Female Genital System, Pathology Lab

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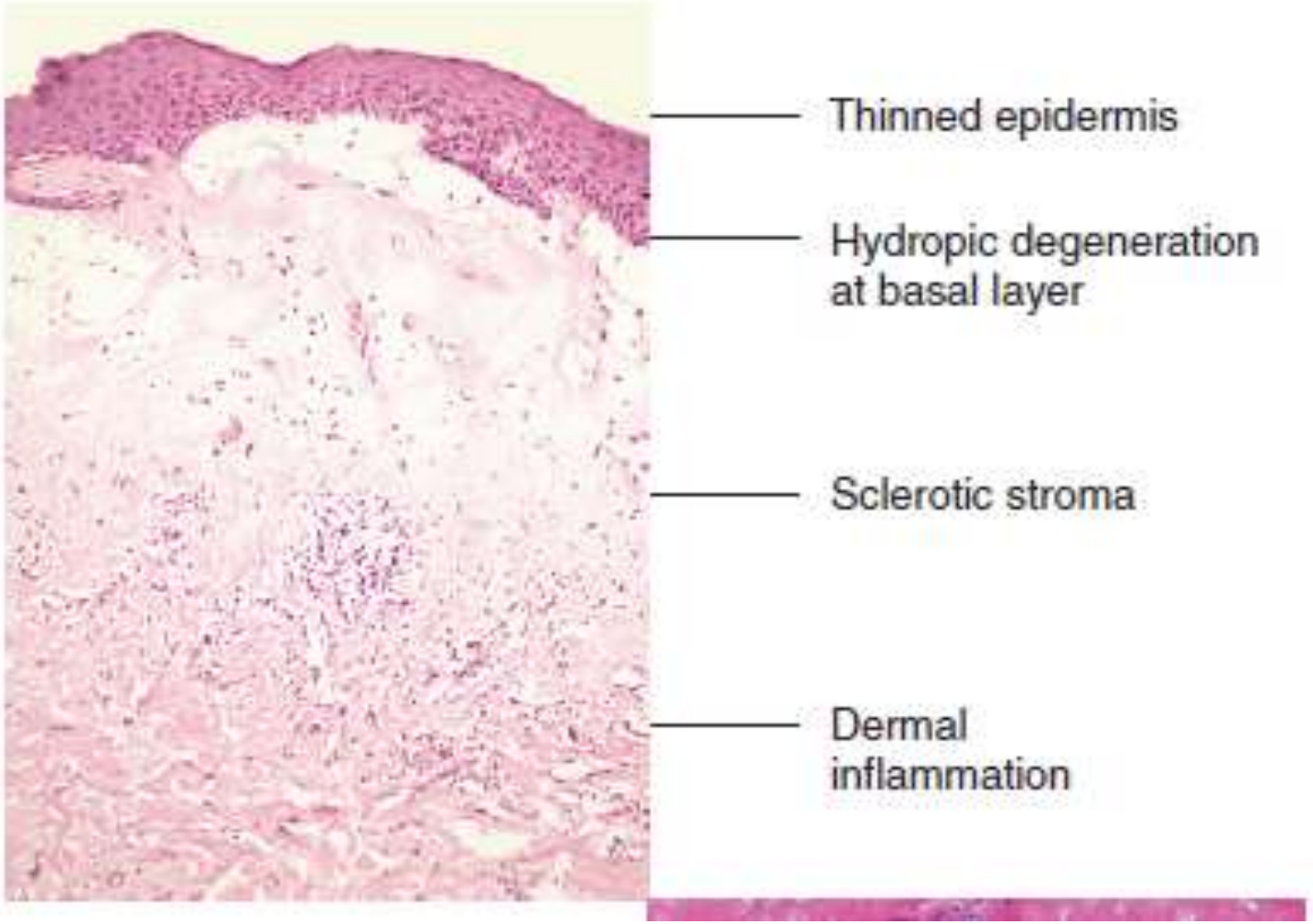
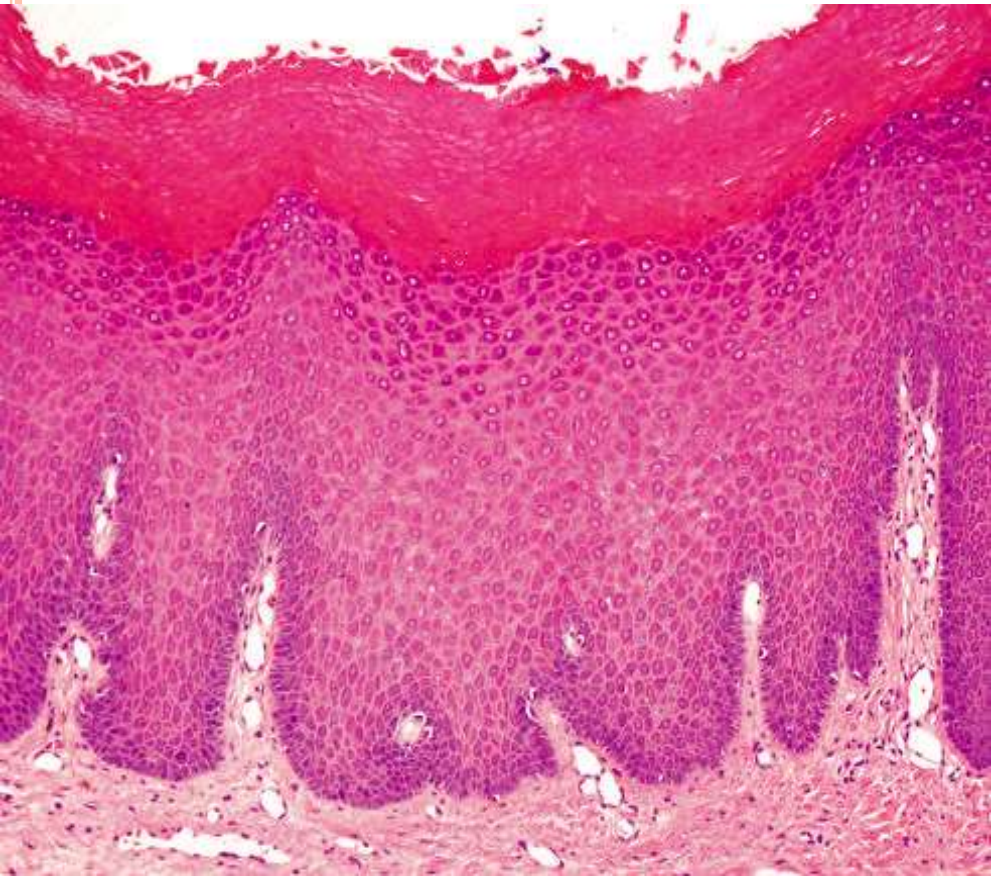
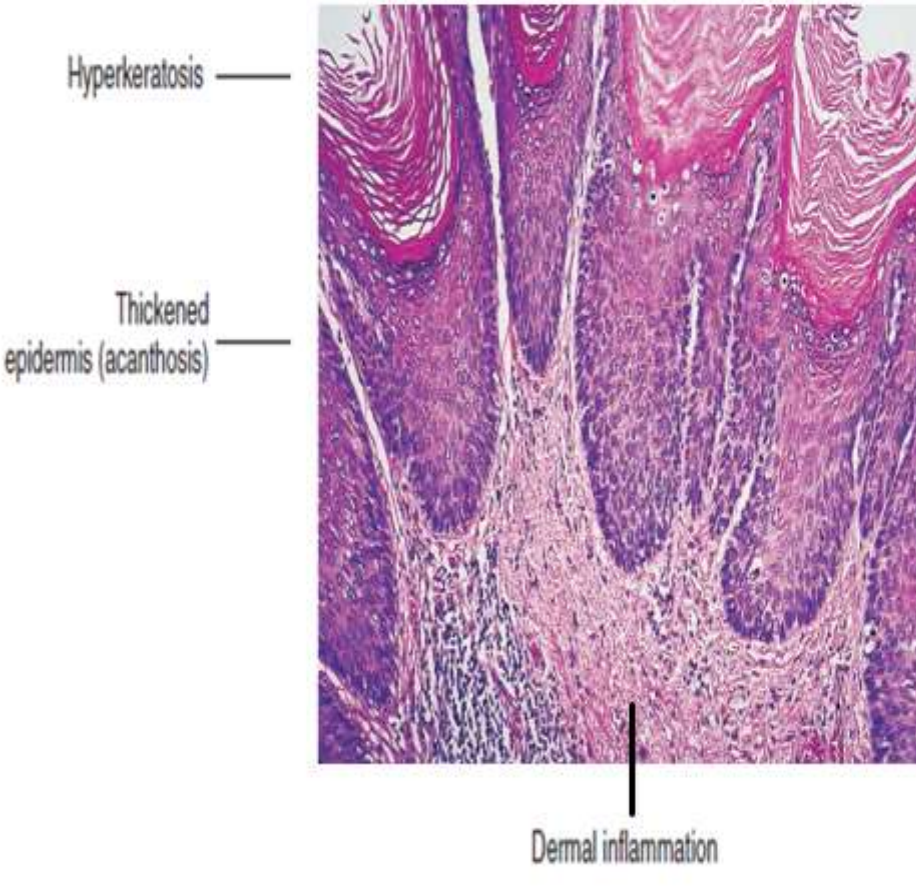
Vulva

Lichen sclerosus is characterized by thinning of the epidermis, disappearance of rete pegs, hydropic degeneration of the basal cells, dermal fibrosis, and a scant perivascular mononuclear inflammatory cell infiltrate.

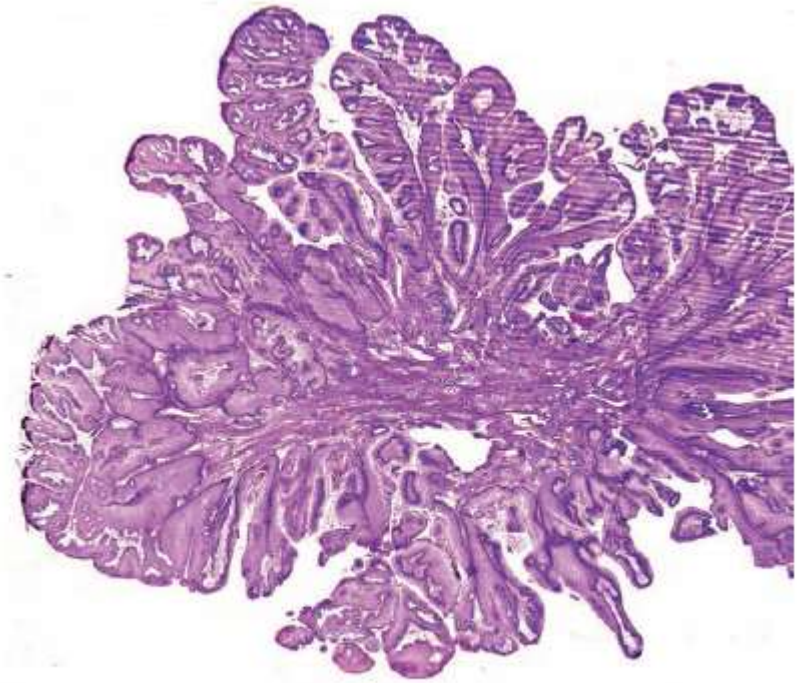


- Lichen simplex chronicus is marked by epithelial thickening (particularly of the stratum granulosum) and hyperkeratosis. Increased mitotic activity is seen in the basal and suprabasal layers; however, there is no epithelial atypia. Leukocytic infiltration of the dermis is sometimes pronounced.

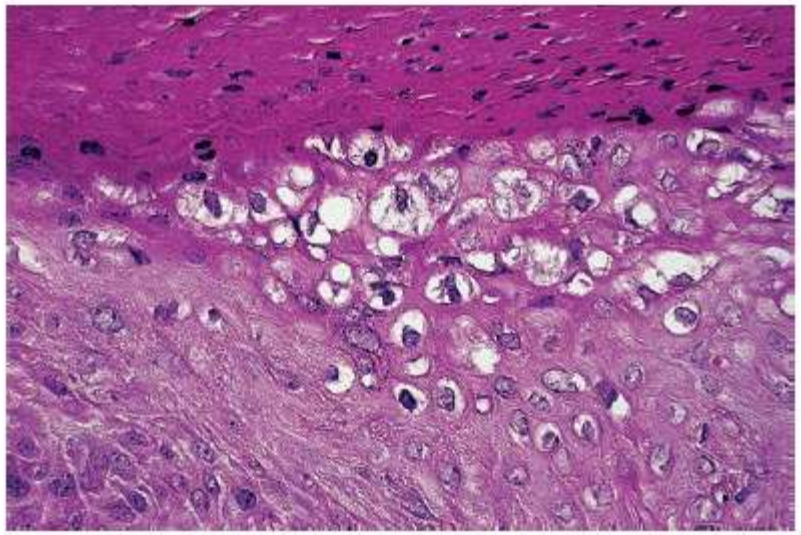




On histologic examination, the characteristic cellular feature is koilocytosis, a cytopathic change characterized by perinuclear cytoplasmic vacuolization and wrinkled nuclear contours that is a hallmark of HPV.



Whole mount of condyloma acuminatum of vulva.

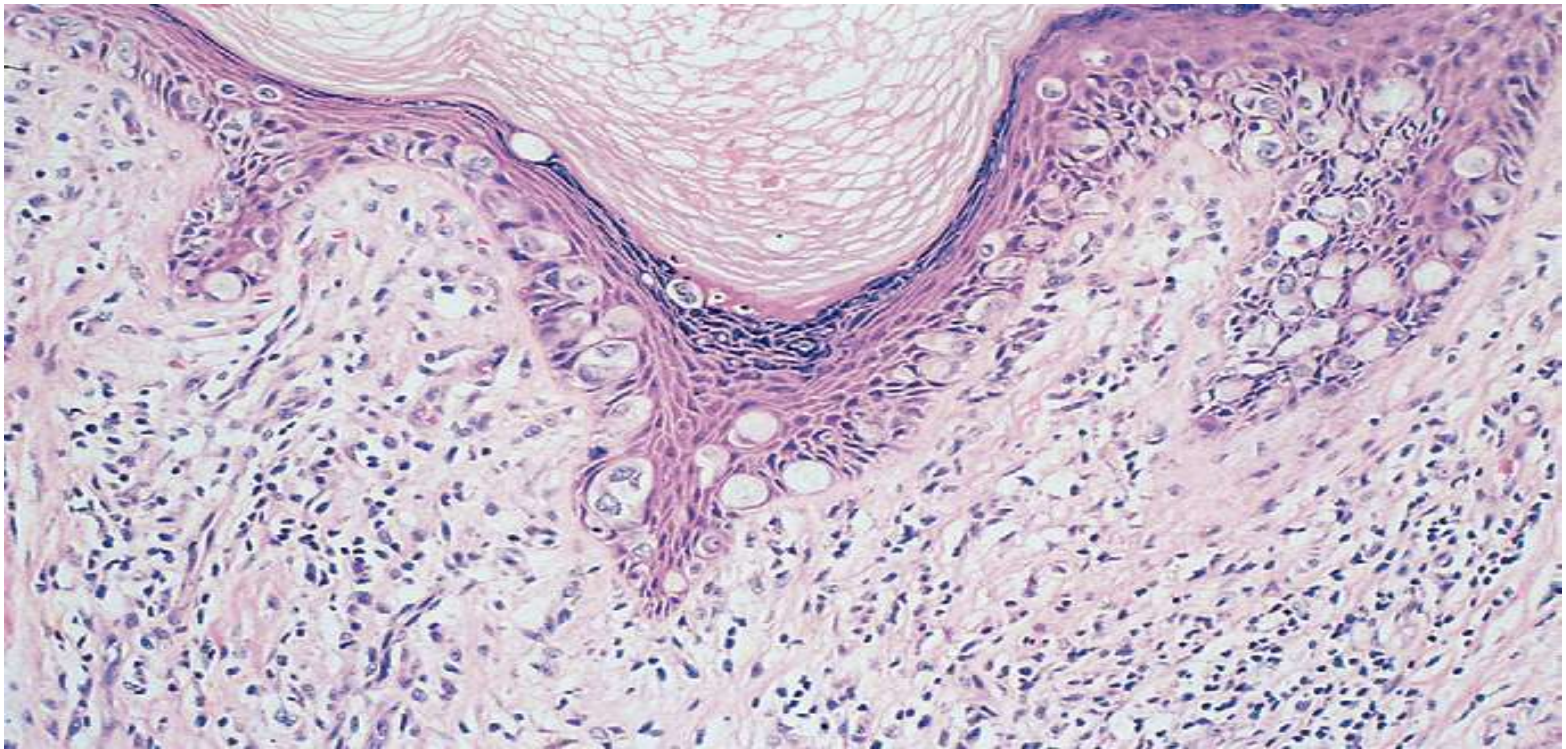


Prominent koilocytotic changes in vulvar epithelium.

Large condyloma of vulva.

Extramammary Paget Disease

On histologic examination, large epithelioid cells with abundant pale, finely granular cytoplasm and occasional cytoplasmic vacuoles infiltrate the epidermis, singly and in groups. The presence of mucin, as detected by periodic acid–Schiff (PAS) staining, is useful in distinguishing Paget disease from vulvar melanoma, which lacks mucin.



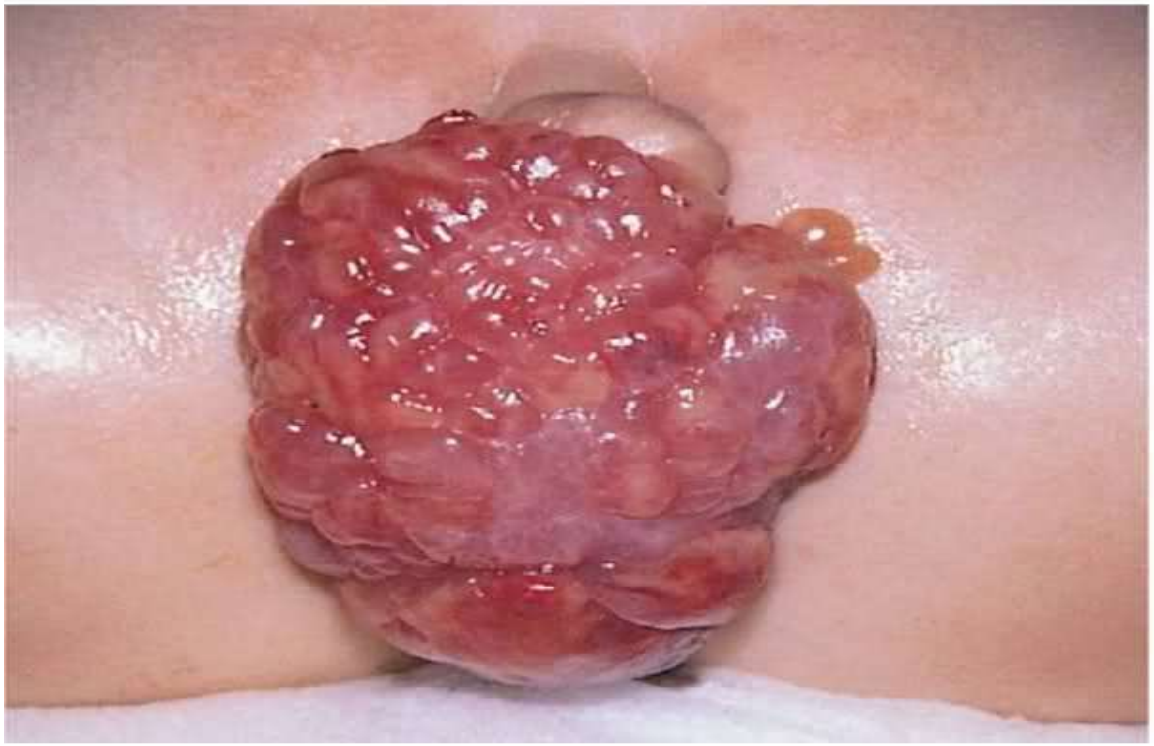
Vagina

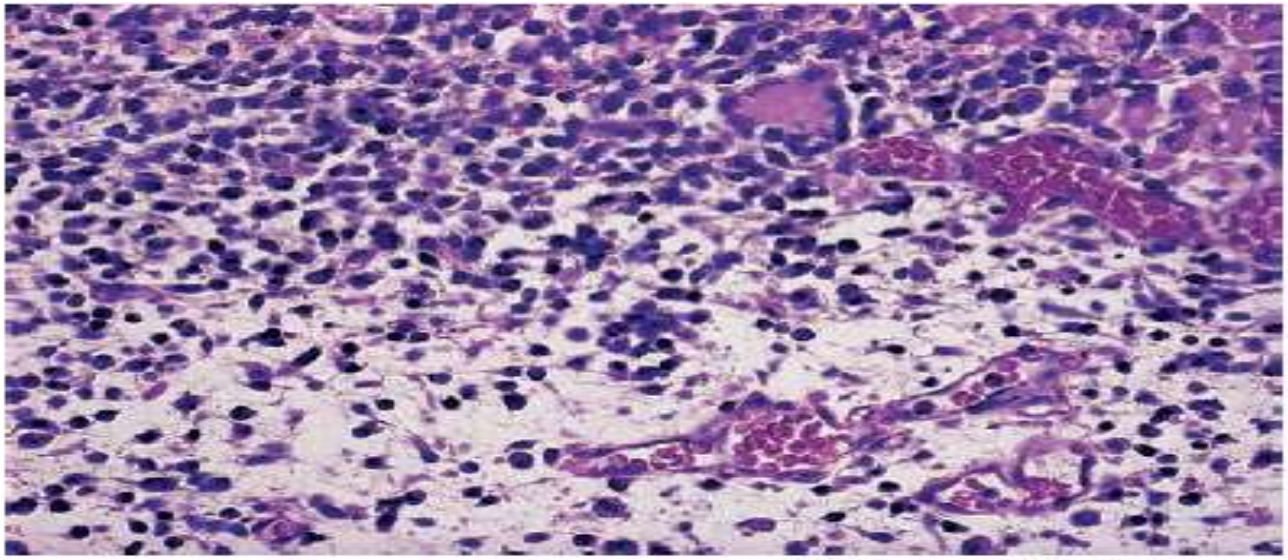
Sarcoma Botryoides

- is a rare form of primary vaginal cancer.
- It usually is encountered in infants and children younger than 5 years of age. It also may occur in other sites, such as the urinary bladder and bile ducts.
- Grossly, it presents as a conglomerate of soft polypoid masses resembling a bunch of grapes—hence its designation as “botyroid.”

