

# Pathology

## Reproductive Practical Summary



439

اللهم لا سهل الا ما جعلته سهلا وانت  
تجعل الحزن اذا شئت سهلا

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## **DISCLAIMER!!!**

This is done by the effort of students and may fall short of what will actually come on the exam. You are expected to have studied the theoretical material and the whole practical file before going into the exam.

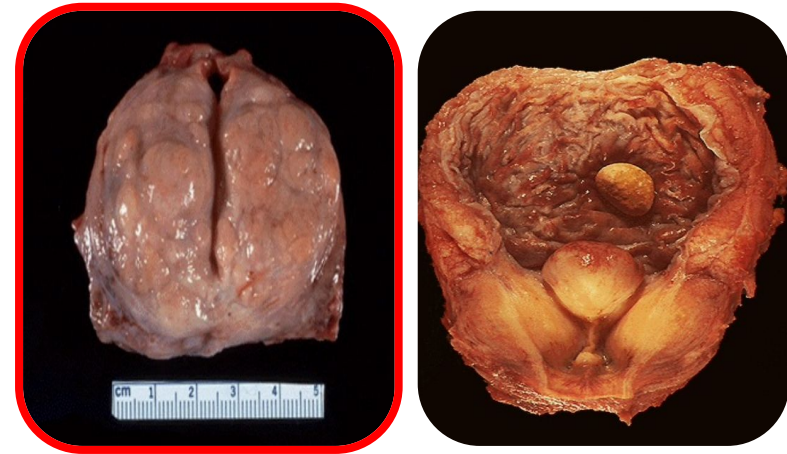
This is to be used for revision, it contains what we have deemed important from what the doctor had said.

**We are not held liable or responsible for any content in the exam out of this file.**

**Thank you and good luck.**

# Prostatic Hyperplasia

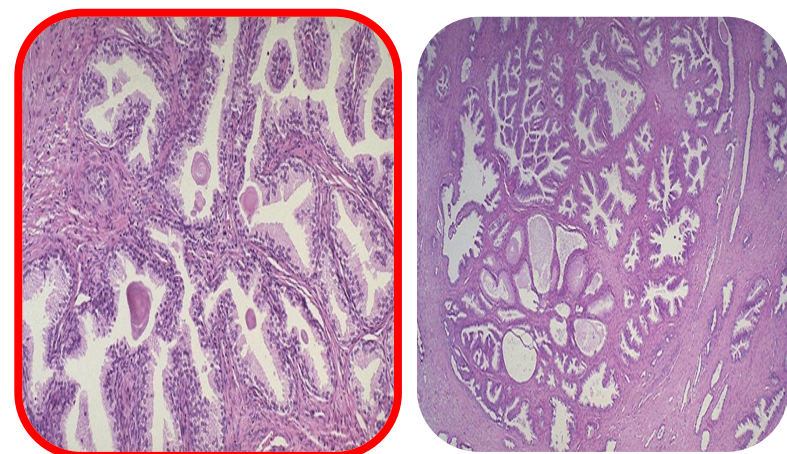
- ❖ Enlarged lateral lobes, and median lobe that obstructs the prostatic urethra that led to obstruction with bladder hypertrophy, as evidenced by the prominent trabeculation of the bladder mucosa. Obstruction with stasis also led to the formation of the yellow-brown calculus (stone).
- ❖ Pale, gray, nodular cut surface or nodules.
- ❖ Narrow “slit like” urethra.
- ❖ Prostatic hyperplasia is usually in: Central and periurethral zones or part . Thats why people with BPH have urine retention



Prostatic Hyperplasia (GROSS)

## Microscopic

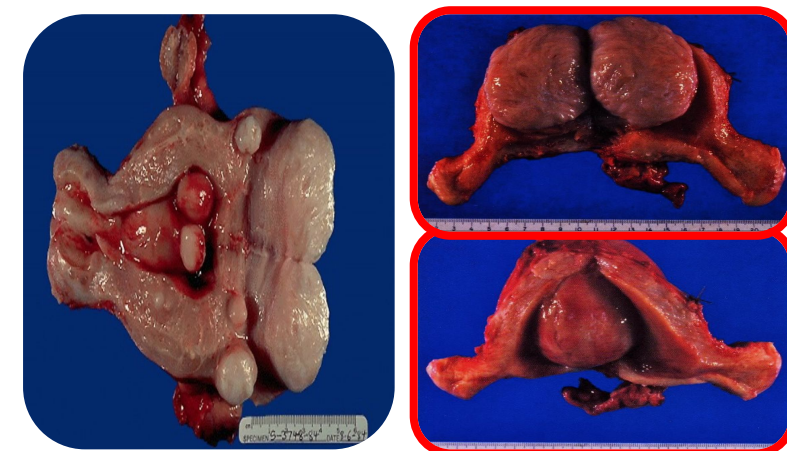
- ❖ Microscopically, benign prostatic hyperplasia can involve both glands and stroma, though the former is usually more prominent. Here, a large hyperplastic nodule of glands is seen
- ❖ Nodules of hyperplastic prostatic glands and stroma.
- ❖ The enlarged prostate has glandular hyperplasia. The glands are well- differentiated and still have some intervening stroma (smooth muscle surface) . The small laminated pink concretions within the glandular lumens are known as corpora amylacea.
- ❖ There is a smooth muscle stroma here, if you can't find stroma it may be Adenocarcinoma



