Childbirth & Obstetrical Emergencies (Class 15)

Anatomy

- Organs continually present
  - Ovaries
  - Fallopian tubes
  - Uterus
    - Cervix
  - Vagina
- Structures present only during pregnancy
  - Developing human organism
    - Zygote
    - Embryo
    - Fetus
  - Placenta
  - Umbilical cord
  - Amniotic sac (Bag of Waters or fetal membranes)

Terminology

- Gestation
  - Time required for fetus to develop to point that it can survive outside the uterus
  - Length
    - Normal
      » 266 to 294 days
      » Averages 280 days
      » 280 / 30 = 9.3 months
      » 280 / 7 = 40 weeks
    - Abnormal
      » >280 days
      » < 252 days (37 weeks)
  - Trimesters
    » 1st Trimester = Months 1, 2 & 3
    » 2nd Trimester = Months 4, 5 & 6
    » 3rd Trimester = Months 7, 8 & 9 and beyond

Terminology (Cont.)

- Gravida
  - Number of pregnancies
    - Primigravida
      » 1st pregnancy
    - Multigravida
      » more than 1 pregnancy
    - Gravida X
» Number of pregnancies
- Para
  • Number of deliveries
    - Primipara
      » 1st delivery
    - Multipara
      » more than 1 delivery
    - Para X
      » Number of deliveries

5

• Terminology (Cont.)
  - AB
    • Number of abortions (spontaneous or therapeutic)
    • Three types of abortion
      - Spontaneous
        » Miscarriage
      - Therapeutic
        » Pregnancy ended to preserve life or health of mother
      - Elective
        » Pregnancy ended due to reasons unrelated to health
    • Avoid using word abortion when taking history; will usually be interpreted as asking for number of elective abortions

6

• Terminology (Cont.)
  - "Water breaks"
    • Amniotic sac ruptures spilling contents through cervix and vagina
  - Presentation
    • Portion of fetus visible at vaginal orifice
  - "Crowning"
    • Head is the presenting part
    • Indicates imminent delivery
  - "Bloody Show"
    • Mucus and blood that may discharged from vagina as labor begins.
  - "Labor" (Contractions)
    • Muscular contractions of the uterus designed to expel the fetus

7

• Physiology of reproduction
  - Zygote is fertilized in fallopian tube
  - Embryo implants in uterine wall
  - Above structures develop
  - Embryo / fetus matures
  - Labor
    • Rhythmic, forceful uterine contractions
    • Types
      - False (Braxton-Hicks contractions)
        » weak
- Labor (Cont.)
  - Stages
    - Dilatory (1st)
      » Begins at onset of labor
      » Ends with full 10 centimeter (4 inches) dilation of cervix and complete effacement (thinning of cervix)
      » Can take several hours
      » Primipara is longer
      » Multipara is shorter
    - Expulsion (2nd)
      » Begins with full dilation
      » Ends with physical delivery of the infant
      » Occurs very quickly (minutes)
    - Placental (3rd)
      » Begins following delivery of the infant
      » Ends with the delivery of the placenta
      » Usually occurs 15 to 30 minutes following delivery

- Normal delivery
  - Physical exam of mother
    - Vaginal visualization
      » Amniotic sac intact?
      » Bleeding?
      » Dilation?
      » Presentation?
      » Crowning?
      » Breech?

- Normal delivery
  - Physical exam of Mother (Cont.)
    - Abdominal exam
      » Strength of contractions
        » "Rock hard" uterus is indicative of forceful contractions
        » "Mushy" uterus is indicative of weak contractions
        » avoid too forceful palpation
      » Timing of the contractions
        » Duration
» Onset of contraction to termination of contraction
» Interval of the contractions
» Onset of contraction to onset of next contraction
» Vital signs

- Normal delivery (Cont.)
  • Subjective Exam of Mother
  • History
    - Gravida number?
    - Para number?
      » The higher the number, the faster the delivery
    - AB number?
    - Previous complications?
    - Prenatal care?
    - Water broke?

