PATHOLOGY
TEAM 436

MEDICINE
KING SAUD UNIVERSITY

Pathology Practical

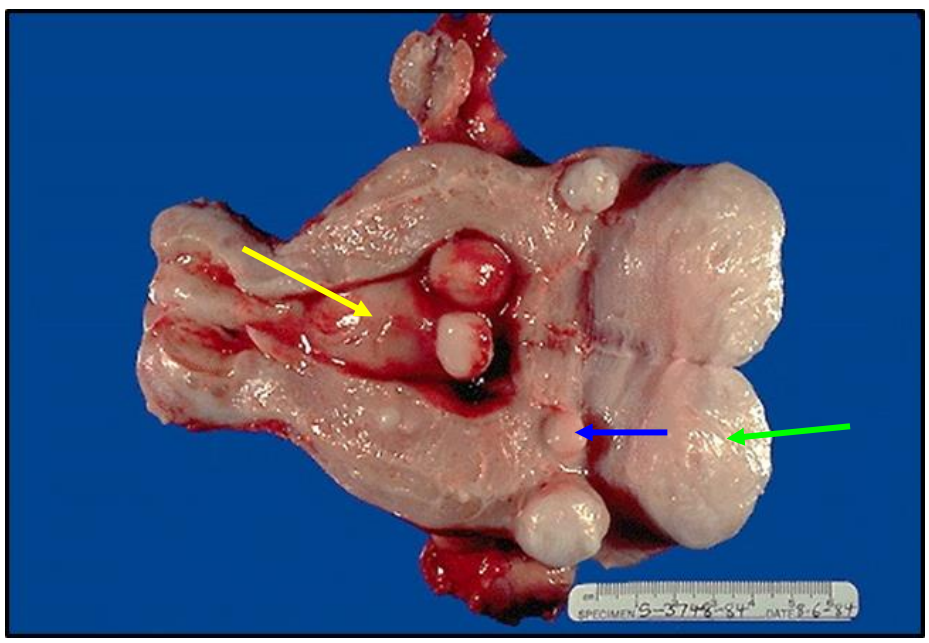
Reproductive Block

- Important
- Doctors' Notes
- Extra
- Only in girls' slides

Case 1: Uterine Leiomyomata

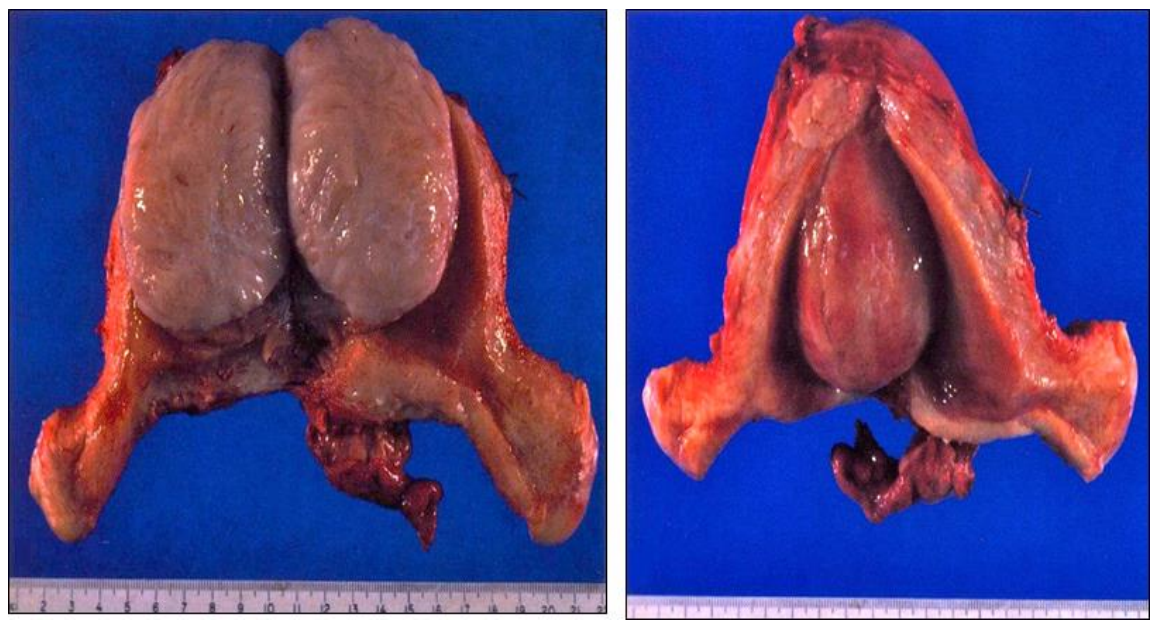
- Uterine leiomyoma is the most common tumor found in women of reproductive age group.
- Also called fibroid, myofibroma, fibromyoma, leiomyofibroma, fibroma, myoma.
- The clinical symptoms and severity usually depend upon the **size**, **position**, and **number** of fibroids present.
- Typically asymptomatic, but up to 30% of women experience abnormal uterine bleeding or lower abdomen pressure related symptoms.

Multiple Uterine Leiomyomata-Gross



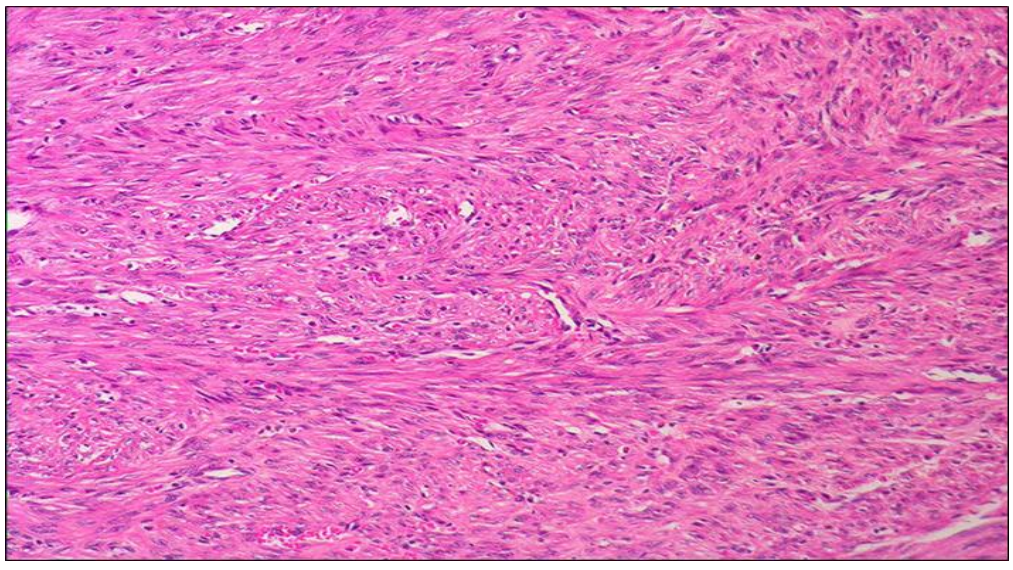
1. **multiple** Smooth muscle tumors of uterus.
2. Seen here are submucosal, intramural and subserosal Leiomyomata of the uterus.

Multiple Uterine Leiomyomata-Cut surface



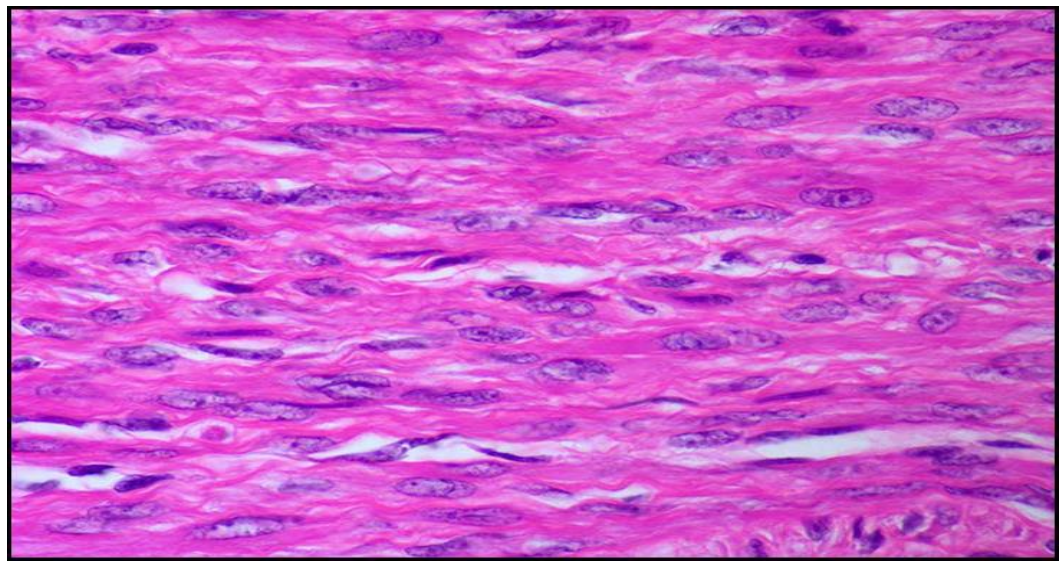
1. A **well demarcated** tumour mass in the muscle coat of uterus **without** a definite capsule.
2. It has a **whorled** appearance on cut surface.

Microscopic- LPF



1. Interlacing (**Whorled**) bundles of smooth muscle.
2. **Well vascularized connective tissue** and fibrous tissue separating the bundles.
3. **Spindle shaped** muscle cells with **elongated nuclei** and eosinophilic cytoplasm.

Microscopic-HPF

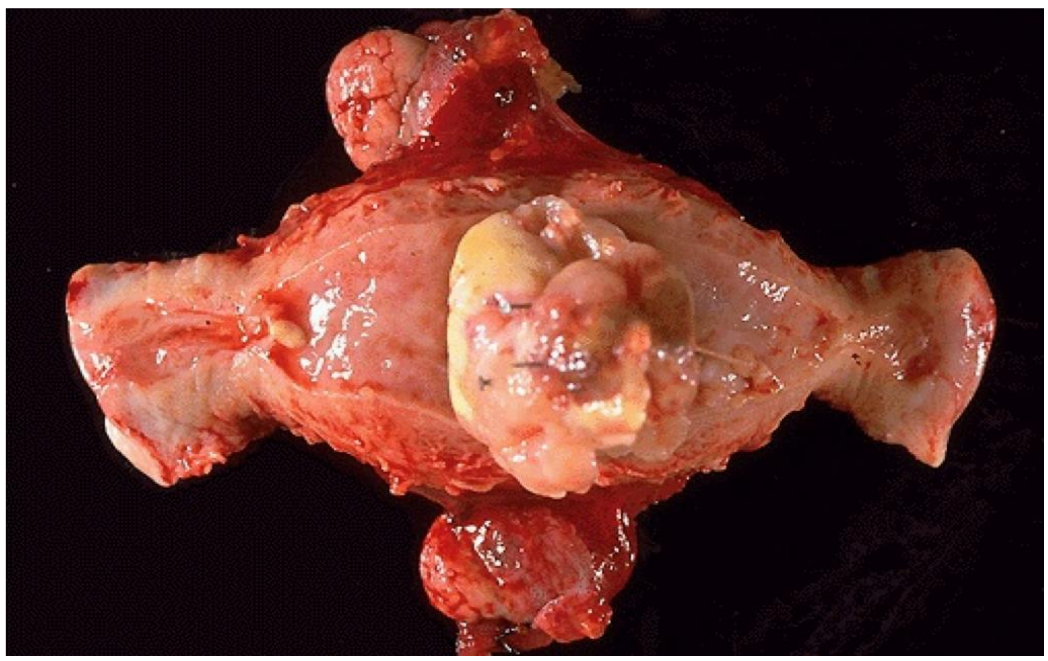


1. **Spindle shaped** muscle cells with **elongated nuclei** and eosinophilic cytoplasm.
2. Usually less than 5 mitotic figures per 10 high power fields in most mitotically active area.
3. **No** significant **atypia**.

Case 2: Uterine Leiomyosarcoma

- 1% - 2% of uterine malignancies, but **most common uterine sarcoma.**
- The malignant transformation of a uterine leiomyoma is still debated and, if it occurs, it is **very rare.**
- Very aggressive even when confined to uterus.

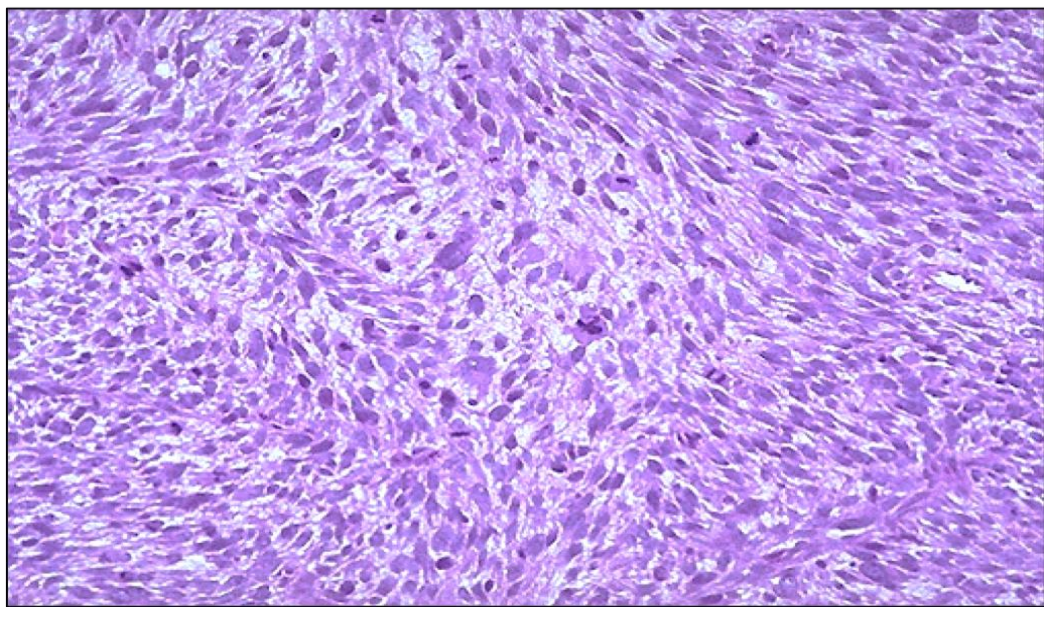
Gross



1. **Leiomyosarcoma protruding from myometrium into the endometrium cavity.**
2. Uterus that has been opened laterally so that the halves of cervix appear at the right & left.
3. Fallopian tubes and ovaries project from top & bottom.

