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Trophoblastic diseases

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Trophoblastic ??

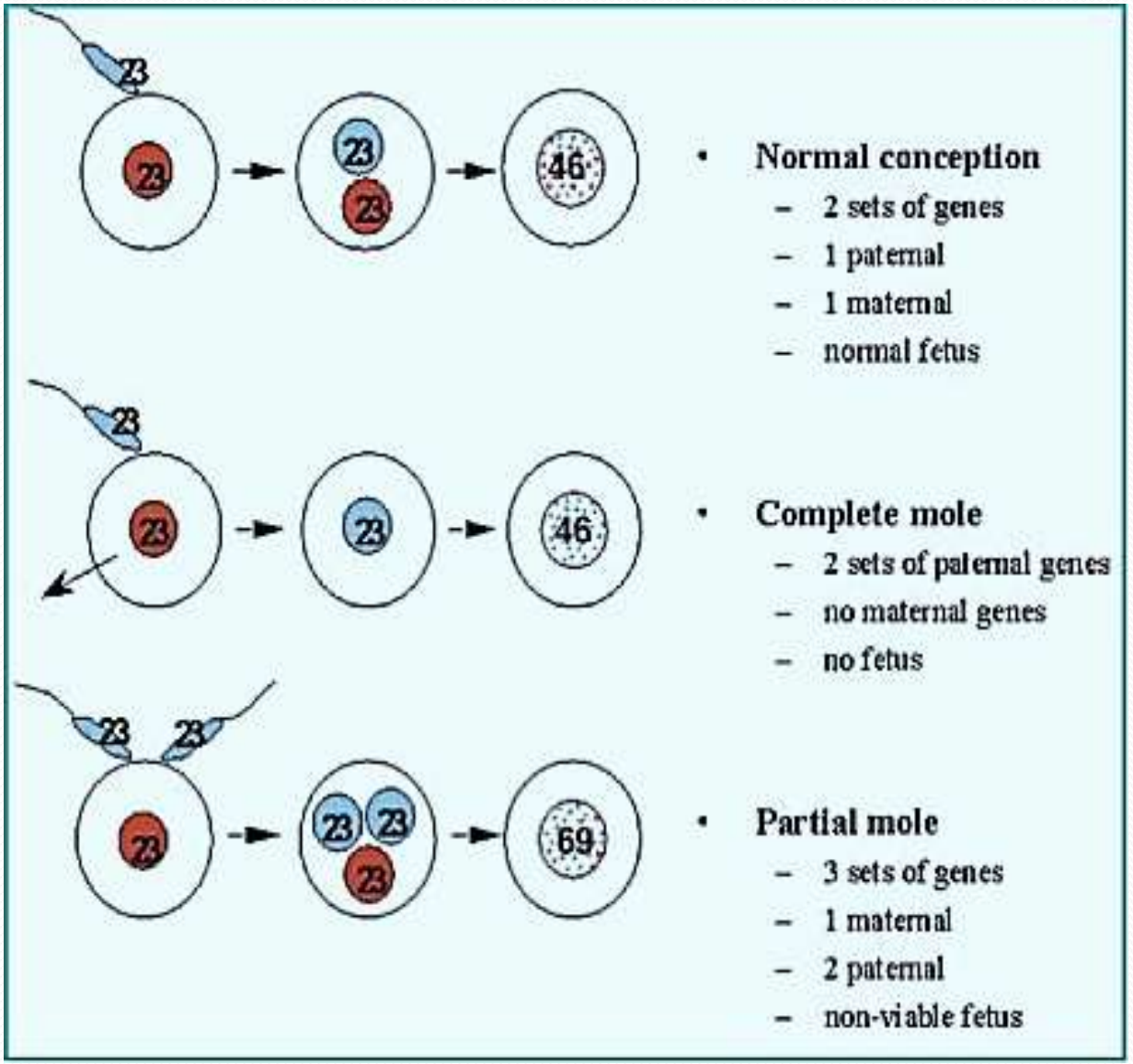
- Trophoblast: is the outer layer of cells of the blastocyst, are present four days after fertilization in humans.
- Trophoblasts provide nutrients to the embryo and develop into a large part of the placenta.
- They may be involved in different types of disorders
- Today we will be discussing 2 types of trophoblastic diseases:

1-Hydatidiform Mole (Molar pregnancy)

2- Gestational Choriocarcinoma

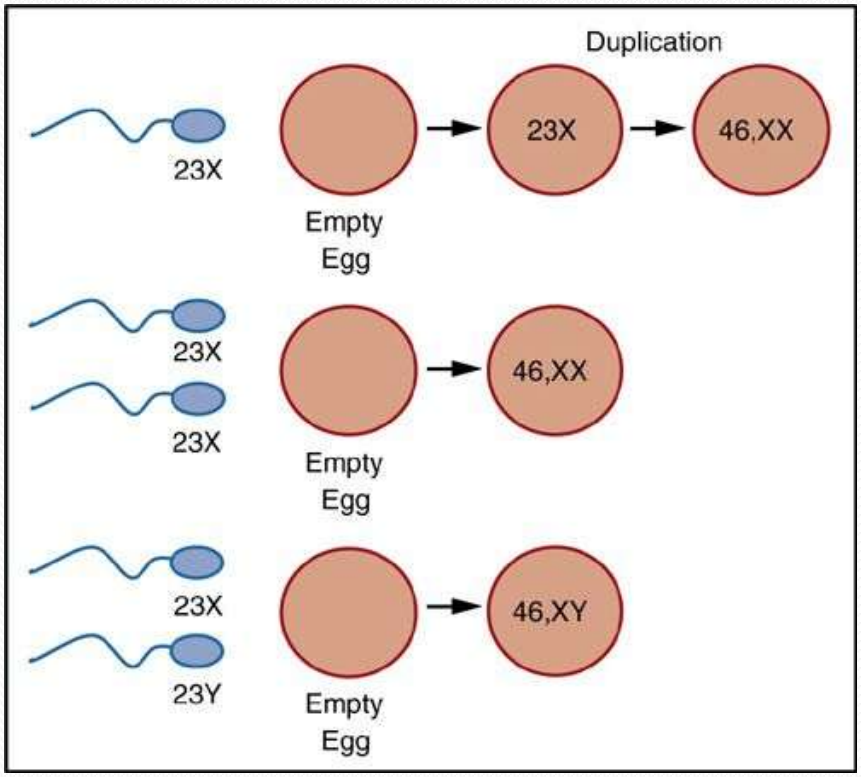
Hydatidiform Mole

- 2 forms of abnormal gestational processes, result from abnormal fertilization:
- 2 types:
- **complete mole:** an empty egg is fertilized by two spermatozoa (or a diploid sperm), yielding a **diploid** karyotype composed of entirely paternal genes
- **partial mole:** a normal egg is fertilized by two spermatozoa (or a diploid sperm), resulting in a **triploid** karyotype with a predominance of paternal genes