- Normal delivery (Cont.)
  • Decision
    • Transport
      - Primipara
        » Extended labor
        » 12 to 18 hours
    - Contractions
      » Infrequent
      » Short
      » Irregular

- Normal delivery (Cont.)
  • Decision
    • Deliver
      - Multipara
        » Shorter labor
        » 2 to 12 hours
      - Large amount of bleeding
      - Tenesmus
      - Crowning
      - Contractions
        » Regular
        » 45 to 60 second duration
        » 1 to 2 minute intervals
        » "Strong"

- Normal delivery (Cont.)
  • Preparation
    • Contents of a childbirth delivery kit
- Surgical scissors
- Hemostats or cord clamps
- Umbilical tape or sterilized cord
- Bulb syringe
- Towels
- Gauze sponges
- Sterile gloves
- One baby blanket
- Sanitary napkins
- Plastic bag

- Position mother
  - Firm surface
  - Supine, knees to chest
  - Cover with sheet or blanket

- Normal delivery (Cont.)
  - IV lactated ringers solution TKO (may increase rate if patient becomes hypotensive following delivery)
  - Drape
    - Wash hands thoroughly
      - Soap and hot water
      - Alcohol
    - Place absorbent pad on stretcher
      - Underneath mother's hips
      - "Blue" side down
    - Apply sterile gloves
    - Sterile pad under mother, on top of absorbent pad
    - Cover thighs, legs and abdomen with sterile drape
    - Avoid touching anything with gloved hands
    - Keep other equipment handy, but sterile
      - Bulb syringe
      - Cord clamps
      - Scalpel

- Normal delivery (Cont.)
  - Allow labor to progress
    - Bear down during contractions
    - Rest between contractions
      - deep breathing through mouth
      - conserve strength
    - Await crowning
- Deliver head
  • Gentle counter pressure
    - Use gloved hand
    - Avoid fontanelles
      » Anterior
      » Posterior
    - Avoid "explosive" birth
      » Prevent tearing of perineum

- Normal delivery (Cont.)
  - Deliver head
    • Normal head positioning
      - Will normally deliver facing posteriorly
      - Will then turn to the side
        » Do NOT turn, allow it to naturally turn

- Normal delivery (Cont.)
  - Deliver head (Cont.)
    • If the amniotic sac does not break, or has not broken, use a clamp to puncture the sac and push it away from the infant's head and mouth as they appear.
    • Insure that cord is not around neck
      » Slip over head
      » Clamp and cut
    • Suction
      - If time allows
      - Use bulb syringe only
      - Mouth
        » Avoid contact with back of the mouth
      - Nose
        » Left nostril
        » Right nostril
    • Support head
      - Continually
      - Could cause cervical injury

- Normal delivery (Cont.)
  - Deliver shoulders
    • Guide head down to deliver anterior shoulder
    • Guide head up to deliver posterior shoulder
  - Deliver remainder of infant's body
    • Remainder of infant will follow quickly
    • INFANT IS SLIPPERY
Normal delivery (Cont.)
  - Care of the infant
    • DO NOT
      - pull on the umbilical cord
      - hold the infant upside down
      - strike it on the buttocks
    • Keep infant level with vagina until the cord is cut

Normal delivery (Cont.)
  - Care of the infant
    • Airway
      - Suction again
      - Meconium
        » Amniotic fluid that is greenish or brownish-yellow rather than clear; an indication of possible fetal distress during labor.
        » Do not stimulate before suctioning oropharynx.
        » If present, transport as soon as possible.
      - Use bulb syringe only
    - Mouth
      » Avoid contact with back of the mouth
    - Nose
      » Left nostril
      » Right nostril

Normal delivery (Cont.)
  - Care of the infant (Cont.)
    - Breathing effort
      » should immediately begin
      » If not, rub back, abdomen or flick soles of feet
    - If shallow, slow or absent breathing, provide artificial ventilations:
      » 60 breaths/minute
      » Reassess after 30 seconds.
      » If no improvement, continue artificial ventilations and reassessments.

Normal delivery (Cont.)
  - Care of the infant (Cont.)
    • Heart rate
      - If brachial pulse less than 100 beats per minute
      » Provide artificial ventilations at 60 breaths/min
      » Reassess after 30 seconds.
      » If no improvement continue artificial ventilations and reassessments.
      - If brachial pulse less than 80 beats per minute and not responding to bag-valve-mask
        » Start chest compressions.
- If brachial pulse less than 60 beats per minute
  » Start compressions and artificial ventilations.
- Color - if central cyanosis is present with spontaneous breathing and an adequate heart rate administer free flow oxygen - administer oxygen (10-15L) using oxygen tubing held as close as possible to the newborn's face.