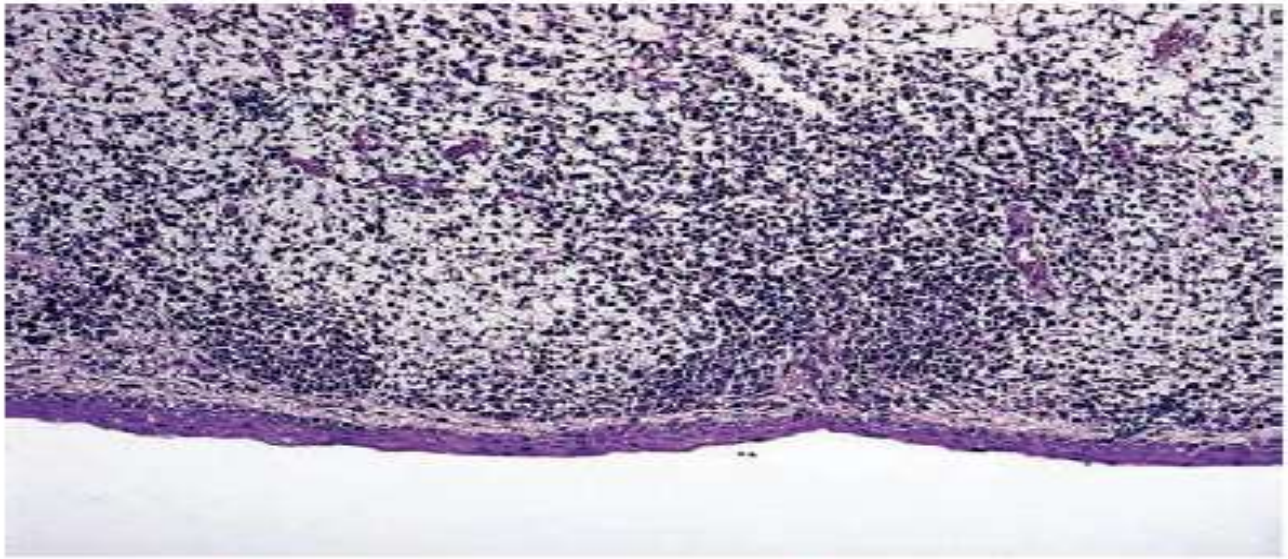
Sarcoma botryoides (embryonal rhabdomyosarcoma)

The grape-like configuration of Botryoid Embryonal Rhabdomyosarcoma of Vagina. is characteristic.



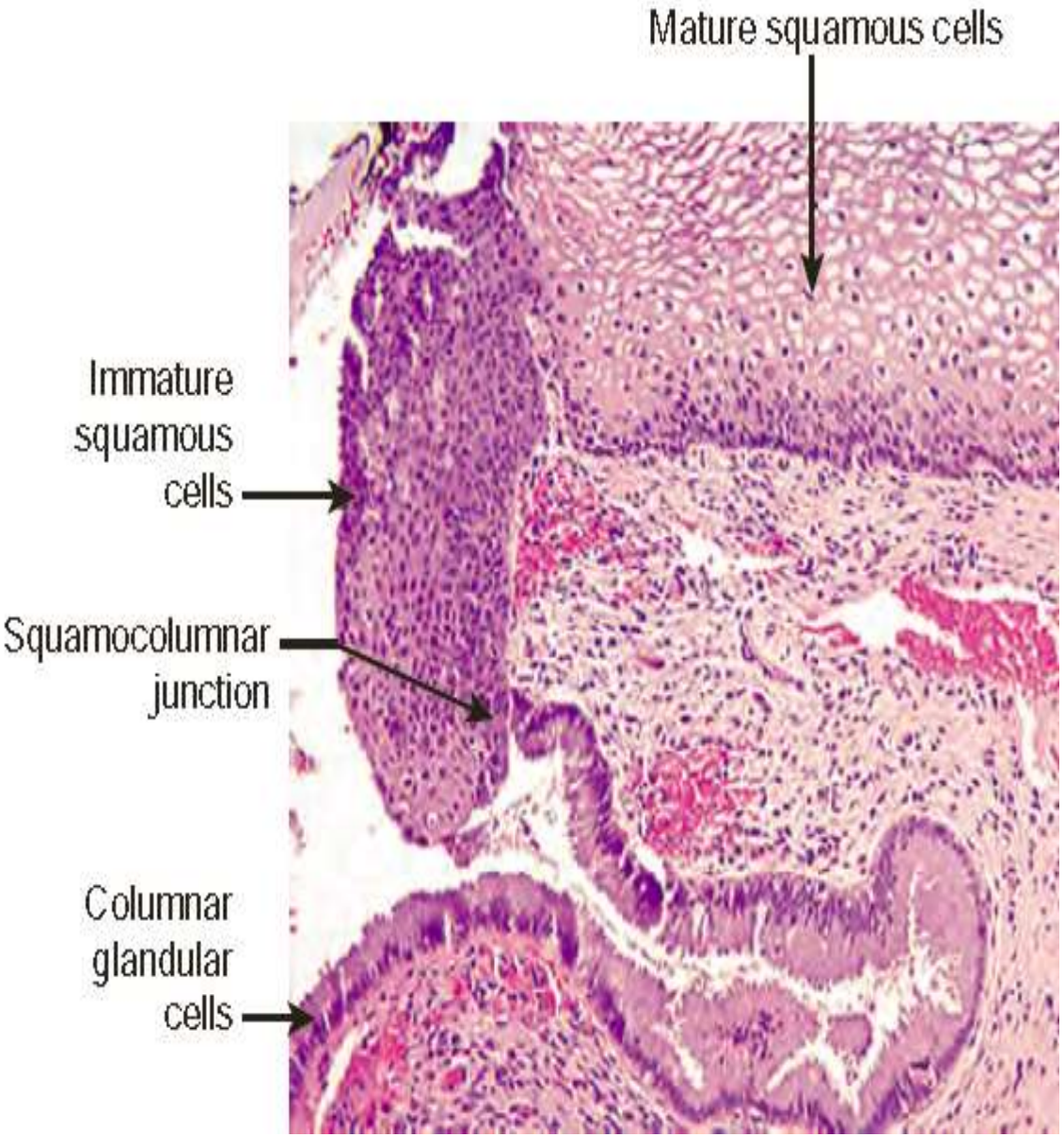


Microscopic Appearance of Embryonal Rhabdomyosarcoma. The differential diagnosis is that of small round cell tumors.

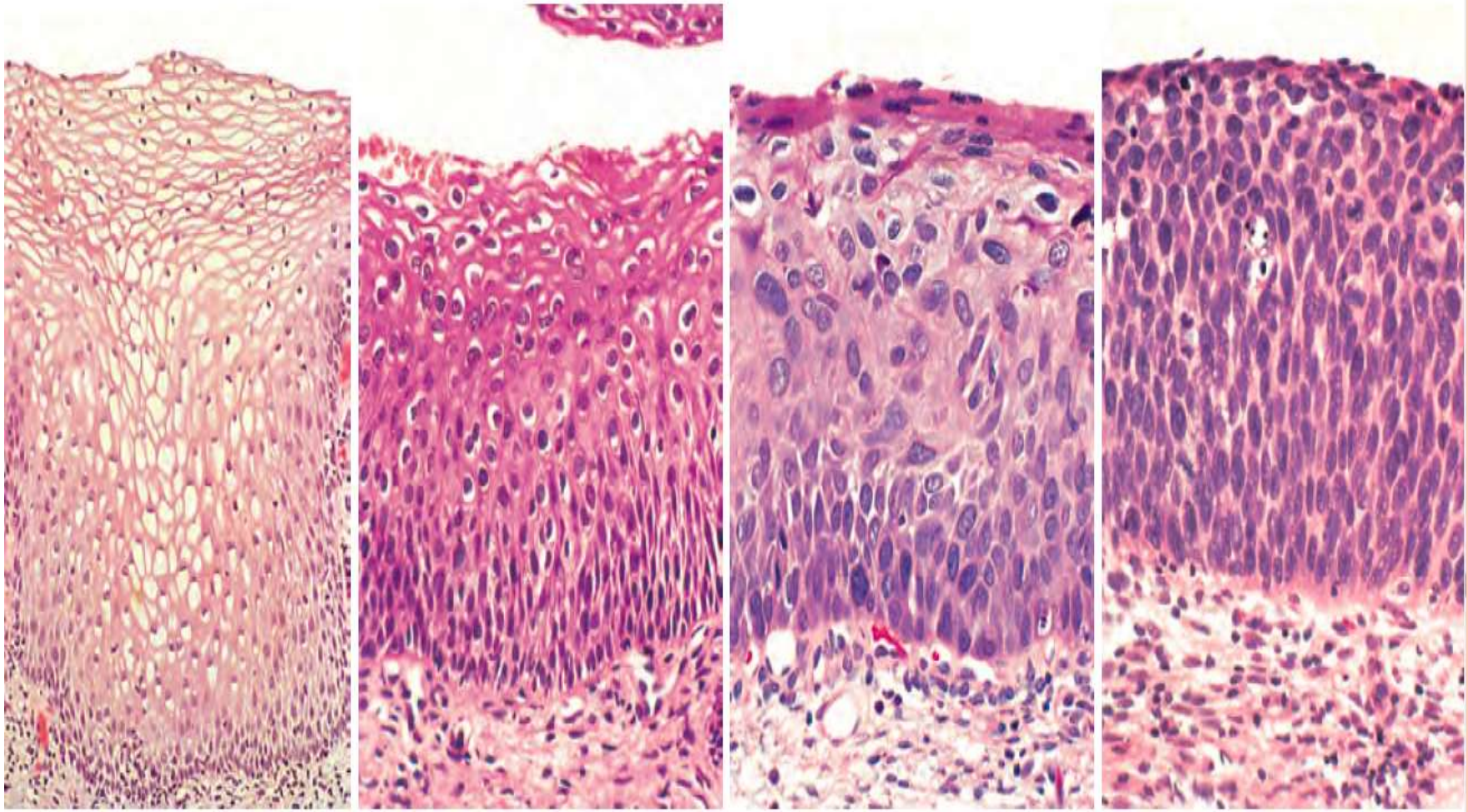


So-called cambium layer beneath non-neoplastic epithelium in embryonal rhabdomyosarcoma.

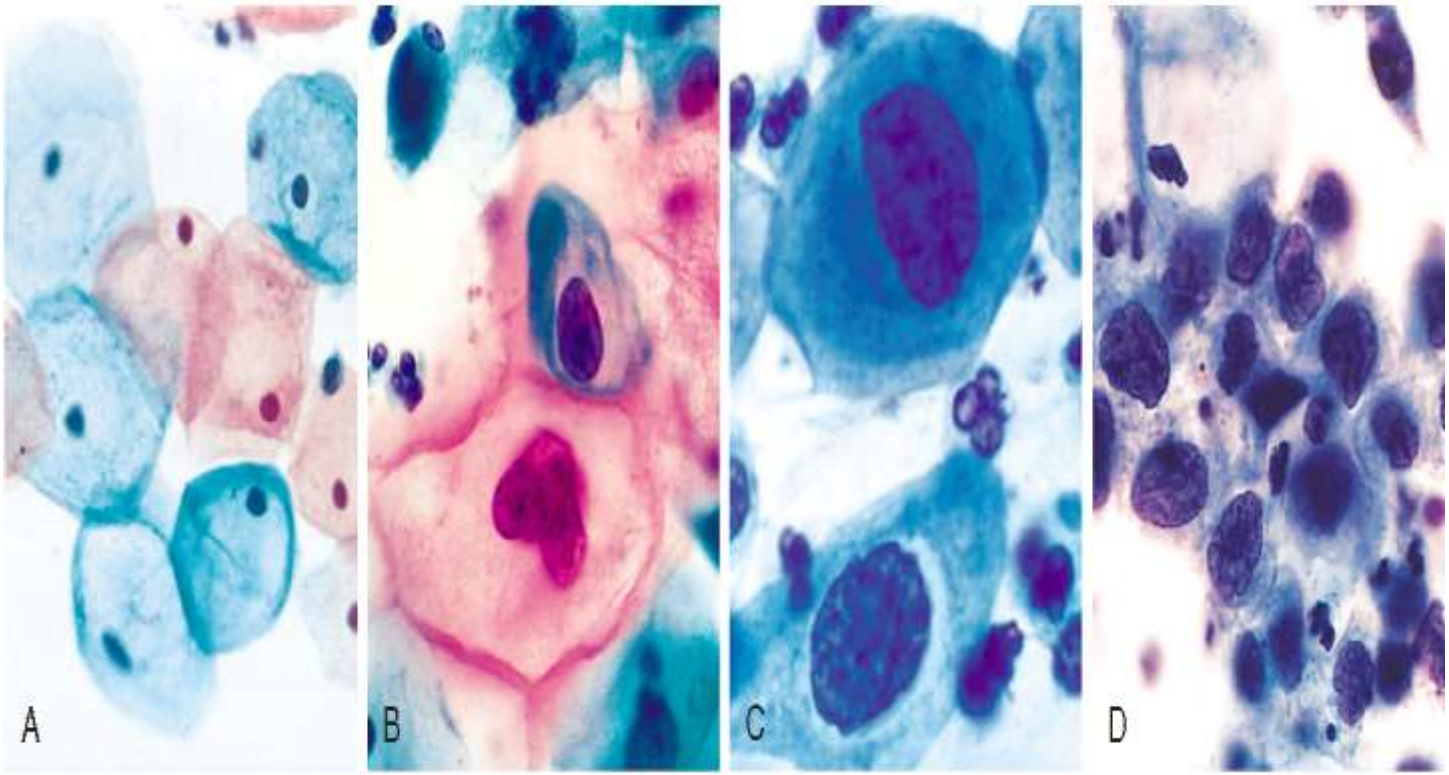
Cervix


Mature squamous cells
Immature squamous cells
Squamocolumnar junction
Columnar glandular cells

CIN → DYSPLASIA: NUCLEAR ENLARGEMENT, HYPERCHROMASIA (DARKER), COARSE CHROMATIN, & VARIATION IN NUCLEAR SIZE & SHAPE



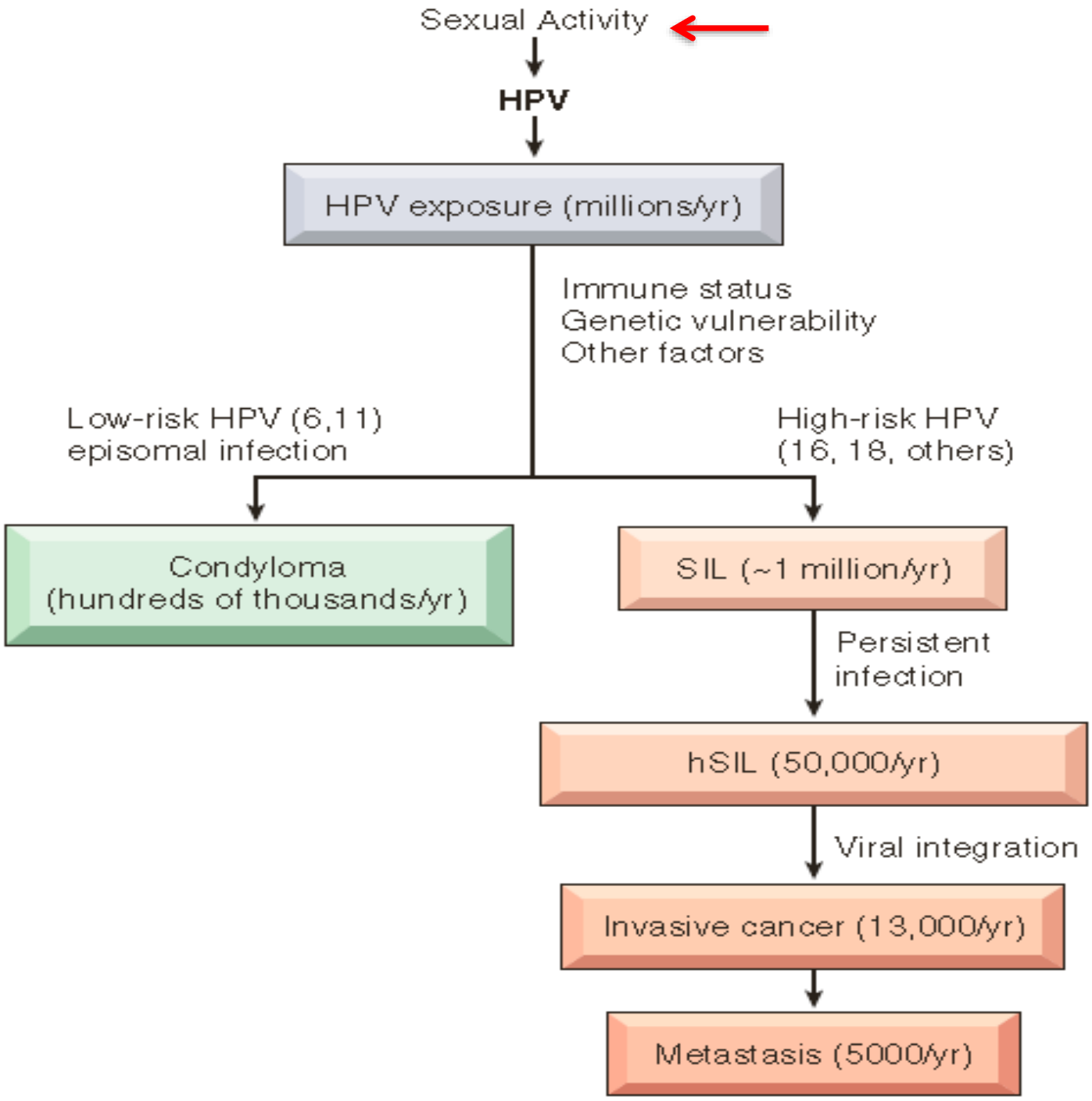
CIN → Dysplasia: nuclear enlargement, hyperchromasia (darker), coarse chromatin, & variation in nuclear size & shape



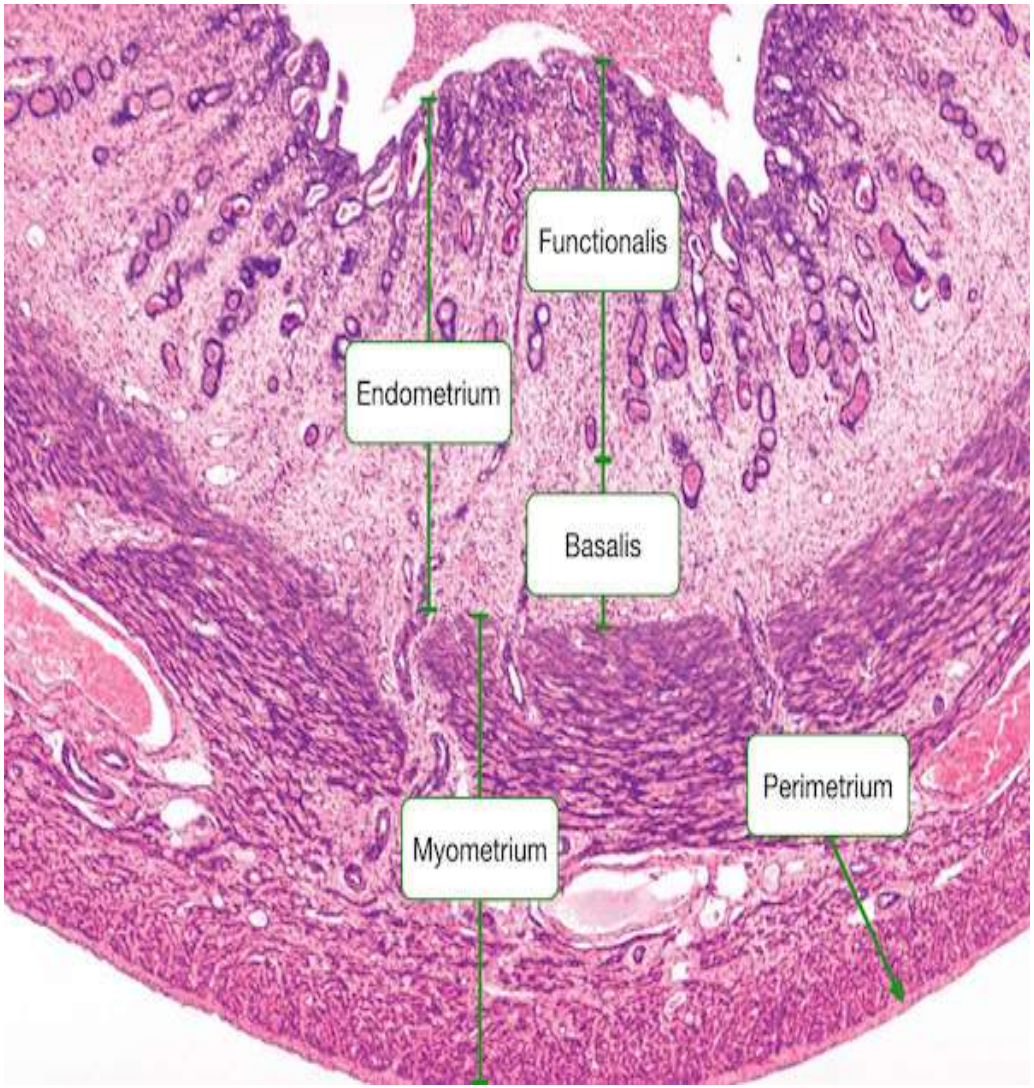
CIN → SIL (SQUAMOUS INTRAEPITHELIAL LESION)

Dysplasia/Carcinoma in Situ	Cervical Intraepithelial Neoplasia (CIN)	Squamous Intraepithelial Lesion (SIL), Current Classification
Mild dysplasia	CIN I	Low-grade SIL (LSIL)
Moderate dysplasia	CIN II	High-grade SIL (HSIL)
Severe dysplasia	CIN III	High-grade SIL (HSIL)
Carcinoma in situ	CIN III	High-grade SIL (HSIL)

CIN, Cervical intraepithelial neoplasia; SIL, squamous intraepithelial lesion.


