



THE UNIVERSITY OF  
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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:

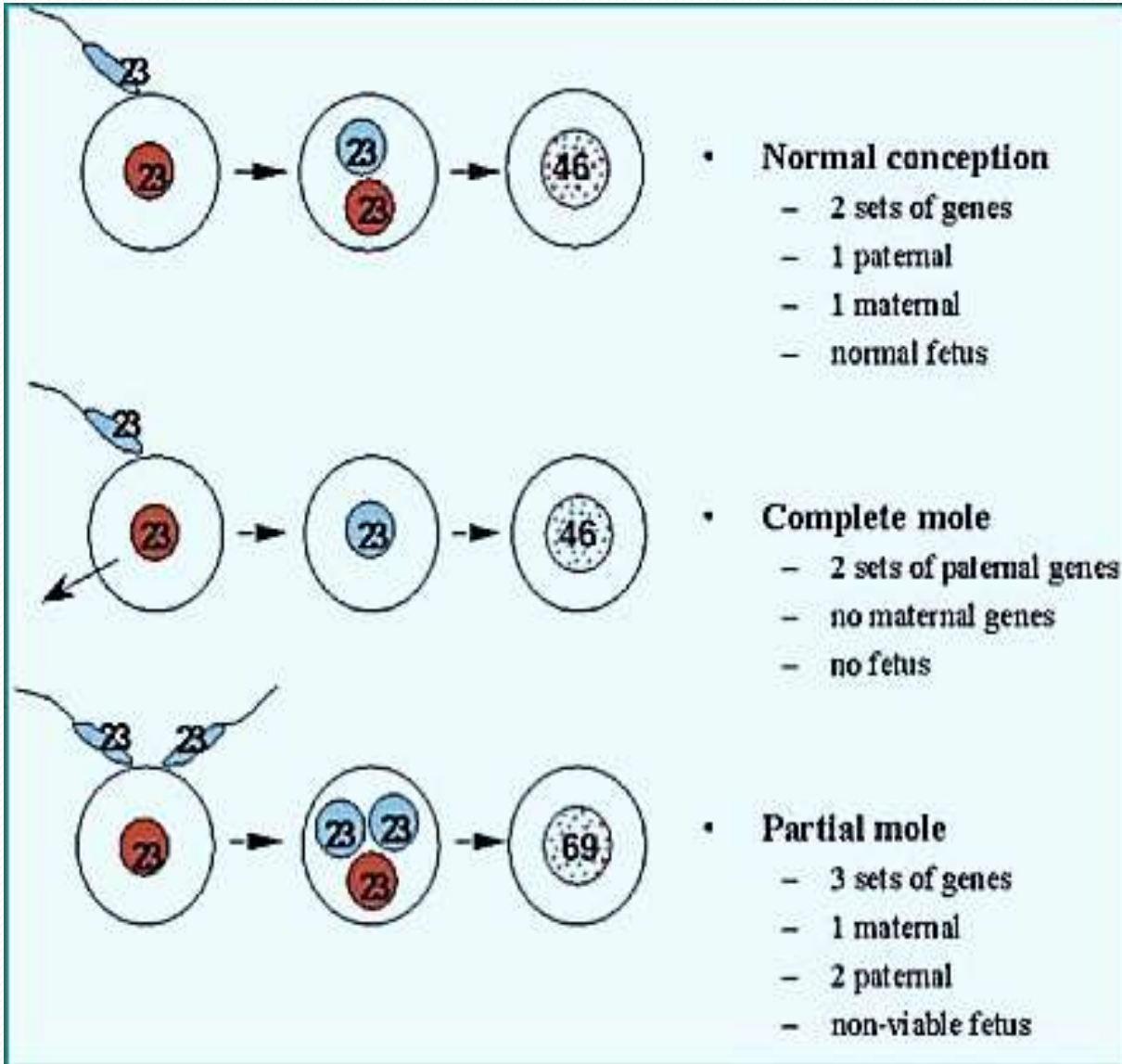
**1-Hydatidiform Mole (Molar pregnancy)**

