

Abnormal LABOR

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Outline

- Define abnormal labor
- Discuss different type of abnormal labor
- Management of labour

NORMAL LABOR

- Labor is considered normal when the following conditions are fulfilled:
 - Onset= spontaneous
 - Term
 - Vertex presentation
 - Spontaneous vertex delivery
 - All stages of labor lasting normal duration
 - Alive, and normal neonate
 - No maternal complication

Definition of Abnormal labor

- An abnormal labor is any labor in which the pattern of labor progress is significantly different from accepted and recognized patterns of labor progress in terms of
 - cervical changes,
 - descent of fetal presenting part or
 - profile of uterine contractions
- Dystocia (difficult labor) is often used interchangeably to denote an abnormal labor pattern

Labor abnormalities:

The common **clinical** findings in women with **ineffective labor** are:

- ❖ Inadequate cervical dilatation or fetal descent
- Four major groups
 - Prolonged latent phase of 1st stage of labor
 - Protraction disorders
 - Arrest Disorders
 - Precipitate labor

1. Latent phase disorder

Prolonged latent phase of 1st stage of labor

- ➔ defined as a latent phase exceeding **20** hrs in the nullipara and **14** hrs in the multipara (a) or
- ➔ active phase not achieved after 8 hrs of admission despite regular uterine contraction(b)

Factors that affected duration of the latent phase included unfavorable cervical condition, that is, thick, uneffaced, or undilated; & false labor.

- Following heavy sedation & rehydration, 85 % of women progressed to active labor, 10 %, uterine contractions ceased, suggesting that they had false labor.
- The remaining 5 % experienced persistence of an abnormal latent phase & required oxytocin augmentation

Causes

- o False labor
- o Uterine dysfunction
- o Premature sedation or administration of conduction analgesia.
- o Unfavorable Cx at labor onset
- o CPD, malpresentation, malposition

Management options

- Assessment at the 4th hour
 - If contractions cease; cervical effacement and dilatation remains the same; and fetal membranes are not ruptured, **manage her as false labor.**
 - If there is ROM with no contractions, **treat as PROM.**
 - If cervix dilates ≥ 4 cm; manage her as AFSOL (use the partograph).
 - If contractions persist, with or without progress in cervical dilatation and/ or effacement, continue labor observation for the next 4 hours.

- *Assessment at the 8th hour*
 - If cervical dilation is ≥ 4 cm, manage as active phase of labor using the partograph.
 - If the contraction ceases; the cervical dilatation remain less than 4 cm with Intact fetal membranes, **manage her as false labor**
 - Ruptured fetal membranes, **treat as PROM**

- If contraction persist for 8 hours and cervical dilatation remains less than 4 cm, the cause of the prolonged latent phase is thoroughly evaluated;
 - ***Dysfunctional uterine contraction is the most common cause of prolonged LFSOL.***
 - If hypotonic ARM and augmentation of labor.
 - ***Unripe cervix may prolong the latent phase.***
 - Watching of labor for 2 to 4 hrs (+ agumentation) may be considered.
 - ***CPD:***
 - ***Unless the CPD is gross, the diagnosed of CPD is considered after a good trial of labor.***
 - ***Malpresentations and malpositions ;***
 - 12/18/25 specific management

2. Active phase disorders:

- ❖ Abnormalities of active phase of 1st stage of labor can be:
 - o Either slower-than-normal progress (protraction) or
 - o Complete cessation of progress (arrest) of cervical dilatation
- ❖ To diagnose either of these, labor should be in the active phase with cervical dilation of at least 4 cm
- ❖ **Protraction disorder:** < 1.2cm/hr cervical dilation for primes & 1.5cm/hr for mults over a minimum of 4 hrs duration
- ❖ **Arrest disorder:** no cervical dilation over > 2 hrs duration

Summary for criterion to diagnose abnormal labor in active phase of 1st stage due to arrest or protraction disorder of cervical dilatation.

Labor pattern	nulliparous	multiparus
Protraction disorder Dilatation Descent	< 1.2cm/hr < 1cm/hr	<1.5cm/hr <2cm/hr
Arrest disorder Dilatation Descent	> 2hrs > 1hr	> 2hrs > 1hr

Management

- ❑ Is she in active phase labor? Thoroughly re-evaluate.
- ❑ If there are no signs of CPD or obstruction, no abnormality in FHB, with adequate pelvis & if the cause is:
 1. Inefficient uterine contraction (Hypotonic dysfunction):
 - o Do **ARM** (if not ruptured already) & **rehydrate** her with IV crystalloids (Check HIV status)
 - o See for improvement in uterine contraction over next **1** hr
 - o If there is no improvement in uterine contraction, oxytocin augmentation according to the protocol

Cont'd...