Prostatic Hyperplasia (HPF & LPF)

# Uterine Leiomyomata

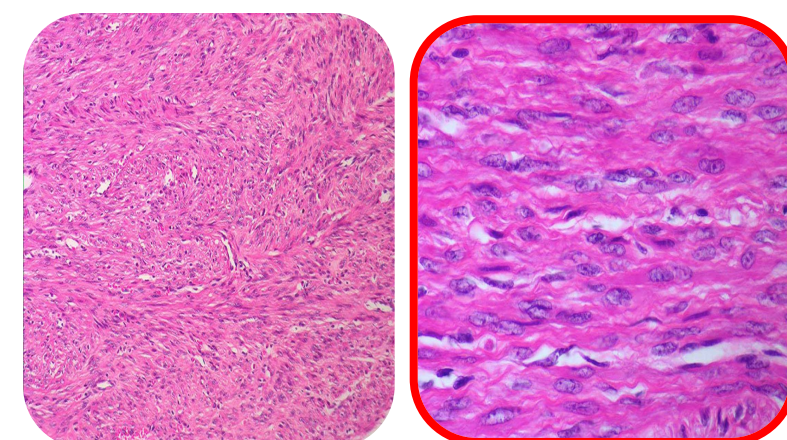
- ❖ Left Pic: Smooth muscle tumors of the uterus are often multiple. Seen here are submucosal, intramural, and subserosal leiomyomata of the uterus.
- ❖ Right Pics: A well demarcated tumour mass in the muscle coat of uterus without a definite capsule. (INTRAMURAL)



Prostatic Hyperplasia (GROSS)

## Microscopic

- ❖ Tumour consists of interlacing bundles of smooth muscle and fibrous tissue.
- ❖ The muscle cells are spindle shaped with elongated nuclei and eosinophilic cytoplasm.
- ❖ The muscle cells (smooth muscle) cells are spindle shaped with elongated nuclei and eosinophilic cytoplasm





# Cervical Dysplasia & Cervical Carcinoma

## DYSPLASIA

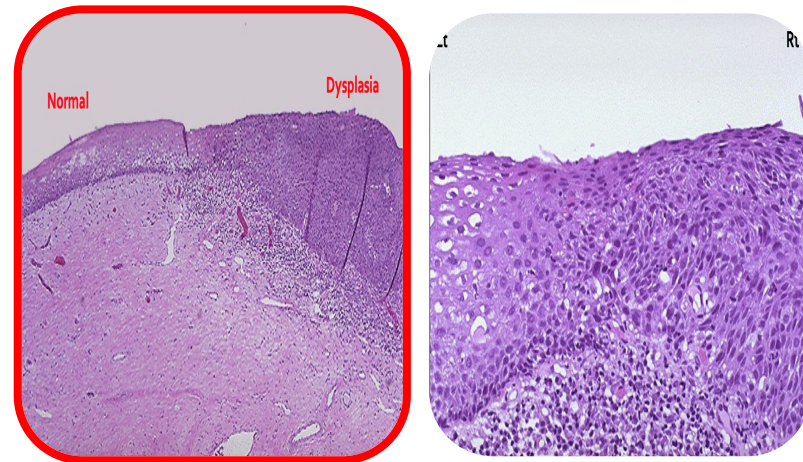
### Microscopic

#### Left Pic

- ❖ **Diagnosis:**
  - Uterine cervical squamous dysplasia.
  - CIN (cervical intraepithelial neoplasia).
- ❖ The normal cervical squamous epithelium at the left transforms to Severely dysplastic ectocervical squamous epithelial (high grade dysplasia) diffuse atypia and less maturation with underlying chronic inflammation
- ❖ Severe squamous dysplasia and carcinoma in situ are both forms of high grade dysplasia (can be synonyms) and they are different from dysplasia, because dysplasia is a general word and it has different grades

#### Right Pic:

- ❖ Dysplastic cells/nuclei.
- ❖ Large and dark nuclei.
- ❖ Disordered cells, loss of polarity.
- ❖ Chronic inflammatory cells.

