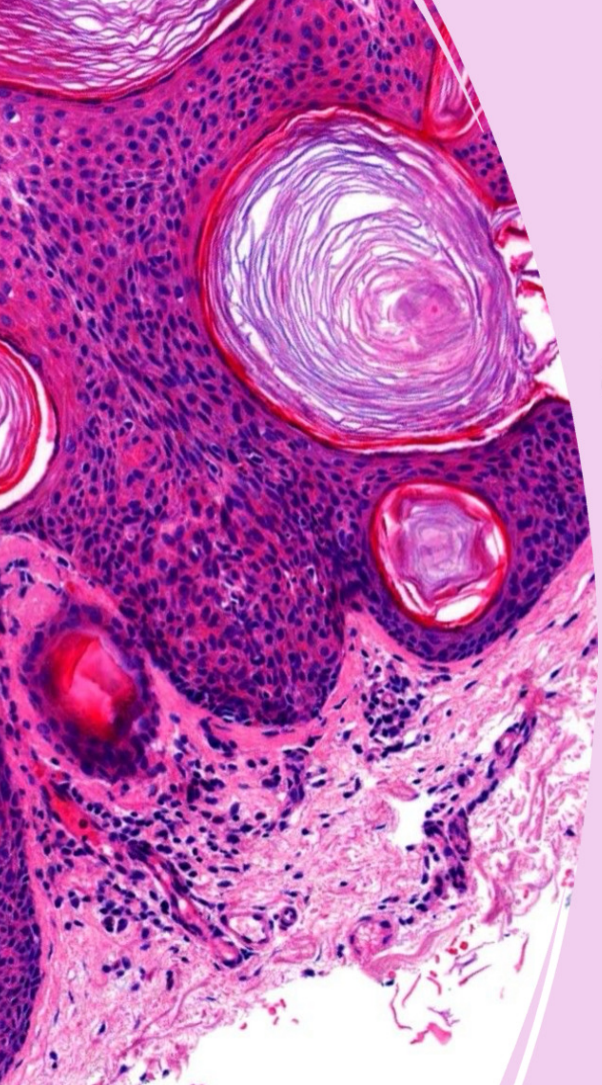

UGS Pathology Lab 🔬
~ Final exam Material

It's done by :

~ Reenas Al Khresat

UGS 2025

Pathology

Practical Questions for Final exam

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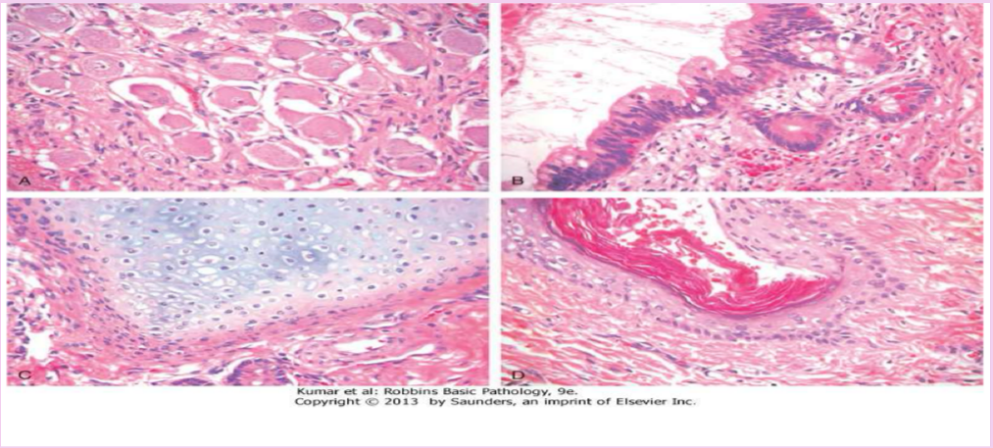
Professor of Pathology

University of Jordan

From (3 - 10)

1- A 20-year-old female presented with vague left pelvic pain. Pelvic exam revealed a large adnexal mass. Ultrasound showed a large, heterogenous, cystic mass replacing much of the left ovary. The contents of the cystic mass included hair, sebaceous material and a tooth. What is your diagnosis?

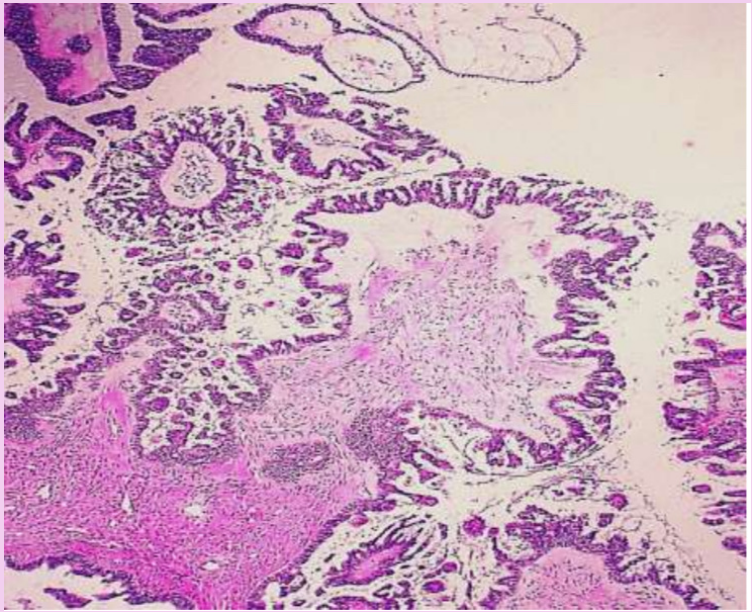
- **Mature cystic teratoma**



2- What is the expected clinical behavior of this ovarian tumor? Benign

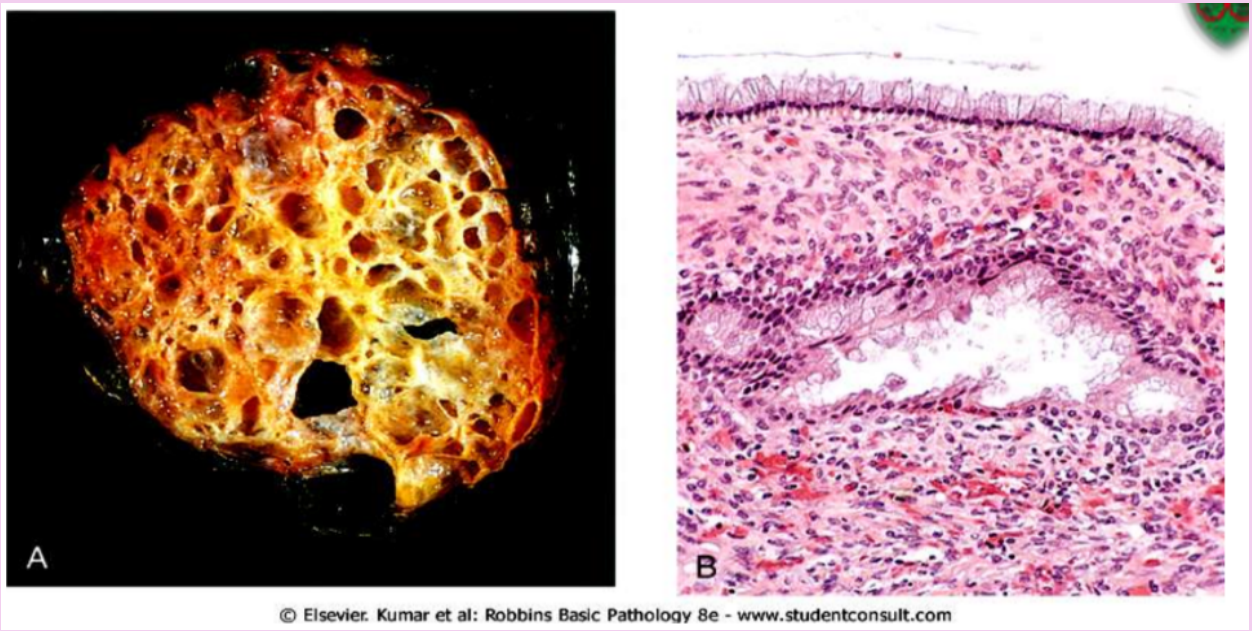
•What is the key microscopic feature of these tumors?

