ **Tocolysis and progesterone therapy should not be considered expected practices after preterm PROM.**
- ✓

Antibiotic Administration

Goal of antibiotic therapy during conservative management of PPRM

- ✓ To treat or prevent ascending infection in order to prolong pregnancy and reduce perinatal infectious and gestational age–dependent morbidity.
- ✓ Prolongs latency after membrane rupture and
- ✓ Reduces chorioamnionitis, and
- ✓ Reduces the frequencies of newborn complications that include neonatal infection, the need for oxygen or surfactant therapy, and IVH.

Indications for delivery (i.e. termination of expectant Management) include:

1. Onset of labor
2. Gestation age $\geq$ 37wks or the presence of phosphatidyl glycerol daily (indicates fetal lung maturity)
3. Evidence for fetal distress
4. Evidence for intra uterine infection.

Complications of PROM

Maternal Risks

- Chorioamnionitis
 - Increases following Prolonged membrane rupture and decreases with advancing gestational age.
- Abruptio placentae
- Retained placenta and hemorrhage requiring dilation and curettage, maternal sepsis, and maternal death .

• Fetal and Neonatal Risks

- Preterm labor
- Infection
- Fetal distress due to umbilical cord compression or placental abruption.
- Neonatal sepsi
- Pulmonary hypoplasia

CEPHALOPELVIC DISPROPORTION

CPD

Definition:

- ✓ Disparity B/N the fetal head and the maternal pelvic dimensions.
- ✓ - Failure of the fetal head to enter the pelvic inlet.
- ✓ _Any unsuccessful attempt at vag. Delivery.
- ✓ _Labor p_x insufficient & medical Rx unsuccessful
- ✓ A common cause of PL, FD, delayed SSOL.
- ✓ One of the common indication for C/S.
- ✓ Difficult to Dx before Onset of labor.
- ✓ True v/s relative CPD. True CPD is rare.

CPD...

Causes of true CPD:

A. Maternal Pelvis.

- ❖ **Small pelvis** (developmental or congenital).
- ❖ Abnormal shape of the pelvis due to diseases like **rickets & osteomalacia (metabolic) or tuberculosis.**
- ❖ Abnormal shape due to previous **accidents.**
- ❖ Tumors of the bones.
- ❖ Childhood poliomyelitis affecting the shape of the hips.
- ❖ Congenital dislocation of the hips.
- ❖ Congenital deformity of the sacrum or coccyx.
- ❖ Spine: -Lumbar kyphosis., Spondylolisthesis
- ❖ Oblique or asymmetric pelvis:
 - Naegele's pelvis.
 - Scoliotic pelvis.
- ❖ -Diseases, fracture or tumors affecting one side

CPD...

B. Fetal(macrocosmic):

- ✓ Very large baby due to hereditary reasons.
- ✓ Post mature baby.
- ✓ Babies of women with [diabetes](#) usually tend to be big.
- ✓ Babies of mothers who have had a number of children.
- ✓ Hydrocephalus.
- ✓ Relative CPD (common): Malpositions(OPP), Malprsentation(face, brow).

Diagnosis: difficult before labor(maternal ligaments & joints relax, fetal skull bones overlap).

TRIAL of LABOR!

Hx, P/E, Radiological tests.

Prolonged labor

Is labor which completed beyond normal time.

Clinical parameter

- cervical effacement dilatation

- Descent(station)

- rotation of the head

- molding

1. Prolonged latent stage of labor

-cervical dilation below 4cm after 8 hour at true labor.

Assessment on admission

-cervical dilation <4cm initially

-At least 2 regular contraction in 10 minute

-Membrane intact or not

-show

-If false labor cannot be exclude with certainty, the women is observed 4 to 8 hours.

Cont...

- Assesmnt at the 4th hour
- -If -contraction cease
cervical dilation and effacement remain the same
Membrane intact, manage her as false labor
If membrane is ruptured with no contraction, manage as PROM
- If cervix dilate >4cm, manage as active phase of labor using partograph.

Cont...

- ✓ If contraction persist, with or without progress in cervical dilatation/effect continue observation for next 4hr.
- ✓ Assessment at the 8th hour
- ✓ If cervix dilate >4cm, manage as active phase using partograph.
- ✓ If contraction cease, cervical dilatation remain the same:
 - membrane intact, treat as false labor -
 - membrane is not intact, treat as PROM
- ✓ If contraction persist for 8 hours and cervical dilatation less than 4cm, treat as prolonged latent first stage of labor.

Managment

1.Treat the cause:

- Dysfunctional uterine contraction

ARM and augmentation

- Unripe cervix-Augmentation

-

CPD ,malposion and malpresentation which is contraindication for augmentation-c/s

Mana...

