



Pathology practical

— Reproductive block —
Med435

Important

Females notes

Males notes

Note:

7 cases in the exam.

If you're running out of time check:

1. Seminoma of the Testis.
2. Prostatic Hyperplasia.
3. Endometrial adenocarcinoma.
4. Acute Salpingitis.
5. Dermoid Cyst (Teratoma) of the Ovary.
6. Fibroadenoma.
7. Invasive Ductal Carcinoma of the Breast.
8. Paget's Disease of the Nipple.

[Test Your knowledge](#)

[Most imp cases file.](#)

Case#1: Testicular Atrophy

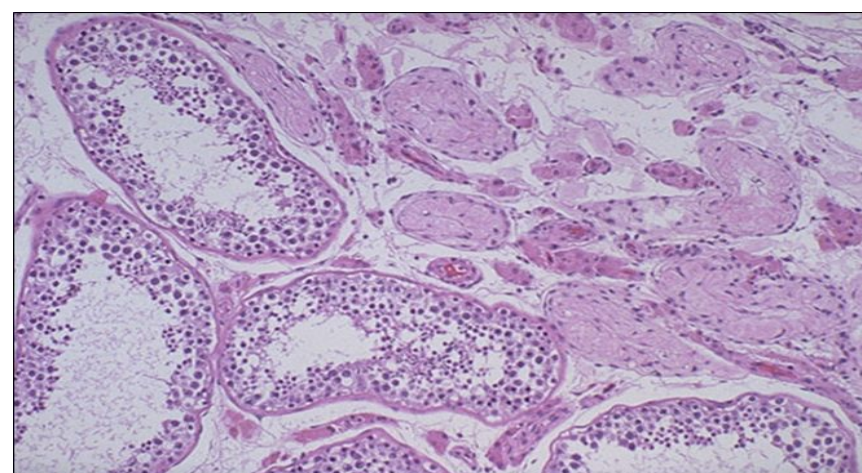
- **Etiology of Bilateral atrophy:** chronic alcoholism, hypopituitarism, atherosclerosis, chemotherapy or radiation, and severe prolonged illness.

Normal vs. Atrophied Testis - Gross



Left: normal testis.
Right: atrophied testis

Normal vs. Atrophied Testis - Microscopic



1. Focal atrophy of tubules at the upper right
2. Patchy orchitis commonly caused by mumps virus infection in childhood

Case#2: Embryonal Carcinoma & Teratoma of the Testis

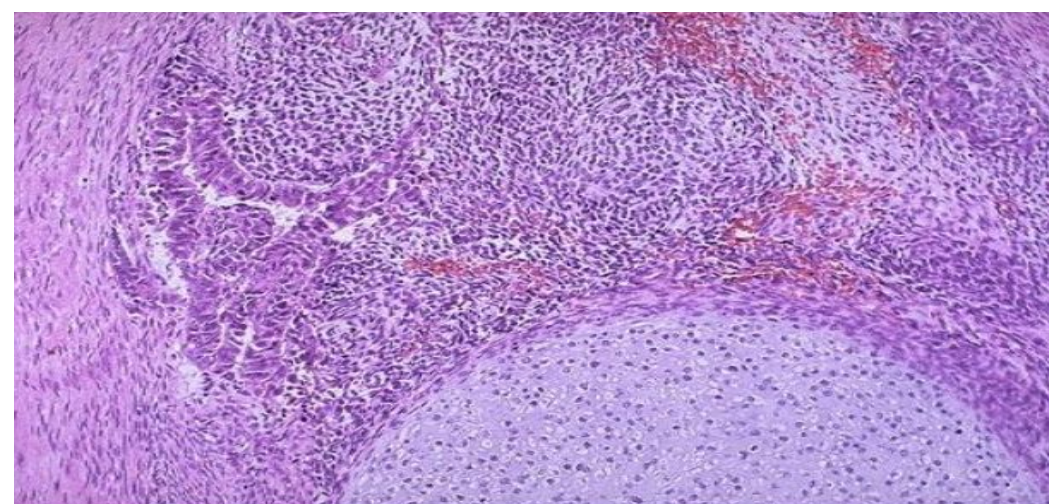
- A germ cell tumor.
- Usually it is not single it's combination of embryoma and teratoma together