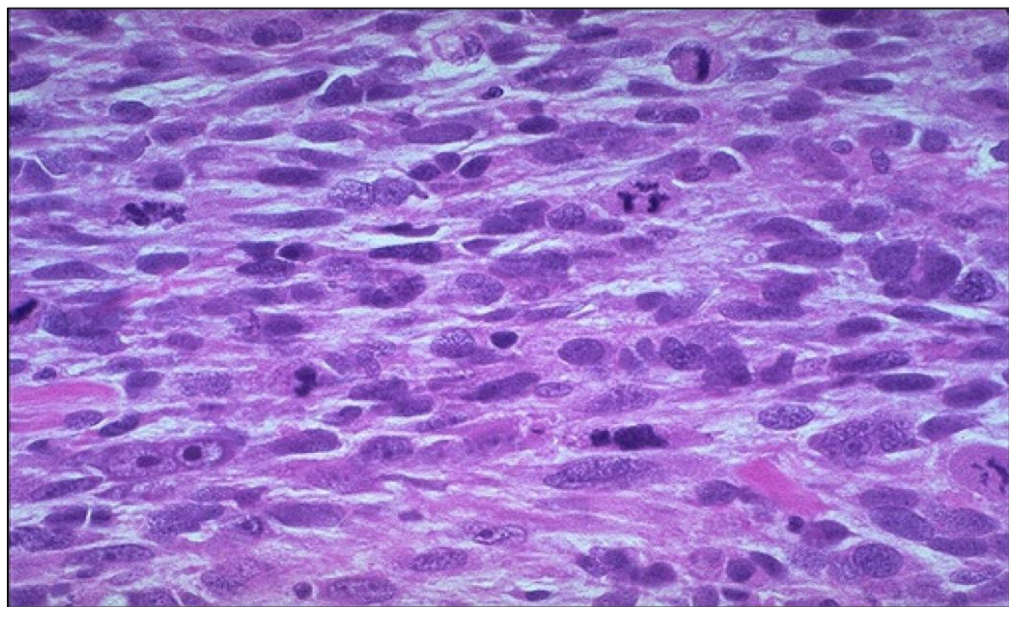
Note= (لاحظوا هنا ماس وحده بس)

Microscopic- LPF



1. **More cellular** & **more pleomorphism** and **hyperchromatism** than the benign leiomyoma.
2. Irregular **mitosis** in the center.

Microscopic- HPF



1. Spindle cells.
2. **Several mitosis** (+10 mitotic figures per 10 high power fields- HPF).

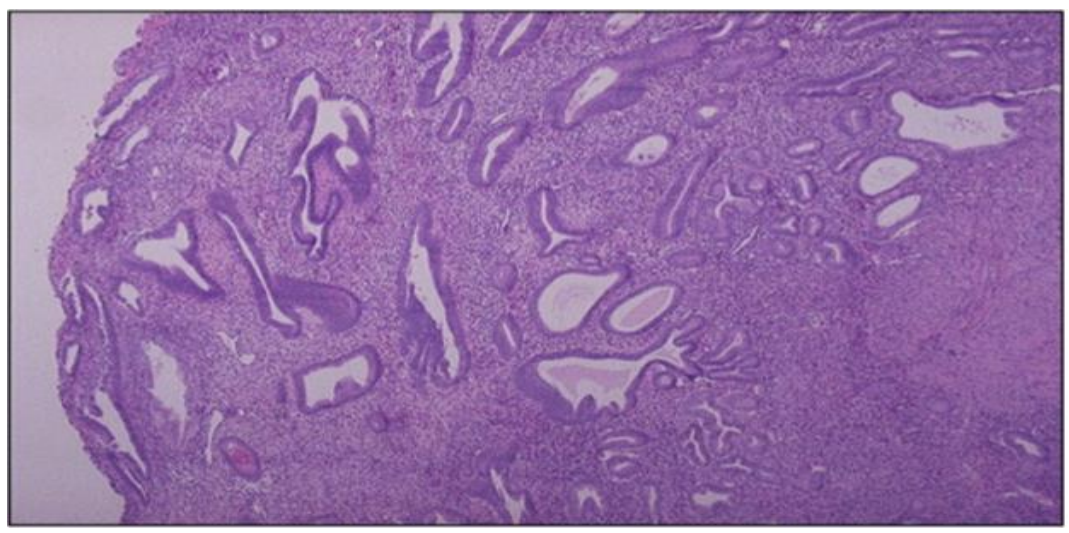
Case 3: Endometrial hyperplasia

- Proliferation of endometrial glands with increase in the glands to stroma ratio compared to proliferative endometrium (> 1:1 , **glands** represent **more than 50%** of surface area).
- **Etiology:** Endometrial hyperplasia usually results with conditions of **prolonged estrogen excess.**
- **Clinical presentation :** 1. Metrorrhagia (uterine bleeding at irregular intervals).
  2. Menorrhagia (excessive bleeding with menstrual periods). 3. Menometrorrhagia. (BOTH of them)
  (menorrhagia = related to the **amount** , metrorrhagia= related to the **period**)
- Simple endometrial hyperplasia can cause bleeding, but are **not** thought to be premalignant.

Gross

1. The endometrial cavity is opened to reveal lush fronds of hyperplastic endometrium.

Microscopic- LPF



1. Endometrial cystic hyperplasia.
2. Glands are enlarged and irregular with columnar cells that have some atypia.

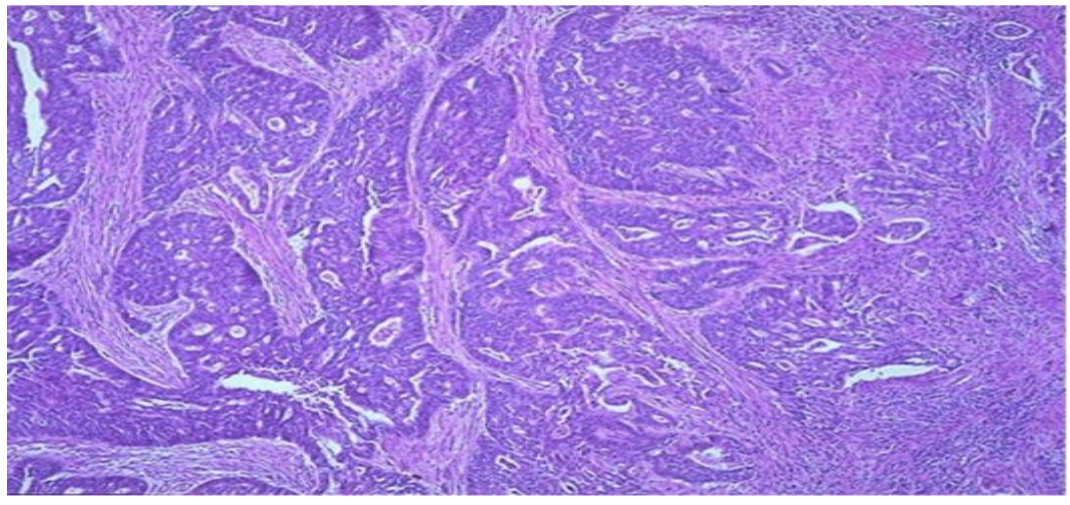
Case 4: Endometrial Carcinoma

- Most common Gynecologic malignancy in US.
- 80% arise in **postmenopausal** women, and manifest with symptoms of **bleeding.**
- How we diagnose it ? by **Biopsy.**

Endometrial carcinoma - Gross:

1. Irregular mass in the upper **fundus**.
2. The uterus is NOT enlarged.

Endometrial carcinoma - LPF



1. Adenocarcinoma **invading** the smooth muscles bundles of the myometrial wall of uterus.
2. This neoplasm has **higher stage** than a neoplasm that is just confined to the endometrium.

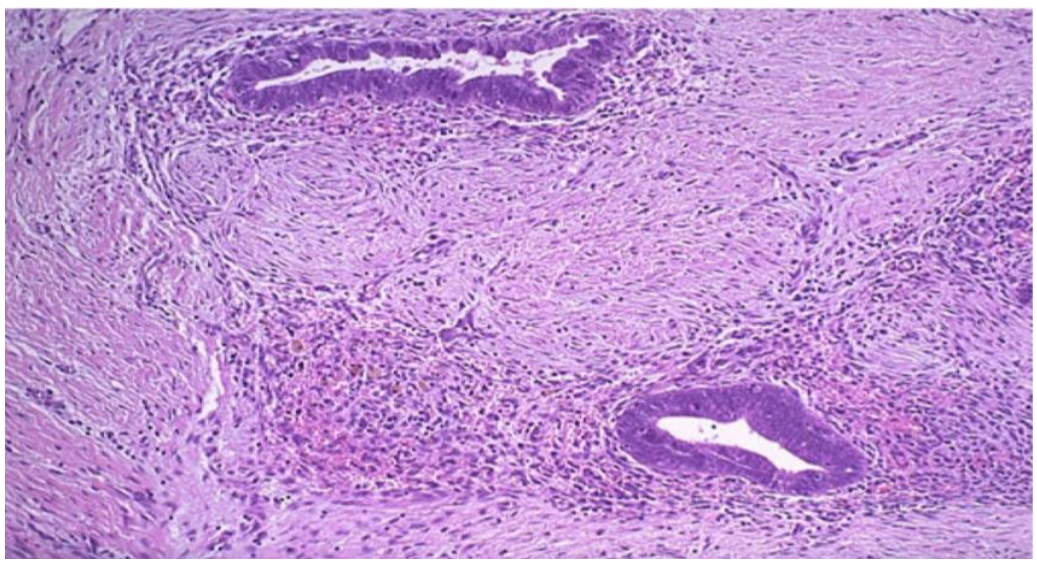
Case 5: Endometriosis

- **Endometriosis**: a chronic non-cancerous disorder of the female reproductive system, develops when the endometrial inner lining grows <u>outside the uterus.</u>
- **Incidence of endometriosis:** is estimated at 10% of women of reproductive age.
- **Common sites for endometriosis:** include **<u>ovaries</u>**, **uterine ligaments**, **pelvic peritoneum** , **rectovaginal septum**, fallopian tubes, cervix, vagina, external genitalia (vulva), intestine, bladder.
- **Symptoms**: it is symptomatic during reproductive years when patients may present with **<u>dysmenorrhea</u>**, **<u>pelvic pain</u>**, and **<u>infertility.</u>**
- **how we Diagnose it ? :** Laparoscopy.

Endometriosis - Gross

1. Five small areas of endometriosis have a reddish-brown to bluish appearance.

Endometriosis - microscopic HPF



1. Endometrial **<u>glands</u>** along with **<u>stroma</u>** in the smooth muscle wall of the colon.

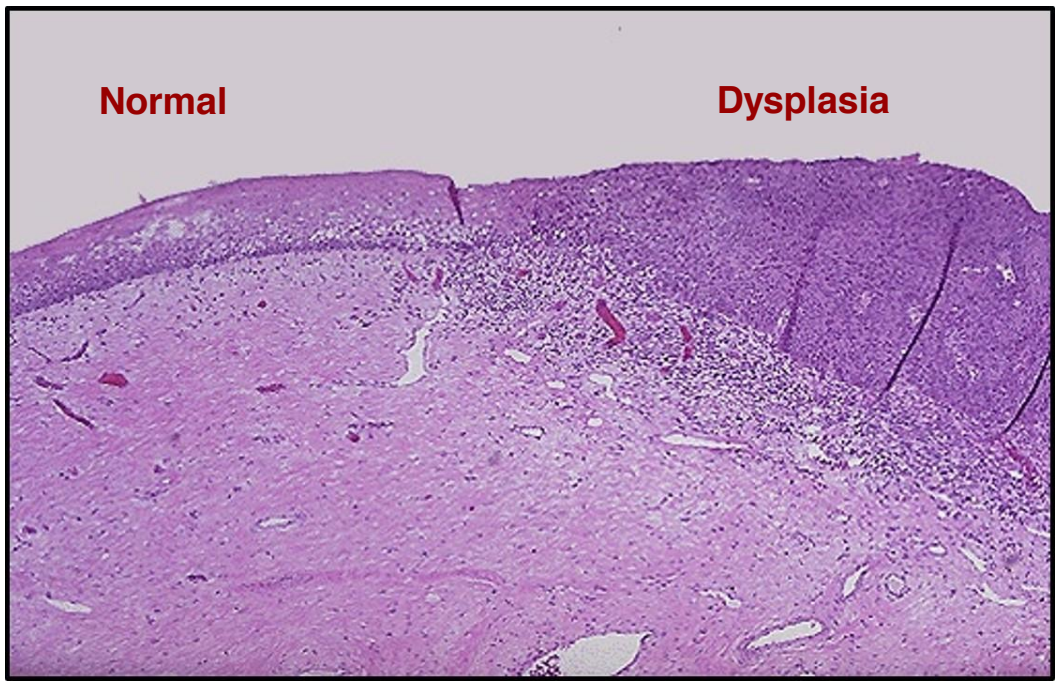
Endometriosis - Gross

1. Areas of endometriosis the blood is darker and gives the small foci of endometriosis the gross appearance of "powder burns".