- 2.Rehydration,
- 3.emptying the bladder,
- 4.encourage ambulation
- 5.Antipain
 - psychological support
 - pethedin
- 6.Reassure about danger sign

-

2.Prolonged active stage of labor

- ❖ cervical dilatation of less than 1cm per hours of labor in active phase(protracted cervix).
- ❖ Diagnosis and treatment - plotting of cervical dilatation usually remains on, or to the right of the alert line.
- ❖ -cervical dilatation crosses the action line.-Arrested or protracted cervix

Treatment

- ❖ Rehydration, emptying the bladder, encourage ambulation
- ❖ Normal presentation(OA,OP)or face(MA)with inadequate contraction-ARM ,agumentation ,close follow up and reevaluation at least 2-4 hour after adequate contraction started.
- ❖ For finding like face(MP),brow, shoulder,CPD,fetal distress, cord prolapse...-perform emergency c/s.

Prolonged second stage of labor

second stages lasting more than 1hour in multipara and 2 hour in nullipara.

Causes:

- ✓ ineffective contraction
- ✓ poor maternal effort
- ✓ full bladder or rectum
- ✓ passenger
- ✓ passage
- ✓ epidural analgesia

Clinical finding

- Full cervical dilatation and no cervical rime remaining
- No progressive descent(head rotation)with each contraction.

Management

- based on progressive descent ,
- Good maternal and fetal condition. -
should be individualized(instrumental or cesarean section)

Obstructed Labor

Def.

- ❖ Obstructed labour occurs when labour is allowed to continue despite the presence of mechanical factors which prevent descent of the fetus.
- ❖ cessation of progress of labour due to mechanical reasons in a well established labour
- ❖ Accounts for **8% of maternal deaths** in developing country.

Causes of obstructed labor

- ✓ Obstruction usually occurs at the pelvic brim, but occasionally it may occur in the cavity or at the outlet of the pelvis.
- ✓ Complications resulting from obstructed labour can be avoided if a woman in obstructed labour is identified early and appropriate action is taken.

Causes of obstructed labour

- ❖ Cephalopelvic disproportion (small pelvis or large fetus)
- ❖ Abnormal presentations, e.g. brow, shoulder, face with chin posterior , aftercoming head in breech presentation
- ❖ Fetal abnormalities, e.g. hydrocephalus, locked twins
- ❖ Abnormalities of the reproductive tract, e.g. pelvic tumour stenosis of cervix or vagina.

Risk factors

- ✓ Malnutrition or lack of exposure to sunlight resulting in rickets or osteomalacia
- ✓ Short height (<150 cm) of mother (often associated with malnutrition)
- ✓ Previous caesarean or stillbirth, previous prolonged labour
- ✓ Young age of mother (under 17 years of age)
- ✓ Female genital mutilation
- ✓ Long distance involved in obtaining skilled help

Risk factors ..

- ❖ practices regarding prolonged/obstructed labour
- ❖ Custom of early marriage
- ❖ Community distrust of health care personnel
- ❖ Staff untrained to recognize obstructed labour (partograph not used)
- ❖ Delay in referral to higher level of care (e.g. for caesarean section)

Are these risk factors preventable ?

In the long term

- correcting attitudes to diet, general health, status of women and life-style, care of girls and women,
- addressing problems of communications and transport, maternity waiting homes.

In the short term

- recognition and referral of high risk.

Diagnostic points of the physical examination

General condition In cases of obstructed labour there will be signs of physical and mental exhaustion.

- maternal and/or fetal distress
- dehydration and ketoacidosis (sunken eyes, thirsty, dry mouth, dry skin)
- fever
- abdominal pain which may be continuous
- shock, rapid, weak pulse (100 per minute or more),
- diminished urinary output, cold clammy skin, pallor, low

- blood pressure (systolic less than 90 mmHg), rapid respiratory rate (30 per minute or more), anxiousness, confusion, or unconsciousness.
- Shock may be due to a ruptured uterus or sepsis.
- Abdominal examination
 - the widest diameter of the fetal head can be felt above the pelvic brim because it is unable to descend.
 - If the uterus is tonic, it will be very difficult to palpate because uterus tightly moulded around the fetus .

Abdomenal exam.cont..

- Bandl's ring may be seen
 - Bandl's ring is a late sign of obstructed labour. It can be seen as a depression across the abdomen at about the level of the umbilicus.
- Below the Bandl's ring is the distended, dangerously thinned lower uterine segment.
- The lower abdomen can be further distended by a full bladder and gas in the intestines.
- Three tumor abdomen(urinary bladder,lower segment.upper segment).
- Fetal heart may not be heard in severe cases of obstructed labour because the fetus dies from anoxia.

Pelvic examination.

