High Risk OB patient transport



Objectives

- Discuss terminology of obstetrics
- Discuss normal A&P changes during pregnancy
- Discuss the OPQRST history and SAMPLE history specific to the pregnant patient.
- Discuss APGAR score
- Discuss process of physical assessment specific to pregnancy

Objectives continued

- Explain the condition supine hypotension and describe how to correct the condition.
- Discuss the possible causes of fetal distress.
- List six complications associated with pregnancy and describe the characteristics of each.
- Discuss medication indications common to transport situations
- Discuss imminent delivery and transport considerations.

Obstetrical Terminology

- Gravida
  - All current and past pregnancies
- Para
  - Number of past pregnancies viable to delivery
- Antepartum
  - Period before delivery
- Gestation
  - Period of intrauterine fetal development
- Grand multipara
  - Seven deliveries or more

Obstetrical Terminology continued

- Multipara
  - Two or more deliveries
- Natal
  - Connected with birth
- Nullipara
  - Has never delivered
- Perinatal—occurring
  - At or near time of birth
- Postpartum
  - Period after delivery

Obstetrical Terminology continued

- Prenatal
  - Before birth
- Primigravida
  - Pregnant for first time
- Primipara
  - Gave birth once
- Term
  - Pregnancy at 40 weeks' gestation

Normal A&P Changes of Pregnancy

- Normal gestation is 38-42 weeks.
- Pregnancy is broken into 3 – 3 month segments (trimesters).
- At 12 weeks the fundus (top of uterus) can be palpated above the symphysis pubis.
- Displaces the urinary bladder.
- Excessive fatigue and SOB is common throughout pregnancy.

Normal A&P Changes (continued)

- Release of progesterone causes:
  - Relaxation of the GI tract and other smooth muscles
  - Slowed peristalsis
  - Nausea/vomiting (increasing the risk of aspiration)

Normal A&P Changes (continued)

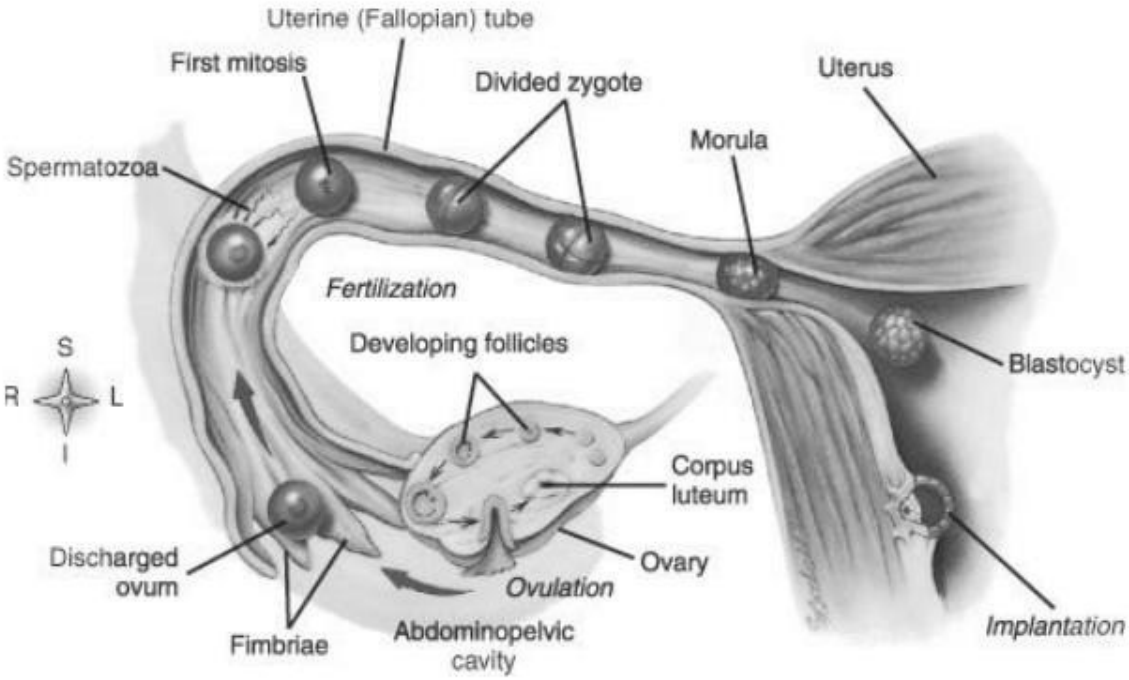
- Circulating blood volume increases by nearly 50% by full term.
  - Hemoglobin does not increase proportionately creating a mismatch called “anemia of pregnancy”
  - During hemorrhagic shock normal signs/symptoms will not be apparent until 30-35% blood loss
  - The fetus becomes stressed due to hypoxia before signs and symptoms of shock are apparent

Normal A&P Changes (continued)