**2- Gestational Choriocarcinoma**

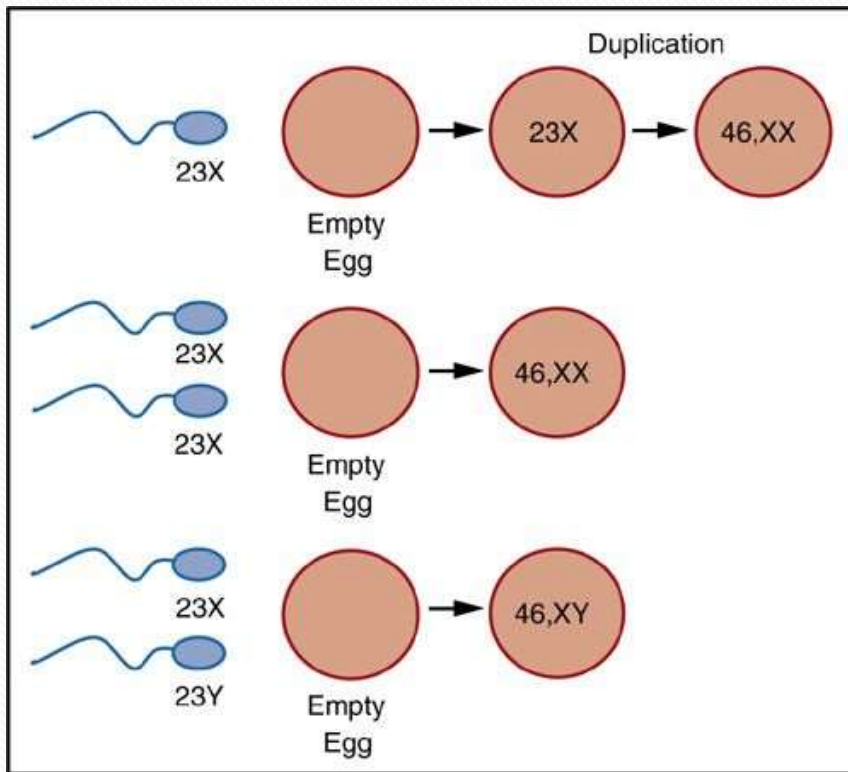
# Hydatidiform Mole

- 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

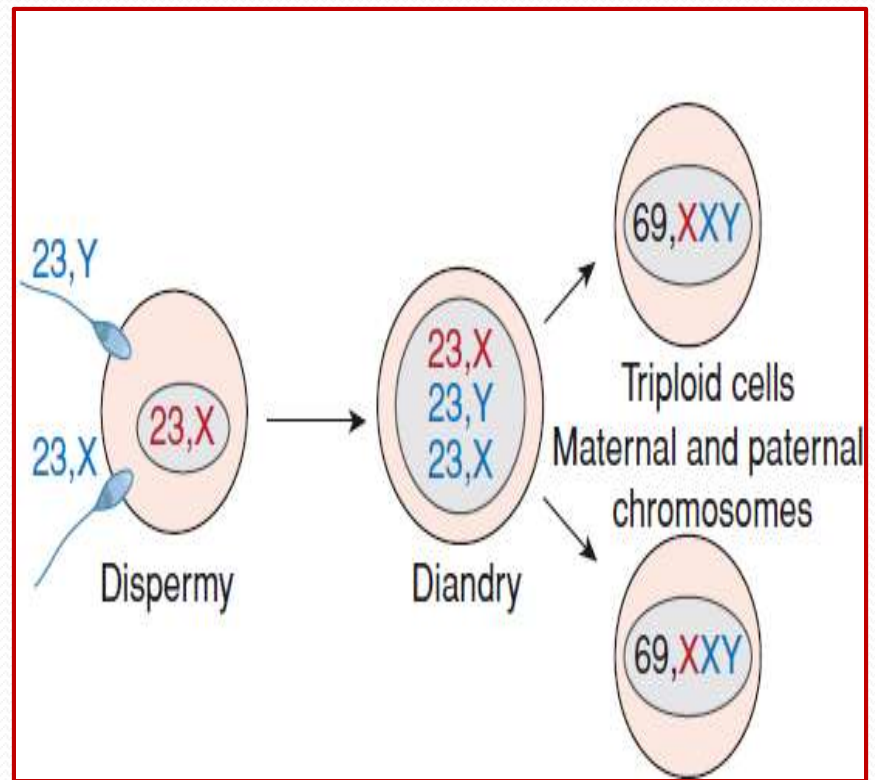




## Complete mole



## Partial mole

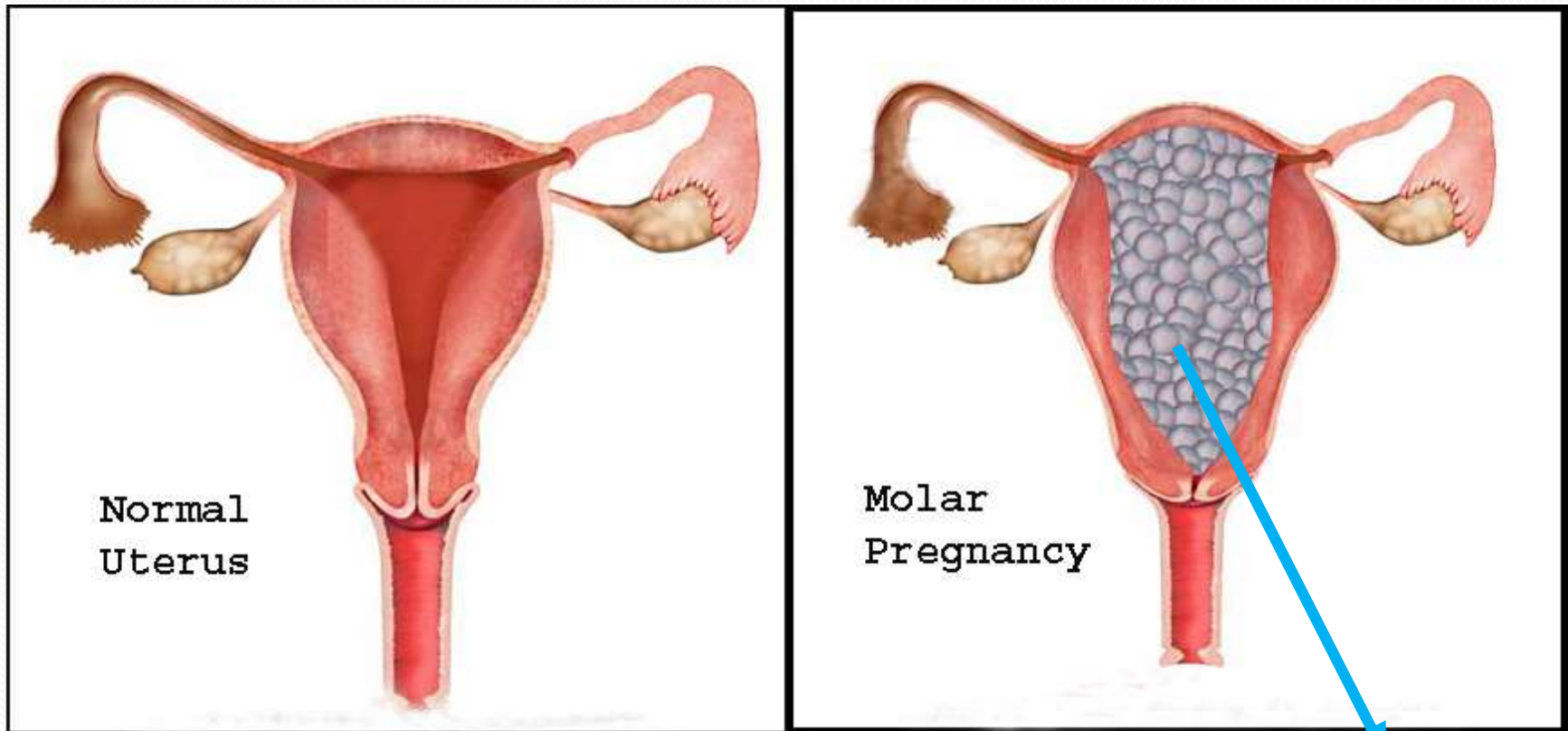




- **complete hydatidiform mole** → does not permit embryogenesis = never contains fetal parts, and the chorionic epithelial cells are diploid (46,XX or, uncommonly, 46,XY).
- **partial hydatidiform mole** → compatible with early embryo formation and may contain fetal parts, has some normal chorionic villi, and is almost always triploid (e.g., 69,XXY).