2. Small foci under the serosa of the posterior uterus in the pouch of Douglas.

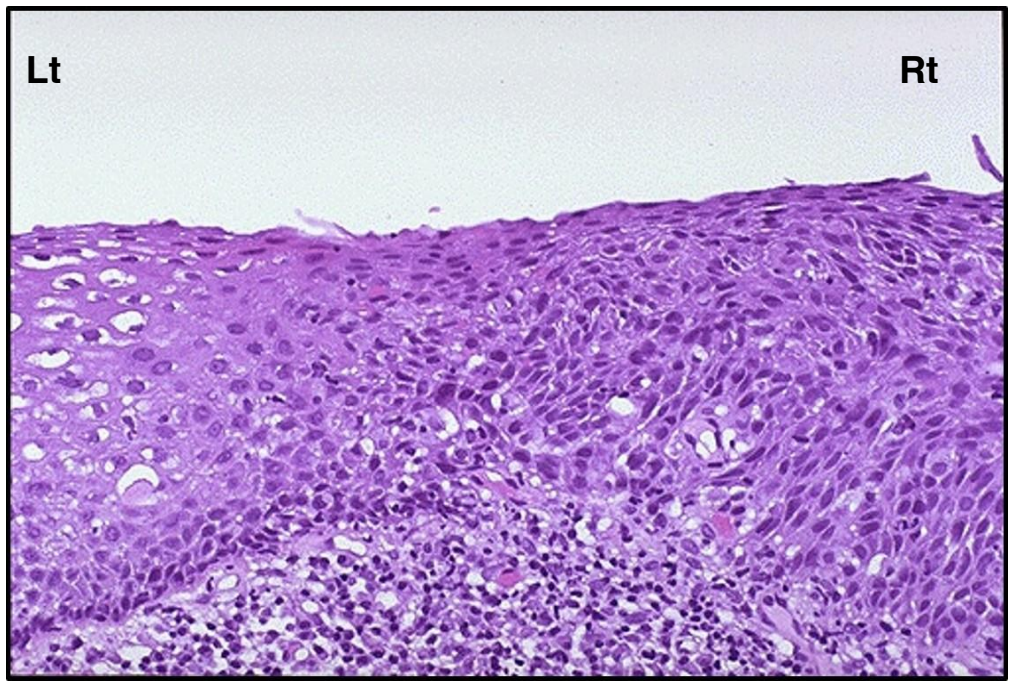
Case 6: Cervical Dysplasia

Normal Vs Dysplastic squamous epithelium



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

Endocervical Squamous Dysplasia

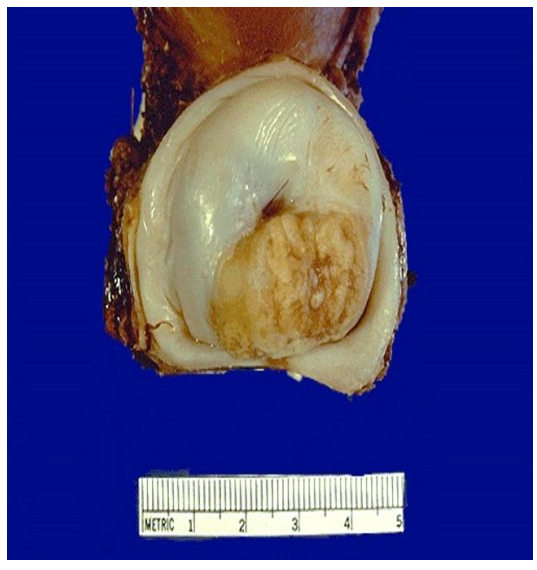


1. Cervical squamous dysplasia extending from the **center** to the **right**.
2. The epithelium is **normal** **at the left**.
3. Dysplastic cell nuclei at the **right** are **larger** and **darker**.
4. Dysplastic cells have a **disorderly arrangement**.

Case 7: Cervical Squamous Cell Carcinoma

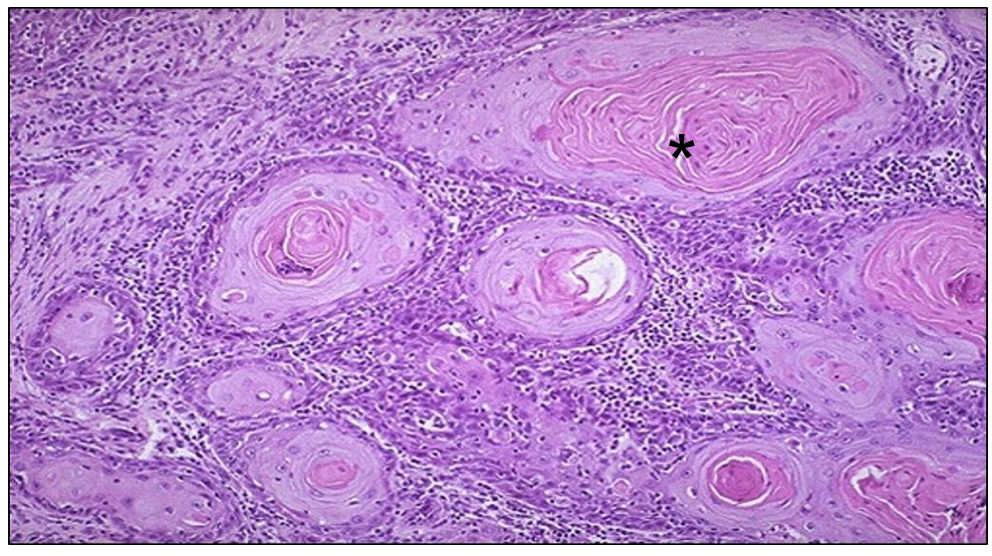
- HPV virus is the cause of cervical squamous cell carcinoma

Cervical Squamous Cell Carcinoma



1. **cervical squamous cell carcinoma** that is still limited to the cervix (stage I).
2. The tumor is a **fungating** (protruding).
3. Red to tan to yellow mass.

Cervical Squamous Cell Carcinoma - HPF



1. nests of neoplastic squamous cells are invaded through a chronically inflamed stroma.
2. This cancer is **well- differentiated**, as evidenced by **keratin pearls** (*) within nests of tumor cells.
3. However, most cervical squamous carcinomas are non-keratinizing.

Case 8: Acute salpingitis

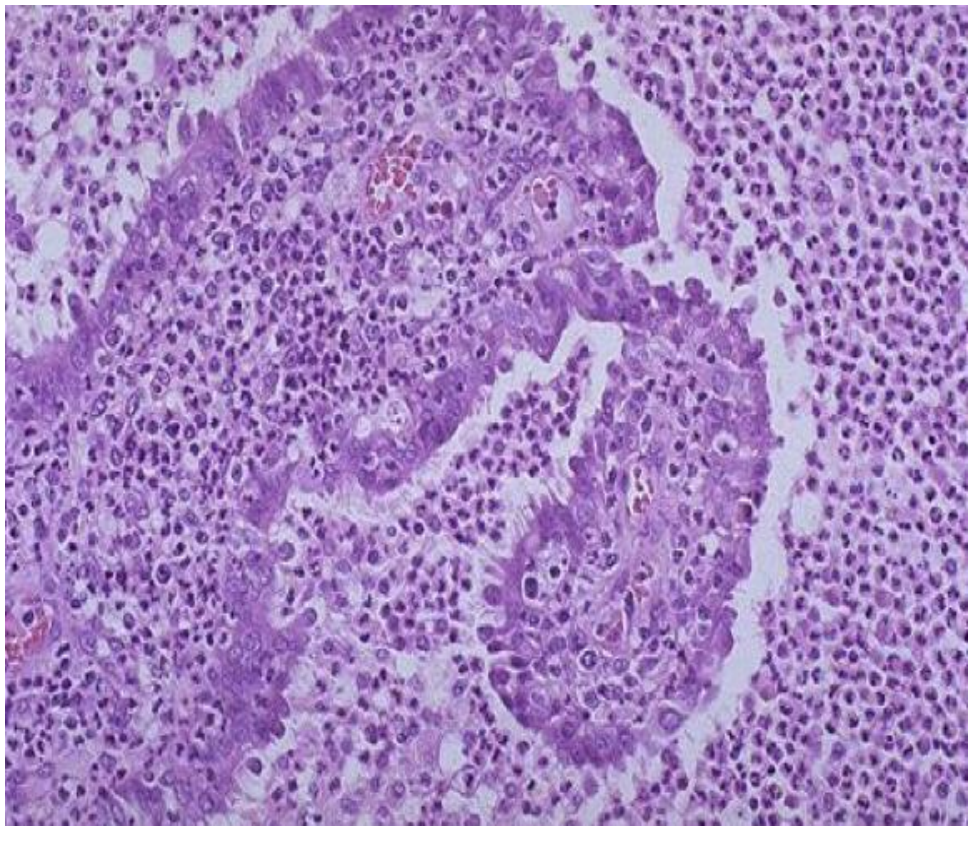
- **Salpingitis:** inflammation of fallopian tube.
- **Complications**: 1.Infertility 2.Ectopic pregnancy 3. Tubo-ovarian abscesses
- **Most common Cause:** **Neisseria Gonorrheae.**

Gross

1. **Congested** and **swollen** fallopian tube.
2. **Haemorrhagic** and yellowish (pus) patches.

(it Looks like shrimp ☺)

Microscopic



1. A remnant of tubal epithelium surrounded and **infiltrated by numerous neutrophils.**

Case 9: Testicular Atrophy

What is Testicular Atrophy? Refers to the shrinking of the actual testis. It can be **unilateral** or **bilateral**.

Symptoms:

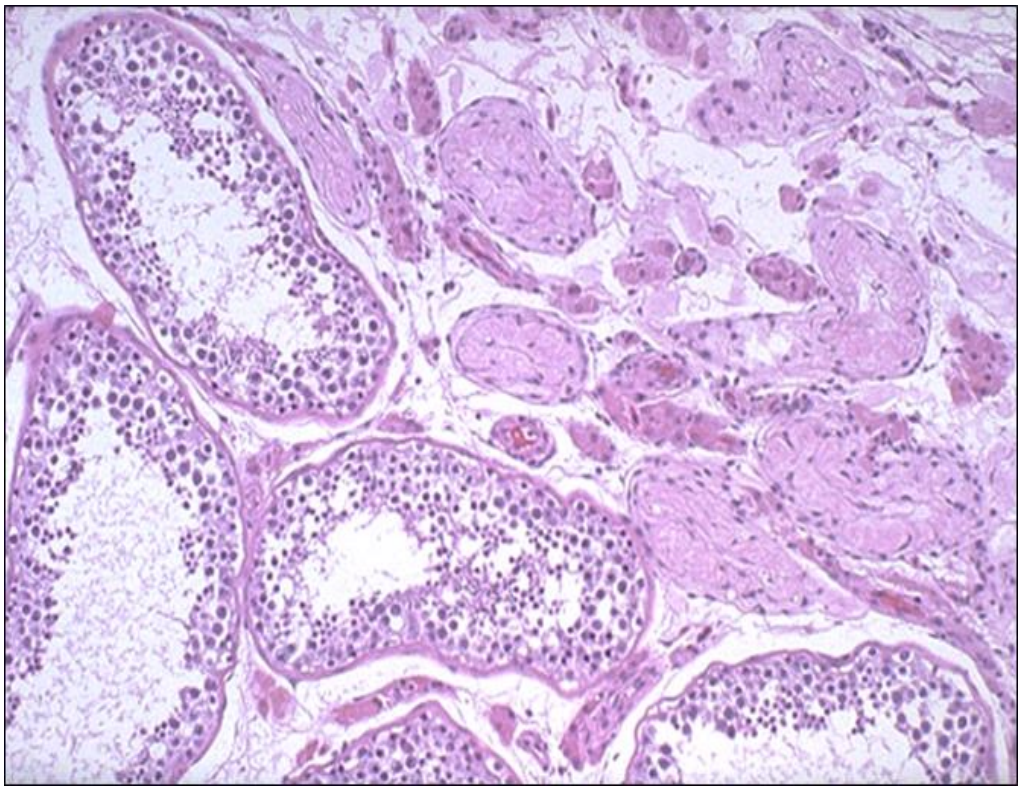
- Before puberty: Not developing any secondary sexual characteristics such as facial hair and pubic hair.
- After puberty: Decreased sex drive (libido) , infertility and reduced muscle mass.

Causes of Bilateral atrophy : may occur with a variety of conditions including **chronic alcoholism**, **hypopituitarism, atherosclerosis**, **chemotherapy** or **radiation**, and **severe prolonged illness.**

Gross- Normal vs Atrophic testis

1. **At the left:** is a normal testis.
2. **At the right:** is a testis that has undergone **atrophy**.

Microscopic- Normal vs Atrophied testis



1. Focal **atrophy** of tubules seen **at the upper right**.
2. No lumen= no germ cell
3. No interstitial cells of leyding.

