

# Disorders of early pregnancy

# Ectopic Pregnancy

- Means implantation of the fetus in any site other than a normal intrauterine location.
- The most common site is within the fallopian tubes (90%).
  - Other sites include:
    - a. The ovary
    - b. The abdominal cavity
    - c. The intrauterine portion of the fallopian tube (cornual pregnancy).

## Predisposing conditions:.

1. Prior pelvic inflammatory disease resulting in fallopian tube scarring(chronic salpingitis(Is the most common accountfor 35% to 50% of cases.
2. Peritubual scarring and adhesions due to appendicitis , endometriosis, and previous surgery

Note - In many cases, however, the mechanisms are still unknown therefore the Fallopian tube is normal

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- Ovarian pregnancy is presumed to result from the rare fertilization and trapping of the ovum within the follicle just at the time of its rupture.
- Abdominal pregnancies may develop when the fertilized ovum drops out of the fimbriated end of the tube

# Morphology

- Tubal pregnancy is the most common cause of **hematosalpinx** (blood-filled fallopian tube) and should always be suspected when a tubal hematoma is present.
- Initially the embryonal sac, surrounded by placental tissue composed of chorionic villi, implants in the lumen of the fallopian tube

- With time trophoblastic cells and chorionic villi start to invade the fallopian tube wall as they do in the uterus during normal pregnancy; therefore it might lead to rupture of the wall of the Fallopian tube and massive intraperitoneal hemorrhage .

## Notes:

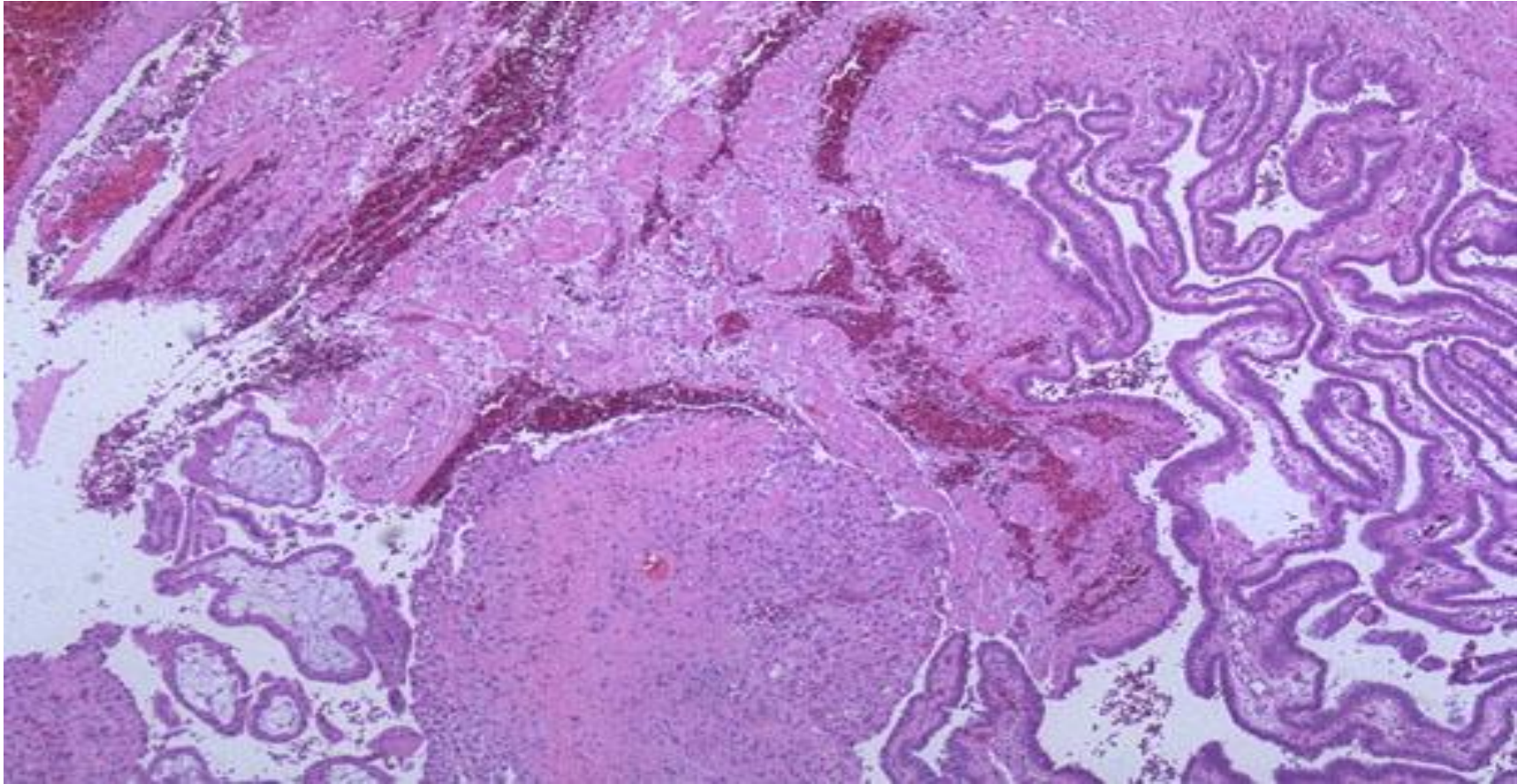
- Less commonly the tubal pregnancy may undergo spontaneous regression and resorption of the entire conceptus.
- Still less commonly, the tubal pregnancy is extruded through the fimbriated end into the abdominal cavity (tubal abortion).

