3f. Garbhashayantara Garbha Sthiti (Fetus-in-utero)

(f) Garbhashayāntara Garbha Sthiti (Fetus-in-utero): Lie, Attitude, Presentation, Presenting Part, Denominator, Position

> **Exam compass:** Examiners expect crisp **definitions**, clean **classification**, **how to diagnose** (abdominal + vaginal + ultrasound), and **obstetric significance/ management outline** for each abnormality. Use tables; name the **denominator** correctly every time.

Learning objectives

By the end of this chapter you will be able to:

1. define and differentiate **lie, attitude, presentation, presenting part, denominator, position**;
2. classify normal and abnormal **lies** and **presentations** with their causes;
3. identify the **denominator** for each presentation and list the common **positions**;
4. determine fetal situation clinically (**Leopold's maneuvers, pelvic exam**) and by ultrasound;
5. state the **obstetric significance** and outline **safe management principles** for malpresentation/malposition.

Details of video – The Position of the Baby:
It's important to check the baby's position early in labor. Is his head down? Which way is he facing? Is he making progress moving down through the pelvis? This information can alert you to potential problems and need for referral. This video will show how to feel where the baby is within the uterus.

Let the mother know that you would like to check her belly to find out the position of her baby. Be sure she has emptied her bladder then ask her to lie on her back.

There are four maneuvers that are done in sequence.

First: Put both your hands flat on the mother's belly and feel the top of the uterus with the palms and fingers of both hands. Most often you will feel the baby's bottom here. You will feel soft irregular shapes that don't move easily under gentle pressure from your hands. You may be able to feel his legs nearby. If instead, the baby's head is in the top of the uterus, it will feel hard, round and movable in relation to the rest of his body.

Now determine how the baby is lying by placing your hands on the sides of the uterus. Apply gentle pressure with one hand while holding the other hand firm to steady the uterus; alternate the pressure between your two hands. On one side, you will usually be able to feel a long smooth continuous shape, which is the baby's back. On the other side you'll feel small irregular lumps, which are the baby's arms and legs. The baby is facing inwards towards the mothers back; the easiest position to birth.

Next, determine which part of the baby will be born first. Place your hands on the lower part of her abdomen, with your fingers gently pressing inwards just above the pubic bone. You may feel the hard round head there. If the part feels softer and irregular, it is likely the baby's bottom or feet; a breech presentation.

Here's another way to determine the presenting part. Gently grasp the area just above the mother's pubic bone, but do not cause the mother pain. Again, the head will feel hard and round. A breech will feel softer and irregular. To estimate how low the head has descended within the pelvis – which is called the station – measure the number of fingers from the pubic bone to the base of the baby's head. A head that is not engaged will feel mobile and fit 5 fingers above the pelvic brim. As the head descends, the portion of the head remaining above the brim will fit fewer fingers. The head is engaged when there are 2 fingers or less.

