النادي الطلابي
كلية الطب

Pathology GUS

Done By Rund Barah

Corrected By Rund Barah

Uterine Pathology

Nisreen Abu Shahin, MD
Associate professor of pathology
University of Jordan, School of Medicine

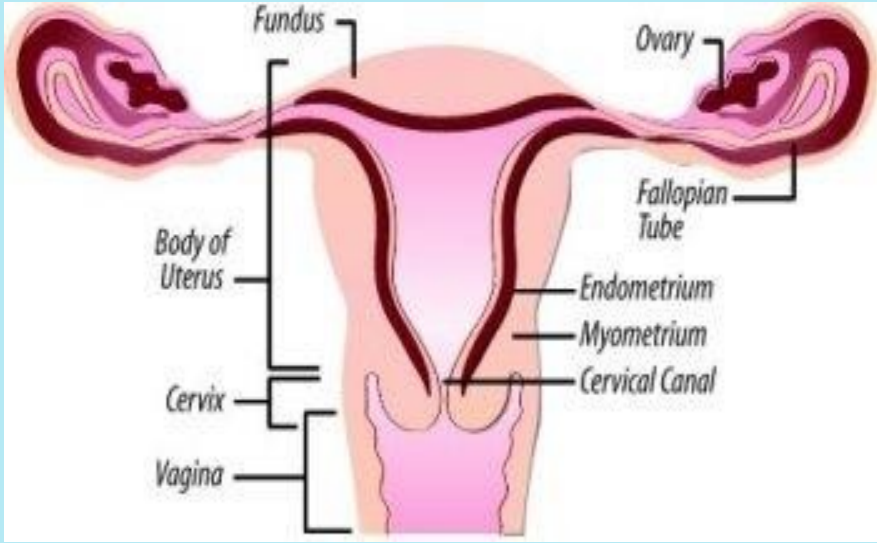
We have two layers of the uterus:
1. The inner layer is the Endometrium , has glands and stroma, it's the functional part of the uterus, forms the soil where the fertilized ovum is planted.
2. The muscular layer is the Myometrium, made of smooth muscle cells.

Endometrium

- Endometritis
- Adenomyosis
- Endometriosis
- Endometrial Polyps
- Endometrial Hyperplasia
- Endometrial Carcinoma

Myometrium

- Leiomyoma
- Leiomyosarcoma



1. ENDOMETRITIS

- Inflammation of the endometrium.
- Causes:

1- infections - pelvic inflammatory disease (PID)

Infections can either be localized to the endometrium or generalized involving the whole female genital tract (PID).

2-miscarriage or delivery

3- intrauterine device (IUCD). >> intra-uterine contraceptive device

- acute or chronic

Mostly acute inflammation symptoms

- Symptoms include (fever, abdominal pain), menstrual abnormalities, infertility and ectopic pregnancy due to damage to the fallopian tubes.
- Rx: removal of cause, antibiotics, **D&C.**

Dilation and curettage refers to the dilation of the cervix and surgical removal of part of the lining of the uterus and/or contents of the uterus by scraping and scooping.

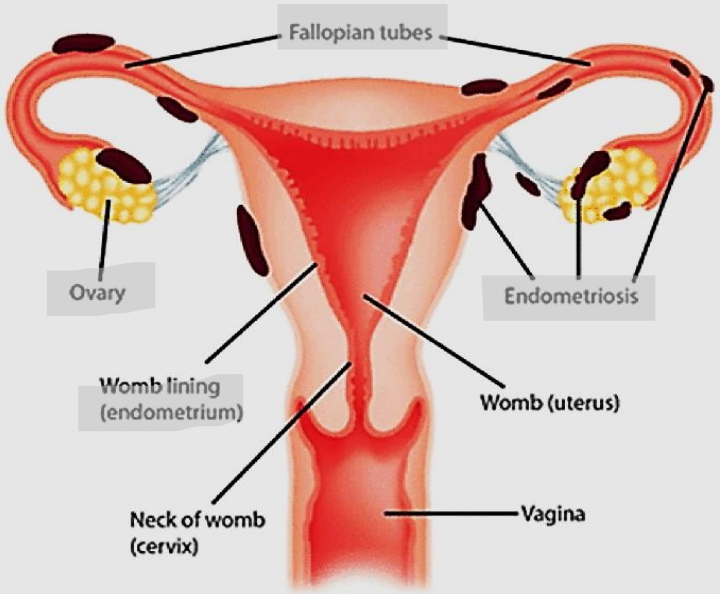
2. ADENOMYOSIS

- ADENO= glands , MYOSIS= myometrium. It's the abnormal presence of glands inside the myometrium
- endometrial stroma, glands, or both embedded in **myometrium**.
- Thick uterine wall, enlarged uterus.
- Derived from **stratum basalis →** **no** cyclical bleeding, because stratum basalis isn't responsive to cyclical hormones.
- menorrhagia, dysmenorrhea (due to enlarged uterus, uterine contractions are exaggerated)