Embryonal Carcinoma & Teratoma - Gross



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

Embryonal Carcinoma & Teratoma - HPF

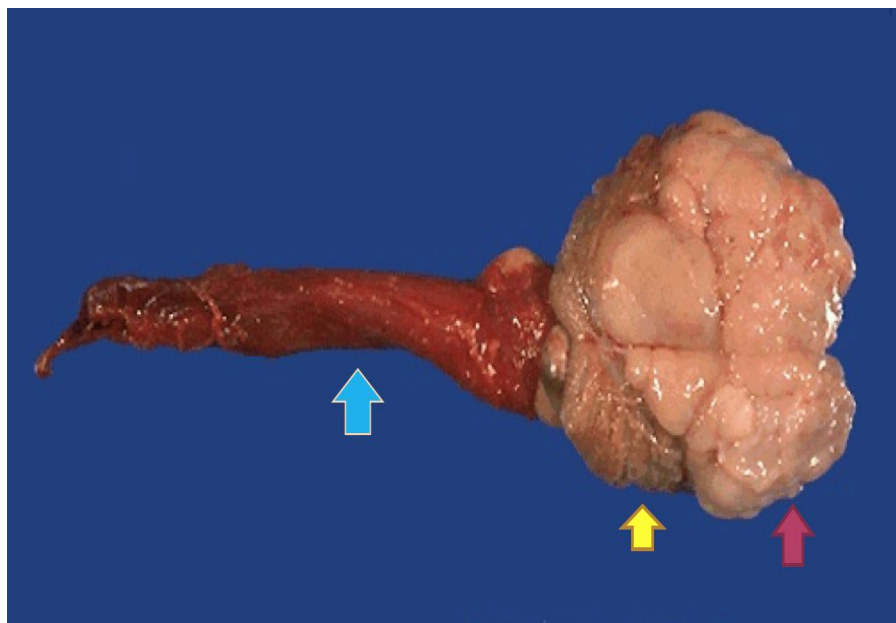


At the bottom is a focus of cartilage. Above this is a primitive mesenchymal stroma and to the left a focus of primitive cells most characteristic for embryonal carcinoma. This is embryonal carcinoma mixed with teratoma.

Case#3: Seminoma of the Testis

- **Seminoma:** Germ cell neoplasms are the most common types of testicular neoplasm
- **Incidence:** 15 to 34 age group
- **Risk factor:** **Cryptorchidism** “undescended testicle”
- **Note:** They often have several histologic components: seminoma, embryonal carcinoma, teratoma & choriocarcinoma

Seminoma of the Testis - Gross



Red arrow: Pale and **lobulated** testicular mass with **bulging** and **potato like cut surface**