Sexual Activity
HPV
HPV exposure (millions/yr)
Immune status
Genetic vulnerability
Other factors
Low-risk HPV (6,11)
episomal infection
High-risk HPV
(16, 18, others)
Condyloma
(hundreds of thousands/yr)
SIL (~1 million/yr)
Persistent
infection
hSIL (50,000/yr)
Viral integration
Invasive cancer (13,000/yr)
Metastasis (5000/yr)

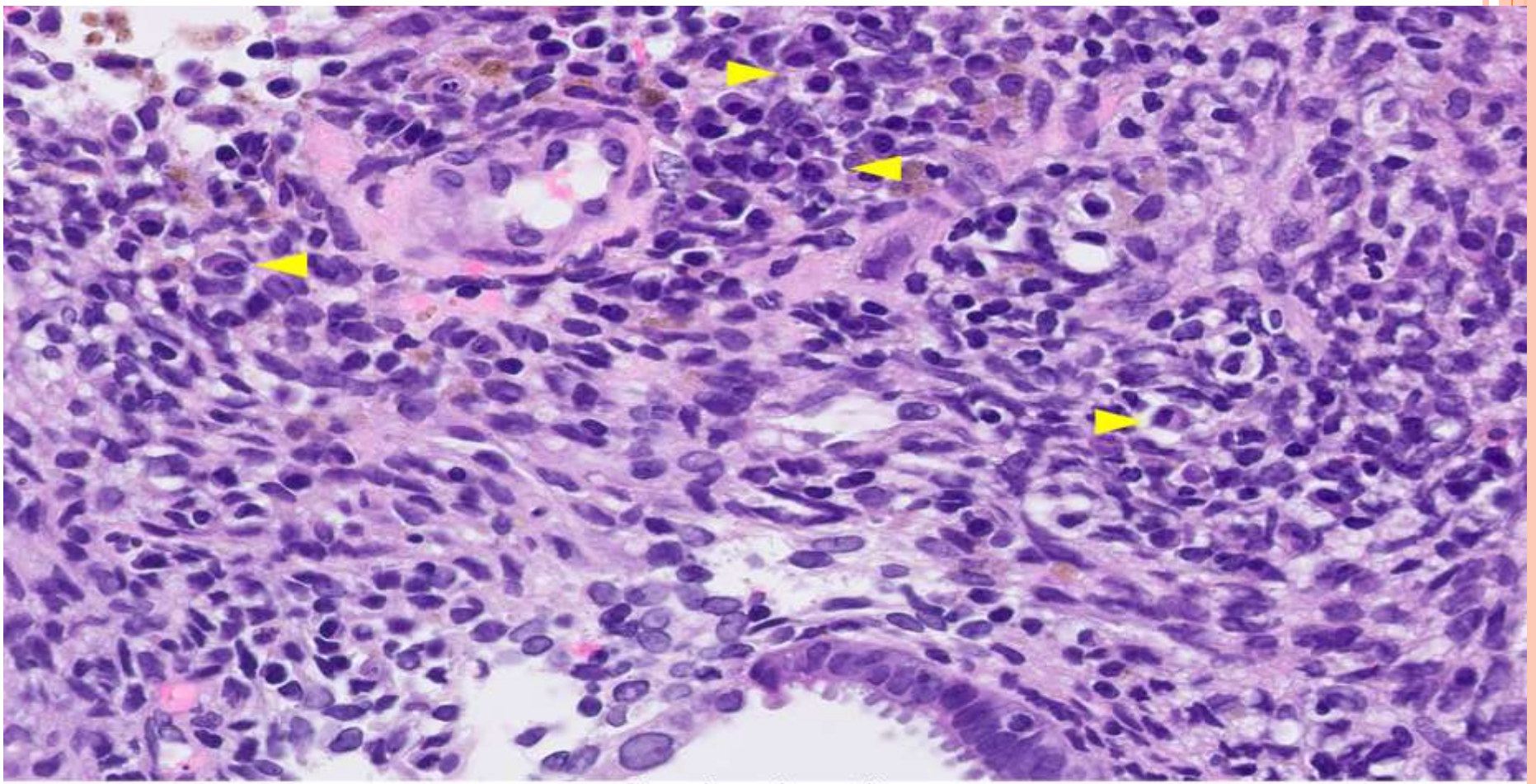
BODY OF UTERUS



UTERUS

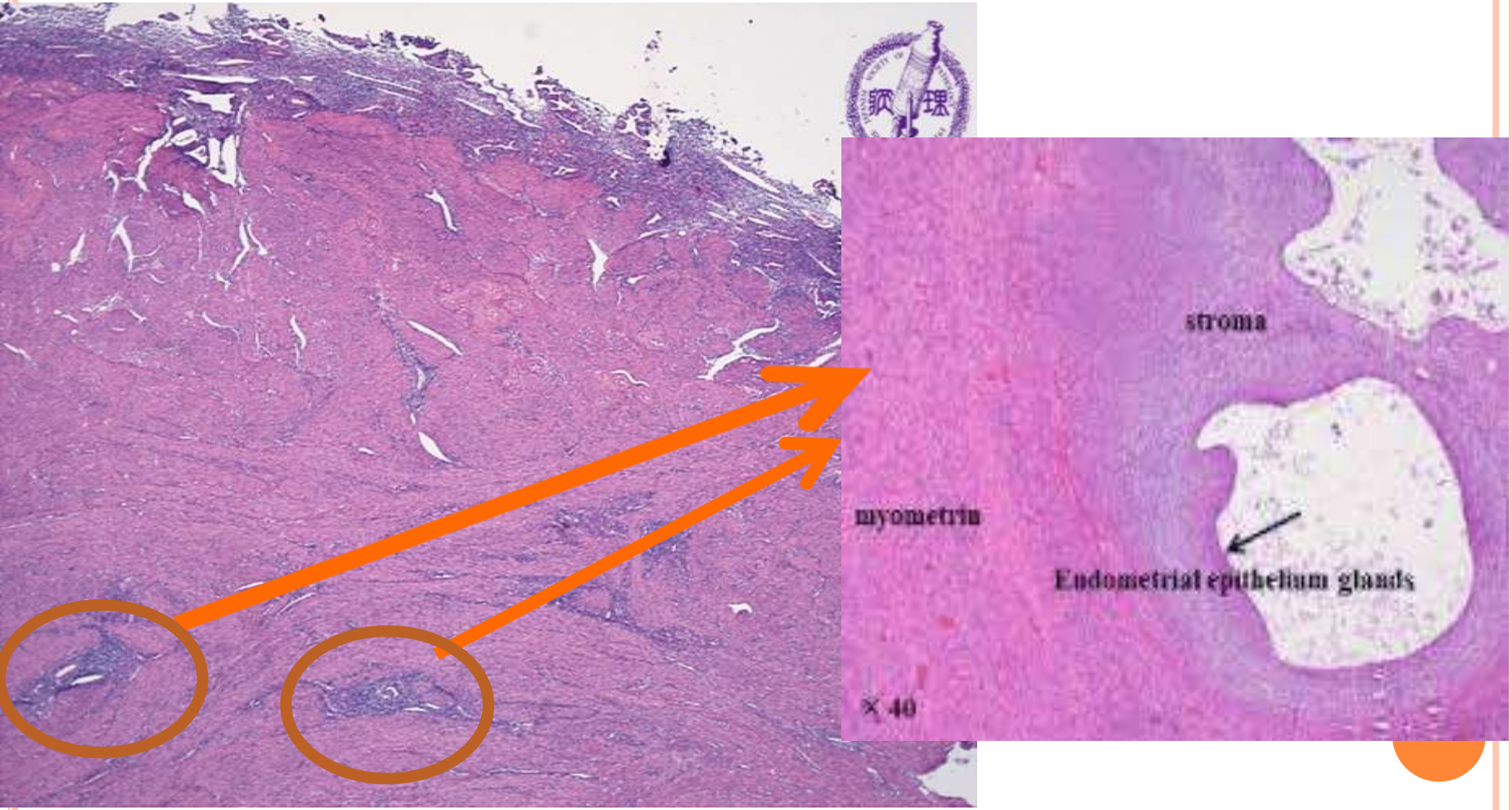
Uterine body (corpus) is composed of: endometrium, consisting of glands & stroma. +myometrium, made up of smooth muscle.

ENDOMETRITIS



Chronic endometritis:
presence of plasma cells (abundant here, *arrows)* is a major diagnostic feature (H&E, ×20)

Uterine Pathology - Adenomyosis



ENDOMETRIOSIS - MICROSCOPICALLY

Diagnosis; **2 of 3 features:**
endometrial glands,
endometrial stroma,
or hemosiderin pigment.

Normal Colon

Endometriosis - Gross

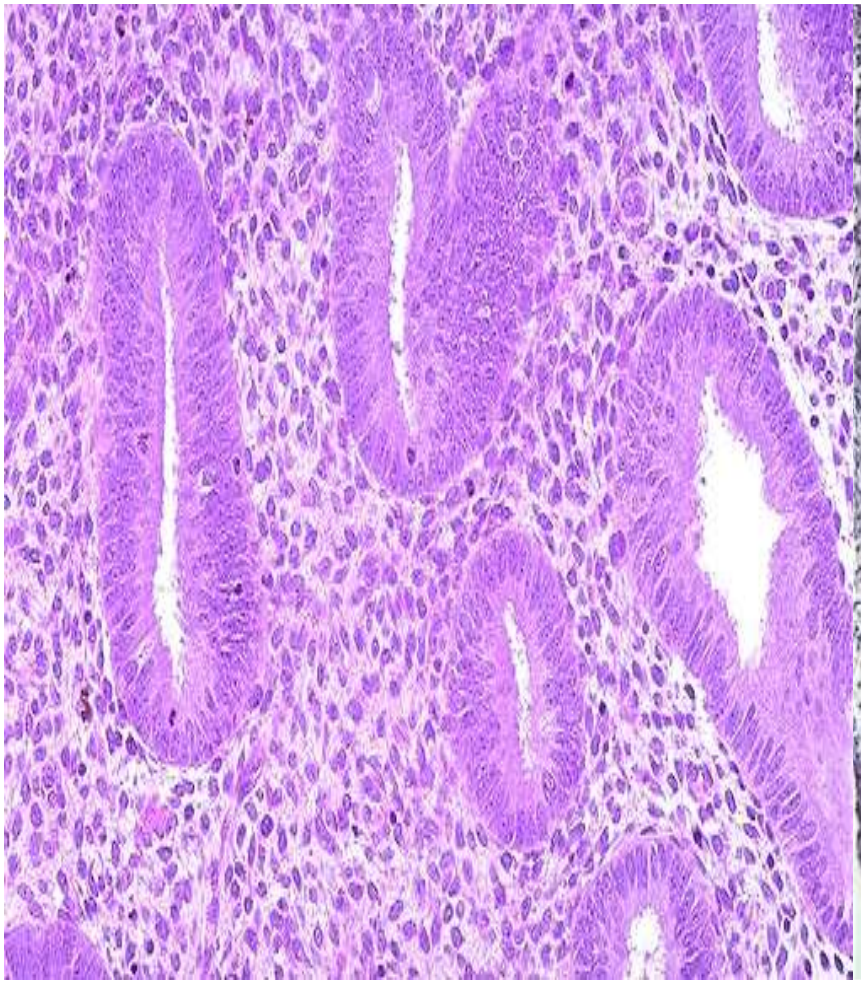
Ovarian endometriosis: ovary + a large endometriotic cyst with degenerated blood ("chocolate cyst").

Uterine Pathology - Endometrial Hyperplasia

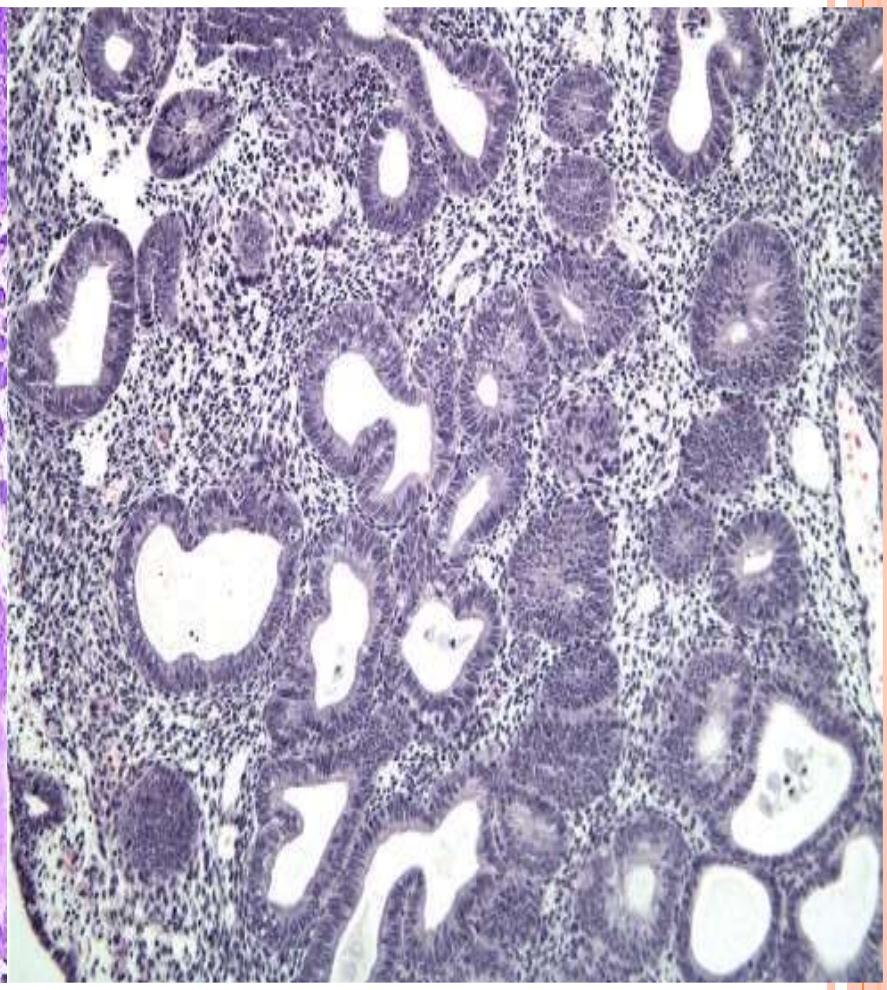
- Pathogenesis: prolonged or marked excess of estrogen relative to progestin → exaggerated proliferation.
- An important precursor of endometrial carcinoma.
- Two categories based on the presence of cytologic atypia:

1. Hyperplasia without atypia; low risk for progression to endometrial Ca.
2. Hyperplasia with atypia(endometrial intraepithelial neoplasia (EIN) higher risk for progression to endometrial Ca. → 20%.

