



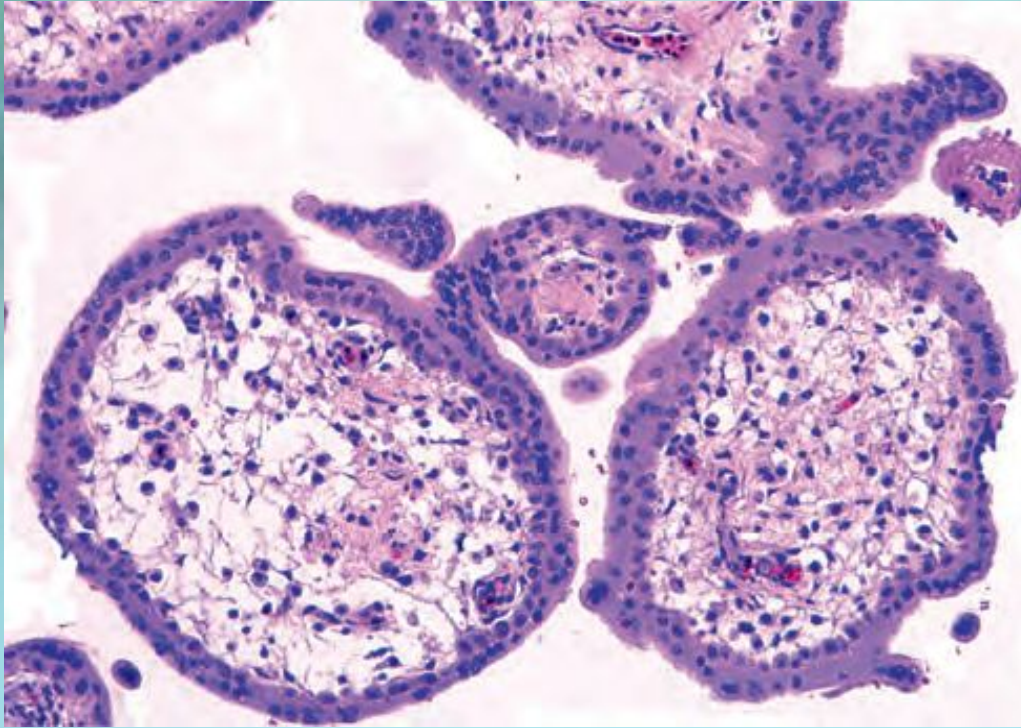
Female Genital Tract Pathology

LEC 4

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Diseases of Pregnancy

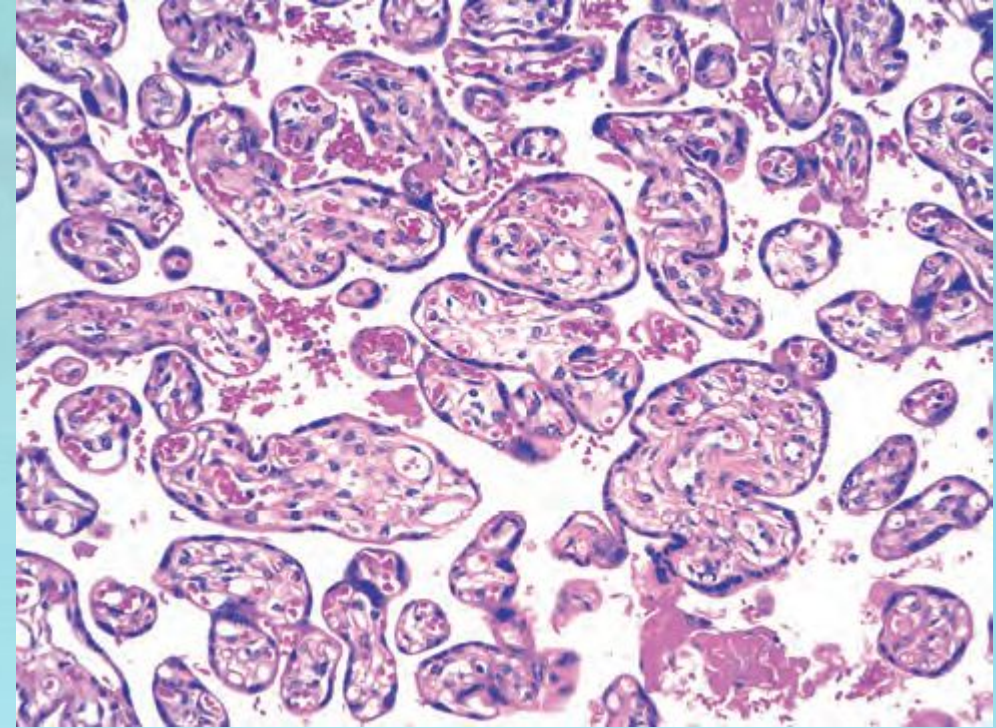
- Diseases of pregnancy and pathologic conditions of the placenta are important causes to morbidity and mortality for both mother and child. These include:
 - Spontaneous abortion
 - Ectopic pregnancy
 - Placental inflammations and infections
 - Abnormalities of Placental Implantation
 - Preeclampsia /eclampsia
 - Gestational trophoblastic diseases.