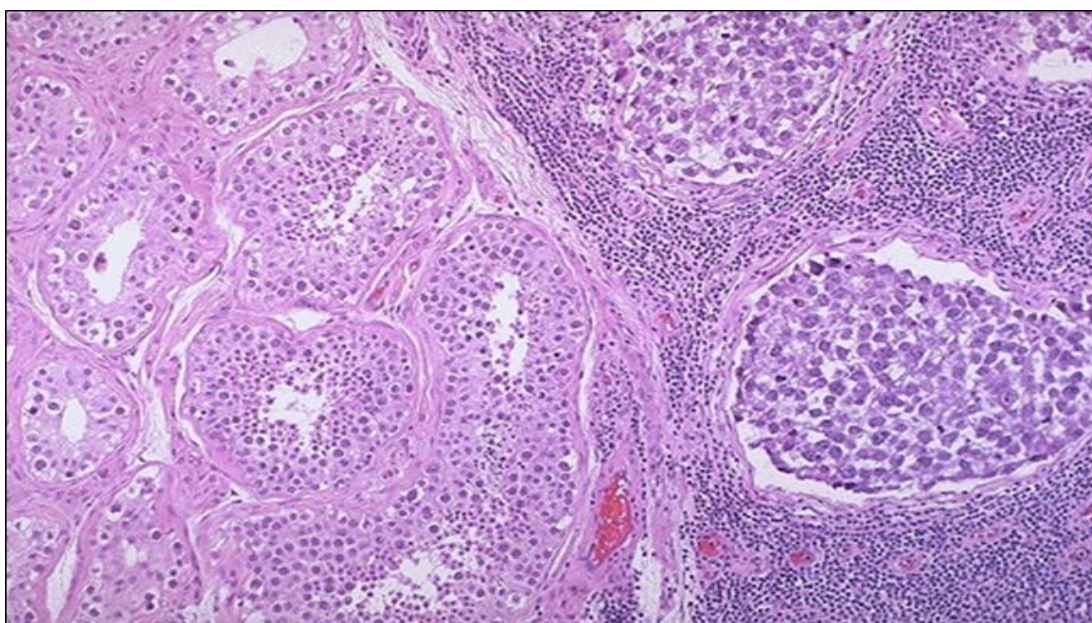
Yellow arrow: normal testis

Blue arrow: congested spermatic cord

Seminoma of the Testis - Gross



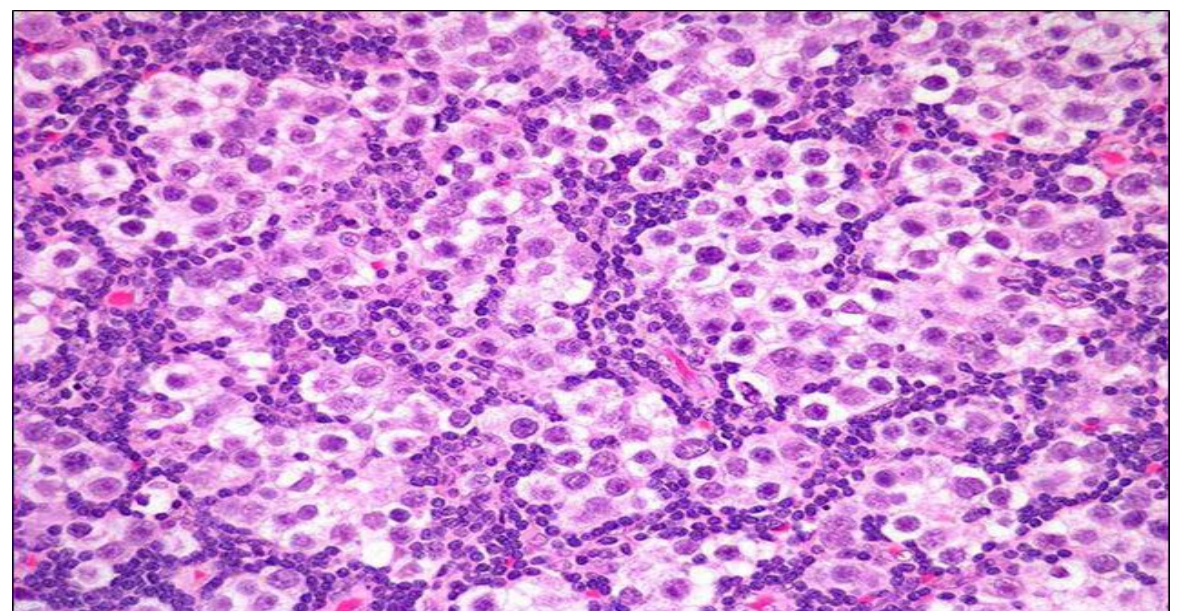
Seminoma vs Normal Testis - LPF



Left: normal testis.

Right: seminoma, Lymphoid stroma between the nests of seminoma **Atypical Germinal cells**.

Seminoma of the Testis - HPF



Malignant pale germ cells showing:

1. large vesicular nuclei and prominent nucleoli
2. Lymphocytes

Case#4: Prostatic Hyperplasia

- **Clinical presentation:** It can obstruct urinary outflow from the bladder and lead to an obstructive uropathy So the patient complains of **Frequency, difficulties of micturition, hesitancy, poor urinary stream and nocturia.**
- **Complications:** obstruction of the prostatic urethra leads to UTI and stasis of urine lead to formation of stones.
- **Location:** **Central part and lateral peri-urethral lobes of prostate are commonly affected (transitional area).**

Prostatic Hyperplasia - Gross



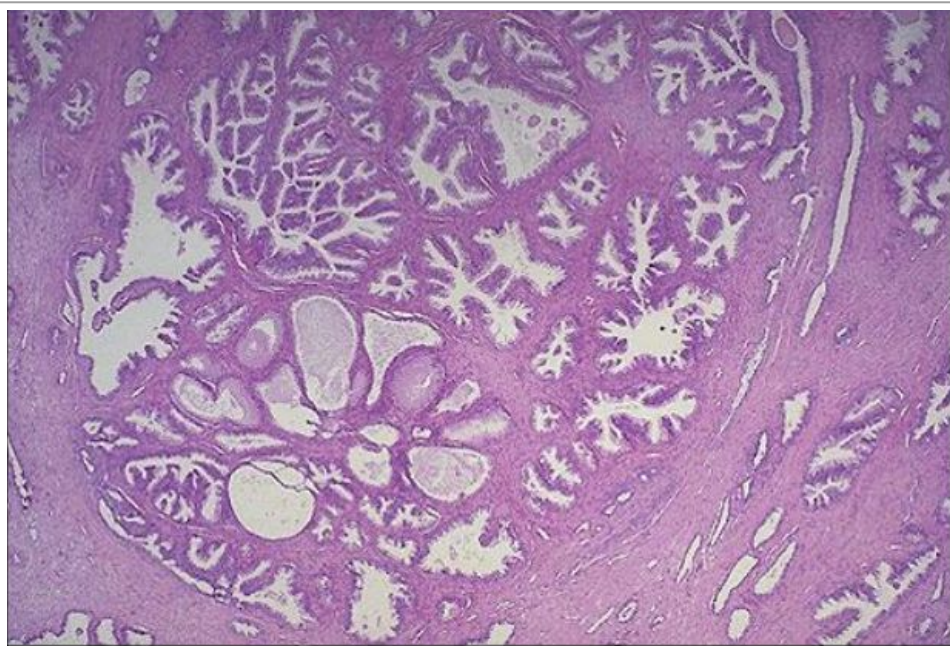
Enlarged lateral lobes, and median lobe that obstructs the prostatic urethra that led to obstruction with bladder hypertrophy, as evidenced by the prominent trabeculation of the bladder mucosa. Obstruction with stasis also led to the formation of the yellow-brown calculus (stone).

Prostatic Hyperplasia - Gross



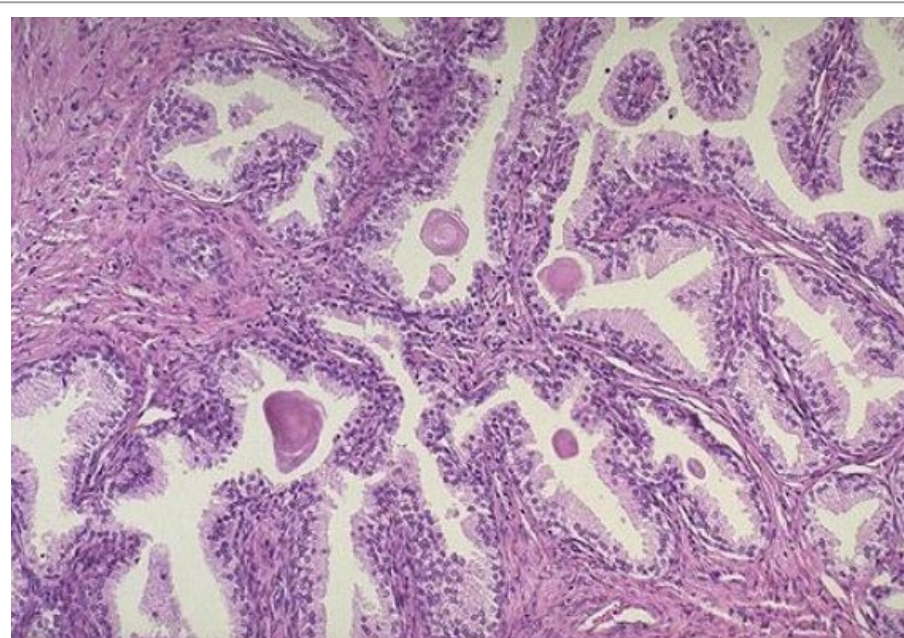
1. Nodules formation.
2. Narrowing of prostatic urethra.