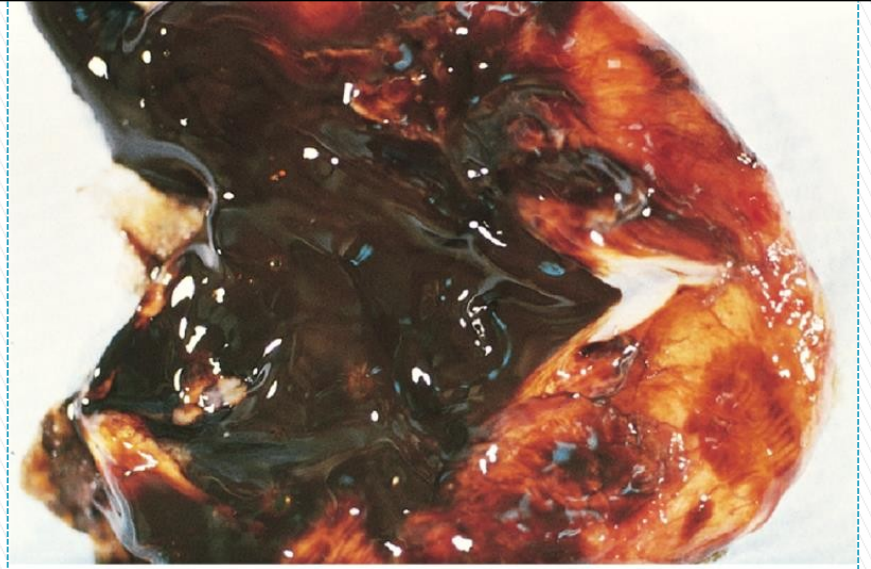
Menorrhagia is menstrual bleeding that lasts more than 7 days.
Dysmenorrhea is severe and frequent menstrual cramps and pain during menstrual cycle.

3. ENDOMETRIOSIS

- endometrial glands and stroma **outside the uterus (not cancer !)**.
  Not a cancer because they're benign tissues abnormally located around the uterus
- 10% in reproductive yrs; ↑ infertility.
- dysmenorrhea, and pelvic pain, pelvic mass filled with blood (chocolate cyst). Called chocolate because the consistency and color of blood there resembles chocolate.
- Multifocal in pelvis (ovaries, pouch of Douglas, uterine ligaments, tubes, and rectovaginal septum).
- Sometimes distant sites (e.g. umbilicus, lymph nodes, lungs, ...)

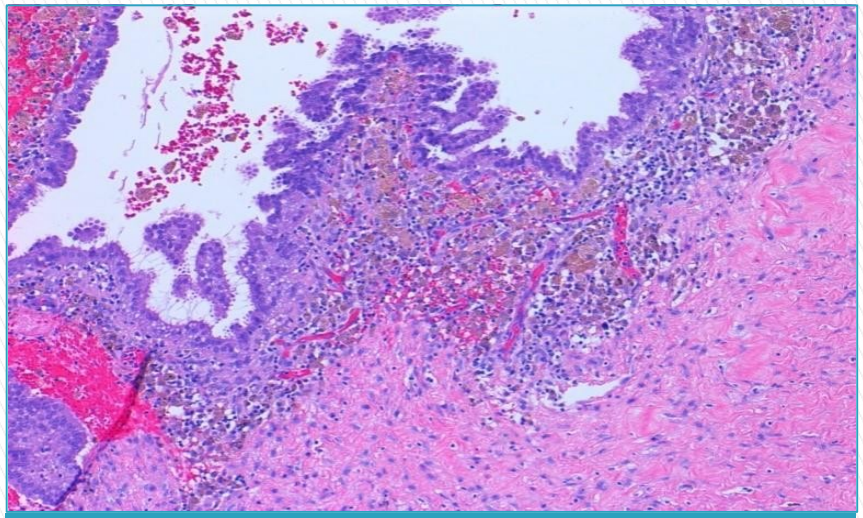


Common locations of endometriotic lesions



“Chocolate“ cyst in an ovary

Intraoperative view of endometriosis,
notice the blood spots indicating cyclical bleeding.

