



# **Assessment of Pregnancy and Estimating Date of Delivery**

**Dr. Gary Mumaugh – Physical Assessment**

# Normal Pregnancy



- **THE POSSIBILITY OF PREGNANCY MUST BE CONSIDERED IN EVERY WOMAN OF REPRODUCTIVE AGE REGARDLESS OF CHIEF COMPLAINT!!!!**

# Normal Pregnancy



- A study showed that 7% of women who stated there was no chance of pregnancy and had normal on-time last menstrual periods were pregnant.
- Barrier method use, contraceptives, and tubal sterilization does not guarantee pregnancy prevention!!

# Terminology



- Gravidity
  - Total # of pregnancies regardless of duration or outcome.
- Parity
  - # of pregnancies completed to delivery during viable period.
- G#P# (Full term-Preterm-Aborted-Living)
- G3P2 (2-0-1-2)

# Terminology



- Duration= 40 weeks (calculated from first day of last menstrual period)
- 3 Trimesters of Equal Length
  - 1<sup>st</sup>- Conception to 14 weeks
  - 2<sup>nd</sup>- 14-28 weeks
  - 3<sup>rd</sup>- 28-42 weeks
- Term pregnancy requires completion of at least 37 weeks

# Physiology Changes



- Cardiovascular
  - 40-45% ↑ circulating blood volume
  - 43% ↑ in CO
  - 17% ↑ in resting HR
  - 20% ↓ in SVR
  - ↓ BP
  - ↑ of diaphragm displaces heart

# Physiology Changes



- Respiratory
  - Dyspnea common complaint
  - Hormone-induced 40%  $\uparrow$  in tidal volume
  - $p\text{CO}_2 \downarrow$  (Pregnancy value 30mmHg)
  - Functional residual capacity  $\downarrow$  b/c of  $\uparrow$  of diaphragm

# Physiology Changes



- GI

- Gastric reflux 2° to delayed gastric emptying, ↓ intestinal motility, and ↓ lower esophageal sphincter tone.
- Gallbladder emptying delayed and less efficient ⇒ ↑ risk of cholesterol stone formation.



# Physiology Changes



- GU
  - ↑ renal blood flow
  - ↑ kidney size
  - ↑ GFR (up to 50% by 2<sup>nd</sup> trimester)  
results in ↓ BUN/Creatinine

# Physiology Changes



- Hematopoietic

- 40-45% ↑ circulating blood volume 2° to ↑ plasma volume and # of erythrocytes
- HgB conc. ↓ 2° to dilutional intravascular volume but should not ↓ below 11g/dL

# Physiology Changes



- Hematopoietic
  - High Fe requirements
  - Reticulocyte count  $\uparrow$  2<sup>nd</sup> half of preg.
  - Leukocyte counts range 5000-12000 cells/ $\mu$ L
  - Leukocyte function  $\downarrow$  2<sup>nd</sup> trimester so  $\uparrow$  susceptibility to infection.
  - $\uparrow$  coagulation factors
  - $\uparrow$  ESR
  - Slight  $\downarrow$  platelets

# Physiology Changes



- Endocrine
  - Hyperinsulinemia and fasting hypoglycemia 2° to changes in carbohydrate metabolism
  - Postprandial hyperglycemia 2° to altered response to glucose ingestion.
  - Thyroid with ↑ vascularity and mild hyperplasia but clinically detectable goiter is not normal. (Free thyroxine and TSH to assess thyroid function during pregnancy)

# Physiology Changes



- Uterus
  - ↑ uterine weight (70⇒1100g)
  - ↑ intrauterine volume (10⇒5000mL)
  - 12 weeks uterus expands into abdominal cavity

# Physiology Changes



- Breasts
  - Breast tenderness and tingling starting in 1<sup>st</sup> trimester
  - Breasts enlarge
  - Nipple size ↑
  - ↑ pigmentation