- **Mature tissues from all types**



1- A 36 y/o woman complained of pelvic pain, her U/S examination in clinic revealed a unilateral right ovarian cystic mass. Grossly, the cyst has these projections on the surface and inside the cyst. It contained thin serous fluid. Shown here are sections from the mass. No stromal invasion is dentified. What is your diagnosis? Serous borderline tumor

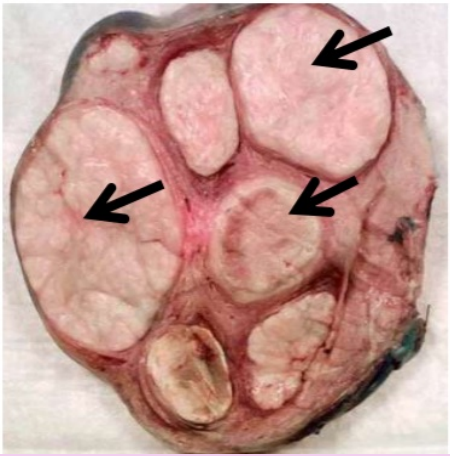
2- What are the microscopic features you see? Complex papilla



A 43 year old lady complained of increased abdominal girth was found to have this huge 30x 20x 15 cm mass in left ovary. Picture A shows you how the mass looks from inside. Picture B reveals the characteristic microscopic appearance of the tumor cells.

- Describe the macroscopic appearance of the tumor. **Multilocular**
- What do these cells contain in the cytoplasm? **Mucin**
- What is your diagnosis? **Mucinous cystadenom**

Uterine leiomyoma

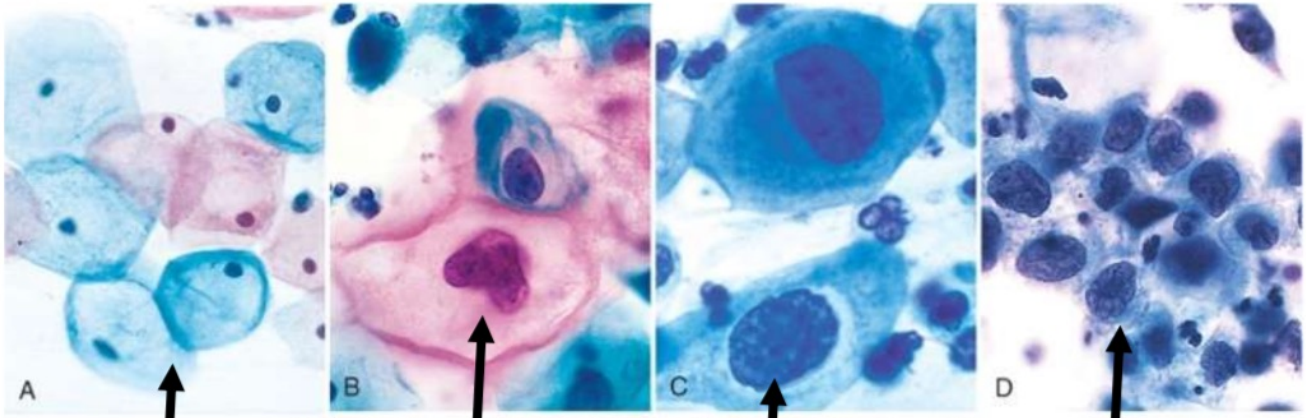


- what are the myometrial lesions you see in these pictures? uterine leiomyoma (fibroid)
- How common are (fibroids) leiomyomata ? Very common
- In what age group are they most prevalent? Reproductive years
- Are they malignant? No
- What are the presenting symptoms? Menorrhagia, dysmenorrhea,

• A 57 year-old lady, presented to GYN clinic complaining of postmenopausal bleeding, and underwent hysterectomy. Cut section of the enlarged uterus showed this lesion. What is the likely diagnosis? Leiomyosarcoma

• What features you see favor a malignant neoplasm? Irregular invasive borders; hemorrhage; necrosis

Cervical Intraepithelial Neoplasia (CIN)



normal

CIN 1

CIN 2

CIN 3

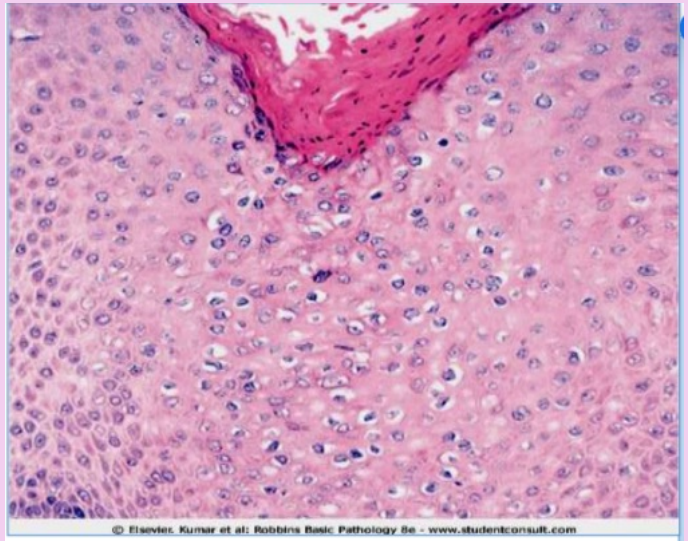
The higher the grade of CIN; the higher the nuclear/cytoplasm ratio , the larger the nucleus, and the smaller the cytoplasm is.

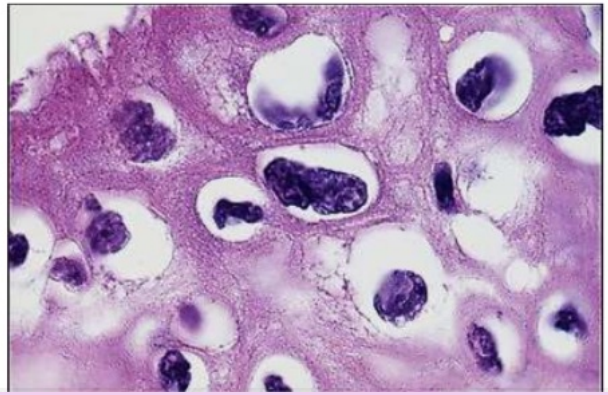
Vulvar pathology HPV infection

1- Describe the most distinct microscopic feature of this vulvar lesion caused by low risk-HPV infection. koilocytosis
What is the name of the skin lesion?
condyloma accuminatum (genital warts)

2- Do you see viral induced cytologic changes? Yes

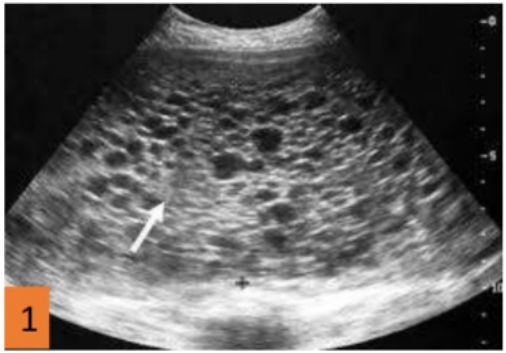
3- What are those cells called?
Koilocytes