Uterus- Hyperplasia w/o atypia

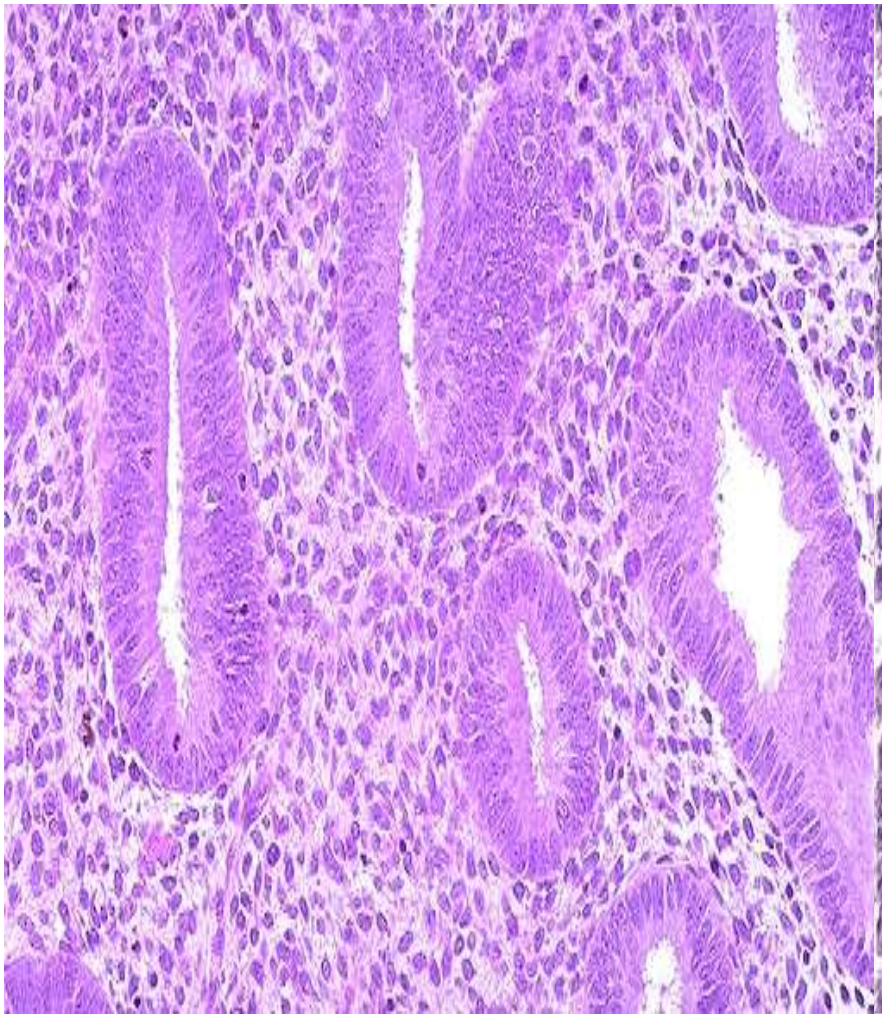


Normal

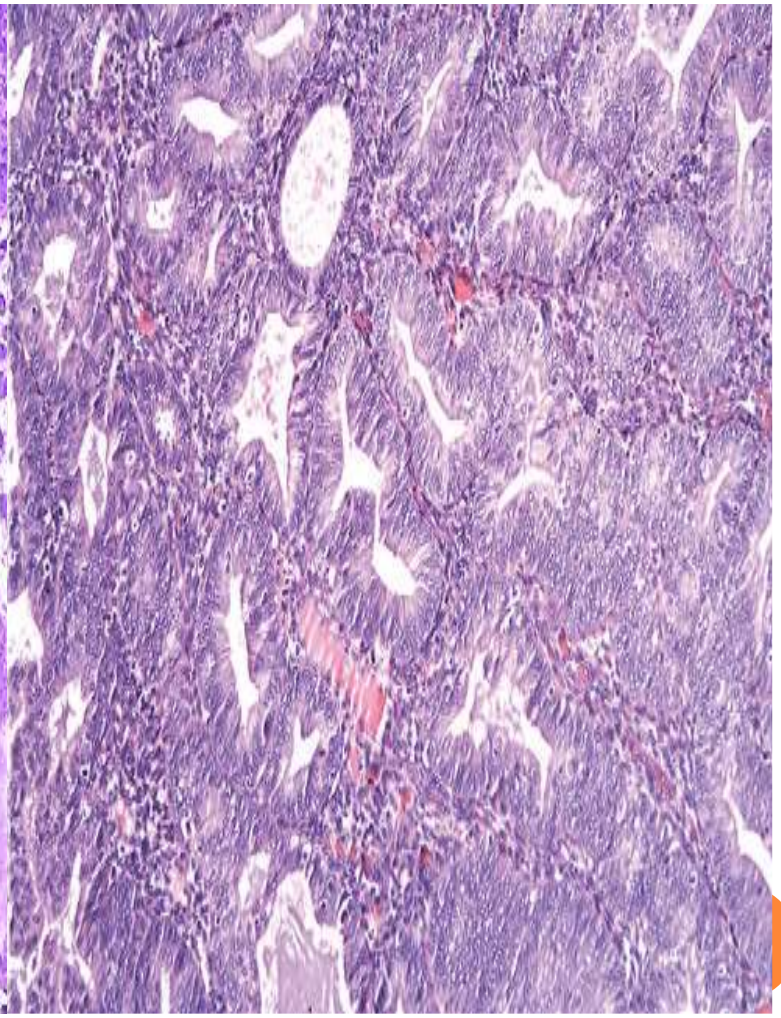


Hyperplasia without atypia

Uterus- Hyperplasia with atypia



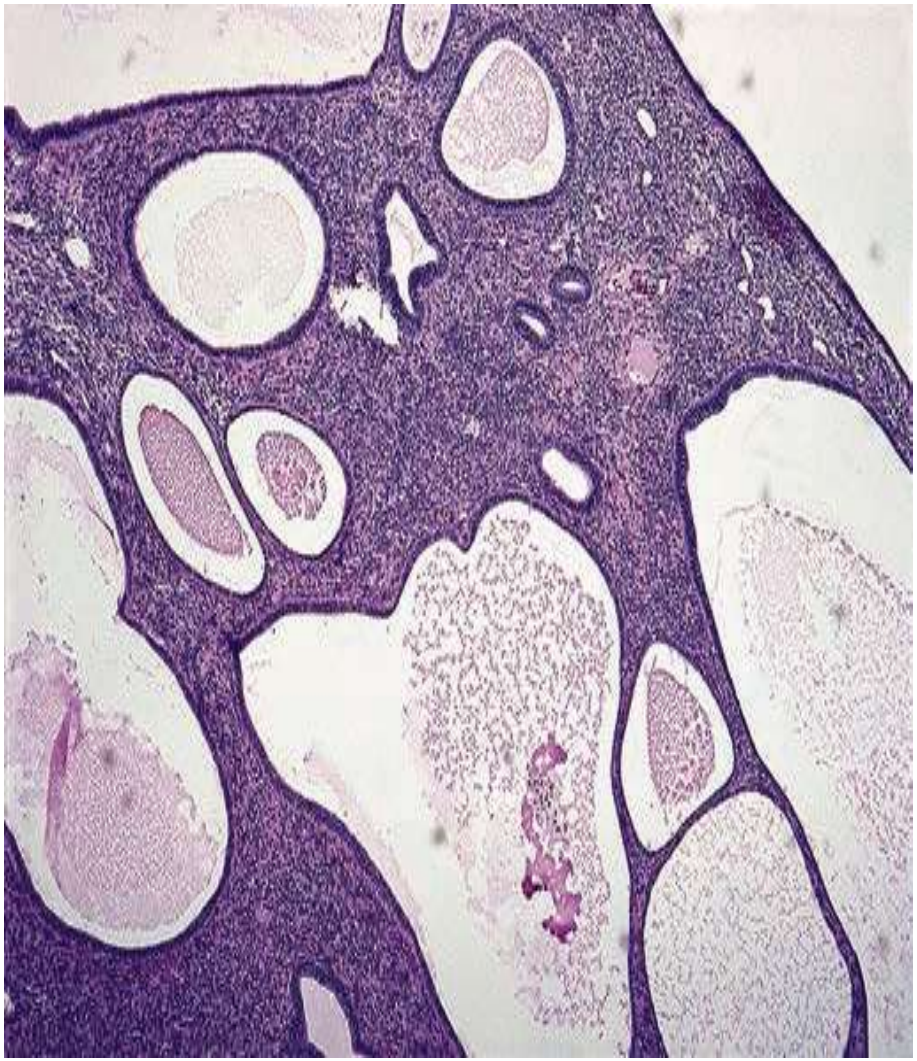
Normal

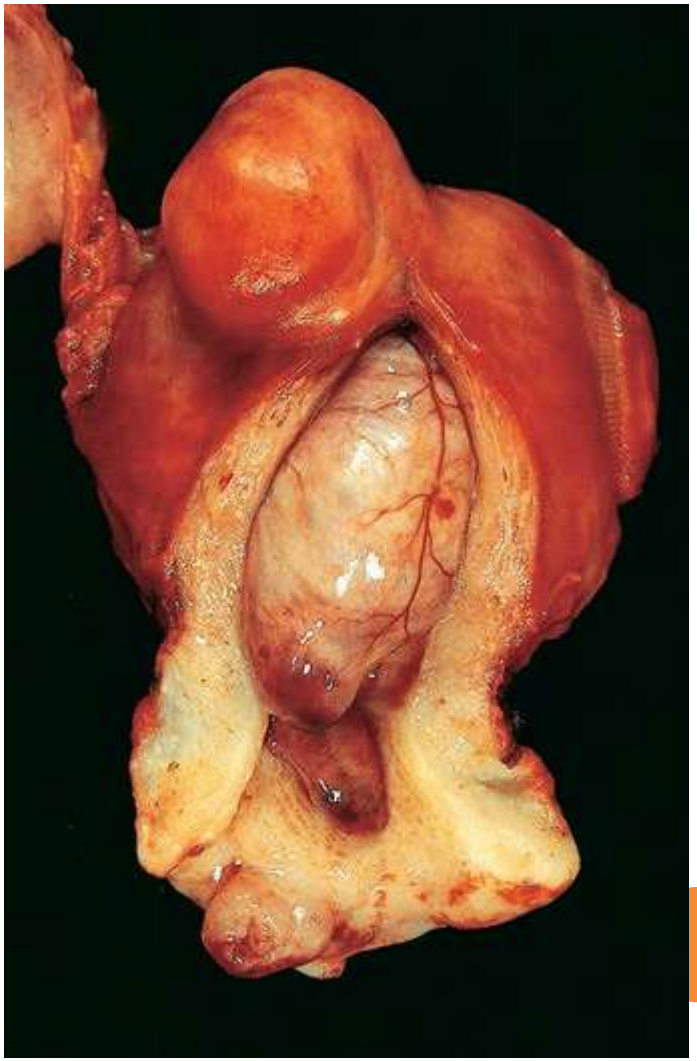


Hyperplasia with atypia

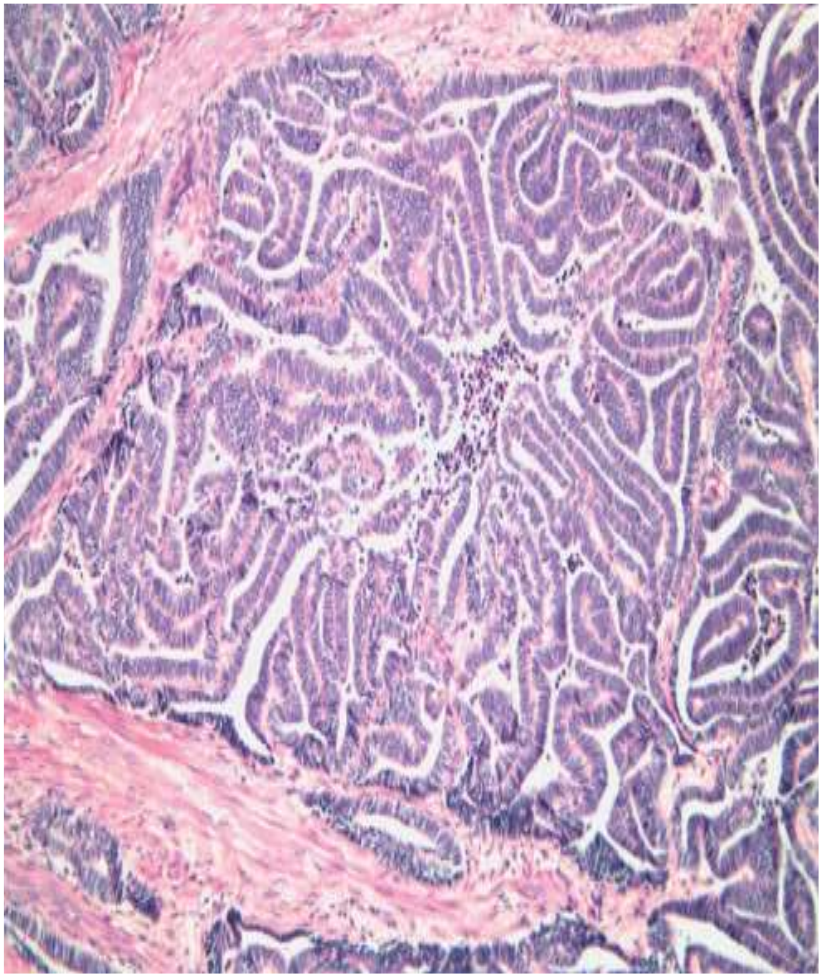
Tumors of The Endometrium

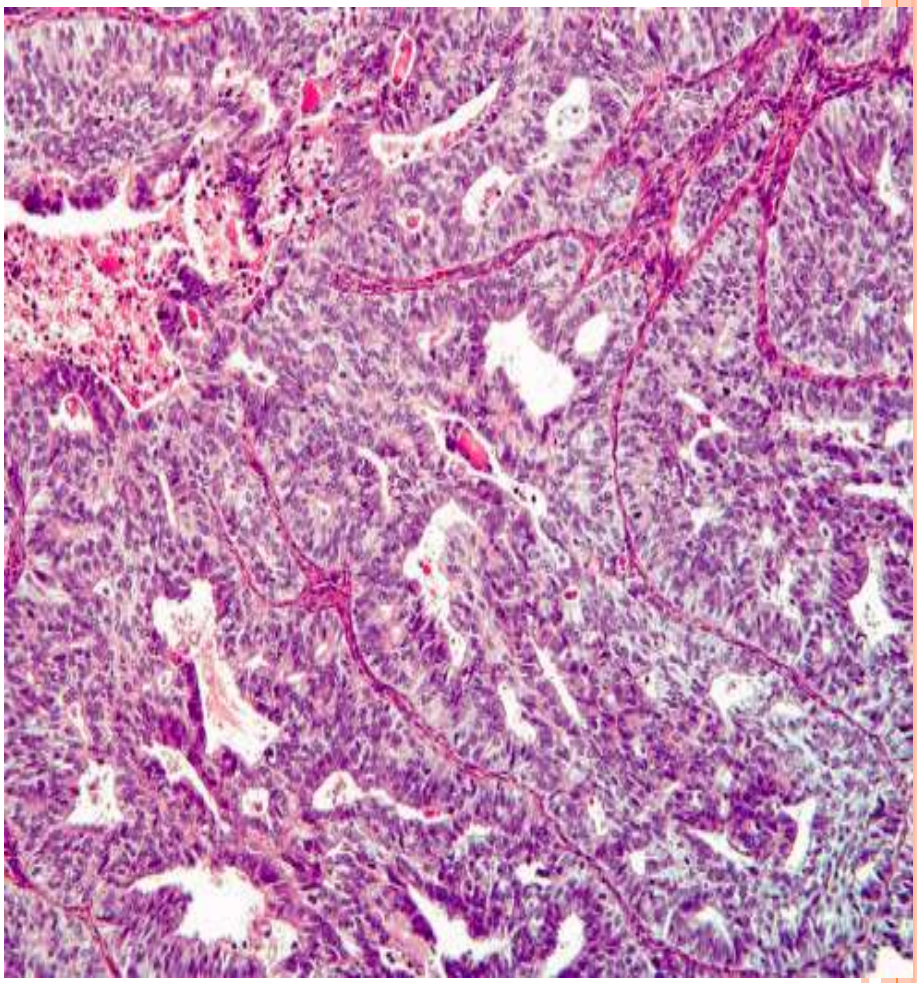
Endometrial Polyp



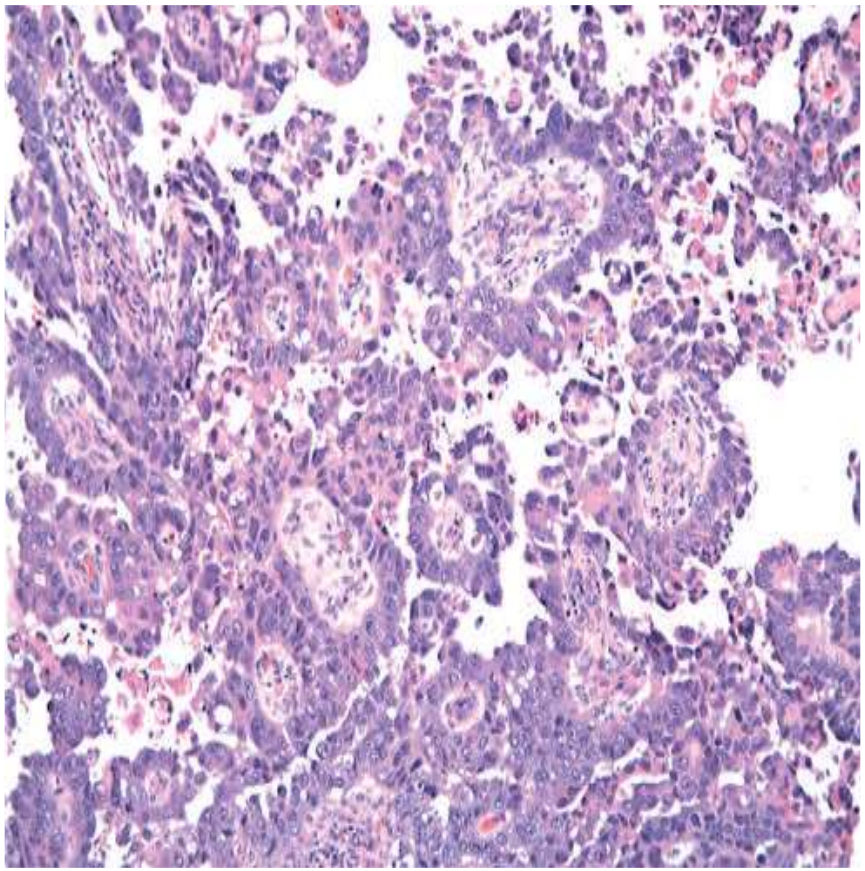


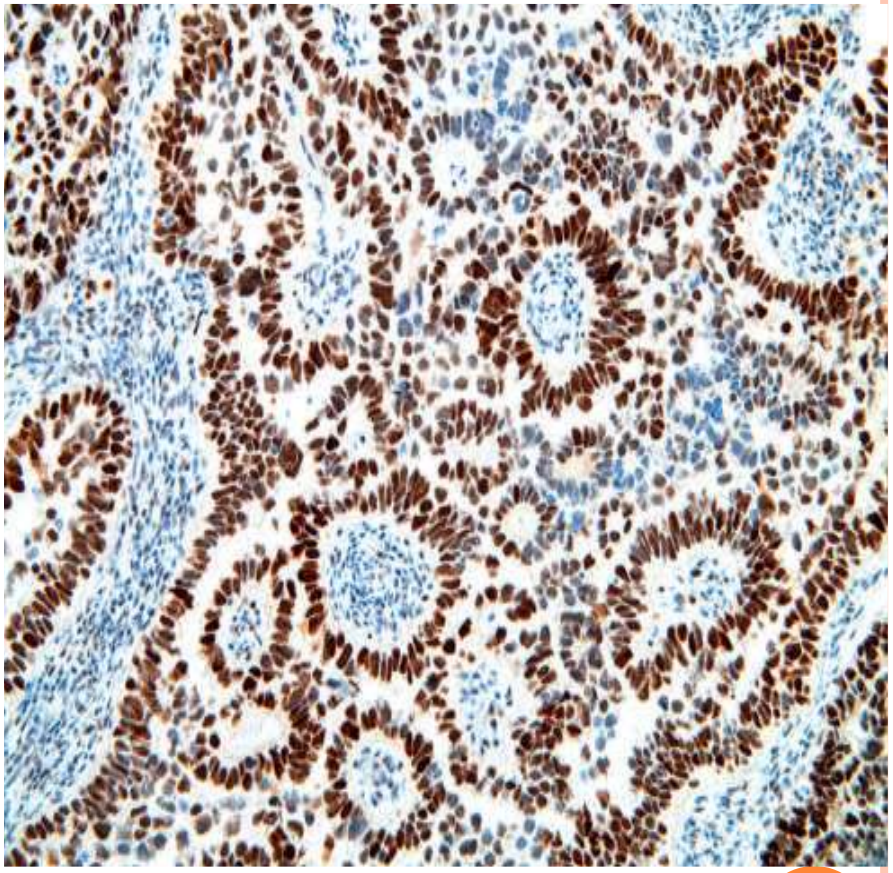
Tumors of Endometrium - Endometrioid Carcinoma





Tumors of Endometrium - Serous carcinomas





Microscopic: typically grow in small papillae with marked cytologic atypia. Immunohistochemical staining shows accumulation of p53, a finding associated with TP53 mutation.

Tumors of the Myomertium

Tumors of Myomertium – Leiomyomas (fibroids)

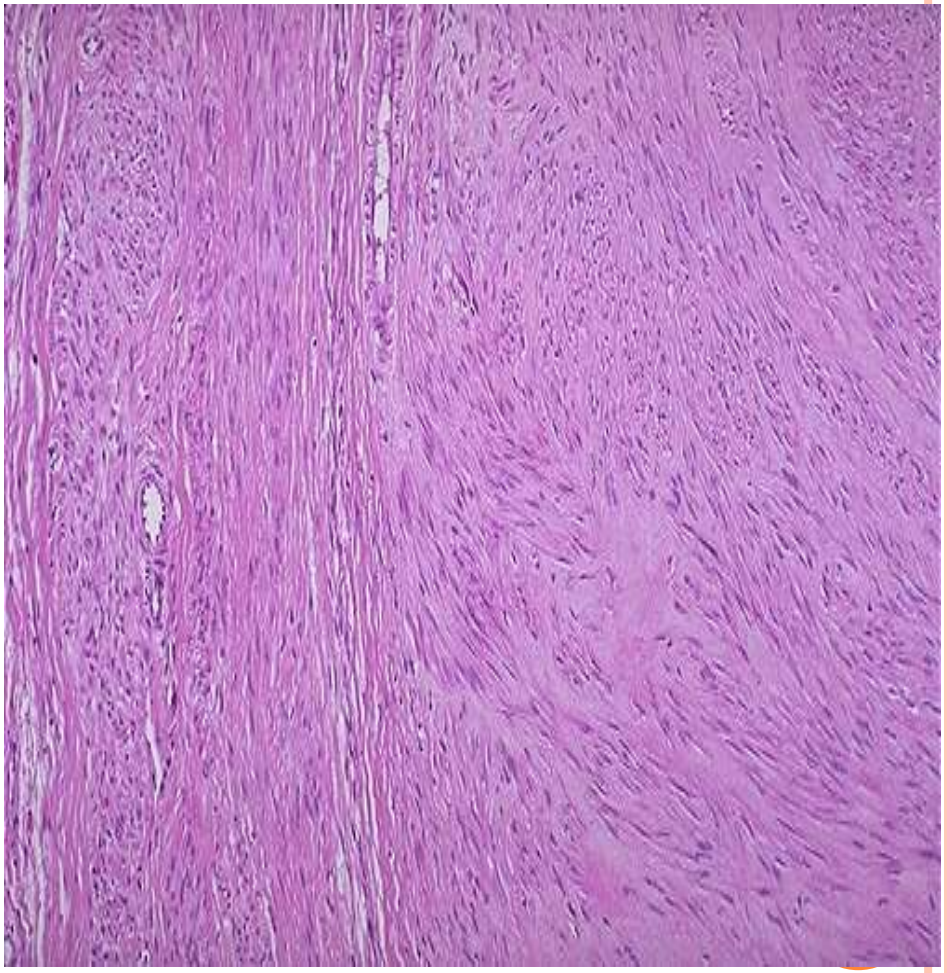
Location: within the myometrium (intramural), beneath the endometrium (submucosal) or or the serosa (subserosal)

Tumors of Myomertium – Leiomyomas (fibroids)

Gross: typically **sharply circumscribed,** firm gray white masses with a characteristic **whorled cut surface,** often occur as **multiple tumors**.

Tumors of Myomertium – Leiomyomas (fibroids)

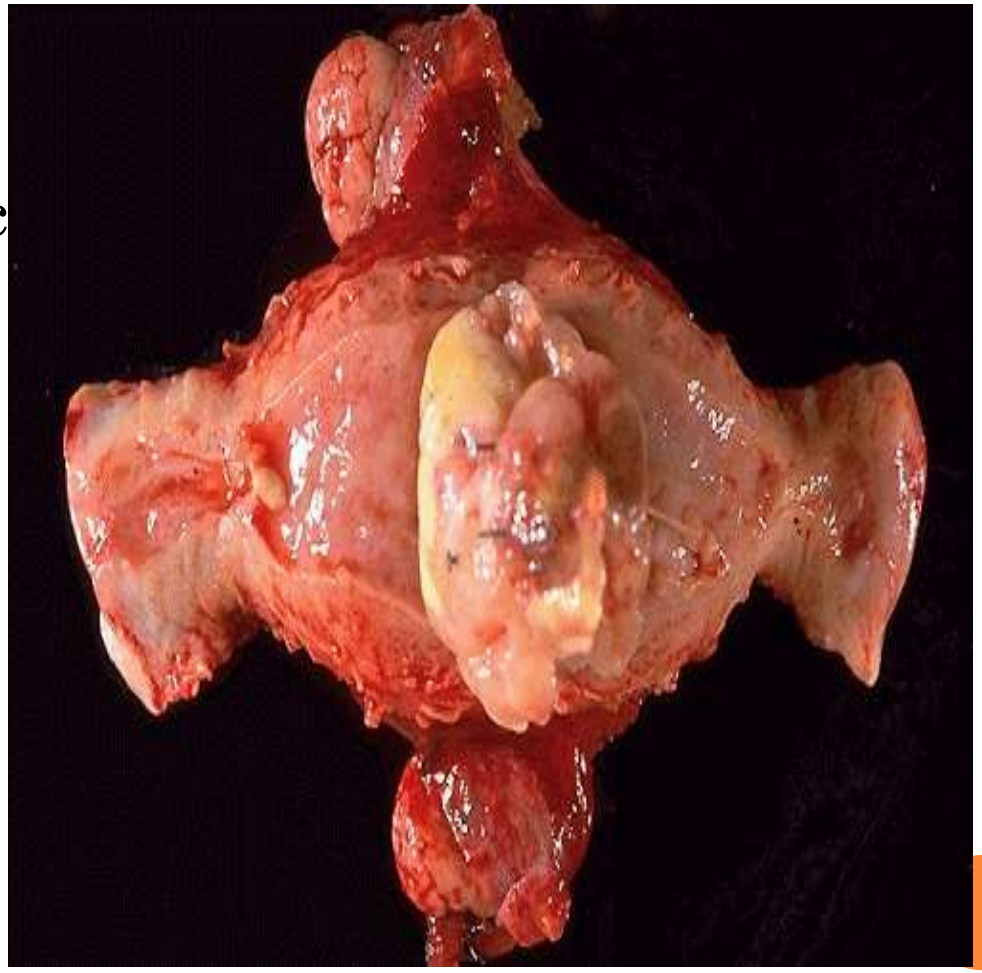
Histologic examination, **bundles of smooth muscle cells** mimicking the appearance of normal myometrium



Tumors of Myomertium – Leiomyosarcoma

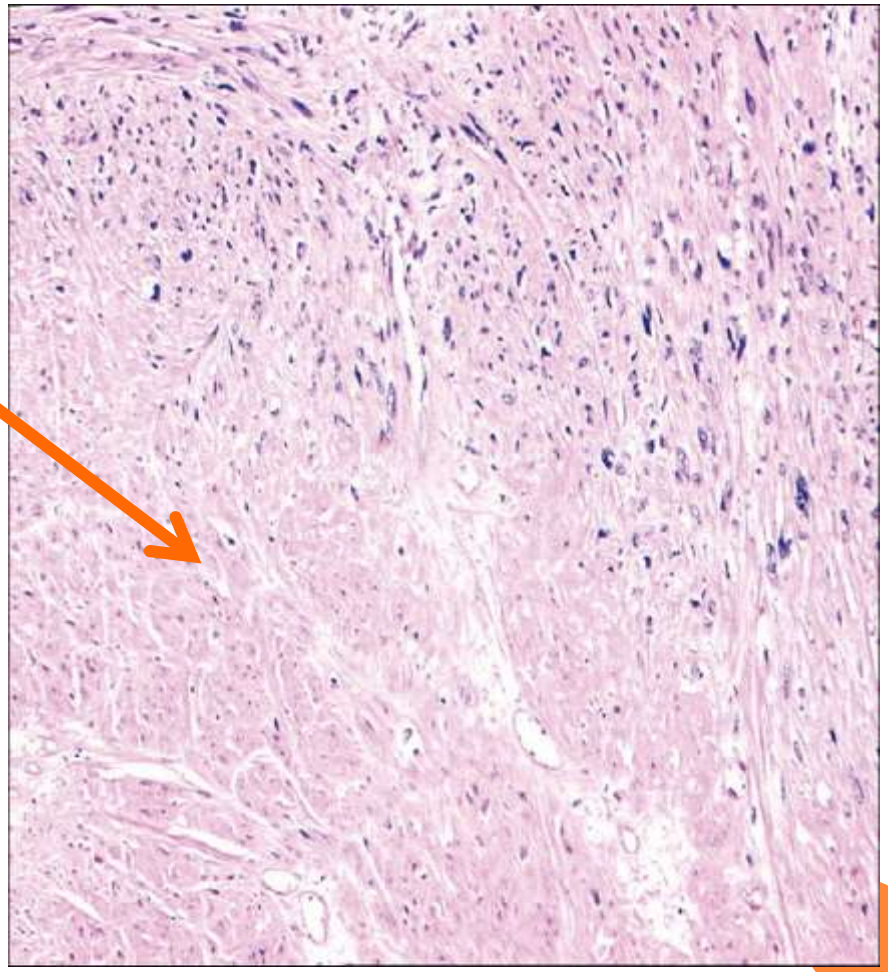
Gross: soft, hemorrhagic, necrotic masses.