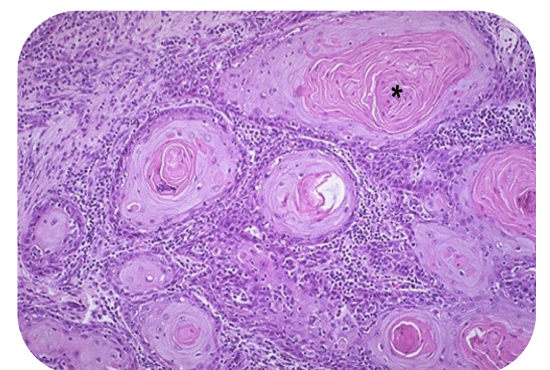
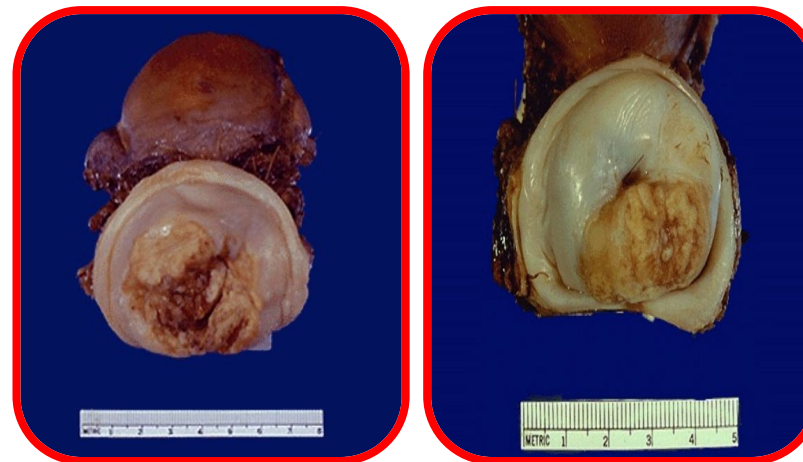


## CARCINOMA

- ❖ This is the gross appearance of a cervical squamous cell carcinoma that is still limited to the cervix (stage I).
- ❖ The tumor is a fungating red to tan to yellow mass.

### Microscopic

- ❖ At high magnification, nests of neoplastic squamous cells are invaded through a chronically inflamed stroma. This cancer is well-differentiated, as evidenced by keratin pearls (\*) within nests of tumor cells. However, most cervical squamous carcinomas are non-keratinizing.
- ❖ Important risk factors for the development of CIN and invasive carcinoma thus are directly related to Human Papilloma Virus (HPV) exposure and include:
  - Early age at first intercourse.
  - Multiple sexual partners.
  - Male partner with multiple previous sexual partners.
  - Persistent infection by high-risk strains of papillomavirus



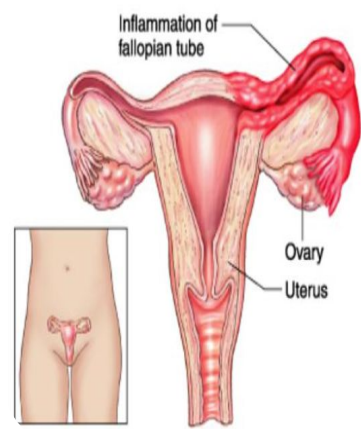


# Acute Salpingitis

- ❖ inflamed fallopian tube = salpingitis  
if there is neutrophils present = acute salpingitis
- ❖ Adherence of the inflamed tube to the ovary and adjacent ligamentous tissues may produce a tubo ovarian abscess. This may in turn result in adhesions between the ovary and the tubes when the inflammation subsides. Even more serious are adhesions of the tubal plicae, which are associated with increased risk of tubal ectopic pregnancy. Damage to or obstruction of the tubal lumina may produce permanent sterility.
- ❖ Acute salpingitis: Excised congested swollen fallopian tube with hemorrhagic patches



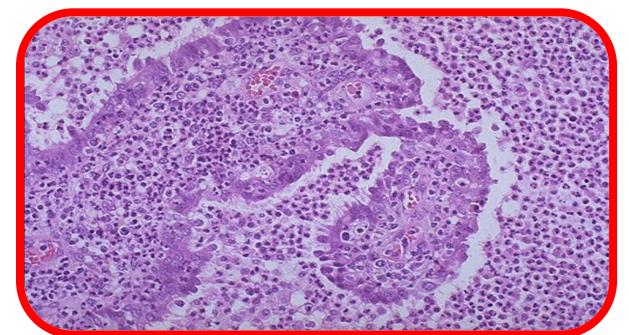
Acute Salpingitis-  
GROSS



Normal vs Inflamed  
Fallopian Tube

## Microscopic

- ❖ A remnant of ciliated tubal epithelium is seen here surrounded and infiltrated by numerous neutrophils. This is acute salpingitis. Neisseria gonorrhoeae was cultured.