# Normal uterus vs mole pregnancy

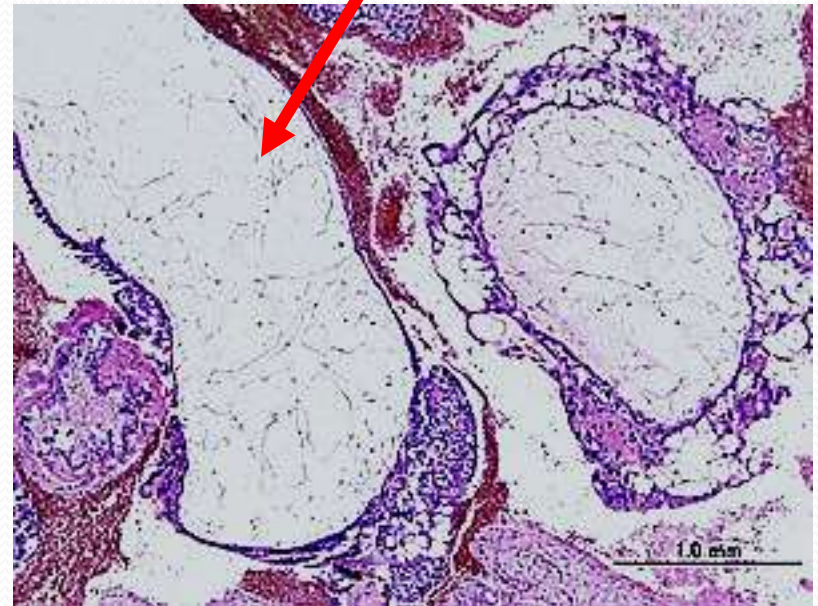
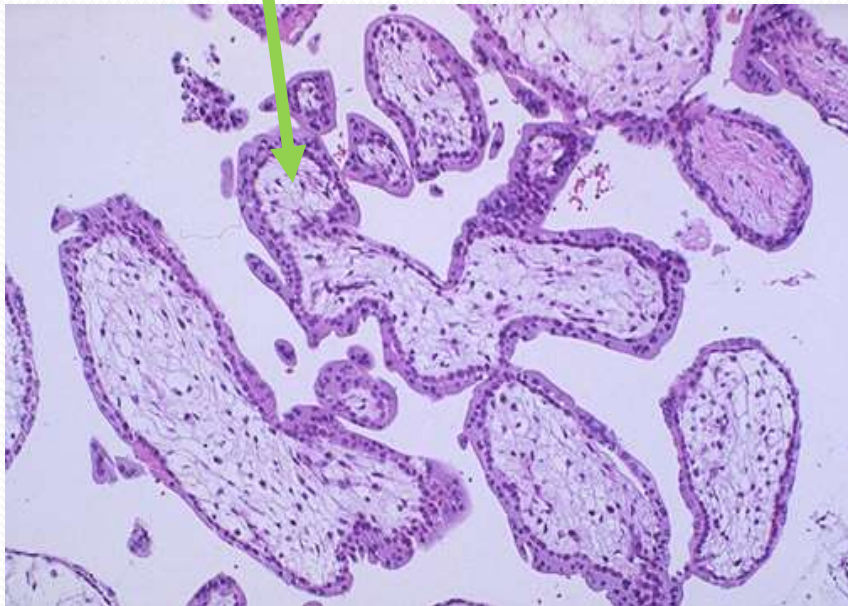


Normal Uterus

Molar Pregnancy

Vesicles

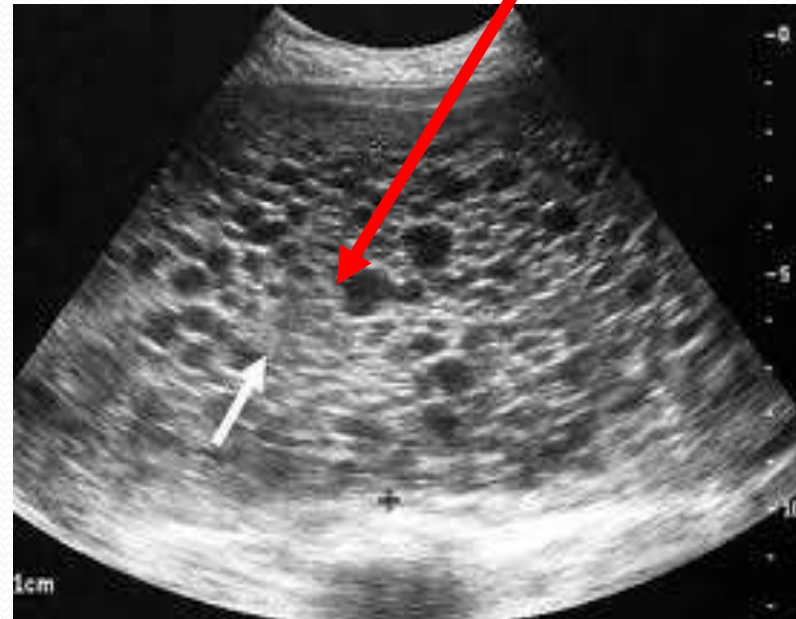
# Normal Pregnancy versus Mole – histology