Prostatic Hyperplasia - LPF



Benign prostatic hyperplasia can involve **both glands and stroma.**
Here, a large hyperplastic nodule of glands are seen.

Prostatic Hyperplasia - HPF

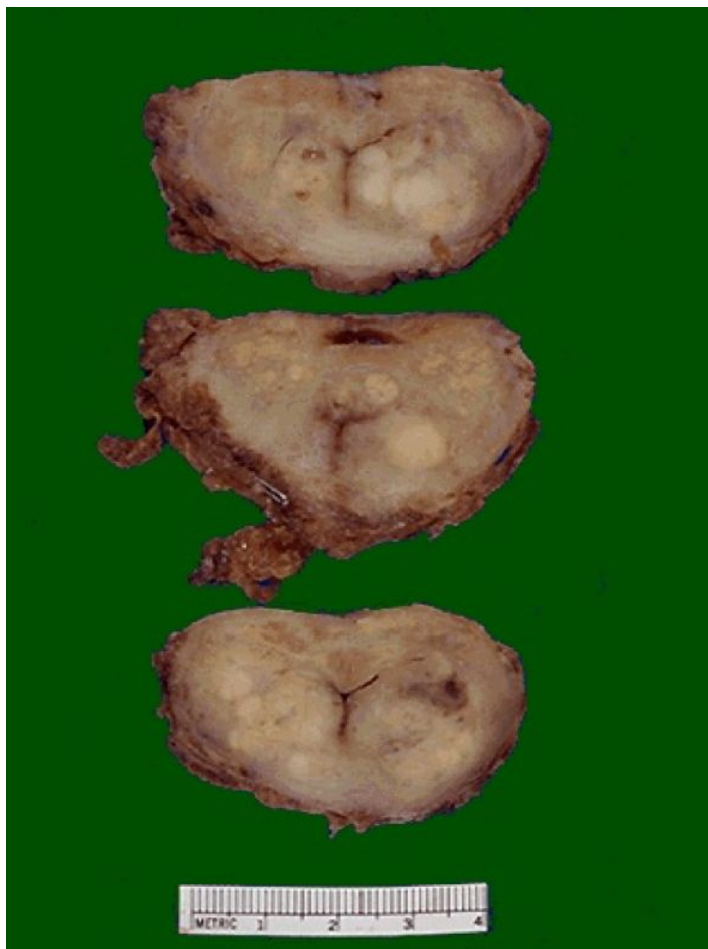


1. Glandular hyperplasia.
2. Stromal or muscular intervening stroma.
3. Corpora amylacea. *Always indicate benign*

Case#5: Adenocarcinoma of prostate.

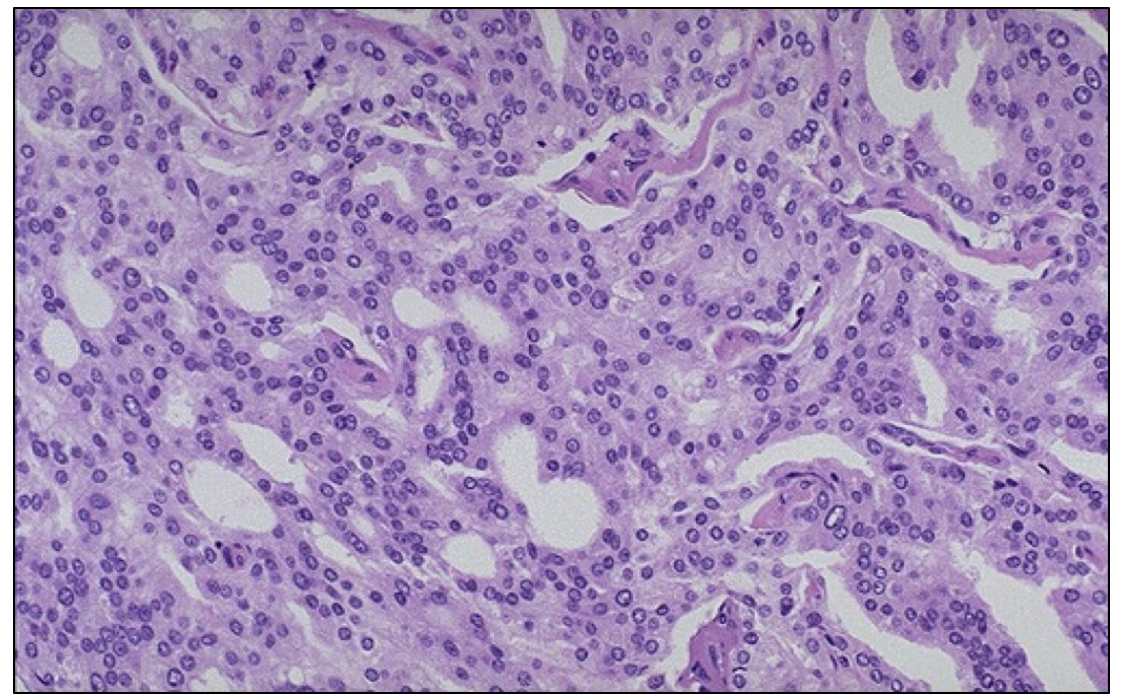
- **Diagnosis:** serological test: Prostatic specific antigen **PSA**.
- **Location:** Peripheral Part.

