



# Pathology OSPE Review

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# Cases:

## Male pathology

1. Testicular atrophy
2. Seminoma of the testis
3. Embryonal carcinoma and teratoma of testis
4. Benign prostatic hyperplasia (BPH)
5. Adenocarcinoma of prostate

## Female Pathology

### Uterus

1. Uterine leiomyoma
2. Uterine leiomyosarcome
3. Endometrial hyperplasia
4. Endometrial adenocarcinoma
5. Endometriosis
6. Cervical dysplasia
7. Cervical squamous cell carcinoma

### Fallopian tube

1. Acute salpingitis

### Ovaris

1. Ovarian cyst
2. Serous Cystadenoma of the Ovary
3. Dermoid Cyst (Teratoma) of the Ovary

### Breast

1. Fibroadenoma of the breast
2. Intraductal Carcinoma In-situ of the breast
3. Invasive Ductal Carcinoma of the Breast
4. Paget's Disease of the nipple

# Case 1: Testicular Atrophy

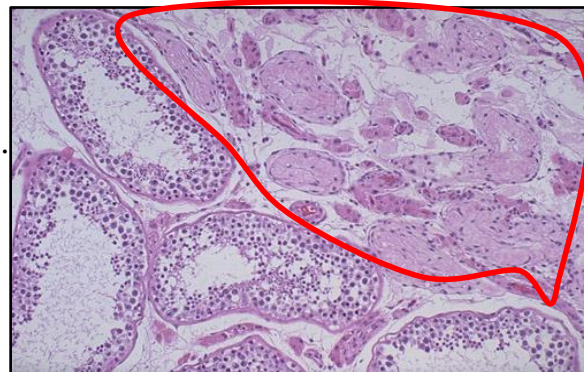
## Gross Features:

1. On the left is a normal testis.
2. On the right is a testis that has undergone **atrophy**.
3. **Small and shrunken** testis .



## Histopathological Features:

1. **Focal atrophy of tubules** seen on upper right.
2. Fibrosis of the tubules.



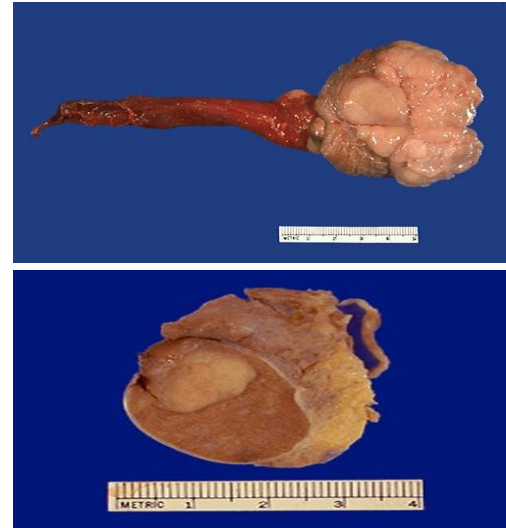
## Notes:

- Bilateral atrophy may occur with a variety of conditions including: **chronic alcoholism, hypopituitarism, atherosclerosis, chemotherapy or radiation and severe prolonged illness.**
- The most common reason for this is probably **childhood infection with the mumps virus** which produces a **patchy orchitis**. (inflammation of testis).

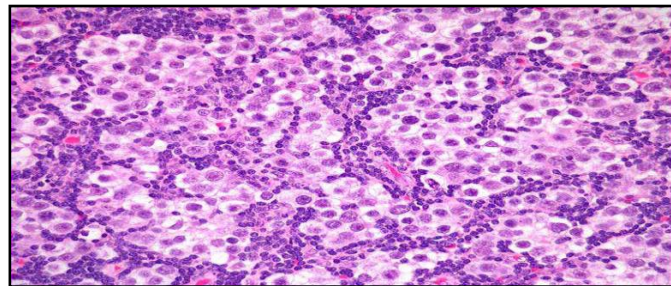
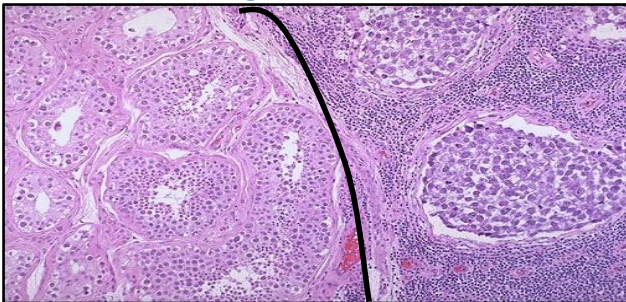
# Case 2: Seminoma of the testis

## Gross Features:

1. Pale and **lobulated testicular mass**.
2. Whitish & **bulging** potato like **cut surface**.
3. Congested spermatic cord.
4. Normal testis appears to the left of the mass.



## Histopathological Features:



- Normal testis appears at the left and seminoma is present at the right.
- Lymphoid stroma between the nests of seminoma.

Note: difference in size and staining quality of the neoplastic nests of cells compared to normal germ cells.