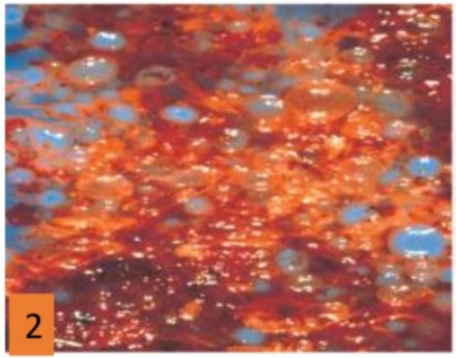


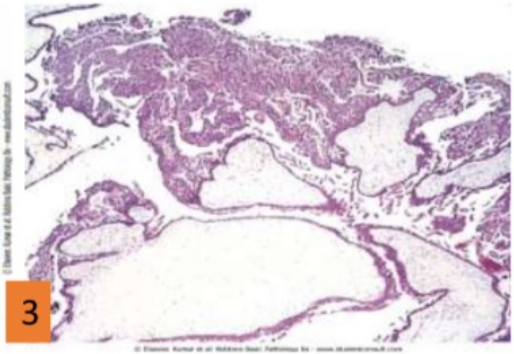


! هاي آخر سلايد من ملف الدكتورة نسرين اللي نزلته للفاينل

Complete molar pregnancy







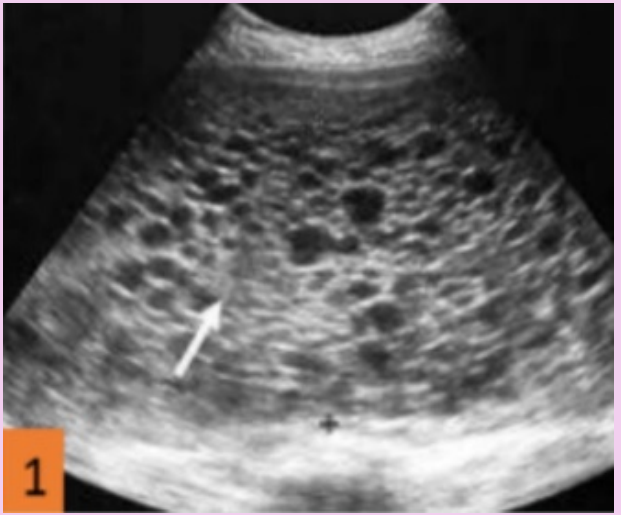
- A 22 year old lady who had a positive pregnancy urine test and went to a gynecology clinic for antenatal care. During her examination, identify the abnormality in the pictures:
- Picture 1: the **ultrasound** test ……. No fetus; vesicles and **Snow storm morphology**
- Picture 2: She had in-hospital evacuation of **uterine contents**…… **vesicles**
- Picture 3: A sample **tissue** was sent to pathology lab for evaluation… swollen edematous chorionic villi
- What is your diagnosis**???? Complete Molar pregnancy**

Past papers questions

A 36 year-old lady went to a gynecology clinic for antenatal care after testing positive with urine pregnancy test. The gynecologist did an ultrasound scan and found the following picture, which of the following best describes this case.

A- Ectopic Pregnancy in the fallopian tube
B- Partial Molar Pregnancy
C- Complete Molar Pregnancy
D- A Fetus with Trisomy 21
E- Koilocytes

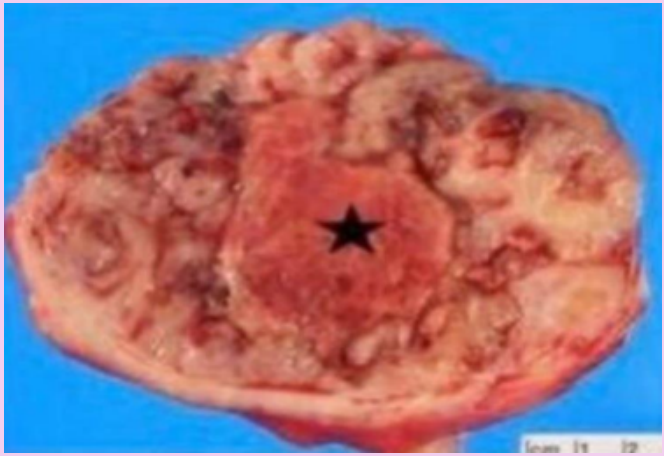
Answer: c



Past papers questions

ONE is correct regarding this mass (black star) identified in the uterus of a 64 years old female:

A. An extremely frequent neoplasm in women
B. Associated with endometrial hyperplasia
C. Usually shows ill-defined infiltrative borders
D. Has a genetic background of BRCA mutations
e. Usually goes without producing symptom

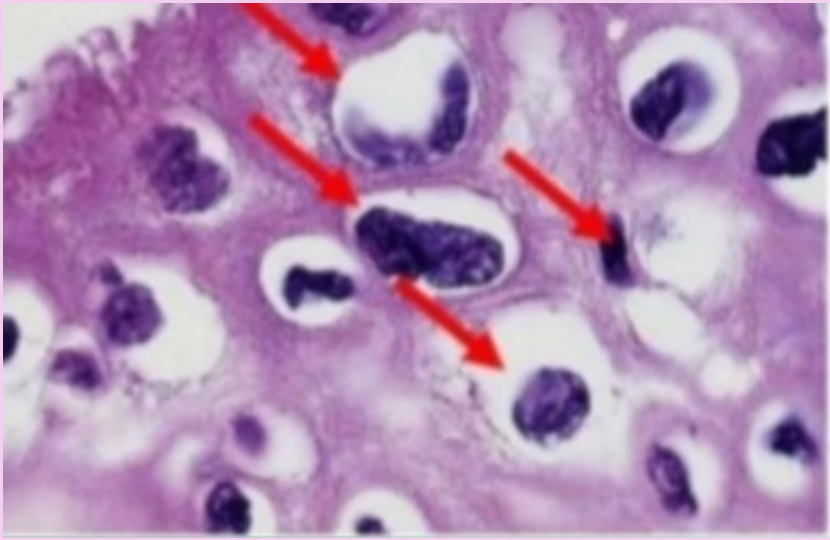


Answer : c

Past papers questions

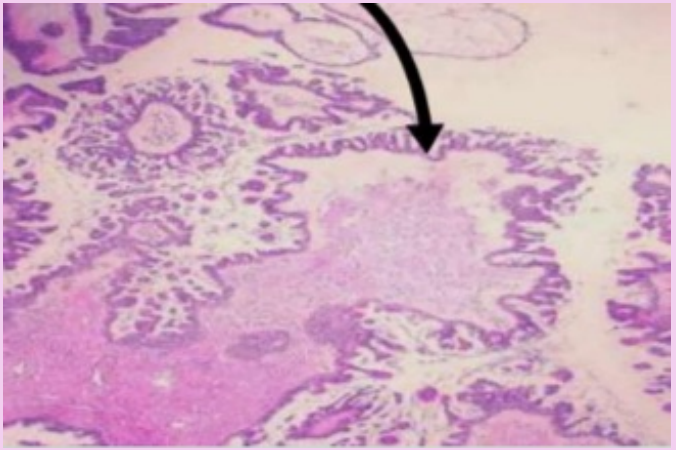
A disease that has viral-induced cytologic changes which are called Koilocytes:

Answer: Condyloma acuminatum

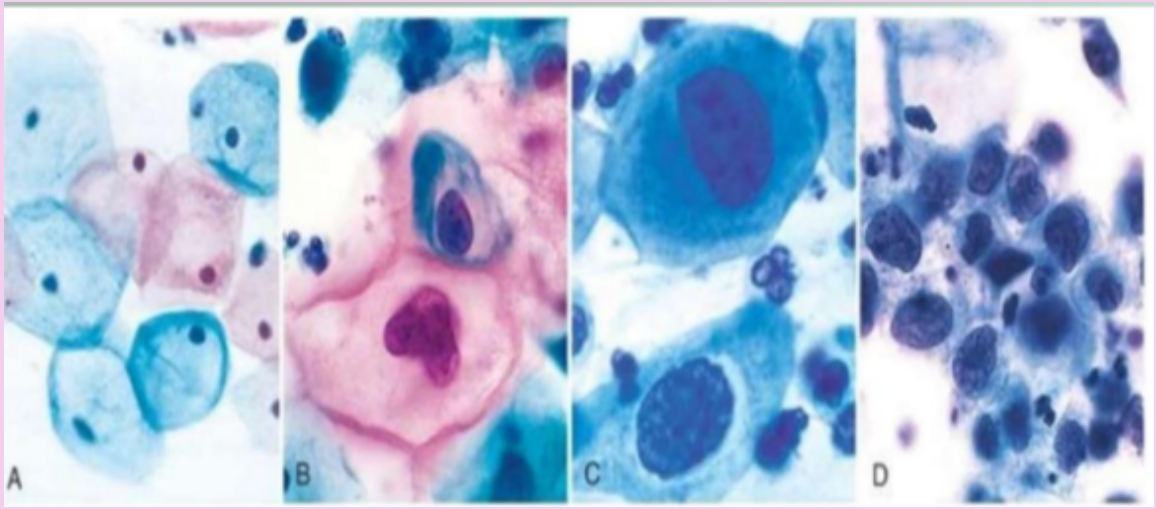


Past papers questions

A tumor with complex papillae:
Answer: Serous borderline tumor



Past papers questions



ONE is correct regarding the changes you can see in these microscopic pictures of squamous epithelial cells taken from 4 different cervical smear (Pap smear) screening tests:

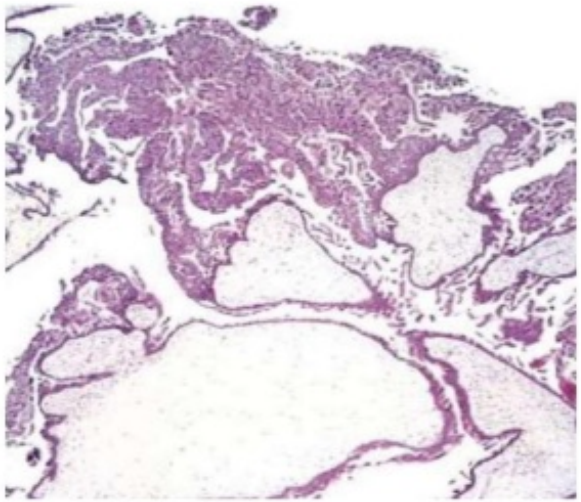
A. Picture A is equivalent to a diagnosis of CIN 1 (cervical intraepithelial neoplasia 1)
B. Pictures B, C, and D shows invasive squamous cell carcinoma
C. Picture B shows higher nuclear/ cytoplasm (N/c) ratio than picture D
D. The changes seen in picture D are related to HPV types 6 and I1
E. Picture C is equivalent to a diagnosis of CIN 2 (cervical intraepithelial neoplasia 2

Answer : E

Past papers questions

A patient who had positive pregnancy test came to your clinic, examination shows vesicle structures with abnormally swollen chorionic villi, and no fetus… What's your diagnosis?

Answer: Complete mole

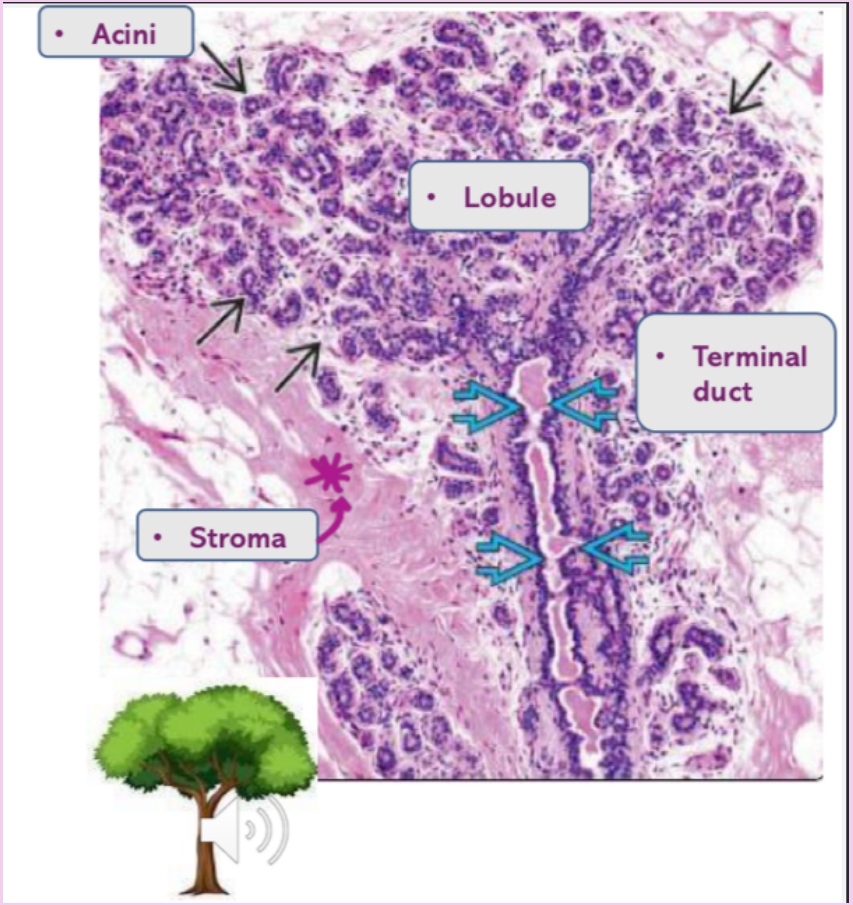


Dr. Maram's Material From (18 - 22)

محاضرة واحدة فقط !

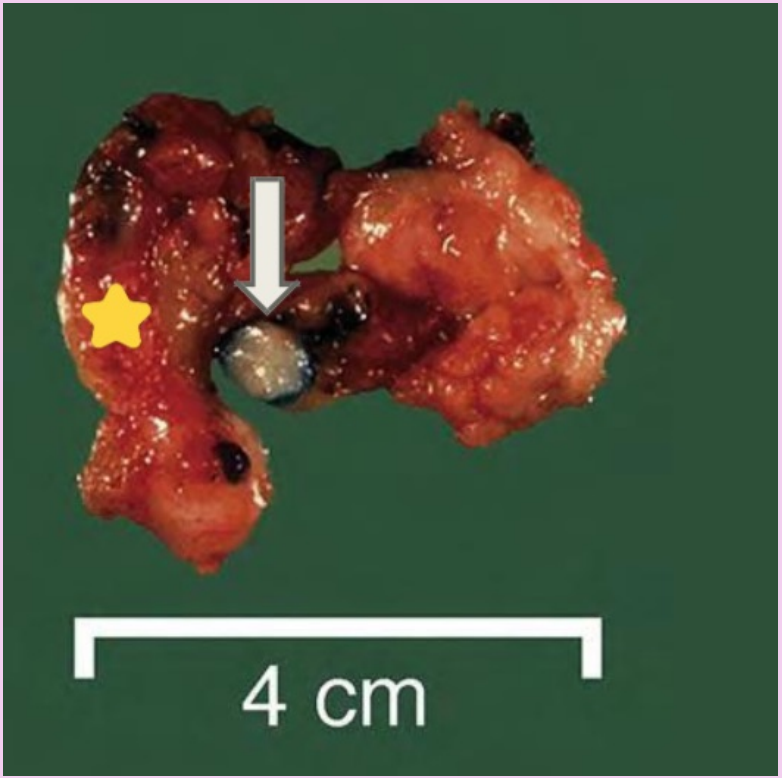
The histology of the terminal duct lobular unit

• This figure shows the histology of the terminal duct lobular unit.
It has an architectural organization that looks like a tree . The terminal duct forms a trunk, and it opens into the smaller acini, they form a branch of the tree, therefore they are called branches or lobules.