- ✓ Foul-smelling meconium draining , amniotic fluid already drained away
- ✓ Catheterization will produce concentrated urine which may contain blood
- ✓ Edema of the vulva, especially if the woman has been pushing for a long time
- ✓ Edematous cervix with incomplete dilatation(may be fully dilated in case of outlet obstruction)
- ✓ Large caput succedaneum excessive moulding can be felt
- ✓ Head stuck in pelvis, shoulder, brow or posterior face presentation, prolapsed arm.
- ✓ Contracted pelvis

Obstructed labour may also be revealed if the recordings on the partograph indicate:

- ✓ a prolonged first or second stage of labour
- ✓ which is evident because cervical dilatation will cross first the alert line and then,
- ✓ if no action is taken, will cross the action line despite a history of strong uterine contractions.

Complication

- ❖ Maternal and neonatal mortalities and morbidities are greatly increased .
- ❖ Sepsis and septic shock leading to various organ failure (temporary or permanent)
- ❖ Hemorrhage (APH, PPH), shock and anemia
- ❖ [Urinary or/ and rectal fistula](#): more common in nullipara
- ❖ Bladder injury during CS or craniotomy).
- ❖ Ruptured uterus: more common in multipara
- ❖ Nerve injury: e.g., drop foot
- ❖ Infertility following postpartum PID or hysterectomy
- ❖ Psychological trauma due to the painful labor experience, loss of the baby, fistula and social isolation

Investigation

- ✓ Diagnosis is clinical history and examination.
- ✓ Hemoglobin/ Hct
- ✓ Blood group (ABO, Rh)
- ✓ Urine analysis
- ✓ Renal function tests (especially with decreased urine output)
- ✓ Blood culture and sensitivity
- ✓ Others test depending on individual clinical findings

Management

- ❖ **Rehydrate the patient**
- ❖ **Give antibiotics**
- ❖ **Give supportive care**
- ❖ **Deliver the baby**(instrumental delivery or cesarean section)
- ❖ **Referral**

Trial of Labor

- It is a clinical test for the factors that cannot be determined before start of labor as :
 - ✓ Efficiency of uterine contractions.
 - ✓ Molding of the head.
 - ✓ Yielding of the pelvis and soft tissues.

Uterine rupture

- Is catastrophic event by which integrity of the uterin wall is breached.
- Is life threatening for mother and fetus

Etiology

- 1.Spontaneous uterine rupture -uterine rupture without any external trauma
- 2.Traumatic uterine rupture -uterine rupture following iatrogenic or accidental trauma

Presence of scar

- 1.Rupture of an unscarred uterus
- 2.Rupture of a scarred uterus – “Uterine Scar Dehiscence”

Extent

1.Complete uterine rupture-

- rent of myometrium and serosa
- the uterus communicates directly with the peritoneal cavity
- bleeding will occur within the peritoneum.

2.Incomplete uterine rupture

- rent of myometrium but with intact serosal cover
- the rupture does not reach the visceral peritoneum
- bleeding will occur behind the visceral peritoneum

Cont...

Timing

1. Antepartum uterine rupture- uterine rupture before the onset of labor – usually scar dehiscence
2. Intrapartum uterine rupture- uterine rupture during labor

Anatomic

1. Fundal uterine rupture
2. Lower segment uterine rupture – transverse; vertical
3. Posterior uterine rupture
4. Uterine rupture with vaginal extension

Cause

Abnormal labor

1. Obstructed labor
- 2 .Precipitate labor
- 3.Uterine hypertonus during oxytocin induction/augmentation

Trauma

1. Car accident; Seat belt injury
- 2.Fall accident with abdominal trauma
- 3.Missile injury
- 4.Domestic violence

Cause

Iatrogenic

- 1.External or internal versions
- 2.Total breech extractions
- 3.Difficult forceps (mid) deliveries
- 4.Difficult embryotomy procedures
- 5.Abdominal massage by a traditional labor attendant

Uterine scar: Caesarean; myomectomy; metroplasty; previous repaired rupture; previous uterine perforation

Spontaneous:

-Certain antepartum or intrapartum ruptures occur without any obvious explanations; extremely rare occurrence

Symptom of rupture of uterine

- ✓ Severe abdominal pain
- ✓ Symptoms of -hypovolemia
 - shock
 - dizziness,
 - weakness,
 - sweating,
 - delirium and coma, etc
- ✓ In labor- cessation of typical labor pains and replacement with diffuse generalized abdominal pain

Symptom

- ✓ Vaginal bleeding
- ✓ Cessation of fetal movement
- ✓ Respiratory difficulty
- ✓ Fever, chills, rigors
- ✓ History of previous uterine surgery in some mothers