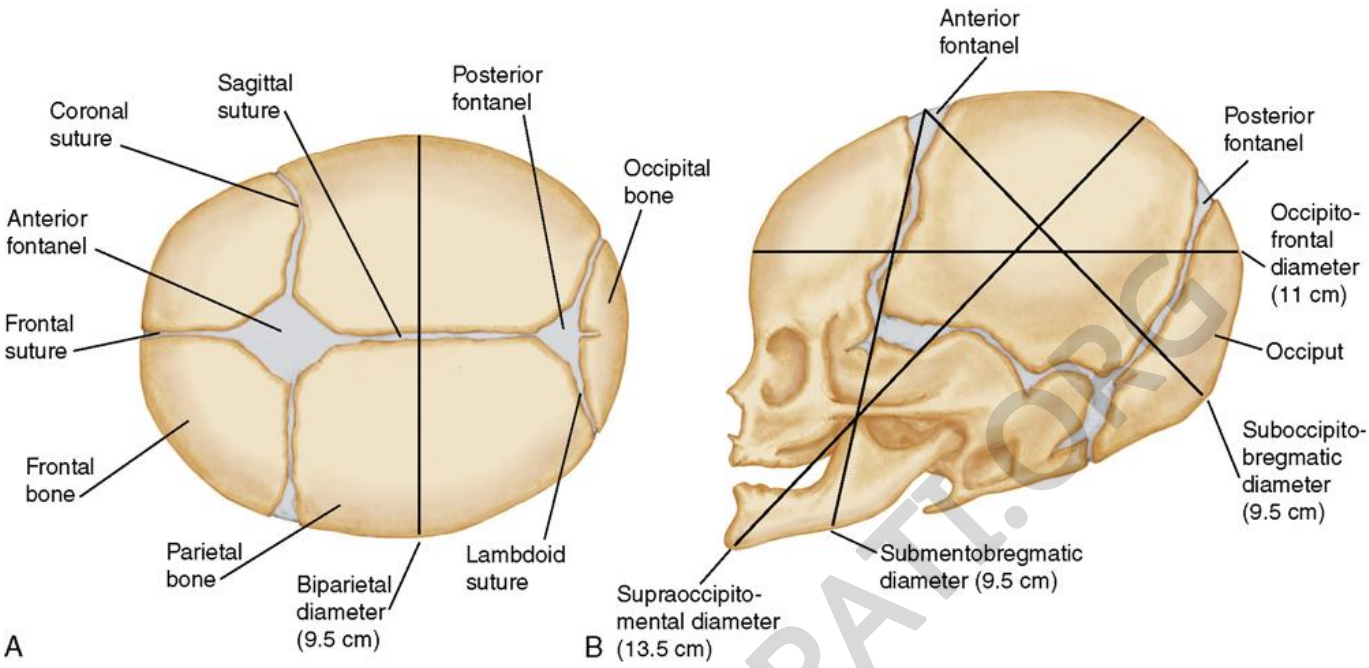
Some positions can lead to especially long difficult labors and higher risk deliveries. A baby with her head down facing the mothers side or back is the most common and favorable position for birth. A baby with her head down facing the front of the mother is in a more difficult position that can make labor longer. In these babies you can feel small irregular parts across the mother's belly. Usually the baby will turn during labor – but rarely she can birth face up. A breech presentation with bottom or feet first may be a more difficult delivery and the risk of complications is higher. Rarely the baby will be lying across the uterus. This position is called a transverse lie. The top of the uterus will feel empty and you'll feel the hard, round shape of the baby's head at one side of the belly. The baby won't survive a normal delivery unless she can be turned.

Women carrying twins often have unusually large bellies. You may feel too many small parts of the baby – and you might feel one head or two. Often one baby is in a difficult position for birth. Fundal height, may suggest the possibility of twins or a small baby. Stretch the tape measure from the top of the pubic bone to the top of the uterus. A twin pregnancy may measure more than 40 cm. A fundal height less than 30 may indicate a baby that will be born too soon or too small. Transfer mothers who are carrying a breech or twins unless you are skilled at these deliveries. Always refer a transverse lie. Also transfer a mother who is failing to make progress in labor –her baby may be too large or in a difficult position. These mothers will be safest birthing in a facility that can do cesarean sections.

Remember, skillfully assessing where the baby is in the uterus can alert you to potential problems. In a systematic way, feel the top, the sides, and the bottom of the uterus. Estimate the descent of the baby in finger widths above the pelvic brim.

