CARDINAL MOVEMENTS OF LABOUR

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Cardinal Movements of Labour

• Positional changes of the presenting part that are required to navigate the pelvic canal
  • Fetus straightens → back loses convexity, extremities are brought closer to the body
  • Ovoid shape changes into a shape of a cylinder with smallest possible cross-section passing through pelvic canal
• Movements are sequential, may overlap
  • Engagement, flexion, and descent may occur at the same time
Cardinal Movements of Labour

Head is floating
- Engagement
  - BPD enters pelvic inlet
  - Leading edge of the spine is at or below station 0
- Descent
- Flexion
- Internal rotation

Crowning
- Extension (delivers head)
- External rotation (restitution)
- Expulsion
  - Delivery of anterior and posterior shoulders

Cardinal Movements of Labour

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**Crowning**
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Crowning
Head is delivered
Check for nuchal cord

Cardinal Movements of Labour

Pelvic inlet
Engagement
OT or 45 degree angle

Internal rotation
Direct OA or OP

1. Engagement

- BPD passes through pelvic inlet
  - BPD is the greatest transverse diameter
- May occur during last few weeks of pregnancy or during labour
  - Fetal engagement before labour onset does not affect vaginal delivery rates in SOL or IOL
- Fetal head enters pelvis transversely (OT) or obliquely (ROA or LOA)
  - Does not enter pelvis in direct OA or OP
  - To accommodate transverse axis of pelvic inlet
The Pelvic Inlet

Pelvic Inlet
- Upper opening of true pelvis
- Boundaries: superior border of pubic symphysis, pubic crest on either side, laterally by arcuate lines, posteriorly by sacral promontory

OT Presentation

- Most commonly, fetus enters pelvic inlet in OT position
- LOT more common than ROT
**OA Presentation**

- Fetus enters pelvic inlet at 45 degree angle (ROA or LOA)
  - Does not enter as direct OA
OP Presentation

- Fetal head enters pelvic inlet at 45 degree angle
  - Does not enter as direct OP
Asynclitism

- **Synclitism** - sagittal suture lies halfway between pubic symphysis and sacral promontory
- **Asynclitism** - sagittal suture deflects anteriorly or posteriorly
  - Mild-moderate asynclitism may be present in normal labour
  - Head shifting from posterior to anterior asynclitism helps with descent
  - Severe asynclitism can cause CPD, even in a normal pelvis

*Anterior asynclitism*  
- Sagittal suture deflects towards sacral promontory

*Posterior asynclitism*  
- Sagittal suture deflects towards pubic symphysis
2. Descent

- Nulliparas: descent occurs during 2\textsuperscript{nd} stage
- Multiparas: descent usually begins with engagement

\textbf{Occurs due to}
- Pressure of amniotic fluid
- Direct pressure on the breech by the fundus during contractions
- Bearing-down of maternal abdominal muscles
- Extension and straightening of fetal body
3. Flexion

- Due to resistance from the cervix, pelvic walls, or pelvic floor
- Chin is brought towards the chest
  - Shifts from longer **occipitofrontal diameter (12cm)** to shorter **suboccipitobregmatic diameter (9.5cm)**
4. Internal Rotation

- Moves occiput away from transverse axis
- Rotates into direct OA position (more common) or direct OP
- Timing
  - In 2/3 of pts, completed by the time the head reaches the pelvic floor
  - In ¼, shortly after head reaches the pelvic floor
    - Nulliparas: rotates in the next 3-5 contractions after reaching pelvic floor
    - Multiparas: rotates in the next 1-2 contractions
  - 5% internal rotation does not occur
5. Extension

- Due to resultant vector in the direction of introitus
  - 1. Force exerted by the uterus acting posteriorly
  - 2. Force from pelvic floor and pubic symphysis, acts anteriorly
- Immediately after delivery of the head, the chin drops downwards to lie over maternal anus
6. External Rotation (aka Restitution)

- Occiput and fetal body rotate into transverse position → rotates bisacromial diameter
  - If occiput was originally directed left → rotates towards L ischial tuberosity
  - If occiput was originally directed right → rotates towards R ischial tuberosity
  - Movement is brought on by the same pelvic factors that produced internal rotation
7. Expulsion

- Delivery of anterior and posterior shoulders
- The rest of the body passes quickly
References