ABNORMAL LABOR

KUSM-Wichita
Department of Obstetrics and Gynecology
Normal Labor

- **Definition of Labor**
  - Uterine contractions with progressive dilatation and effacement of the cervix with descent and delivery of infant.

- **Divided into 3 Stages**
Stages of Labor

- **1st Stage** – Onset of labor to complete dilatation
  - Early/Latent Phase
  - Active Phase
  - Transition Phase
- **2nd Stage** – After 1st stage thru delivery of infant
- **3rd Stage** – After 2nd stage and thru delivery of placenta
Progression of Spontaneous Labor Curve
# Abnormal Patterns in Active Labor (5th Percentiles)

<table>
<thead>
<tr>
<th>FIRST STAGE</th>
<th>Nullipara</th>
<th>Multipara</th>
</tr>
</thead>
<tbody>
<tr>
<td>Labor Pattern</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Duration</td>
<td>24.7hr</td>
<td>18.8hr</td>
</tr>
<tr>
<td>Protracted</td>
<td>&lt;1.2cm/hr</td>
<td>&lt;1.5cm/hr</td>
</tr>
<tr>
<td>Arrested Dilation</td>
<td>&gt;2hr</td>
<td>&gt;2hr</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SECOND STAGE</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Descent</td>
<td>&lt;1cm/hr (117min)</td>
<td>&lt;2.1cm/hr (47min)</td>
</tr>
<tr>
<td>Arrest (epidural)</td>
<td>&gt;3hr</td>
<td>&gt;2hr</td>
</tr>
<tr>
<td>Arrest (no epidural)</td>
<td>&gt;2hr</td>
<td>&gt;1hr</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>THIRD STAGE</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&gt;15min</td>
<td>&gt;15min</td>
</tr>
</tbody>
</table>

Protraction – slower than normal progress
Arrest – complete cessation of progress
Causes of Abnormal Labor

❖ “3 P’s”
  • Power
  • Passenger
  • Passage
Power

- Strength, duration & frequency of contractions
- Palpation
  - Subjective measure of contraction
- Tocodynamamometer
  - Measures only frequency and duration of contractions
- Intrauterine pressure catheter (IUPC)
  - Directly measures pressure of uterine contractions
Power

- **Montevideo Units (MVUs)**
  - Calculated by multiplying average peak strength of contractions (mmHg) by the number of contractions in 10 minutes
  - >200 is “adequate”

- For cervical dilation to occur each contraction must generate 25 mmHg with 50-60 mmHg being considered optimal
Calculating MVUs

Contraction forces are usually reported in Montevideo Units (MVUs), which represent the total intensity of each contraction in a 10 minute period. MVUs > 200 are adequate for 90% of labors to progress.

With an IUPC, the pressures in mmHg can be quantified, as well as the frequency of contractions.

Baseline Pressure (Here, ~ 20 mmHg)

75 + 60 + 50 + 45 = 230 MVUs
(Note that the baseline pressure was subtracted from each reading)
Power

- During 2\textsuperscript{nd} stage of labor this includes contractions and the expulsive efforts of pushing

- Pushing can be affected by exhaustion, excessive anesthesia, or cardiac or neuromuscular disease
Passenger

- Fetal Weight
  - EFW > 4000-4500 grams → increased risk of dystocia

- Fetal Attitude, Presentation, Position, and Lie
Fetal Lie

- Refers to the orientation of the long axis of the fetus with respect to that of the uterus
  - Longitudinal
  - Transverse
  - Oblique
- Transverse and oblique are often due to uterine anomalies
Fetal Lie

- Longitudinal lie
  - Vertex presentation
- Longitudinal lie
  - Breech presentation
- Transverse lie
  - Shoulder presentation
Fetal Presentation

- Refers to the fetal part presenting at the pelvic outlet
  - Breech (complete, frank, footling)
  - Cephalic – head first
    - Vertex – everything is flexed
    - Brow – usually converts to face or vertex
    - Face – usually requires a C-Section, although mentum anterior may deliver vaginally
  - Compound – limb presents with vertex
  - Shoulder (arm, shoulder, trunk)
- All Except vtx are considered malpresentation
Fetal Presentation

- Vertex presentation
- Breech presentation
- Shoulder presentation
Breech Presentation

Variations of the breech presentation:

- Complete breech
- Incomplete breech
- Frank breech
A 34 y/o G4P3 at 36 WGA presents to your office for a scheduled prenatal visit. Upon palpation of the patient's abdomen you determine that the fetus is in breech position. The patient has had no complications during this pregnancy.
What are your options for this patient?