The most common reason for this is probably childhood infection with the **mumps virus,** which produces a **patchy orchitis.**

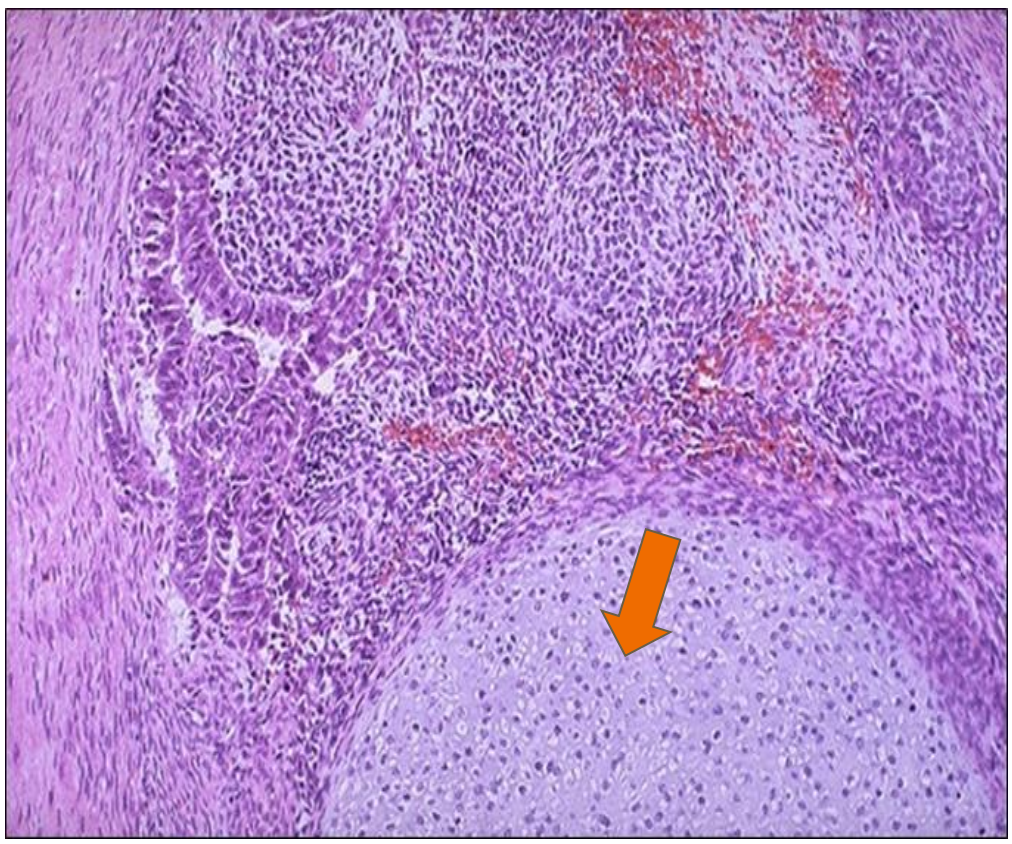
Case 10 : Embryonal Carcinoma & Teratoma of Testis

- **Embryonal Carcinoma is:** A Malignant germ cell tumor composed of primitive **epithelial** tumor cells.
- **Age at presentation:** 30's
- Most commonly part of mixed germ cell tumor
- **Teratoma of the Testis:** Teratoma is the second most common germ cell tumor type in pediatrics, after yolk sac tumor.

Gross

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

Microscopic - HPV

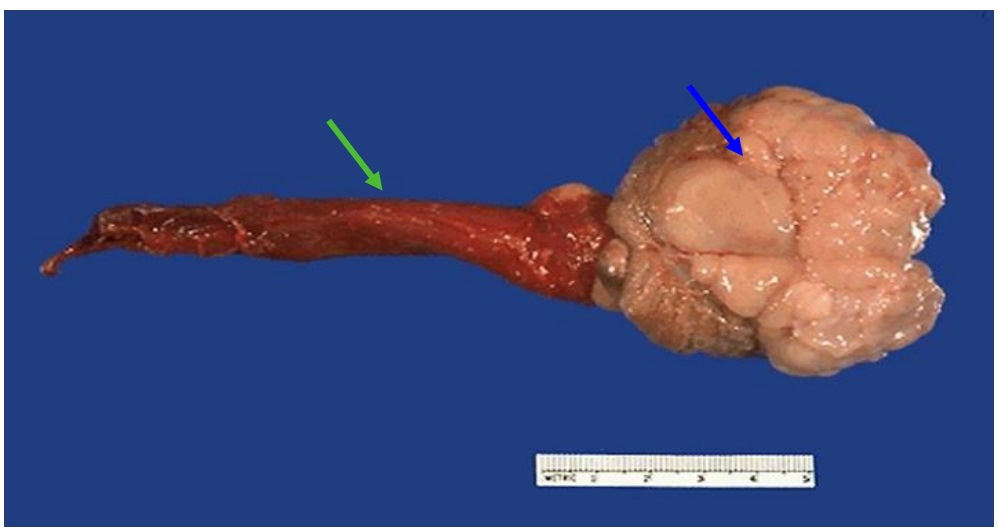


1. At the bottom is a focus of cartilage.(arrow)
2. Above this a primitive mesenchymal stroma.
3. At the left a focus of primitive cells most characteristic for embryonal carcinoma.
4. **This is embryonal carcinoma mixed with teratoma.**

Case 11 : Seminoma of Testis

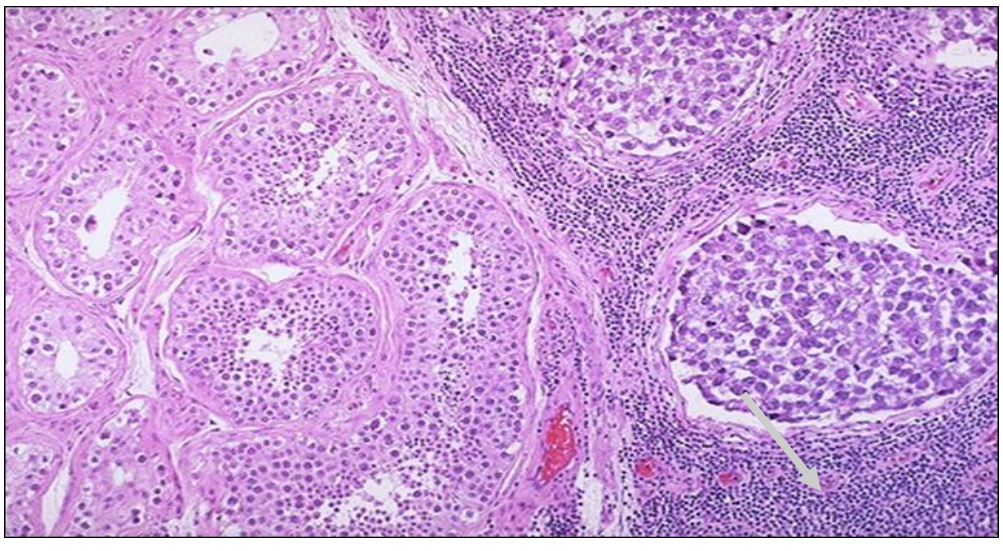
- The most common pure **germ cell tumor** (GCT) of the testis, accounting in 50% of cases
- **Mean age:** 40 years Vs. 25 years for nonseminomatous germ cell tumors (NSGCT)
- **Risk factor:** Most important risk factor is **cryptorchidism** (undescended testicle)
- they often have several histologic components: seminoma, embryonal carcinoma, teratoma & choriocarcinoma.

Gross



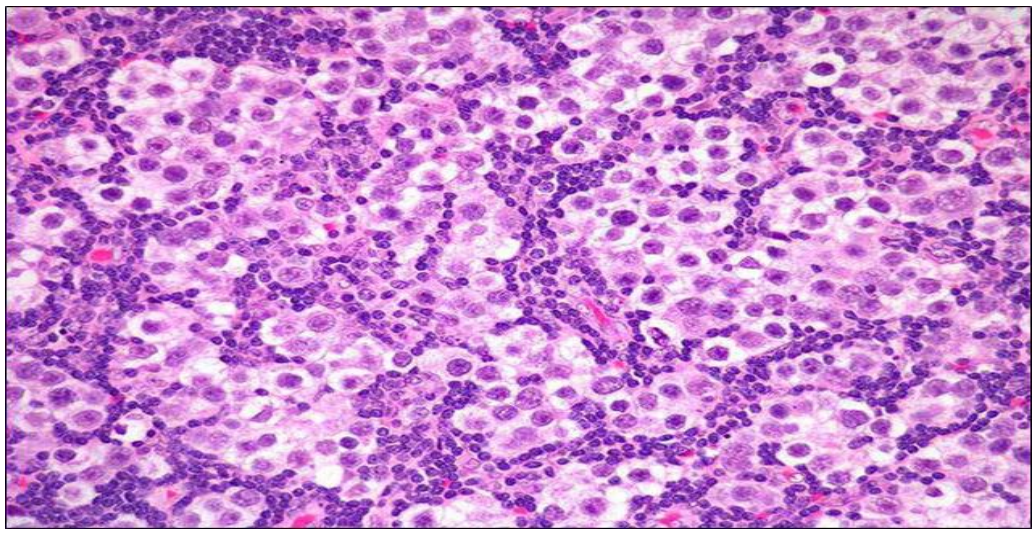
1. Large Seminoma with Normal testis at the left of the mass.
2. Pale, lobulated testicular mass. (blue arrow)
3. bulging and potato like cut surface.
4. attached to congested spermatic cord. (green arrow)

Microscopic-LPF



1. **At the left:** Normal testis.
2. **At the right:** seminoma.
3. **Neoplastic nests** with difference in size, staining quality of the compared to normal germ cells.
4. **lymphoid stroma** between the nests of seminoma.(grey arrow)

Microscopic-HPF



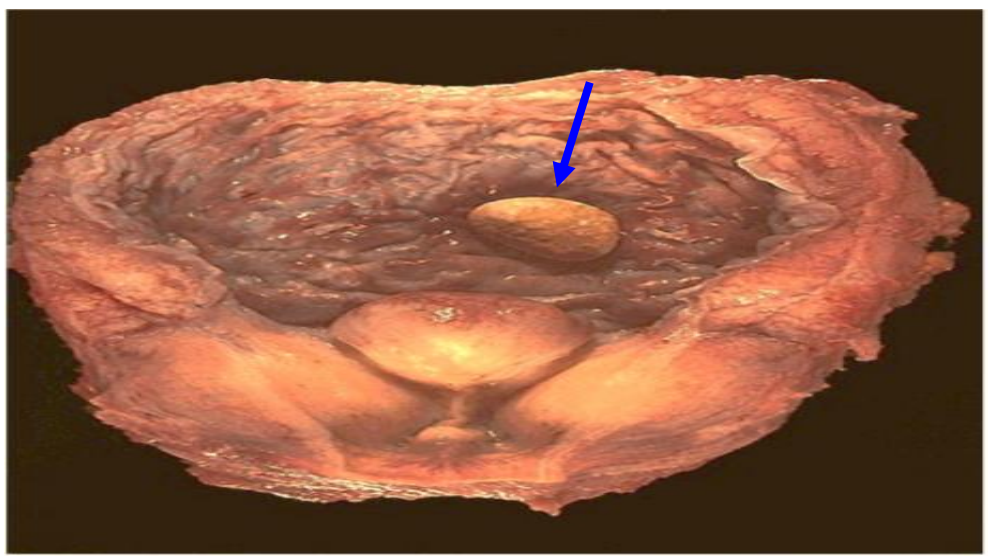
1. malignant tumour consisting of sheets of **uniform*** malignant germ cells.
2. **Large vesicular nuclei**, **prominent nucleoli** and **clear cytoplasm**.
3. **minimal mitotic** figures.

*uniform= same size and shape.

Case 12: Prostatic Hyperplasia

- Also known as benign prostatic hypertrophy (BPH)
- Present in : 20% of men at age 40,
  50% at age 50.
  70% at age 60.
- **Complication:** Obstruction of prostatic urethra lead to UTI and stasis of urine which lead to the formation of stones.

Gross

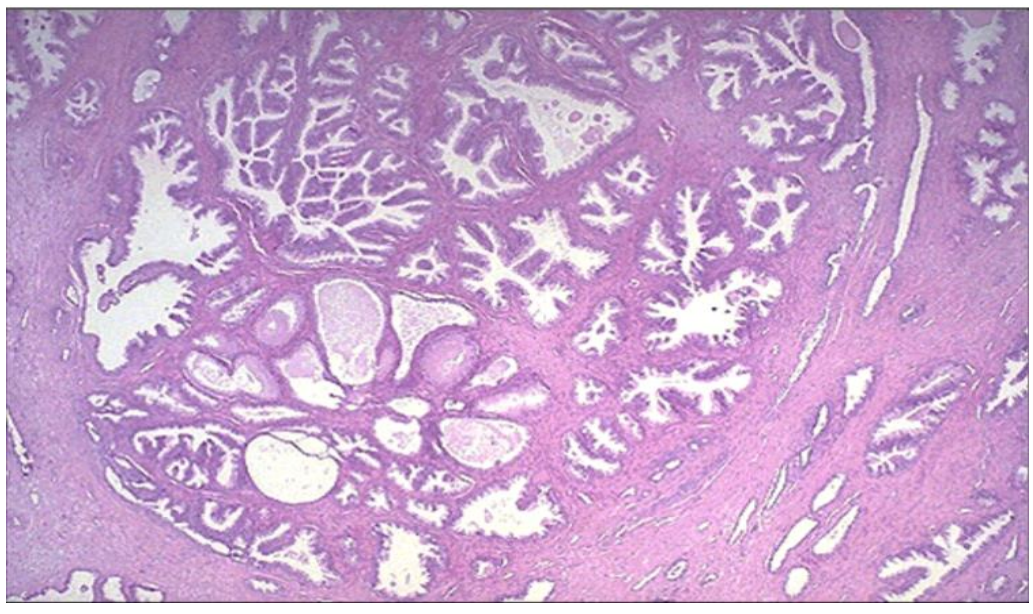


1. Enlarged lateral lobes and median lobe.
2. The median lobe obstructs the prostatic urethra that led to obstruction with **bladder hypertrophy.**
3. prominent trabeculation of the bladder mucosa.
4. Obstruction with stasis led to the formation of the yellow-brown calculus (stone).