- Enlarging uterus displaces main internal organs:
  - Diaphragm displaced upward decreasing functional tidal volume
  - Esophgeal sphincter displaced resulting in reflux
  - Low back pain is common in late pregnancy
  - BP decreases slightly in 2nd trimester and returns to normal in the 3rd trimester
  - Hypertension during pregnancy is always dangerous and requires evaluation
  - Heart rate increases 10-20 bpm throughout pregnancy

Normal Events of Pregnancy

- Ovulation
- Fertilization
  - Distal third of fallopian tube
- Implantation
  - Uterus



Specialized Structures of Pregnancy

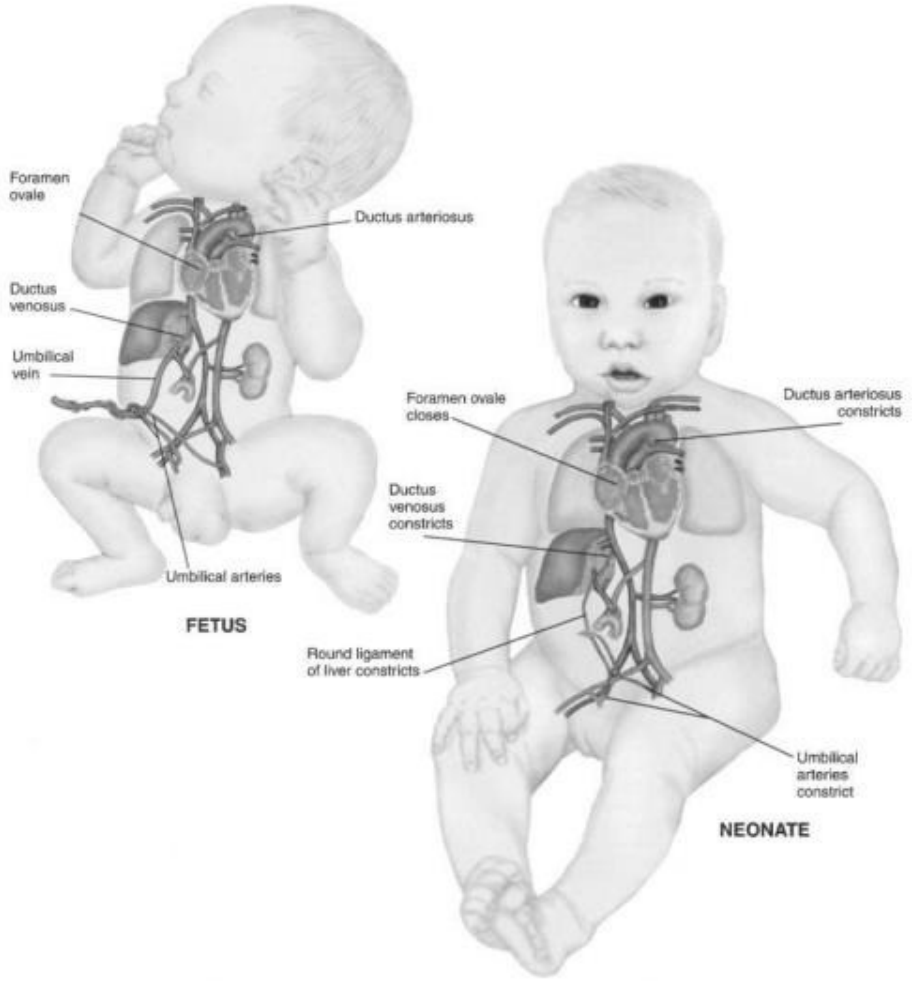
- Placenta
- Umbilical cord
- Amniotic sac and fluid

Placenta

- Transfer of gases
- Transport other nutrients
- Excretion of wastes
- Hormone production
- Protection

Umbilical Cord

- Connects placenta to fetus
- 2 arteries and 1 vein



Amniotic Sac and Fluid

- Membrane surrounding fetus
- Fluid from fetus: Urine, secretions
  - Accumulates rapidly
  - 175-225 mL by 15th week
  - About 1 L at birth
- Rupture of membrane
  - Watery discharge

General Management of OB Patient

- If birth not imminent, care for healthy patient often can be limited to basic treatment modalities

- In absence of distress or injury, transport in position of comfort:
  - Usually left lateral recumbent to relieve supine hypotension caused by pressure on inferior vena cava. If pt must be supine, place wedge under right hip.
  - ECG monitoring, oxygen, and fetal monitoring may be indicated
  - IV access

The Focused History

- The most common EMS calls are for traumatic injury, pain, or vaginal bleeding.
- Pregnant patient's are not immune from any other causes of abdominal pain (i.e. appendicitis, gallbladder, or kidney stones).
- Obtain OPQRST and SAMPLE Hx, as well as specific information about the current pregnancy and any previous pregnancies.
- Identify any possible risk factors for complications in pregnancy.