What are the risks of the different options?

How do you define the different breech presentations?
Fetal Attitude

- Flexion/Extension of fetal head relative to shoulders
  - Flexion – normal
  - Extension
    - Brow – head partially extended (c/s)
    - Face – head fully extended
      - Mentum posterior requires c/s
      - Mentum anterior may deliver vaginally
  - Asynclitc – lateral flexion of head
Face Presentation

A. Chin anterior

B. Chin posterior
Fetal Position

- Refers to the position of fetal occiput in relation to the maternal pelvis
  - OA – “normal”
  - OP – often rotate on their own to OA and often leads to a prolonged 2nd stage
  - OT

- There are also fetal positions described for breech and shoulder presentation using the sacrum and scapula respectively
Cephalopelvic disproportion
- Size of maternal pelvis is inadequate to size of the presenting part of the fetus

Clinical pelvimetry
- Manual evaluation of the diameters of the pelvis = poor predictor of successful vaginal birth

Soft tissue
- Cervical abnormalities, distended bladder, uterine fibroids
1. Head floating, before engagement

2. Engagement; flexion, descent.

3. Further descent, internal rotation.


5. Complete extension.


7. Del. of ant. shoulder.

8. Delivery of posterior shoulder.
Pelvimetry

- **Contracted Pelvic Inlet**
  - Shortest AP Diameter <10 cm
  - Diagonal conjugate <11.5 cm
  - Average BPD 9.5-9.8 cm

- **Contracted Midpelvis**
  - Interspinous Diameter

- **Contracted Pelvic Outlet**
  - Interischial tuberous diameter is common base for 2 triangles
    - Posterior – sacral tip, sacralsciatic ligaments, ischial tuberousities (8cm)
    - Anterior – area under pubic arch
Shoulder Dystocia

- Maternal consequences include PPH
- Fetal consequences include brachial plexus injuries, clavicular fracture,
- Risk Factors – obesity, multiparity, DM, prior history
- Management – Suprapubic, McRoberts, Woodscrew, Rubins, etc.
A 24 y/o G1P0 at 39\textsuperscript{3} wga by LMP c/w 19 week US presents to LDR with contractions. She is obese but has had no other complications during this pregnancy. At 0700 her initial cervical exam is 4/80/-2. She is contracting 4-5 times in 10 minutes and FHR is 140 and reactive with moderate variability.

At 0800 she is 5/80/-2. Contractions are about 4 in 10 min and FHR is still 140 and reactive.

At 0900 her cervical exam is still 5/80/-2. Contractions are now 3-4 in 10 min. FHR is 135 and reactive.
What stage of labor is she in?

What is the diagnosis?

How would you define this diagnosis in a multiparous patient?

How would you manage this patient?
Amniotomy is performed without complication. At 1000 the pt’s cervical exam is 6/90/-1, she is contracting 4-5 times in 10 minutes, and has received epidural anesthesia.

At 1500 the pt. has progressed to complete cervical dilation and +2 position. She is placed in lithotomy position and begins pushing with contractions.

At 1730 the pt. begins to complain of being “worn down”. By 1800 she reports that she is “exhausted”. The baby is now at +3 station and is having variable decelerations with contractions.
What stage of labor is she in now and what is the diagnosis?

How would this diagnosis be defined if the patient did not have epidural anesthesia?

What could you do next?

What are the possible complications?
At 1803 a vacuum cup is applied to the flexion point and the infant’s head is delivered with one pop-off. Following delivery of the infant’s head the vacuum is reduced and you notice that the baby’s head retracts back into the vagina just slightly...
What is this sign called and what does it indicate?

What are the risk factors associated with this complication?

What are the steps to resolve it?
You place the patient in McRobert’s position and suprapubic pressure is applied by the staff physician from the maternal right. At 1718 you deliver a healthy female infant that is 8 lbs 13 oz.

What stage of labor are you in now?

What postpartum complications do you need to be ready for?
QUESTIONS??