Fibroadenoma, gross

- Well circumscribed, sharply defined mass.
- The arrow is for Fibroadenoma, the star is for a normal breast tissue .
- This blue dye is injected by the pathologists to mark the tumor's borders to be more visible , which facilitating the excision process for the Surgeon, to be easier



Fibroadenoma, gross

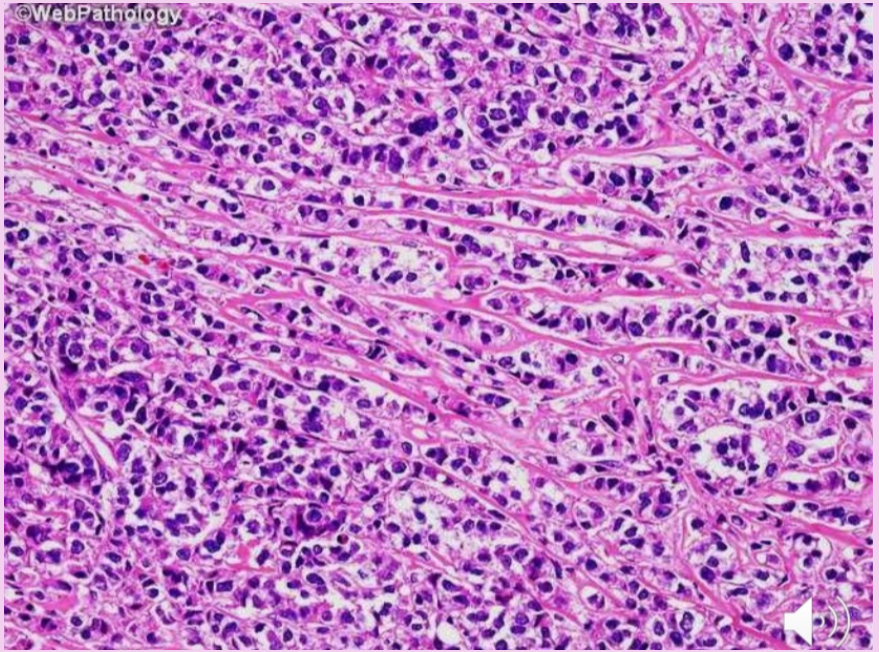
1- Well-Circumscribed Borders: The lesion is sharply demarcated from the surrounding tissue, a typical feature of benign tumors.

2- Proliferation of Fibrous and Glandular Tissue:

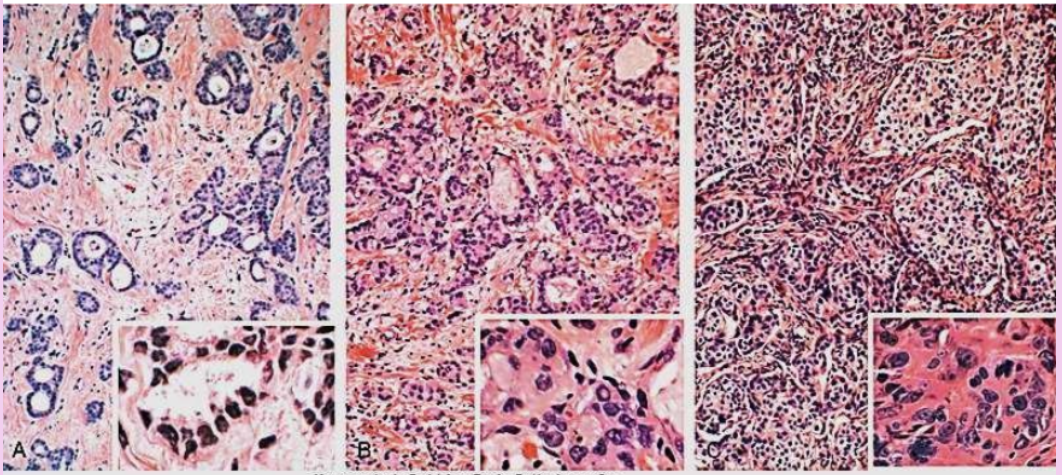
- Fibrous (stromal) component: Pink staining areas represent fibrous tissue.
- Glandular (epithelial) component: The ducts and gland-like structures are lined by epithelial cells, stained dark purple.
- Compressed and Distorted Glands: The ducts often appear elongated or slit-like due to the pressure from the growing fibrous stroma—a classic sign of fibroadenoma

Invasive lobular carcinoma

- This figure shows the histologic findings in invasive lobular carcinoma.
- As you can appreciate, we don't see the tubular formation that we are noticed in invasive ductal carcinoma in contrast, the cells here present individually as a single file and this happens due to the loss of the E-cadherin protein so there is no tubular formation like in invasive ductal carcinoma



Invasive lobular carcinoma

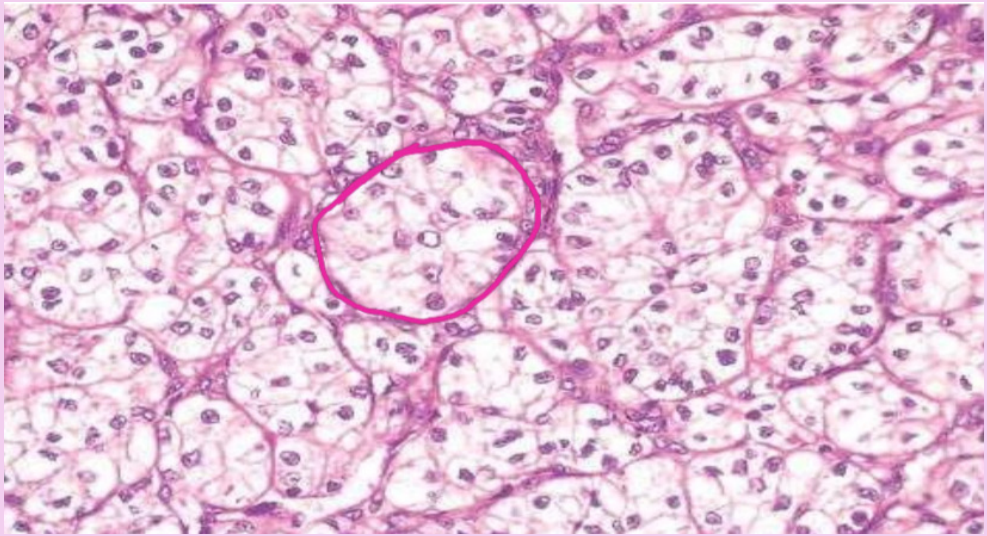


- Invasive ductal carcinoma is a graded into three main groups according to certain histologic features.
- We have three histologic features that are used to classify invasive ductal carcinoma into the main 3 grades.
- 1-the tubular formation 2-the nuclear pleomorphism 3-the number of mitosis.
- This figure shows the three histologic grades ,so if you look from the left side, this represents a grade 1 well-differentiated carcinoma because it shows frequent tubules as you can see which is the first feature that we rely on and also mild atypia ,so the cell are little bit monomorphic and there is no frequent mytotic figures in this tumors ,so this is classified as a grade 1 well-differentiated breast cancer.
- Look at the figure in the middle, this one is a grade 2 tumor which means moderately differentiated breast cancer. There is less tubular formation than the first tumor and there is more solidness of the tumor cells and there is more atypia.
- Look at the third figure, this is a grade 3 tumors which means poorly differentiated carcinoma because the tumor cells are mostly infiltrating as sheets and there is less tubular formation. I cannot appreciate any tubular formation in this figure and here is a higher power view showing the atypia and the frequent mitosis

Dr. Maha's Material From (24 - 36)

محاضرتين فقط من مادة الميد !