1) Core definitions

- **Lie**: Relationship of the **long axis of the fetus** to the **long axis of the uterus**.
  - **Longitudinal** (parallel), **Transverse** (perpendicular), **Oblique** (angled).
- **Attitude**: Relationship of **fetal head and limbs** to the **fetal trunk**.
  - **General (universal) flexion** is normal (head flexed, chin to chest; arms/legs flexed).
- **Presentation**: The **part of the fetus that occupies the lower uterine segment** and lies over the **pelvic brim**.
  - Major groups: **Cephalic** (vertex, brow, face), **Breech** (complete, frank, footling), **Shoulder** (transverse lie), **Compound** (an extremity with head/breech).
- **Presenting part**: The **lowest palpable bony landmark** of the presenting portion during vaginal examination (e.g., **occiput** in vertex, **mentum** in face, **sacrum** in breech, **acromion** in shoulder).
- **Denominator**: A **fixed bony reference point** on the presenting part used to describe **position**.
  - Vertex—**Occiput (O)**; Face—**Mentum/Chin (M)**; Brow—**Frontal bone/Frontum (F)**; Breech—**Sacrum (S)**; Shoulder—**Acromion/Scapula (A/Sc)**.
- **Position**: Relationship of the **denominator** to the **maternal pelvis** (right/left, anterior/posterior, transverse).
  - Example: **LOA** = Left Occipito-Anterior; **ROP** = Right Occipito-Posterior; **LMA** = Left Mento-Anterior; **RSA** = Right Sacro-Anterior; **RScA** = Right Scapulo-Anterior.



The fetal head with bones, sutures, and fontanelles. Note that the anterior fontanelle is diamond-shaped, whereas the posterior fontanelle is triangular.

2) Lie

Fetal lie is the relation of the longitudinal axis of the fetus to the longitudinal axis of the mother. The ideal is a parallel relation in which the long axes of the fetus and mother are the same. In rare instances the fetus lies crosswise in the uterus (transverse lie), which necessitates a cesarean birth.

2.1 Types & incidence

- **Longitudinal lie** (~95% at term) → cephalic or breech presentation.
- **Transverse lie** (long axis across uterus).
- **Oblique lie** (unstable; often converts to transverse/longitudinal).

2.2 Predisposing factors for abnormal lie

- **Prematurity**, **polyhydramnios**, **placenta previa**, **uterine anomalies** (septate/bicornuate), **fibroids**, **grand multiparity**, **pelvic tumors**, **fetal anomalies** (anencephaly), **multiple pregnancy**.

2.3 Obstetric significance

- **Transverse/oblique**: vaginal delivery impossible unless converts; **cord prolapse** risk high; **cesarean delivery** indicated if persistent at labour.
- **Longitudinal**: normal if cephalic; breech needs individualised planning (see §6).

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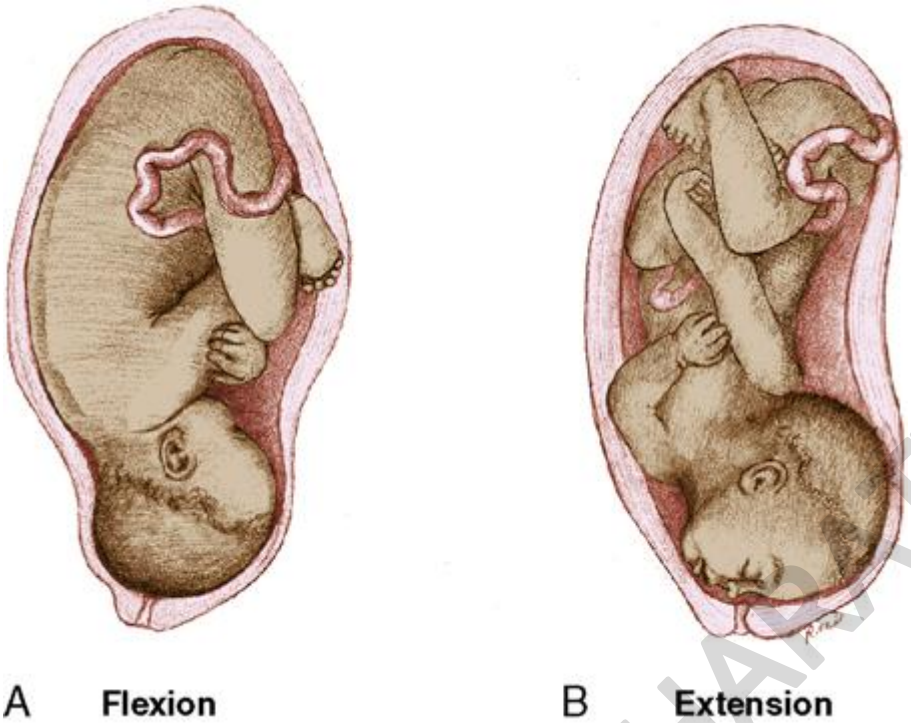
3) Attitude

