

PATHOLOGY TEAM 429



Made by:

ROA AL-SAJJAN

DONA BARAKAH

Notes by:

NOURHAN AL-SHAMMA'

Edited by:

DONA BARAKAH

MUHAMMAD AL-HARBI

*** PATHOLOGY OF PREGNANCY ***

ECTOPIC PREGNANCY, SPONTANEOUS ABORTION
AND GESTATIONAL TROPHOBLASTIC DISEASE

Highlighted; EXTREMELY IMPORTANT NOTE

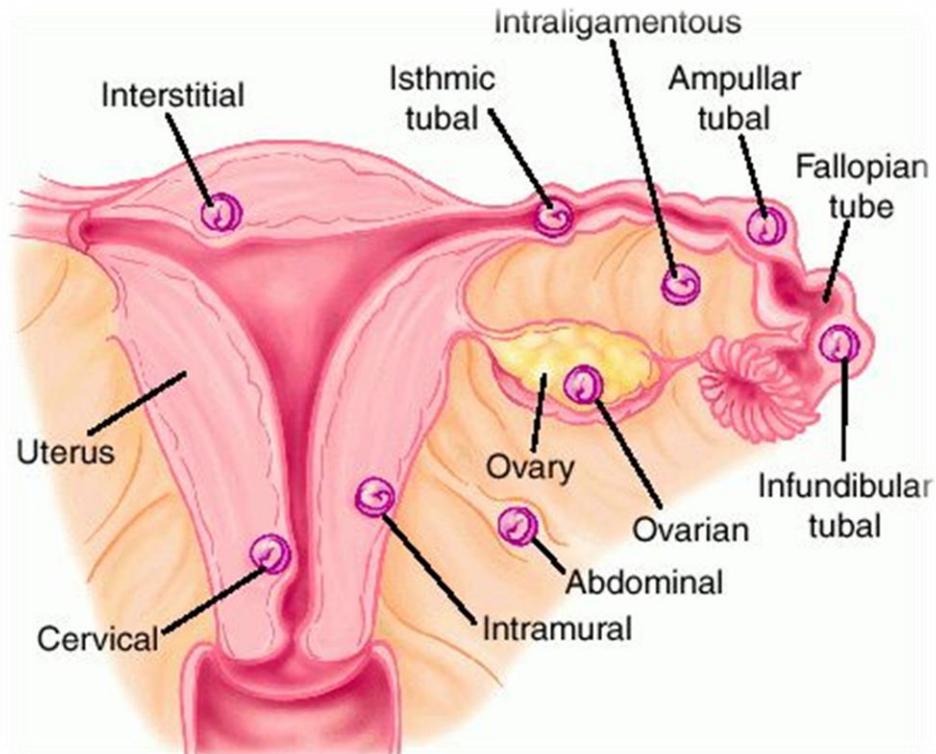
Highlighted; MCQ

Highlighter; not so important note

Ectopic Pregnancy

Definition: Implantation of developing blastocyst at any other site than the endometrium

Sites	Etiology	Clinical Presentation
<ul style="list-style-type: none"> • 95% in fallopian tube <ul style="list-style-type: none"> • Ampulla (80%) • Isthmus (25%) • Infundibulum (5%) • Interstitial (2%) • Ovaries • Peritoneal cavity • Uterine cervix <p>Right sided are commoner than left sided</p>	<ol style="list-style-type: none"> 1. Pelvic inflammatory disease most common <ul style="list-style-type: none"> • N. gonorrhoea & chlamydia • Inflammation → scarring → block tubes • X5 risk of ectopic pregnancy 2. Abnormal tube motility/mucosal adhesions → impede passage of conceptus 3. Endometriosis 4. Previous pelvic surgery 	<ul style="list-style-type: none"> • Pelvic pain • Anomalous bleeding following periods of amenorrhea • Majority: emergency rupture of tube & hemorrhagic shock



Spontaneous Abortion (SAB)/ Miscarriages

The spontaneous end of a recognized pregnancy at a stage where the embryo or fetus is incapable of surviving, generally defined in humans at prior to 20 weeks of gestation.

Most miscarriages occur during the first 13 weeks

- **Chemical pregnancies (early pregnancy loss):** Very early miscarriages occur before the sixth week since LMP (since the Last Menstrual Period) << **account for 50-75% of all miscarriages**
- **Clinical spontaneous abortion:** occur after the sixth week LMP

- Miscarriage is the most common complication of early pregnancy
- SAB is the most common type of pregnancy loss
- 10-25% of all clinically recognized pregnancies will end in miscarriage

1. Chromosomal abnormalities:

- 50% of 1st trimester fetal tissue
- 20% of 2nd trimester fetal tissue
- Advancing maternal age (>35 yrs) is the most significant risk factor
- Genetic problem = 95% chance of ending with miscarriage

2. Infections:

e.g. Listeria monocytogenes, Toxoplasma gondii, parvovirus B19, rubella, herpes simplex, cytomegalovirus (CMV), and lymphocytic choriomeningitis virus