Adenocarcinoma of the prostate - Gross



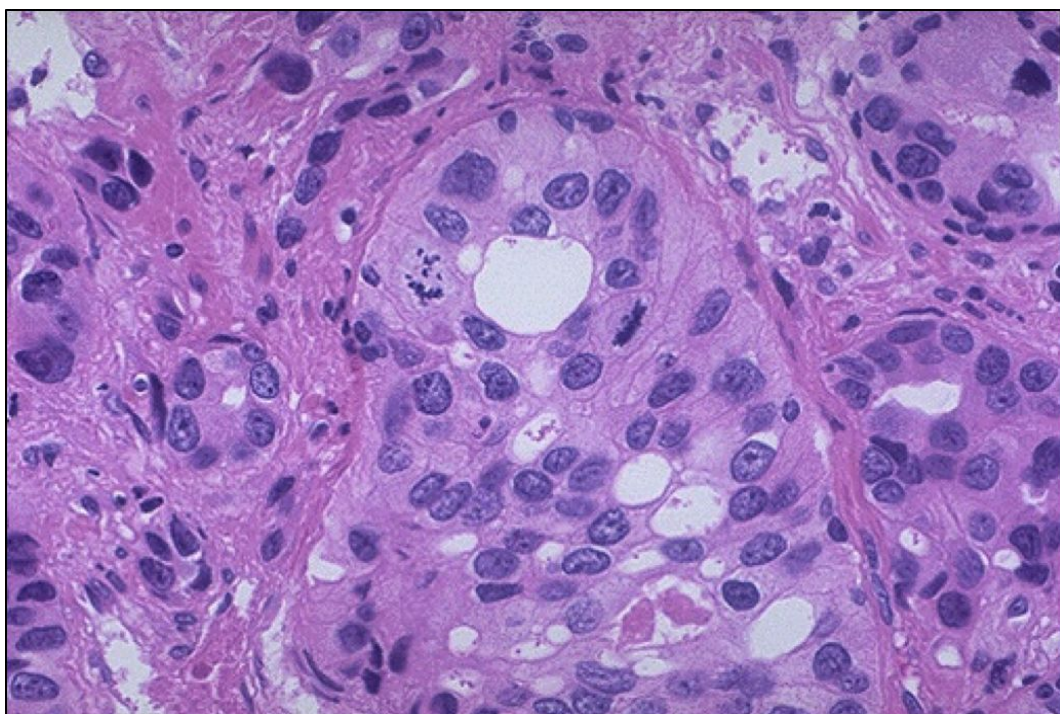
These sections through a prostate removed via radical prostatectomy reveal irregular yellowish nodules.

Adenocarcinoma of the Prostate - MPF



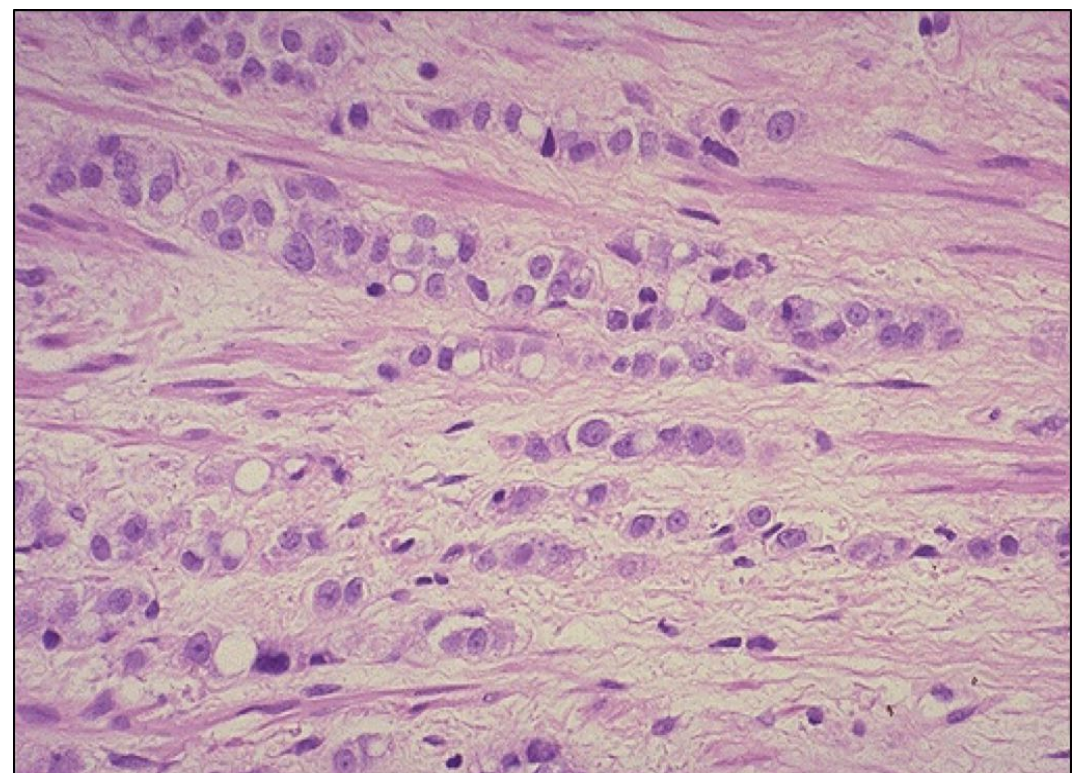
The neoplastic glands of prostatic adenocarcinoma are still recognizable as glands, but there is no intervening stroma and the nuclei are hyperchromatic.