Clear cell renal carcinoma



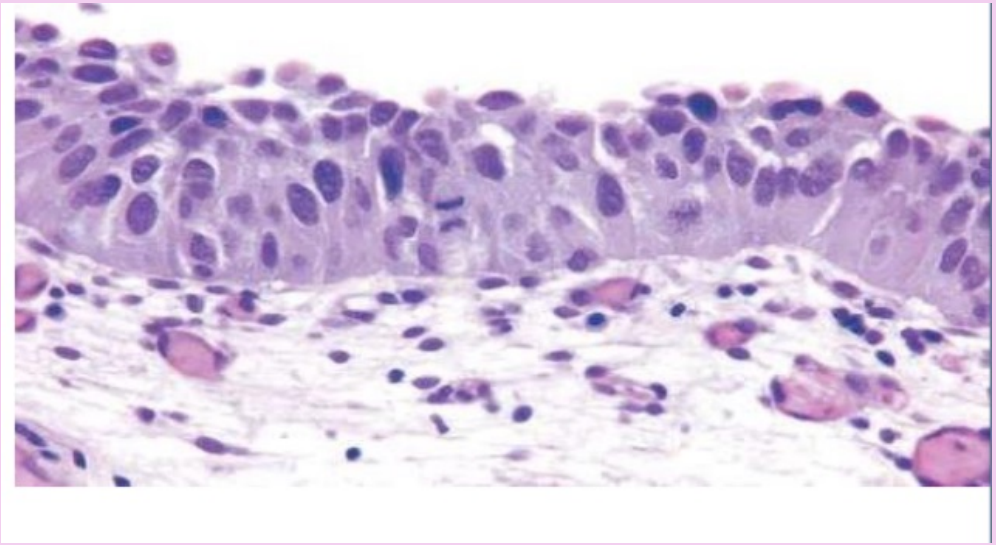
- Relatively large due to an abundant cytoplasm

- Abundant empty cytoplasm

(in real life it isn't empty as it is filled with either glycogen or lipid but it is dissolved during processing). So it appears as a clear cell

- Island of the tumor are separated with delicate fibrous tissue
- When there is clear cells predominance it's called a clear cells carcinoma, But sometimes there is a mixture with other type of tumor cells

Carcinoma in situ (CIS) with enlarged hyperchromatic nuclei and a mitotic figure

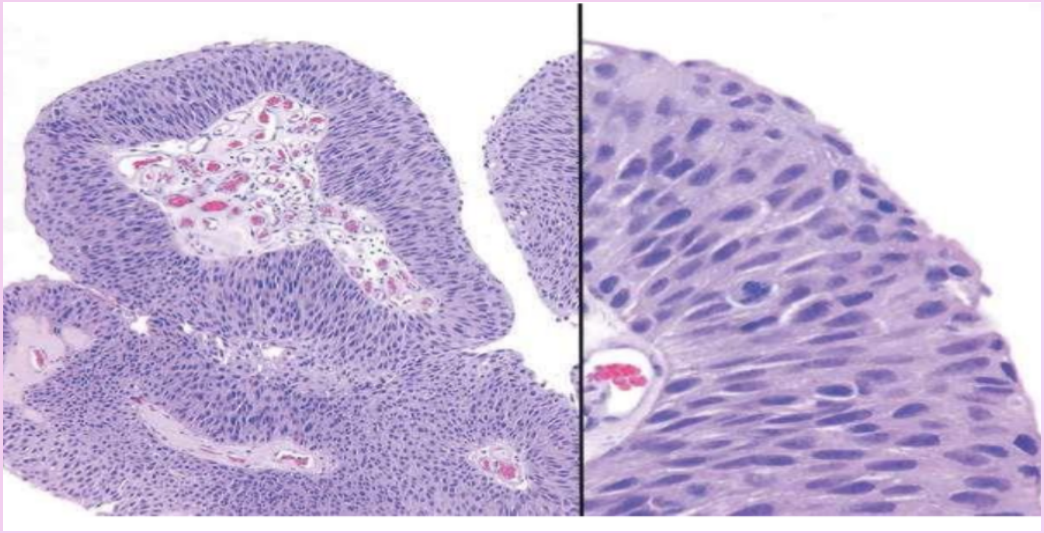


- This is a urothelial or transitional epithelium , the urothelial show all nuclear changes involving the full layer (pleomorphic, hyperchromatic nuclei) .And this is the basic definition of CIS
- Normally the urothelial surface is larger with abundant cytoplasm showing maturation and we call it umbrella cells

- So you can notice the abnormal state here
- Why it's in situ?

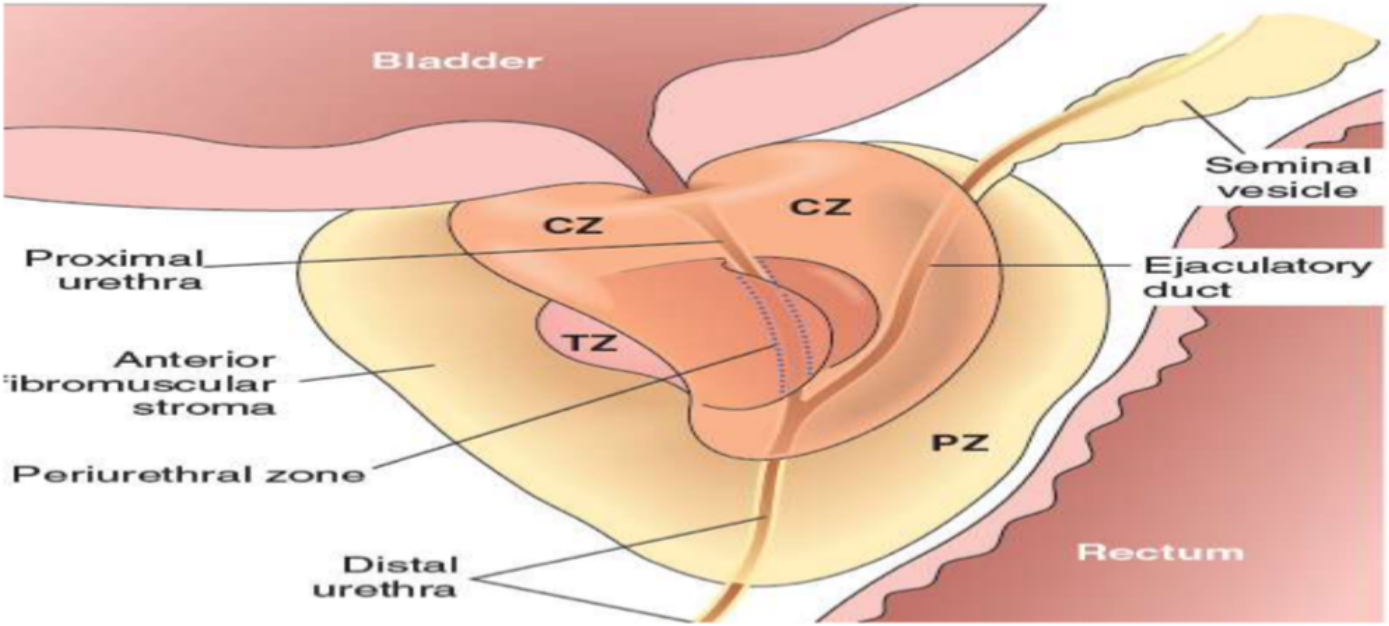
Because the basal membrane over which the epithelium is lying is intact. Thin flat line with No invasion

Noninvasive low-grade papillary urothelial carcinoma. Higher magnification (right) shows slightly irregular nuclei with scattered mitotic figures



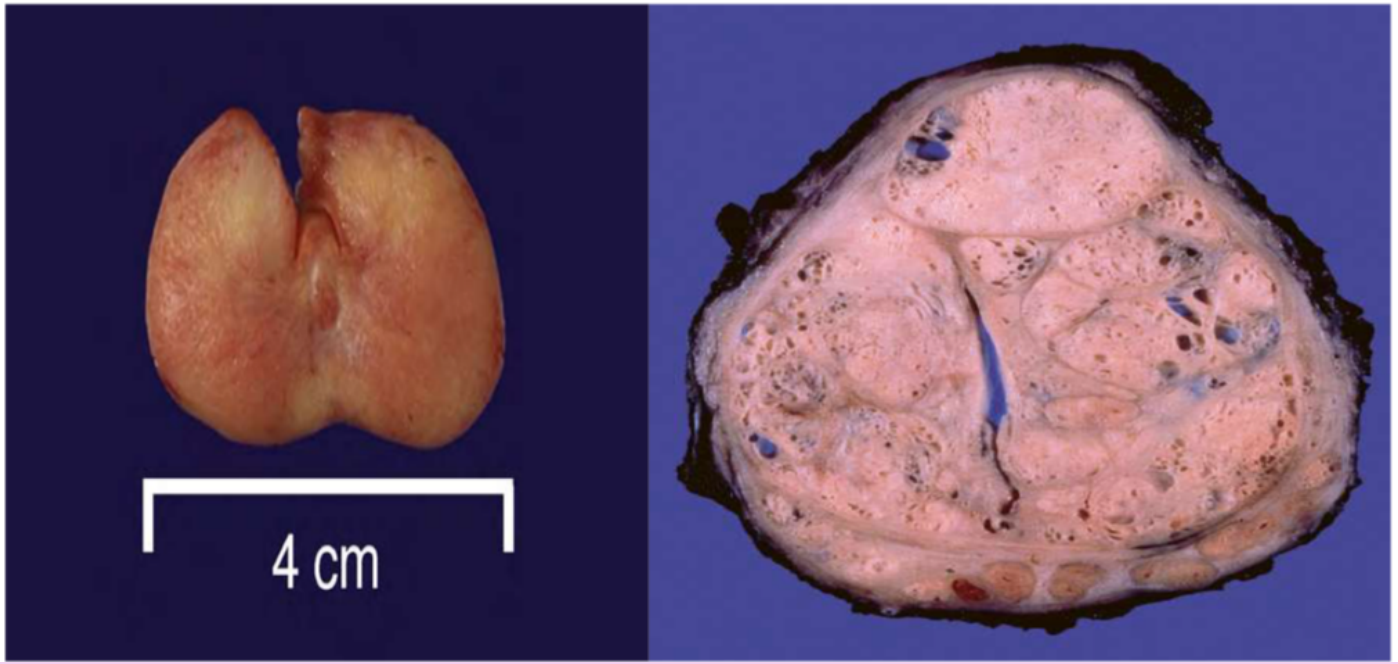
- The core of papilli is formed by fibrous tissue which is vascularized.
- And if we look at the epithelium which show features of nuclear dysplasia you can see the tumor cells with mitosis and this depends on the grade of the tumor