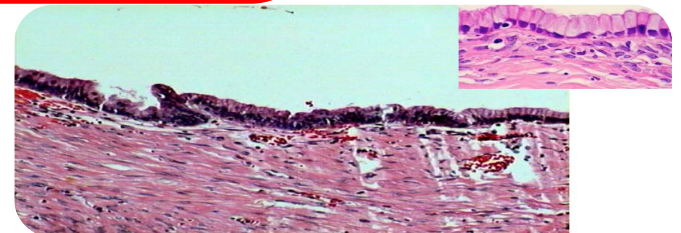
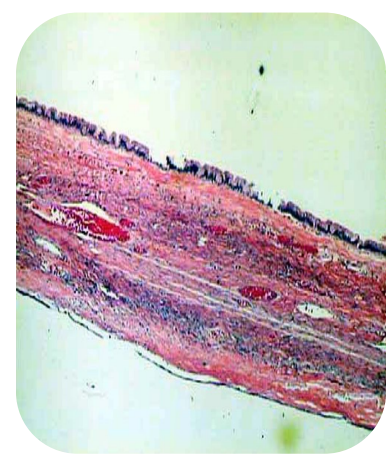
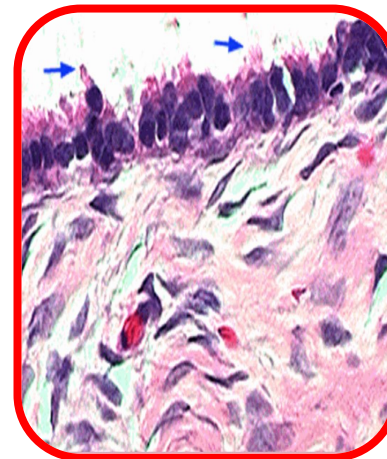
# Ovarian Cyst

- ❖ Right pic: Here is a benign cyst in an ovary. This is probably a follicular cyst. Occasionally such cysts may reach several centimeters in size and, if they rupture, can cause abdominal pain.
- ❖ Left pic: Benign epithelial tumors of the ovary can reach massive proportions. The serous cystadenoma seen here fills a surgical pan and dwarfs the 4 cm ruler.



## Microscopic

- ❖ Left Pic
  - The blue arrows point to cilia.
  - The cells have dark nuclei without nucleoli or mitoses.
  - The cytoplasm is eosinophilic and ciliated like tubal epithelium.
  - The stroma contains spindly fibroblasts
- ❖ Right Pic: Microscopy shows the thin wall lined by a single layer of mucin-secreting columnar cells with a basally-placed spherical small nucleus
- ❖ High power shows the thin wall lined by a single layer of mucin-secreting columnar cells with a basally-placed spherical small nucleus





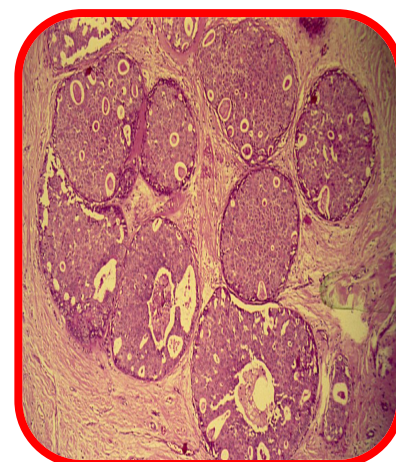
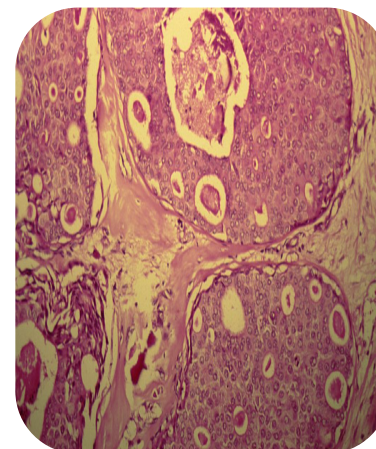
# Carcinoma of the breast

- ❖ Breast Cancer clinical signs:
  - Inverted nipple.
  - Skin dimpling or retraction.
- ❖ Left pic:
  - Ill-defined pale and firm nodule with overlying retracted nipple and surrounding skin .



