Chapter 8

Nursing Care of Women with Complications During Labor and Birth

Induction or Augmentation of Labor

- *Induction* is the initiation of labor **before** it begins naturally
- *Augmentation* is the stimulation of contractions **after** they have begun naturally

Bishop Scoring System

- Evaluates the cervical response to induction procedures
- A high score (above 6) is predictive of successful labor induction because the cervix has ripened or softened in preparation for labor

Indications for Labor Induction

- Gestational hypertension
- Ruptured membranes without spontaneous onset of labor
- Infection within the uterus
- Medical problems in the woman that worsen during pregnancy
- Fetal problems such as slowed growth, prolonged pregnancy, or incompatibility between fetal and maternal blood types
- Placental insufficiency
- Fetal death

Contraindications to Labor Induction

- Placenta previa
- Umbilical cord prolapse
- Abnormal fetal presentation
- High station of the fetus
- Active herpes infection in the birth canal
- Abnormal size or structure of the mother's pelvis
- Previous classic cesarean incision

Pharmacological Methods to Stimulate Contractions

- Cervical ripening
  - Prostaglandin in a gel or vaginal insert is applied before labor induction to soften the cervix
  - Laminaria is an alternative to cervical ripening by swelling inside the cervix
- Oxytocin induction and the augmentation of labor
  - Used to initiate or stimulate contractions
  - Most commonly used method

Pharmacological Methods to Stimulate Contractions

- Prostaglandin E_1: Cytotec (Misoprostol)
  - Administer PO (buccal/sublingual) or intravaginally
    - More effective in achieving vaginal delivery within 24 hours
    - Adverse effect: uterine tachysystole (hyperstimulation) and fetal heart rate abnormalities
- Prostaglandin E_2: Prepidil or Cervidil
  - Administer intravaginally, sustained release

Mechanical Methods

- **Stripping the amniotic membranes-** involves the separation of the chorioamniotic membranes from the wall of the lower uterine segment and cervix

- **Hydroscopic dilator**

- **Transcervical ballon dilators**

Obstetric Procedures

- Amniotomy
  - The artificial rupture of membranes
  - Done to stimulate or enhance contractions
  - Commits the woman to delivery
  - Stimulates prostaglandin secretion
  - Complications
    - Prolapse of the umbilical cord
    - Infection
    - Abruptio placentae

Nursing Tip

- Observe for wet underpads and linens after the membranes rupture. Change them as often as needed to keep the woman relatively dry and to reduce the risk for infection or skin breakdown.

Observe for complications postamniotomy

- Fetal heart rate outside normal range (110-160 beats/min) suggests umbilical cord prolapse
- Observe color, odor, amount, and character of amniotic fluid
- Woman's temperature 38° C (100.4° F) or higher is suggestive of infection
- Green fluid may indicate that the fetus has passed a meconium stool

Pharmacological Methods to Stimulate Contractions

- Oxytocin Induction-initiates or stimulation of contractions with oxytocin (Pitocin) most common
  - Diluted in IV fluids-started as IVPB
  - Regulated with infusion pump
  - Begins a low rate

Nonpharmacological Methods to Stimulate Contractions

- Walking or Sitting Upright
  - Stimulates contractions
  - Eases pressure of the fetus on the mother's back
  - Adds gravity to the downward force of contraction
- Nipple stimulation of labor
  - Causes the pituitary gland to secrete natural oxytocin
    - Brush with dry washcloth; gently pulling on nipples; applying suction with breast pump

Complications of Augmentation of Labor

- Most common is related to
  - Overstimulation of contractions
    - Fetal compromise
      - Due to blood flow to the placenta if contractions are tachysystole
    - Uterine rupture
- Water intoxication
  - Inhibits excretion of urine and promotes fluid retention