OPQRST history for pregnancy

- O – When did the pain, bleeding, labor or traumatic injury or other complaint begin?
- P – What was the patient doing at the onset and are there any complications of pregnancy?
- Q – Describe the pain and compare to previous episodes.
- R – Any radiation from the point of origin? Did she do anything for relief?
- S – Rate the pain on the 1 to 10 scale.
- T – When did it begin? Any life-threats and imminent delivery indications?

The SAMPLE history

- S – amenorrhea, nausea, vomiting, breast tenderness, back pain, abdominal pain, cramping, vaginal discharge, urinary or bowel problems, abnormal weight gain, generalized edema, etc.
- A – Any increased sensitivity to environmental allergens?
- M – Any drugs during the pregnancy?
- P – Is there a prior pregnancy history or high risk situations?
- L – When was the last menstrual period and last oral intake?
- E – What events lead to EMS being called (i.e. ruptured waters, labor pain, trauma, hemorrhage)?

The Physical Exam

- Perform the Initial Assessment as with any other patient.
- The depth of the physical exam is focused on the patient's chief complaint.
- For the female in late 2nd or in 3rd trimester positioning is an important factor for comfort and circulation.
  - Let the patient assume the position of comfort
  - Immobilized patient's need to be tilted to avoid supine hypotension

The Vital Signs

- Keep in mind normal vs changes in each trimester.
- Assess skin CTC, note presence of generalized edema.
- Respiratory rate – unusually normal or slightly increased.
- Heart rate – increases 10 – 20 bpm throughout the pregnancy.

The Vital Signs continued

- BP – decreases (10 to 15 mmHg) during 2nd trimester, returns to normal in 3rd.
  - BP varies with positioning (supine hypotension)
  - New onset hypertension is abnormal and dangerous > 140/90 may indicate preeclampsia and eclampsia

The Skin

- Changes in skin color are normal due to increased estrogen levels.
  - Chloasoma or “mask of pregnancy” – mild darkening of the face
  - Linea nigra – darkened midline from umbilicus to public bone
  - Areolar, armpits, perineum and inner thigh may also darken