Irregular borders.



Tumors of Myomertium – Leiomyosarcoma

Microscopic:
Diagnostic features of leiomyosarcoma;
(1)tumor necrosis,
(2)cytologic atypia, and
(3)mitotic activity.
Assessment of all three is necessary to make a diagnosis.



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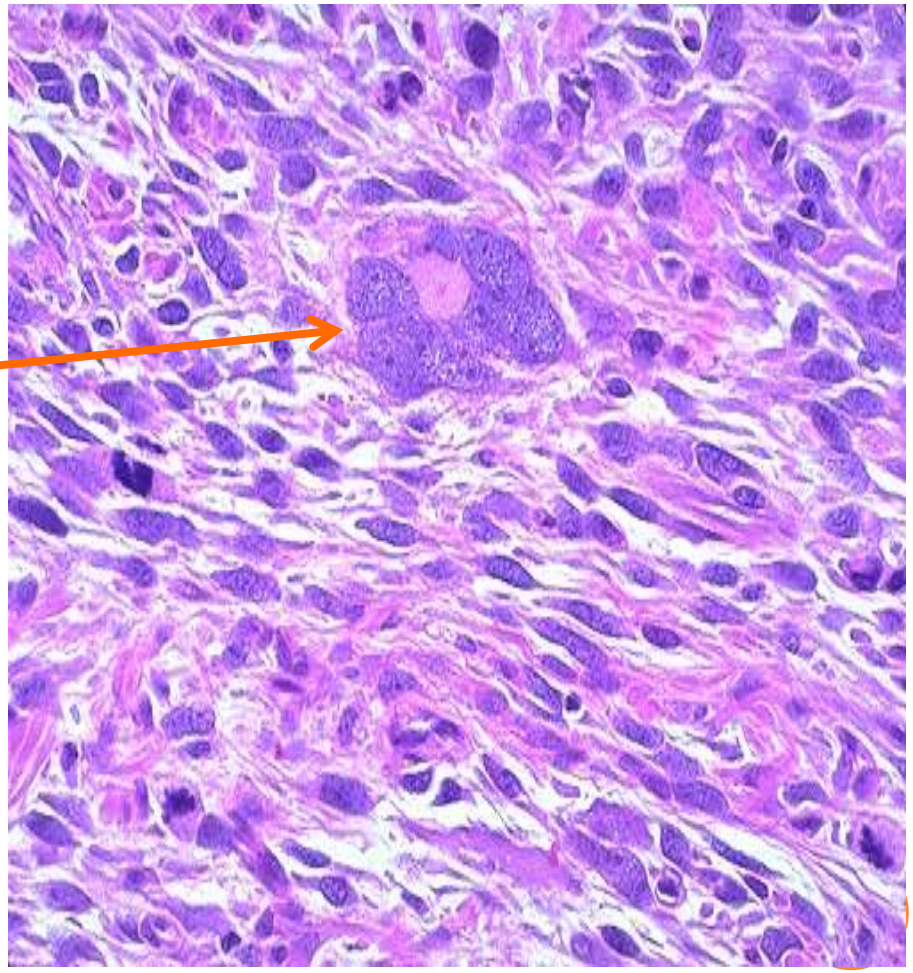

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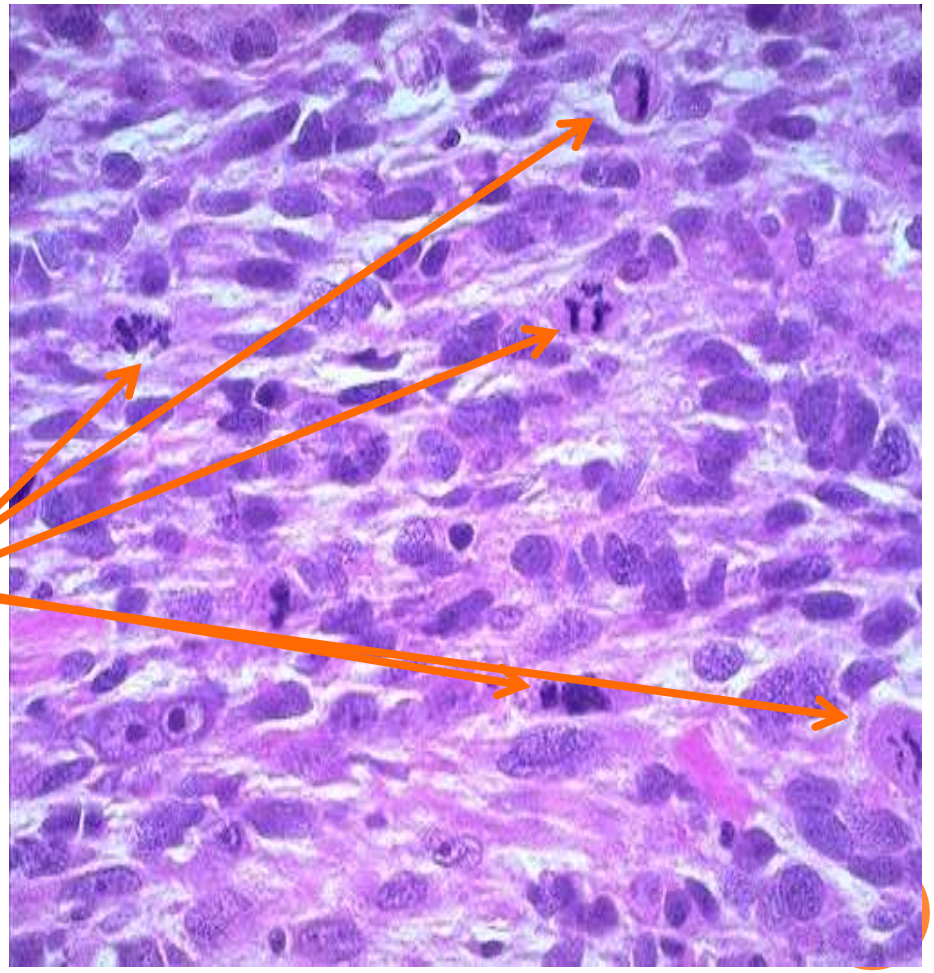
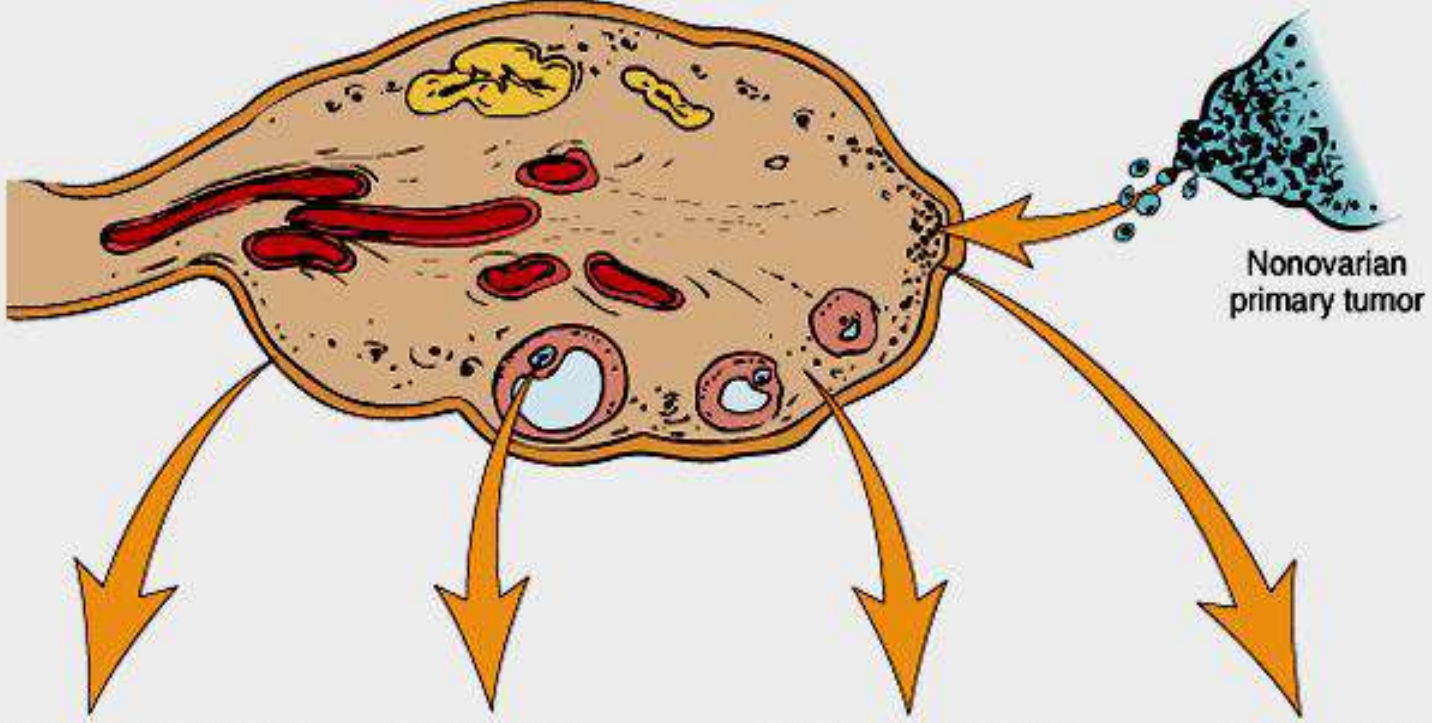


OVARIES

Ovaries- Polycystic ovarian syndrome



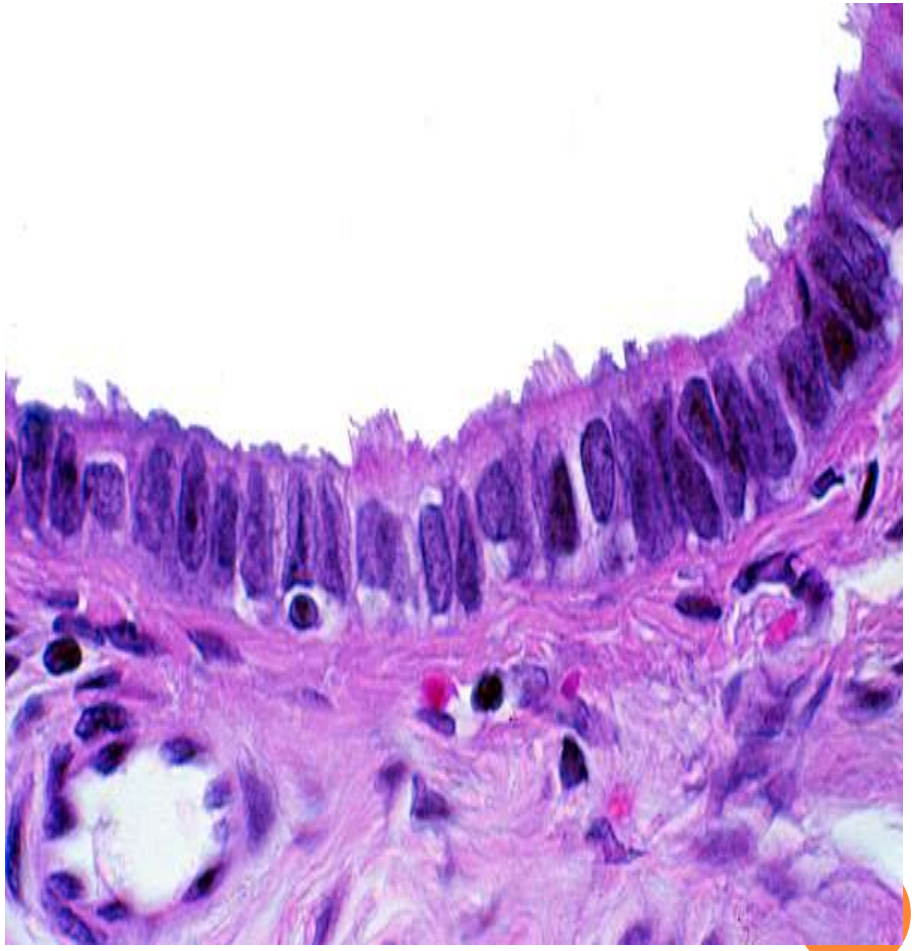
ORIGIN	SURFACE EPITHELIAL CELLS (Surface epithelial–stromal cell tumors)	GERM CELL	SEX CORD–STROMA	METASTASIS TO OVARIES
Overall frequency	65%–70%	15%–20%	5%–10%	5%
Proportion of malignant ovarian tumors	90%	3%–5%	2%–3%	5%
Age group affected	20+ years	0–25+ years	All ages	Variable
Types	• Serous tumor • Mucinous tumor • Endometrioid tumor • Clear cell tumor • Brenner tumor • Cystadenofibroma	• Teratoma • Dysgerminoma • Endodermal sinus tumor • Choriocarcinoma	• Fibroma • Granulosa-theca cell tumor • Sertoli-Leydig cell tumor	

Serous Tumors - Benign serous tumors

- Gross: Large & cystic (up to 30 cm), filled with a clear serous fluid
- May be bilateral.
- Called serous cystadenoma

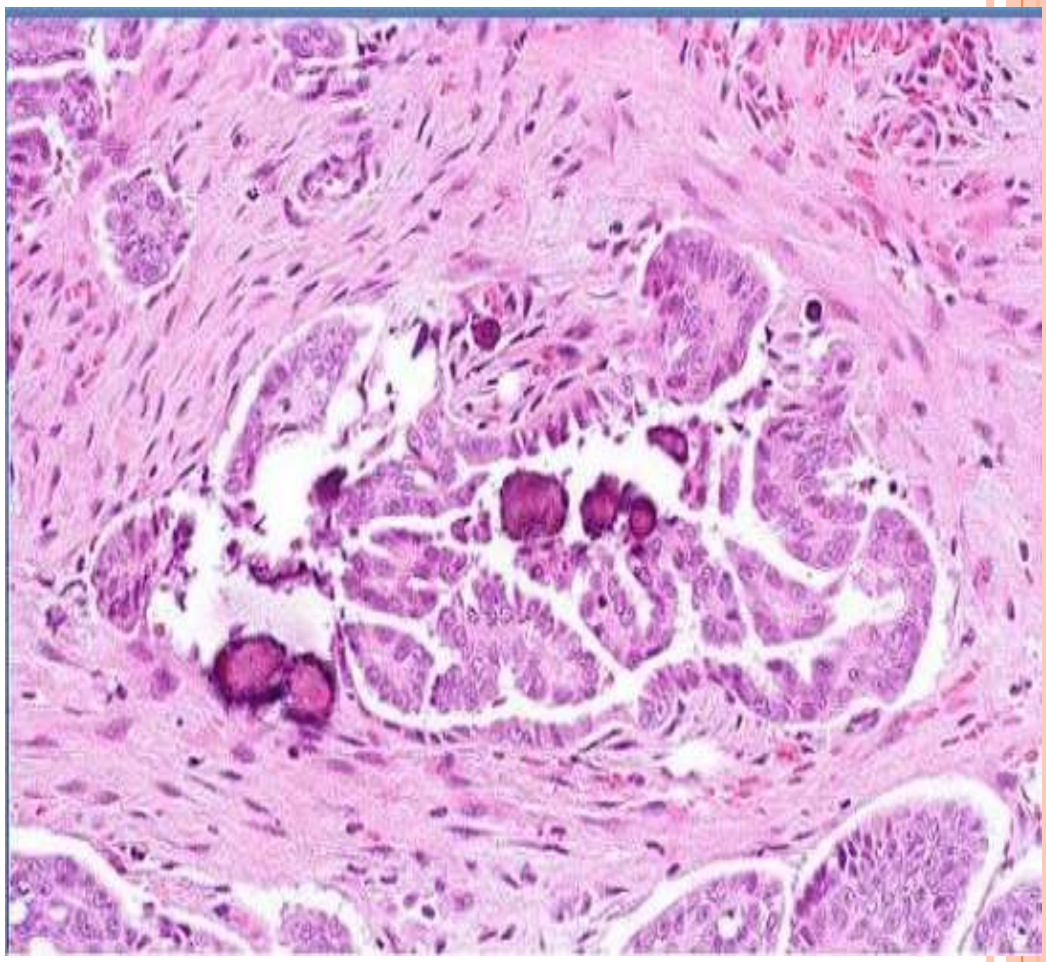
Serous Tumors - Benign serous tumors

Microscopy: Single layer of columnar epithelium. Some cells are ciliated.



Serous Tumors - Serous tumors

Psammoma bodies (laminated calcified concretions) are common in tips of papillae of **all serous tumors**

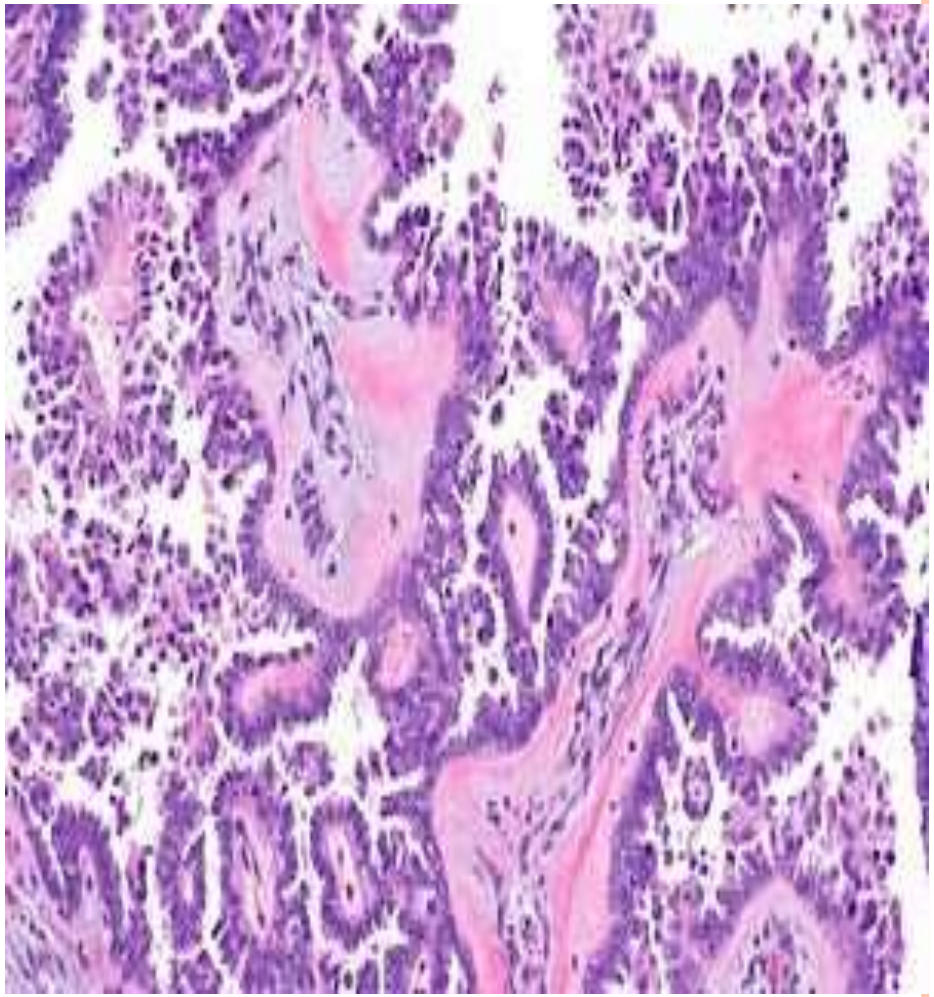


Serous Tumors – Borderline Serous Tumors

- complex architecture. (Protruding papillary projections)
- might be associated with peritoneal implants.

