Normal Labor and Delivery

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JUNE, 2021

Objectives

- Define Normal labor patterns
- Discuss the stages and phases of labor
- Discuss the 3 P’s of labor
- Presentation versus Position
- Review labor assessment
- Fetal heart monitoring
- Steps of delivering a neonate

Normal Labor Patterns
Normal Labor

- Definition: Regular uterine contractions that bring about progressive change in the effacement and dilation of the cervix
- False Labor: uterine contractions that do not induce cervical change
  - AKA Braxton-Hicks
  - Typically irregular in nature
  - Caused by night-time fluctuations of oxytocin
  - Wane or cease over time

Labor Pains

- Other pains easily confused as “labor” pains:
  - Lower back strain
  - Gas / Constipation
  - Hip instability
  - Round ligament pain
  - Ovarian cysts
  - UTI / Pyelonephritis
  - Uterine Rupture

Pattern of Normal Labor

- First Stage – onset of labor until complete dilation
  - Latent Phase
  - Active Phase
- Second Stage – 10 cm dilated until delivery of the fetus
- Third Stage – delivery of the fetus until delivery of the placenta
- Fourth Stage – immediate period after placental delivery; recovery period

Any history of cesarean sections?
Stages of Labor

First Stage
- **Latent**
  - Begins with maternal perception of regular contractions until 4-6 cm
  - Prolonged latent phase:
    - Nullip: >20 hours
    - Multip: >14 hours
- **Active**
  - Active phase is a period of rapid cervical change. Begins at 4-6 cm, ends at 10 cm dilated
  - Nulliparous: 0.5 – 0.7 cm/hr
  - Multiparous: 0.5 – 1.3 cm/hr

Second Stage
- Guidelines by Consensus Committee
  - Nulliparous with epidural
    - 4 hours to push
  - Nulliparous without epidural
    - 3 hours to push
  - Multiparous with epidural
    - 3 hours to push
  - Multiparous without epidural
    - 2 hour to push

Management of Abnormal Labor
Stages of Labor

Third Stage
- Placental separation and expulsion
  - Begins following the delivery of the neonate
  - Normal duration is ≤8 minutes
- Active vs. Expectant Management
  - Active: prophylactic administration of uterotonic agent (Pitocin) prior to placenta delivery and controlled cord traction +/- uterine massage
  - Brand-Andrews maneuver
  - Expectant: signs of placental separation are waited for

Signs of placental separation
- Gush of blood
- Cord elongation
- Globular and firming uterus
- Rising of the uterus

Fourth Stage
- AKA Recovery
  - Look for 2 hours post delivery
  - Observe patient for possible complications
  - Post-partum hemorrhage
  - Hemostasis
  - Inspect vaginal area for lacerations and repair
    - Laceration
    - Vaginal
    - Perineal
    - Clitoral
    - Perineal (1°, 2°, 3°)
  - Inspect placenta
    - Border, surface
    - Amnion, chorion, cotyledons
    - Inspect placental area

Observe patient for possible complications
- Post-partum hemorrhage
- Hemostasis
3 P's of Labor

- Power
- Passenger
- Passage

Uterine contractions
- Uterine activity involves frequency, amplitude (intensity), and duration
- In active labor, duration of contractions range from 30-90 seconds
- Directly measured with IUPC (Intra-uterine pressure catheter)
- Adequate contraction strength is >200 Montevideo units in 10 minutes

Maternal Pushing efforts
- Contraction of the abdominal muscles with forced respiratory efforts
Power

- Montevideo units
  - Subtract resting tone of uterine pressure from peak contraction in 10-min window and add the pressures
  
  \[52 + 50 + 47 + 44 + 49 = 242\ MVUs\]

Passenger

- Fetal weight
- Fetal lie
- Fetal presentation
- Fetal position

Presentation vs. Position

- The "presenting" part
- Orientation of the "presenting" part
Breech Presentation:

Hips: Flexed            Flexed              Flexed
Knees: B/L Flexed      Flex/Ext      B/L extended

Passage

- Consists of the bony pelvis (sacrum, ilium, ischium, pubis) and the resistance provided by soft tissues
- Takes into account maternal pelvis in comparison to fetal size
- Four different shapes of the maternal pelvis:
  - More favorable:
    - Gynecoid
    - Anthropoid
- Progress of fetal descent best test of pelvic adequacy

Labor Assessment
Membrane Status

- ROM, SROM, PROM, PPROM, AROM
- Piling
- Ferming
- Fluid produced with valsalva
- Nitrazine testing
- AFI/MVP
- ROM +

Status of Cervix

- Dilation
- Effacement
- Stage
- Consistency
- Position

Examination of Position

- Anterior fontanelle
- Metopic/ Frontal suture
- Coronal suture
- Sagittal suture
- Lambdoid suture
- Posterior fontanelle
Fetal Status

- Electronic fetal monitoring
- Assessment of fetal heart tones
- Assessment of Uterine Activity
- Assess for fetal movement

Fetal Heart Tone Monitoring

- Baseline (110-160 bpm)
- Variability (moderate: 5-25 bpm)
- Accelerations (10-15 bpm over 10-15 sec)
- Decelerations
- Contractions

Decelerations

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
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<tbody>
<tr>
<td>Early</td>
<td>Head compression: Gradual decrease in FHR</td>
</tr>
<tr>
<td>Late</td>
<td>Uteroplacental insufficiency: Gradual decrease in FHR, nadir at end of contraction</td>
</tr>
<tr>
<td>Variable</td>
<td>Cord compression: Abrupt decrease in FHR</td>
</tr>
<tr>
<td>Prolonged</td>
<td>15 bpm below baseline: 2 min but &lt; 10 min</td>
</tr>
<tr>
<td>Baseline</td>
<td>Baseline shift: &gt; 10 min</td>
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</tbody>
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Categories of Fetal Heart Tones

Practice Bulletin #106: Intrapartum Fetal Heart Rate Monitoring: Nomenclature, Interpretation, and General Management Principles

Practice Bulletin #116: Management of Fetal Heart Rate Tracings

Read these!!
Delivery of neonate

Cardinal Movements of Labor
- Engagement
- Descent
- Effacement
- Internal Rotation
- Descent
- External Rotation

Steps of Delivery
- Perineal Support
- Restitution
- Check for nuchal cord
- Thumbs in direction of nose
- Anterior shoulder > Posterior shoulder > rest of body
- Suctioning
  - No evidence that it is beneficial in healthy term newborns unless obvious obstruction with secretions
- Cord clamping
  - ACOG recommends delayed cord clamping (30-60sec)
Types of Deliveries

Operative Delivery
- Vacuum
- Bell
- Mushroom
- Forceps

Box 1. Indications for Operative Vaginal Delivery
- Prolonged second stage of labor
- Suspected or proven fetal distress
- Shortening of the second stage of labor for maternal benefit

Spontaneous Delivery

Resources