Gross

1. benign prostatic hyperplasia.
2. **Nodules appear** mainly in the lateral lobes.
3. It may lead to an **obstructive uropathy.**

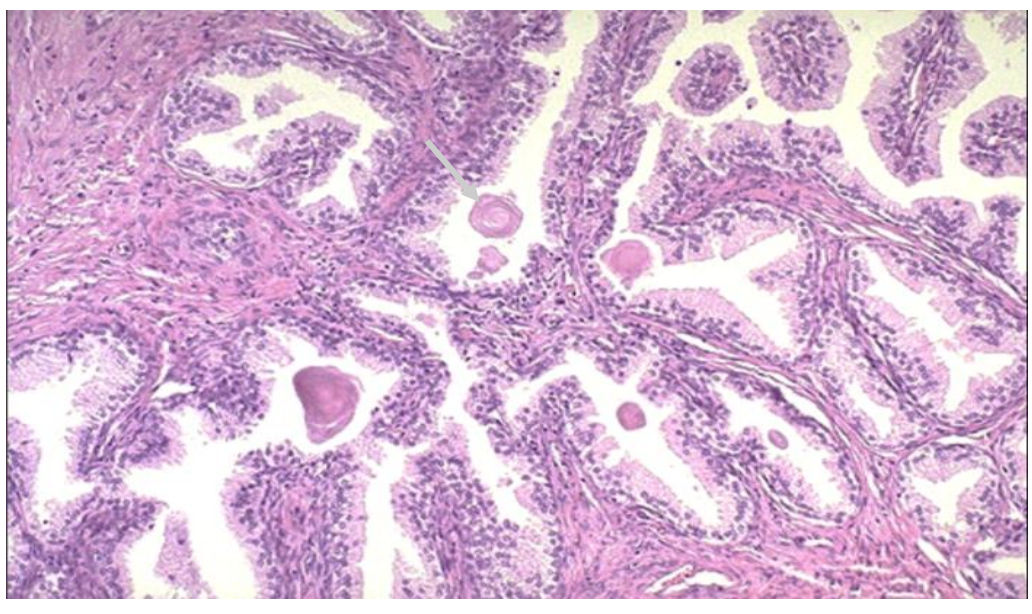
Microscopic- LPF



1. **benign** prostatic hyperplasia can involve **both glands** and **stroma**,
2. A large hyperplastic **nodule** of glands is seen.

(**NO** atypia or malignant features + they **Don't** lose myoepithelial cells).

Microscopic- HPF



1. The enlarged prostate has **glandular hyperplasia**.
2. The glands are **well- differentiated** and still have some intervening stroma.
3. The small laminated pink concretions within the glandular lumens are known as **corpora amylacea.** (arrow)

Case 13: Adenocarcinoma of Prostate

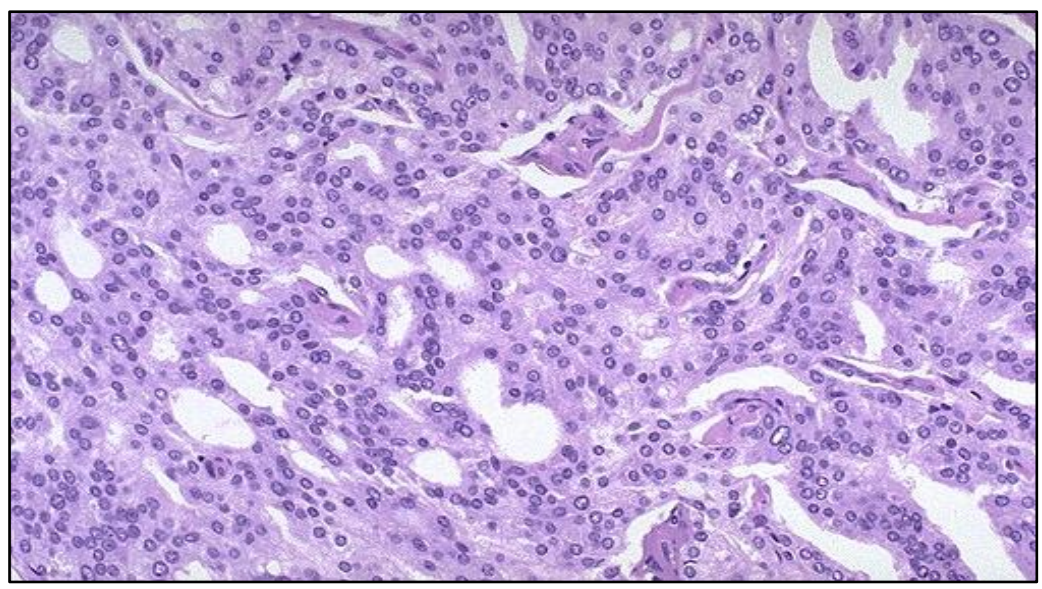
➢ **clinical features:**

Prostate cancer is detected by **digital rectal exam** (DRE), **transurethral ultrasound**, or **elevated PSA** (prostate specific antigen) (either above 4 ng/dL or increasing over time).

Gross

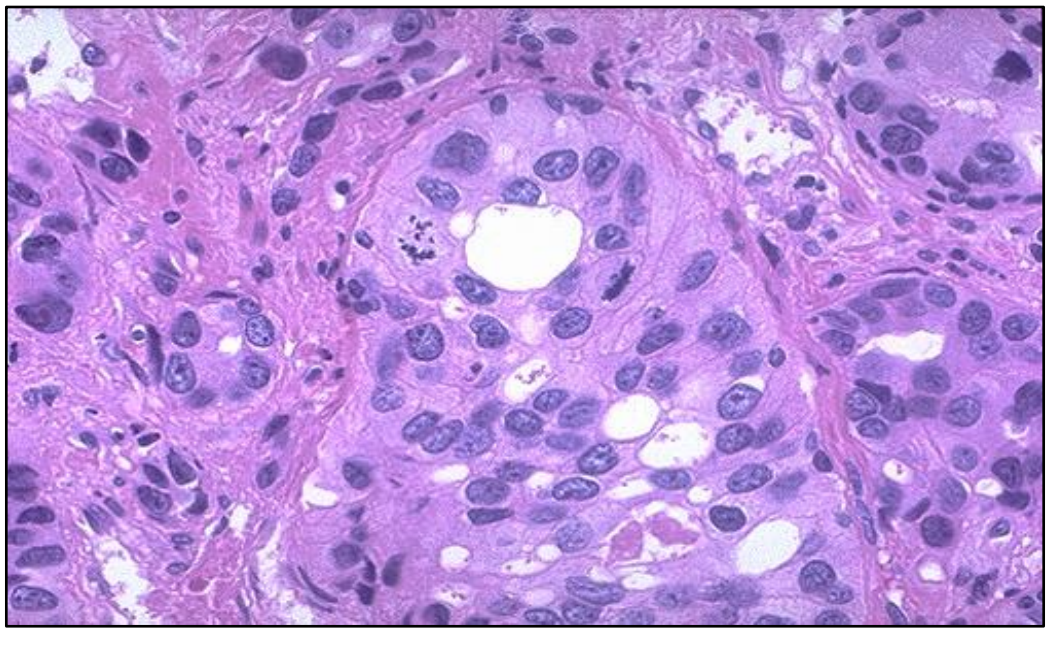
1. **irregular yellowish nodules,** mostly in the posterior portion (seen here superiorly).
2. This section is removed via radical prostatectomy.

Microscopic -MPF



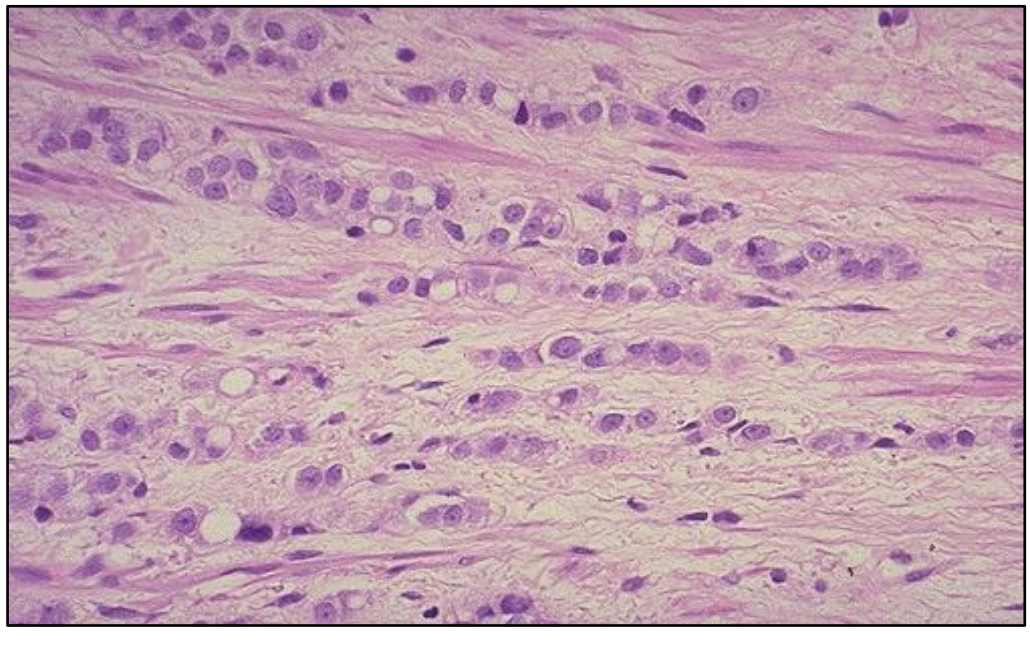
1. the neoplastic glands of prostatic adenocarcinoma are still recognizable **as glands.**
2. There is **No intervening stroma**.
3. **Nuclei** are **hyperchromatic**.
4. **No** myoepithelial cells.
5. Prominent nucleoli.

Microscopic - HPF



1. **poorly** differentiated prostatic adenocarcinoma demonstrates cells with **nucleoli** and **mitotic** figures.

Microscopic - HPF



1. **poorly** differentiated that **NO glandular** structure is recognizable, only cells infiltrating in rows.

Case 14: Ovarian Cyst

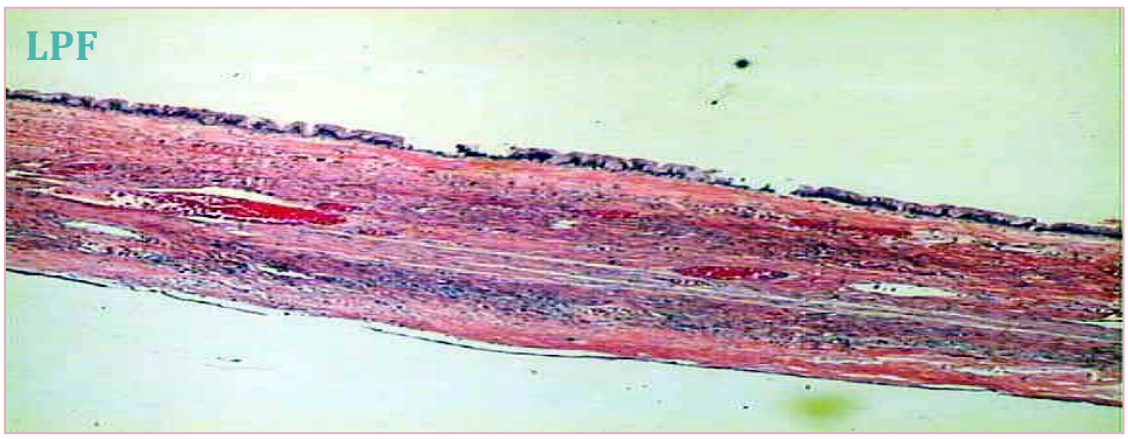
- Benign epithelial tumors of the ovary can reach massive proportions.
- The color of the cysts differ : in follicular cysts = clear yellowish fluid. , serous cystadenoma= thick fluid .