Version

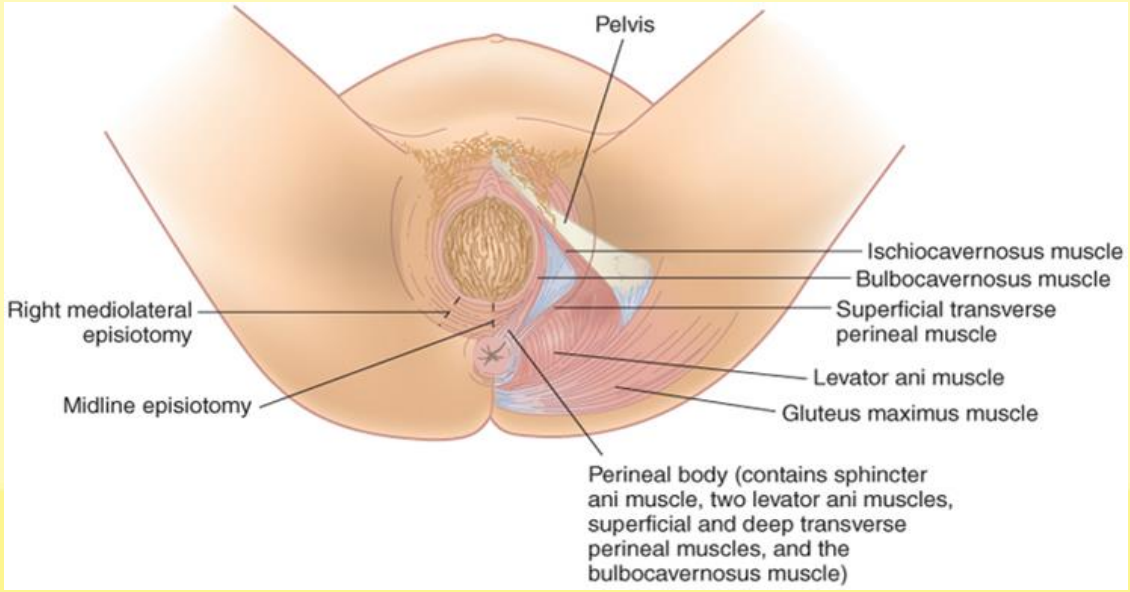
- A method used to change fetal presentation
  - Two methods
    - External—usually performed at 37 weeks, but before onset of labor
    - Internal—emergent, during labor

Risks and Contraindications of Version

- Disproportion between mother's pelvis and fetal size
- Abnormal uterine or pelvic size or shape
- Abnormal placental placement
- Previous cesarean birth with vertical uterine incision
- Active herpes virus infection
- Inadequate amniotic fluid
- Poor placental function
- Multifetal gestation
- Fetus can become entangled in umbilical cord

Episiotomy and Lacerations

- Episiotomy—controlled surgical enlargement of the vaginal opening during birth
- Lacerations—uncontrolled tear of the tissues that results in a jagged wound



Perineal Lacerations

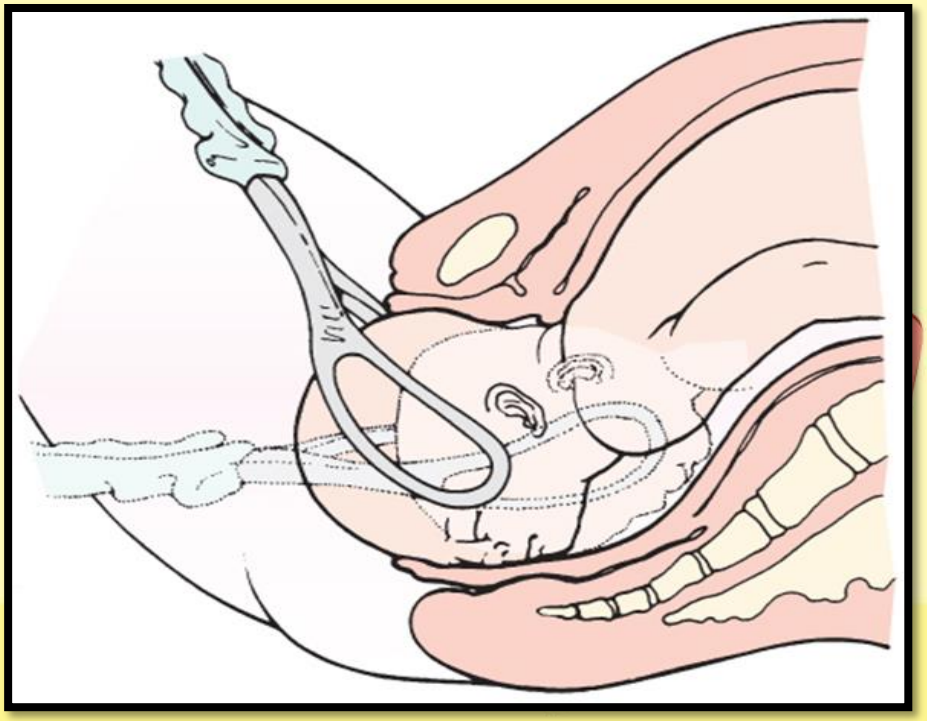
- First degree—superficial vaginal mucosa or perineal skin
- Second degree—involves vaginal mucosa, perineal skin, and deeper tissues of the perineum
- Third degree—same as second degree, plus involves anal sphincter
- Fourth degree—extends through the anal sphincter into the rectal mucosa

