OB/GYN Emergencies

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Flight RN, MedFlight
Objectives and Disclaimer:

- Review female reproductive organs and menstrual cycle.
- Causes of abdominal pain in women
- Assessment and physical exam
- Sexual assault
- Biological changes in pregnancy
- Problems in pregnancy
- Delivery and newborn resuscitation
WARNING:

- The content in this presentation may be graphic at times......parental discretion is advised.
Female Reproductive Organs

- Ovary
- Rectum
- Cervix
- Vagina
- Anus
- Uterus
- Urinary bladder
- Labium minora
- Clitoris
- Urethral opening
- Labium majora
- Vagina
- Labium minora
- Anus
The Menstrual Cycle

- Monthly hormonal cycle, usually 28 days.
- Prepares the uterus to receive a fertilized egg.
- The onset of menses, known as menarche, usually occurs between the ages of 10 and 14.
The Menstrual Cycle

- Ovary releases an egg into the fallopian tube.
- Ovum (egg) travels down to the uterus and may be fertilized 12-24 hours after release.
- Uterine lining (endometrium) thickens and blood supply increases. If the embryo implants, this continues; if not, it sheds.
History of woman of childbearing age

- Initial Assessment—SAMPLE.
- Does the patient complain of pain?
- Use OPQRST—onset of event, provocation or palliation, quality, region/radiation, severity, time
- Associated signs or symptoms.
  - Dysmenorrhea/dyspareunia
History

- Has she ever been pregnant?
  - Gravida--# of times pregnant
  - Parity--# of pregns resulting in live birth
  - TPAL=term-preterm-abort-living
- Document last menstrual cycle.
- Medications—Contraceptives
Potential causes of abdominal pain
Pelvic Inflammatory Disease
Physical Exam

- Respect patient’s privacy.
- Be professional.
- Explain procedures.
- Observe patient.
- Check vital signs.
- Assess bleeding or discharge: *Do not perform an internal vaginal exam in the field.*
- Abdominal examination.
Management of Gynecological Emergencies

- General management of gynecological emergencies is focused on supportive care.
- Do not pack dressings in the vagina.
- Make the patient comfortable and transport.
- Signs of shock—oxygen administration and IV fluid resuscitation
Sexual Assault

- Do not ask specific details of a sexual assault.
- Do not examine the external genitalia of a sexual assault victim unless there is a life-threatening hemorrhage.
- Explain all procedures and obtain pt’s permission before beginning them.
Sexual Assault cont.

- Protect the scene.
- Handle clothing as little as possible.
- If removing clothing, bag each item separately.
- Do not cut through any tears or holes in clothing.
- Place bloody articles in brown paper bags.
- Do not exam the perineal area.
- Do not allow patient to change clothes, bathe, or douche.
- Do not allow patient to comb hair, brush teeth, or clean fingernails.
- Do not clean wounds, if possible.
Documentation

- State patient remarks accurately.
- Objectively state your observations of patient’s physical condition, environment, or torn clothing.
- Document evidence turned over to hospital staff.
- Do NOT include your opinions as to whether rape occurred.
Gestation

- Measured from the first day of the last menstrual period until delivery.
- Full term is about 280 days or 40 weeks.
Biological Changes of Pregnancy
NORMAL CHANGES:
Shortness of breath  Skin changes  Backache  Change in balance
Swelling            Heartburn      Constipation  Fatigue
Enlarged breasts   Stretch marks  Loose joints
Nasal congestion   Hemorrhoids    Frequent urination
Cardiovascular

- Cardiac Output increases
  - stroke volume x heart rate
- Blood volume increases 50% by 30 wks (relative anemia)
- Blood pressure decreases in 2\textsuperscript{nd} trimester and back to pre-pregnant range by third trimester
Respiratory

- 30-40% increased tidal volume required
- Functional residual capacity decreases by 20% (decreased O2 reserve)—put supplemental O2 on pregnant patient with any respiratory or bleeding issues
- Upper respiratory congestion/epistaxis common—NG placement can cause bleeding
Miscellaneous

- **GI motility** decreases, gastric emptying increases, increase maternal aspiration
- **Musculoskeletal**—joints relax, falls common
- **Urinary**—frequency/urgency and increased risk of pyelonephritis.
Causes of maternal deaths

Severe bleeding 25%
Indirect causes** 20%
Other direct causes* 8%
Unsafe abortion 13%
Obstructed labour 8%
Eclampsia 13%
Infection 15%