- Sheets of uniform **malignant germ cells** showing **large vesicular nuclei** and prominent nucleoli.
- Stroma with **lymphoid infiltrated**.

## Notes:

- Most important **risk factor** is **cryptorchidism** (undescended testicle).
- Seminoma:-
  1. It is Germ cell neoplasm which is the most common type of testicular neoplasm.
  2. Most common in the **15 to 34** age group.
  3. They often have several histologic components: seminoma, embryonal carcinoma, teratoma & choriocarcinoma.
  4. Has **good prognosis** because it is **radiosensitive**.
  5. Positive for PLAP (Placental alkaline phosphatase)
- An identical tumor occur in the **ovary** called **dysgerminoma**.



# Case 3: Embryonal carcinoma and teratoma of testis

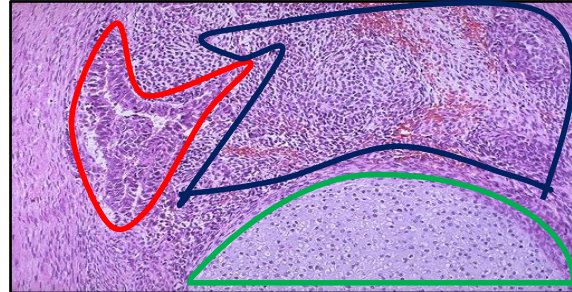
## Gross Features:

1. Embryonal carcinoma mixed with teratoma in which **islands of bluish white cartilage from the teratoma component are more prominent.**
2. A rim of normal brown testis appears at the left



## Histopathological Features:

1. **cartilage.**
2. **primitive mesenchymal stroma** of teratoma (undifferentiated).
3. **Primitive cells** most characteristic for **embryonal carcinoma.**
4. This is embryonal carcinoma mixed with teratoma.



## Notes:

- Embryonal carcinoma has bad prognosis and usually combined with another type of germ cell neoplasm. (Mixed form).

# Case 4: Benign prostatic hyperplasia (BPH)

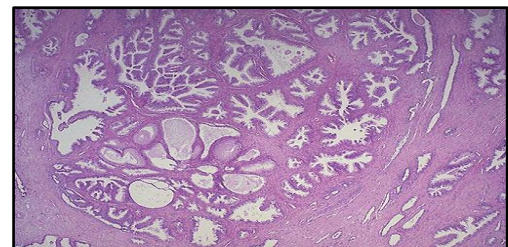
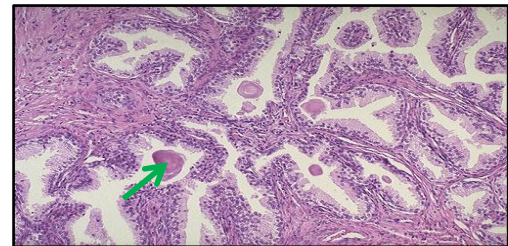
## Gross Features:

1. **Enlarged** prostate gland. (lateral & median lobes) (that led to obstruction with bladder hypertrophy).
2. Prominent trabeculation of the bladder mucosa.
3. **Multiple nodules** in prostate gland.
4. **Stone (yellow-brown calculus) formation in bladder** (Due to obstruction & urine stasis)



## Histopathological Features:

1. Fibromuscular **hyperplasia of glands and stroma**.
2. The gland lined by **two layers** of epithelium.
3. **Corpora amylacea** is present in some glands (sign of benign lesion).
4. **No prominent nuclei**.



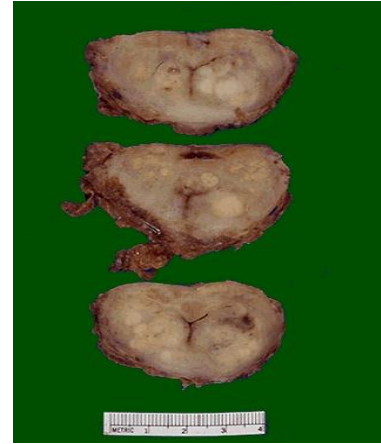
## Notes:

- Involved the **transitional zone (central)**.
- Such an enlarged prostate can obstruct urinary outflow from the bladder and lead to an **obstructive uropathy**.
- The pathogenesis of BPH is related to the action of **Dihydrotestosterone (DHT)**, which is the ultimate mediator for prostatic growth.
- **Clinical presentation:** **Acute urinary retention** (because the nodules compress the prostatic urethra and cause urethral obstruction).
- **Treatment:** Catheterization and **5 alpha reductase inhibitor** (to inhibit transformation of testosterone into Dihydrotestosterone)