Indications for an Episiotomy

- Better control over where and how much the vaginal opening is enlarged
- An opening with a clean edge rather than the ragged opening of a tear
- Note: Perineal massage and stretching exercises before labor may be an alternative to an episiotomy

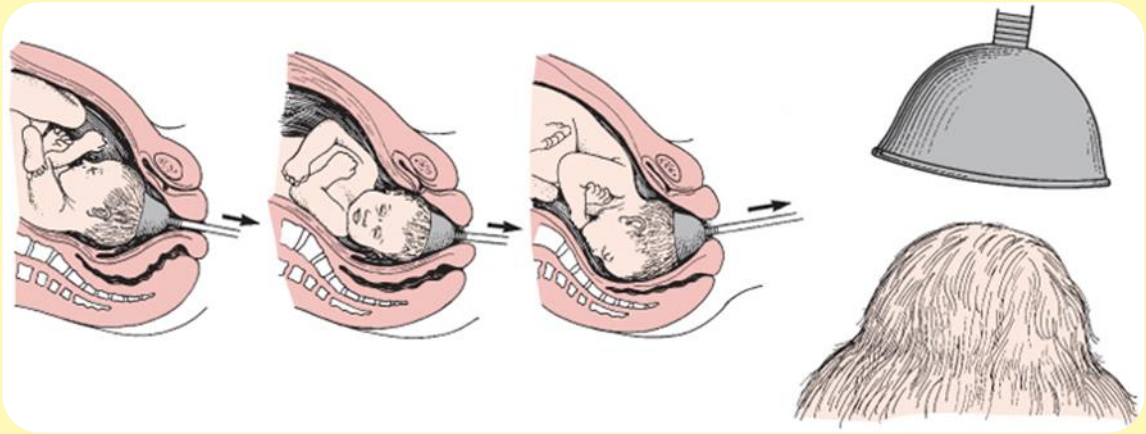
Forceps Extraction

- Provides traction and rotation of the fetal head when the mother's pushing efforts are insufficient to accomplish a safe delivery
- Forceps may also help the physician extract the fetal head through the incision during a cesarean birth



Vacuum Extraction Birth

- Uses suction applied to the fetal head so the physician can assist the mother's expulsive efforts
- Used only with occiput presentation



Risks of Forceps or Vacuum Extraction

- Trauma to maternal or fetal tissues
- Mother may have a laceration or hematoma in her vagina
  - May apply ice pack for at least 12 hours after 12-24 hours may apply heat
- Infant may have bruising, facial or scalp lacerations or abrasions, cephalohematoma, or intracranial hemorrhage with the use of forceps-nurse must assess
- If vacuum extraction-may have a “chignon” will disappear soon after birth

Cesarean Birth

- The surgical delivery of the fetus through incisions in the mother's abdomen and uterus

Indications for Cesarean Birth

- Abnormal labor
- Inability of the fetus to pass through the mother's pelvis
- Maternal conditions such as GH or DM
- Active maternal herpes virus
- Previous surgery on the uterus
- Fetal compromise
- Placenta previa or abruptio placentae