# Assessment of Intrauterine Pregnancy- Presumptive Changes



- Amenorrhea - often the earliest symptom of pregnancy
- Nausea and vomiting (morning sickness)
  - Experienced by almost half of all pregnant women
  - Occurs during first 3 months of pregnancy
- Urinary frequency - enlarging uterus exerts pressure on the bladder

# Assessment of Intrauterine Pregnancy-Presumptive Changes



- Excessive fatigue--may persist throughout the first trimester
  - Change in breasts--engorgement, tenderness, tingling, darkening of the nipple area
- Quickening - mother's perception of fetal movement
  - 18 to 20 weeks after LMP
  - 16 weeks in multigravidas



# Changes in the Pelvic Organs



- Goodell's sign
  - Softening of the cervix caused by increased vascular congestion
  - Slight uterine enlargement on pelvic exam
  - The only physical signs detectable within the first three months of pregnancy

# Changes in the Pelvic Organs



- Chadwick's sign
  - The deep red to purple or bluish coloration of the mucous membranes
  - The cervix, vagina and vulva involved
  - Due to increased vasocongestion of the pelvic vessels

# Changes in the Pelvic Organs



- Enlargement of the abdomen - uterus enlargement on pelvic exam
- Braxton Hicks contractions
  - Are painless contractions that occur at regular intervals throughout pregnancy but are
  - Felt more commonly after 28 weeks
  - Also known as false labor

# Changes in Skin



- Abdominal striae-stretch marks
- Facial chloasma - after 16 weeks
- Nipples and areola -- may darken especially in primigravidas and dark haired women
- Linea nigra - pigmented line of the abdomen may develop