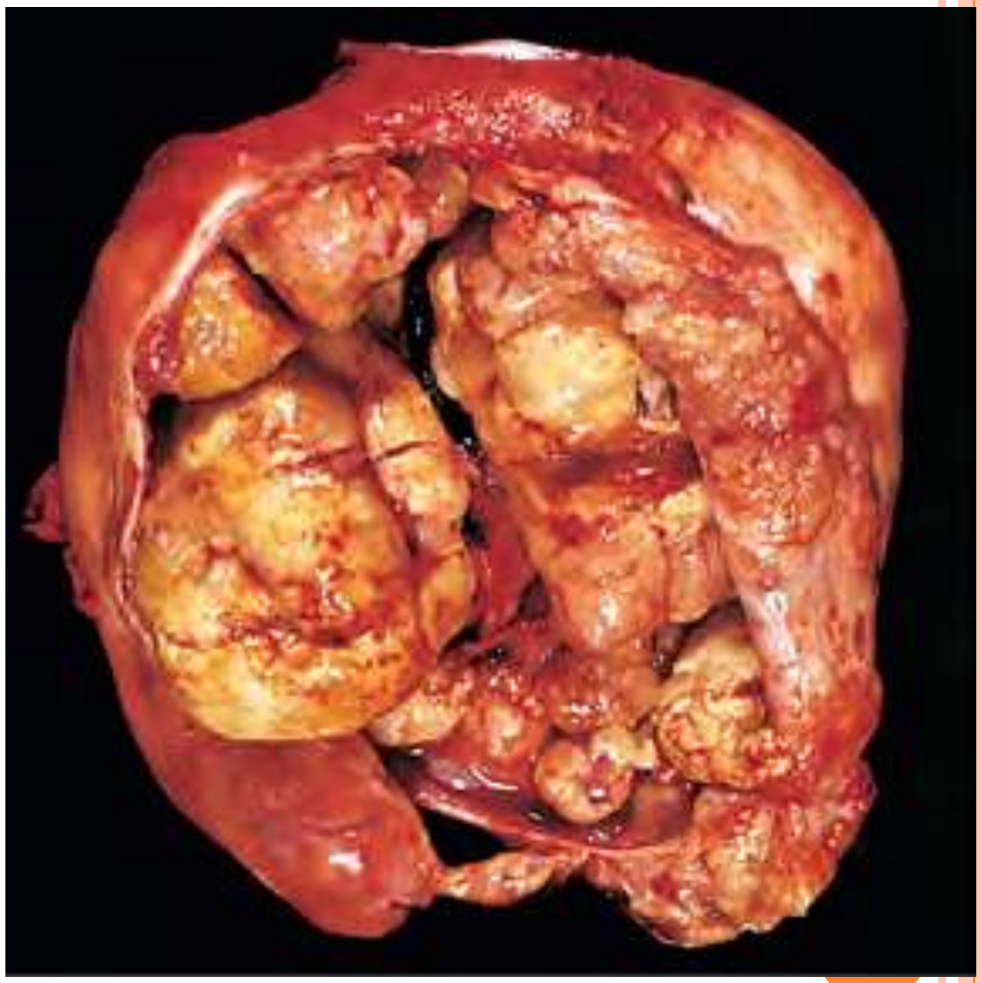
SEROUS TUMORS – BORDERLINE SEROUS TUMORS

- complex architecture.
- mild cytologic atypia, but no stromal invasion.
- Prognosis intermediate between benign & malignant.



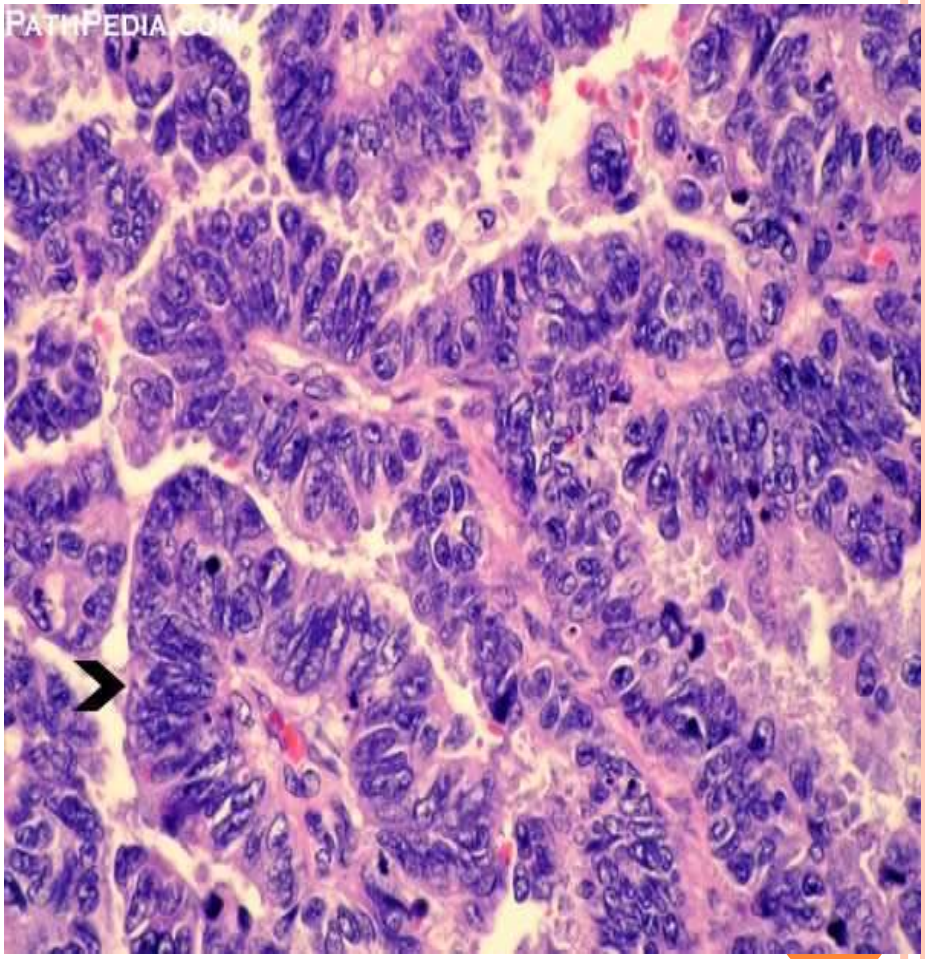
Serous Tumors - serous carcinoma

- papillary formations are usually more complex
- tumor has invaded the serosal surface.
- prognosis poor, depends on stage at the time of diagnosis.

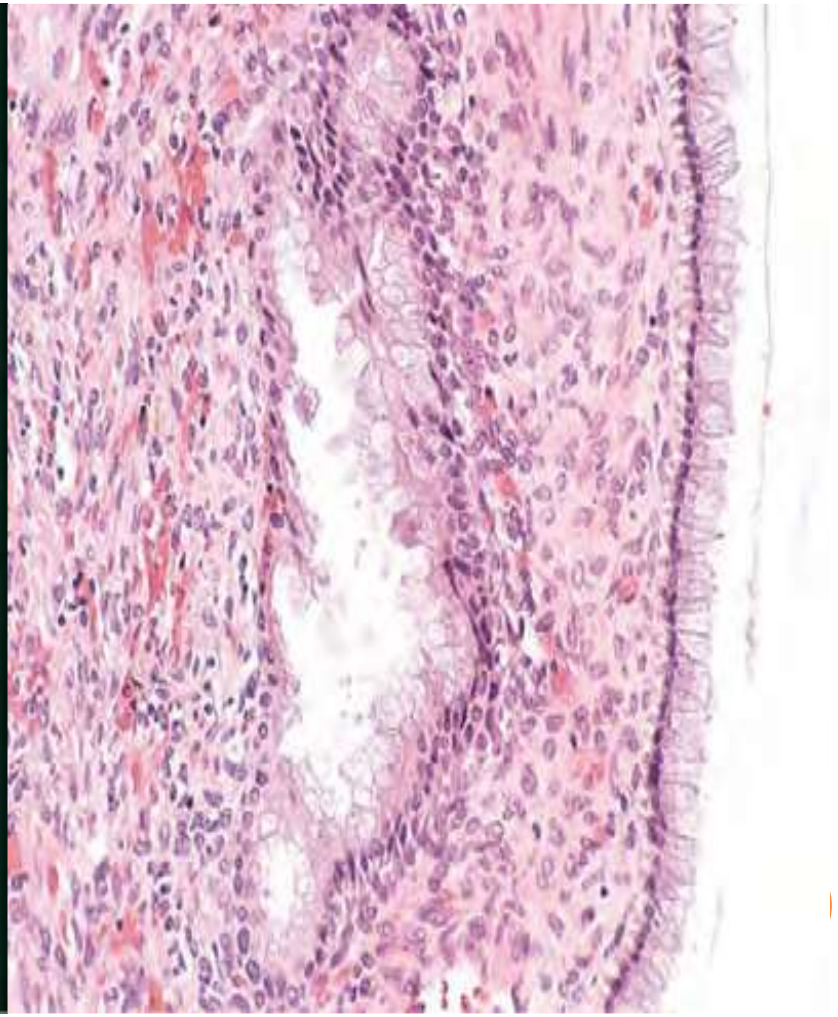


Serous Tumors - serous carcinoma

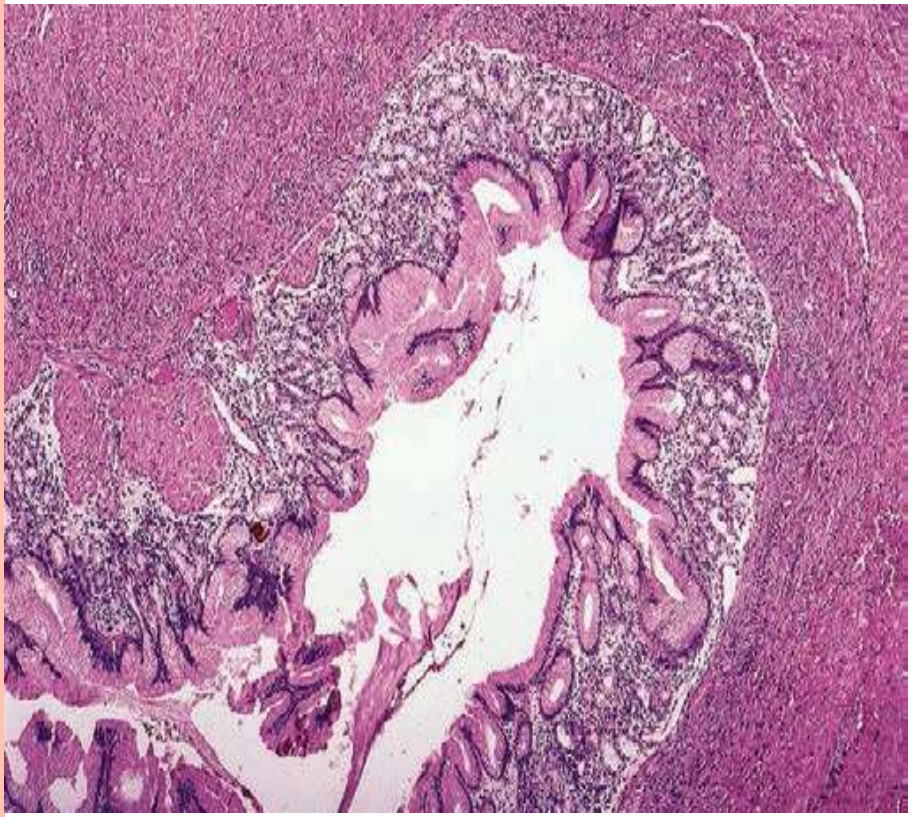
- complex papillary formations (multilayered)
- markedly cytological atypia
- By definition nests of malignant cells invade the stroma.

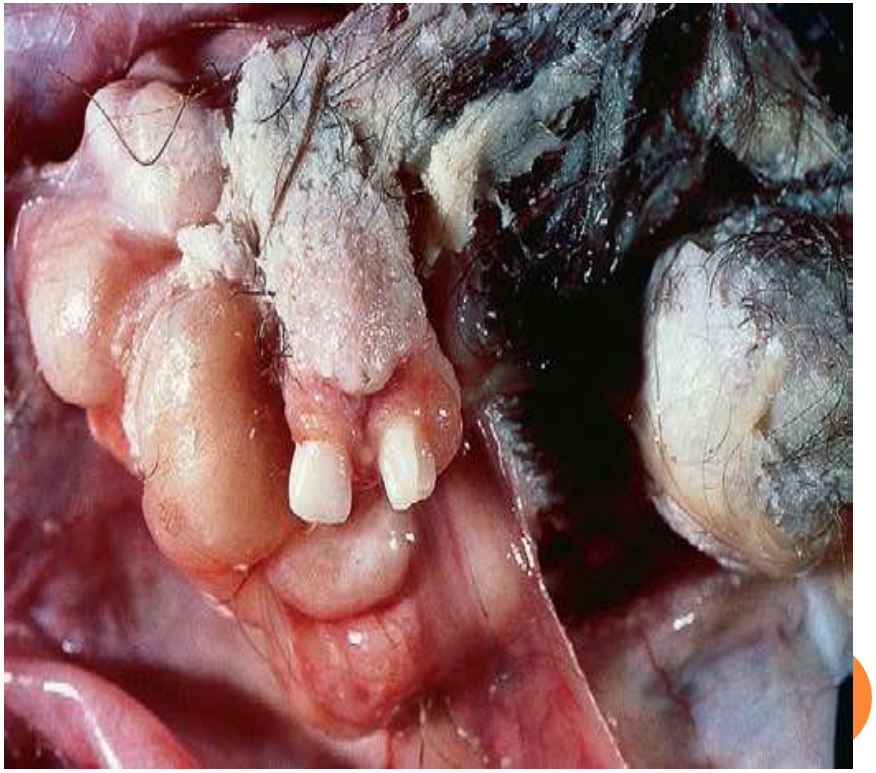


Ovaries- Mucinous cystadenoma

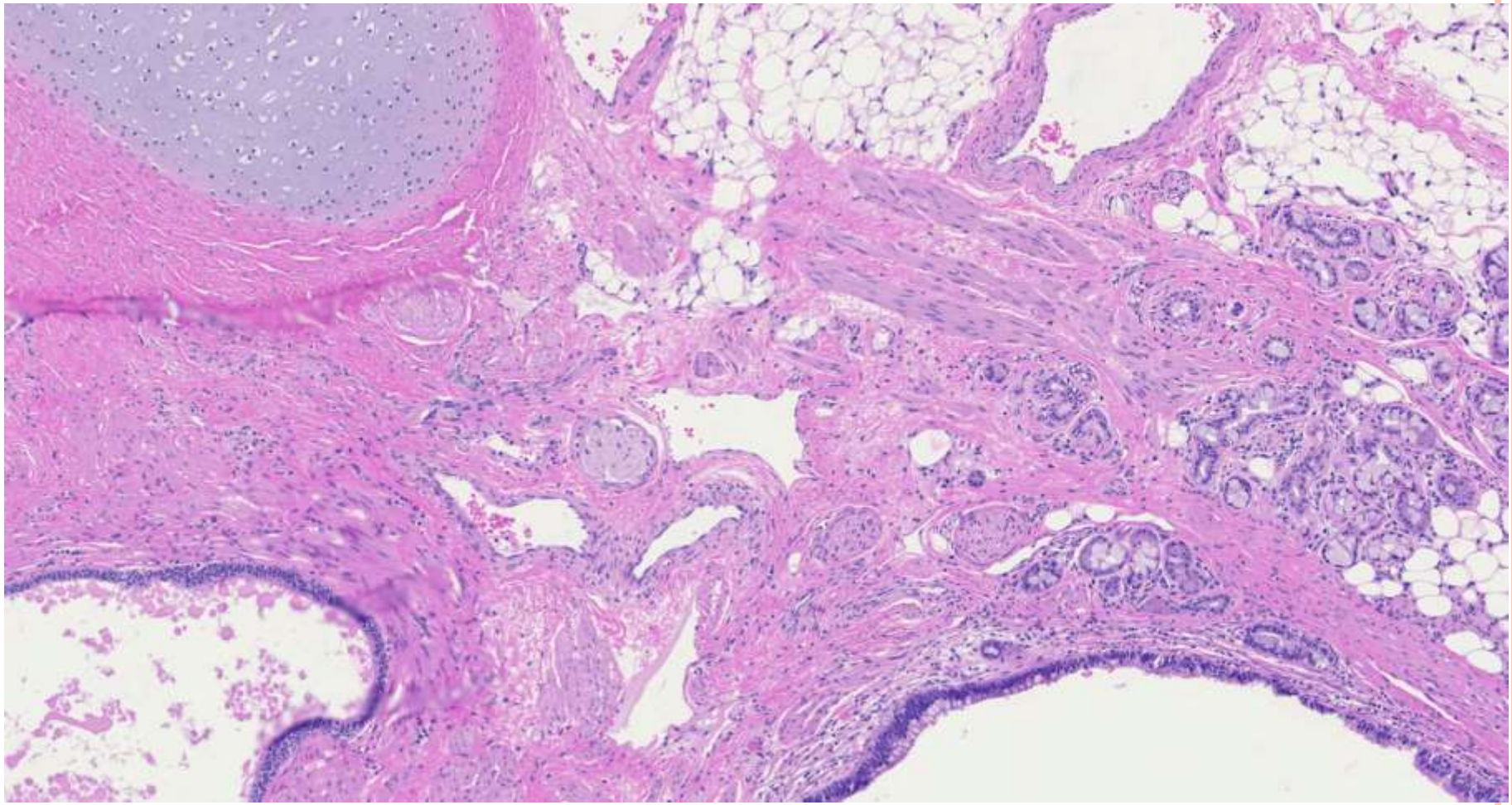


BENIGN MATURE CYSTIC TERATOMAS

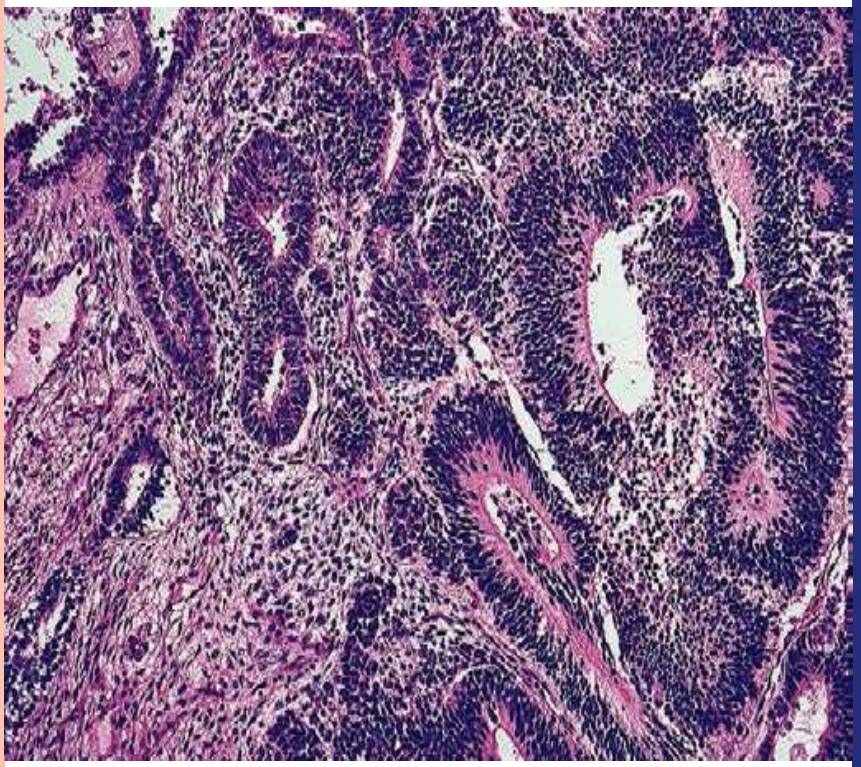


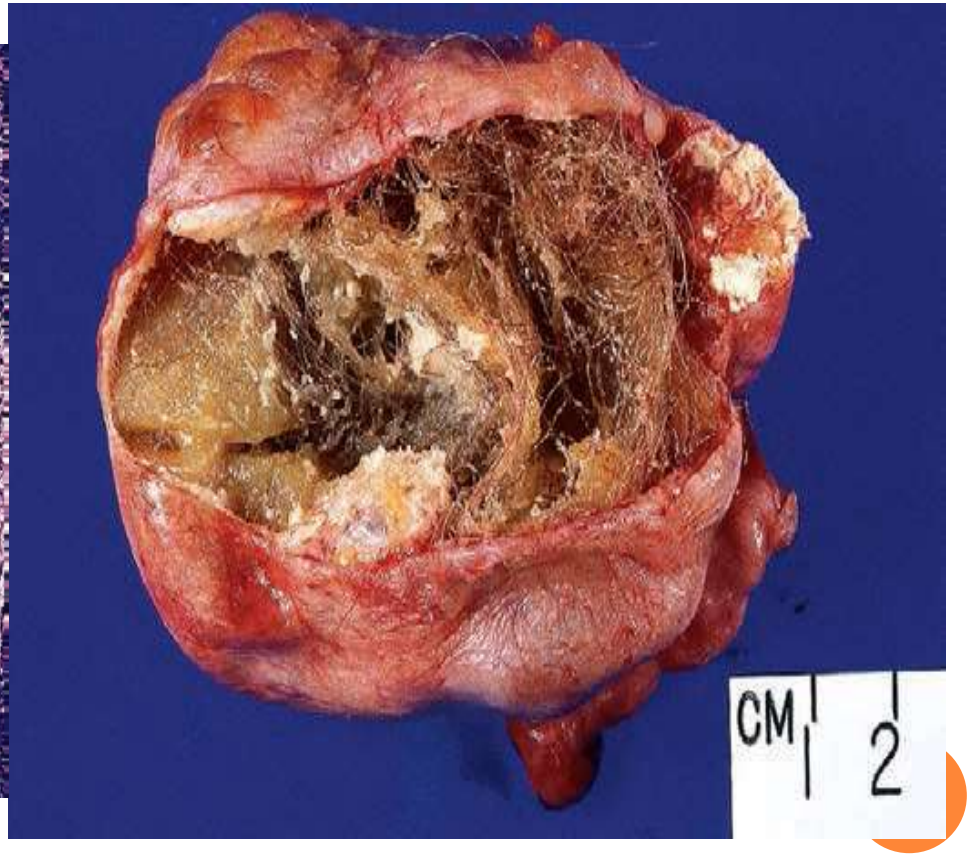


Mature cystic teratoma with multiple tissue types, including cartilage, endocervical epithelium, nerves, adipose and salivary gland