Adenocarcinoma of the Prostate - HPF



Poorly differentiated prostatic adenocarcinoma demonstrates cells with nucleoli and mitotic figures.

Adenocarcinoma of the Prostate - HPF

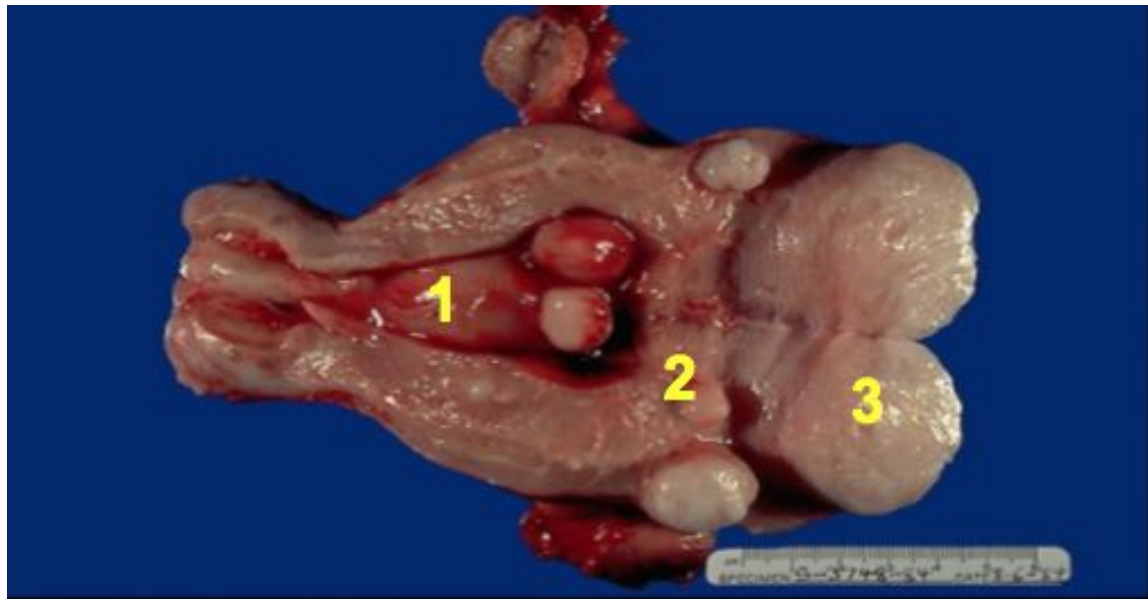


The adenocarcinoma of prostate is poorly differentiated that **no** glandular structure is recognizable, only cells infiltrating in rows.

Case#6: Uterine Leiomyomata (Fibroid)

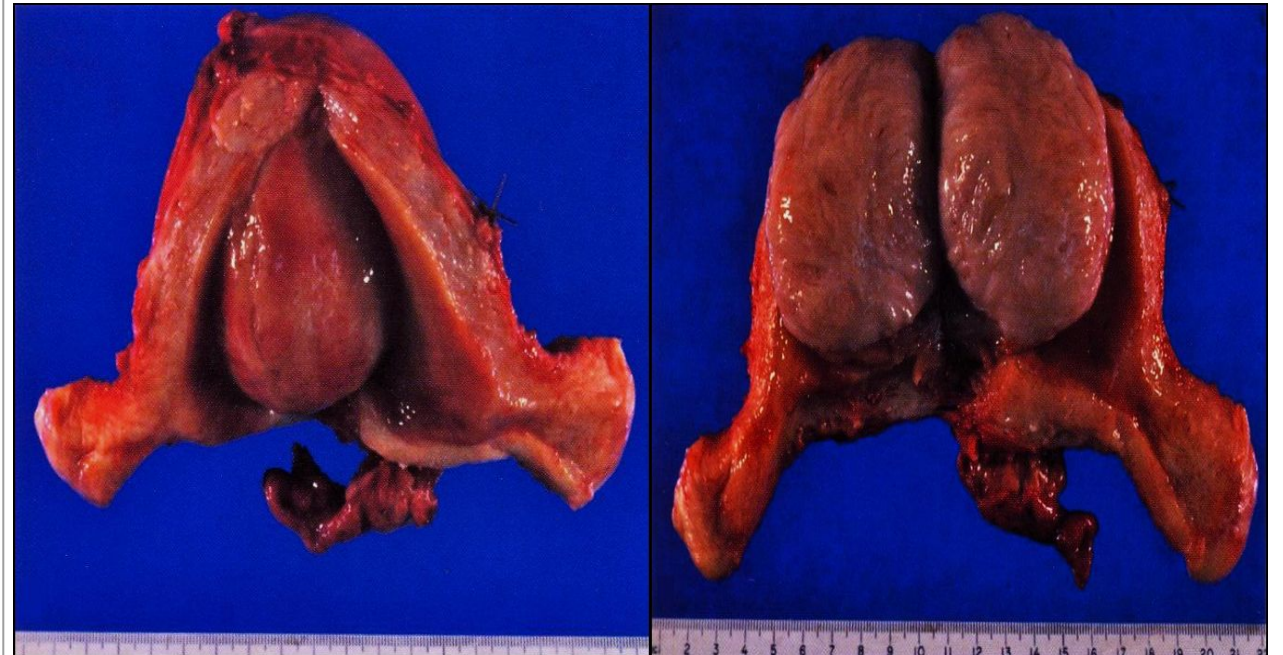
- Based on location it's divided into 3 types: **submucosal, intramural, and subserosal**
- Clinical significance: **Bleeding, Distortion in Submucosal, others maybe asymptomatic**
- Complications: **Multiple Abortions**