Prostate zones
central zone (CZ), a peripheral zone (PZ), a transitional zone (TZ), and a periurethral zone.



U can go back to slides if u don't remember about this disease

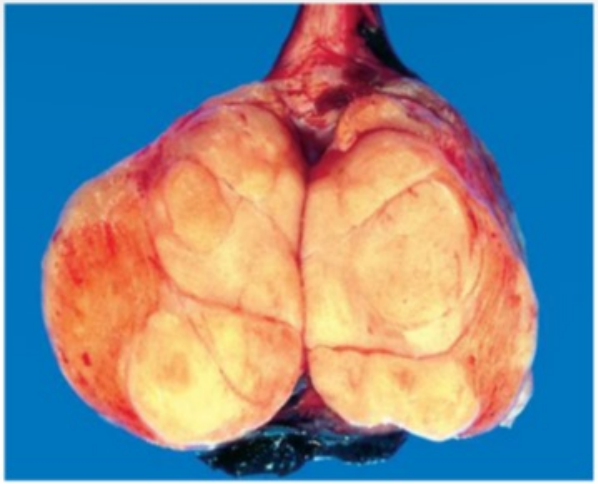
Benign nodular hyperplasia of prostate



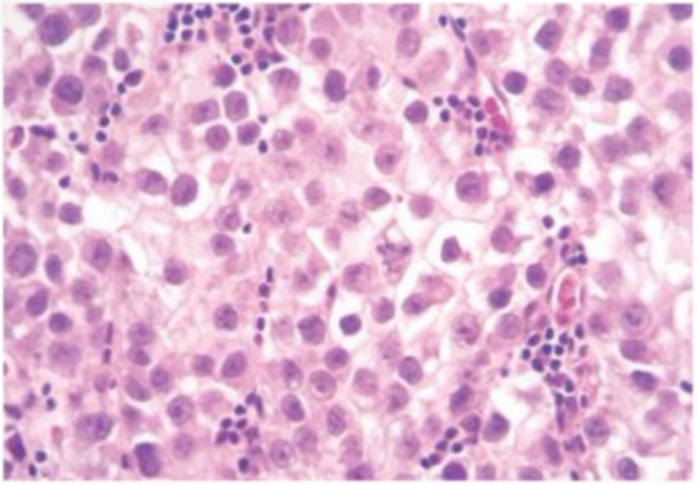
U can go back to slides if u don't remember about this disease

Prostate adenocarcinoma

1. Seminoma

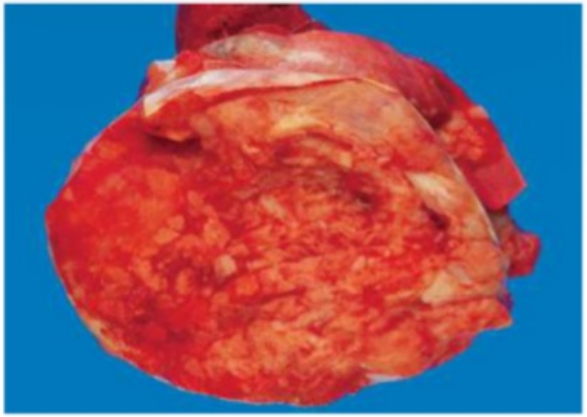


Seminoma :circumscribed, pale, fleshy, homogeneous mass; usually without hemorrhage or necrosis.

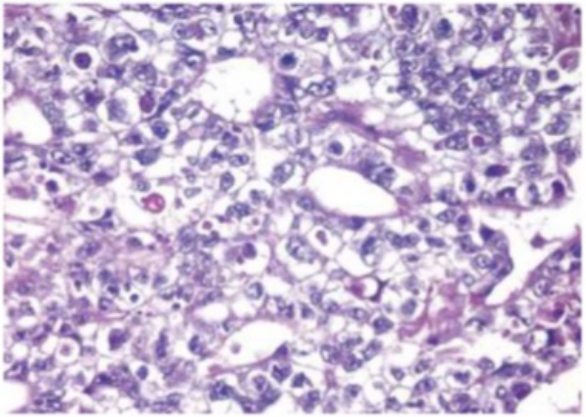


Microscopic examination reveals large cells with distinct cell borders, pale nuclei, prominent nucleoli, and lymphocytic infiltrate.

2. Embryonal carcinoma



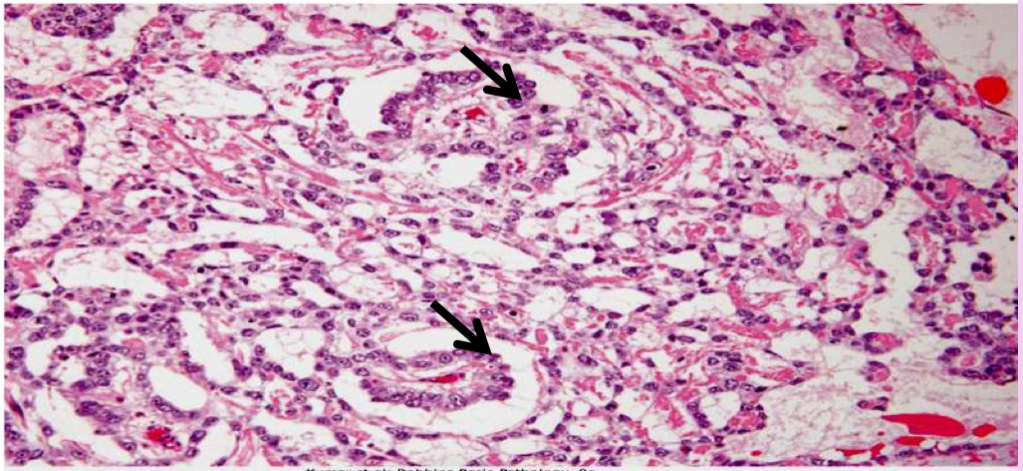
ill-defined masses containing foci of **hemorrhage** and **necrosis**



Sheets of undifferentiated cells & primitive gland -like structures. The nuclei are large and hyperchromatic with prominent nucleoli, and increased mitotic activity

- **20-30 years old**
- **More aggressive than seminoma**

3. Yolk sac tumor (arrows: Schiller-Duvall bodies)



The most common primary testicular neoplasm in children <3 year

• Good prognosis in young children

• In adults, pure form of yolk sac tumors is rare and have a worse prognosis

Histologically:

- The tumor is composed of low cuboidal to columnar epithelial cells forming Microcysts, Lacelike (reticular) patterns.

