Abnormal Labour and its Management

- Definitions
- Causes of Abnormal Labour
- Types of Abnormal Labour
- Diagnosis and Management of Abnormal Labour
Normal labor refers to the presence of regular uterine contractions that cause progressive dilation and effacement of the cervix and fetal descent.

Abnormal labor, dystocia, and failure to progress are terms used to describe a difficult labor pattern that deviates from that observed in most women who have spontaneous vaginal deliveries.

This problem is the most common indication for primary cesarean birth, accounting for three times more cesarean deliveries than malpresentation or fetal heart rate abnormalities.
Abnormal labour

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

- Protraction disorders: refer to slower-than-normal labor progress.
- Arrest disorders: refer to complete cessation of progress.
- Protraction and arrest disorders may occur in both the first and second stage of labor.
ETIOLOGY OF PROTRACTION AND ARREST DISORDERS

Abnormal labor can be the result of one or more abnormalities:

- The cervix.
- The uterus.
- The maternal pelvis. i.e., power, passenger, or pelvis
- The Fetus

Abnormalities in one or more of these factors can slow the normal progress of labour.

Plotting the findings of serial vaginal examinations on the partogram will help to highlight poor progress during the first and second stages of labour.

i.e., power, passenger, or pelvis
Cephalopelvic disproportion (‘passages’ and ‘passenger’)

- CPD implies anatomical disproportion between the fetal head and maternal pelvis.
  - It can be due to a large head, small pelvis or a combination of the two relative to each other.
  - The pelvis may be unusually small because of previous fracture or metabolic bone disease.
  - Rarely, a fetal anomaly will contribute to CPD. Obstructive hydrocephalus may cause macrocephaly and fetal thyroid and neck tumours may cause extension at the fetal neck.

- Relative CPD is more common and occurs with malposition of the fetal head. The OP position is associated with deflexion of the fetal head and presents a larger skull diameter to the maternal pelvis.
Findings suggestive of CPD

- Fetal head is not engaged.
- Progress is slow or arrests despite efficient uterine contractions.
- Vaginal examination shows severe moulding and caput formation.
- Head is poorly applied to the cervix.
- Haematuria.
Abnormalities of the birth canal (‘passages’)

- The bony pelvis may cause delay in the progress of labour as discussed above (CPD).
- Abnormalities of the uterus and cervix can also delay labour.
- Unsuspected fibroids in the lower uterine segment can prevent descent of the fetal head.
- Delay can also be caused by ‘cervical dystocia’, a term used to describe a noncompliant cervix that effaces but fails to dilate because of severe scarring or rigidity, usually as a result of previous cervical surgery such as a cone biopsy.
- Caesarean section may be necessary.
Malpresentation (the ‘passenger’) 

- A firm application of the fetal presenting part on to the cervix is necessary for good progress in labour.
- A face presentation may apply poorly to the cervix and the resulting progress in labour may be poor, although vaginal birth is still possible.
- Brow presentation is associated with the mento-vertical diameter presenting, which is simply too large to fit through the bony pelvis unless flexion occurs or there is hyperextension to a face presentation.
- Brow presentation therefore often manifests as poor progress in the first stage, often in a multiparous woman.
Malpresentation (the ‘passenger’)

- Shoulder presentations cannot deliver vaginally, and once again poor progress will occur.
- Malpresentations are more common in women of high parity and carry a risk of uterine rupture if labour is allowed to continue without progress.
INCIDENCE – the incidence or protraction or arrest disorders in the first stage of labor was 13 percent.

Second stage abnormalities appeared to be as common.
• latent phase: begins as short, mild, irregular uterine contractions that soften, efface, and begin to dilate the cervix (< 1 cm/h).

• Active phase: starts at 3 to 4 cm dilation cervical dilation accelerate to at least 1 to 2 cm/ h (various depending on parity) per hour and the fetus descends into the birth canal ends when the cervix is fully dilated

• The total duration of labor also varies between nulliparous and multi-parous.