(A)

Normal placenta.

(A) **First-trimester** chorionic villi composed of delicate mesh of central stroma surrounded by two discrete layers of epithelium—the outer layer consisting of syncytiotrophoblast and the inner layer consisting of cytotrophoblast.



(B)

(B) **Third-trimester** chorionic villi composed of stroma with a dense network of dilated capillaries surrounded by markedly thinned-out syncytiotrophoblast and cytotrophoblast.

Gestational trophoblastic diseases

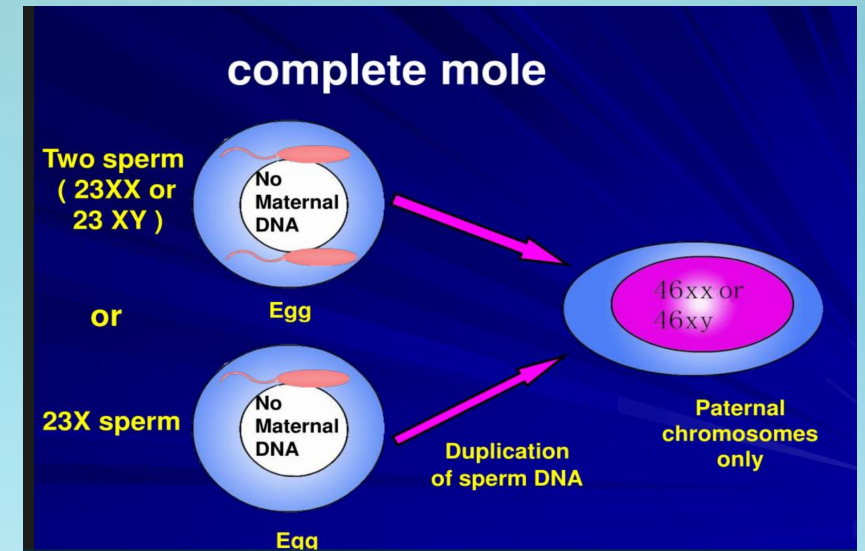
- **Definition:** spectrum of tumors and tumorlike conditions characterized by abnormal proliferation of placental tissue, either villous or trophoblastic
- They are divided into **three** overlapping morphologic categories:
 - 1- **Hydatidiform mole (non invasive mole);** which is of two types: Complete and Partial
 - 2- **Invasive mole;** Penetrates the uterine wall, produce hemorrhage but does not metastasize.
 - 3- **Choriocarcinoma:** highly malignant metastasize into distant organs.
- All these disorders **elaborate human chorionic gonadotropins (hCG)**, which is detected in the blood and urine at **levels considerably higher than those found during normal pregnancy**, the titers progressively rising from hydatidiform mole to invasive mole to choriocarcinoma.
- This elevation in hCG important in :1-Diagnosis of these diseases 2- it can be used to monitor treatment efficacy.

❖ Hydatidiform mole (H- mole):

- Voluminous mass of swollen sometimes cystically dilated chorionic villi and variable trophoblastic proliferation, appear grossly as grape like structure.
- It is of 2 subtypes: A. Complete mole B. Partial Mole.
- Molar pregnancy can develop at any age, but the risk is higher at the two ends of reproductive life (before the age of 20 and after the age of 40 years).
- **Clinically:** painless vaginal bleeding at 12-14 weeks of pregnancy, and uterus feels larger than expected for gestation.
- **Diagnosis:** In both complete and partial moles, elevation of hCG in the maternal blood or urine and absence of fetal heart sounds are typical.
- **Follow up** after curetting the uterus is done by ultrasound examination and the serial measurement of hCG hormone monitored for 6 months to 1 year to ensure that hCG levels decrease to nonpregnant levels.
- Continuous elevation of hCG may be indicative of persistent or invasive mole.