Fetal attitude is the relation of the fetal parts to one another. The normal attitude of the fetus is one of flexion. The fetus is flexed with head on chest, arms and legs folded, and legs drawn up onto the abdomen. Changes in fetal attitude, particularly in the extension of the head, cause the fetus to present a larger diameter of the fetal head to the maternal pelvis. Extension of the fetal head, especially full extension in which the chin or face presents, makes vaginal birth difficult

and sometimes impossible



Attitude. A, Fetus is in the normal attitude of flexion, with the arms and legs flexed tightly against the trunk. **B,** Fetus is in an attitude of extension, which is abnormal. Face presentation is illustrated.

3.1 Normal

- **General flexion** → smallest diameters present to pelvis; **suboccipito-bregmatic (9.5 cm)** in a well-flexed vertex.

3.2 Deflexion spectrum (cephalic)

- **Mild deflexion** → larger diameter (**occipito-frontal 11.5 cm**).
- **Brow presentation** → **mento-vertical 13–13.5 cm** (largest; usually **obstructed labour**).
- **Face presentation** → **submento-bregmatic 9.5 cm** (if **mentum anterior**); if **mentum posterior**, extension cannot complete—**obstructed**.

Clinical pearls

- Degree of flexion decides **which cephalic subtype** you get (vertex → brow → face).
- Persistent **OP** (occipito-posterior) is often a **deflexed head** in a roomy anterior pelvis but narrow mid-pelvis—expect **longer labour/backache**.

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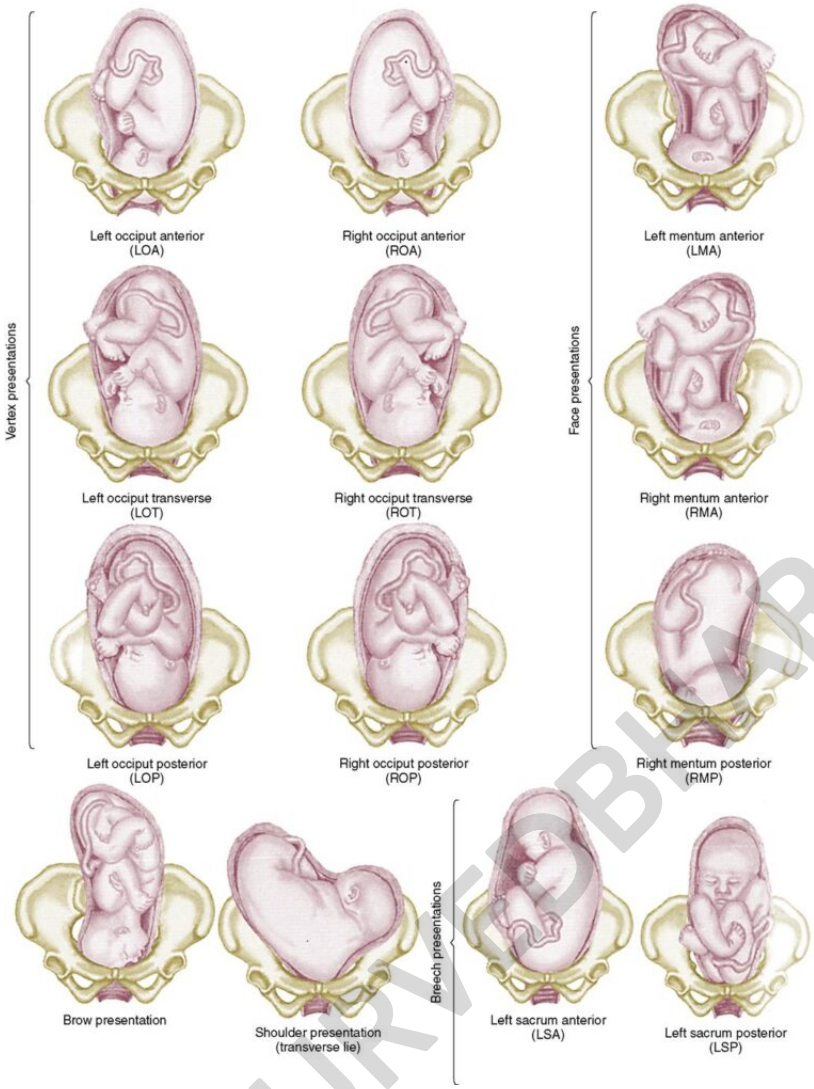
4) Presentation