# Case 5: Adenocarcinoma of prostate

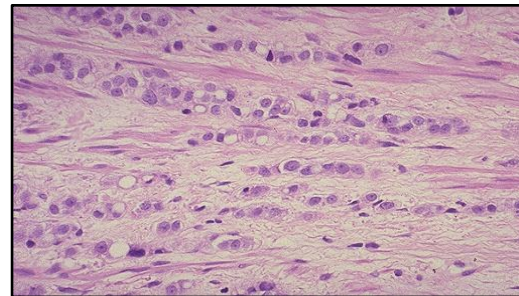
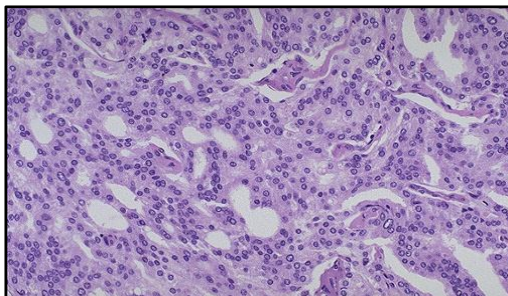
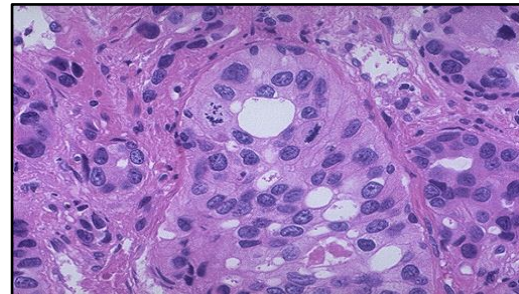
## Gross Features:

Irregular and pale yellowish firm nodules.



## Histopathological Features:

1. Glands surrounded by **malignant cells** and lined by single layer.
2. **prominent nucleoli**.
3. **Mitotic**.



## Notes:

- Involved the **posterior and periphery** of the gland.
- **Prostatic acid phosphatase (PAP)** and **prostate specific antigen (PSA)** are raised in the serum.
- Usually patients are elderly and come with no symptoms (Because it is away from urethra).
- Indicated by **PR examination**.
- This adenocarcinoma of prostate is **so poorly differentiated** that no glandular structure is recognizable, only cells infiltrating in rows.

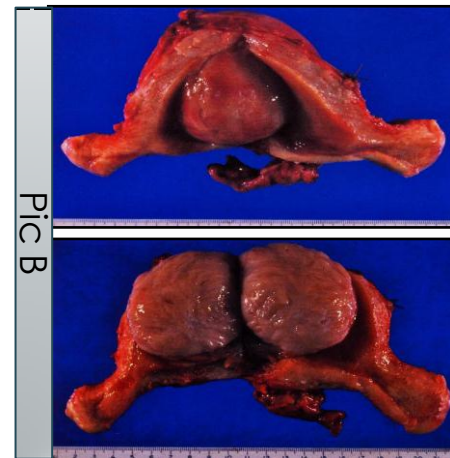
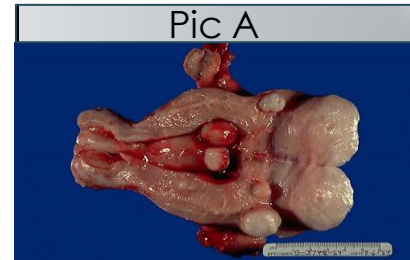


# Case 6: Uterine leiomyoma (Fibroid)

## Gross Features:

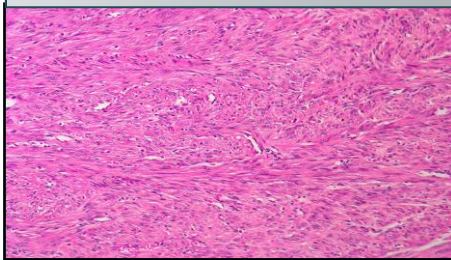
1. Multiple well circumscribed nodules. some submucosal (inside the uterine cavity), intramural (Within wall of uterus) and subserosal. (Pic A)
2. Fibroids showing pale and **Whorled cut surfaces**.

A well demarcated tumor mass within cavity of the uterus without a definite capsule. (Pic B)

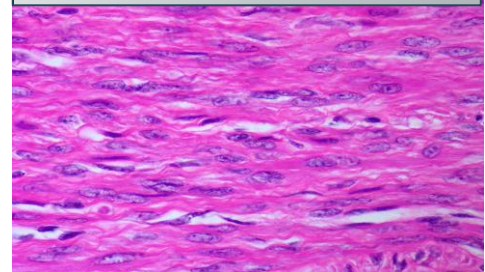


## Histopathological Features:

Low power



High power



1. Tumor consists of **interlacing bundles of smooth muscle and fibrous tissue**.
2. The muscle cells are spindle shaped with **elongated nuclei and eosinophilic cytoplasm**.
1. **Benign spindle cells** with **eosinophilic cytoplasm**.
2. **Absence** of mitoses, pleomorphic and necrosis. (This is what distinguishes it from leiomyosarcoma "malignant")
3. Cell of origin is **smooth muscle cells**.

## Notes:

- Benign tumor of smooth muscle cell of uterus.
- **Estrogen responsive** & no risk of malignancy.
- More symptoms if nodules located within the uterine cavity → **Bleeding**
- Excellent prognosis if excised.