Multiple Uterine Leiomyomata - Gross



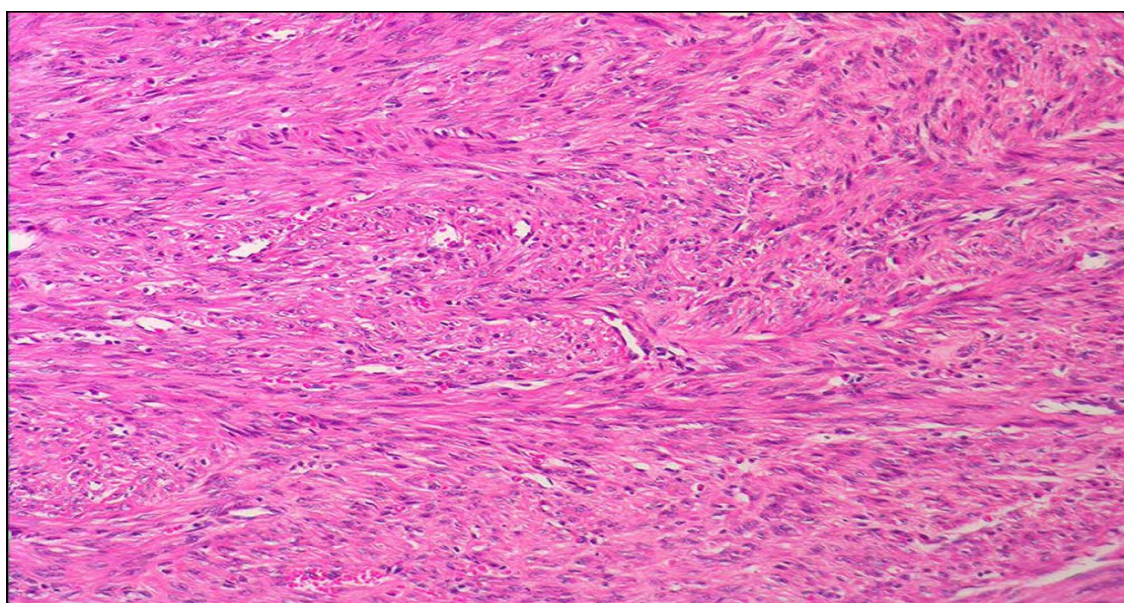
1. **Multiple** Smooth muscle tumors of the uterus
2. Seen here are submucosal¹, intramural², and subserosal³ leiomyomata of the uterus.

Multiple Uterine Leiomyomata - Gross



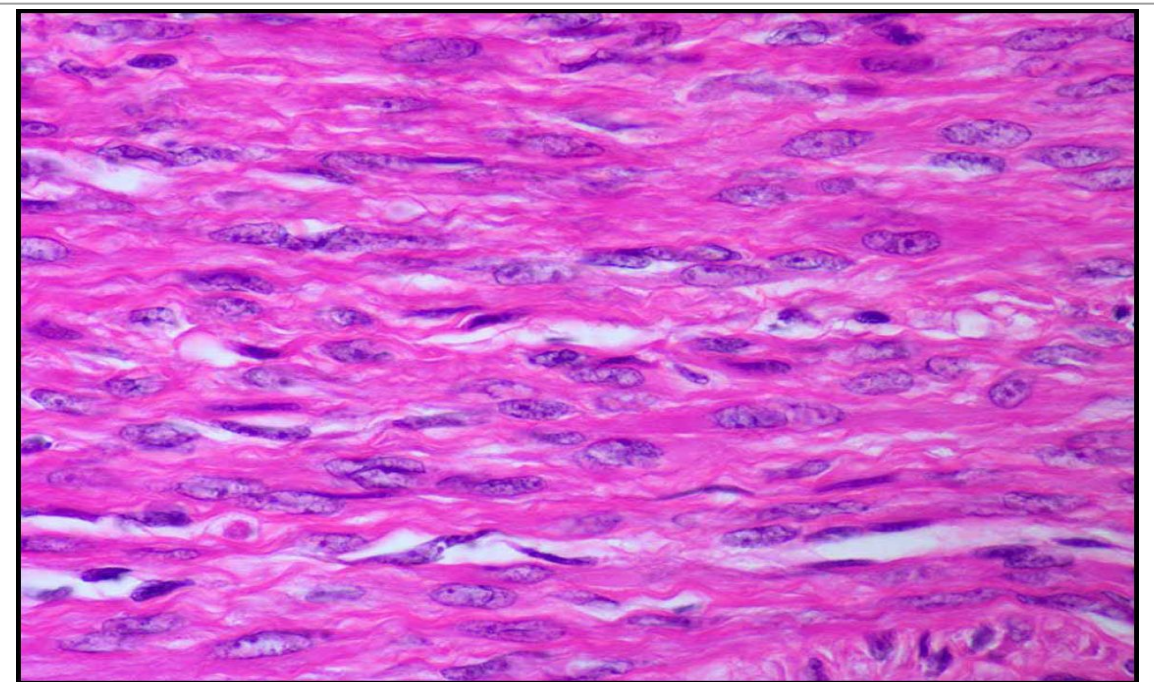
A well demarcated tumour mass in the muscle coat of uterus without a definite capsule, whorled appearance on cut surface.