# Tubal Ectopic pregnancy





# Tubal Ectopic pregnancy



# Clinical Features

- Characterized by severe abdominal pain most commonly 6 weeks after a previous normal menstrual period, when rupture of the tube leads to pelvic hemorrhage
- Rupture of a tubal pregnancy constitutes a medical emergency because the patient may develop hemorrhagic shock with signs of an acute abdomen, and early diagnosis is critical.

# Gestational trophoblastic diseases

- Gestational trophoblastic disease constitutes a spectrum of tumors and tumor-like conditions characterized by proliferation of placental tissue, either villous or trophoblastic and include:
  1. Hydatidiform mole (complete and partial),
  2. Invasive mole,
  3. Choriocarcinoma

# Hydatidiform Mole

1. Complete moles

2. Partial moles

Note:

- The most important reason for the correct recognition of moles is that they are associated with an increased risk of
  1. Persistent trophoblastic disease (invasive mole) or
  2. Choriocarcinoma.

- Currently, hydatidiform moles are being diagnosed at earlier gestational ages due to routine ultrasound and close monitoring of early pregnancy
- Molar pregnancy can develop at any age, but the risk is higher at the far ends of reproductive life: in teens and between the ages of 40 and 50 years.

- For poorly explained reasons, the incidence varies considerably in different regions of the world.
- Hydatidiform mole is an infrequent complication of gestation in the United States, , but is quite common in the Far East.



# 1. Complete Mole

- Complete mole results from fertilization of an egg that has lost its chromosomes, and the genetic material is completely paternally derived
- 1. 90% result from a phenomenon called androgenesis and have a 46,XX diploid pattern, all derived from duplication of the genetic material of one sperm
- 2. 10% result from the fertilization of an empty egg by two sperm (46,XX and 46,XY).