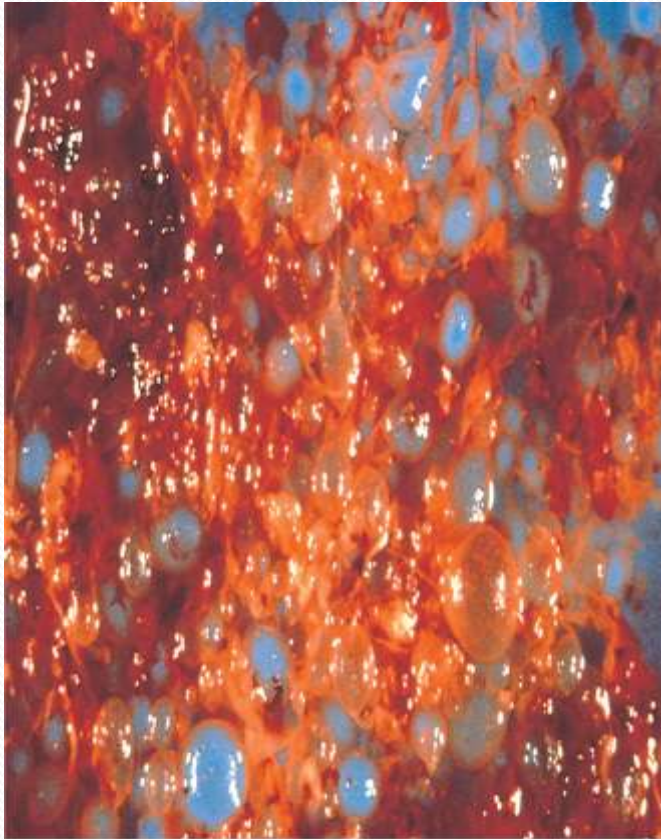


# Normal Pregnancy versus Mole – Ultrasound

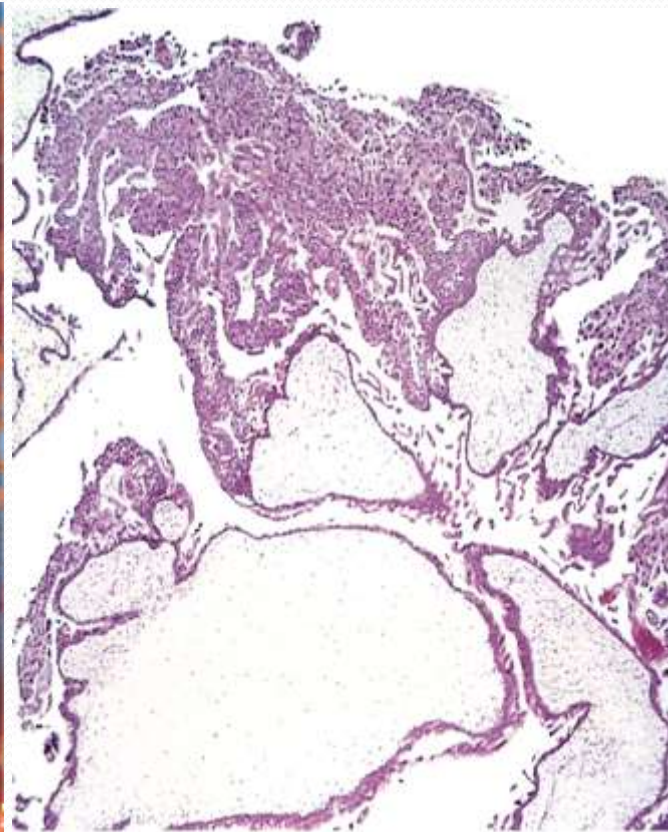


**Vesicles**  
“Snow storm”

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



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Vesicles





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

- **incidence** → 1 to 1.5 per 2000 pregnancies; higher incidence in **Asian** countries.
- Moles are most common **before** maternal 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:**
- **complete moles:**
  - 80% to 90% → no recurrence
  - 10% → invasive mole (invades myometrium)
  - 2% to 3% → choriocarcinoma.
- **Partial moles:**
- better prognosis and rarely give rise to choriocarcinomas.