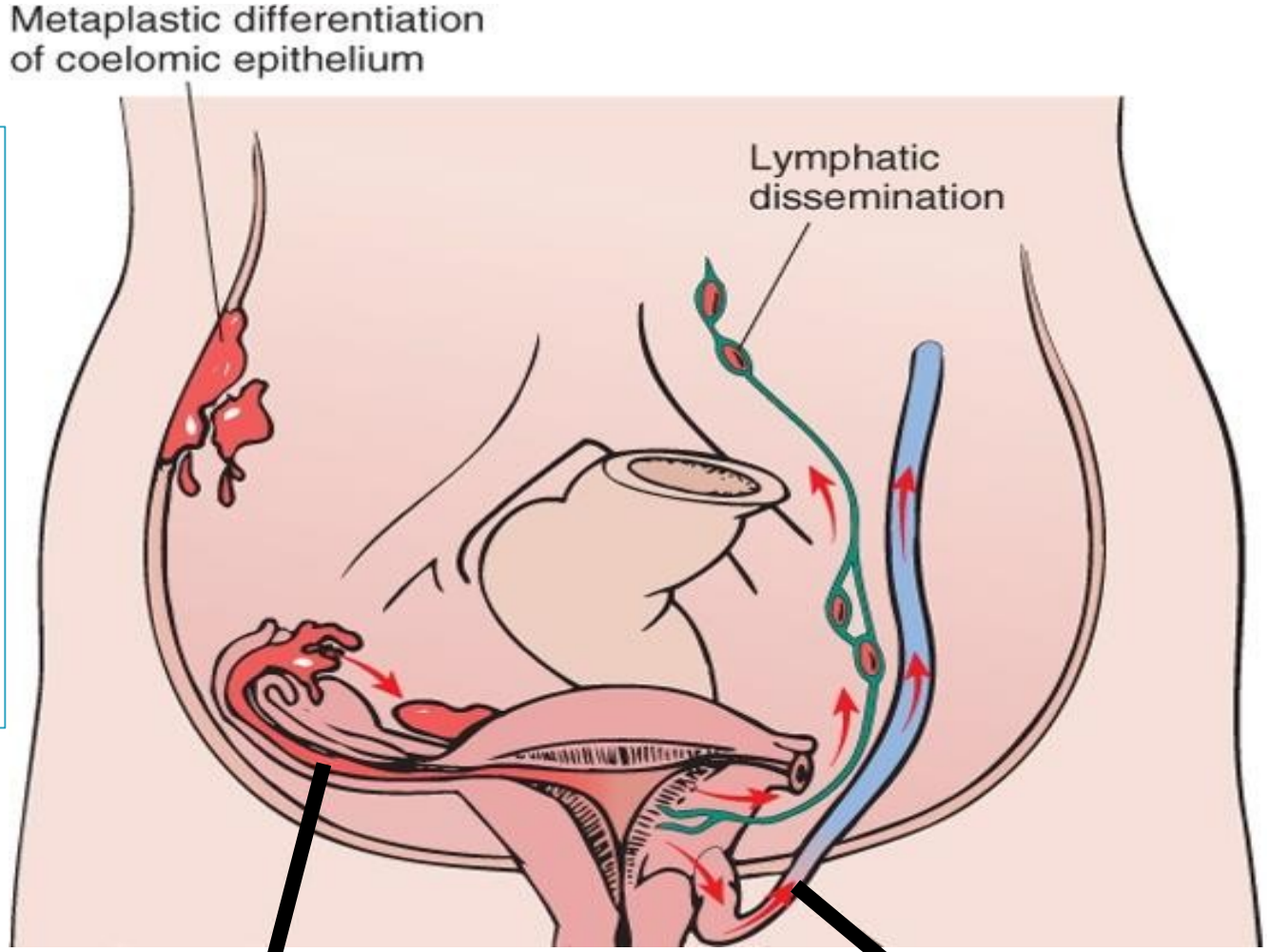


Microscopic view of endometriosis

ENDOMETRIOSIS- Pathogenesis

- 4 theories:
- **Regurgitation theory.** (most accepted). **Retrograde menstruation:** Menstrual backflow through tubes and implantation..
- **Metaplastic theory** . Endometrial differentiation of coelomic epithelium.
- **Vascular or lymphatic dissemination theory.** explain extrapelvic or intranodal implants.
- **Extrauterine stem/progenitor cell theory**, proposes that circulating stem/progenitor cells from bone marrow differentiate into endometrial tissue

Conceivably, all pathways are valid in individual instances.



Regurgitation through fallopian tube

Extrapelvic dissemination through pelvic veins

ENDOMETRIOSIS

- contains **functionalis endometrium**, so undergoes **cyclic bleeding**.
- Consequences: fibrosis, sealing of tubal fimbriated ends, and distortion of the ovaries.
- Diagnosis; **histopathologic;** 2 of 3 features: endometrial glands, endometrial stroma, or hemosiderin pigment.
- Hemosiderin is an iron rich pigment indicating RBCs lysis, a recuring bleeding during menstrual cycle.