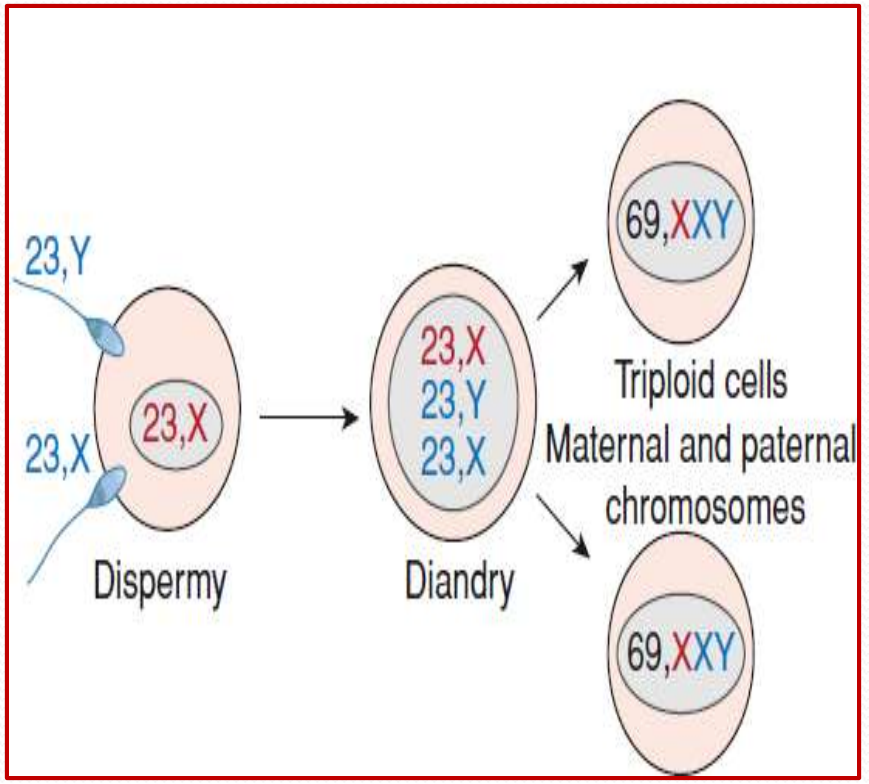


- **Normal conception**
  - 2 sets of genes
  - 1 paternal
  - 1 maternal
  - normal fetus
- **Complete mole**
  - 2 sets of paternal genes
  - no maternal genes
  - no fetus
- **Partial mole**
  - 3 sets of genes
  - 1 maternal
  - 2 paternal
  - non-viable fetus