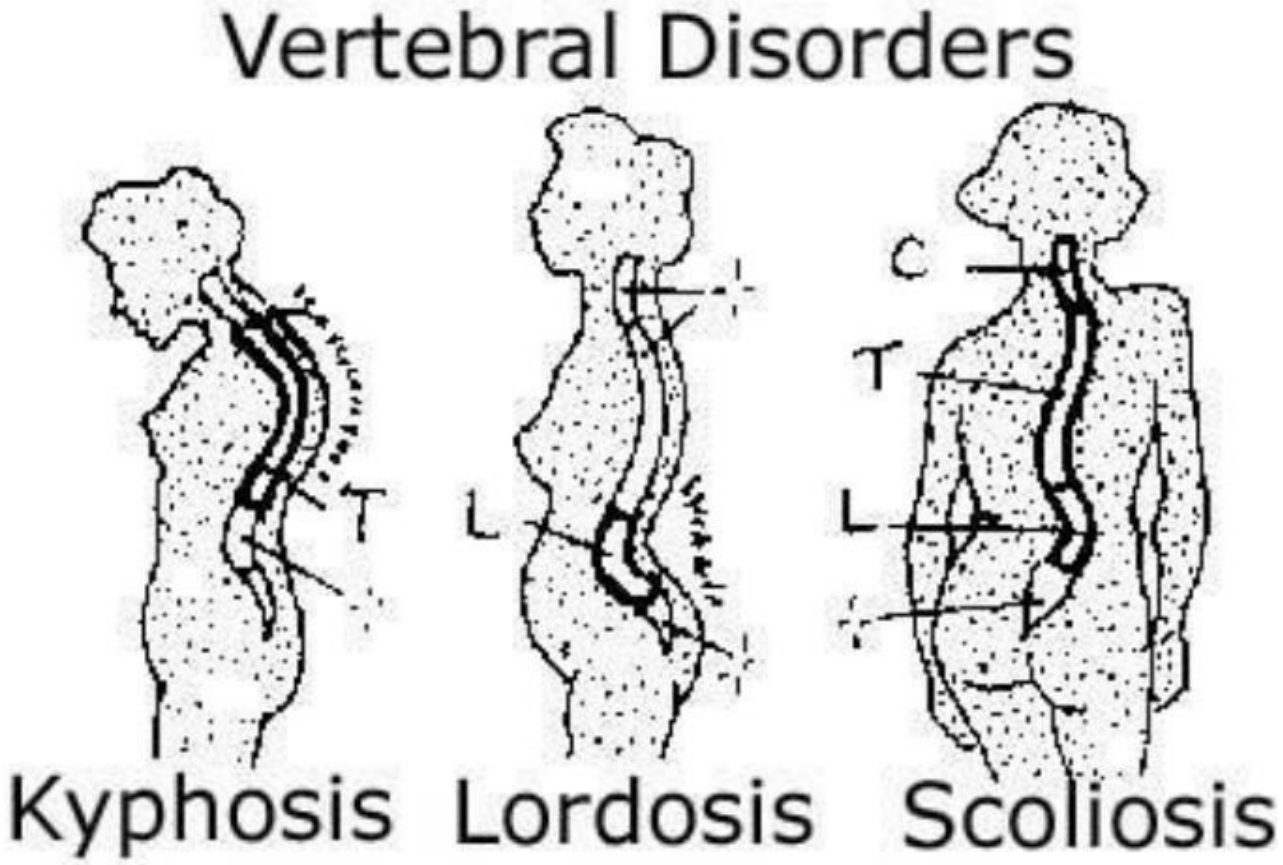
Objective visualized assessment

- Widened rib cage, flaring of the lower ribs.
- When imminent delivery is suspected examine external vagina for the presence of crowning, prolapsed cord, or the progression of labor.
- Neck – enlarged thyroid gland is normal.
- Thorax – costal angle may be wider than normal.

Objective visualized assessment

- Lordoses
  - Inward curvature of a portion of the lumbar and cervical spine
- Kyphosis
  - Also called roundback or Kelso's hunchback. Is a condition of over-curvature of the thoracic spine (upper back)

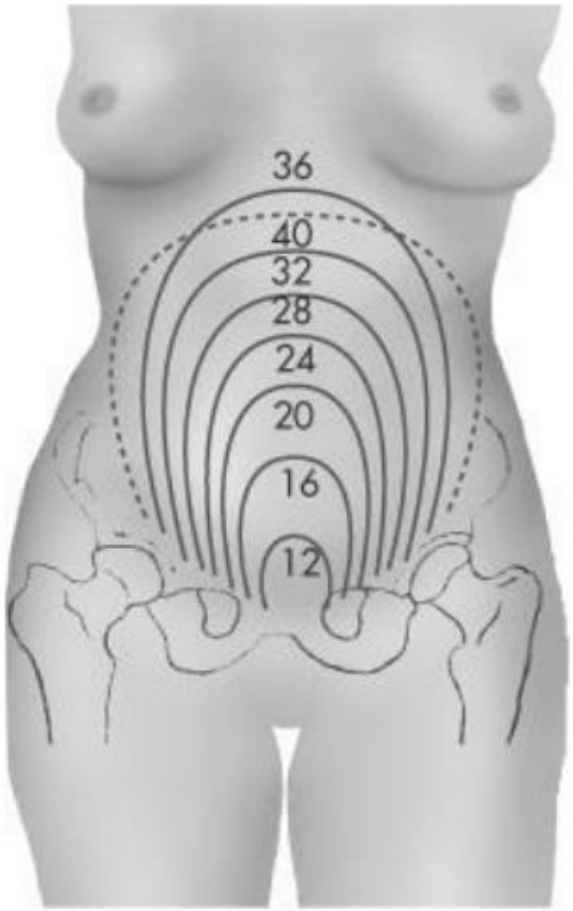
Vertebral Disorders



Assessment during palpation

- Abdomen – note any tenderness, guarding and the fundal height.
  - > 12 weeks fundus can be palpated above symphysis pubis
  - At 20 weeks at the level of the umbilicus
  - At 36 weeks it has reached the ribs or costal margin
  - When contractions are reported measure duration and time between the start of one until the start of another. Perform a fetal assessment

Fundal Height chart



Changes Assessed During Auscultation

- Abnormal heart sounds develop during pregnancy in some women.
- S-1 may be louder than normal.
- S-3 may be heard.
- A systolic murmur may be heard.
- Fetal heart tones may be heard > 12 weeks gestation.