The bleeding spots seen in slide 6 lead to inflammation which in turn causes necrosis followed by healing and scarring, resulting in an inflamed area with fibrosis, potentially leading to infertility.

Endometrial Hyperplasia

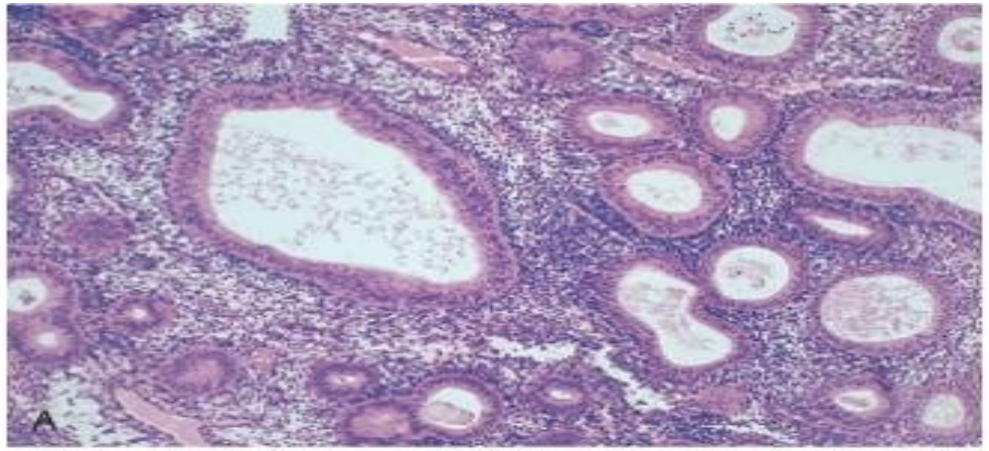
- Excessive proliferation of endometrial glands
- prolonged or marked excess of **estrogen** relative to progestin →exaggerated proliferation → may progress to cancer. (estrogen works in the first half of the cycle "proliferative" while progestin works in secretory half.)
- risk factors: **Obesity; Diabetes; Hypertension**; **Infertility; Prolonged estrogen replacement therapy; Estrogen-secreting ovarian tumors**.
- severity is based on architectural crowding and cytologic atypia, ranging from:

1 typical hyperplasia

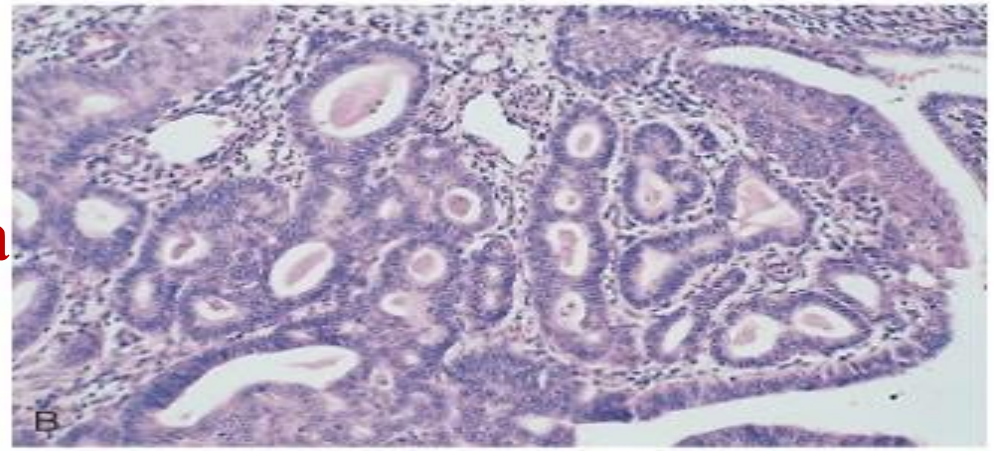
2 Atypical hyperplasia (20% risk of cancer).

a precursor of cancer, if it turns cancerous it'll be endometroid carcinoma.