Complete mole



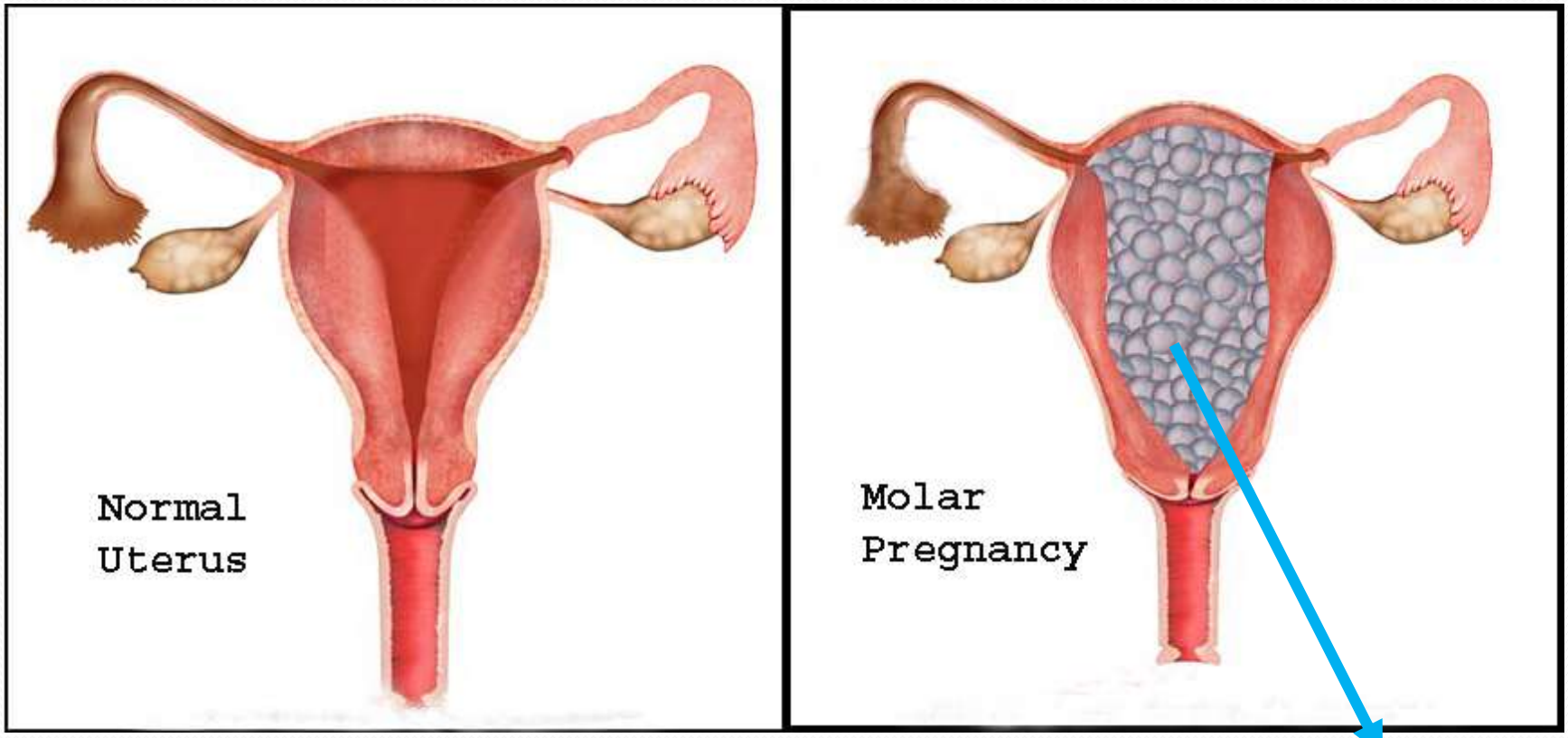
Partial mole



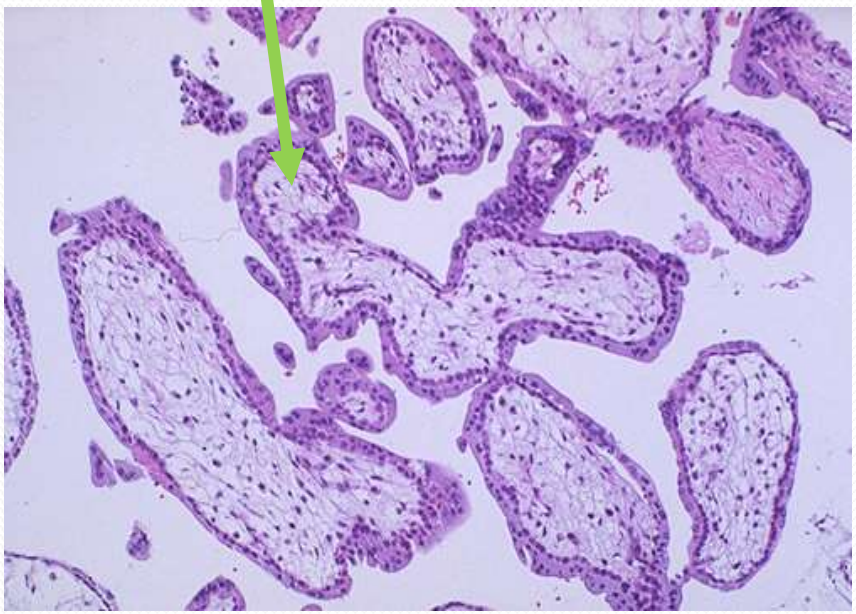
- ***complete*** **hydatidiform mole→** does not permit embryogenesis = never contains fetal parts, and the chorionic epithelial cells are diploid (46,XX or, uncommonly, 46,XY).

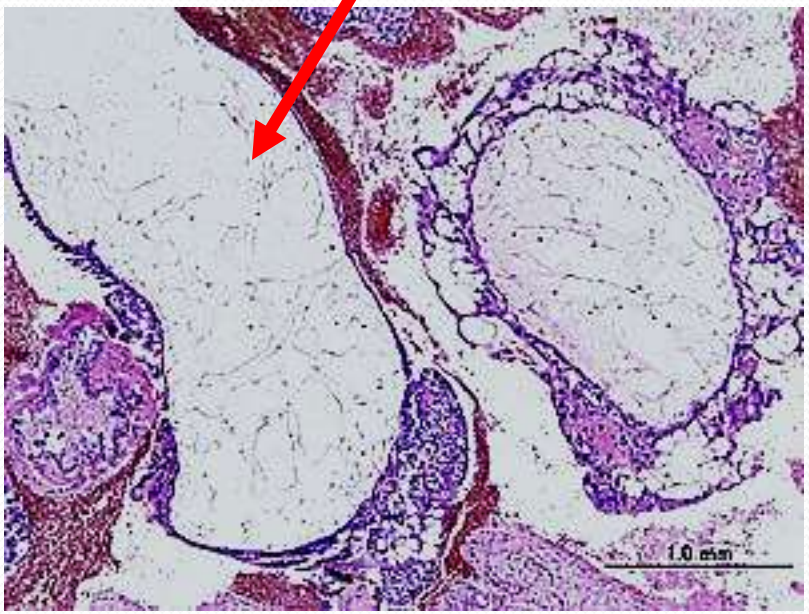
- ***partial*** **hydatidiform mole →** compatible with early embryo formation and may contain fetal parts, has some normal chorionic villi, and is almost always triploid (e.g., 69,XXY).