Sign of uterine rupture

- ✓ Hypovolemia and shock
- ✓ Acute cardio respiratory distress
- ✓ Pallor
- ✓ Dry mucosal surfaces
- ✓ Tender abdomen
- ✓ Easily palpable fetal parts
- ✓ Fetal distress or death
- ✓ Evidence of fluid in abdomen
- ✓ Features of obstructed labor on vaginal examination
- ✓ Vaginal bleeding
- ✓ cervical dilatation is decreased
- ✓ Blood concentrated urine (bladder damaged)
 - ✓ Offensive vaginal discharge

Management of Uterine Rupture

- ❖ Resuscitation
- ❖ Administer oxygen by face mask
- ❖ Open wide bore IV access
- ❖ Fluid resuscitation with crystalloids/colloids
- ❖ Administration of broad spectrum antibiotics
- ❖ Type and cross match blood for possible transfusion
- ❖ Catheterize bladder and monitor input-output
- ❖ Insert NG tube if food ingested recently or labor prolonged for days to avoid aspiration
- ❖ Administer antacids
- ❖ Prepare for emergency surgery or refer
- ❖ Treatment option (Total abdominal subtotal hysterectomy)

Complications of Uterine Rupture

- Hypovolemic shock
- Septic shock
- Stillbirth and early neonatal death
- Hysterectomy and loss of fertility
- Concomitant bladder injury
- Post partum anemia
- Maternal mortality

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Postpartum hemorrhage (PPH)

WARNING: Rapid action in response to PPH is critical!

More than half of all maternal deaths occur within 24 hours of childbirth, mostly due to excessive bleeding.

Uterine atony is the major factor of postpartum hemorrhage (PPH) which causes more than one-quarter of all maternal deaths worldwide

Classification of PPH

Purpose:

- ✓ to determine the most suitable line of management
- ✓ to assess the prognosis
- ✓ to allow effective communication
- Primary (early) PPH
 - Third stage hemorrhage (before placental delivery)
 - True PPH (after placental delivery)
- **Secondary (late) PPH:** Is defined as bleeding occurring between 24 hours and 6 weeks after delivery
-

PRIMARY (EARLY) PPH

- ❖ Problems associated with the definition of PPH
 - ❖ Estimation of blood loss is very difficult & inaccurate
 - ❖ Definitions are not universally accepted
 - ❖ Even less amount of bleeding can lead to complications
eg. anemia , pre-eclampsia

Currently accepted definitions of primary PPH

- ✓ Blood loss per vaginum in excess of 500 ml after vaginal delivery or > 1000 ml after CS in the 1st 24 hours
- ✓ A HCT change of 10 % from the previous level
- ✓ Bleeding resulting in derangement of the vital signs & a need for RBC transfusion

Primary PPH

The two most common causes of primary PPH are

- ❖ uterine hemorrhage(atony)
- ❖ lacerations of the genital tract

4T`s : Tone, Tissue, Trauma, Thrombin

Uterine atony alone accounts for 75–90% of cases of postpartum hemorrhage

Predisposing factors & causes of primary PPH

I. Bleeding from placental implantation site

❖ i. Uterine atony

- ❖ overdistended uterus (hydramnios , multifetal pregnancy , fetal macrosomia)
- ❖ prolonged labor
- ❖ precipitate labor
- ❖ previous PPH due to atony !!!
- ❖ high parity

- General anesthesia E.g. Halothane
- chorioamnionitis
- Oxytocin induction or augmentation
- Uterine hypoxia eg. hypotension
- Mismanagement of the third stage
- Operative vaginal or abdominal deliveries

➤ **If there is APH anticipate PPH**

ii. Retained placental tissue

- ❖ succenturate lobe
- ❖ pieces of cotyledon
- ❖ abnormally adherent placenta (accreta ,increta & percreta)

II. Trauma to the genital tract

- ❖ Large episiotomy
- ❖ Lacerations of the perineum , vagina & cervix
- ❖ Uterine rupture

III. Uterine inversion

IV. Coagulation abnormalities

- ❖ Hypofibrinogenemia
- ❖ Thrombocytopenia
- ❖ DIC

Diagnosis & clinical findings

- ❖ The diagnosis is usually simple unless there is unrecognized intrauterine or intravaginal blood collection or uterine rupture (intraperitoneal bleeding)

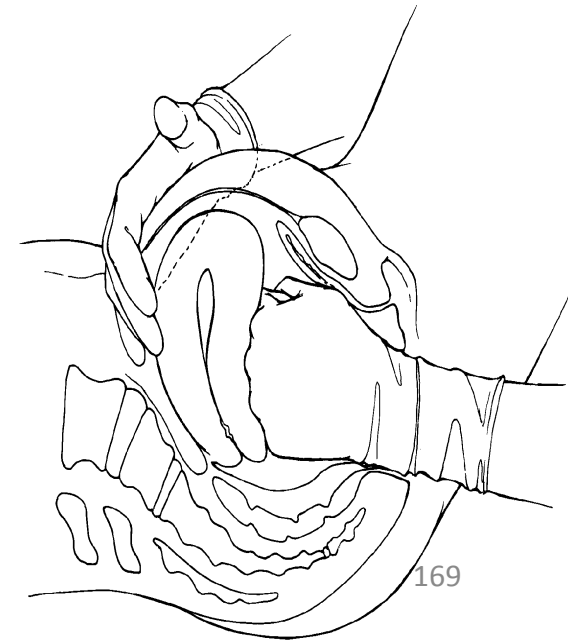
Management of PPH

Prevention is the most important aspect of management

- ❖ Prevent Prolonged Labor
- ❖ Active Management of the Third Stage of Labor(AMTSL)
- ❖ Avoid perineal/vaginal trauma
- ❖ Monitor closely