Simple hyperplasia

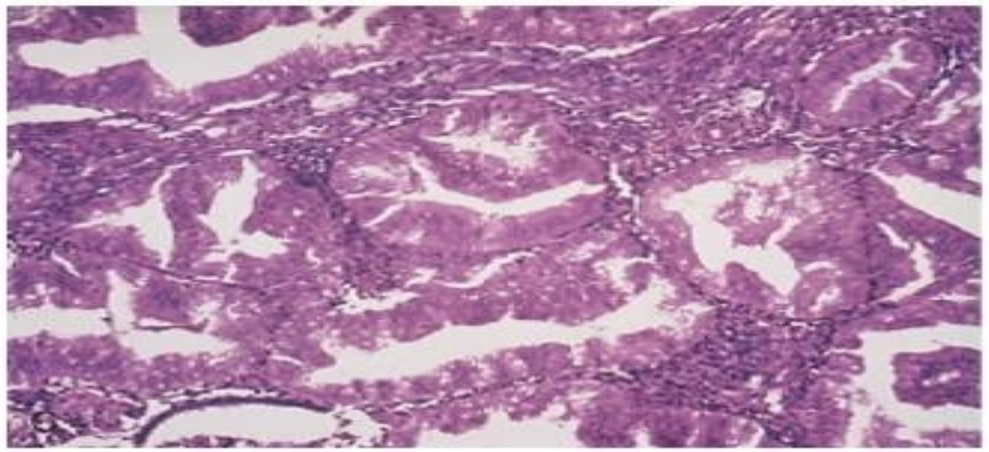


Complex Hyperplasia



Atypical Hyperplasia

The highest risk to be cancerous



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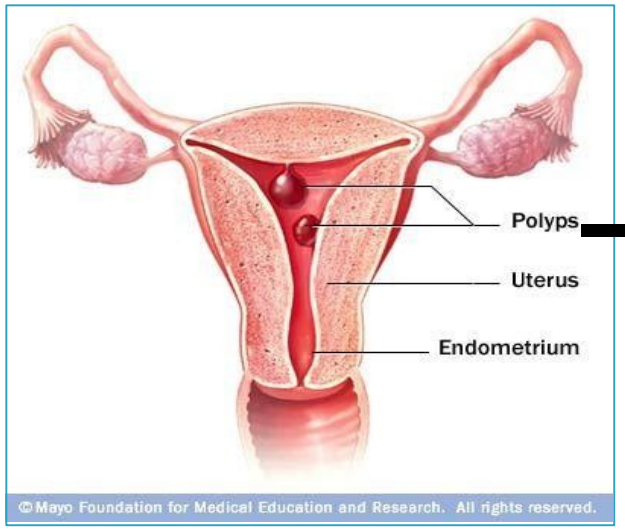
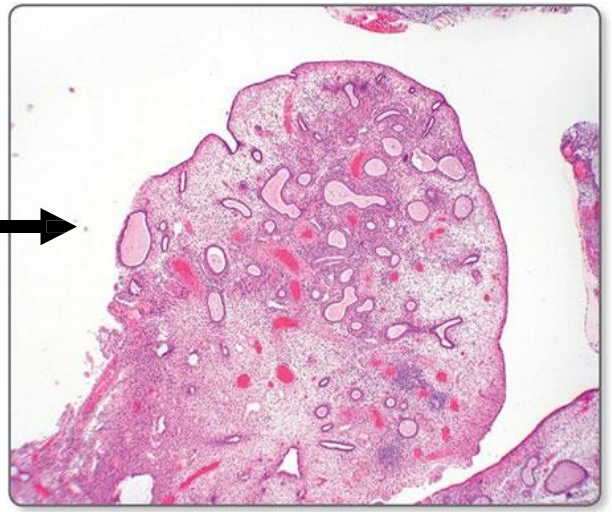
TUMORS OF THE ENDOMETRIUM

- **Benign Endometrial Polyps**
- sessile or pedunculated
- endometrial dilated glands, with small muscular arteries and fibrotic stroma.
- no risk of endometrial cancer.





Endometrial Carcinoma

- **the most common cancer in female genital tract nowadays.**
- 50s and 60s.
- two clinical settings:

1) perimenopausal women with estrogen excess > related to type 1 cancers.
2) older women with endometrial atrophy. >related to type 2.

- These scenarios are correlated with differences in histology:
- 1-type I cancers: prototype is called **endometrioid**
- 2- type II cancers: prototype is **serous carcinoma** , respectively.

Endometrioid Carcinoma

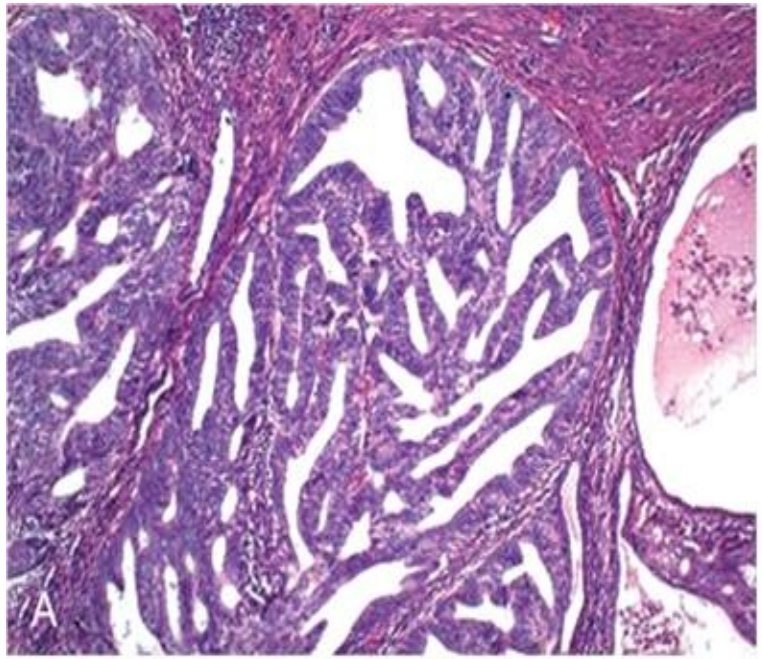
- similar to normal endometrium.
- risk factors: **Obesity; Diabetes; Hypertension**; **Infertility; Prolonged estrogen replacement therapy; Estrogen- secreting ovarian tumors**.