2. Uncoordinated uterine contraction (consider it in nulliparous ones): augmentation according to the protocol
3. If there are signs of CPD or obstructed labor:
 - o Alive fetus → do c/s
 - o Dead fetus: High station → c/s, accessible presenting part → destructive delivery, **imminent** uterine rupture → **laparotomy**
4. If there is FHB abnormality & arrest or protraction disorder at the same time:
 - o Manage the FHB abnormality accordingly.

3. Prolonged second stage:

- the second stage of labor lasting more than 1 hour in multipara and 2 hours in nullipara without regional anesthesia.
- 2 hour and 3 hour with analgesia in multi and nullipara respectively.

Management

- Rx
 - Vertex presentation:
 - Live fetus :
 - Vacuum or forceps delivery
 - Cesarean section
 - Dead fetus :
 - Craniotomy
 - **Cesarean deliveries**
 - Malpresentation , malpositions

4.PRECIPIATED LABOR

- A labor is called precipitate when the combined duration of the first and second stage is less than **three hours**.
- It is common in multipara with premature baby.
- Labor is short as the rate of cervical dilatation is 5 cm/hr or more.

- **Risk factors for precipitated labour**

- Multipara
- preterm labour
- No soft tissue dystocia
- Tetanic uterine contraction from high dose of oxytocin

Precipitate labor complication

Maternal

- ✓ Extensive laceration of the cervix, vagina and perineum (to the extent of complete perineal tear)
- ✓ PPH due to uterine hypotonia
- ✓ Inversion
- ✓ Uterine rupture

Cont....

Fetal

- ✓ **intracranial** stress and hemorrhage because of rapid expulsion without time for **moulding** of the head.
- ✓ The baby may sustain serious injuries if delivery occurs in standing position;
- ✓ bleeding from the torn cord and direct hit on the skull are real hazards

Management

- The patient having previous history of precipitate labor should be hospitalized prior to labor.
- Tocolytic drugs
- Delivery of the head should be controlled.
- Episiotomy if needed.

Thank You

NON REASSURING FETAL STATUS (NRFS)

- Fetal compromise is a complex of signs showing response of the fetus to inadequate oxygenation.
- Fetal heart rate (FHR) in labor can be monitored using either continuous electronic monitoring or intermittent auscultation using Pinnard stethoscope.
- **Nonreassuring fetal status is** characterized by tachycardia or bradycardia, reduced FHR variability, decelerations(except early deceleration) and **absence of accelerations** .

PATHOPHYSIOLOGY:

❑ Under normal conditions when oxygen supply is adequate, aerobic glycolysis occurs in the fetus.

❑ During hypoxia when O₂ saturation falls below 40%, **anaerobic glycolysis** occurs, resulting in the accumulation of lactic acid and pyruvic acid leading to metabolic acidosis.

- H-ions first stimulate and then depress the sinoauricular node leading to tachycardia and bradycardia respectively.
- It also causes parasympathetic stimulation leading to hyper peristalsis and relaxation of the anal sphincter with passage of meconium.
- Decreased fetal oxygenation in labor → hypoxia → metabolic acidosis → asphyxia → tissue damage/fetal death.

FHR patterns:

- ✓ Normal: Baseline FHR between 120-160 beats per minute (bpm), accelerations with contraction or fetal movement, early deceleration, normal variability (6-25 bpm).
- ✓ Bradycardia: Baseline FHR < 120 bpm.
- ✓ Tachycardia: Baseline FHR > 160 bpm.
- ✓ Accelerations: Transient increase in FHR associated with contraction or fetal movement. It is usually favorable sign of fetal wellbeing.