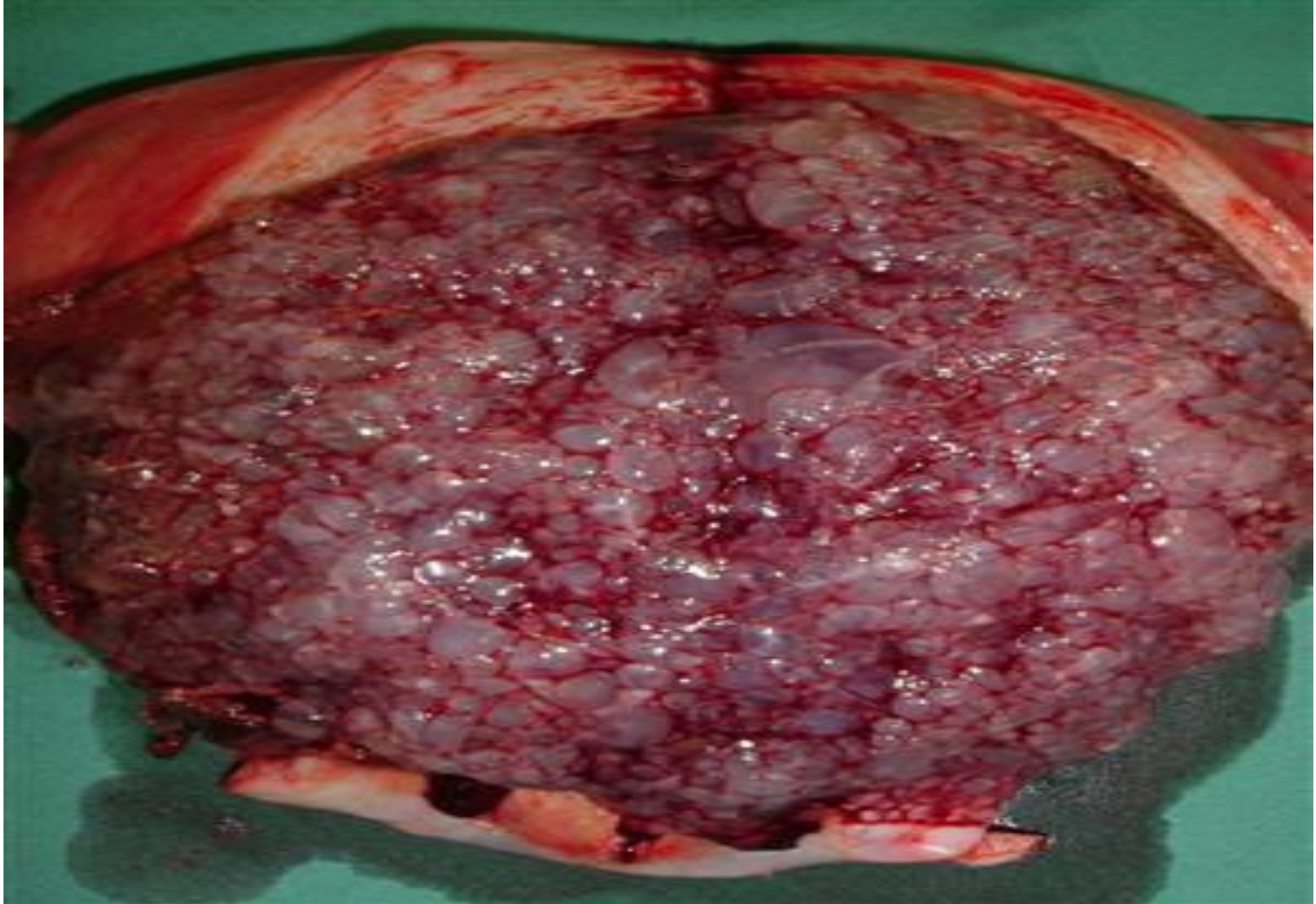
## Histologically,

1. All or most of the villi are enlarged and edematous,
2. and there is diffuse trophoblast hyperplasia.