Risks of Cesarean Birth

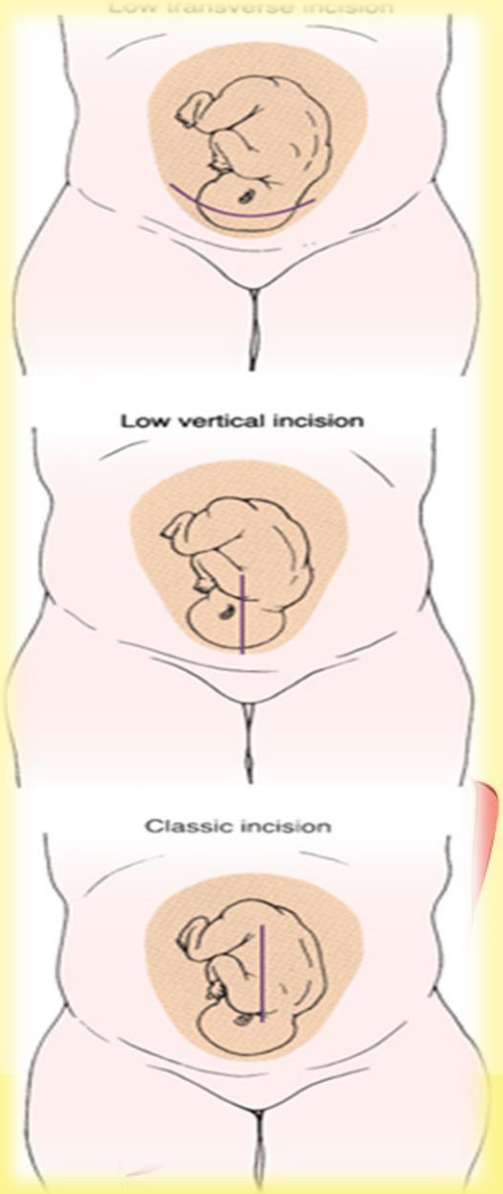
- Risk related to anesthesia
- Respiratory complications
- Hemorrhage
- Blood clots
- Injury to the urinary tract
- Delayed intestinal peristalsis
- Infection
- Risks to the newbon

Preparation for Cesarean Birth

- Clinical lab studies to identify anemia and blood-clotting abnormalities
- CBC, coagulation studies, blood typing
- Baseline vital signs, including fetal heart rate
- Position woman for comfort
- IV line
- Foley catheter inserted

Types of Incisions

- Skin
  - Vertical allows more room for a large fetus
  - Transverse (a.k.a. Pfannenstiel)
- Uterine
  - Low transverse: not likely to rupture during another birth; VBAC possible with this type
  - Low vertical: minimal blood loss; more likely to rupture during another birth
  - Classic: rarely used; more blood loss; most likely to rupture during another pregnancy



Sequence of Events in Cesarean Birth

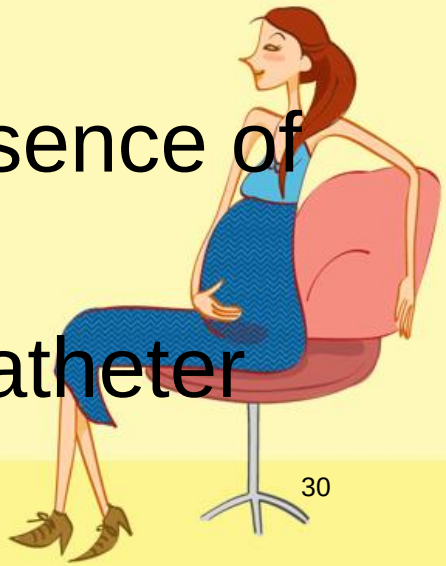
- There is a series of events which will take place during a cesarean section:
  1. Administering anesthetic
  2. Cleaning and draping the expectant mother
  3. Making skin incision
  4. Making uterine incision
  5. Rupturing membranes (if not yet completed)
  6. Removing the fetal head or buttocks
  7. Suctioning the mouth and nose
  8. Clamping the cord

Cesarean Section Birth

- Woman may need more emotional support
- Emotional care of the partner and family is essential

Nursing Care in the Recovery Room

- Vital signs to identify hemorrhage or shock
- IV site and rate of solution flow
- Fundus for firmness, height, and midline position
- Dressing for drainage
- Lochia for quantity, color, and presence of clots
- Urine output from the indwelling catheter



Safety Alert

- Although assessing the uterus after cesarean birth causes discomfort, it is important to do so regularly
- The woman may have a relaxed uterus that causes excessive blood loss, regardless of how she delivered her child
- When assessing the uterine fundus support lower portion of uterus and with the fingers of the other hand “walk” from the side toward the midline to upper fundus of uterus

Abnormal Labor

- Called *dysfunctional labor*
  - Does not progress
- Dystocia
  - Difficult labor