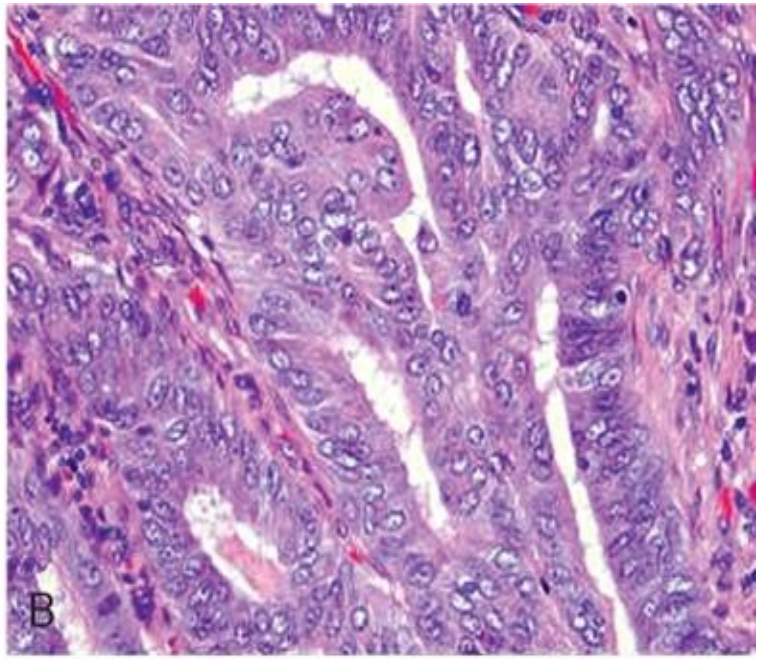
- **precancerous** lesion is **atypical** endometrial hyperplasia
- Mutations in DNA **mismatch repair genes** and **PTEN** (tumor suppressor gene)
- **Prognosis: depends on stage. (**5-year survival in stage I= 90%; drops to 40% in stages III and IV.)

Serous Carcinoma

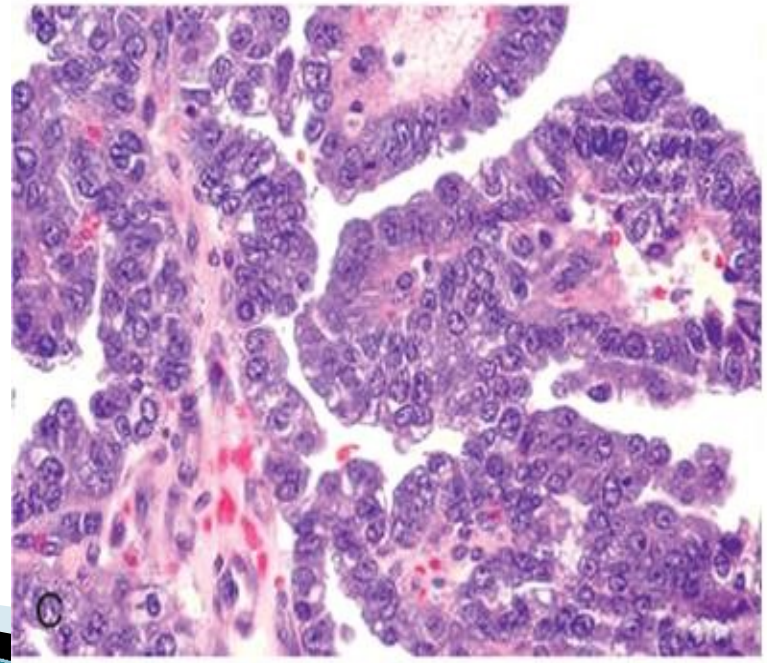
- **No relation with endometrial hyperplasia**
- **Not hormone-dependent**
- **Mutations in p53 tumor suppressor gene**.
- Prognosis: depends on operative staging with peritoneal cytology. Generally worse than endometrioid ca.