A. The complete H. mole is characterized by:

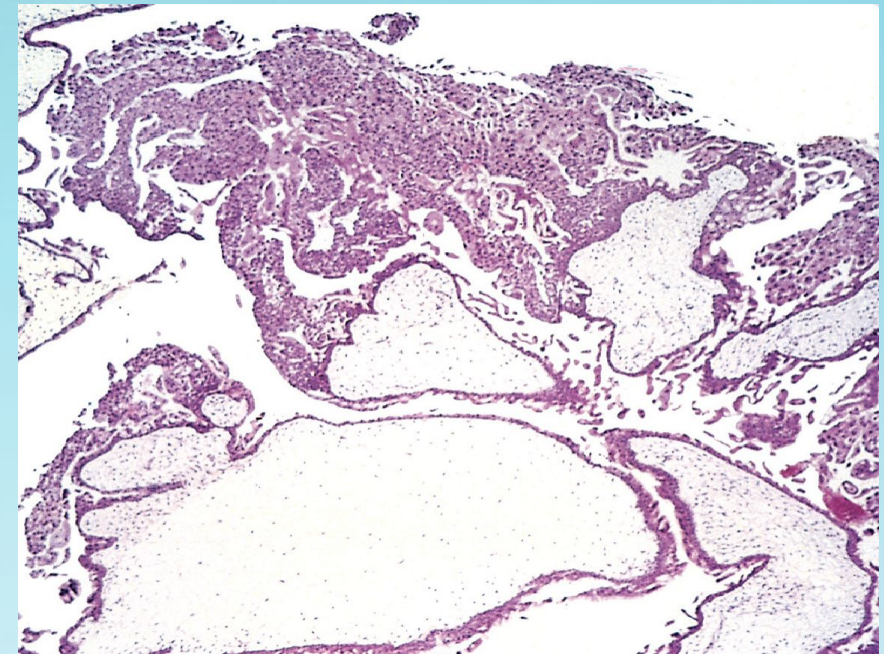
- Results from fertilization of an empty egg (that has lost its female chromosome), and as a result the genetic material is completely paternally derived. (In 90% of cases : duplication of the genetic material of one sperm, 10% result from the fertilization of an empty egg by two sperm).
- **karyotype**: The chorionic epithelial cells are diploid
- The villous edema involve all chorionic villi.
- Absent fetal parts.
- Patients have 10 % risk of invasive mole and 2-3 % risk of subsequent choriocarcinoma.



- **Gross:** uterine cavity filled with **delicate friable masses** of thin wall translucent cystic grapelike structures **without fetal parts**.