Mx of bleeding after delivery of the placenta

- ❖ Bleeding is again usually due to atony or lacerations
- ❖ The 1st step is to check whether the uterus is well contracted or not
- ❖ Do bimanual uterine compression
- ❖ (Hamilton's manoeuver) to stop or decrease the bleeding



- ❖ In the mean time begin with IV infusion of oxytocin (20 IU in 1000 ml N/S or RL & give ergometrine IV or IM)
- ❖ If blood loss continues start with another IV line resuscitation including blood transfusion
- ❖ explore the uterine cavity to remove retained clot or fragments of placenta or do gauze or post partum curettage
- ❖ If bleeding continues take the patient to OR & prepare for immediate laparotomy
- ❖ Bimanual compression of the uterus is continued in the mean time till incision is started

Compression of Abdominal Aorta

- ❖ Apply downward pressure with closed fist over abdominal aorta through abdominal wall (just above umbilicus slightly to patient's left)
- ❖ With other hand, palpate femoral pulse to check adequacy of compression
 - Pulse palpable = inadequate
 - Pulse not palpable = adequate
- ❖ Maintain compression until bleeding is controlled



- ✓ Bilateral uterine artery ligation is simple & effective to control most cases of PPH & preserves the patient's reproductive capacity
- ✓ Bilateral internal iliac (hypogastric) artery ligation can be done if there is broad ligament or lateral pelvic hematoma
- ✓ Hysterectomy is the definitive & last method of controlling PPH

Retained Placenta

- ✓ Retained products of conception, namely placental tissue and amniotic membranes, can inhibit the uterus from adequate contraction and result in hemorrhage.
- ✓ Incidence :complicate 1 in 100 to 1 in 200 deliveries
- ✓ Risk Factors include midtrimester delivery, chorioamnionitis, and accessory placental lobes.

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Clinical Manifestations and Diagnosis

Failure of placental delivery within 30 minutes after delivery of the foetus:

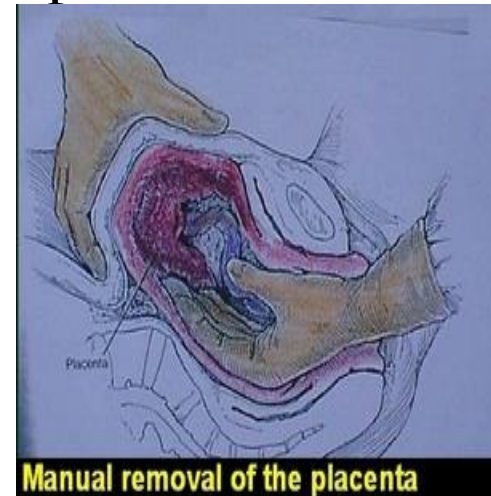
❖ **Uterine bleeding, often associated with atony**

assess the uterus for retained products of conception, the uterine cavity needs to be explored.

Manual exploration is not only diagnostic but therapeutic as well.

❖ **Manual removal of the placenta:**

—The [placenta](#) may need to be removed manually



Abnormally adherent placenta

- ✓ Rarely the placenta is unusually adherent to the implantation site
- ✓ The physiological cleavage line is lacking due to scanty or absent decidua
- ✓ one or more cotyledons can firmly attach to the defective decidua or even myometrium

Classification

Placenta accreta(80%)

- placental villi are attached with the myometrium

Placenta increta(15%)

- chorionic villi invade the myometrium

Placenta percreta(5%)

- the villi penetrate the myometrium & reach the serosal layer

Incidence :unknown (1:2500 - 1 : 7000)

❖ **Etiology** :common in conditions where defective decidual formation is more likely

The abnormal adherence may involve

- ❖ all cotyledons -
- ❖ total placenta accreta
- ❖ a few or several cotyledons
- ❖ - partial placenta accreta
- ❖ a single cotyledon- focal placenta accreta

Predisposing factors

- ❖ placenta previa
- ❖ previous curettage
- ❖ previous CS
- ❖ previous severe infection
- ❖ grand multiparity

Clinical presentation & diagnosis

Antepartum

- ❖ rarely acute abdomen can occur due to uterine perforation
- ❖ US diagnosis is possible antepartum (expert !!)