3. Fetal vessels and fetal parts are extremely rare in complete moles since the embryo dies very early in development,

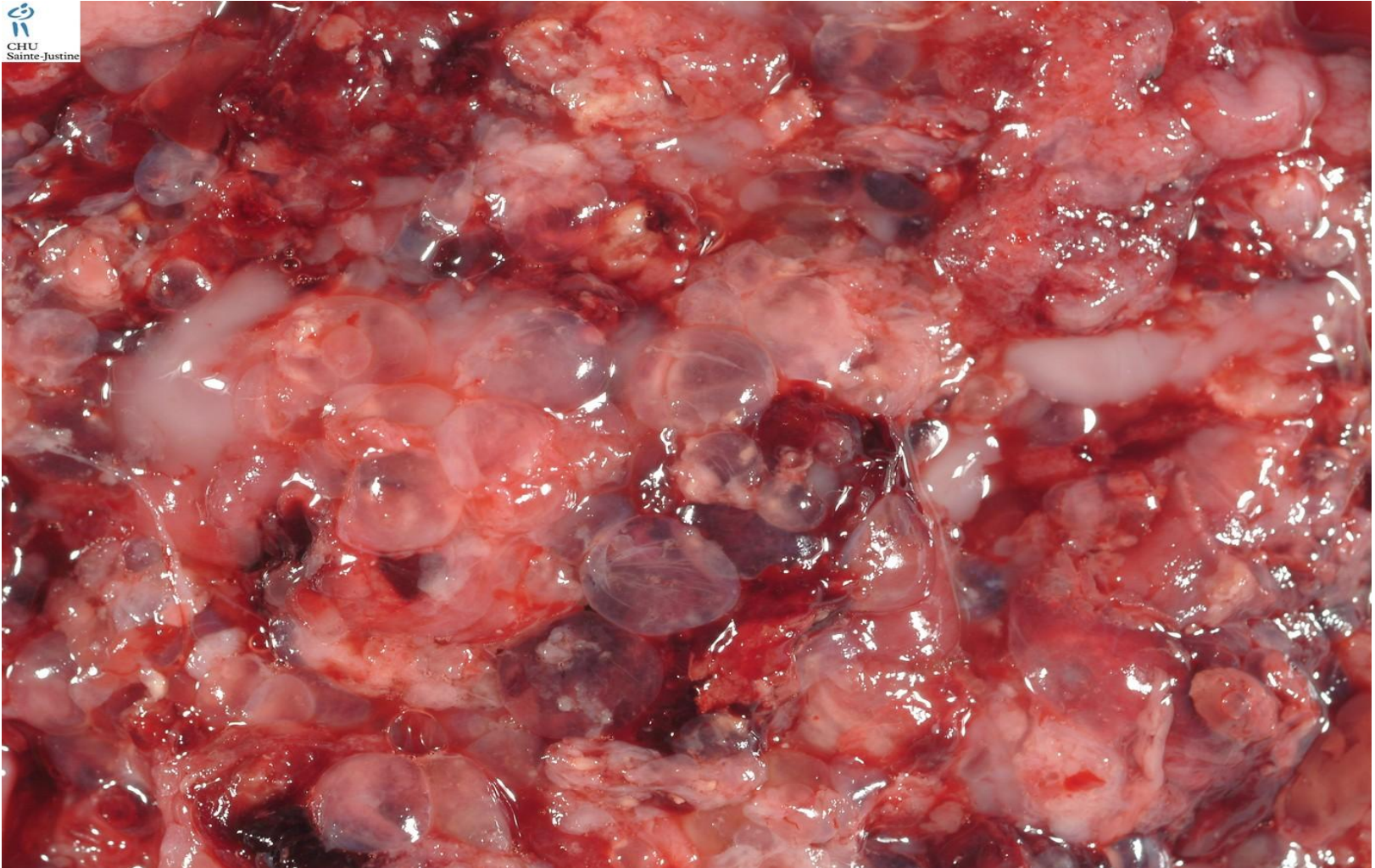
### Note:

- Patients have 2.5% risk of subsequent choriocarcinoma.

# Molar pregnancy



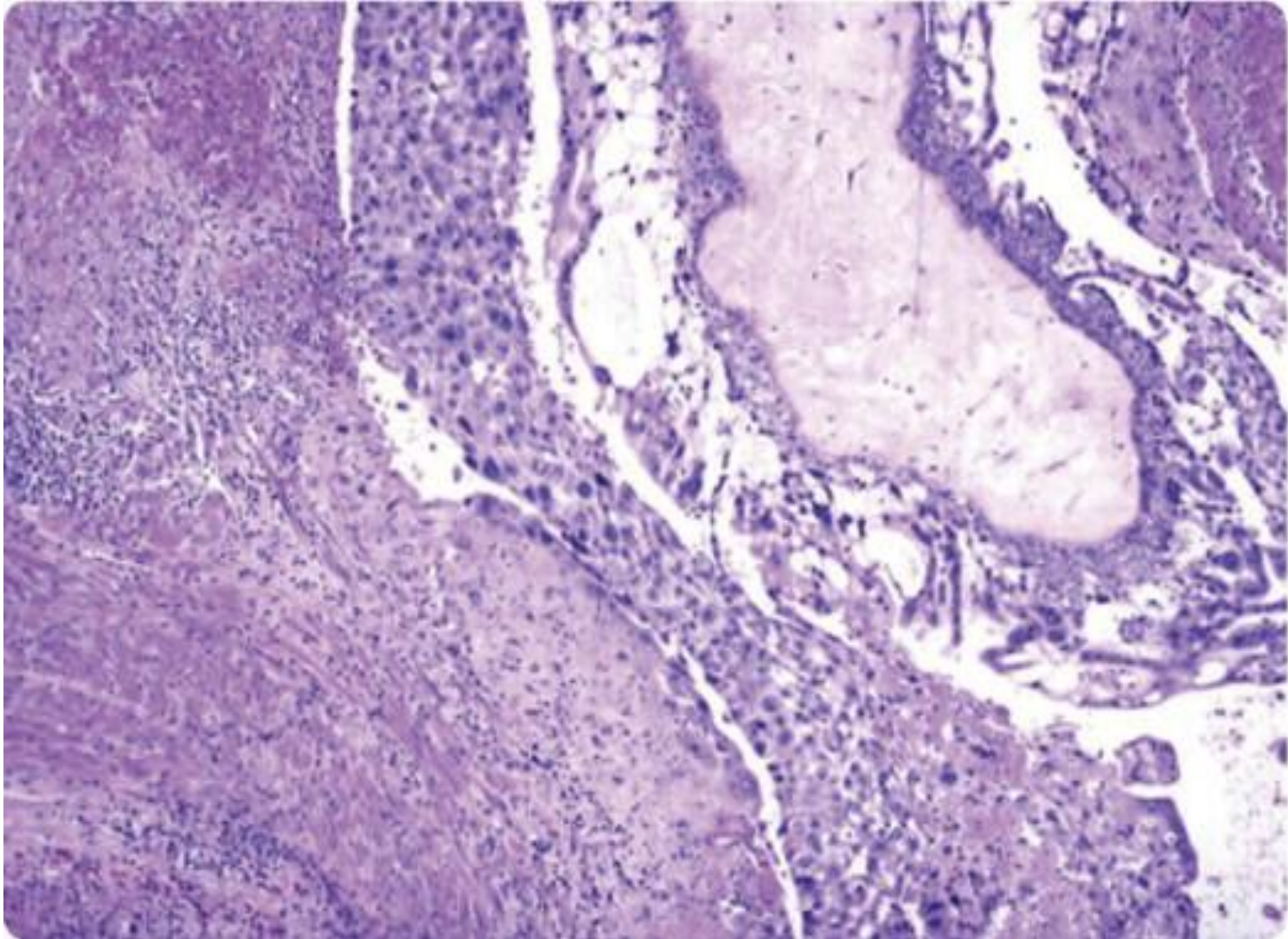
# Molar pregnancy



# Molar pregnancy



# Complete mole: histologically



## 2. Partial Mole

- Partial moles result from fertilization of an egg with two sperm
- In these moles the karyotype is triploid (e.g., 69,XXY) or even occasionally tetraploid (92,XXXXY).
- Fetal parts are more commonly present than in complete moles.

# Histologically

1. Some of the villi are edematous, and other villi are normal
2. The trophoblastic proliferation is focal and less marked than in complete mole
3. .They are not considered to have an increased risk for choriocarcinoma.

## Note:

Histologic distinction of complete mole from partial molar gestations is important.



# Clinical Features.

- Most women with partial and complete moles present with
  1. Spontaneous pregnancy loss or
  2. Undergo curettage because of abnormalities in ultrasound showing diffuse villous enlargement.

- In complete moles quantitative analysis of human chorionic gonadotropin (HCG) shows levels of hormone greatly exceeding those produced during a normal pregnancy of similar gestational age.
- The vast majority of moles are removed through curettage.
- Monitoring serum concentrations of HCG is

necessary to determine the early development of persistent trophoblastic disease

1. 10% of moles develop into persistent or invasive moles.

2. In addition, 2.5% of complete moles evolve into gestational choriocarcinoma

Note:

- Serum HCG levels are usually followed until they fall to and remain at zero for 6 months to a year.

### **3.Choriocarcinoma**

- Gestational choriocarcinoma is a malignant neoplasm of trophoblastic cells , rapidly invasive and metastasizes widely, but once identified responds well to chemotherapy.
- This is an uncommon condition
- It is much more common in some African countries

## **Incidence.**

- It is preceded by several conditions;
  1. 50% arise in hydatidiform moles,
  2. 25% in previous abortions,
  3. 22% in normal pregnancies
  4. 3% occur in ectopic pregnancies

Note: 1 in 40 complete hydatidiform moles may be expected to give rise to a choriocarcinoma, in contrast to 1 in approximately 150,000 normal pregnancies.

# Morphology.

## Gross

- Is classically a soft, yellow-white tumor with a marked tendency to form large areas of ischemic **necrosis and foci of extensive hemorrhage**