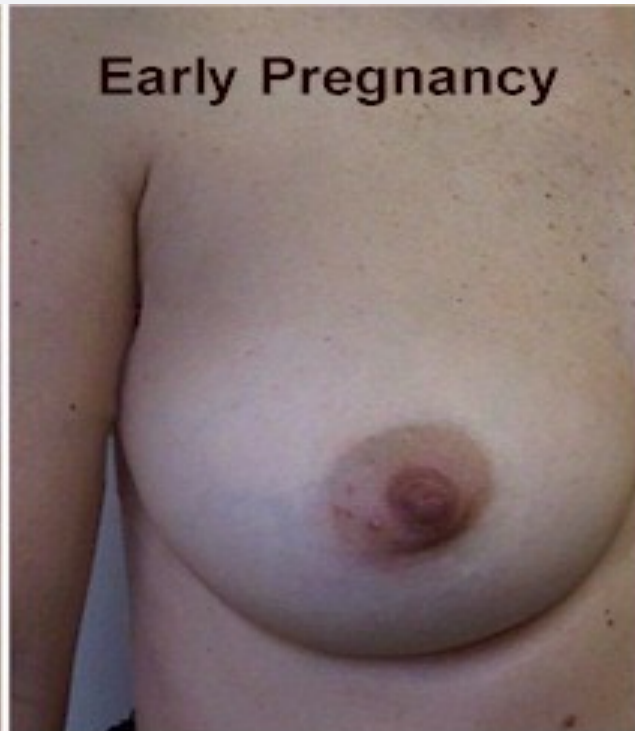




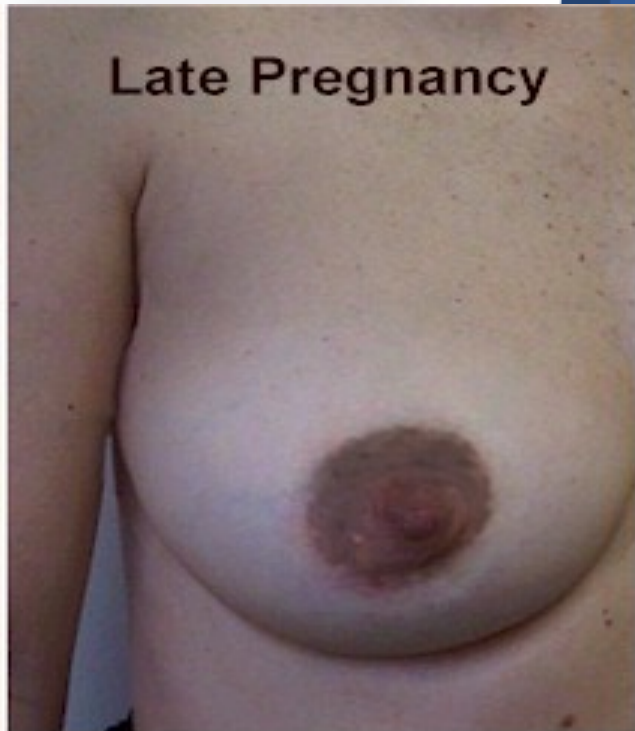
**Non-Pregnant**



**Early Pregnancy**



**Late Pregnancy**



# Fetal Outline



- Identified by palpation in many pregnant women after 24 weeks of gestation
- Ballottement
  - Passive fetal movement elicited by tapping the cervix with two fingers
  - This pushes the fetal body up, and as it falls back, the examiner feels rebound

# Pregnancy Tests



- Urine Test
  - First urine specimen in AM (midstream)
    - not necessary, but preferred if tested early
  - Approximately 95% accurate
  - 10 to 14 days after first missed menstrual period
  - More accurate now - can detect pregnancy around time of missed period



# Pregnancy Tests



- Blood test
  - Most accurate pregnancy test
  - Few days after presumed implantation
  - Can be used in diagnosis of ectopic pregnancy or Trophoblastic disease

# Pregnancy Tests



- Over-the-counter pregnancy tests
  - Performed on urine
  - False positive rate - approximately 5%
  - False negative rate - approximately 10%
  - Must follow instructions carefully



- Positive changes
  - Positive signs of pregnancy are completely objective
  - Usually not present until the fourth month of pregnancy



- Palpation of fundus of uterus
  - 12 weeks- Symphysis pubis
  - 16 weeks- Midway between symphysis pubis and umbilicus
  - 20 weeks- Umbilicus
  - 20-32 weeks- ↑ 1 cm above umbilicus for every ↑ 1 week

# Positive Changes



- Fetal movement
  - Palpable by a trained examiner after about 18 weeks of pregnancy
  - Faint flutter in early pregnancy
  - Vigorous movement later in pregnancy
  - Fetal electrocardiographic evidence -- recorded as early as 84 days of pregnancy
  - Ultrasound -- positive diagnosis as early as the sixth week of pregnancy

# Estimated Date of Confinement (EDC)



- Gestation
  - Approximately  $9 \frac{1}{3}$  calendar months or 40 weeks +  $2 \frac{1}{2}$  weeks from (LMP) last menstrual period

# Nagele's Rule

- Most common method of determining the EDD
- Begin with the first day of the last menstrual period (LMP)
- Subtract three months and add seven days



# ESTIMATING DATE OF DELIVERY



Date LMP	3-15-2007
Subtract 3 Months	- 3
	= 12-15-2006
Add 7 Days & 1 year	+ 7            1
EDD	= 12-22-2007



# Guidelines for Maternal Health



- Meals should not be avoided - the fetus is nourished by what is consumed
- Regular, well-balanced meals should be eaten
- Eat frequent, small meals if upset stomach is a problem in early months
- Foods high in protein, minerals, and vitamins should be consumed

# Guidelines for Maternal Health



- High salt intake should be avoided
- Smoking should be avoided - affects heart rate, blood pressure, and cardiac output of both the mother and fetus
- Alcohol should be avoided - may affect mental and physical development of the fetus

# Guidelines for Maternal Health



- Medications other than those prescribed by a doctor or medic should not be taken
- The need for vitamin is increased A, B, C, and D
- Iron supplements may be indicated for patients with a history of anemia, multiple births, or frequent pregnancies.

CONGRATULATIONS!  
WHEN ARE YOU DUE ?...