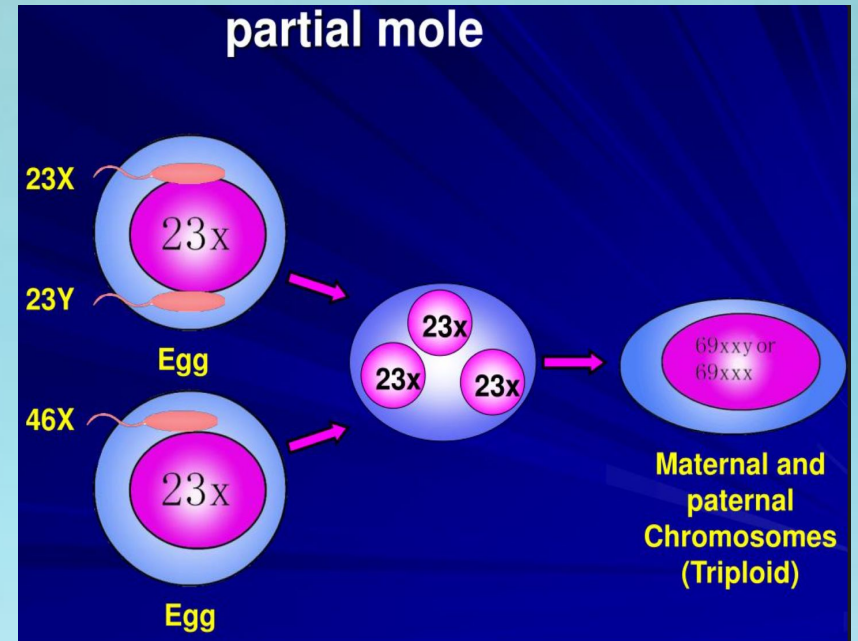


- **Mic.:** almost **all villi are enlarged** and hydropic with a loose, myxomatous, edematous stroma and **circumferential** abnormal proliferation of both cytotrophoblasts and syncytiotrophoblasts.



B. Partial H. mole is characterized by:

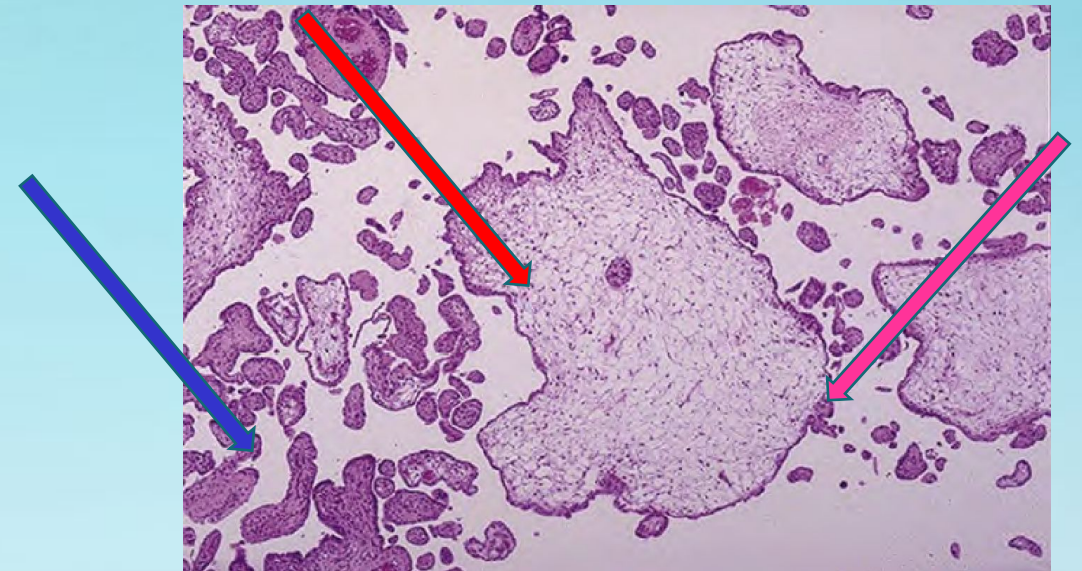
- Result from fertilization of normal egg with two sperm. the karyotype is triploid (e.g., 69,XXY)
- The villous edema involve only some villi & trophoblastic proliferation is focal & slight.
- There are parts of fetus.
- Partial moles have an increased risk of invasive molar disease but are rarely associated with choriocarcinoma.



- **Gross:** hydropic change involving **only** some villi. Fetal tissues may be present.
- **Mic.:** only some of the villi is enlarged and edematous, and the trophoblastic proliferation is focal and slight.



In partial moles, some villi appear **normal** whereas others are **swollen and grapelike**. There is **minimal trophoblastic proliferation**.



Feature	Complete mole	Partial mole
-Karyotype	Diploid (46 XX or 46 XY), two sperms fertilize an empty egg. All genetic material is paternal	-Triploid (e.g 69 XXY). Two sperms fertilize an egg with normal chromosomes
Fetal parts	-Absent	Usually present with abnormalities
Villous edema	-All villi	-Some villi
Trophoblastic proliferation	- Diffuse & circumferential	-Focal and slight
Serum hCG	- Elevated	- less elevated
-Tissue hCG	-++++	- +
Risk of subsequent choriocarcinoma	- 2%	rare