Risk Factors for Dysfunctional Labor

- Advanced maternal age
- Obesity
- Overdistention of uterus
  - Hydramnios or multifetal pregnancy
- Abnormal presentation
- Cephalopelvic disproportion (CPD)
- Overstimulation of the uterus
- Maternal fatigue, dehydration, fear
- Lack of analgesic assistance

Problems with the Powers of Labor

Table 8.2 Differences Between Hypertonic and Hypotonic Labor Dysfunction

HYPERTONIC LABOR	HYPOTONIC LABOR
Contractions are poorly coordinated, frequent, and painful	Contractions are weak and ineffective
Uterine resting tone between contractions is tense	Uterine resting tone is not elevated
It is less common than hypotonic labor dysfunction	It is more common than hypertonic labor dysfunction
It is more likely to occur during latent labor, before 4 cm of cervical dilation	It occurs during the active phase, after 4 cm of cervical dilation It is more likely if the uterus is overly distended or if the woman has had many other births
Medical management includes mild sedation and tocolytic drugs	Medical management includes amniotomy, oxytocin augmentation, and adequate hydration
Nursing interventions include acceptance of the woman's discomfort and frustration and the provision of comfort measures	Nonpharmacological stimulation methods include walking, assuming other upright positions, and stimulating the nipples Other nursing interventions include position changes and encouragement

Ineffective Maternal Pushing

- Woman may not understand which technique to use or fears tearing her perineal tissues
- Woman will need to be assisted with frequent changes in position
- Epidural or subarachnoid blocks may depress or eliminate the natural urge to push
- An exhausted woman may be unable to gather enough energy to push

Problems with the Fetus

- The passenger, or the fetus, might cause the labor's progression to be dysfunctional.
- These problems include size, presentation, or positioning.
- Other factors might include multifetal pregnancies and birth defects.

Fetal Size

- Macrosomia—large fetus; weighs more than 4000 g (8.8 pounds)
  - May not fit through birth canal
  - Can contribute to hypotonic labor dysfunction

Shoulder Dystocia

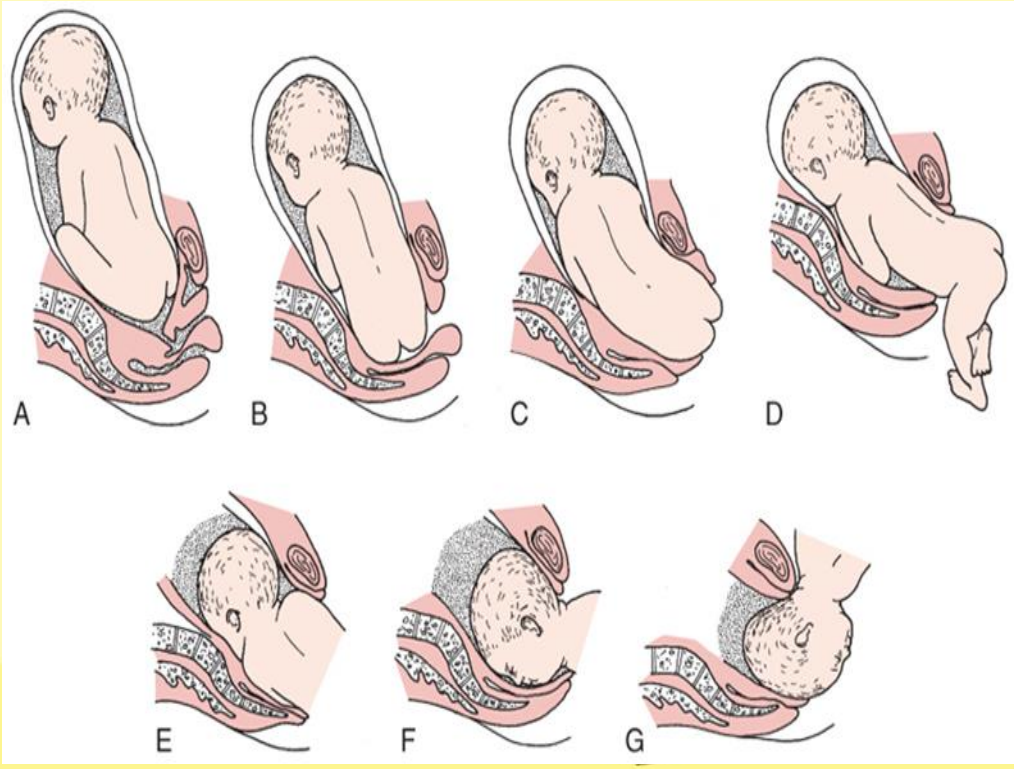
- Usually occurs when fetus is too large
- Is an emergency
- Fetal chest cannot expand and the fetus needs to be able to breathe
- After delivery, mother and infant need to be assessed for injuries
  - Mother may have torn perineal tissue
  - More at risk for uterine atony and postpartum hemorrhage
    - Uterus does not contract well after birth
  - Infant may have fractured clavicle