Fetal presentation is determined by the body part of the fetus that is lowest in the mother's pelvis. A cephalic, breech, or shoulder presentation may occur. Cephalic (head first) presentation is the most common, occurring in approximately 95% of all births, and labor most often proceeds normally. If the head is flexed, the position is referred to as a *vertex presentation*. Breech presentation occurs in approximately 3% of all births. In the breech presentation, the presenting parts may be either the buttocks (complete or frank breech) or one or both feet (footling breech). The rarest type of presentation is the transverse (or oblique), which occurs in approximately 1% of births. These are referred to

as *malpresentations* and do not proceed normally.



4.1 Cephalic

- **Vertex** (most common; head flexed).
- **Brow** (partially extended; forehead leading).
- **Face** (fully extended; chin leading).

4.2 Breech

- **Frank** (hips flexed, knees extended; feet near face).
- **Complete** (hips and knees flexed—“sitting”).
- **Incomplete/Footling** (one/both feet below buttocks).

4.3 Shoulder (transverse lie)

- Presenting part **acromion**; often with **cord prolapse** after ROM.

4.4 Compound

- Hand or foot prolapsing alongside head/breech (often transient with polyhydramnios/prematurity).

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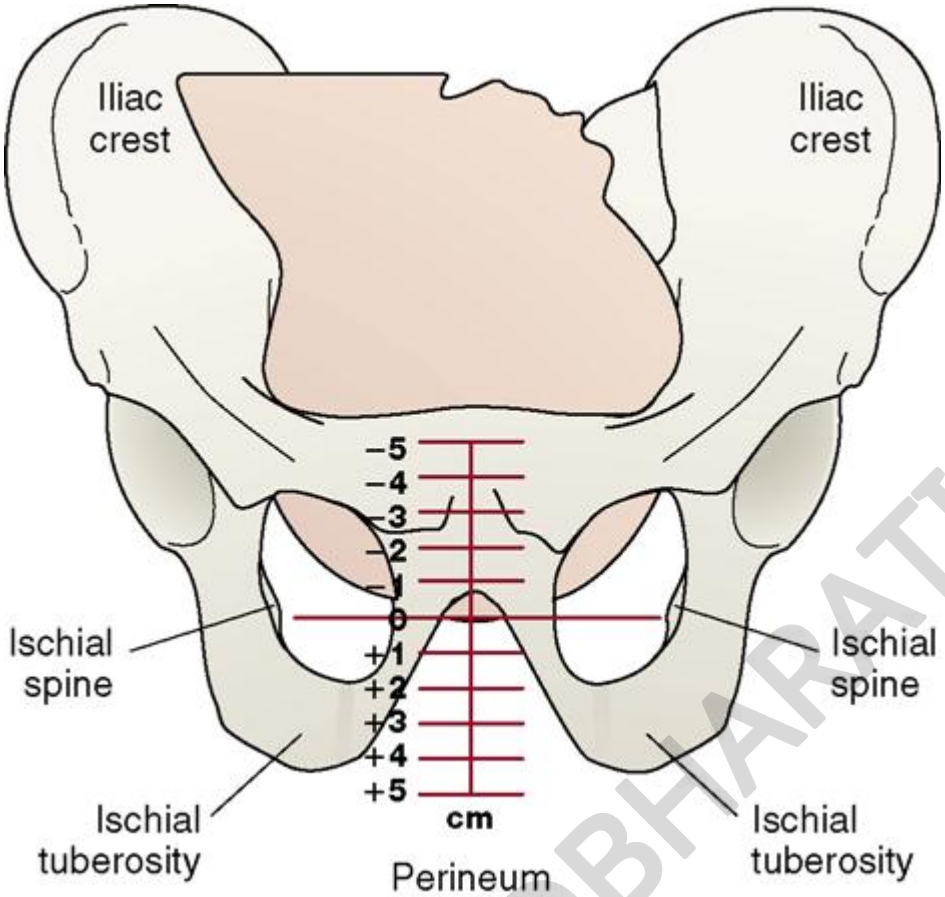
5) Denominator & Position (master table)