2005 WHO
In the US, the risk of death from complications of pregnancy has decreased approximately 99% during the twentieth century, from approximately 850 maternal deaths per 100,000 live births in 1900 to 7.5 in 1982. However, since 1982, no further decrease has occurred in maternal mortality in the United States. In addition, racial disparity in pregnancy-related mortality ratios persists; since 1940, mortality ratios among blacks have been at least three to four times higher than those for whites.
Ectopic Pregnancy
Ectopic Pregnancy

- 95% in fallopian tube—11% of maternal deaths
- Limit abdominal exams—may cause rupture
- Symptoms
  - 94% pain
  - 89% missed period
  - 80% vag bleeding/spotting
  - 20% hypotension
  - shoulder pain—referred pain from blood accumulation
Ectopic Pregnancy treatment

- Surgical removal OR
- Injection of methotrexate if the fertilized ovum is < 3.5cm in size - chemotherapeutic agent which kills the pregnancy tissue and causes it to be reabsorbed in the body
- If the ectopic pregnancy survives to 12-16 weeks and then ruptures, maternal mortality is much higher
Abortion (Miscarriage)

Menorrhagia—excessive menstrual flow (35ml on average with 10-80ml considered normal)

Spontaneous Abortion--most frequently before 12 wks gestation.

Threatened/inevitable/criminal/therapeutic/elective
Placental Abruption
Placental Abruption

- Sx: abdominal pain, board-like abd, vaginal bleeding
- Common with: pre-eclampsia, maternal HTN, multiparity, abd trauma, short cord, drug abuse
Placenta Previa

- 1/200 live births
- Risks: previous c-section, >35 years
- Sx: painless vaginal bleeding after 20 weeks gestation
Pre-eclampsia

- Cause unknown
- 5-8% of pregnancies
- HTN (30 mmHg systolic or 15 mmHg diastolic or > 140/90)/proteinuria/edema (or rapid wt gain without edema) after 20 wks gestation
- Development < 24 wk, 2% fetal survival
Pre-eclampsia treatment

- Magnesium Sulfate
- Antihypertensives
- Steroids <34 wks gestation
- Delivery of infant
Eclampsia

- Pre-eclampsia accompanied by seizures not attributable to other causes
- Sx: pre-eclamptic sx plus HA/visual disturbance, hyper-reflexia, R upper quad abd pain.
- Can occur up to 23 days after delivery of infant (25% postpartum)
- Described in literature in 1619
- Starts with facial twitching to full body jerking (60-75 seconds) - respirations absent throughout.
Eclampsia treatment

- Protect mother from injury during seizure
- Minimize risk of aspiration
- Assure adequate oxygenation after seizure
- Secure IV line
- Administer Magnesium Sulfate
Cardiac Arrest in Pregnancy

- Approx 1/30,000 pregnancies complicated by cardiac arrest
- 10% of maternal deaths
- 3 out of 4 attempts at cardiopulmonary resuscitation will be unsuccessful
Obstetric causes of Cardiac Arrest

- Pre-eclampsia and its complications
  - eclampsia,
  - pulmonary edema,
  - cardiac dysfunction,
  - stroke,
  - cerebral edema,
  - Mag toxicity/fluid overload,
  - HELLP syndrome
Obstetric causes of Cardiac Arrest

- Amniotic fluid embolus
  - 1/20,000 pregnancies
  - 50% mortality, 10% maternal deaths
  - 50% die in first 5 minutes
  - Even if resuscitated, majority have permanent brain damage
Obstetric Causes of Cardiac Arrest

- Peripartum cardiomyopathy (19% mortality if recurrent)
- Obstetric hemorrhage
- Complications of obstetric anesthesia (3% of maternal deaths)
Non-obstetric causes of cardiac arrest in pregnancy

- Pulmonary embolism (20%)
- Septic shock
- Preexisting cardiac disease
- Myocardial infarction
- Preexisting pulmonary disease

**Deaths attributable to other medical conditions have significantly increased from 14% in 1991 to 20% in 1999**
BLS in pregnancy