- A distinctive feature is the presence of structures resembling primitive glomeruli, called Schiller-Duvall bodies.

- Alpha- feto-protein (AFP) usually detected in serum

- The tumor is composed of low cuboidal to columnar epithelial cells forming Microcysts, Lacelike (reticular) patterns.

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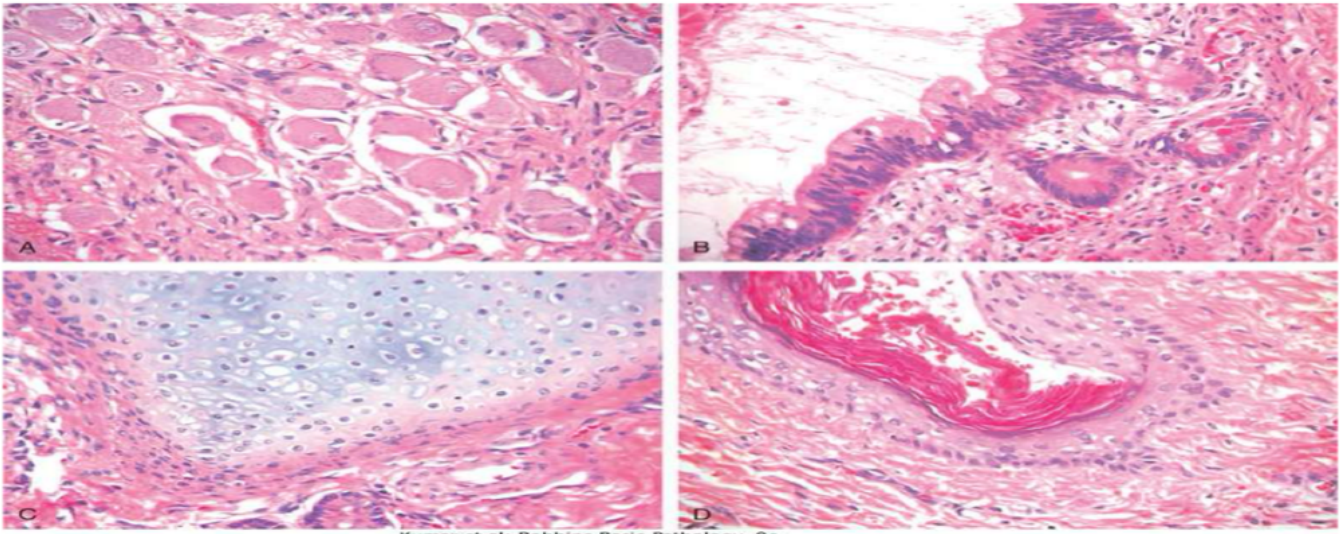
Teratoma



Teratoma

Teratoma

• The neoplastic germ cells differentiate along somatic cell lines showing various cellular or organoid components

• Resonant of the normal derivatives of more than one germ layer.

• May affect all ages In children

- Pure forms of teratoma are common being second in frequency to yolk sac tumors

• In adults

- Pure teratomas are rare (3% of germ cell tumors).

- frequency of teratoma mixed with other germ cell tumors is high

Grossly:

Firm masses and cysts with hair, cartilage, bone, and even teeth!

• Histologically:

1. Mature teratomas:

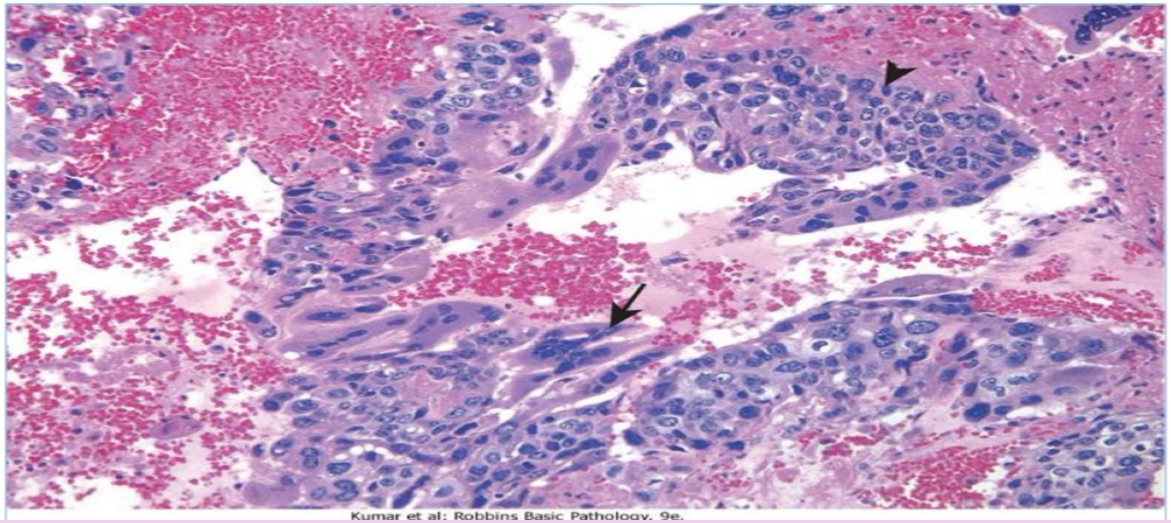
a heterogeneous collection of differentiated cells, such as neural tissue, muscle bundles, islands of cartilage, clusters of squamous epithelium, etc.

2. Immature teratomas:

- Contain fetal primitive tissue

Choriocarcinoma

Arrow: **Syncytiotrophoblast**
Arrow head: Cytotrophoblast



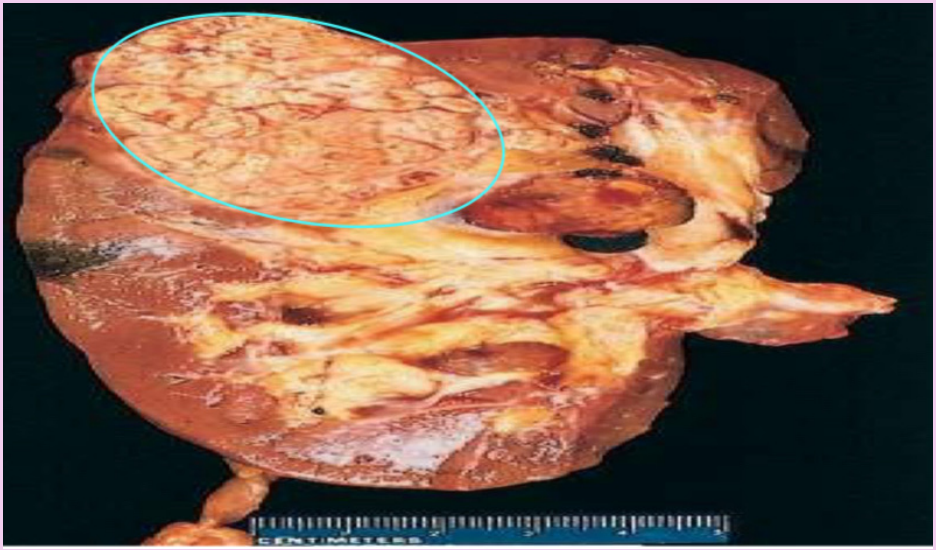
Macroscopically:

- **The primary tumors may be small even in patients with extensive metastatic disease.**
- **necrosis and hemorrhage are extremely common Microscopic examination:**

1- Syncytiotrophoblasts: large multinucleated cells with abundant eosinophilic vacuolated cytoplasm producing HCG.

2- Cytotrophoblasts: polygonal cells with distinct borders and clear cytoplasm grow in cords or masses and have a single, fairly uniform nucleus

Clear cell renal carcinoma
Spherical tumor in the cortex of the kidney



- Well demarcated margin

of the tumor However with progression of the tumor this demarcation might be lost due to evolvement of the invasion to the surrounding tissue

- The growth of the tumor include the invasion of :

1-the Cortical tissue
2-the kidney capsule (stretched out because of tumor growth)
3-Perinephric fat
4-adrenal gland Invasion can occur in all directions

Good luck