□ *Baseline change is an increase or decrease in FHR that lasts longer than 10 minutes*

Causes of Abnormal **Bradycardia** Baseline

- Post-term fetus
- OP, OT fetal position
- Fetal heart block
- Congenital heart disease
- Fetal Hypoxia
- Abruptio
- Maternal Hypothermia

- **Tachycardia**

- Preterm fetus
- Fetal movement
- Fetal arrhythmia (usually $>200\text{bpm}$)
- Congenital defect
- Maternal fever dehydration, or anxiety
- Maternal Anemia
- Medications (atropine, terbutaline)
- Chorioamnionitis

Acceleration

A visually apparent **abrupt** increase in the FHR

- onset to peak in less than 30 seconds=>
ABRUPT • Accelerations vary with GA in peak ↑ and duration
- Beyond 32wk - 15bpm or more above baseline, with a duration of > 15 sec but <2min from onset to return.
- Before 32 wk GA - >10 bpm above baseline, with a duration of 10 sec to 2min from onset to return.
- Prolonged acceleration- duration of 2 – 10min.
- Baseline change- an acceleration lasts for > 10 min.

- Accelerations seem to have the same physiological explanations as beat-to-beat variability in that they represent intact neurohormonal cardiovascular control mechanisms linked to fetal behavioral states .
- Are common in labor and are nearly always associated with fetal movement.
- Acceleration can occur during labor without any apparent stimulus.

Beat-to-beat variability: Fluctuations in the baseline FHB. Can be:

- a. Absent / undetectable
- b. Minimal: < 5 bpm
- c. Moderate: 6 - 25 bpm
- d. Marked: > 25 bpm

❑ Decreased baseline BBV is the single most reliable sign of fetal compromise

Causes of decreased Variability

Normal causes

- Fetal sleep cycle (usually lasts 20-40 minutes)
- Extreme prematurity
- Medications (Narcotics ,Sedative-Hypnotic medications)

Abnormal causes

- Fetal hypoxia
- Fetal metabolic acidosis
- Fetal neurologic anomalies (Anencephaly)
- Chorioamnionitis
- Fetal Heart Block
- Fetal Tachycardia
- loss of BBV likely results from metabolic acidemia which depresses fetal brain stem and the Heart

- **Decelerations:** Decrease ≥ 15 bpm, lasting ≥ 15 sec but < 2 min in duration- below baseline return
- • If duration > 2 min but < 10 min-- **Prolonged D** and If > 10 min **Baseline change.**
- (i) **Early deceleration:** Slowing in FHR associated with contractions, uniform, repetitive periodic slowing of FHR and in most cases the onset, nadir(lowest pt.) and recovery of deceleration coincides with the beginning, peak and ending of uterine contraction respectively. It is due to head compression (vagal nerve activation)

- (ii) **Late deceleration:** Slowing in FHR which begins after contractions, nadir occurs after peak of contraction & returns to baseline after the end of contractions. Implies presence of uteroplacental insufficiency.

(iii) **Variable deceleration:** Variable onset of abrupt slowing of FHR in association with uterine contractions, has an onset-to-nadir phase of <30 seconds. Signify possible presence of cord compression.

•(iv) **Prolonged deceleration:** A decrease in FHR below baseline of 15 bpm lasting 2-10 minutes (min) from onset to return to baseline

Diagnosis

- NRFS: Presence of the following signify fetal compromise:
 - Repetitive decelerations (variable / late)
 - Loss of beat – to –beat variability
 - Baseline bradycardia or tachycardia
 - Signs of fetal distress:
 - Abnormal FHR (above)
 - Meconium stained liquor
 - Acidic scalp PH

Management

NONSURGICAL

- **Lateral positioning** avoids compression of vena cava and aorta by the gravid uterus. This increases cardiac output and uteroplacental perfusion.
- **Oxygen is administered (6-8 L/min)** to the mother with mask to improve fetal SaO₂.
- **Correction of dehydration** by IV fluids (crystalloids) improves intravascular volume and uterine perfusion.
- **Correction of maternal hypotension** (following epidural analgesia) with immediate infusion of 1L of crystalloid (Ringer's solution).

Cont....

- **Stoppage of oxytocin** to improve fetal oxygenation. Fetal hypoxia may be due to strong and sustained uterine contractions. With reassuring FHR and in absence of fetal acidemia, oxytocin may be restarted.
- **Tocolytic** (Inj terbutaline 0.25 mg SC) is given when uterus is hypertonus and there is nonreassuring FHR.

- **Amnioinfusion** is the process to increase the intrauterine fluid volume with warm normal saline (500mL). Indications are: (a) Oligohydramnios and cord compression (b) To dilute or to wash out meconium
- (c) To improve variable or prolonged decelerations. **Advantages:** Reduces cord compression, meconium aspiration, and improves Apgar score. It also reduces cesarean section rate.
- SURGICAL: **Cesarean delivery**

- Thank you