Fetal Assessment

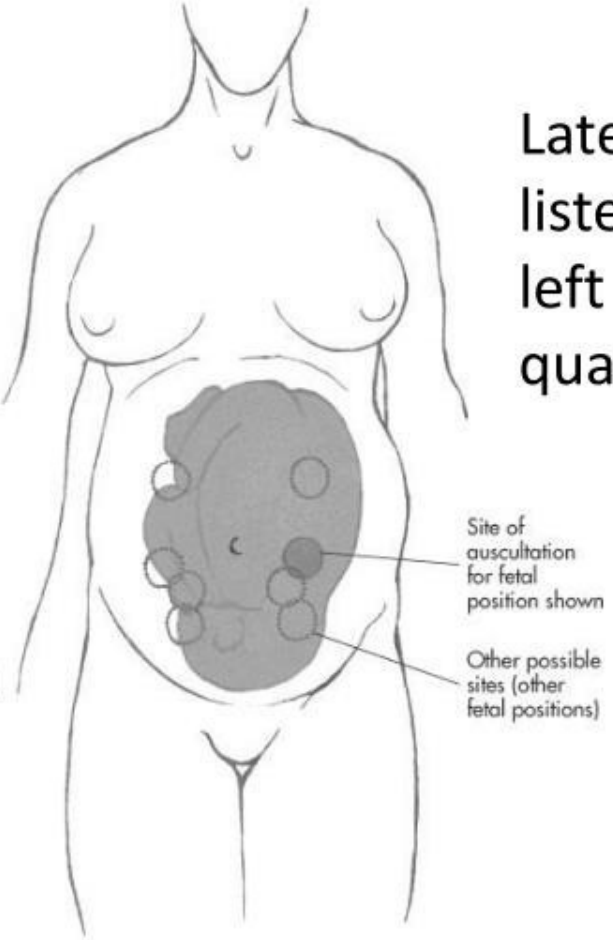
- Includes:
  - Measuring fundal height and fetal heart rate
    - Auscultate between 16 and 40 wks by stethoscope, fetoscope, or Doppler
    - Normal fetal heart rate: 120-160 bpm
  - Fetal movement and contractions (when present)
  - Locating the FHT may be difficult. Most often other tasks take priority.

- Assess during active labor for signs of distress.

Sites for Auscultation of Fetal Heart Tones

Late pregnancy listen in the right or left upper quadrant.

Early pregnancy listen in the midline between the symphysis pubis and the umbilicus.



Fetal Movement/Contractions

- Mother feels movement in the 2nd trimester.
- May feel movement during auscultation (especially in the 3rd trimester).
- Ask the mother when last movement was felt.
- Assess contractions or movement by placing one hand on the top of the fundus.

Fetal Movement/Contractions

- A contraction is felt as a muscle tensing.
- Measure duration and time of onset of one to another.
- True labor is persistent regular contraction.
- False labor (Braxton-Hicks) is irregular and inconsistent.
- Preterm labor is true labor prior to 38 wks gestation.

Pregnancy Associated Complications

- Most OB/GYN emergent complaints are of pain, bleeding or both.
- Complications are not common. The goal is to rapidly identify life-threatening conditions:
  - Eclampsia
  - Ectopic pregnancy
  - Determine if delivery is imminent

Ectopic Pregnancy

- When pregnancy is unknown or in 1st trimester and the chief complaint is lower abdominal pain with/without bleeding suspect ectopic pregnancy.
- Consider this a true emergency and provide rapid transport for surgery.
- In 1st trimester, ectopic or miscarriage may be life-threatening conditions when unrecognized and untreated.
- Uncontrolled vaginal bleeding can lead to hypovolemia, shock or death for both the mother and fetus. Manage for hemorrhagic shock

Spontaneous Abortion (miscarriage)

- A loss of pregnancy < 20 wks gestation.
- Occurs in 20 to 30 % of all pregnancies.
- Chief complaint is vaginal bleeding with or without abdominal pain. Often there is passing of fetal tissue (blood clot).

Gestational Diabetes Mellitus

- In 2nd trimester hormones trigger a release of increased insulin.
- New onset or gestational diabetes typically begins in 2nd or 3rd trimester and subsides after delivery.
- Excess glucose goes to fetus
  - Stored as fat
- Diabetes requires carefully monitoring due to increased risk of birth defects, hypertension, eclampsia and an oversized fetus.

Hypertension

- BP (>140/90) is always abnormal during pregnancy.
- Can progress to stroke, acute pulmonary embolism, renal failure, preeclampsia, eclampsia, or death.
- Treat hypertension, prevent seizures

Hypertension continued

- Signs and Symptoms of pregnancy induced HTN include:
  - Increase of 30 mm Hg systolic or 15 mmHg diastolic above baseline
  - Abnormal weight gain
  - Headaches and visual disturbances
  - Abdominal pain and generalized edema
  - Decreased urine output (oliguria)
  - Gestational HTN does not present with proteinuria, which is a sign of preeclampsia.

Preeclampsia and Eclampsia

- Leading cause of maternal/fetal morbidity and mortality.
- Signs and symptoms are the same as pregnancy-induced HTN.
- Unknown cause
  - Often healthy, normotensive primigravida
    - After twentieth week, often near term

Preeclampsia

- Diagnosis of preeclampsia
  - Hypertension
    - Blood pressure >140/90 mm Hg
    - Acute rise of 20 mm Hg in systolic pressure

      OR
    - 10 mm Hg rise in diastolic pressure over prepregnancy levels
  - Proteinuria (gestational HTN does not present with proteinuria)
  - Excessive weight gain with edema

Preeclampsia

- More severe symptoms include:
  - Severe headaches
  - Blurred vision and diplopia
  - Nausea and vomiting
  - RUQ or epigastric pain
  - Anuria and hematuria
  - Oliguria, dizziness, confusion
  - Fetal distress and abruptio placentae
- Without rapid treatment may progress to eclampsia (seizures, coma and death).
- Medication therapy is directed at preventing seizures and hypertensive crises.