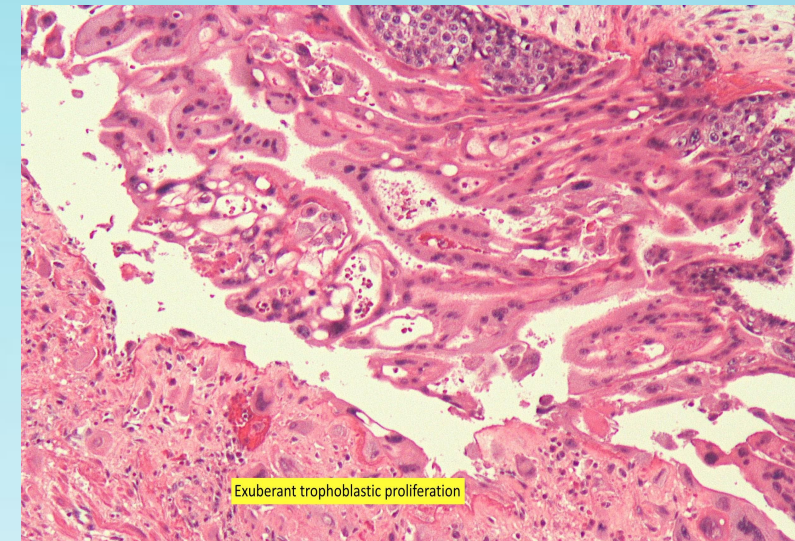
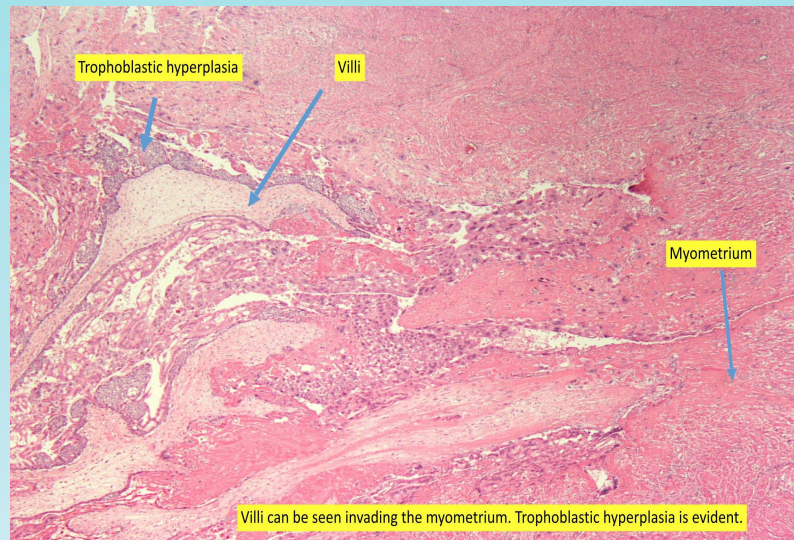
❖ Invasive mole

- Invasive moles are **complete moles that are locally invasive but lack the metastatic** potential of choriocarcinoma.
- An invasive mole **retains hydropic villi, which penetrate the uterine wall deeply, possibly causing rupture and sometimes life-threatening hemorrhage.**
- **Clinically** vaginal bleeding and irregular uterine enlargement, **persistently elevated serum HCG.**
- **Treatment:** Because invasive mole is difficult to remove completely by curettage, therefore if serum β -hCG remains elevated, further treatment is required. Fortunately, in most cases cure is possible with chemotherapy.

- **Gross:**

Erosive and hemorrhagic lesion caused by hydropic villi, which penetrate uterine wall deeply.