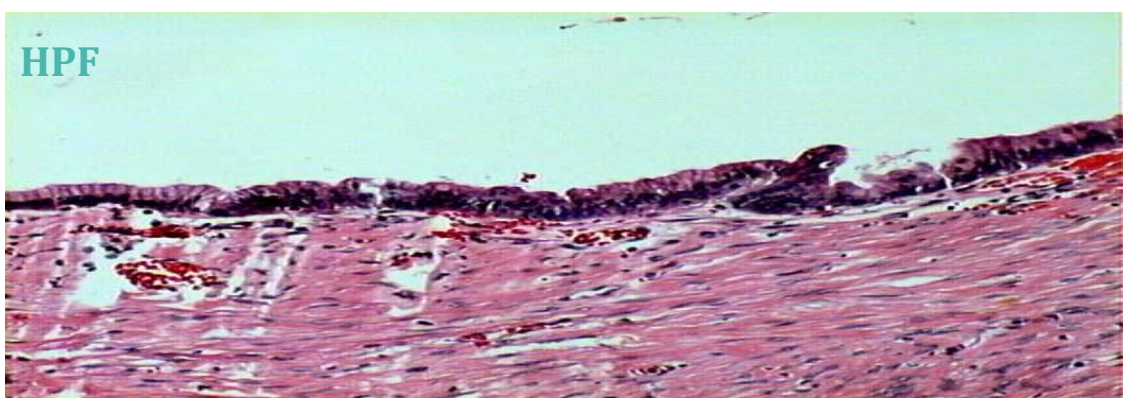
Ovarian Cyst - Gross

1. Benign **follicular cyst.**
2. Such cysts may reach **several centimeters in size**.
3. If they rupture, can cause **abdominal pain.**

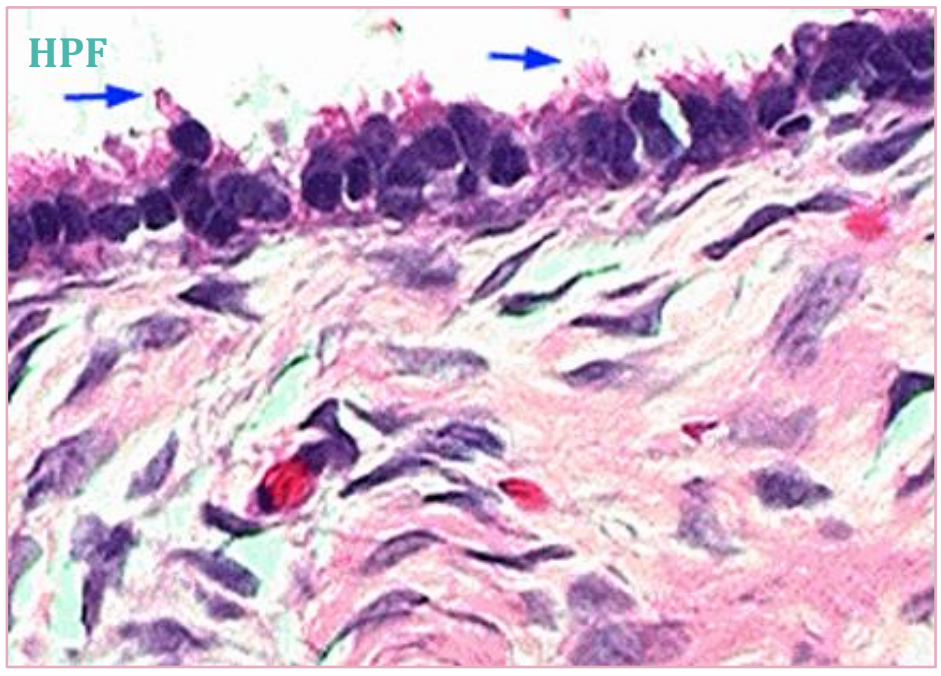
1. The **serous cystadenoma** seen here fills a surgical pan and dwarfs the 4 cm ruler.

Serous Cystadenoma of the Ovary





1. the thin wall lined by a **single layer of mucin-secreting columnar cells.**
2. a **basally-placed** spherical small **nucleus**.



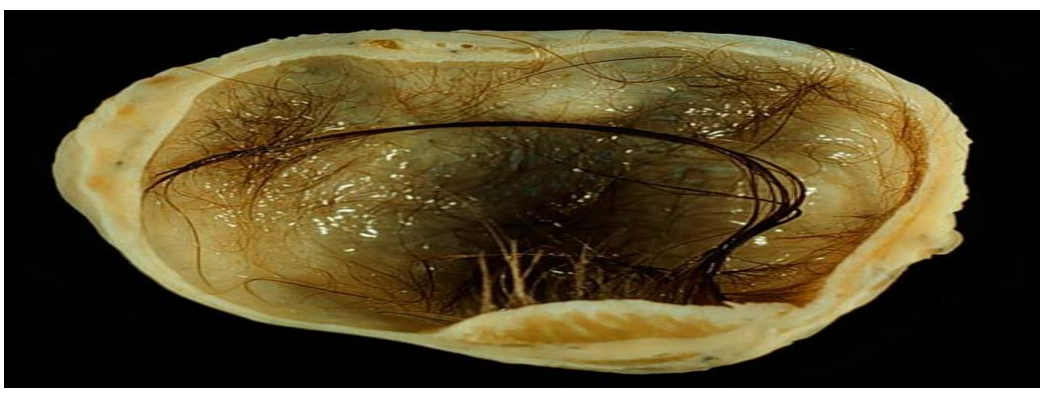
1. The blue arrows point to cilia.
2. The cells have dark nuclei without nucleoli or mitoses.
3. The cytoplasm is eosinophlic and ciliated like tubal epithelium.
4. The stroma contains spindly fibroblasts

Case: Dermoid cyst (teratoma) of the Ovary

- **Germ Cell Tumors**:
1. Teratoma: Immature (carry bad prognosis), Mature (carry good prognosis) (solid, cystic "dermoid cyst"), monodermal (Struma Ovarii, Carinoid).
2. Dysgerminoma
3. Yolk sac tumor.
4. Mixed Germ cell tumors.

- **Sex Cord-Stromal Tumors:**
1. Granulosa tumors,
2. Fibromas,
3. Fibrothecomas – Thecomas.
4. Sertoli-Leyding cell tumors,.
5. Steroid (lipid) cell tumors.

Gross



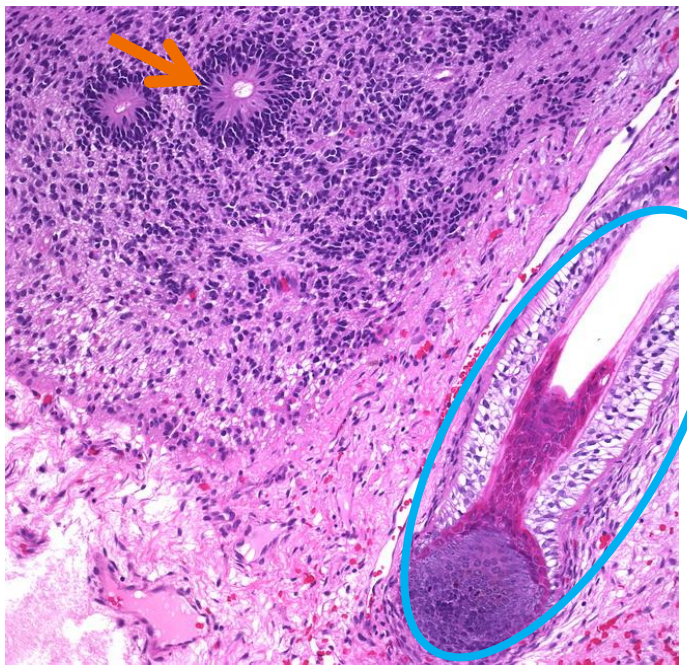
1. A 0.4 cm dermoid cyst filled with greasy material (keratin and sebaceous secretions)
2. Tufts of hair within the cyst.
3. The rounded solid area at the bottom is called **Rokitansky's protuberance.**

Gross

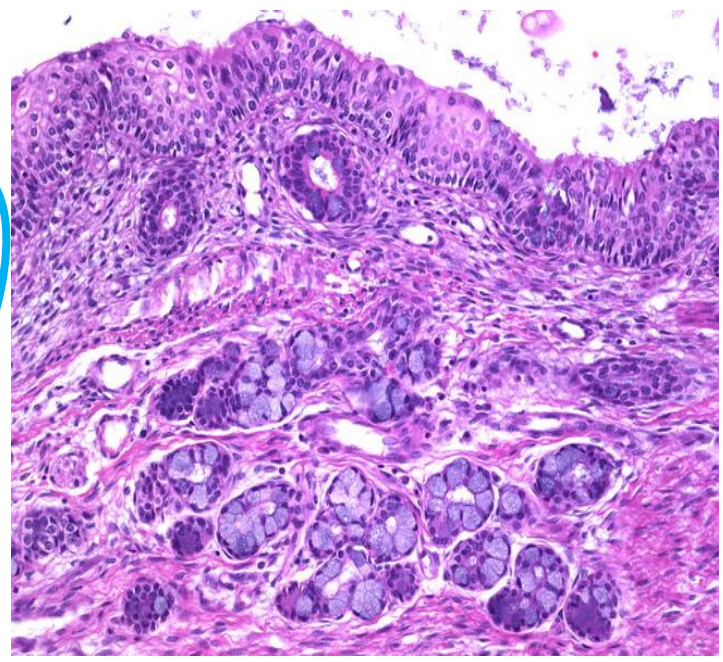
1. Cyst containing **teeth** and **hairs** with **nail** tissue and skin.
2. It may be complicated by torison infarction, **struma ovarii*** and immature teratoma.

*(teratoma with thyroid gland)

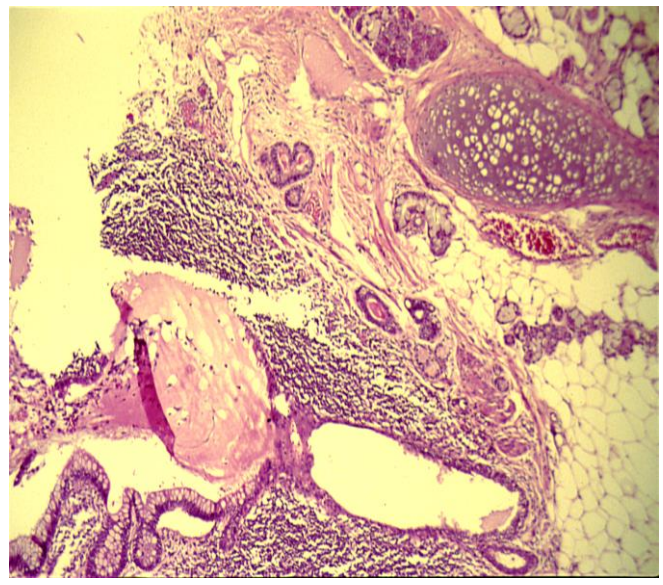
Microscopically



1. **Neuroepithelial tubules** and rosettes (immature component)
2. **hair follicle** (mature component).
3. They consist of epidermis, hair follicles, sweat and sebaceous glands and neuroectodermal derivatives.



1. A mature solid teratoma of the ovary.
2. Skin.
3. Mucinous glands.

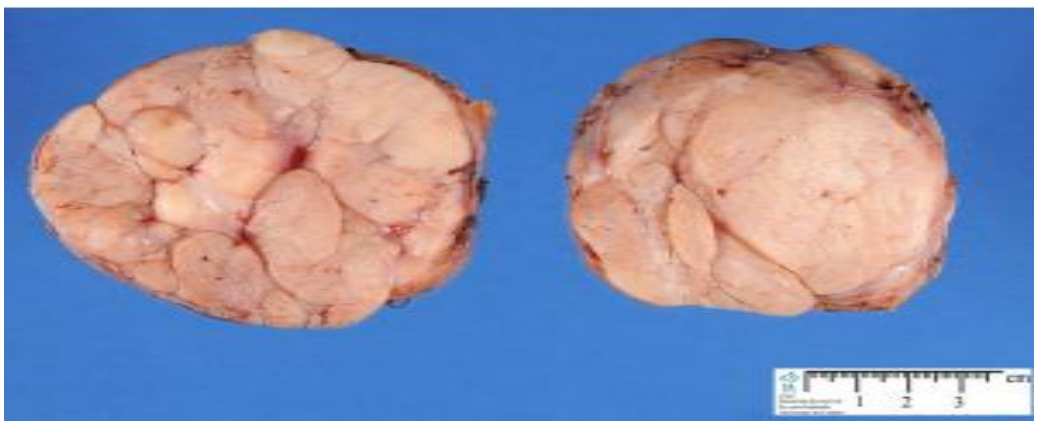


- Stratified Squamous epithelium with underlying:
1. Sweat glands.
2. Sebaceous glands.
3. Hair follicles.
4. Columnar ciliated epithelium.
5. Mucous and serous glands.
6. Structures from other germ layers such as bone, cartilage, lymphoid tissue, smooth muscles and brain tissue containing neurons and glial cells.

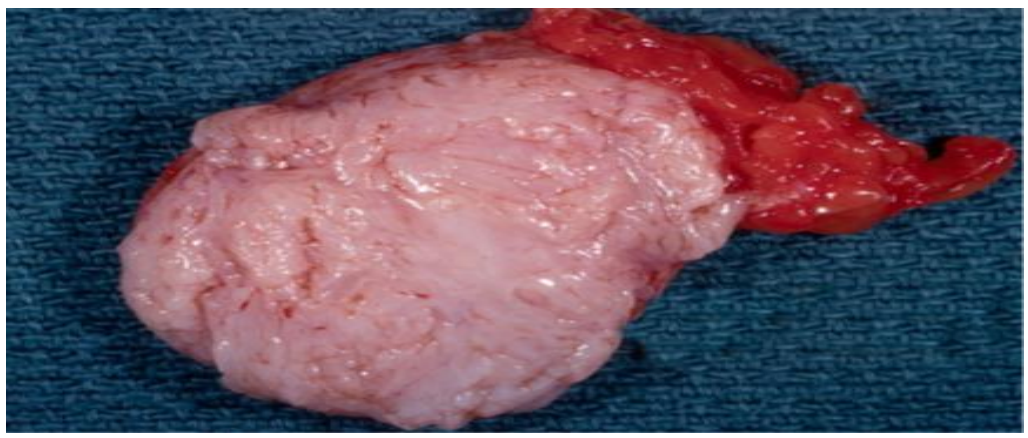
Case 16: Fibroadenoma

- **Fibroadenoma** of the breast has a **benign** behavior with **good prognosis.**
- **Clinically**: mobile mass (breast mouse)