Endometrioid carcinoma

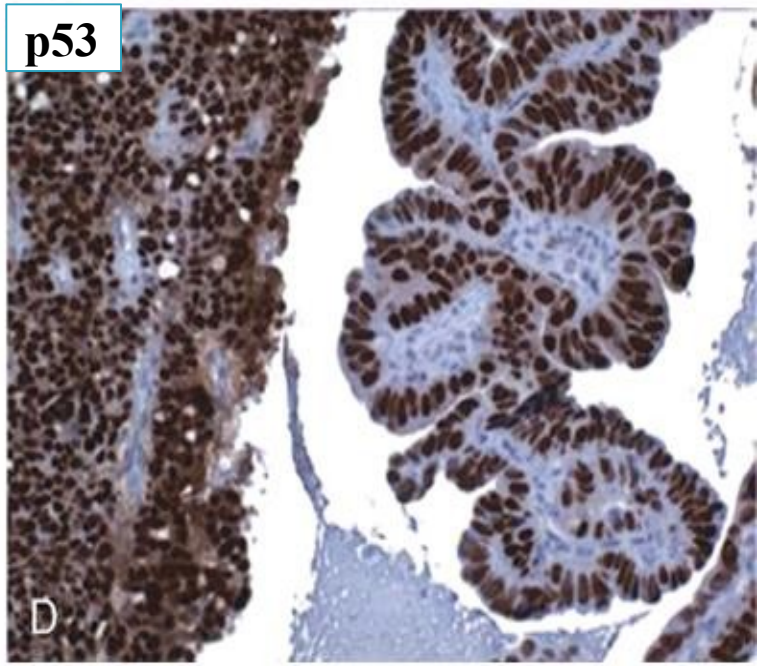




Serous carcinoma



p53

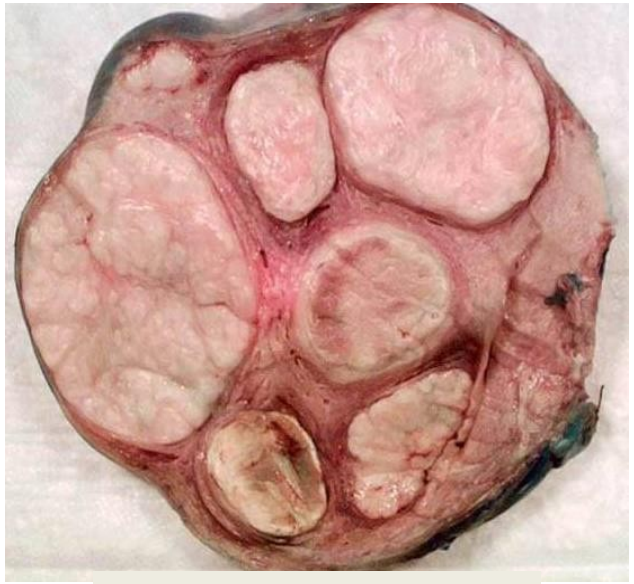


Tumors of the myometrium

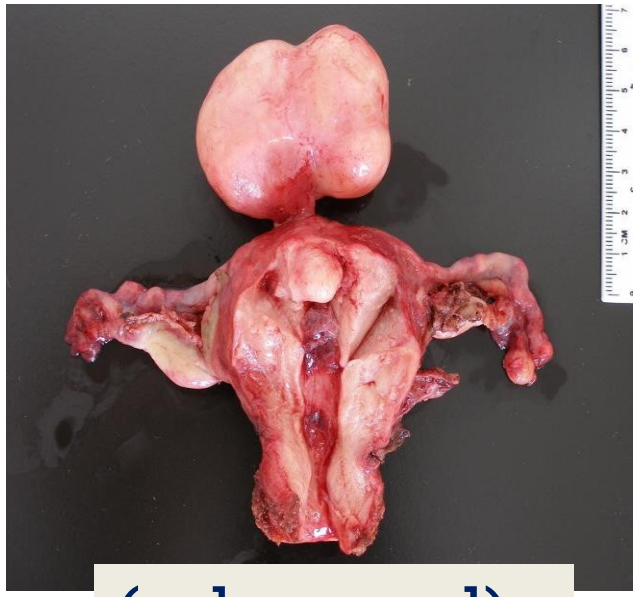
- **Lieomyoma = fibroids = الياف الرحم**
- Benign tumor of smooth muscle cells
- most common benign tumor in females (30% - 50% in reproductive life).
- Estrogen-dependent; shrink after menopause.
- circumscribed, firm gray-white masses with whorled cut surface.