Eclampsia

- Same signs and symptoms as preeclampsia plus seizures or coma
- Tonic-clonic activity
- Often begins as oral twitching
- Often apnea during seizure
- Can initiate labor

Eclampsia—Management

- Left lateral recumbent position
- Minimize stimulation
- Oxygen and ventilation assistance
- IV
- If seizures:
  - Magnesium sulfate
  - Diazepam
  - Monitor vital signs

Medication management Gestational Hypertension

- For gestational HTN
  - Hydralazine HCL is considered first line during pregnancy. Effects are vasodilation and decreased systemic arterial pressure. It also increases cardiac output, heart rate and renal blood flow.
  - Other medications include Nitroprusside, Nifedipine and Labetolol.
  - Monitor for hypotension and tachychardia related to toxicity.

Medication management Seizures

- For seizure activity
  - Magnesium Sulfate is first line choice.
    - Mag Sulfate blocks the reuptake of acetylcholine and relaxes smooth muscles.
    - Classification is mineral electrolyte
  - Diazepam (Valium) is second line choice.
    - Classification is benzodiazepine
  - For both medications, monitor for hypotension and respiratory depression

Bleeding complications late pregnancy (3rd trimester)

- Placenta Previa
  - Abnormal implantation of the placenta in a lower uterine site
  - S & S include signs of shock and vaginal bleeding without abdominal pain
- Abruptio Placentae
  - A sudden separation of the placenta from the uterine wall
  - S & S vary with the extent of the detachment
  - Severe abdominal pain with or without bleeding, but (+) signs of shock