Gross

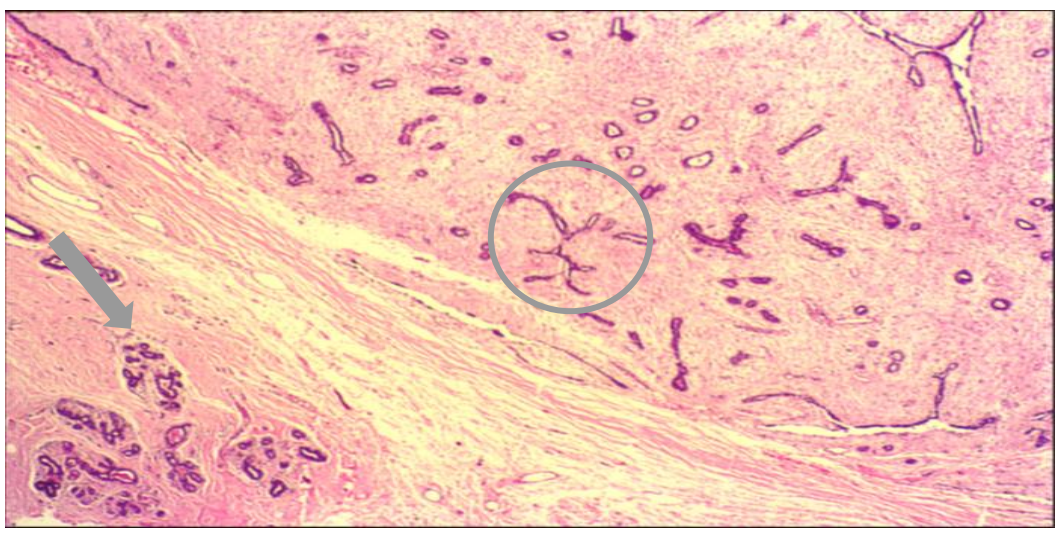


1. Multiple fibroadenomas with **smooth**, **circumscribed** **borders**.



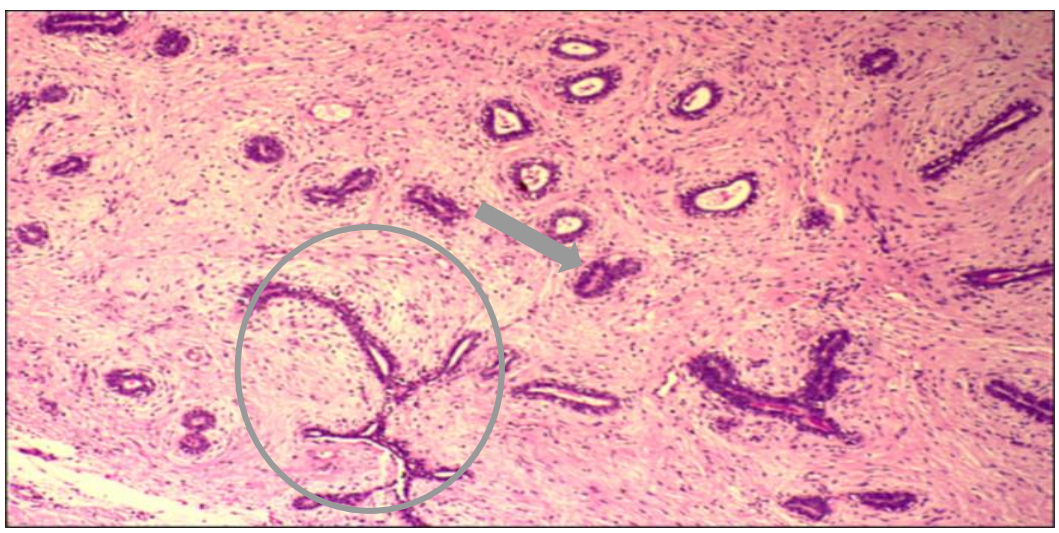
1. **Well circumscribed** and bulging **white** mass.
2. The cut surface is **lobulated with slit-like spaces**.

Microscopic- LPF



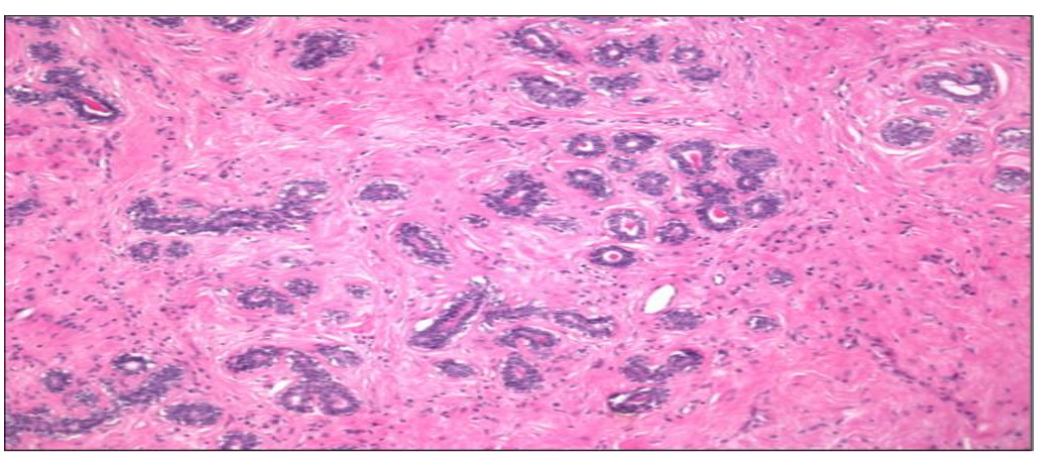
1. proliferation of both **glandular** tissue and **fibrous** tissue.
2. **intracanalicular** (circle) (slit like appearance) and **pericanalicular** (arrow) fibrous and ductular tissue growth pattern .

Microscopic- HPF



1. Proliferation fibrous tissue is invaginating the ducts causing elongation, compression and distortion of the ducts which have **slit-like lumen** (**intracanalicular**) (circle).
2. At places fibrous tissue is arranged around the ducts (**pericanalicular**) (arrow) and does not invaginate.

Microscopic



Pericanalicular Fibroadenoma

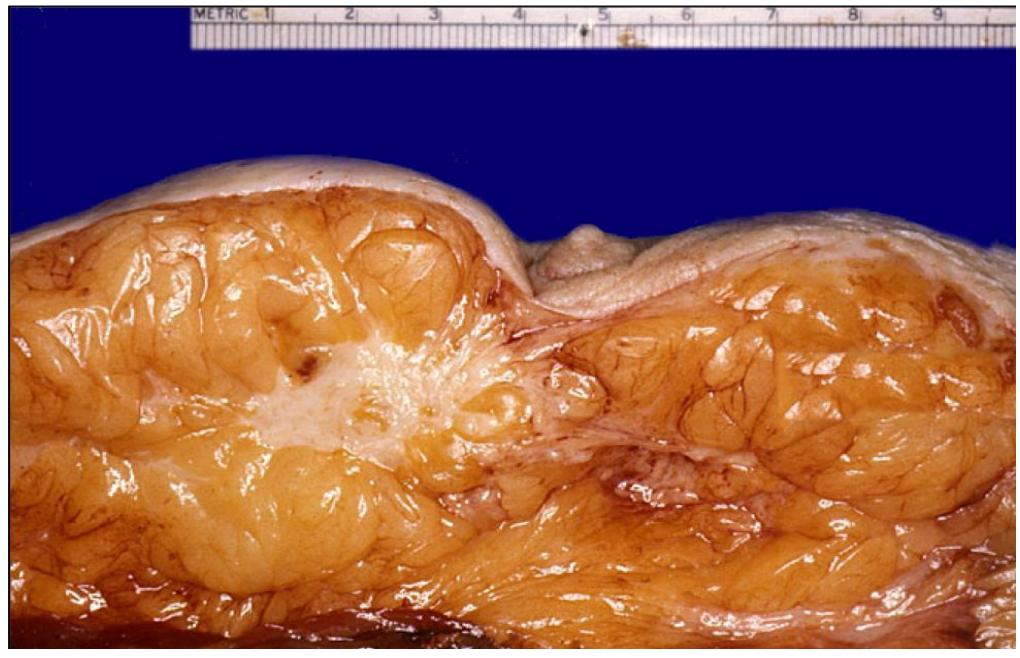
1. the glands maintain their round or oval profiles.
2. There is no prognostic or clinical significance attached to the pericanalicular and intracanalicular patterns.
3. Both may be seen within the same lesion.

Case 17: Carcinoma of Breast

- Usual Location: Upper left (outer) quadrant of the breast.
- Common with family history.
- Patient clinically present with Bloody secretion of the nipple.

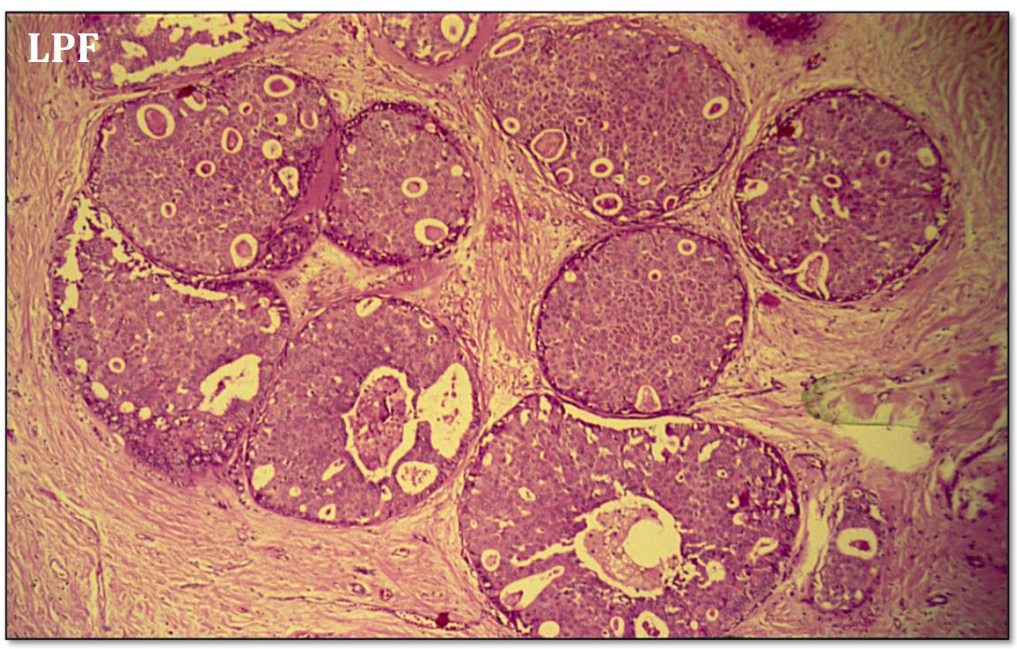
Gross

1. Breast cancer showing an **inverted nipple, lump** and **skin dimpling.**

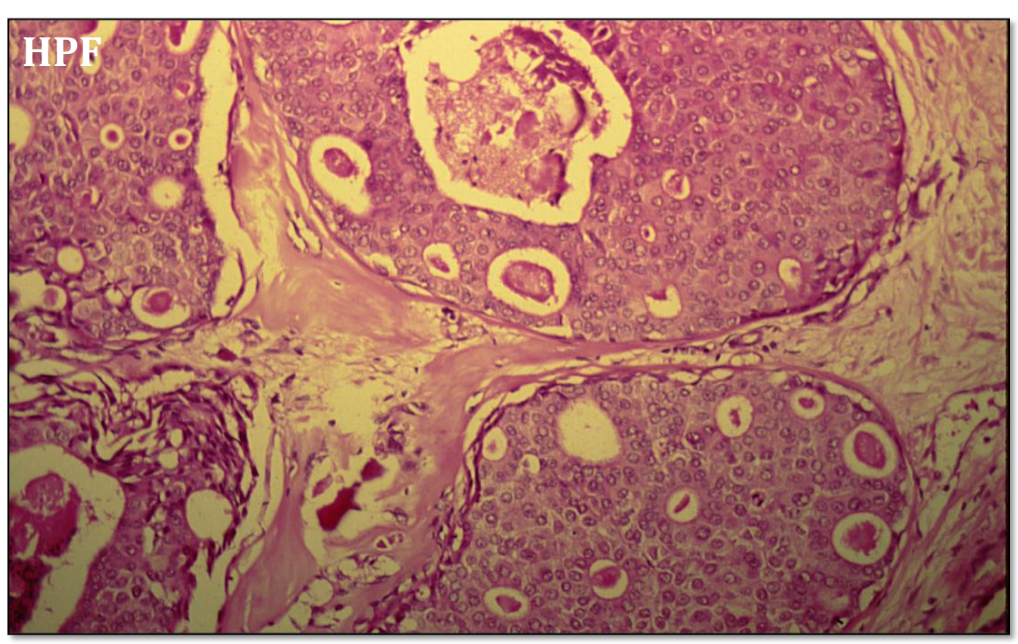


1. **Ill-defined pale** and **firm nodule** with overlying retracted nipple and surrounding skin.

Microscopic- Intraductal (In-situ) carcinoma of the breast



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

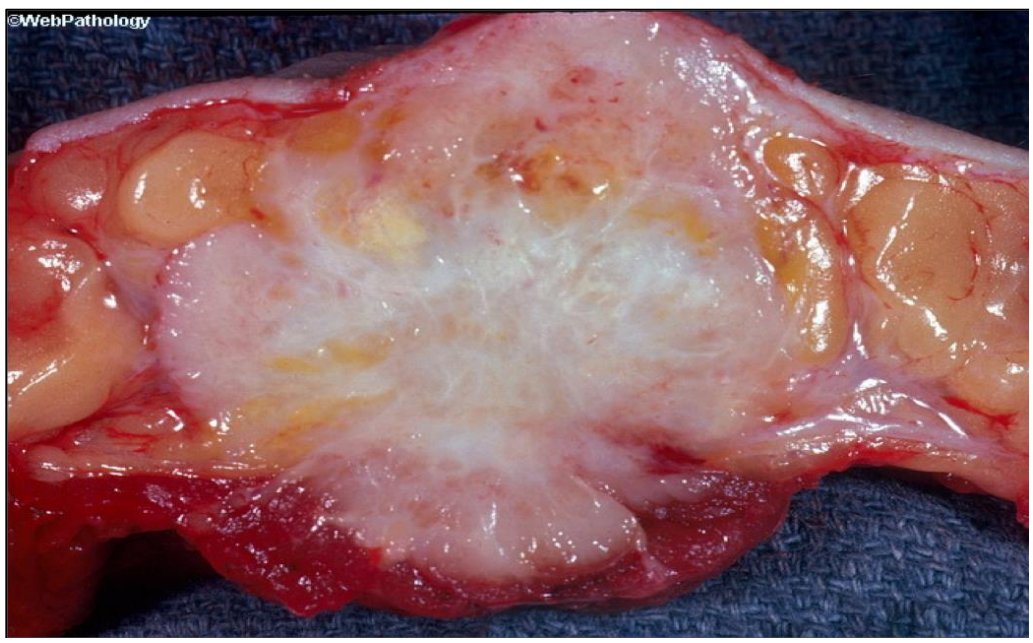


1. Large ducts are distended by neoplastic epithelial cells .
2. Cells are **pleomorphic** with large **hyperchromatic nuclei** and **mitosis**.