Presentation	Presenting part	Denominator	Common positions (examples)	Vaginal delivery possible?
Vertex	Occipital bone (well-flexed head)	**Occiput (O)**	**LOA, ROA, LOT, ROT, LOP, ROP**	Yes; OA best; OP often prolonged/operative
Face	Face (chin leading)	**Mentum (M)**	**LMA, RMA, LMP, RMP, LMT/RMT**	**Only Mento-Anterior** (MA) usually; **MP** obstructs
Brow	Forehead	**Frontum (F)**	LFA, RFA, LFP, RFP	Generally **obstructed**; tends to convert to face/vertex
Breech	Buttocks	**Sacrum (S)**	**LSA, RSA, LSP, RSP, LST/RST**	Possible in selected cases (criteria); higher perinatal risk
Shoulder	Acromion	**Acromion/Scapula (A/Sc)**	**LScA, RScA, LScP, RScP**	**No** (unless converted); usually CS

Mnemonic: Occiput (vertex), **M**entum (face), **F**rontum (brow), **S**acrum (breech), **A/Sc**romion/Scapula (shoulder).

Station

Station is the relation of the presenting part of the fetus to an imaginary line drawn between the ischial spines of the maternal pelvis. To put it simply, the station is how far the fetal presenting part has descended into the mother's pelvis. Station defines the progression of (usually) the fetal head down toward the pelvic floor. It is measured in centimeters above or below the ischial spines. When the presenting part is above the ischial spines, it is at minus station, with −5 at the inlet. When the presenting part is 1 or 2 cm below the spines, it is at the +1 or +2 station. Station +5 is at the outlet. When the presenting part is level with the spines, it is said to be at the 0 (zero) station, and the head is referred to as *engaged*. This progress is significant because when **engagement** occurs, the widest biparietal diameter of the baby's head has entered the inlet (middle of pelvis). Before the head becomes engaged, it is said to be **floating**. When the station is +2 or +3, the mother's perineum begins to bulge.



Stations of presenting part (degree of engagement). In this diagram, the presenting part has reached the +1 station. The lower pelvis, from the ischial spines to the pelvic floor, represents positive stations (+1, +2, +3), and the upper pelvis, from the inlet or pelvic brim to the ischial spines, represents negative stations (−3, −2, −1)

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6) Obstetric significance & management overview

6.1 Vertex (occiput positions)

- **OA (LOA/ROA)**: favourable; shortest labour.
- **OP (ROP/LOP)**: long backache labour, deep transverse arrest; manage with **posture**, **oxytocin** when indicated, **operative rotation** (Kielland forceps/rotational vacuum) in specialist hands, or **CS** if obstructed.