- Airway early—Mom is starting in deficit, apply continuous cricoid pressure to decrease risk of regurgitation when using BVM
- Breathing—reduce risk of gastric inflation by delivering lower tidal volume (700-1000 over 2 minutes), secondary to elevated diaphragm. Use endotracheal tube .5 to 1 mm smaller than in non-pregnant patient, due to edema
- Circulation—compressions slightly higher on sternum due to elevated diaphragm. REMEMBER left tilt—25-30% increase SV & CO
- Modify Heimlich maneuver in advanced stages of pregnancy for FBO
Chair on side
Left Manual Displacement
ACLS in pregnancy

- Defibrillation—energy requirements do not change in pregnancy. No evidence that shock effects fetal heart.
- Pharmacologic therapy is not altered.
- Vasopressor agents (epi, vasopressin) will decrease blood flow to the uterus—there is no alternative—use them
- Mother comes first
Consider need for Peri-mortem C-section

Historically, second king of Rome declared that if a woman died while pregnant, the baby must be cut from the womb for baptismal purposes (and taxation).

In 1864, in Berlin, there was record of 3 infants who survived out of 147 peri-mortem c-sections.
Emergency c-section—factors predicting fetal outcome

- Fetal age >28 weeks
- Interval between maternal arrest and delivery of fetus
- Absence of prolonged hypoxia
- Quality of maternal resuscitation
Preterm Premature Rupture of Membranes (PPROM)

- ROM <37 weeks gestation
- Infections play role ~10% of the time
- Intrauterine infection can occur
- Cord prolapse
- C-section more common
- Abruption
- Neonatal respiratory problems—9-28% chance of pulmonary hypoplasia if PPROM occurs between 15-28 weeks
- Sterile speculum exam only—less likely to introduce bacteria into the cervix.
Fern test
Preterm Labor

- Risks: age <16 or >40, low socioeconomic group, prior PTL (20-26%), smoker, infection, multiple gestations—50% of people have no risk factors
- 10% births in developed countries, 70% neonatal deaths
- Tocolytics 60-88% effective
Preterm Labor

- **Sx:** pelvic pressure, increase vag discharge, backache, cramps
- **Dx:** persistent uterine contraction with cervical change
- **Tx:** terbutaline (Brethine) .25 mg SQ every 3 hours if HR<130, Magnesium Sulfate, Nifedipine, Indomethacin
- **Fetal fibronectin**—swab of cerviovaginal protein found close to delivery—negative predictive value
Cerclage
Multiple Gestations
Trauma in Pregnancy

- MVA’s are 67% of major injuries
- Falls
- Physical Abuse 10-31%
Keep in mind, severe trauma stimulates maternal catecholamine release, which causes uteroplacental vasoconstriction, shunting blood away from the fetus to maternal vital organs.
Fetal survival rate is 20% when mother is in an obvious shock state.
Likely Effects of Trauma on the Pregnancy depends on:

- Gestational age
- Placental Fetal-maternal hemorrhage/detachment (uterus receives 30% cardiac output during preg from 2% non-preg)
- Rupture of the amniotic sac
- Fetal injury
Uterine Rupture

- Less than 1% of traumatic injuries to the pregnant patient
  - Uterus can withstand pressures up to 10 times that of normal labor.
  - Concave abdomen.
  - Possibly identify fetal parts.
  - Significant hypotension
Pelvic Fracture

- Retroperitoneal hemorrhage
- Bleeding can exceed 4 liters of blood
- MAST trousers contraindicated in the pregnant patient due to supine hypotension syndrome
Penetrating Trauma

- Based on gestational age
- Bowel pushed upward with enlarging uterus, upper abd injuries associated with GI injuries
- Uterus involved, fetal mortality 70% vs. maternal mortality of 7-9%.
Securing the pregnant trauma patient
Gestational Age
Fetal Presentation

**Fig. 10.15** Vertex.

**Fig. 10.16** Brow.

**Fig. 10.17** Face.

**Fig. 10.18** Breech.

**Fig. 10.19** Shoulder, dorso-anterior.

**Fig. 10.20** Shoulder, dorsoposterior.
Cervical Exam: Dilation and Effacement

- A: Cervix not effaced. Length of cervical canal = 4 cm
- B: Cervix partly effaced. Length of cervical canal = 2 cm
- C: Cervix fully effaced
- D: Cervix dilated 3 cm
- E: Cervix dilated 8 cm
Station

- Degree of decent of the presenting part in relation to mom’s ischial spine.
Rupture of Membranes

*1000 ml of fluid*
Assessing Fetal Heart Tones

- Best heard through the baby’s back
- Feel for mom’s radial pulse simultaneously
- Assess before, during and after a contraction
- Stethoscope over 20 weeks
Baseline Fetal Heart Rate