Placenta Previa



PARTIAL PREVIA

COMPLETE PREVIA

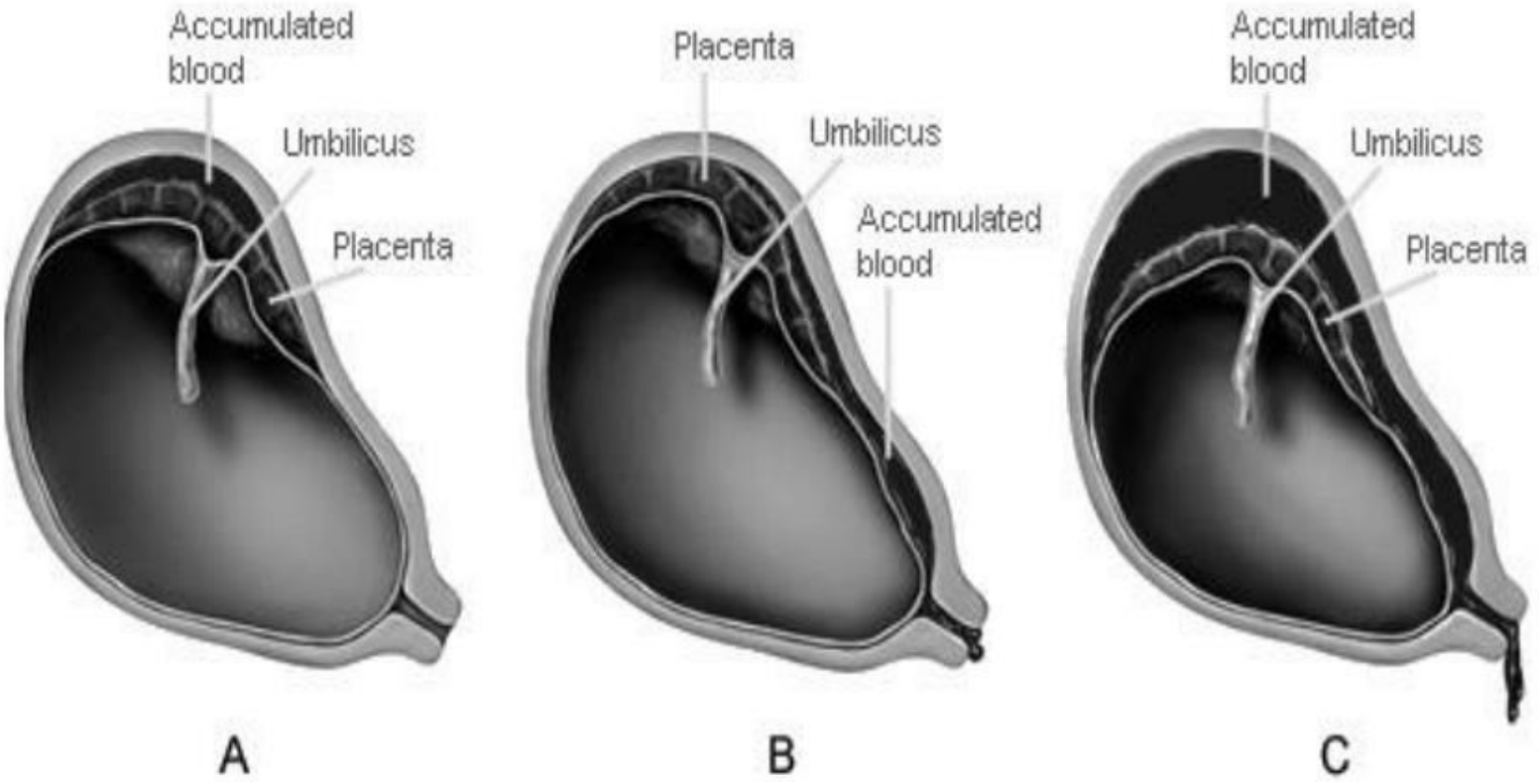
Placenta Previa

- Placenta Previa occurs when the placenta implants in the lower portion of the uterus by the internal cervical os.
- As the pregnancy nears term and the cervix dilates, the placenta implanted near or over the internal cervical os is disrupted and bleeding can occur. The bleeding places the patient and her unborn child at-risk.

Placenta Previa
signs and symptoms

- The most significantly recognized symptom of placenta previa is painless, bright red vaginal bleeding or hemorrhage during late pregnancy. However, bleeding may not occur until labor begins.
- It is imperative that vaginal examinations be avoided because stimulation of the placenta may cause hemorrhage.

Abruptio Placentae



Abruptio Placentae

- Abruptio placentae is a life-threatening event for the patient and the fetus. Since the placenta is the source of oxygenation for the unborn fetus, premature separation of the placenta from the uterine wall can place the fetus at great risk for hypoxia and death.
- High risk for developing hypovolemic shock, disseminated intravascular coagulation (DIC), and possibly death.

Abruptio Placentae
signs and symptoms

- Vaginal bleeding, which may be dark red due to old blood from a concealed abruption.
- Uterine tenderness, and a board-like abdomen. Patients often complain of an aching or dull pain in the abdomen or lower back.
- Contractions may be present
- If fetal heart tones absent, fetal death is likely

Managing 3rd trimester bleeding

- Prevent shock
- Do not examine patient vaginally
  - May increase bleeding and start labor
- Emergency care
  - ABCs
  - Left lateral recumbent position
  - IV therapy: establish bilateral large bore IV's, consider fluid and blood infusion.
  - Check fundal height

Birth complications
Premature Rupture of Membranes (PROM)

- Rupture of amniotic membrane 1 hour or more before the onset of labor.
- Without protective barrier, fetus is at greater risk for infection (including becoming septic after delivery) and preterm delivery.
- Without cushioning of amniotic fluid, greater risk for umbilical cord compression and cord prolapse.
- Medications include antibiotics

Birth complications
Preterm labor and birth

- Occurs after 20 week and before 37 week gestation.
- Active labor typically progresses slowly in the female who has never given birth and rapidly in the female who has.
- Signs and symptoms of imminent birth include urge to move bowels, crowning, regular contractions lasting 45-60 sec at 1-2 min intervals, large bloody show and mom says its time!
- Medications may include:
  - Antibiotics for infection
  - Glucocorticoids to increase fetal lung maturity
  - IV hydration
  - Tocolytics to control uterine contractions

Normal birth procedure

- Position the mother
  - Placing the mother in the supine position, with her knees drawn up and legs apart, works better when space is limited. Remember to leave room for delivery of the newborn onto the bed or other safe surface.

NOTE: It is dangerous to transport a patient in the knee-chest position because the patient is at risk of tumbling off the gurney when the ambulance turns corners; this should be reserved for the more serious condition of prolapsed cord, which poses far greater risk to the fetus. A supine position with pelvis elevated by Trendelenberg and/or pillows under pelvis is safest for both mother and baby.

Normal birth procedure continued

- Assist with delivery
  - Responsibilities of EMS crew:
    - Prevent uncontrolled delivery
    - Protect infant from cold stress after birth
- When crowning, apply gentle pressure against the bony part of the baby's skull to prevent an explosive delivery. Avoid pressing on the fontanelle ("soft spot").
- Examine neck for looped umbilical cord. watch for whether the umbilical cord is wrapped around the infant's neck. You can either unwrap it or slip the cord over the infant's shoulder. As a last resort, to avoid asphyxiation to the fetus, clamp and cut the cord.

AHA changes to suctioning

- NOTE: In the past, it was common to suction the infant's airway after delivery of the head, but before delivery of the shoulders, to try to reduce aspiration. However a large recent study showed no benefit; therefore, the new American Heart Association (AHA) guidelines no longer advise routine suctioning of the nose or mouth before the shoulders are delivered….. but it is still done in special circumstances (e.g., when meconium is present).