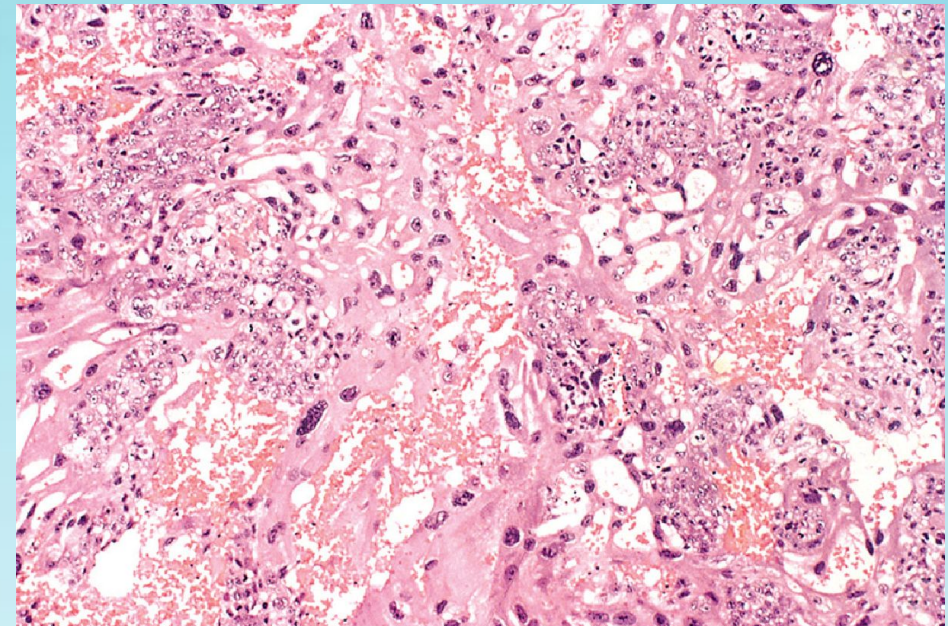
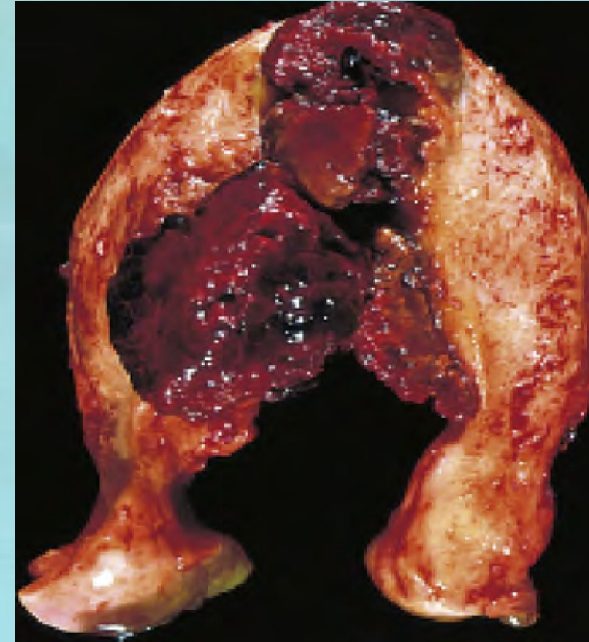
- **Mic.:** There is invasion of the myometrium by hydropic chorionic villi, accompanied by proliferation of both cytotrophoblasts and syncytiotrophoblasts.



❖ **Choriocarcinoma:**

- Very aggressive malignant tumor.
- **Origin:** arise either from gestational chorionic (trophoblastic) epithelium (gestational choriocarcinoma) **Or**, less frequently from totipotent cells (germ cells) within gonads (non gestational choriocarcinoma in ovaries or testes) (as a germ cell tumor).
- 50% follow complete mole & rarely follow partial mole, 25% after abortion while the remainder manifest following an apparently normal pregnancy.
- **Clinical presentation:**
 1. **Irregular vaginal spotting of bloody brown fluid**, which may appear in the course of normal pregnancy, after a miscarriage or after curettage.
 2. **Increase titer of hCG B subunit** in blood & urine (much higher than with mole).

- **Gross:** soft, fleshy, hemorrhagic, necrotic uterine masses. Sometimes the necrosis is so extensive that little viable tumor remains.
- **Mic.:** In contrast to H. mole & invasive mole, **villi are not formed** instead, the tumor is composed of anaplastic cuboidal cytotrophoblasts and multinucleate syncytiotrophoblasts



- **Disease course and prognosis:**

- By the time of diagnosis of choriocarcinoma, there is vascular spread usually has occurred to the **lungs (50%)**, vagina (30%– 40%), brain, liver, or kidneys. Lymphatic invasion is uncommon.
- **Treatment:** depends on tumor **stage**. Usually **evacuation of uterus contents and chemotherapy**.
- Despite aggressiveness, **chemotherapy achieve 100% cure** even with tumor that spread beyond pelvis, vagina & into the lung.
- There is relatively poor response to chemotherapy in choriocarcinoma that arise in gonads (ovary & testis).



Every girl is a
SUPER GIRL