Abnormal Presentations

- Does not pass easily
- Interferes with most efficient mechanisms of labor
- Can cause cord compression
- May require external version

Abnormal Positions

- Common cause is a fetus that remains in a persistent occiput posterior position
- Labor may last longer
- Woman may experience intense and poorly relieved back and leg pain
- May require forceps-assisted delivery



Nursing Care for Abnormal Fetal Presentation or Positions

- Encourage woman to assume positions that favor fetal rotation and descent and reduce back pain
  - Sitting, kneeling, or standing while leaning forward
  - Rocking the pelvis back and forth while on hands and knees (encourages rotation)
  - Side-lying
  - Squatting (in second stage of labor)
  - Lunging by placing one foot in a chair with the foot and knee pointed to that side

Multifetal Pregnancy

- May cause dysfunctional labor
- Uterine overdistention contributes to poor contraction quality
- Abnormal presentation or position of one or more fetuses interferes with labor mechanisms
- Often one fetus is delivered as cephalic and the second as breech, unless a version is done

Problems with the Pelvis and Soft Tissues

- Bony pelvis
  - Gynecoid pelvis most favorable for vaginal birth
- Soft tissue obstructions
  - Most common is a full bladder
  - Pelvic tumors
  - Scar tissue

FIGURE 4.8. Caldwell-Moloy pelvic types.

The Psyche

- **The body reacts to stress with the fight-or-flight response, which impedes normal labor by the following mechanisms:**
  - Using glucose the uterus needs for energy
  - Diverting blood from the uterus
  - Increasing tension of the pelvic muscles, which impedes fetal descent
  - Increasing perception of pain, creating greater anxiety and stress and thus worsening the cycles

Abnormal Duration of Labor

- Friedman's curve
  - Often used to graph the progress of cervical dilation and fetal descent
  - Used as a guide to assess and manage the normal progress of labor
- Prolonged labor can cause
  - Maternal or newborn infection
  - Maternal exhaustion
  - Postpartum hemorrhage
  - Greater anxiety and fear

Precipitate Birth

- A birth that is completed in less than 3 hours and should be assessed first when on floor
- Labor begins abruptly and intensifies quickly
- Contractions may be frequent and intense
- May have uterine rupture, cervical lacerations, or hematoma
- Fetal oxygenation may be compromised
- Birth injury may occur from rapid passage through the birth canal
- Injuries can include
  - Intracranial hemorrhage
  - Nerve damage

Premature Rupture of Membranes (PROM)

- Spontaneous rupture of membranes at term, more than 1 hour before labor contractions begin
- Vaginal or cervical infection may cause PROM
- Diagnosis confirmed by
  - Nitrazine paper test
  - Looking for a “ferning” pattern from vaginal fluid placed on a and viewed under the microscope

Patient Teaching for a Woman with Infection or in Preterm Labor

- Report a temperature that is above 38° C (100.4° F)
- Avoid sexual intercourse or insertion of anything into vagina
- Avoid orgasms
- Avoid breast stimulation
- Maintain any activity restrictions prescribed
- Note any uterine contractions, reduced fetal activity, and other signs of infection
- Record fetal kick counts daily and report fewer than 10 kicks in a 12-hour period

Preterm Labor

- Occurs after 20 weeks and before 37 weeks gestation
- Main risks are problems of immaturity in the newborn
- Complication to assess for is chorioamnionitis or inflammation of the fetal membranes