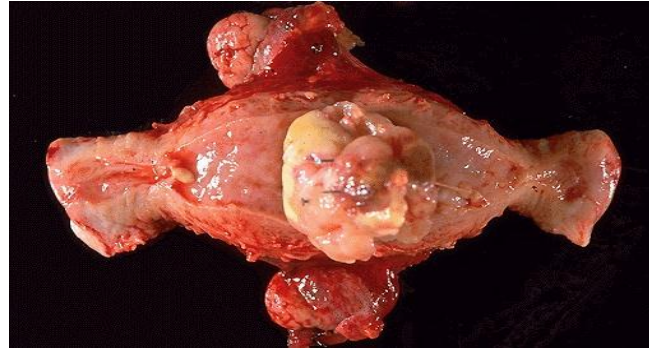


# Case 7: Uterine leiomyosarcome

## Gross Features:

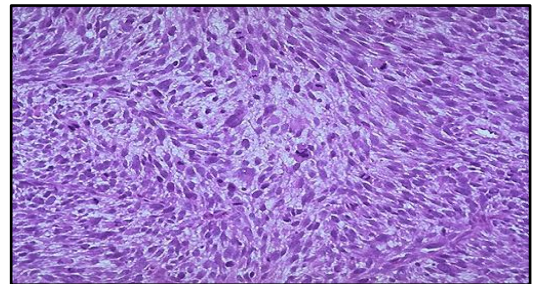
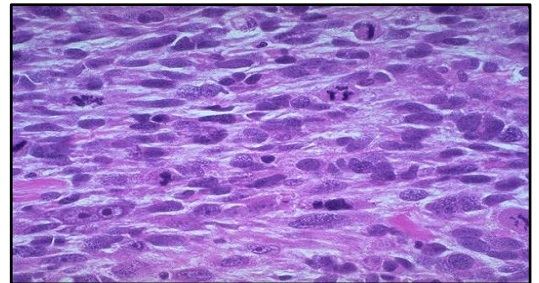
This is a leiomyosarcoma protruding from myometrium into the endometrial cavity of this uterus that has been opened laterally so that the halves of the cervix appear at right and left.

Fallopian tubes and ovaries project from top and bottom.



## Histopathological Features:

1. Atypical **malignant cells**.  
Spindle cells.
2. **Pleomorphism**.
3. Hyperchromatism.
4. Irregular **mitosis** is seen at the center.



## Notes:

How is this different from benign leiomyoma?

It is much more cellular and the cells have much more pleomorphism and hyperchromatism than the benign leiomyoma.

# Case 8: Endometrial hyperplasia

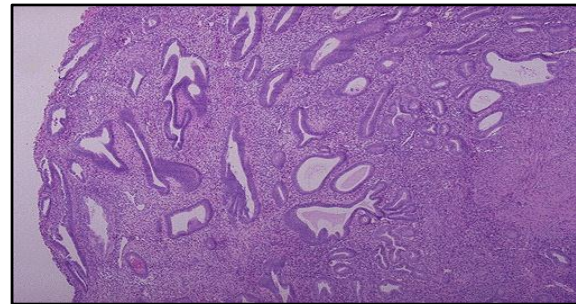
## Gross Features:

1. Thick endometrium.
2. Areas of haemorrhage.



## Histopathological Features:

1. Irregular and cystically dilated endometrial glands.
2. Hyperplastic lining of the glands.
3. The glands are enlarged and irregular with columnar cells that have some atypia.



## Notes:

- Endometrial hyperplasia usually results with conditions of **prolonged estrogen excess** and can lead to **metrorrhagia** (uterine bleeding at irregular intervals), **menorrhagia** (excessive bleeding with menstrual periods) or **menometrorrhagia**.
- **Pathogenesis:** Excessive estrogenic stimulation seen in **peri and postmenopausal women** because of non-ovulatory/non-cyclic menstrual cycles.
- **Progesterone hormone** could be used to treat this condition

# Case 9: Endometrial adenocarcinoma

## Gross Features:

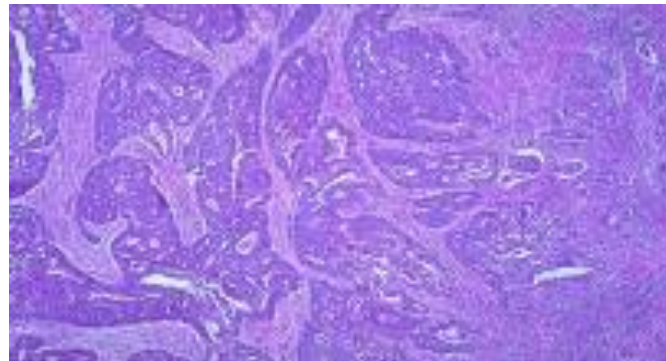
There is an irregular mass in the upper fundus that proved to be endometrial adenocarcinoma on biopsy. No enlargement.



## Histopathological Features:

Malignant endometrial glands invading the stroma (the smooth muscle bundles of the myometrial wall of the uterus).

Note: This neoplasm has a higher stage than a neoplasm that is just confined to the endometrium.