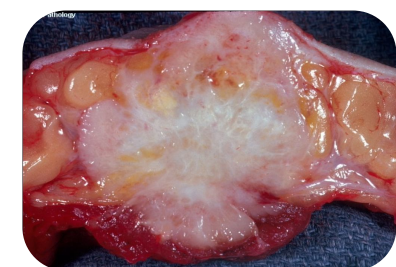
## Microscopic

- ❖ Right pic: Cells are forming imperfect acini and shows a cribriform pattern. Small groups of cells in the center of many ducts are necrotic. No invasion of basement membrane of the ducts.
- ❖ Left pic: The basement membrane is intact and clear and there is Central (“comedo”) necrosis. Large ducts are distended by neoplastic/atypical ductal epithelial cells which are pleomorphic with large hyperchromatic nuclei and mitosis.



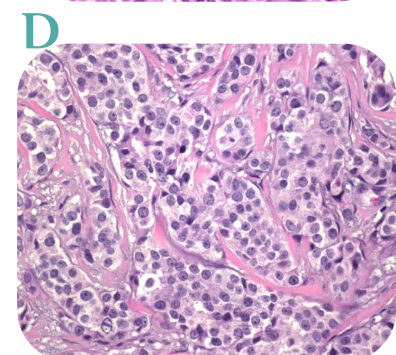
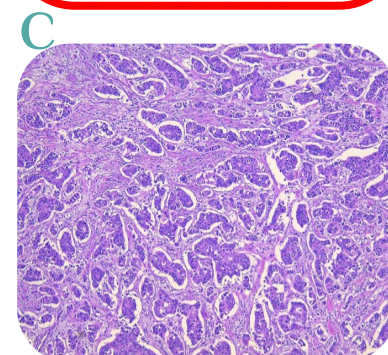
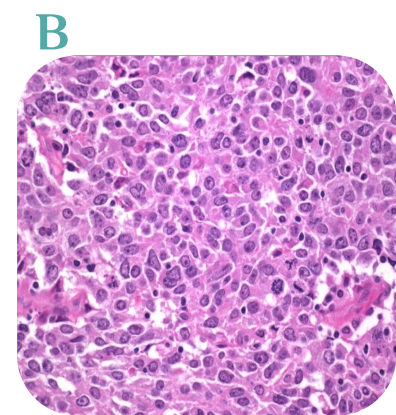
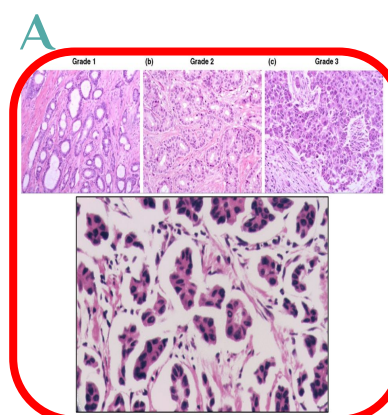
# Invasive Carcinoma of the Ductal Breast

- ❖ In a typical invasive ductal carcinoma, the tumor is firm and poorly circumscribed with a yellowish gray cut surface. It cuts with a gritty sensation. It may show strands radiating into the surrounding fat.



## Microscopic

- ❖ (A) : Microscopically , A well-differentiated ductal carcinoma made up of small acini and glands. Tumour cells are round to polygonal with deeply stained nuclei and occasional mitoses. Nuclear atypia is mild
- ❖ (B) : High grade invasive ductal carcinoma, The tumor cells are highly pleomorphic and show frequent mitotic figures with minimal tubular formation
- ❖ (C&D) :
  - Cords and sheets of pleomorphic tumor cells.
  - Surrounding dense fibrous stroma.
  - Scattered lymphocytes.







# QUIZ!

## Case 1

A 64-year-old man presents with a 4-day history of dysuria and hematuria. He has a history of repeated bouts of acute cystitis. Urine cultures are positive for *E. coli*. Ultrasound examination reveals an echogenic object in a bladder diverticulum.

### 1. What is the Diagnosis ?

Benign Prostatic Hyperplasia

### 2. Describe the gross features

Pale, gray, (nodular) cut surface or nodules + Narrow “slit like” urethra.