Normal uterus vs mole pregnancy

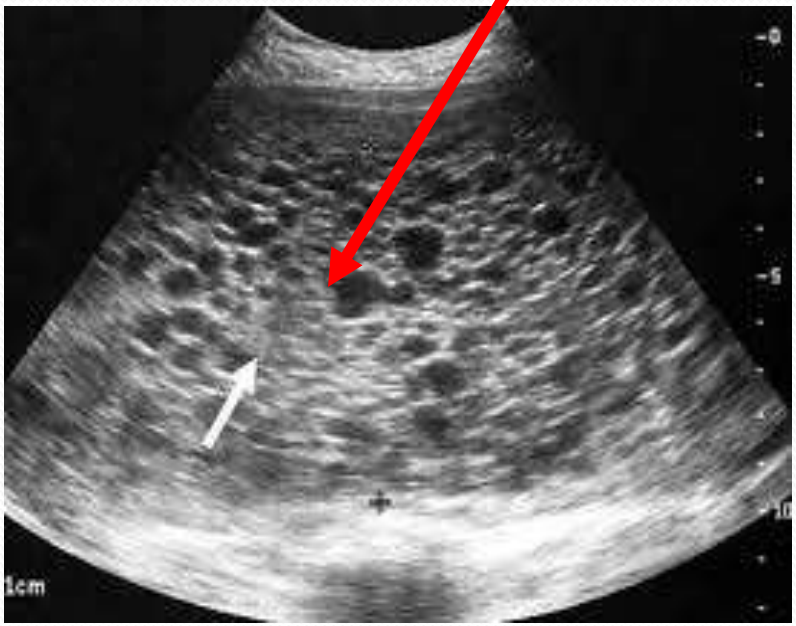


Normal Pregnancy versus Mole – histology





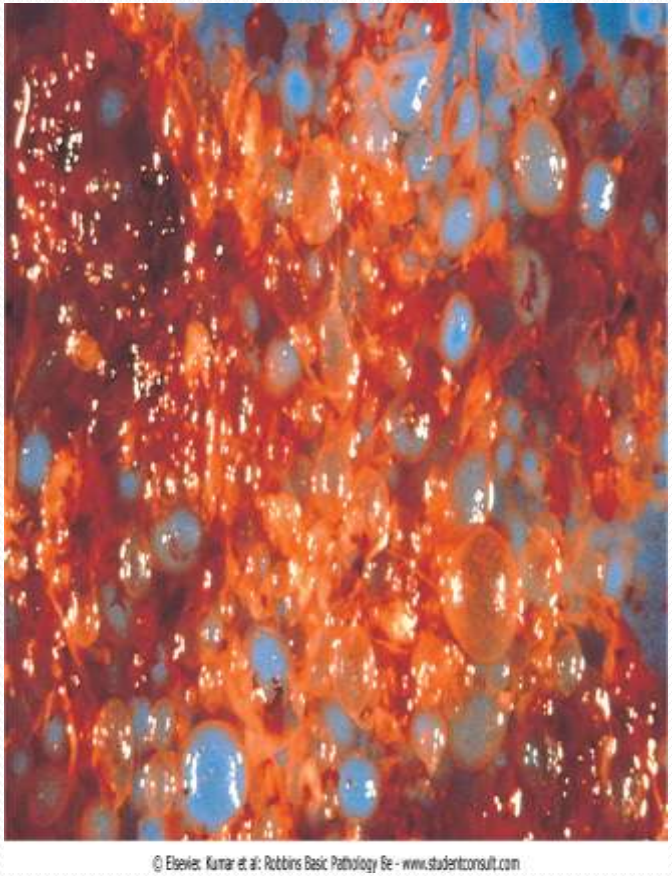
Normal Pregnancy versus Mole – Ultrasound