## Notes:

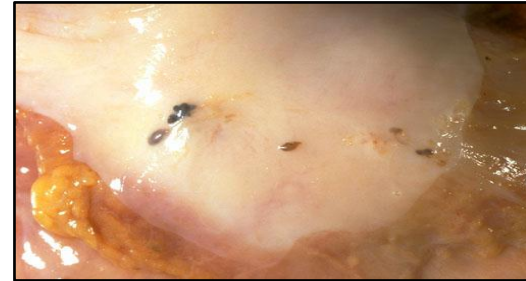
- more likely to occur in [postmenopausal women](#).
- Any postmenopausal bleeding should make you suspect that this lesion may be present.



# Case 10: Endometriosis

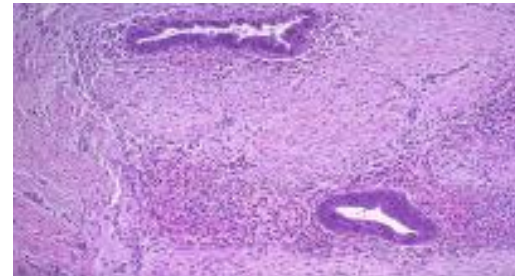
## Gross Features:

- In areas of endometriosis the blood is darker and gives the small foci of endometriosis the gross appearance of "powder burns".
- Small foci are seen here just under the serosa.
- Upon closer view, these five small areas of endometriosis have a reddish-brown to bluish appearance.



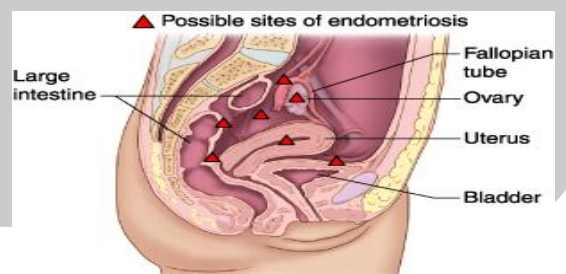
## Histopathological Features:

Endometrial **glands** along with **stroma** are seen at high magnification in the smooth muscle wall of the colon.



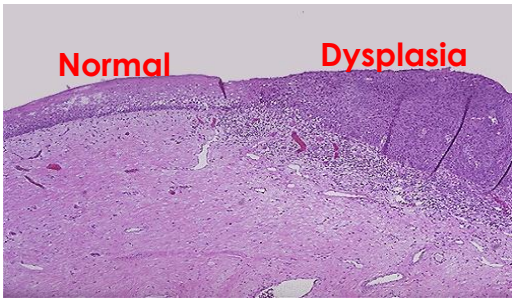
## Notes:

- Endometriosis, a chronic noncancerous disorder of the female reproductive system, develops when the **endometrium grows outside the uterus**.
- sites for endometriosis include **ovaries (Most common)**, fallopian tubes, external genitalia (vulva), ligaments supporting the uterus, intestine, bladder, cervix, and vagina.
- Endometriosis is symptomatic during reproductive years when patients may present with dysmenorrhea, pelvic pain, and infertility.

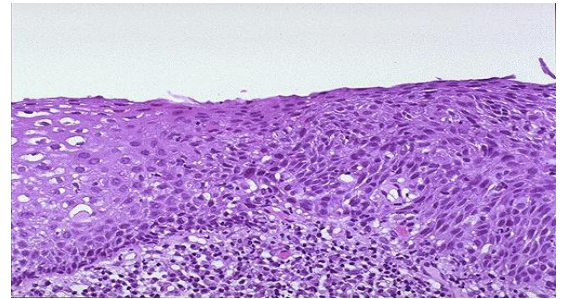


# Case 11: Cervical dysplasia

## Histopathological Features:



The normal cervical squamous epithelium at the left transforms to dysplastic changes on the right with underlying chronic inflammation



Cervical squamous dysplasia is seen at medium magnification, extending from the center to the right. The epithelium is normal at the left.

Note how the dysplastic cell nuclei at the right are larger and darker, and the dysplastic cells have a disorderly arrangement

# Case 12: Cervical squamous cell carcinoma

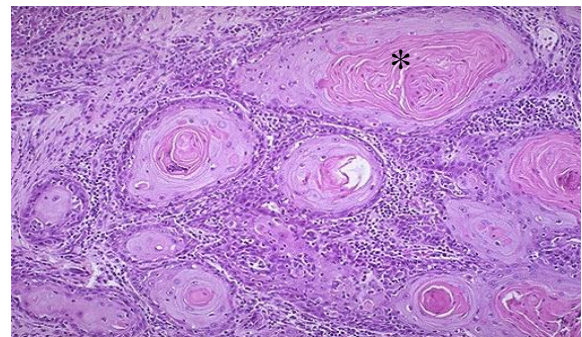
## Gross Features:

- Abnormal growth in the cervix.
- The tumor is a fungating red to tan to yellow mass.
- Still limited to the cervix (stage I).



