

PATHOLOGY TEAM 429



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*** PATHOLOGY OF PREGNANCY ***

ECTOPIC PREGNANCY, SPONTANEOUS ABORTION
AND GESTATIONAL TROPHOBLASTIC DISEASE

Highlighted; EXTREMELY IMPORTANT NOTE

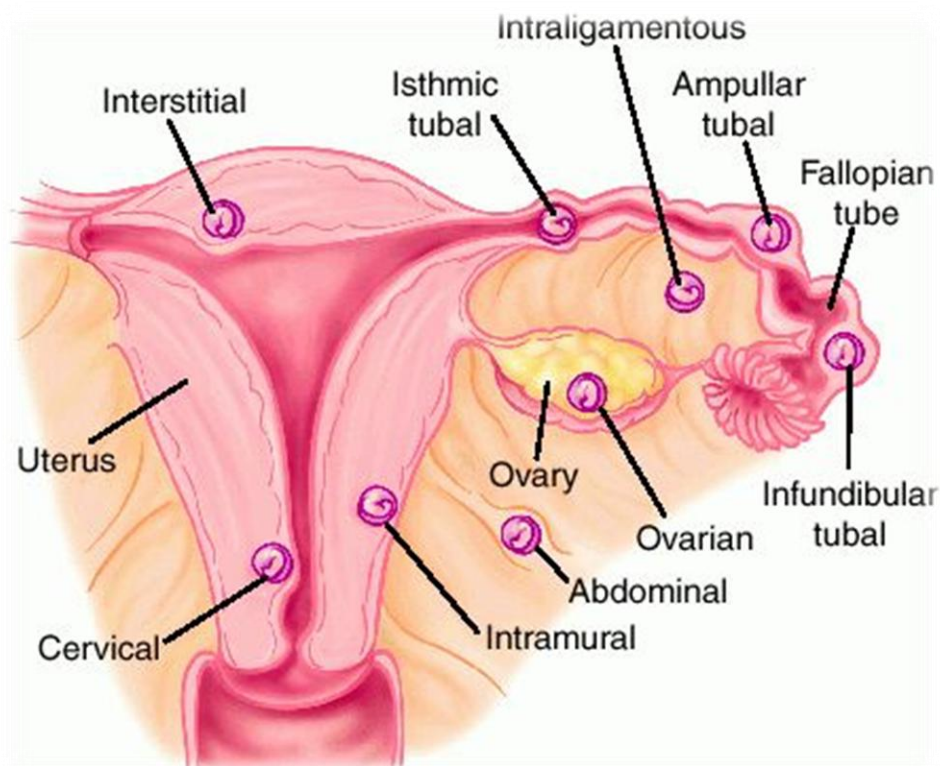
Highlighted; MCQ

Highlighter; not so important note

Ectopic Pregnancy

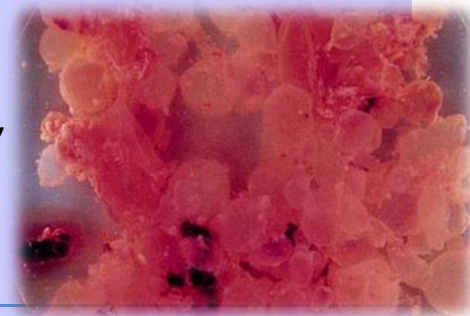
Definition: Implantation of developing blastocyst at any other site than the endometrium

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. gonorrhea & 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



Definition	<h2>Spontaneous Abortion (SAB)/ Miscarriages</h2> <p>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.</p>
Epidemiology	<p>Most miscarriages occur during the first 13 weeks</p> <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 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
Causes	<div> <div> <ol style="list-style-type: none"> Chromosomal abnormalities: <ul style="list-style-type: none"> 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 Infections: e.g. Listeria monocytogenes, Toxoplasma gondii, parvovirus B19, rubella, herpes simplex, cytomegalovirus (CMV), and lymphocytic choriomeningitis virus Maternal health problems e.g. collagen vascular disease (immune system attacks their organs): systemic lupus erythematosus, antiphospholipid antibody syndrome Abnormal structural anatomy of the uterus <ul style="list-style-type: none"> 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 </div> <div> <ol style="list-style-type: none"> Hormonal problems e.g. Cushing's syndrome, thyroid disease, polycystic ovary syndrome, diabetes, Luteal phase defect <ul style="list-style-type: none"> 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 Lifestyle i.e. smoking, drug use, malnutrition, excessive caffeine and exposure to radiation or toxic substances Maternal age (over 35) = ovum abnormalities Maternal trauma Invasive surgical procedures in the uterus e.g. amniocentesis and chorionic villus sampling </div> </div>
Diagnosis	<ul style="list-style-type: none"> 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 <ol style="list-style-type: none"> Ultrasound Examination of passed tissue Pathology; microscopic evidence: products of conception = villi, trophoblasts, fetal parts, gestational changes in endometrium Genetic: chromosome abnormality

Definition	<h1>Gestational Trophoblastic Disease (GTD);</h1> <h2>Fake Pregnancy/Molar Pregnancy</h2> <p>Degenerative neoplastic change of trophoblastic tissue which is normally found in placental tissue</p>	
	<ul style="list-style-type: none"> • 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 	
Diagnosis	<ul style="list-style-type: none"> • Blood test for human chorionic-gonadotropin (hCG); serum levels of hCG are markedly increased. They are also increased in: <ul style="list-style-type: none"> ○ 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)	<p>A. HYDATIDIFORM: Enlarged & edematous placental villi filling the lumen</p> <ul style="list-style-type: none"> • Gross appearance: a bunch of grapes • Cause: abnormal gametogenesis and fertilization • Symptoms: <ul style="list-style-type: none"> ○ Abdominal swelling due to rapid increase in uterine size – may be mistaken for normal pregnancy, but <u>difference is:</u> here, uterine size is disproportionately large for a pregnancy stage ○ Vaginal bleeding ○ Severe nausea & vomiting • Could present as: 	
	<ol style="list-style-type: none"> 1. Complete: <ul style="list-style-type: none"> - genetically abnormal placenta, - with hyperplastic trophoblasts - without fetus/embryonal tissue. <ul style="list-style-type: none"> • 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) <ul style="list-style-type: none"> ○ 81% spontaneously regress ○ 17% develop an invasive mole ○ 2% develop choriocarcinoma 	<ol style="list-style-type: none"> 2. Partial: <ul style="list-style-type: none"> - 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. <ul style="list-style-type: none"> • 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)**