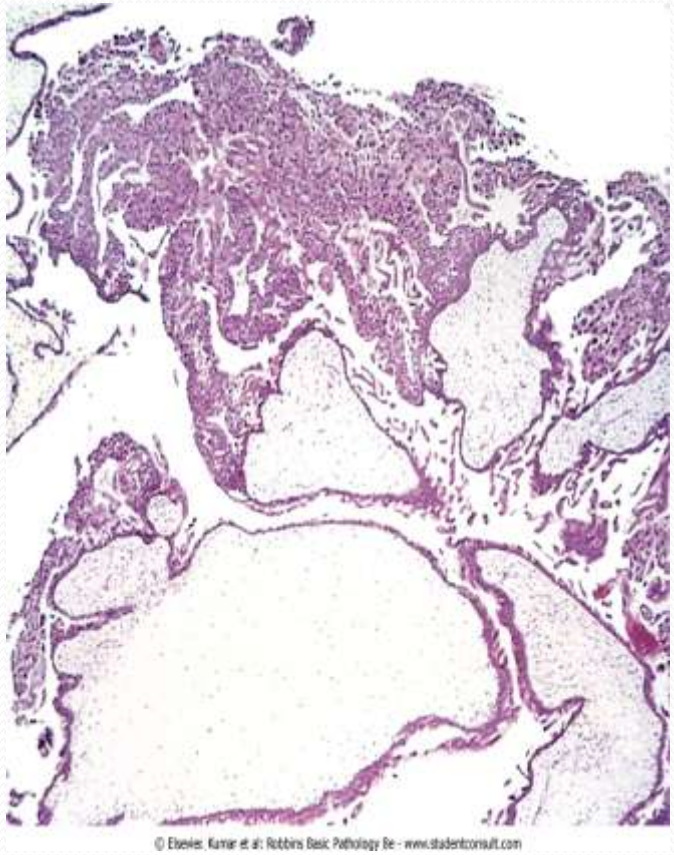


Vesicles

“Snow storm”

Morphology: cystically dilated chorionic villi (grapelike structures); villi are covered by varying amounts of mildly to highly atypical chorionic epithelium





Vesicles

Feature	Complete Mole	Partial Mole
Karyotype	46,XX (46,XY)	Triploid (69,XXY)
Villous edema	All villi	Some villi
Trophoblast proliferation	Diffuse; circumferential	Focal; slight
Atypia	Often present	Absent
Serum hCG	Elevated	Less elevated
hCG in tissue	++++	+
Behavior	2% choriocarcinoma	Rare choriocarcinoma

- **incidence** → 1 to 1.5 per 2000 pregnancies; higher incidence in **Asian** countries.
- Moles are most common **before <u>maternal</u>** age 20 years and **after** age 40 years
- Early monitoring of pregnancies by ultrasound → early diagnosis of hydatidiform mole.
- Clinically: Elevations of hCG in the maternal blood and absence of fetal parts by ultrasound