## Microscopically

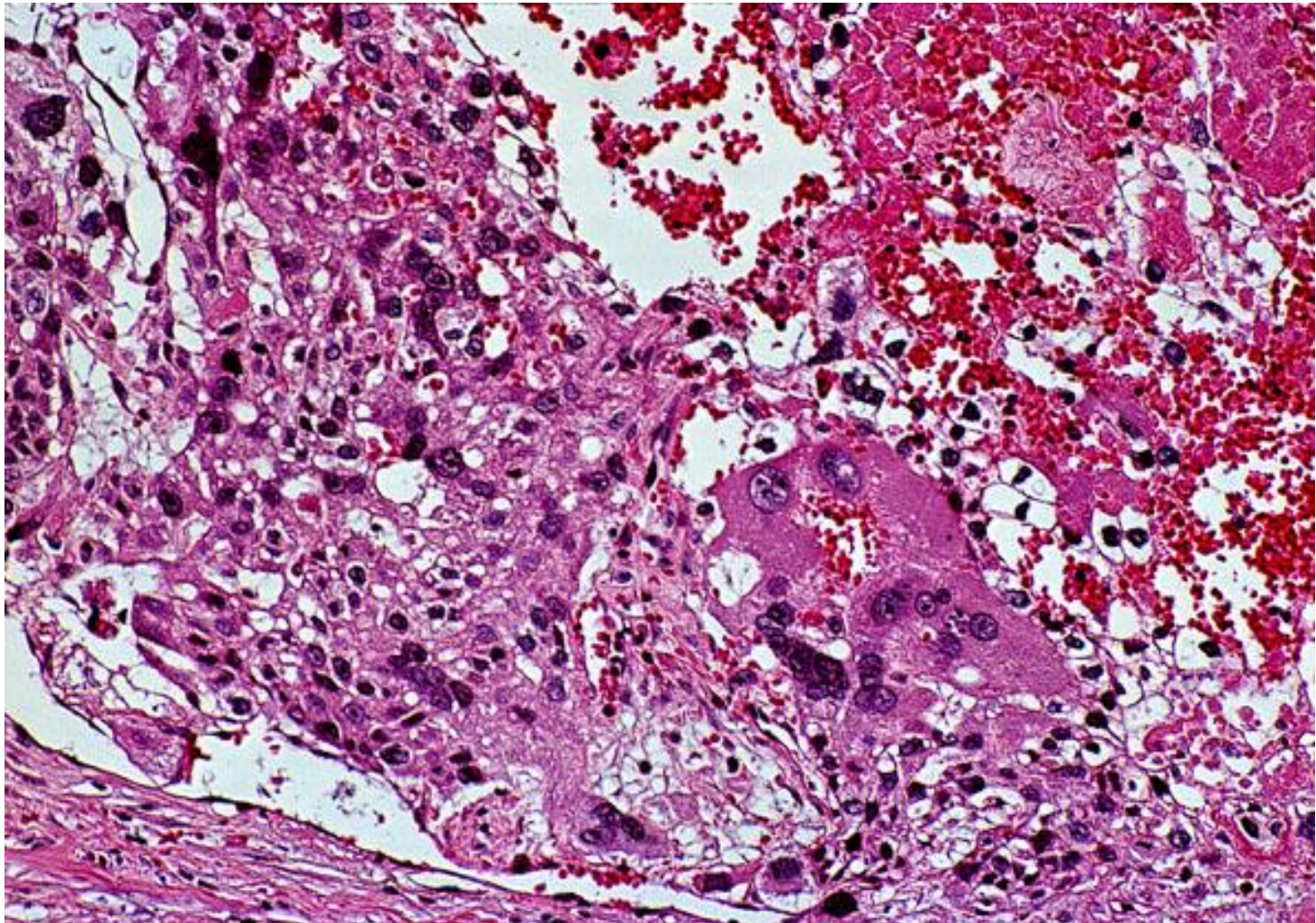
- It does not produce chorionic villi
- Consists entirely of a mixed proliferation of syncytiotrophoblasts and cytotrophoblasts

3. Mitoses are abundant and abnormal
4. The tumor invades the underlying myometrium
5. Frequently penetrates blood vessels and lymphatics

**In fatal cases metastases are found in the lungs, brain, bone marrow, liver, and other organs.**



# Choriocarcinoma



- On occasion, metastatic choriocarcinoma is discovered without a detectable primary in the uterus presumably because the primary has undergone **complete necrosis**.
- Uterine choriocarcinoma usually does not produce a large, bulky mass, but it manifests as irregular vaginal spotting of a bloody, brown fluid.

- Usually, by the time the tumor is discovered, radiographs of the chest and bones already disclose the presence of metastatic lesions.
- The titers of HCG are elevated to levels above those encountered in hydatidiform moles.

**Note:**

- Occasionally, tumors produce little hormone, and some tumors become so necrotic as to become functionally inactive

- Widespread metastases are characteristic.
- Frequent sites of involvement are
  - a. The lungs (50%)
  - b. and vagina (30% to 40%),
  - c. followed in descending order of frequency by the brain, liver, and kidney.

- The treatment of gestational choriocarcinoma includes surgery and chemotherapy.
- The results of chemotherapy for gestational choriocarcinoma are spectacular and result in nearly 100% remission and a high rate of cures