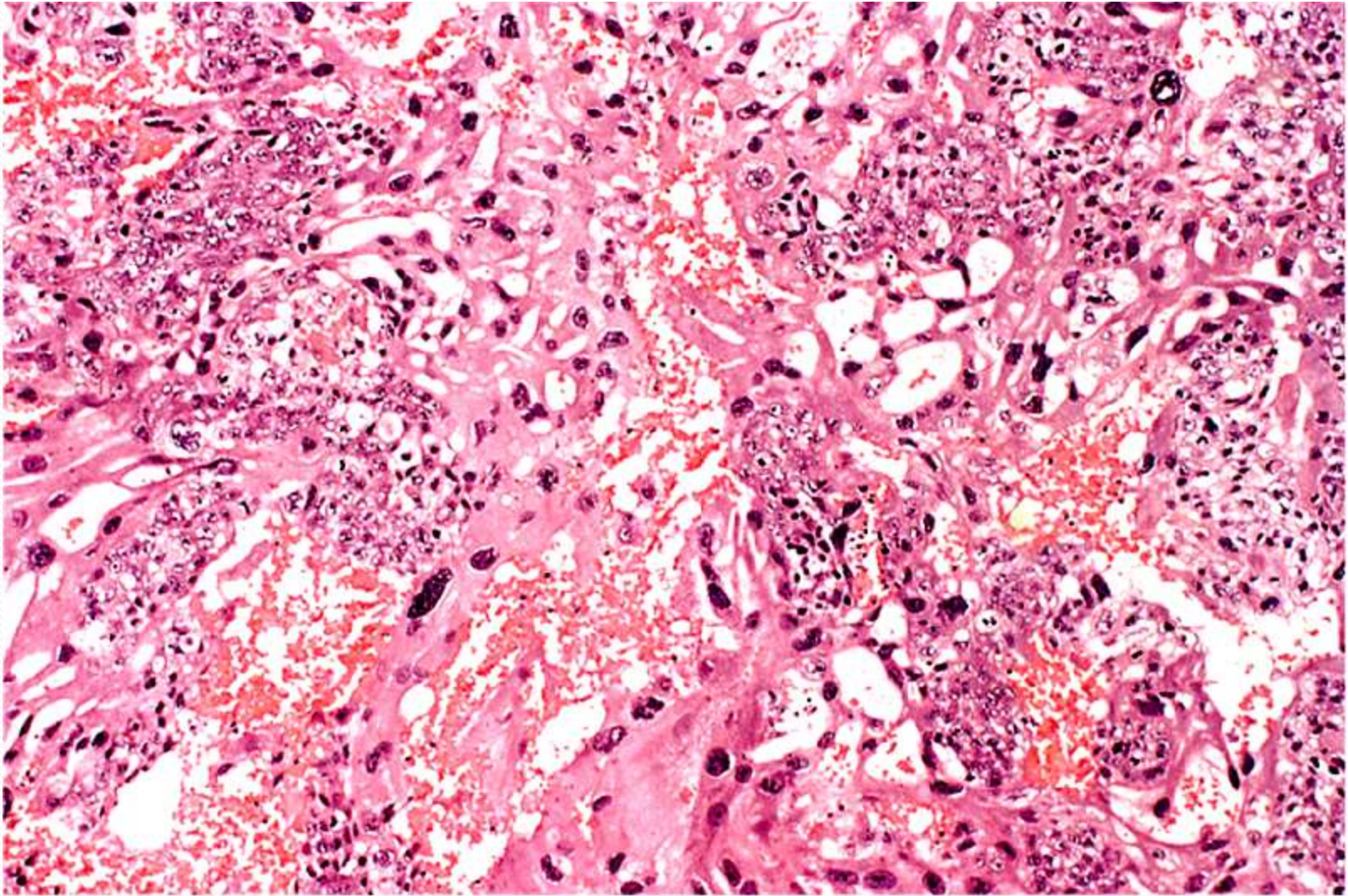


## *Gestational Choriocarcinoma*

- 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.





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