6.2 Face

- **Mento-Anterior (MA)**: vaginal birth possible (extension delivers face).
- **Mento-Posterior (MP)**: chin cannot clear sacrum—**obstructed**; plan **CS**.
- **Diagnosis**: on VE, feel **mouth, malar eminences, chin**, **no fontanelle**.

6.3 Brow

- Presents the **largest cephalic diameter**; commonly **unstable** and may convert to face/vertex. Persistent brow at term in labour → **CS**.

6.4 Breech

- **Frank** most common at term. Risks: **cord prolapse** (esp. footling), **head entrapment** in preterm.

- **External Cephalic Version (ECV)** at **36–37 weeks** (singleton, adequate fluid, no contraindication) reduces breech at birth.
- **Mode of delivery**:
  - **Planned CS** often chosen (nullipara, large baby, hyperextended head, footling, growth-restricted with Doppler issues).
  - **Assisted vaginal breech** in selected settings with skilled team, continuous monitoring, and criteria met (adequate pelvis, frank/complete breech, estimated fetal weight 2.5–3.5 kg, flexed head, no hyperextension).

6.5 Shoulder (transverse/ oblique lie)

- At term/labour: **CS**. In labour with ROM → **cord prolapse** risk—**do not** attempt high forceps; **deliver by CS**.
- Before term: attempt **postural measures**; some convert spontaneously.

6.6 Compound

- Often resolves with **maternal position/tocolysis** if early; persistent hand beside head near full dilatation → **operative decision** individualized.

7) Determining fetal situation in practice

7.1 Abdominal examination (Leopold's maneuvers)

1. **Fundal grip**: identify which pole is in the fundus (breech vs head).
2. **Lateral grip**: back vs limbs (smooth vs irregular).
3. **Pawlik's/First pelvic grip**: identify presenting pole above brim.
4. **Pelvic grip (second)**: engagement/attitude; head ballotable or fixed.

Clues

- **Back on mother's left + head below** → likely **LOA/ LOT**.
- **Back posterior** + **small parts anterior** → suspect **OP**.
- **Transverse lie**: head in one flank, breech in the other.

7.2 Vaginal examination

- **Vertex**: feel **posterior fontanelle (triangular)** vs **anterior (diamond)**; palpate **sagittal suture** direction to map position (points towards **occiput**).
- **Face**: mouth, nose, orbital ridges, **chin** (denominator).
- **Brow**: anterior fontanelle and supraorbital ridges together.
- **Breech**: **ischial tuberosities**, **anus**, **sacrum** orientation.
- **Shoulder**: **scapular spine**, **acromion**, **axilla**.

Station & engagement

- **Station** relative to **ischial spines** (−3 to +3); **0 station** at spines.
- **Engagement** (cephalic): biparietal diameter passes inlet; clinically when **≤2/5** of head palpable abdominally.

7.3 Ultrasound

- Confirms **lie, presentation**, **placental location**, **neck cord**, **attitude (degree of extension)**, **flexion** and **pelvimetry surrogates**; essential before ECV and in suspected brow/face.

8) Mechanism snapshots

- **Vertex OA**: **engagement → descent → flexion → internal rotation (to OA) → extension → restitution → external rotation → expulsion**.
- **OP**: long **internal rotation** anteriorly or **persistent OP** with **face-to-pubis** delivery in selected cases; higher

operative rate.

- **Face MA**: **maximum extension** first, then **chin under symphysis** and **flexion** for after-coming head.
- **Breech**: **buttocks deliver → legs → arms (Lovset) → after-coming head (Mauriceau–Smellie–Veit/Piper forceps)**.