## Histopathological Features:

1. Nests of neoplastic squamous cells are invaded through a chronically inflamed stroma.
2. This cancer is well-differentiated.
3. **keratin pearls** (\*) within nests of tumor cells.



## Notes:

Most cervical squamous carcinomas are non-keratinizing.



# Case 13: Acute salpingitis (Inflammation of fallopian tubes)

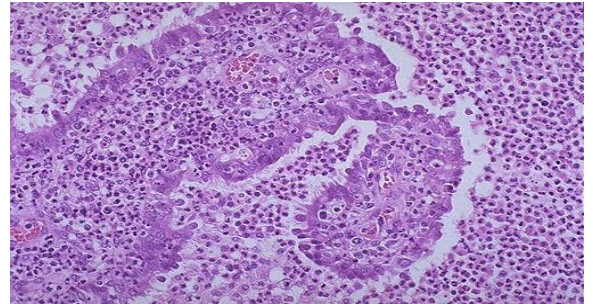
## Gross Features:

Excised congested swollen fallopian tube with hemorrhagic patches.



## Histopathological Features:

A remnant of tubal epithelium is seen here surrounded and infiltrated by numerous neutrophils.



## Notes:

This is acute salpingitis → *Neisseria gonorrhoeae* was cultured.

# Case 14: Ovarian cyst

## Gross Features:

Here is a **benign** ovarian cyst in an ovary. This is probably a **follicular cyst**.



## Notes:

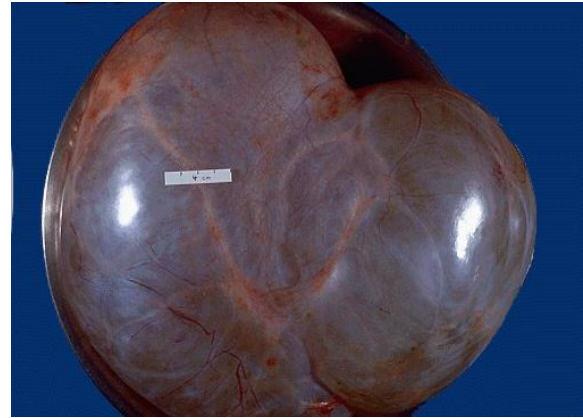
Occasionally such cysts may reach several centimeters in size and, if they **rupture**, can cause **abdominal pain**.

# Case 15: Serous Cystadenoma of the Ovary

## Gross Features:

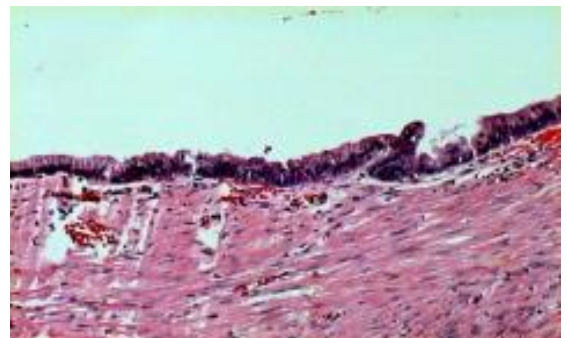
Benign epithelial tumor.

1. Cystic.
2. Filled with **clear serous fluid**.

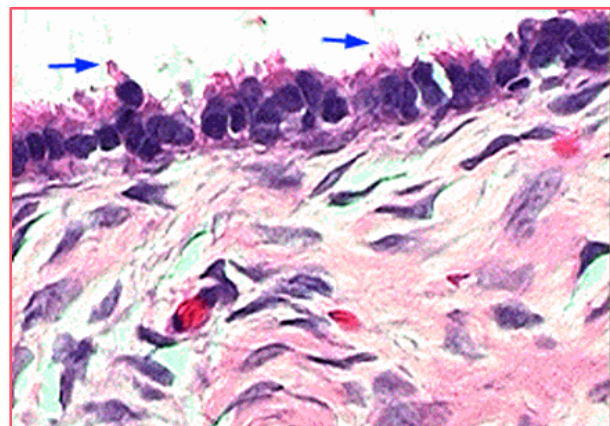


## Histopathological Features:

High power shows the thin wall lined by a **single layer of columnar cells** with a basally-placed spherical small nucleus.



- **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**.



# Case 16: Dermoid Cyst (Teratoma) of the Ovary

## Gross Features:

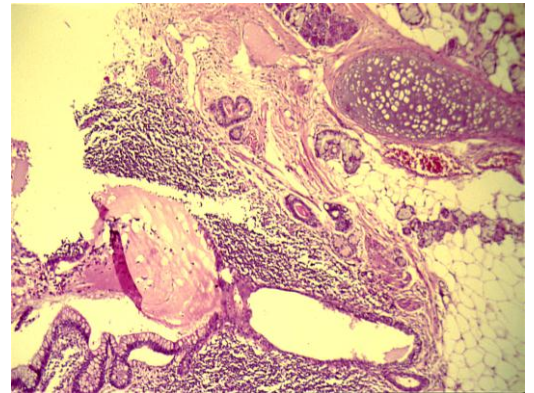
- Dermoid cyst is
  1. filled with **greasy material** (keratin and sebaceous secretions)
  2. shows tufts of **hair**.
  3. The rounded solid area at the bottom is called **Rokitansky's protruberance**.