• One report revealed the average duration of active labor (onset defined as 3 cm dilation) in nulliparous and parous women was 6.4 and 4.6 hours, respectively
Prolonged latent phase

- occurs when the latent phase is longer than the arbitrary time limits discussed previously.

- It is more common in primiparous

- Artificial rupture of membranes (ARM) or oxytocin infusion will increase the likelihood of poor progress later in the labour and the need for caesarean birth.

- It is best managed away from the labour suite with simple analgesics, mobilization and reassurance.

- The partogram should not be commenced until the latent phase of labour is complete.
Latent Phase

- The average duration of latent phase in nulliparous and multiparous women is 6.4 and 4.8 hours (3-8hrs average) but generally it is variable.
- An abnormally long latent phase is defined as 20 hours for the nullipara and 14 hours for the multiparous woman.
- Prolonged latent phase is responsible for 30% abnormalities in nulliparas and over 50% of abnormalities in multiparous women.
- Begins as short, mild, irregular uterine contractions that soften, efface, and begin to dilate the cervix.
Risks Of Prolonged Latent Phase

- Mothers: Higher risk of cesarean delivery (due to maternal exhaustion) and longer hospital stay
- The newborns: Higher rate of perinatal morbidity but not mortality are more likely to require neonatal intensive care unit admission.
  - have meconium at birth.
  - have depressed Apgar Score.
active phase ; first stage

- The time between latent phase and full dilatation
- Variable length but between 2-6 hrs
- Shorter in multiparous
- Usually the cervix dilates 1 cm/hr
Active phase progress ; Primary arrest

- the term used to describe poor progress in the active first stage of labor (<2 cm cervical dilatation/4 hours) and is also more common in primiparous women.
- It is most commonly caused by
  - inefficient uterine contractions,
  - but can also result from cephalopelvic disproportion (CPD),
  - malposition and malpresentation of the fetus.
Secondary arrest

- occurs when progress in the active first stage is initially good but then slows or stops altogether, typically after 7 cm dilatation.
  - inefficient uterine contractions (more in primary)
  - fetal malposition
  - malpresentation
  - CPD feature more commonly than in primary arrest.
Arrest in the second stage of labour

not to be confused with ‘secondary arrest’
occurs when delivery is not imminent after the usual interval of pushing in the second stage of labour.

- may be due to inefficient uterine activity
- malposition, malpresentation, CPD or a resistant perineum.
- may be due to maternal exhaustion, fear or pain.
Vaginal Examination to Determine the Diagonal Conjugate

Three anteroposterior diameters of the pelvic inlet

- true conjugate
- obstetrical conjugate
- diagonal conjugate
# DIAMETER OF PELVIC INLET

<table>
<thead>
<tr>
<th>Measurement</th>
<th>Extension</th>
<th>Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Anterior-posterior</strong></td>
<td>From the sacral promontory → superior margin of pubic symphysis</td>
<td>11.5 cm</td>
</tr>
<tr>
<td><em>(True conjugate)</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Diagonal conjugate</strong></td>
<td>Sacral promontory → inferior margin of the pubic symphysis</td>
<td>12.0 cm</td>
</tr>
<tr>
<td><strong>Obstetric conjugate</strong></td>
<td>Sacral promontary → nearest point on posterior surface of pubic symphysis</td>
<td>10.5 cm</td>
</tr>
<tr>
<td><strong>Transverse diameter</strong></td>
<td>The widest distance across pelvic brim</td>
<td>13.5 cm</td>
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MANAGEMENT OPTIONS OF A PROLONGED LATENT PHASE:

- Therapeutic rest
- Oxytocin
- Amniotomy
- Cervical ripening
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<th>Definition of stage and phase</th>
<th>Diagnostic criteria for non-progressive labour</th>
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<td>From onset of regular contractions leading to cervical dilatation to full dilatation of cervix</td>
<td>The diagnosis is not given in this phase</td>
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<td>Latent phase</td>
<td>Cervix 0 – 3 cm dilatation</td>
<td>&lt; 1/2 cm dilatation of cervix per hour, assessed over 4 hours</td>
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<td>Active phase</td>
<td>Cervix ≥ 4 cm dilatation</td>
<td></td>
</tr>
<tr>
<td>Second stage</td>
<td>From full dilatation of cervix to the child is born</td>
<td>&gt; 2 hours without descend; if epidural is administered: &gt; 3 hours</td>
</tr>
<tr>
<td>Descending phase</td>
<td>From full dilatation of cervix to strong and irresistible urge to push</td>
<td></td>
</tr>
<tr>
<td>Pushing phase</td>
<td>Strong and irresistible pushing during the major part of the</td>
<td>&gt; 1 hour without progress</td>
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Management of Dystocia in the first stage:

- Amniotomy
- Oxytocin for treatment of Hypo-contractile uterine activity
- Oxytocin is typically infused to titrate dose to effect, as prediction of a woman's response to a particular dose is not possible
Poor progress in the second stage of labour

- Birth of the baby is expected to take place within 3 hours of the start of the active second stage (pushing) in nulliparous women and 2 hours in parous women.
- Delay is diagnosed if delivery is not imminent after 2 hours of pushing in a nulliparous labour and 1 hour for a parous woman.
- The causes of second stage delay can again be classified as abnormalities of the powers, the passages and the passenger.
- Secondary dysfunctional uterine activity (‘powers’) is a common cause of second stage delay, and may be exacerbated by epidural analgesia.
Delay in the second stage can occur because of a narrow midpelvis (androidpelvis), which prevents internal rotation of the fetal head (‘passages’).

- This may result in arrest of descent of the fetal head at the level of the ischial spines in the transverse position, a condition called **deep transverse arrest**.
- It may also occur due to a resistant perineum, particularly in a nulliparous woman.
- Delay can also occur because of a persistent OP position of the fetal head (‘passenger’). In this situation, the head will either have to undergo a long rotation to OA or be delivered in the OP position (i.e. face to pubes).
Risk factors include

- diabetes
- nulliparity
- macrosomia
- epidural anesthesia
- oxytocin usage
- chorioamnionitis
Occiput posterior position

Risks:

- Longer second stage.
- higher incidence of operative delivery.
- larger episiotomies.
- more severe perineal lacerations.
- Occiput posterior position
- A small increase in second stage length in the presence of a reassuring fetal heart rate, favorable clinical assessment of fetal relative to maternal size, and progress in the second stage does not mandate rotation or operative delivery.

<table>
<thead>
<tr>
<th>Attitude</th>
<th>Well flexed</th>
<th>Less well flexed (partially extended) or deflexed</th>
<th>Extended 'brow presentation'</th>
<th>Hypermextended 'face presentation'</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diameter</td>
<td>Suboccipito-bregmatic</td>
<td>Occipito-frontal</td>
<td>Occipito-mental</td>
<td>Submento-bregmatic</td>
</tr>
<tr>
<td>Measurement</td>
<td>9.5 cm</td>
<td>11.5 cm</td>
<td>13.0 cm</td>
<td>9.5 cm</td>
</tr>
</tbody>
</table>

![Diagram of fetal attitudes and measurements](image)
Mentoanterior
Anteroposterior diameters of the fetal skull

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<th>Attitude</th>
<th>Presenting part</th>
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<tr>
<td>Suboccipitobregmatic 9.4 cm</td>
<td>Complete flexion</td>
<td>Vertex occipitoanterior</td>
</tr>
<tr>
<td>Suboccipitofrontal 10.5 cm</td>
<td>Incomplete flexion</td>
<td>Vertex occipitoposterior</td>
</tr>
<tr>
<td>Occipitofrontal 11 cm</td>
<td>Deflexion</td>
<td>Vertex occipitoposterior</td>
</tr>
<tr>
<td>Verticomental 13.5 cm</td>
<td>Extension</td>
<td>Brow</td>
</tr>
<tr>
<td>Submentobregmatic 9.4 cm</td>
<td>Complete extension</td>
<td>face</td>
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