Normal birth procedure continued

- Support infant's head as it rotates for shoulder presentation
- Guide infant's head downward to deliver anterior shoulder
- Guide head upward to release posterior shoulder
- Maintain two hands on the infant at all times and be sure to grasp the feet as they deliver. The baby will be very slippery. As the newborn exits the birth canal, grasp the lower leg firmly near the ankle to avoid dropping the slippery body.
- After delivery of the infant, keep the infant level with the vaginal opening until the umbilical cord has been clamped and cut.
- The placenta will deliver on its own within 10 to 15 minutes. Once the placenta is delivered, wrap it in a towel and place it in a plastic bag. The placenta must be transported safely to the hospital along with mother and newborn.

Birth procedure complications
Prolapsed cord

- Prolapsed cord
  - Prolapsed cord is a condition in which the umbilical cord presents through the birth canal before delivery of the head. This is a serious emergency.
  - This prevents compression of the umbilical cord by a limb or the head. Compression of the cord will cause a decrease in oxygen and nutrients to the fetus.
  - Elevate mom's pelvis with pillows and try to lower her head. These positions are meant to take the weight of the fetus off the umbilical cord.
  - make sure the mother does not try to push, which will cause further cord compression.

Birth procedure complications Prolapsed cord continued

- Prolapsed cord continued
  - There are very few times when prehospital providers insert their fingers into the vaginal opening. This is one of them.
    - Carefully insert your sterile-gloved fingers into the vaginal opening. Apply a gentle pressure on the head of the fetus to keep it off the cord. To protect the exposed cord, wrap it in a moist sterile towel, preferably one soaked in saline.
  - You must maintain this position, holding the fetus away from the umbilical cord, until the patient is handed off. Check the cord frequently for pulsations. If pulsations are not felt, apply more pressure or reposition the mother. Provide high-flow oxygen for the mother and transport rapidly to the closest hospital.

Birth procedure complications
Breech presentation

- Breech presentation occurs when the fetus is positioned in the uterus so that the buttocks or lower extremities will be the first to deliver. This presentation places the fetus at risk for trauma. It also makes prolapse of the umbilical cord more likely.



Birth procedure complications Breech presentation continued

- Treatment is similar to that for prolapsed cord. The mother is placed on high-flow oxygen and in the supine position, with her pelvis elevated by pillows above the level of her head.
- Nothing should be inserted into the vaginal opening unless there is a prolapsed cord. Immediate, rapid transport to a hospital is the best treatment. Encouraging the mother not to push is extremely important as you attempt to delay delivery.

Vaginal Bleeding Following Delivery

- Bleeding of as much as 500 ml is normal after delivery and is usually well tolerated by the mother. Being aware of this will help prevent undue psychological stress on the mother or the emergency crew.
- Excessive postpartum hemorrhaging, of more than 500 ml, calls for aggressive, rapid intervention.
  - First, massage the uterus. Place one hand, fingers fully extended, on the mother's lower abdomen and the other above the symphysis pubis, massaging or kneading the lower abdominal area. The uterus should become firm. If bleeding continues, check the massage technique and transport immediately.
  - High-flow oxygen should be administered en route, with frequent reassessment of interventions and vital signs.
  - Regardless of estimated blood loss, if the mother shows signs of shock or hypoperfusion, transport immediately. Treat the mother as if severe shock is present. This is a life-threatening emergency.

Initial Care of the Newborn

- The first steps are to position, suction, warm, dry, and stimulate the newborn. These are all part of the normal delivery process and should be accomplished in 30 seconds.
- Wrap the newborn in a blanket and be sure the baby is properly positioned.
  - Begin by wiping and drying the newborn while it is protected by the blanket.
  - Cover the head to prevent heat loss. Suction the mouth and nose as needed.
  - Replace the original blanket with one that is clean and warm.
- Next, assess skin color, heart rate, and breathing effort.
  - If the infant is not breathing or is breathing irregularly, stimulate it by flicking the soles of the feet or rubbing the back. Stimulation should produce regular ventilations and increase perfusion. When stimulation does not work, more aggressive resuscitation measures are needed.

Initial care of the newborn continued

- If the newborn is not breathing, proceed immediately to assisted ventilations by bag valve mask. Administer breaths at 40 to 60 breaths per minute for 30 seconds.
- Check the heart rate. The newborn's heart rate can be checked two ways:
  - Palpate the pulse below the umbilicus. Count the beats for 10 seconds and multiply by 6. If the pulse is not palpable, auscultate with your stethoscope over the apical area for heart sounds.
  - If the heart rate is below 60 beats per minute, initiate chest compressions at a rate of 100 per minute. Use the two hands encircling technique if possible

APGAR Score

Sign/score	0	1	2
Appearance	Blue, pale	Body pink, blue extremities	All pink
Pulse rate	0	<100	>100
Grimace	No response	Grimaces	Cries
Activity	Limp	Some flexion of extremities	Active motion
Respiratory	Absent	Slow and irregular	Strong cry

Discussion and Questions