Delivery - presentations during delivery depends on

- ❖ site of implantation
- ❖ depth of myometrial invasion
- ❖ number of cotyledons involved

Focal p. accreta

- ❖ severe bleeding usually occurs or rarely asymptomatic resulting in the formation of placental polyps

Partial p. accreta

- ❖ hemorrhage is profuse due to partial separation

Total p. accreta

- ❖ little or usually no bleeding
- ❖ unsuccessful attempt in doing traction may result in uterine inversion

Mx

Therapeutic possibilities

**Conservative(uterine preservation) versus
definitive(hysterectomy) management**

Conservative management is a valid option if preservation of fertility is important.

1. Leaving the placenta in place (totally or in fragments);
2. Localized resection and repair;
3. Oversewing a defect, especially if percreta is identified; and
4. Blunt dissection/curettage.

Inversion of the uterus

uncommon but life threatening

- the fundus of the uterus descends through the uterine body & cervix in to the vagina & sometimes protrudes through the vulva
- Incidence: one in 2500 deliveries
- Inversion may be classified as follows:
 1. Incomplete: corpus does not protrude through cervix;
 2. Complete: corpus protrudes through the cervix;
 3. Prolapse: corpus extends to/through introitus;
 4. Acute: occurs without cervical contraction;
 5. Subacute: 24hrs to 04weeks
 6. Chronic: 04 weeks time differential between inversion and cervical contraction

Etiology

complete uterine inversion is almost always caused by strong traction on the umbilical cord of a placenta attached to the fundus

Contributing factors:

- ✓ tough cord
- ✓ relaxed uterus
- ✓ fundal pressure(Crede's maneuver)
- ✓ morbidly adherent placenta

Diagnosis

- ❖ acute complete inversion resulting from cord traction is simple to diagnose
- ❖ suspect incomplete inversion in a patient having deep shock with out obvious vaginal bleeding (neurogenic !!!)
- ❖ if iv infusion fails to increase blood pressure suspect inversion
- ❖ dimpling or absence of palpable uterus on abdominal exam

Management

delay in treatment is fatal!

Steps

- call assistance including anesthesist
- freshly inverted uterus with separated placenta can easily be repositioned immediately
- secure 2 IV lines. Give crystalloids or blood to reverse hypovolemia

if placenta is still attached to the uterus , it is not removed unless

- ❖ Iv secured
- ❖ blood prepared
- ❖ anesthesia (halothane) is administered
- ❖ Oxtocic drugs
- ❖ removing the placenta with out the above preconditions increase the risk of PPH
- ❖ less blood loss if placenta removed after replacement

- ❖ oxytocin is not given until after the uterus is restored to its normal configuration
- ❖ stop relaxants & begin with oxytocin infusion to affect uterine contraction while maintaining the uterus in normal position
- ❖ after uterus is well contracted , continue to monitor the uterus transvaginally for evidence of subsequent inversion (rare)
- ❖ surgical intervention is indicated if vaginal replacement fails

Traumatic haemorrhage

- ❖ Rupture uterus, cervical, vaginal ,vulval or perineal lacerations, uterine inversion .
- ❖ The uterus is contracted
- ❖ Bleeding starts immediately after delivery of the foetus.
- ❖ It is bright red in colour.
- ❖ Lacerations can be detected by local examination.

- ❖ Genital tract lacerations may occur with both vaginal and cesarean deliveries.
- ❖ involve the maternal soft tissue structures and can be associated with large hematomas and rapid blood loss if unrecognized
- ❖ A genitourinary tract laceration should be suspected if bleeding persists after delivery despite **adequate uterine** tone
- ❖ **Pain and hemodynamic** instability may be the primary presenting symptoms
- ❖ Careful inspection of the cervix and vagina will often indicate the source of the bleeding.

Obstetrics Shock

Definition:-

- ❖ Shock is a condition resulting from inability of the circulatory system to provide the tissues requirements from oxygen and nutrients and to remove metabolites

Types and Causes:

- ❖ Haemorrhagic shock
- ❖ Neurogenic shock painful conditions
- ❖ Cardiogenic shock : ineffective contraction of the cardiac muscle