Some Risk Factors for Preterm Labor

- Exposure to DES
- Underweight
- Chronic illness
- Dehydration
- Preeclampsia
- Previous preterm labor or birth
- Previous pregnancy losses
- Substance abuse
- Chronic stress
- Infection
- Anemia
- Preterm PROM
- Inadequate prenatal care
- Poor nutrition
- Low education level
- Poverty
- Smoking
- Multifetal presentation

Signs of Impending Preterm Labor

- A shortened cervix on ultrasound at 20 weeks may be predictive of preterm labor
- A fibronectin test
  - The presence of fibronectin in vaginal secretions between 22 and 24 weeks gestation is predictive of preterm labor
  - Fibronectin is a protein produced by the fetal membranes that can leak into vaginal secretions if uterine activity, infection, or cervical effacement occurs

Maternal Symptoms of Preterm Labor

- Contractions that may be either uncomfortable or painless
- Feeling that the fetus is “balling up” frequently
- Menstrual-like cramps
- Constant low backache
- Pelvic pressure or a feeling that the fetus is pushing down
- A change in vaginal discharge
- Abdominal cramps with or without diarrhea
- Pain or discomfort in the vulva or thighs
- “Just feeling bad” or “coming down with something”

Tocolytic Therapy

- Goal is to stop uterine contractions
- Keep fetus in utero until lungs are mature enough to adapt to extrauterine life
- Magnesium sulfate IV drug of choice
  - IV line is started-inform patient that she will feel a warm flush when the drug is started
- Beta-adrenergic drugs given orally
- Beta-adrenergic drugs given subcutaneously ass for possible tachycardia and blood pressure
- Prostaglandin synthesis inhibitors
- Calcium channel blockers given orally
- Contraindications
  - Preeclampsia
  - Placenta previa
  - Abruptio placentae
  - Chorioamnionitis
  - Fetal demise

Stopping Preterm Labor

- Initial measures to stop preterm labor
  - Identifying and treating infection
  - Activity restriction
  - Hydration
- If it appears preterm birth is inevitable
  - Steroids increase fetal lung maturity
    - Betamethasone
  - Thyroid-releasing hormone also enhances lung maturity in fetuses younger than 28 weeks

Prolonged Pregnancy

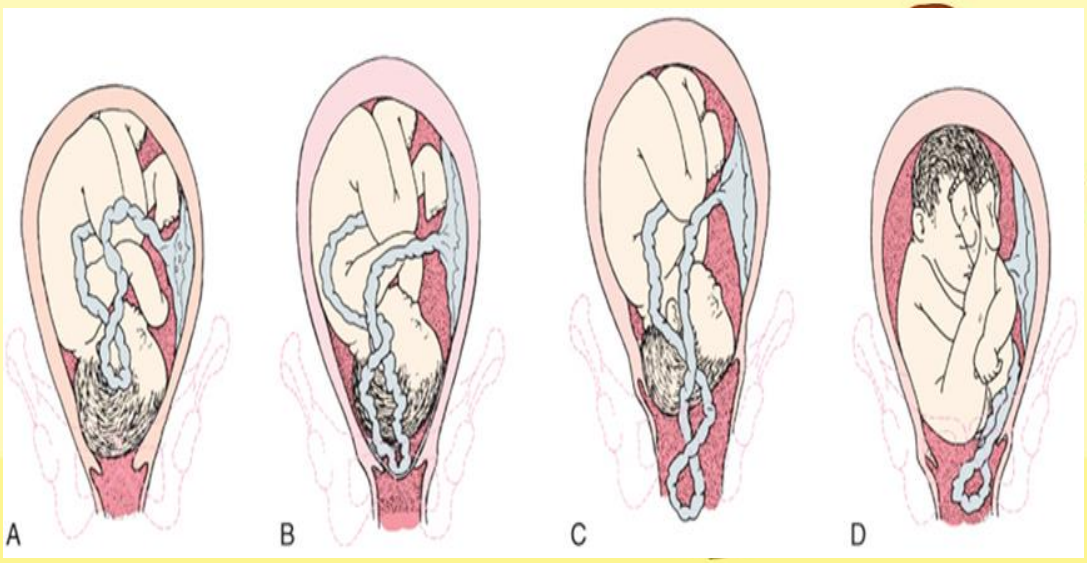
- Lasts longer than 42 weeks
- Risks
- Placenta ages
  - Delivers oxygen and nutrients to the fetus less efficiently
    - Fetus may lose weight
    - Fetal skin may peel
  - Fetus continues to grow
  - Meconium may be expelled
  - Low blood glucose levels in the fetus