3. Maternal health problems

e.g. collagen vascular disease (immune system attacks their organs): systemic lupus erythematosus, antiphospholipid antibody syndrome

4. Abnormal structural anatomy of the uterus

- Uterine septum: a tissue bridge, acts like a partial wall dividing the uterine cavity into sections; doesn't allow proper placental attachment
- Uterine fibroids **uncommon** interfere with the embryo implantation and the embryo's blood supply

5. Hormonal problems

e.g. Cushing's syndrome, thyroid disease, polycystic ovary syndrome, diabetes, Luteal phase defect

- Diabetes can generally be well managed during pregnancy
- Insufficient control → risk for miscarriage/birth defects
- Luteal phase defect: Inadequate corpus luteum function → insufficient progesterone to maintain early stages of pregnancy

6. Lifestyle

i.e. smoking, drug use, malnutrition, excessive caffeine and exposure to radiation or toxic substances

7. Maternal age

(over 35) = ovum abnormalities

8. Maternal trauma

9. Invasive surgical procedures in the uterus

e.g. amniocentesis and chorionic villus sampling

- The cause of a miscarriage cannot always be determined
- Most clinically apparent miscarriages **occur during the first trimester**
- **Chromosomal abnormalities of the fetus** are the most common cause of early miscarriages

1. Ultrasound
2. Examination of passed tissue
3. Pathology; microscopic evidence: products of conception = villi, trophoblasts, fetal parts, gestational changes in endometrium
4. Genetic: chromosome abnormality

Definition

Gestational Trophoblastic Disease (GTD);

Fake Pregnancy/Molar Pregnancy

Degenerative neoplastic change of trophoblastic tissue which is normally found in placental tissue

Diagnosis

- **Could be:** Benign (majority) or malignant
 - Could be cured with prompt treatment ((Treatment: surgery & chemotherapy))
 - Most women who have had GTD can have normal pregnancies later
- Blood test for **human chorionic-gonadotropin (hCG)**; serum levels of hCG are markedly increased. They are also increased in:
 - Normal and ectopic pregnancy (but in GTD **serum hCG levels continue to rise after 14th week** unlike when it drops after 14 weeks normal gestation)
 - Choriocarcinoma and germ cell tumor

Classification
(based on histological features)

A. **HYDATIDIFORM:** Enlarged & edematous placental villi filling the lumen

- **Gross appearance:** a bunch of grapes
- **Cause:** abnormal gametogenesis and fertilization
- **Symptoms:**
 - Abdominal swelling due to rapid increase in uterine size – may be mistaken for normal pregnancy, **but difference is: here, uterine size is disproportionately large for a pregnancy stage**
 - Vaginal bleeding
 - Severe nausea & vomiting
- **Could present as:**



1. **Complete:**

- genetically abnormal placenta,
- with hyperplastic trophoblasts
- without fetus/embryonal tissue.
- **Uterus is distended and filled with swollen/large villi.**
No embryo, or fetal tissue is present
- **Elevated HCG levels**
- **Chromosomal analysis:** 46 chromosome (2 haploid sets), 46XX karyotype and all the chromosomes come from the male/paternal side
- **Treatment :**
Evacuation of uterus by curettage, chemotherapy (cure rate is very high)
 - 81% spontaneously regress
 - 17% develop an invasive mole
 - 2% develop choriocarcinoma

2. **Partial:**

- genetically abnormal placenta
- with a mixture of large and small villi
- with slight hyperplasia of the trophoblast, filling the uterus.
- Embryonal/fetal tissue is present.
- **15–35% of all moles**
- **Uterine size usually small or appropriate for gestational age**
- **Grossly:**
large vesicular chorionic villi mixed with normal-appearing villi
- **Elevated hCG levels, but not as high as complete mole**
- **Chromosomal analysis:** 69 chromosomes (3 haploid sets also called: **triploidy**), XXY in which 2 haploids are paternal (from the male) and one is maternal
- Low risk for developing choriocarcinoma
- Only 2-3% become malignant
- Follow up is necessary

B. **INVASIVE:** Hydatidiform mole, generally of the complete type, in which villi penetrate deeply in the myometrium and/or its blood vessels

- Occurs in about 15% of complete moles and rarely in partial moles
- Can cause hemorrhage and uterine perforation

C. **CHORIOCARCINOMAS:**

Malignant tumor derived from normal or abnormal placental tissue, composed of a proliferation of malignant cytotrophoblast and syncytiotrophoblast, without villi formation

- Aggressive
- **Markedly elevated serum hCG**
- Chromosomal analysis: shows aneuploidy
- Early Hematogenous spread to lungs and other organs
- Responds well to chemotherapy
- 50% are preceded by complete hydatid mole
- Others are preceded by partial mole (very rare), abortion, ectopic pregnancy and occasionally normal term pregnancy

D. **PLACENTAL SITE TROPHOBLASTIC TUMOR (PSTT)**