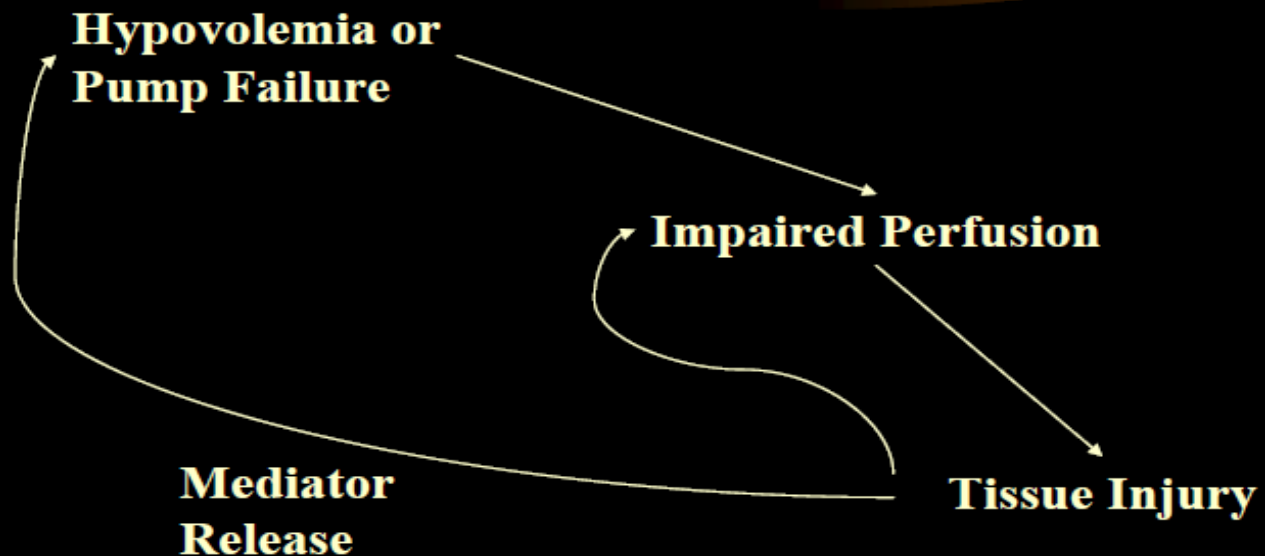
Endotoxic shock: generalized vascular disturbance due to release of toxins.

Anaphylactic shock: caused by sensitivity to drugs.

Other causes:

1. *Embolism: amniotic fluid , air or thrombus.*
2. *Anaesthetic complications*

Shock - SIRS Continuum



Shock - SIRS Continuum

INJURY/EVENT

SIRS

SHOCK

**MULTISYSTEM
DYSFUNCTION**

Classic Clinical Picture of Shock:

- ❖ Low blood pressure.
- ❖ Rapid weak (thready) pulse.
- ❖ Pallor.
- ❖ Cold clammy sweat.
- ❖ Cyanosis of the fingers.
- ❖ Air hunger.
- ❖ Dimness of vision.
- ❖ Restlessness.
- ❖ Oliguria or anuria.

Obstetric shock is either (Hemorrhagic /,Septic)

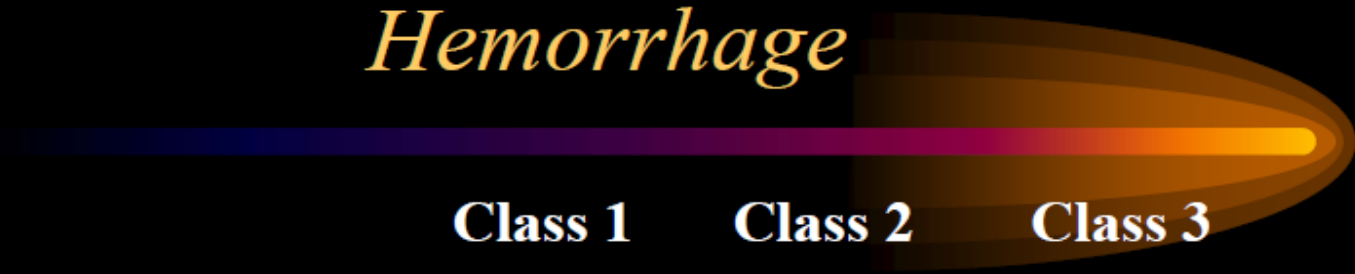
OB Hemorrhagic Shock

Hemorrhagic :

Hypovolemic Leading cause of Obstetric death Significant cause of morbidity during pregnancy and immediately postpartum.

- May be poorly recognized due to physiologic **changes of pregnancy**

Categorization of Acute Hemorrhage



	Class 1	Class 2	Class 3
Blood loss (% blood volume)	15%	15%-30%	30%-40%
Pulse rate	<100	>100	>120
Pulse pressure	Normal	Decreased	Decreased
Blood Pressure	Normal or increased	Decreased	Decreased

Phases of Haemorrhagic Shock:

Phase of compensation:

- ❖ Sympathetic stimulation: It is the initial response to blood loss leading to peripheral vasoconstriction to maintain blood supply to the vital organs.
- ❖ Clinical picture: - Pallor, - tachycardia, - tachypnoea.

Phases ...