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9) Causes of malpresentation/ malposition (table for quick recall)

Category	Examples
Maternal uterine/pelvic	Uterine anomalies, fibroids, contracted pelvis
Placental/liquor	Placenta previa, polyhydramnios/oligohydramnios
Fetal	Prematurity, multiple gestation, fetal anomalies (anencephaly, neck masses), macrosomia
Parity	Grand multiparity (lax walls → unstable lie)
Others	Intra-abdominal masses, previous CS scar (placental position influence)

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10) Documentation style (write like this in case sheets)

"G2P1 at 39+1 weeks; **singleton, longitudinal lie, cephalic (vertex), LOA**, **head 2/5 palpable**, FHR 140/min regular; placenta posterior, adequate fluid."

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11) Viva mini-mnemonics

- **LAP-PPD-P**: **Lie, Attitude, Presentation, Presenting part, Denominator, Position**—report in this order.
- **"O-M-F-S-A"**: Occiput (vertex), Mentum (face), Frontum (brow), Sacrum (breech), Acromion (shoulder).
- **OP = Oh-Pain** (backache labour); **MP = Must be a CS** (mentum posterior).

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12) Common pitfalls (exam cautions)

- Calling **anterior fontanelle** the denominator in vertex (wrong—**occiput** is).
- Writing **face MP** as trial of labour (danger—usually **obstructed**).
- Forgetting **cord prolapse risk** in **footling, transverse, polyhydramnios**.
- Not mentioning **ECV** at 36–37 w in suitable breech.

Assessment

A) Short-Answer Questions (SAQ—5 marks each)

1. Define **lie, attitude, presentation**. Give one example of each abnormality with obstetric significance.
2. What is the **denominator**? List the denominator for vertex, face, brow, breech, and shoulder presentations.
3. How will you determine **position** in a cephalic presentation by **vaginal examination**?
4. Enumerate **causes of transverse lie** and outline the **management at term**.
5. Write a short note on **mento-anterior vs mento-posterior** face presentation.

B) Long-Answer Questions (LAQ—10 marks)

1. Describe **fetal lie, attitude, presentation, presenting part, denominator, and position**. Add a note on **diagnosis** (abdominal, pelvic, ultrasound) and **obstetric significance**.
2. Discuss **malpositions and malpresentations** under headings: definition, causes, diagnosis, and management principles (vertex OP, brow, face, breech, shoulder).

C) MCQs (single best answer)

1. The **denominator** in **face presentation** is:
   A) Occiput B) **Mentum** C) Frontum D) Bregma
   Answer: B
2. **Mento-posterior** face presentation usually:
   A) Delivers vaginally
   B) Converts to brow and then vertex
   C) **Leads to obstruction—CS indicated**
   D) Needs vacuum extraction
   Answer: C
3. In **vertex LOA**, the occiput lies:
   A) Right anterior B) **Left anterior** C) Left posterior D) Direct posterior
   Answer: B
4. **Brow presentation** corresponds to which presenting diameter?
   A) Suboccipito-bregmatic 9.5 cm
   B) **Mento-vertical 13–13.5 cm**
   C) Submento-bregmatic 9.5 cm
   D) Occipito-frontal 10 cm
   Answer: B
5. **Transverse lie** at term with ROM is best delivered by:
   A) Forceps B) Vacuum C) **Cesarean section** D) Destructive operation in live fetus
   Answer: C

30-second recap

- **Lie** = axis relation; **Attitude** = flexion/extension; **Presentation** = part over pelvic brim; **Presenting part** = lowest bony landmark; **Denominator** = fixed reference point; **Position** = denominator vs maternal pelvis.
- **Occiput** (vertex), **Mentum** (face), **Frontum** (brow), **Sacrum** (breech), **Acromion** (shoulder).
- **MA face** may deliver; **MP** obstructs. **Brow** usually obstructs. **Transverse** → CS at term. **ECV** at 36–37 w reduces breech births.
- Diagnose with **Leopold + VE + USG**; always tie findings to **obstetric decisions**.