Tests Used to Confirm the Diagnosis of Prolonged Pregnancy

- Any pregnancy that lasts longer than 40 weeks may require
  - Nonstress tests (NST)
  - Amniotic fluid index (AFI)
  - Biophysical profiles (BPP)
  - Kick counts

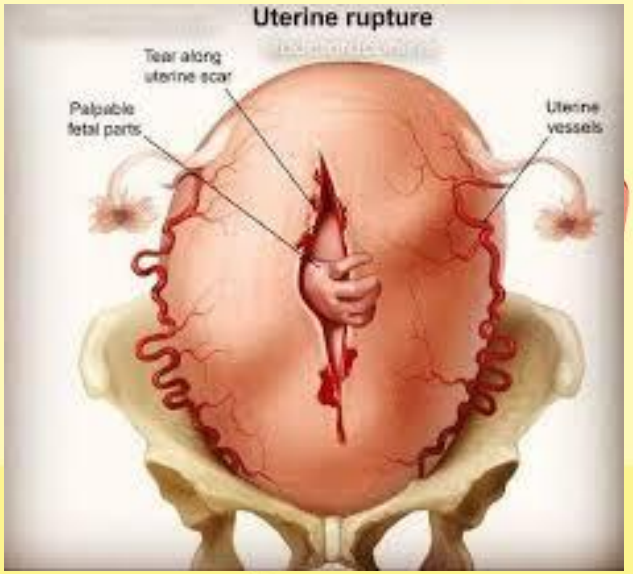
Emergencies During Childbirth

- Prolapsed umbilical cord
  - Complete
  - Palpated
  - Occult
    - Nursing Care will include repositioning the mother in knee-chest or Trendelenburg position in order to displace the fetus
- Uterine rupture
  - Complete
  - Incomplete
  - Dehiscence



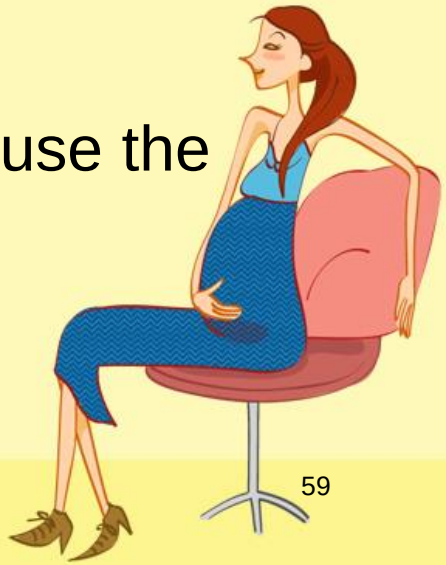
Uterine Rupture

- Types
  - Complete rupture—hole in uterine wall, into abdominal cavity
  - Incomplete rupture—tears into a nearby structure; e.g., ligament but not all the way into the abdominal cavity
  - Dehiscence—old uterine scar separate
- Risk Factors
  - Low transverse incision is the least likely to rupture
  - Uterine tachysystole increases risk if labor induced with oxytocin
  - Blunt abdominal trauma



Characteristics of Uterine Rupture

- Shock caused by bleeding into the abdomen (vaginal bleeding may be minimal)
- Abdominal pain
- Pain in the chest, between the scapulae (shoulder blades), or with inspiration
- Cessation of contractions
- Abnormal or absent fetal heart tones
- Palpation of the fetus outside the uterus because the fetus has pushed through the torn area



Amniotic Fluid Embolism

- Occurs when amniotic fluid, with its particles such as vernix, fetal hair, and sometimes meconium, enters the woman's circulation and typically obstructs small blood vessels in her lungs
- Characterized by abrupt onset of hypotension, respiratory distress, and coagulation abnormalities from thromboplastin in amniotic fluid

Treatment for Amniotic Fluid Embolism

- Mechanical ventilation
- Treat shock with electrolytes and volume expanders
- Replace coagulation factors; e.g., platelets and fibrinogen
- PRBC sometimes provided
- I&O monitored closely
- Pulse oximetry
- Cardiac monitoring
- Transfer to ICU