Phase of decompensation

- ❖ Blood loss exceeds 1000 ml in normal patient or less if other adverse factors classic clinical picture of shock are operating.

Phase of cellular damage and danger of death:

- ❖ Metabolic acidosis: due to anaerobic metabolism initiated after lack of oxygen.
- ❖ Arteriolar dilatation : caused by accumulation of metabolites leading to pooling and stagnation
- ❖ of blood in the capillaries and leakage of fluid into the tissues.

- ❖ Disseminated intravascular coagulation: caused by release of thromboplastin from the damaged tissues.
- ❖ Cardiac failure: due to diminished coronary blood flow In this phase death is imminent, transfusion alone is inadequate and if recovery from acute phase occurs residual tissue damage as renal and/ or **pituitary necrosis will occur.**

Post partum pituitary necrosis

Sheehan Syndrome

- ❖ Originally described as sudden ischemic necrosis of pituitary, occasionally precipitated by hemorrhage or shock associated with obstetric delivery
- ❖ Pituitary enlarged during pregnancy and may partially compress the vascular system leading to shock. Post parturition sudden hypovolemia may lead to necrosis
- ❖ The classical case is characterized by failure of lactation, amenorrhea, breast atrophy, loss of pubic and axillary hair, hypothyroidism, and adrenal cortical insufficiency.
- ❖ **Risk factors**: shock, DIC, sickle cell anemia, temporal arteritis and cavernous sinus thrombosis.

The key steps

Most maternal deaths are avoidable and are due to underestimation of blood loss, inadequate volume replacement, and delay in operative intervention.

The main principles of management are:

- (a) to prevent further blood loss
- (b) to restore proper blood volume.

(1) Placenta - where?

- ❖ Establish whether the placenta is delivered.

(2) Shock?

Establish the mother's cardiovascular status (pulse, and if immediately available, blood pressure)

- 3) Source of bleeding? Palpate the abdomen to establish whether haemorrhage is likely to come from the placental bed or the lower genital tract.
- (4) Call for help.
- 5) Remove placenta
6. Make uterus contract - treat hypovolaemia
Manually stimulate the uterus to contract, give further injections of ergometrine or Syntometrine, intravenously
7. Bimanual compression - uterine artery stretch
8. Uterine packing :-Packing using gauze, gauze placed within a plastic bag, or using inflatable tubes.

9. Aortic compression

10. Treat anaemia, coagulopathy, thrombocytopenia

11. Operative procedures(placenta previa accreta/increta).
Hysterectomy and ligation of the internal iliac arteries are well known procedures

Septicaemic shock

Septicaemic shock complicates 20% of cases of septicaemia. It is a state of profound tissue hypoperfusion with the following features:

- ❖ evidence of infection
- ❖ fever or hypothermia
- ❖ hypotension
- ❖ tachypnoea
- ❖ mental confusion

It classically by Gram negative organisms, though in fact shock may also occur due to Gram positive infection as well as fungal infection.

clinical features

Typical features of septicaemic shock include:

- profound and prolonged hypotension
- fever or hypothermia
- acidosis
- tachycardia
- hypoxia - which may also cause confusion
- There may also be associated adult respiratory distress, disseminated intravascular coagulation and acute renal failure.

management of septicaemic shock

- ❖ put in a CVP line
- ❖ give iv colloid -
- ❖ Blood is given if the haemoglobin is less than 10 g/dl.
- ❖ consider combination inotropic/vasopressor therapy if blood pressure remains below 90 mmHg despite adequate CVP
- ❖ urinary catheter - should be > 30 ml/hour.
- ❖ high doses of prednisolone are of no benefit
- ❖ give oxygen if cyanosis
- ❖ treat underlying infection septicaemia

Amnionic Fluid Embolism

- ❖ Embolism caused by strong uterine contractions near the end of a normal pregnancy that force amniotic fluid into the maternal circulation
- ❖ Amnionic fluid enters the circulation as a result
- ❖ of a breach in the physiological barrier that normally exists between maternal and fetal compartments such exposure initiates a complex series of physiological reactions mimicking those seen in human anaphylaxis and sepsis.
- ❖ a complex disorder classically characterized by the abrupt onset of hypotension, hypoxia, and consumptive coagulopathy

Possible risk factors

- ❖ It is not preventable because it can not be predicted
- ❖ Oxytocin administration
- ❖ Abruptio placentae
- ❖ Hydramnios

Disease Progression

- ❖ Sudden chest pain inability to breath secondary to pulmonary artery constriction
- ❖ Onset/Abrupt/Sudden
- ❖ Course/Eventual terminal event/death possible

Treatment

Drug Therapy - Indication RX/Oxygen

CPR ineffective

Other Treatments

- ❖ Intensive care management Endotracheal intubation

TX/for DIC

- ❖ Platelet transfusion/fibrinogen therapy

Thank you