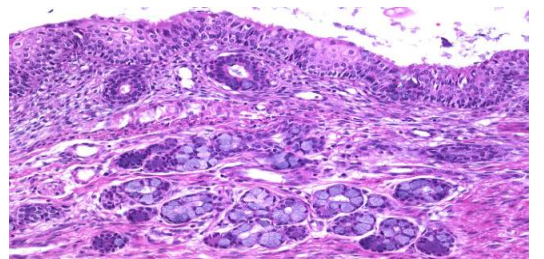
The picture shows cyst containing **teeth and hairs with nail tissue and skin\***.

## Histopathological Features:

- Stratified Squamous epithelium with
  - underlying sweat glands
  - sebaceous glands
  - hair follicles,
  - columnar ciliated epithelium
  - mucous and serous glands
  - and structures from other germ layers such as bone and cartilage, lymphoid tissue, smooth muscle
  - brain tissue containing neurons and glial cells



This image shows **skin and mucinous glands** in a mature solid teratoma of the ovary.



## Notes:

- It may be complicated by torsion infarction, struma ovarii and immature teratoma.
- This is a case of **mature teratoma**.



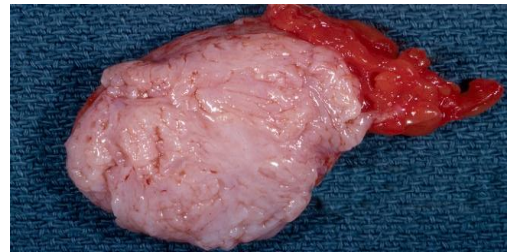
# Case 17: Fibroadenoma of the breast

Benign tumor with **good prognosis**

## Gross Features:

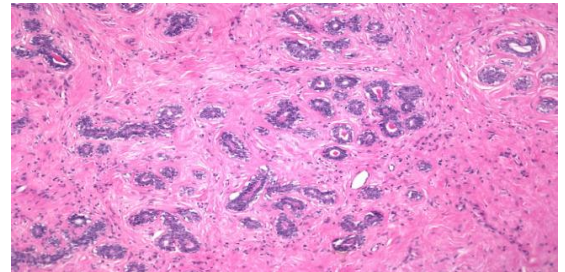
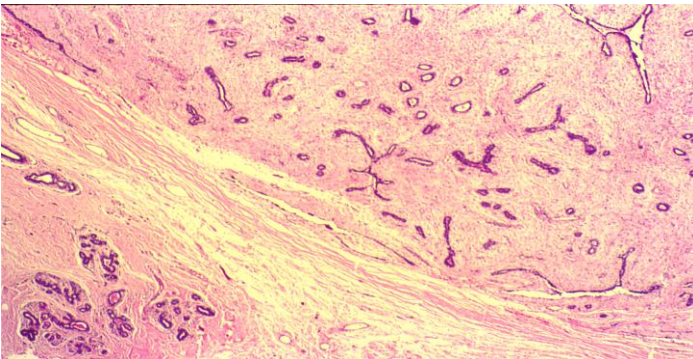
Multiple fibroadenomas with:

- **Well circumscribed.**
- **bulging white mass .**
- The cut surface is lobulated with **slit-like spaces .**



## Histopathological Features:

- **proliferation of both glandular tissue and fibrous tissue** with 2 growth patterns:
  1. **Intracanalicular \***(slit-like lumen). (details in the notes section below)
  2. **Pericanalicular \*\*** (no invagination). (details in the notes section below) and ductular tissue growth pattern.



**Pericanalicular Fibroadenoma**  
The glands maintain their round or oval profiles.

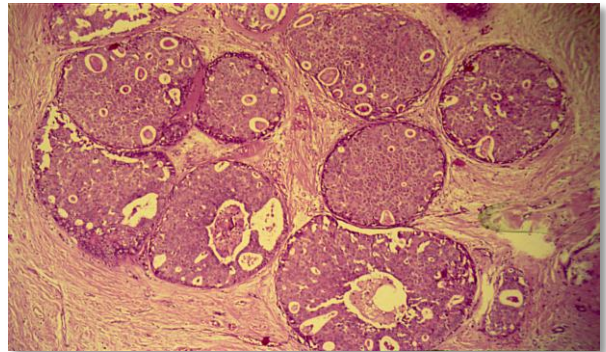
## Notes:

- Benign tumor also known as **breast mouse** and has **good prognosis**.
- If this tumor becomes **large** and shows cellular **fibrous stroma** with cystic spaces. Its pathologic name will be: **Phyllodes tumor**.
- **Intracanalicular growth pattern**: Proliferation stromal tissue is **invaginating the ducts** causing elongation, compression and distortion of the ducts.
- **Pericanalicular growth pattern**: At places fibrous tissue is **arranged around the ducts** and does not invaginate.
- There is no prognostic or clinical significance attached to the pericanalicular and intracanalicular patterns. Both may be seen within the same lesion