- Normal—120-160
- Bradycardia--<120
- Tachycardia-- >160
Care of the OB Patient

- IV
- Supplemental O2
- Positioning—document this
- Fetal Monitoring
- Obstetrical Supplies
Magnesium Sulfate

- Dilates the vessels, lowering BP and decreasing contractions
- 4 gm load over 15-20 min then 2-4gm/hr titrated for affect
- Shooting for blood levels 4.8-9.6 mg/dl
- Monitor urine output, reflexes and vital signs
Magnesium Toxicity

- Loss of patellar reflexes—8-12 mg/dl
- Flushing—9-12mg/dl
- Somnolence/slurred speech—10-12mg/dl
- Muscular paralysis/resp diff—15-17mg/dl
- Cardiac Arrest—30-35mg/dl
- Antidote: Calcium gluconate 1gm (10ml of 10% given IV push over 3 minutes)
Deep Tendon Reflexes

- Patellar or bicep
- 4+ hyperactive
- 3+ > than normal
- 2+ normal
- 1+ low response
- 0 no response
- Clonus
Delivery Complications
Position patient so gravity helps
Insert gloved hand to push presenting part off cord
Shoulder Dystocia

The shoulder is trapped behind the pubic symphysis.

Pulling the baby’s head stretches the brachial plexus, damaging the nerves.
Turtle’s sign
Assisting the patient to pull her knees back will improve the width of the pelvis
Applying suprapubic pressure during a contraction will often assist the anterior shoulder out from under the pubic bone.
Breech Birth

- 3% of presentations
- 11.6% c-section rate in 1970, to 79.1% in 1985—today, up to 98%.

From: Vesicle Clinica OB/GYN, Var. 007 William and Wilkins A. Waverly Company
Breech Delivery
Breech Delivery
Head entrapment
If the head remains stuck, insert a gloved hand and attempt to re-flex the infant’s head (chin to chest), while pushing infant’s head off the cord. This may enable the baby to be delivered vaginally.
Imminent Vaginal Delivery with Vertex Presentation
Imminent Delivery Questions

- Gestational age?
- How many babies?
- Narcotic use in past 4 hours?
- Meconium stained fluid?
Uterine inversion
Boggy Uterus

- Hemorrhage > 1000 ml blood loss
- Cervical laceration
- Uterine inversion—must be replaced immediately
- Bleeding—apply pressure/fundal massage
Newborn Resuscitation
Meconium Stained Fluid

12% of deliveries—the big question is the vigorousness of the baby—intubation required in 3% of cases.
Muscle tone

Hypotonia
(decreased muscle tone)
Figure 66: PALS Newborn Resuscitation Pyramid

Dry, Warm, Position, Suction, Stimulate

Oxygen

Establish Effective Ventilation
- Bag-valve mask
- Endotracheal intubation

Chest Compressions

Medications
Assessing Heart Rate on the Newborn
Bag Valve Mask of the Infant
<table>
<thead>
<tr>
<th>Criteria</th>
<th>Score*</th>
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<tbody>
<tr>
<td></td>
<td>0</td>
</tr>
<tr>
<td>Color</td>
<td>All blue, pale</td>
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<tr>
<td>Heart rate</td>
<td>Absent</td>
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<tr>
<td>Respiration</td>
<td>Absent</td>
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<tr>
<td>Reflex response to nasal catheter/tactile stimulation</td>
<td>None</td>
</tr>
<tr>
<td>Muscle tone</td>
<td>Limp</td>
</tr>
</tbody>
</table>

*A total score of 7–10 at 5 min is considered normal; 4–6, intermediate; and 0–3, low.
What color issues do you see?
Delayed Resuscitation

- If a baby gets a poor thoracic squeeze during delivery, 2/3rds of the amniotic fluid may remain in the lungs. Bagging pushes this fluid into the lymphatic circulation and out of the body, improving the baby’s resp status.

- Delayed resuscitation leads to damage in the kidneys, lungs, heart and bowel.

- The longer the wait, the more difficult to do.
Thermal Stress—don’t let them get cold

- Constriction of peripheral blood vessels
- Increased metabolic activity
- Increased O2 consumption
- Increased respiratory distress
- Metabolic acidosis
- Deleted glycogen stores
- Hypoglycemia
- Decreased chance of survival
Questions?
Thanks for your attention!