Case 18: Invasive Ductal Carcinoma of the Breast

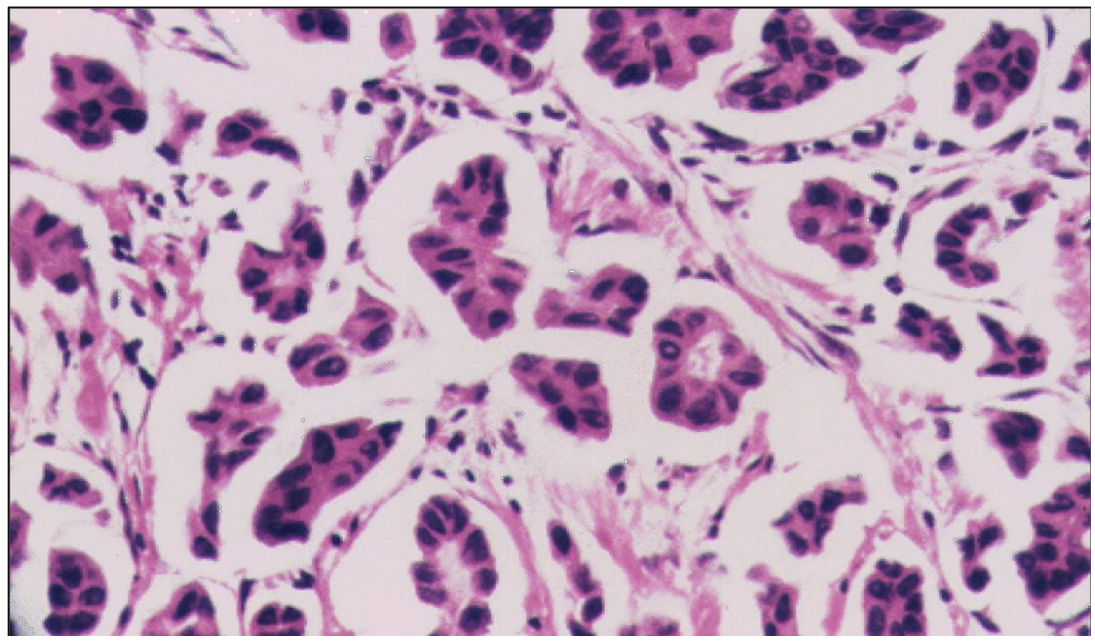
- Risk factors: Family history- obesity- exogenous estrogen - advanced age.

Gross



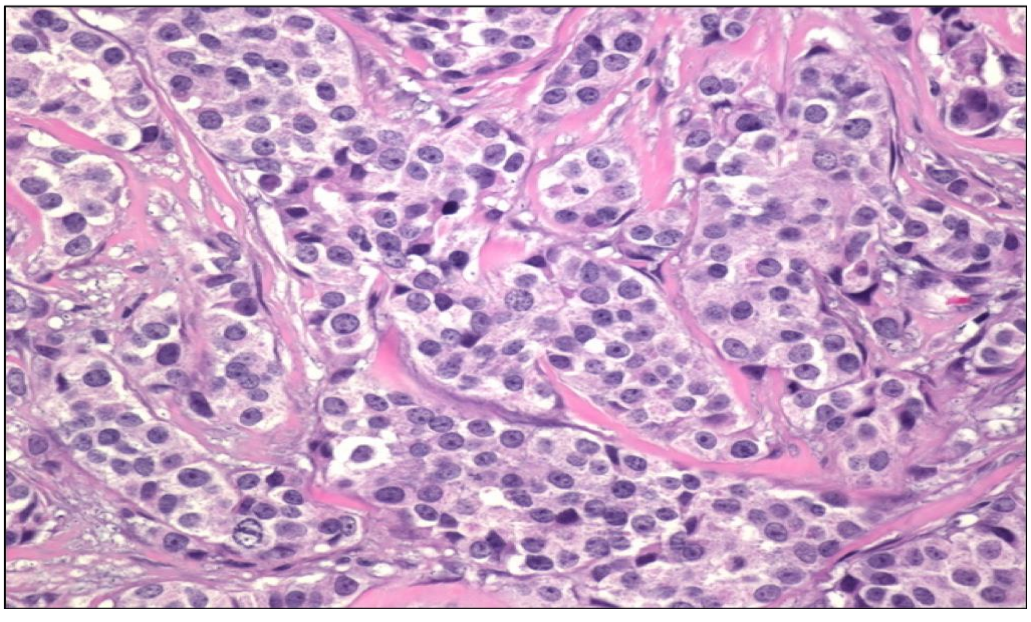
1. Firm, poorly circumscribed tumor.
2. Yellowish gray cut surface.
3. It cuts with a gritty sensation.
4. It may show strands radiating into surrounding fat.

Microscopic

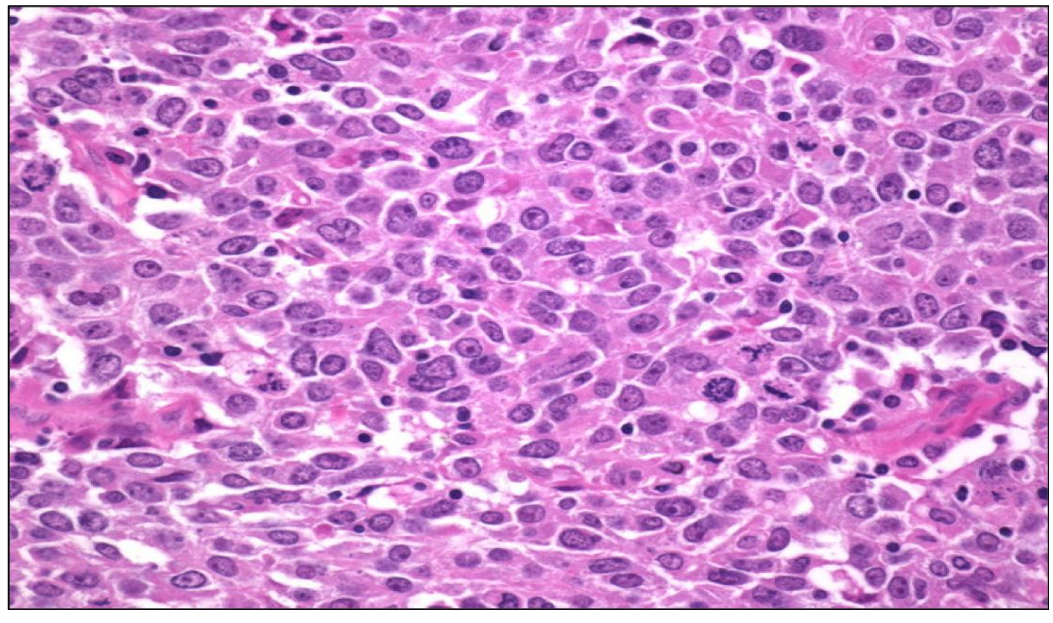


1. A well differentiated ductal carcinoma made up of small **acini** and **glands**.
2. Tumor cells are **round** to **polygonal**.
3. **Deeply stained nuclei**
4. Occasional **mitoses.**
5. Nuclear **Atypia** is mild.

Microscopic



1. Cords, sheets and **nests** of **tumor cells** surrounded by dense **fibrous tissue** stroma containing scattered **lymphocytes.**



1. **High grade** invasive ductal carcinoma.
2. Tumor cells are **Highly pleomorphic**.
3. Frequent **mitoses.**
4. **Minimal tubular formation.**

Case 19: Paget's Disease of The Nipple

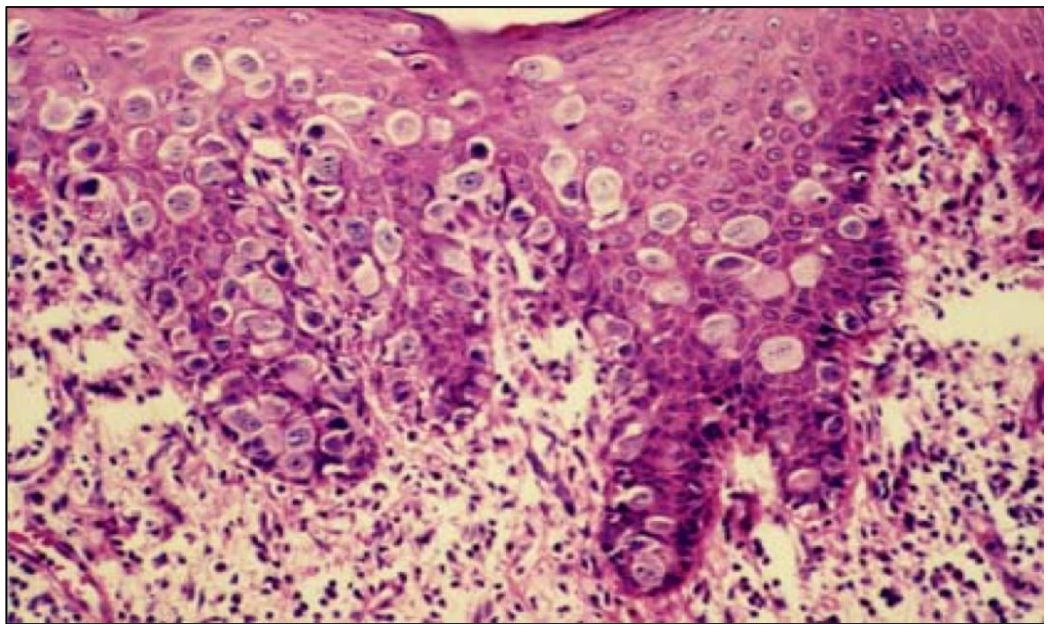
- **Definition:** is a nipple lesion associated with underlying **ductal carcinoma in situ** with or without associated stromal invasion.

Gross

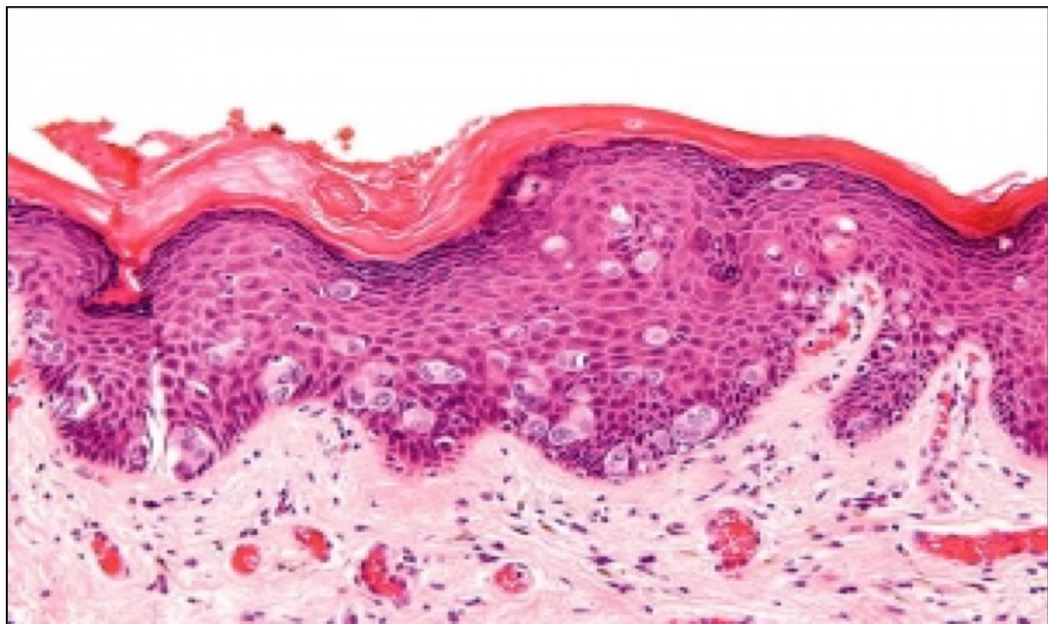


1. The lesion is **eczema - like** with **hyperemia** and **erosion** of the epidermis.
2. Initially centered on the nipple, they may later involve the areola.

Microscopic



1. Paget's cells migrate from parabasal cell layer to the **epidermis**.
2. cells have **pale**, **vacuolated** **cytoplasm**.
3. **Large nuclei**
4. Highest concentration in the deep layers of **epidermis** (NOTICE that the dermis is **NOT** involve)



1. **Hyperkeratosis** of epidermis.
2. **Chronic inflammation** in the dermis.
3. **Ulceration** and **invasion** of **epidermis** by ductal carcinoma (**paget's cells**).
4. Present between basal cells in elongated rete pegs.

Thank you for checking our work & GOOD LUCK!

تم بحمد الله

في الختام نود أن نشكر جميع أعضاء الفريق في كل البلوكات السابقة على جهودهم، ونتمنى أن نكون قد قدمنا عمل يحوز على رضاكم،
وإن احسنا فمن الله وان أسأنا فمن انفسنا والشيطان.

كل التوفيق لكم في سنواتكم القادمة ♥

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Reference: doctors' slides + 435 teamwork

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