Leiomyomas

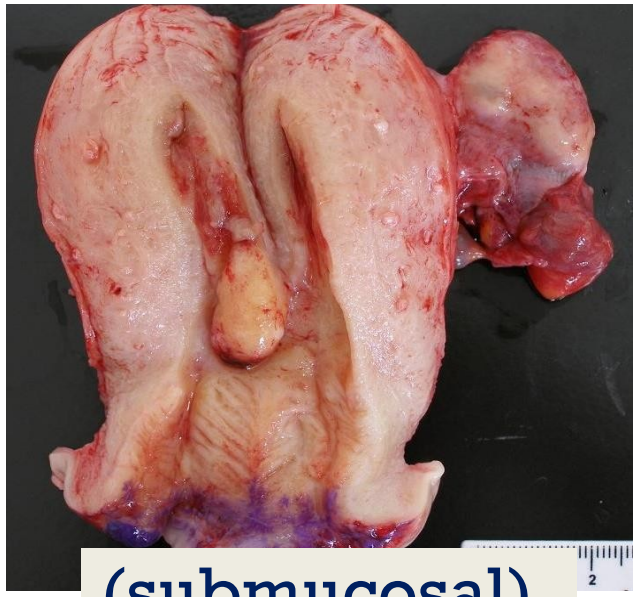
- Location: **anywhere inside myometrium** (intramural), (submucosal), or (subserosal).
- may develop hemorrhage, cystic change or calcification.
- Clinically: asymptomatic or symptomatic **(depending on many things including location and size)**; menorrhagia; a dragging sensation, anemia, etc...
- leiomyomas almost **never** transform into sarcomas, and the presence of multiple lesions does not increase the risk of malignancy.



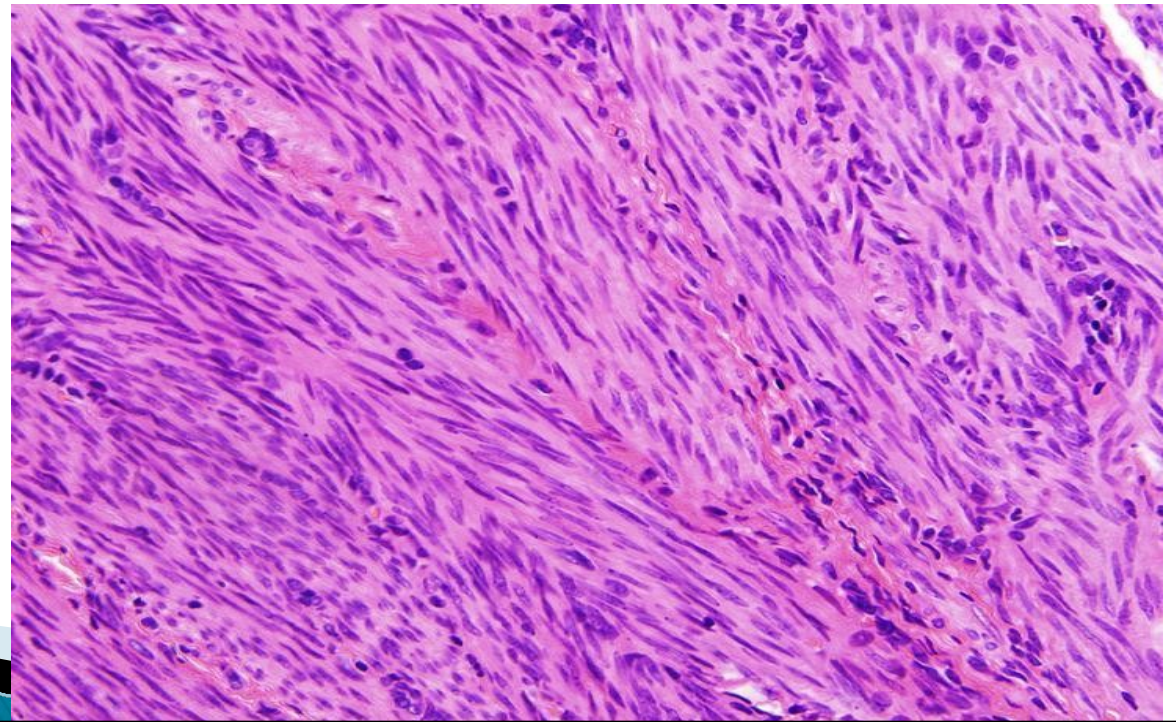
(intramural).



(subserosal).



(submucosal).



Lieomyosarcoma

- Malignant counterpart of leiomyoma.
- not from preexisting leiomyomas.
- hemorrhagic, necrotic, infiltrative borders.
- diagnosis: coagulative necrosis, cytologic atypia, and mitotic activity.
- Recurrence common, and metastasize, 5- year survival rate 40%.

Characterized by necrosis, hemorrhage and infiltrative borders.