### 3. BPH usually occur in which part of the prostate ?

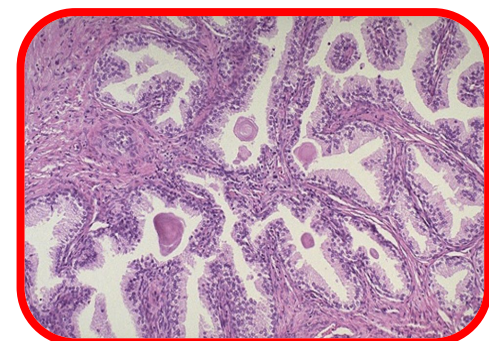
Central and periurethral zones

### 4. List 3 BPH clinical features.

-Bladder Hypertrophy      -Infections      -Urinary frequency, Dysuria, Nocturia

### 5. Describe the microscopic features

Nodules of hyperplastic prostatic glands and stroma (smooth muscle fibers), along with other benign features.



## Case 2

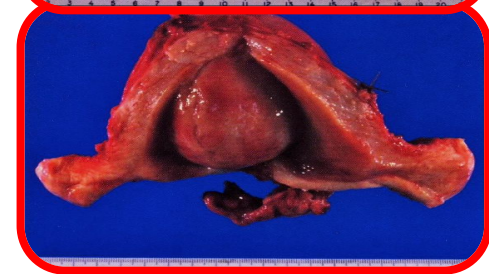
A 33-year-old woman with a history of menorrhagia presents with a 6-month history of increasing fatigue. A CBC reveals a hypochromic, microcytic anemia (hemoglobin = 8 g/dL). Bimanual pelvic examination reveals an enlarged uterus with multiple, irregular masses. A hysterectomy is performed, and a sharply circumscribed fleshy tumor is found within the uterine wall (shown in the image). Which of the following is the most likely cause of vaginal bleeding and anemia in this patient?

### 1. What is the Diagnosis ?

Uterine Leiomyoma

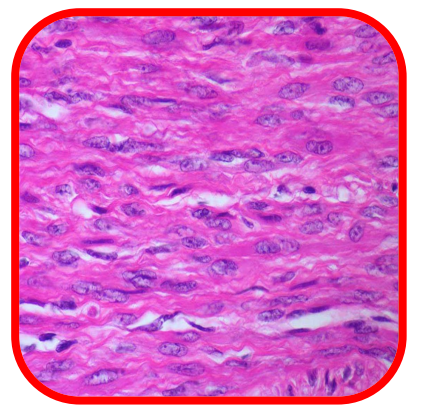
### 2. Describe gross features

A well demarcated INTRAMURAL/submucosal tumor mass in the muscle coat of uterus without a definite capsule.



3. Describe microscopic features.

The muscle cells (smooth muscle) cells are spindle shaped with elongated nuclei and eosinophilic cytoplasm



## Case 3

A 19-year-old student presents to the university health service with lower abdominal pain and a painful swollen right knee. She denies any trauma to the knee. Pelvic examination is exquisitely painful and reveals an ill-defined thickening in the right and left adnexae. A vaginal discharge is noted. The patient is febrile (38.7°C/103°F). Examination of her right knee reveals an enlarged, tender, and warm joint. The WBC count is 18,500/ $\mu$ L (normal = 4,000 to 11,000/ $\mu$ L).

1. What is the Diagnosis ?

Pelvic inflammatory disease (Acute salpingitis)

2. What is the most common cause of Acute salpingitis

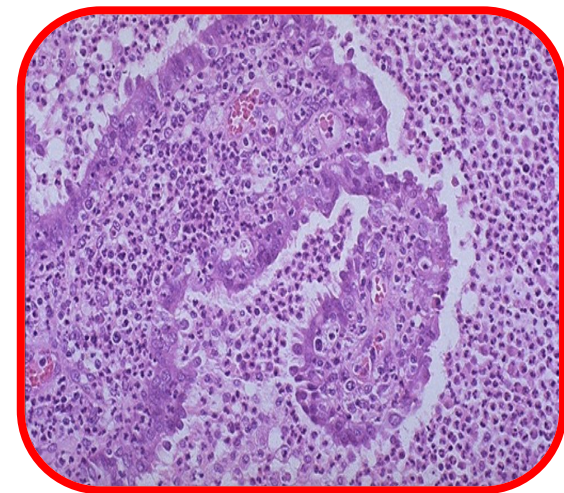
Common causes of salpingitis include sexually transmitted diseases such as gonorrhoea

3. Describe the microscopic features.

ciliated tubal epithelium is seen here surrounded and infiltrated by numerous neutrophils

4. What are the complication of Salpingitis ?

- Ectopic pregnancy
- Adhesions



## Case 4

A 45-year-old woman discovers a solitary, freely movable mass in her right breast on self-examination, which is confirmed on physical examination. Mammography demonstrates focal calcification, with a linear configuration in the region of the breast mass. A breast biopsy (shown in the image) reveals large, pleomorphic epithelial cells confined to dilated ducts, with central zones of necrosis.