IMMATURE MALIGNANT TERATOMA

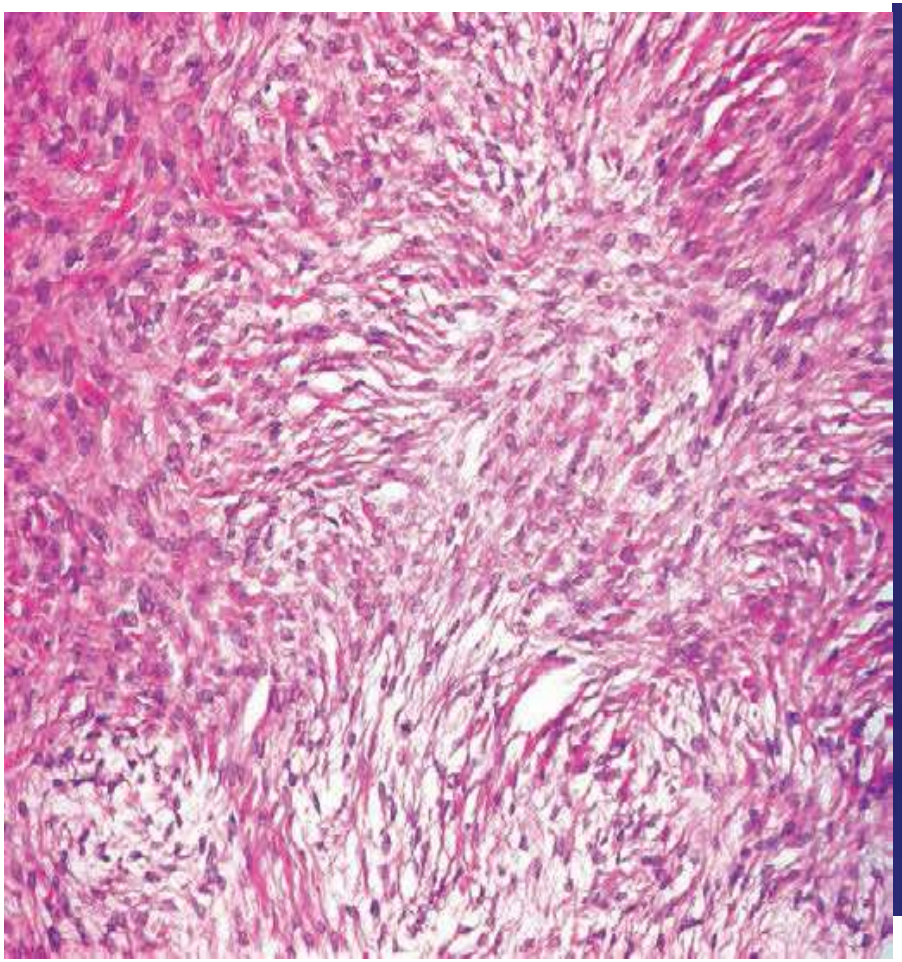




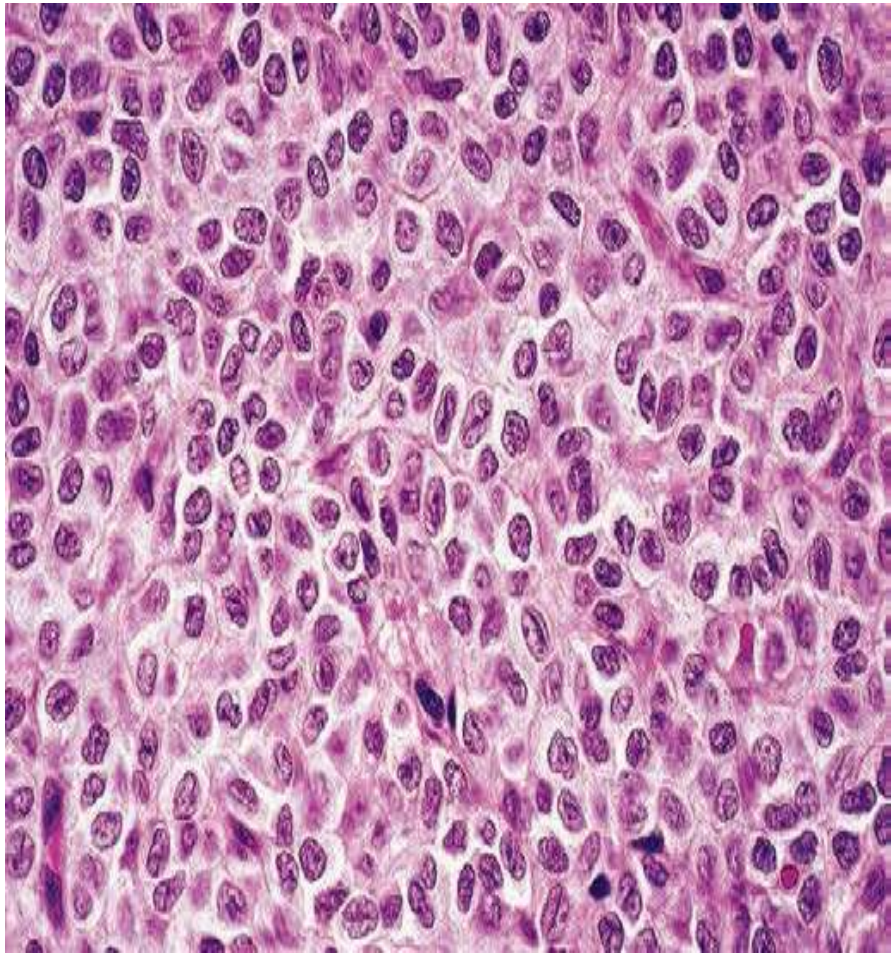
Ovaries – Sex cord Tumors

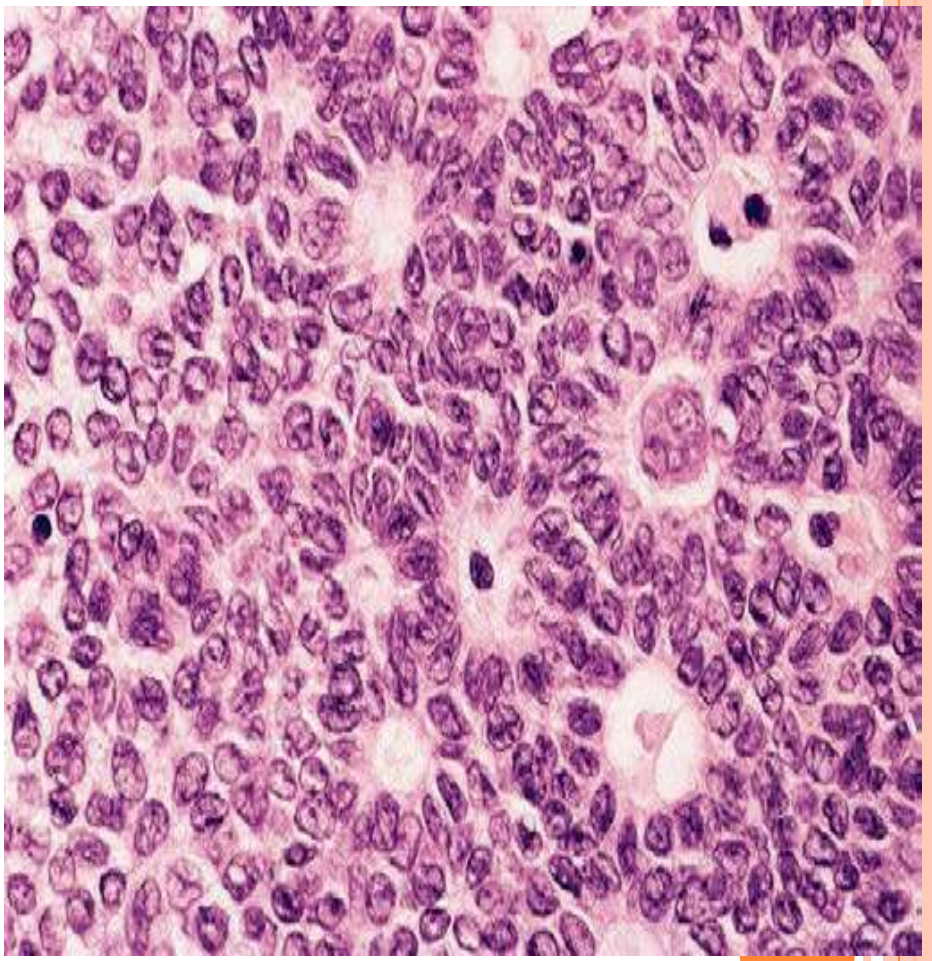
Neoplasm	Peak Incidence	Usual Location	Morphologic Features	Behavior
Sex Cord Tumors				
Granulosa-theca cell	Most postmenopausal, but may occur at any age	Unilateral	May be tiny or large, gray to yellow (with cystic spaces) Composed of mixture of cuboidal granulosa cells in cords, sheets, or strands and spindled or plump lipid-laden theca cells Granulosa elements may recapitulate ovarian follicle as Call-Exner bodies	May elaborate large amounts of estrogen (from thecal elements) and so may promote endometrial or breast carcinoma Granulosa element may be malignant (5% to 25%)
Thecoma-fibroma	Any age	Unilateral	Solid gray fibrous cells to yellow (lipid-laden) plump thecal cells	Most hormonally inactive A few elaborate estrogens About 40%, for obscure reasons, produce ascites and hydrothorax (Meigs syndrome) Rarely malignant
Sertoli-Leydig cell	All ages	Unilateral	Usually small, gray to yellow-brown, and solid Recapitulates development of testis with tubules or cords and plump pink Sertoli cells	Many masculinizing or defeminizing Rarely malignant

Ovarian fibroma



OVARIES-GRANULOSA CELL TUMOR.

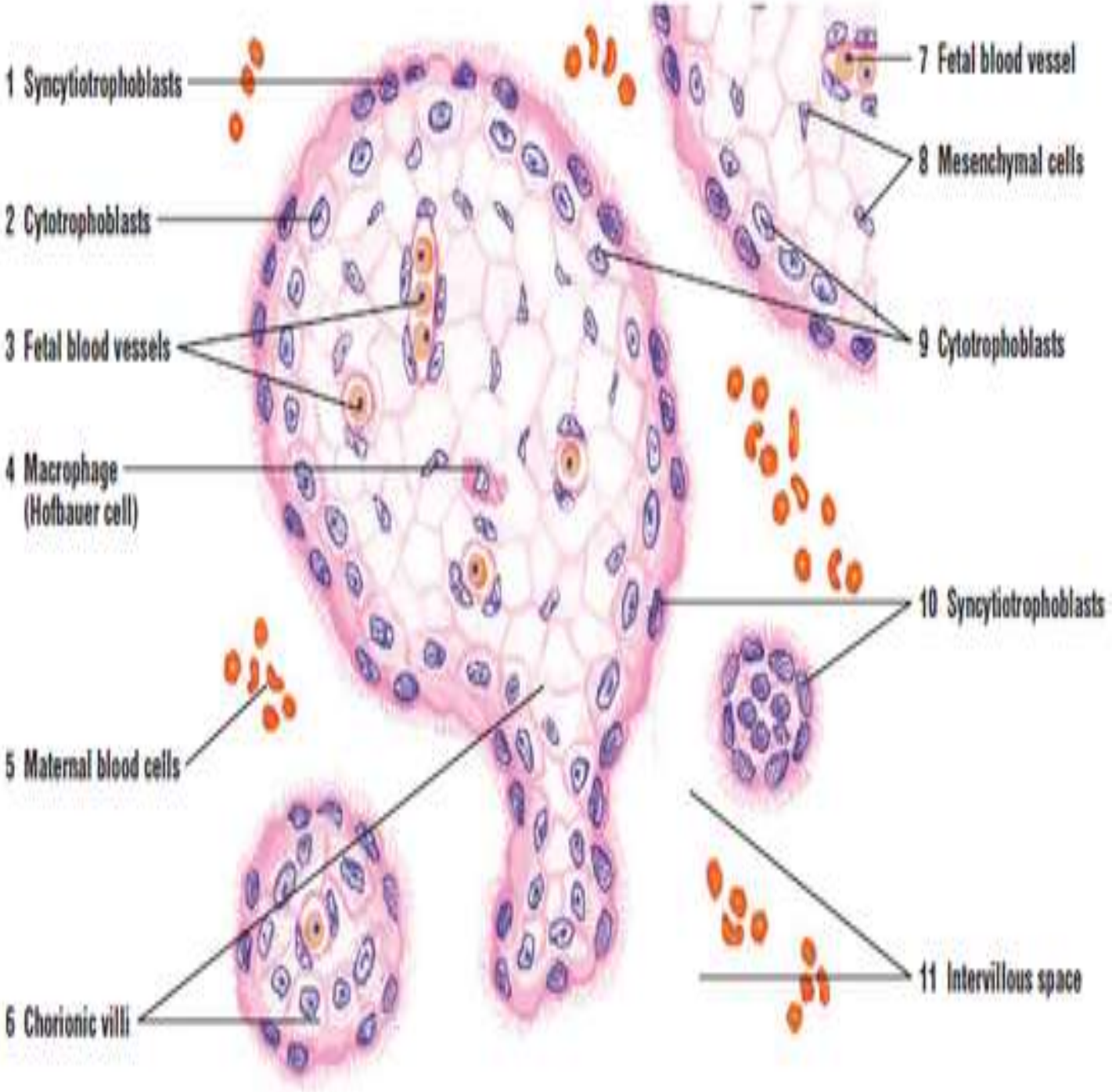


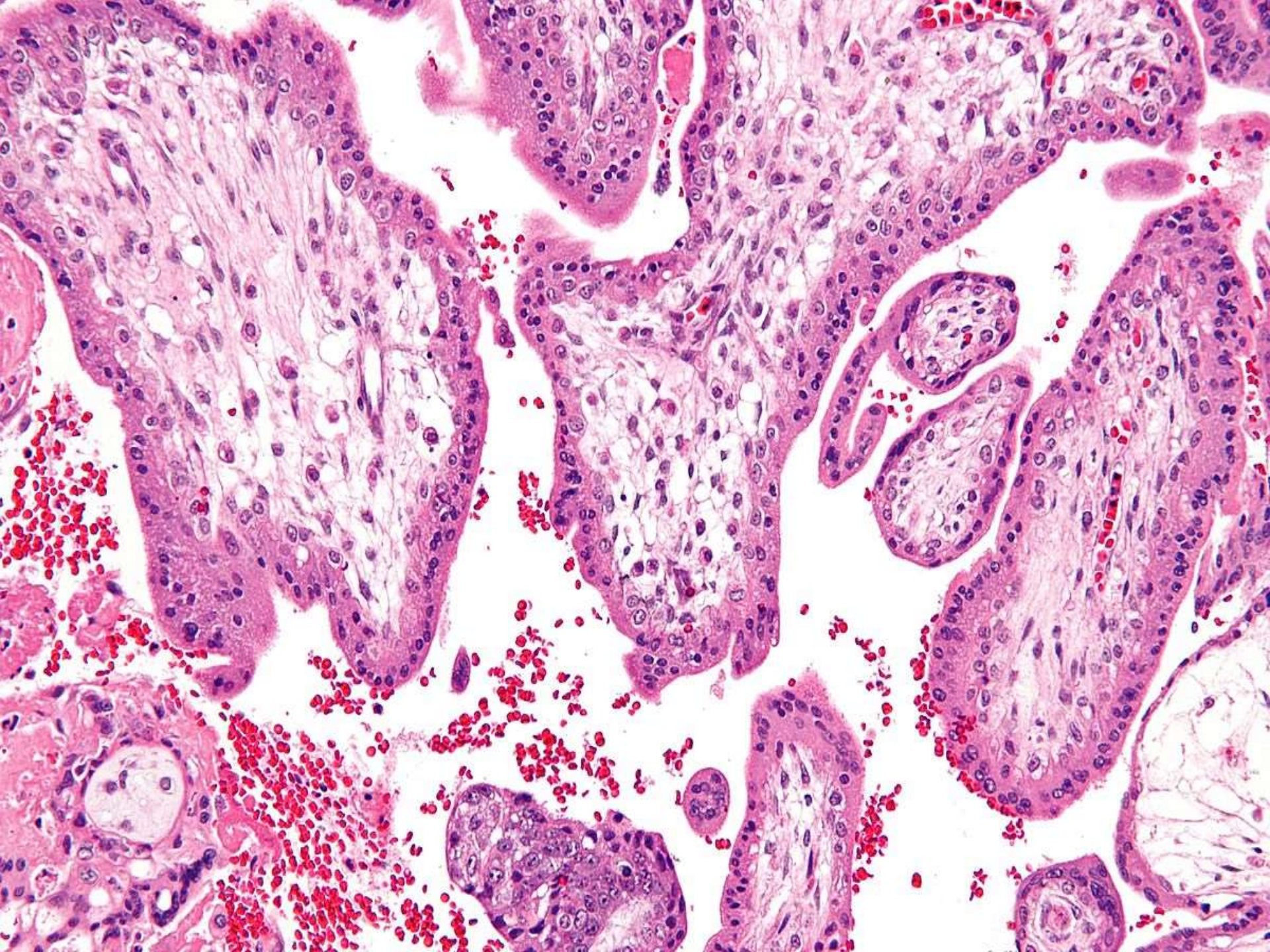


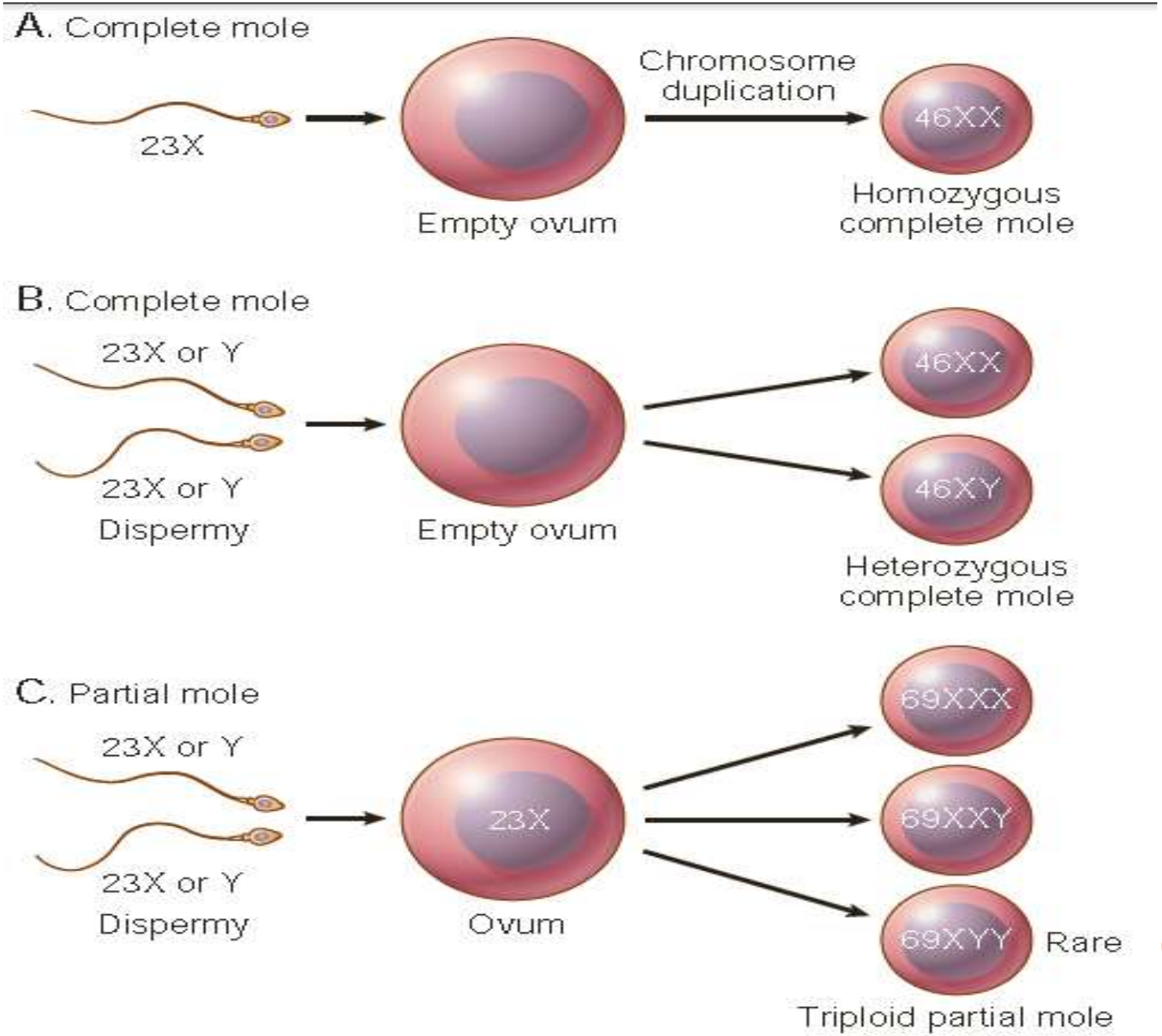
Female Genital System, Lecture5

Gestational trophoblastic disease

Placental disc histology

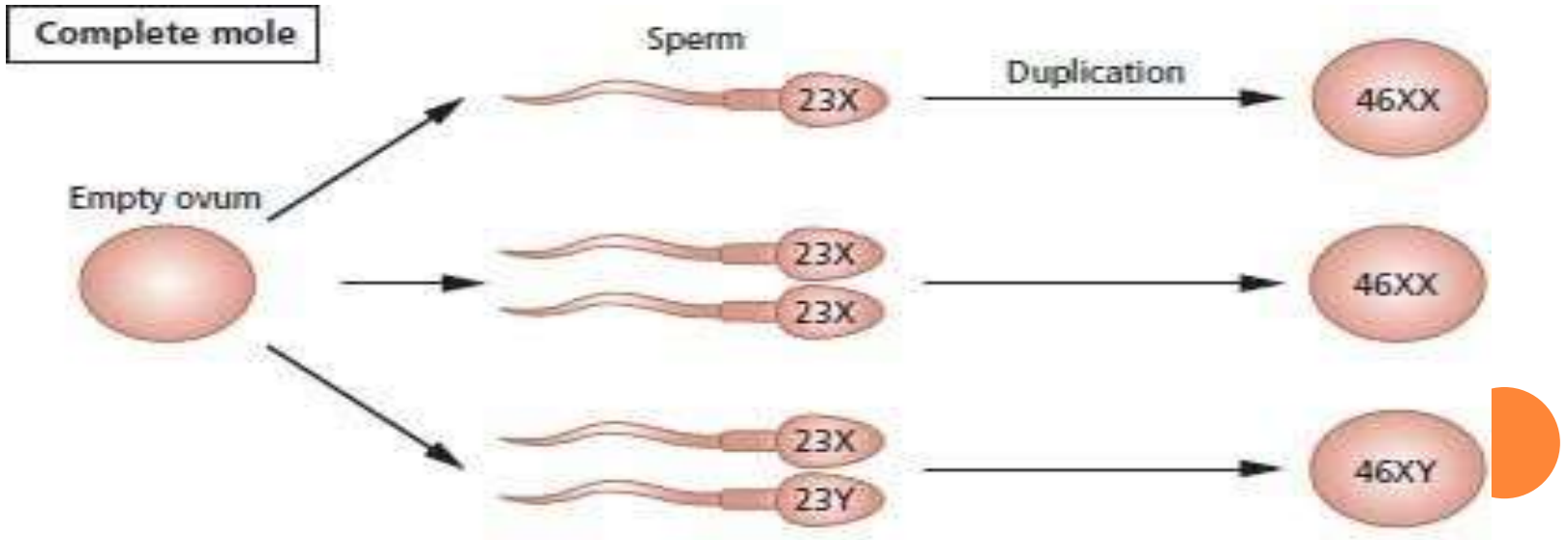





A. Complete mole
23X
Empty ovum
Chromosome duplication
46XX
Homozygous complete mole
B. Complete mole
23X or Y
23X or Y
Dispermy
Empty ovum
46XX
46XY
Heterozygous complete mole
C. Partial mole
23X or Y
23X or Y
Dispermy
23X
Ovum
69XXX
69XXY
69XYY
Rare
Triploid partial mole