# Case 18: Intraductal Carcinoma In-situ (DCIS) of the breast

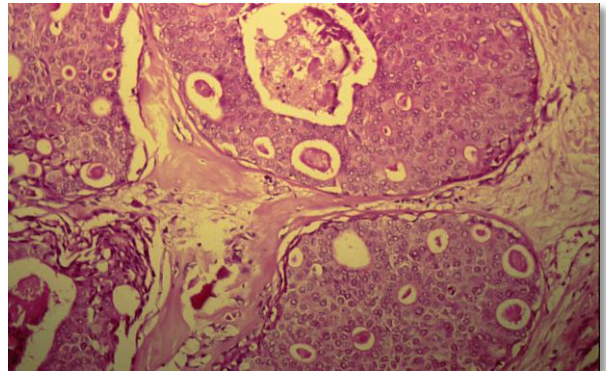
## Histopathological Features:

- 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.**



## Histopathological Features:

- Large ducts are distended by neoplastic epithelial cells which are **pleomorphic with large hyperchromatic nuclei and mitosis**.



# Case 19: Invasive Ductal Carcinoma of the breast

## Clinical Signs:

- Breast cancer showing an
- **inverted nipple (retracted)**.
- lump and **skin dimpling**.



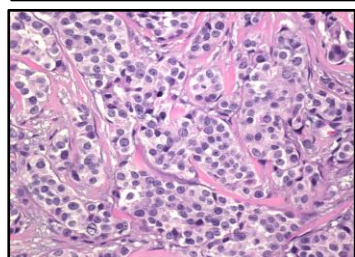
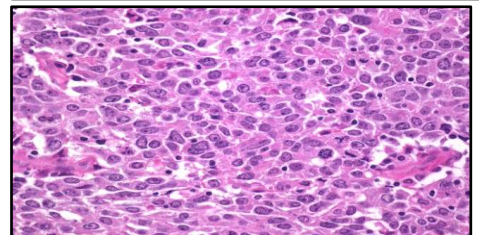
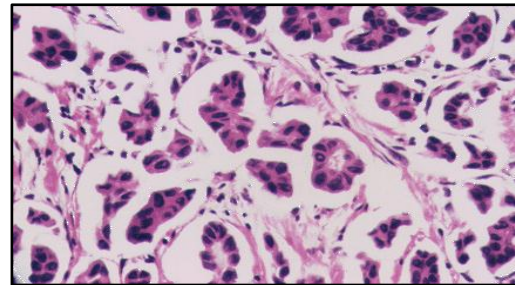
## Gross Features:

- **Firm, pale and poorly circumscribed** with a yellowish gray cut surface. (with overlying retracted nipple and surrounding skin)
- It cuts with a gritty sensation.
- It may show **strands radiating into the surrounding fat**.



## Histopathological Features:

- A **well-differentiated** ductal carcinoma made up of small acini and glands.
- The tumor cells are **round to polygonal** with deeply sustained nuclei and occasional mitosis.
- Nuclear atypia is mild.
  
- A **High grade** ductal carcinoma.
- The tumor cells are **highly pleomorphic** and show frequent mitotic figures.
- Minimal tubular formation.



Cords, sheets and nests of tumour cells surrounded by dense fibrous tissue.



## Case 20: Paget's Disease of the nipple

Is a **nipple lesion** associated with underlying **ductal carcinoma-in-situ** with or without associated **stromal invasion**.

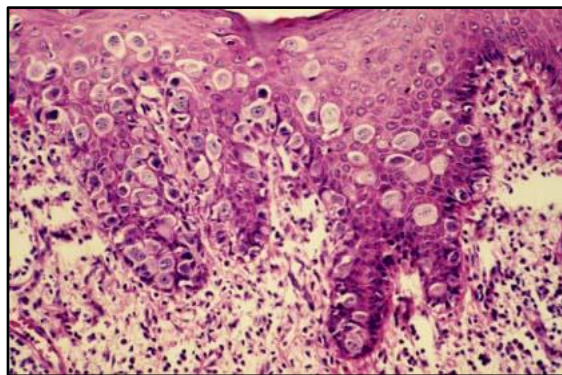
### Clinical Signs:

- The lesion is **eczema-like** with hyperemia and erosion of the epidermis.
- Initially **centered on the nipple**, they may **later involve the areola**.



### Histopathological Features:

- **Paget's cells** have pale, **vacuolated cytoplasm** and large nuclei.
- **Paget's cells** migrate through the epidermis from parabasal cell layers upward.
- **Highest concentration** in the **deep layers of epidermis**.







وفي الختام.. نتمنى أن نكون قد وفقنا في تقديم المادة بشكل أيسر وأجمل..  
شكراً من القلب لكل من اجتهد وسهر وساعد في إعداد هذا التيمم..  
شكراً لكم لدعمكم وحرصكم ومشاركتكم هذا العمل..  
اللهم وفقنا و انفعنا بما علمتنا يا كريم