1. What is the Diagnosis ?

Ductal carcinoma in situ

2. Describe gross features

Inverted nipple + Skin dimpling or retraction.





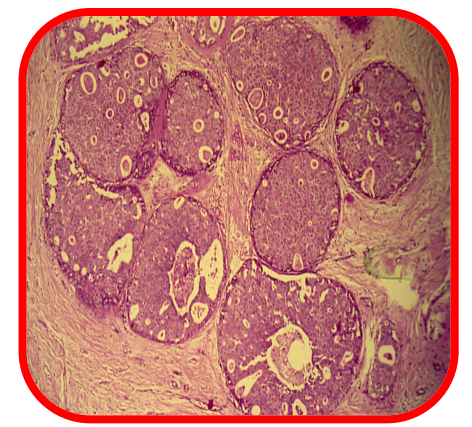
### 3. Describe microscopic features.

Cells are forming imperfect acini and shows a cribriform pattern. Small groups of cells in the center of many ducts are necrotic. No invasion of basement membrane of the ducts.

### 4. What are the risk factors of Both Invasive ductal carcinoma of the breast & Ductal carcinoma in situ ?

Atypical ductal hyperplasia is the main risk factor. (If you are not given specific details)

Other risk factors in the table to the right →



#### Breast Cancer Risk Factors

| Factor  | Relative Risk             |
|---|---------------------------|
| <b>Well-Established Factors</b>                 |                           |
| Geography                                       | Varies in different areas |
| Age   | Increases after age 30    |
| <b>Family history</b>                           |                           |
| First-degree relative with breast cancer        | 1.2–3.0                   |
| Premenopausal                                   | 3.1                       |
| Postmenopausal and bilateral                    | 8.5–9.0                   |
| Postmenopausal                                  | 1.5                       |
| Postmenopausal and bilateral                    | 4.0–5.4                   |
| <b>Menstrual history</b>                        |                           |
| Age at menarche <12 years                       | 1.3                       |
| Age at menopause >55 years                      | 1.5–2.0                   |
| <b>Pregnancy</b>                                |                           |
| First live birth from ages 25 to 29 years       | 1.5                       |
| First live birth after age 30 years             | 1.9                       |
| First live birth after age 35 years             | 2.0–3.0                   |
| Nulliparous                                     | 3.0                       |
| <b>Benign breast disease</b>                    |                           |
| Proliferative disease without atypia            | 1.6                       |
| Proliferative disease with atypical hyperplasia | >2.0                      |
| Lobular carcinoma in situ                       | 6.9–12.0                  |
| <b>Other Possible Factors</b>                   |                           |
| Exogenous estrogens                             |                           |
| Oral contraceptives                             |                           |
| Obesity   |                           |
| High-fat diet                                   |                           |
| Alcohol consumption                             |                           |
| Tobacco smoking                                 |                           |

## Case 5

A 50-year-old woman has been aware of a mass in her left breast for the past 6 months. A 4-cm mass is palpated on examination. The mass is hard, tender, and fixed to the overlying skin. A lumpectomy is performed. The surgical specimen is firm, has poorly defined margins, and cuts with a gritty sensation. The cut surface is gray, opaque, and slightly depressed. Streaks of gray connective tissue extend into the surrounding fibroadipose tissue. The tumor histology is shown in the image. Which of the following risk factors has the strongest association with this patient's tumor?

### 1. What is the Diagnosis ?

Invasive ductal carcinoma of the breast

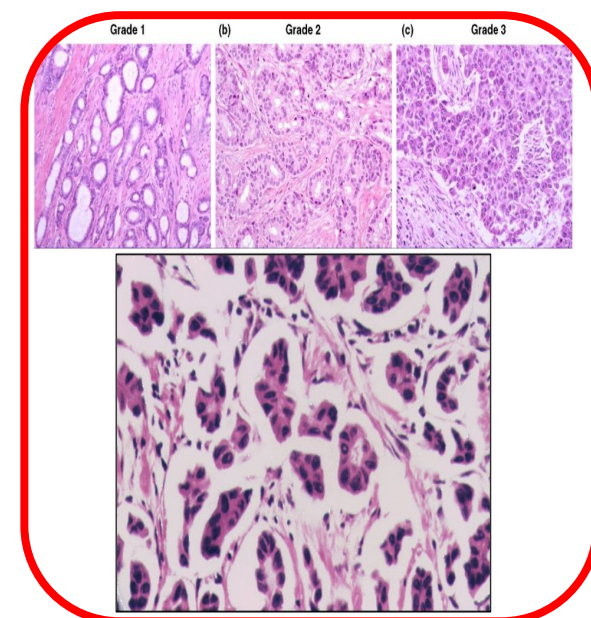
### 2. What are the risk factors of Both Invasive ductal carcinoma of the breast & Ductal carcinoma in situ ? (Repeated Question)