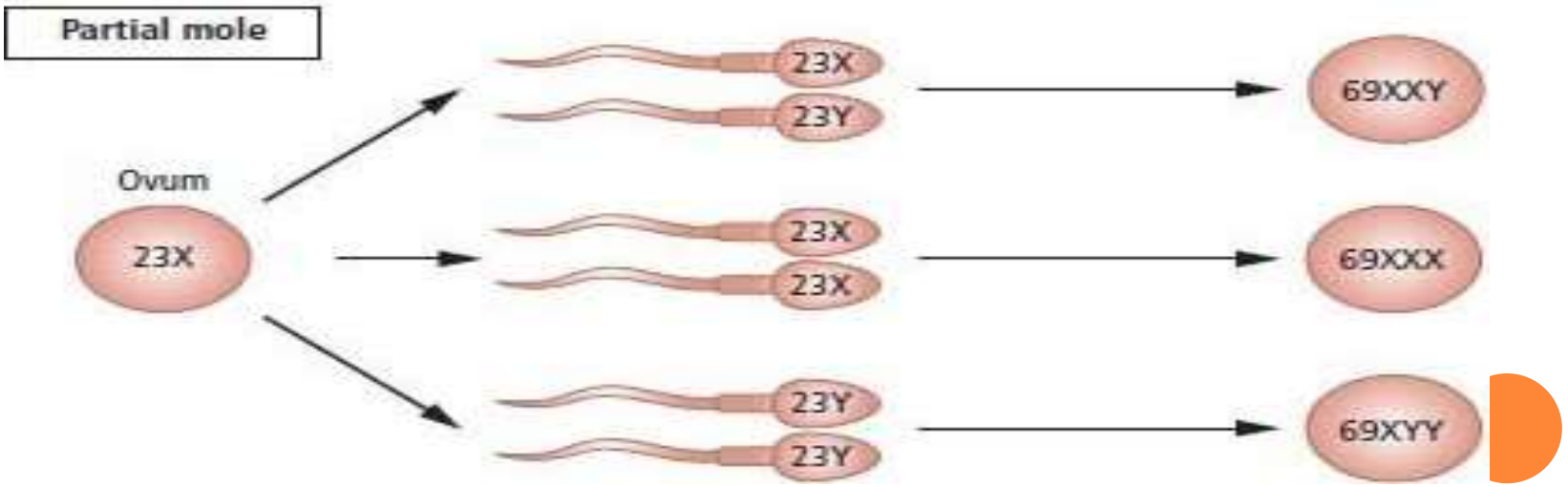
Hydatidiform Mole - Complete

- Complete mole are not compatible with embryogenesis & **does not contain fetal parts.** The chorionic epithelial cells are diploid (46,XX or, uncommonly, 46,XY)



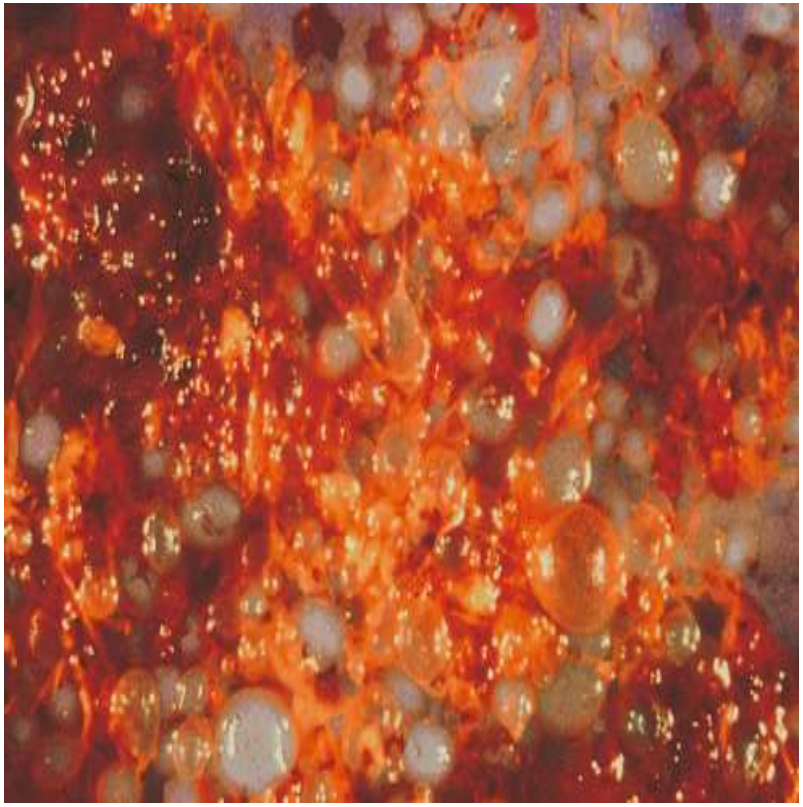
Hydatidiform Mole - Partial

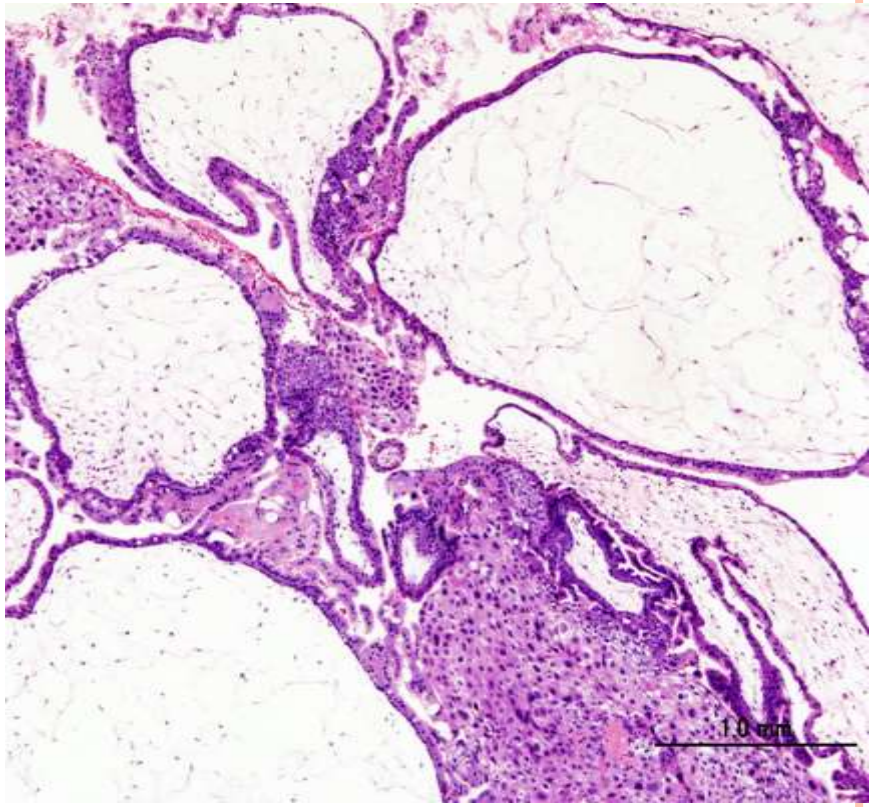
- Partial mole is compatible with early embryo formation → **may contain fetal parts & some normal chorionic villi.** Chorionic epithelial cellsalmost always triploid (e.g., 69,XXY)



Hydatidiform Mole – Morphology

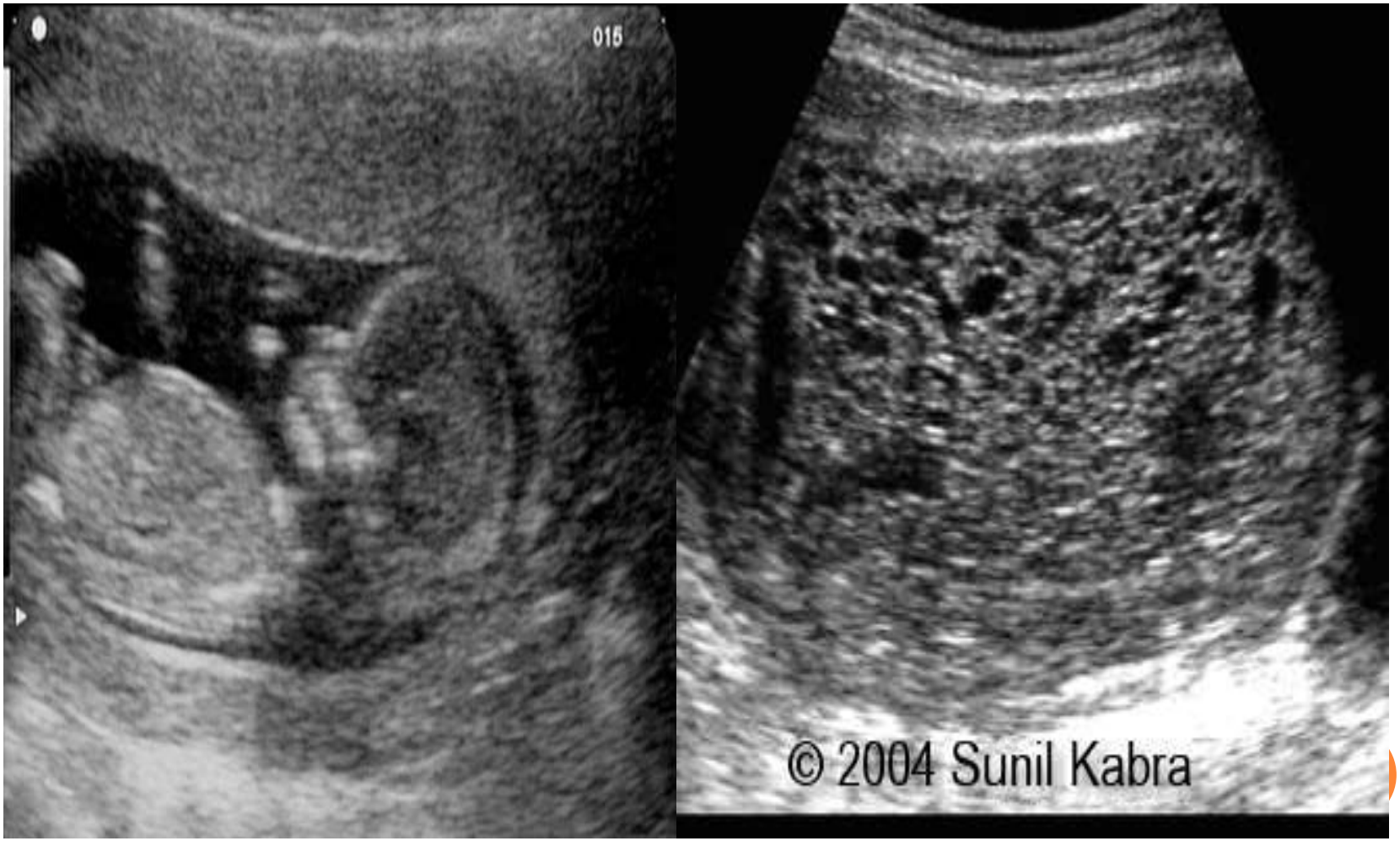
Uterine cavity is expanded by friable mass (**Grape-like villi**) composed of thin-walled, cystically dilated chorionic villli covered by varying amount of atypical chronic epithelium.



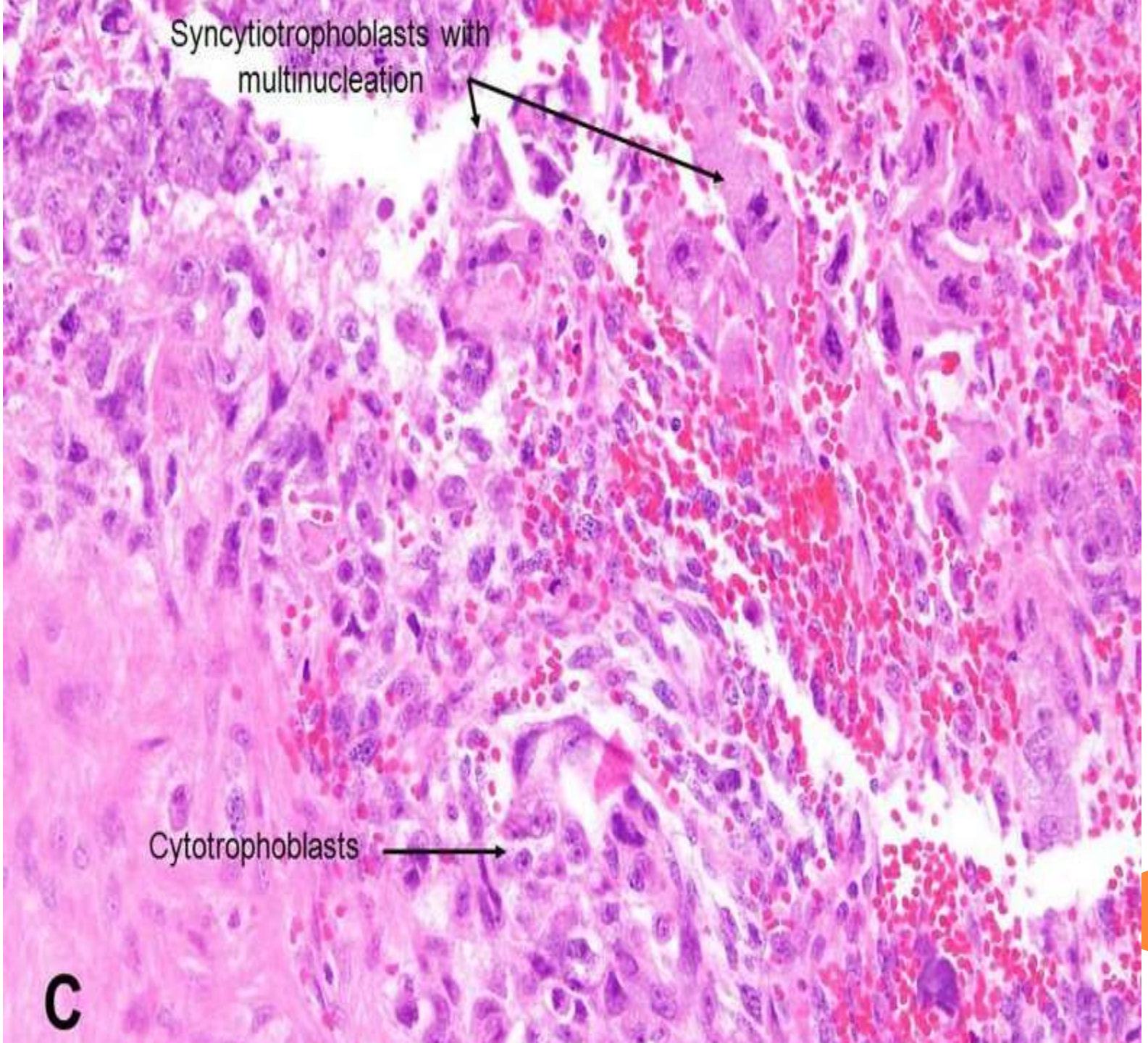


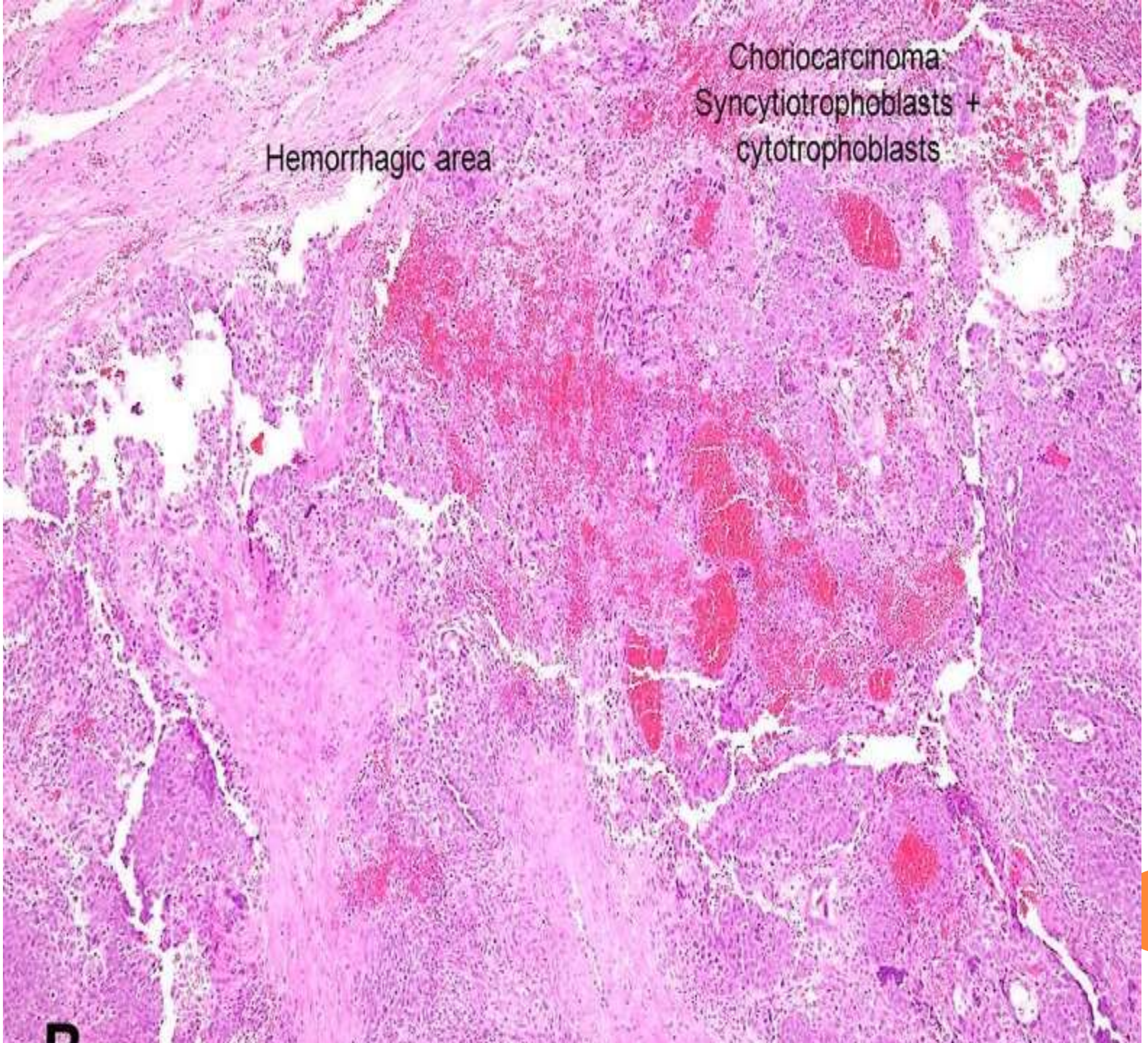
Hydatidiform Mole – Ultrasound

SNOW STORM



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


Syncytiotrophoblasts with multinucleation
Cytotrophoblasts
C


Choriocarcinoma:
Syncytiotrophoblasts +
cytotrophoblasts
Hemorrhagic area

Good luck in your exams