- **Prognosis:**
- **<u>complete moles:</u>**

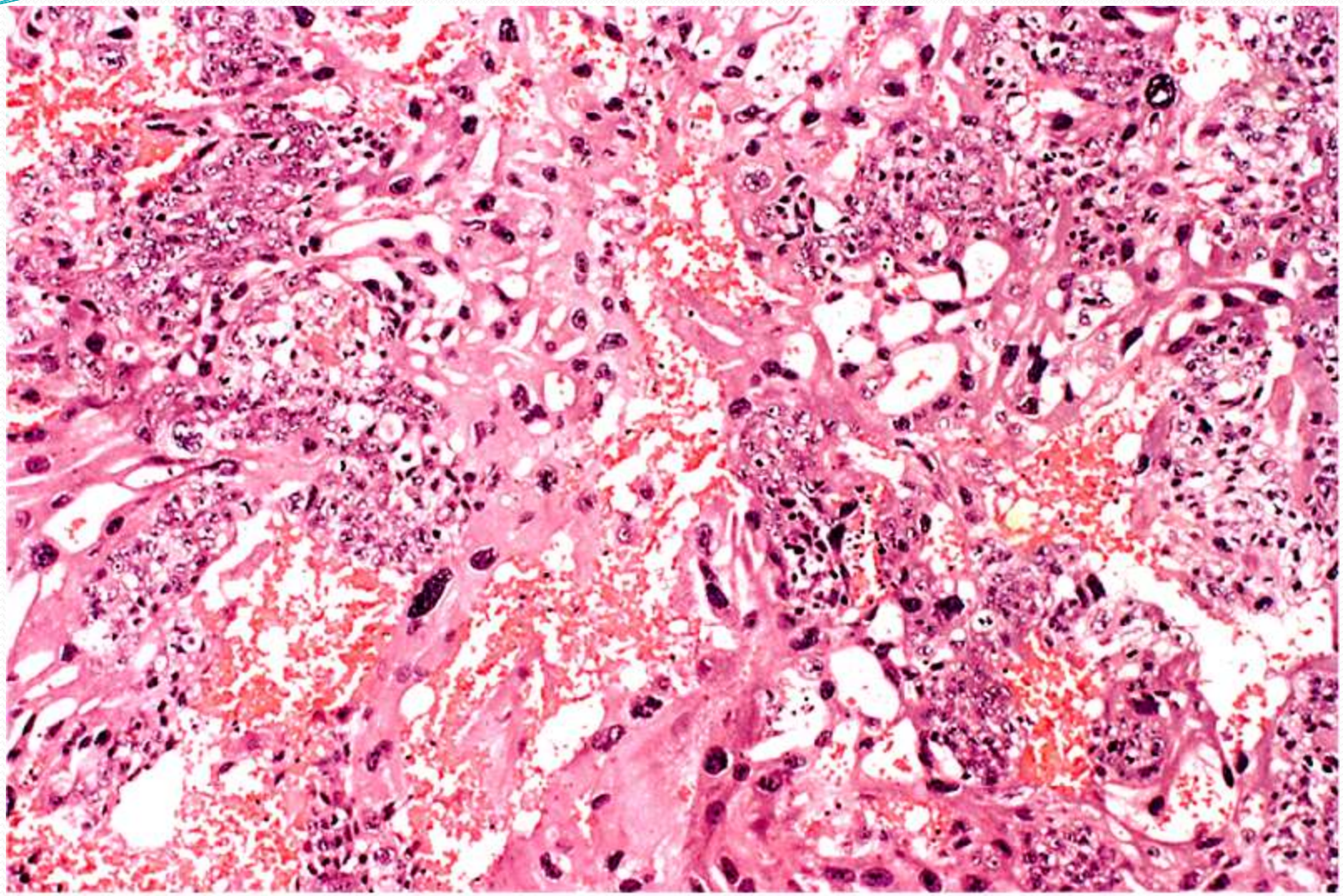
- 80% to 90% → no recurrence
- 10% → invasive mole (invades myometrium)
- 2% to 3% → choriocarcinoma.

- **<u>Partial moles:</u>**
- better prognosis and rarely give rise to choriocarcinomas.

Gestational Choriocarcinoma

- very aggressive malignant tumor arises from gestational chorionic epithelium or from gonads.
- rare (1 in 30,000 preg); more common in Asian and African countries.
- Risk greater before age 20 and after age 40.
- 50% arise in complete hyaditidiform moles; 25% arise after an abortion, and a few in normal pregnancy

- Clinically: **bloody, brownish discharge** and **very high titer of hCG** in blood and urine.
- very hemorrhagic, necrotic masses within the myometrium
- chorionic villi are not formed; tumor is composed of anaplastic cytotrophoblast and syncytiotrophoblast.



- **Prognosis**:
- widespread dissemination via **blood** to lungs (50%), vagina, brain, liver, and kidneys.
- Lymphatic invasion is **uncommon**
- Despite extreme aggressiveness, good response to chemotherapy.