Atypical ductal hyperplasia is the main risk factor. (If you are not given specific details)

Other risk factors in the Table above.

### 3. Describe the microscopic features.

A well-differentiated ductal carcinoma made up of small acini and glands. Tumour cells are round to polygonal with deeply stained nuclei and occasional mitoses. Nuclear atypia is mild



## Case 6

A 33-year-old woman complains of vaginal spotting after intercourse. A cervical Pap smear is taken, and the results are shown in the image. A normal squamous epithelial cell is in the right upper corner.

### 1. What is the Diagnosis ?

High grade (SEVER) dysplasia = Squamous carcinoma in-situ

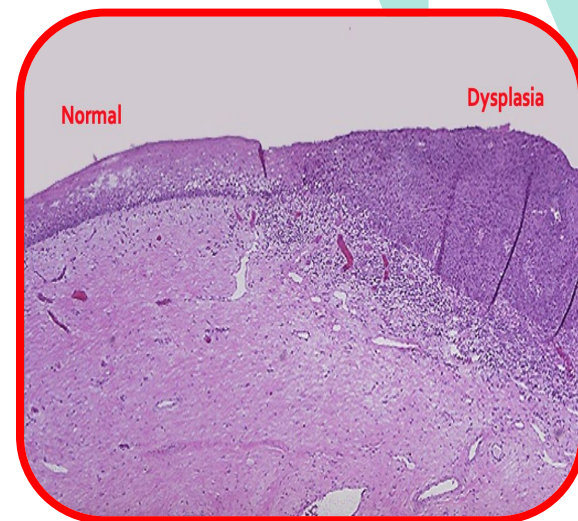
### 2. Describe the microscopic features

Left side → normal cervical squamous epithelium

Right side → Severely dysplastic ectocervical squamous epithelial (high grade dysplasia) diffuse atypia and less maturation with underlying chronic inflammation

### 3. What is the main cause of Squamous carcinoma in-situ?

HPV infection



## Case 7

16-year-old presented with abdominal pain and abdominal distention. Imaging studies reveal a mass replacing the left ovary. A unilocular cysts filled with clear watery fluid is removed. Tumor spaces are lined by Cuboidal ciliated epithelial cells.

### 1. What is the Diagnosis ?

Serous Cystadenoma

### 2. Describe the microscopic features

-Cuboidal ciliated epithelium

-The blue arrows point to cilia.

-The cells have dark nuclei without nucleoli or mitoses.

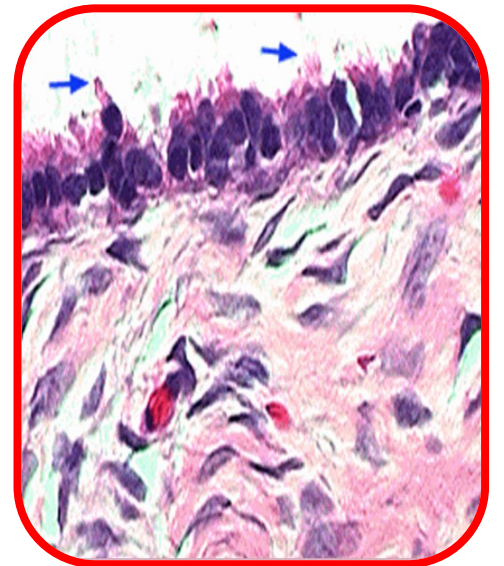
-The cytoplasm is eosinophilic and ciliated like tubal epithelium.

-The stroma contains spindly fibroblasts

(in mucinous Cystadenoma there is no ciliation and we see columnar epithelium, basal nuclei, and when we open it the fluid thick, mucoid and viscous)

### 3. What is the main cause of Squamous carcinoma in-situ?

HPV infection



## EXTRA Q

### 1. What is the malignant form of Fibroadenoma ?

Malignant phyllode tumor

Good luck !