**Normal delivery (Cont.)**
- Care of the infant (Cont.)
  » Place infant on its side, head slightly lower than trunk.
  » Assign partner to monitor infant and complete initial care of the newborn.
- Maintain warmth
  » Blanket
  » Aluminum foil
  » "Silver swaddler"
- Clamp and cut cord
  » Palpate for pulse
    » Ideally, clamp umbilical cord as pulsations cease
  » Clamp
    » Apply first clamp 2 to 3 inches from infant
    » Apply second clamp about 1 inch further
    » Avoid using ties (umbilical tape) if possible
  » Cut between clamps using sterile technique
    » No sensory nerves in the umbilical cord
  » Place infant on mother's abdomen and/or allow mother to hold if she requests

**Normal delivery (Cont.)**
- Care of the infant (Cont.)
  » APGAR scoring (5 level assessment scale)
    » Appearance (skin color)
      » Pink = 2
      » Partly blue = 1
      » Complete cyanosis or pallor = 0
    » Pulse (rate)
      » > 100 = 2
      » < 100 = 1
      » Absent = 0
    » Grimace (reflex irritability, measured when suctioned with bulb syringe)
      » Active crying or movement = 2
      » Facial grimace = 1
      » No response = 0

**Normal delivery (Cont.)**
- Care of the infant (Cont.)
  » APGAR scoring (5 level assessment scale)
    » Activity (muscle tone)
      » Good movement = 2
» Slight tone = 1
» No movement = 0
- Respiratory effort
  » Vigorous cry = 2
  » Irregular, shallow or gasping respirations = 1
  » Absent = 0

- Normal delivery (Cont.)
  - Care of the infant (Cont.)
    • APGAR scoring (Cont.)
      - Assess at 1 and 5 minutes
      - Interpretation
        » 0 – 3 is severely depressed
        » 4 – 6 is moderately depressed
        » 7 – 9 is slightly depressed
        » 10 is normal
      - Document

- Normal delivery (Cont.)
  - Deliver placenta
    • Do NOT pull on umbilical cord
    • Should deliver about 15 to 30 minutes following birth
    • Normal blood loss of 200 to 300 cc
    • May deliver during transport
    • Transport placenta with mother and infant
  - Transport
    • Routine unless complications
    • Continue to evaluate both patients during transport

First Trimester Complications of Pregnancy

- Vaginal bleeding
  - General
    • Most common of all complications
    • May herald an abortion
    • May be an abortion
  - Signs & symptoms
    • Vaginal bleeding
  - Treatment
    • Basic patient management
    • Treat for shock, if present
      - High flow oxygen
      - Trendelenburg position
      - MAST with abdomen
    • Two IV’s of normal saline or lactated ringers running to keep a hypotensive
patients blood pressure 90 to 110 mmHg.
» If patient is not hypotensive, one IV of normal saline or lactated ringers TKO.
- Blankets
  - Vaginal pad
  - Complete rest
  - Transport

• Ectopic pregnancy
  - Etiology
    • Zygote implants in Fallopian tube
    • Zygote undergoes cell division, increasing in size
    • Fallopian tube cannot stretch and is very vascular
    • Tube is ruptured
    • Vessels lacerated
  - Signs & Symptoms
    • Pain
      - Sudden onset
      - Lower abdomen
      - Unilateral or bilateral
      - May refer to shoulder
      - Sharp
      - Continuous
    • Shock

• Ectopic pregnancy
  - Treatment
    • Basic patient management
    • Treat for shock, if present
      - High flow oxygen
      - Trendelenburg position
      - MAST with abdomen
      - Two IV's of normal saline or lactated ringers running to keep a hypotensive patients blood pressure 90 to 110 mmHg.
        » If patient is not hypotensive, one IV of normal saline or lactated ringers TKO.
    - Blankets
    • Vaginal pad
    • Complete rest
    • Transport

Second Trimester Complications of Pregnancy

• Vaginal bleeding
  - General
    • Most common second trimester complication
    • Still less common than in first trimester
• May herald an abortion
• May be an abortion

  Treatment
  • Basic patient management
  • Treat for shock, if present
    – High flow oxygen
    – Trendelenburg position
    – MAST without abdomen
    – Two IV’s of normal saline or lactated ringers running to keep a hypotensive patient’s blood pressure 90 to 110 mmHg.
      » If patient is not hypotensive, one IV of normal saline or lactated ringers TKO.
  – Blankets
  • Vaginal pad
  • Complete rest
  • Transport

Third Trimester Complications of Pregnancy

• Placenta previa
  – Etiology
    • Placenta covers cervix
  – Signs and symptoms
    • Painless vaginal bleeding
  – Treatment
    • Basic patient management
    • Treat for shock, if present
      – High flow oxygen
      – Trendelenburg position
      – MAST without abdomen
      – IV normal saline TKO
        » 20 cc/kg bolus if hypotension present
    – Blankets
    • Vaginal pad
    • Complete rest
    • Transport

• Abruptio placenta (abruption)
  – Etiology
    • Premature separation of placenta and endometrium
  – Signs and symptoms
    • Pain
    • Occasional vaginal bleeding
    • Abdominal cramps (uterine contractions)
    • Shock
  – Treatment
- Basic patient management
- Treat for shock
  - High flow oxygen
  - Trendelenburg position
  - MAST without abdomen
  - IV normal saline TKO
    - 20 cc/kg bolus if hypotension present
  - Blankets
- Vaginal pad
- Complete rest
- Emergency transport

- Toxemia of pregnancy
  - Etiology
    - Unknown
  - Signs and symptoms
    - "Classic"
      - Edema (above that expected)
      - Hypertension
      - Proteinuria
  - Seizures
  - Types
    - Pre-eclampsia
      - 2 of 3 "classic" signs
    - Eclampsia
      - All of the "classic" signs
      - Seizures

- Toxemia of pregnancy
  - Treatment
    - Basic patient management
    - High flow oxygen
    - Left lateral recumbent position
    - IV normal saline TKO
      - 20 cc/kg bolus if hypotension present
    - Complete rest
    - Transport
      - Routine
      - Emergency may precipitate seizure

Complications of Delivery

- Uterine rupture
- **Etiology**
  - Intense contraction
  - Muscular wall tears
  - Usually occurs with labor and previous Caesarean section
- **Signs and symptoms**
  - Painful vaginal bleeding following onset of labor
  - Shock

- **Uterine rupture**
  - **Treatment**
    - Basic patient management
    - Treat for shock
      - High flow oxygen
      - Trendelenburg position
      - MAST without abdomen
      - Two IV's of normal saline or lactated ringers running to keep a hypotensive patients blood pressure 90 to 110 mmHg.
        - If patient is not hypotensive, one IV of normal saline or lactated ringers TKO.
    - Blankets
    - Vaginal pad
    - Complete rest
    - Emergency transport

- **Prolapsed cord**
  - **Etiology**
    - Cord past cervix
    - Infant remains in utero
    - Tourniquet effect created
      - Point of cord exit and point of cord entry
  - **Treatment**
    - Positioning
      - Knee-chest or extreme Trendelenburg
    - Vaginal exam
      - Apply sterile exam gloves
      - Insert hand into vagina
      - Lift presenting part off of cord
      - Maintain pulse in cord
      - Maintain position and lift
    - High flow oxygen
    - Cover umbilical cord with saline moistened dressings
• IV normal saline TKO
  – 20 cc/kg bolus if hypotension present
• Complete rest
• Emergency transport

• "Stuck" breech birth
  – Etiology
    • Abnormal position of fetus
  – Consequences
    • Fetus cannot pass through birth canal
    • Lower portion of fetus passes through birth canal to become "stuck" at head and/or shoulders
  – Signs and symptoms
    • Any presenting part other than crowning

• "Stuck" breech birth (Cont.)
  – Treatment
    • Positioning
      – Knee-chest position or extreme trendelenburg
    • Vaginal exam
      – Apply sterile exam gloves
      – Insert hand into vagina
      – Lift presenting part off of cord
      – Maintain pulse in cord
      – Maintain position and lift
    • High flow oxygen
    • Cover umbilical cord with saline moistened dressings
    • IV normal saline TKO
      – 20 cc/kg bolus if hypotension present
    • Complete rest
    • Emergency transport