Uterine Leiomyoma – LPF



1. **Interlacing bundles of smooth muscle & fibrous tissue.**
2. Muscle cells are **spindle shaped with elongated nuclei & eosinophilic cytoplasm.**

Uterine Leiomyoma – HPF



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

Case#7: Endometrial Hyperplasia

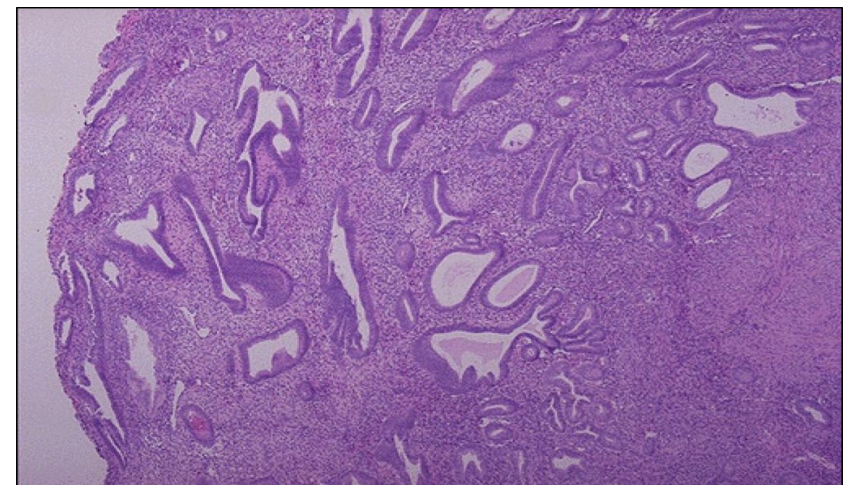
- **Etiology:** Endometrial hyperplasia usually results with conditions of **prolonged estrogen excess**
- **Complications:** Metrorrhagia (uterine bleeding at irregular intervals), Menorrhagia (excessive bleeding with menstrual periods), Menometrorrhagia.
- Simple endometrial hyperplasias can cause bleeding, but are **not thought to be premalignant**
- **Diagnosis:** Endometrial biopsy

Endometrial Hyperplasia - Gross



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

Endometrial Hyperplasia - LPF



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

Case#8: Endometrial Adenocarcinoma

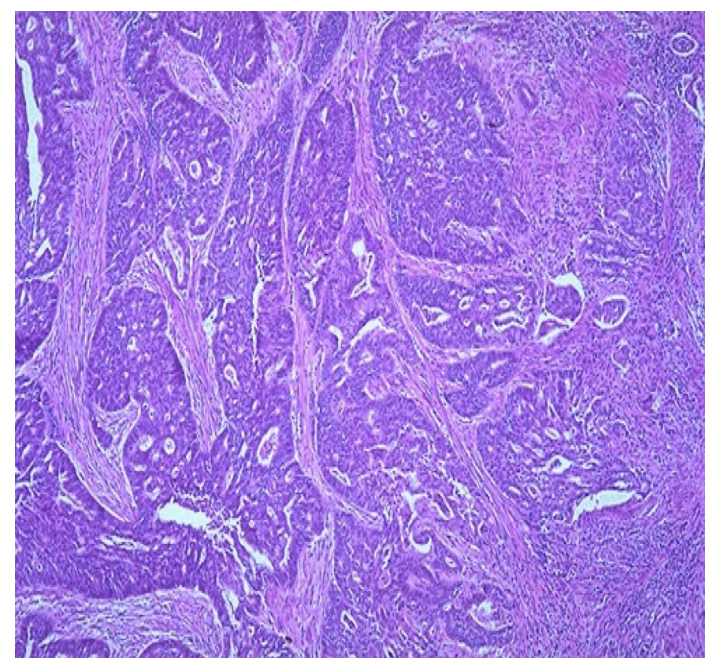
- **Predisposing factors:** 1. Obesity 2. Diabetes 3. Unopposed estrogen 4. Hypertension 5. Infertility.
- **Gene Mutation:** 1. TP53 2. PTEN

Endometrial Adenocarcinoma - Gross



Haemorrhagic mass at the uterine **fundus**.

Endometrial Adenocarcinoma - LPF

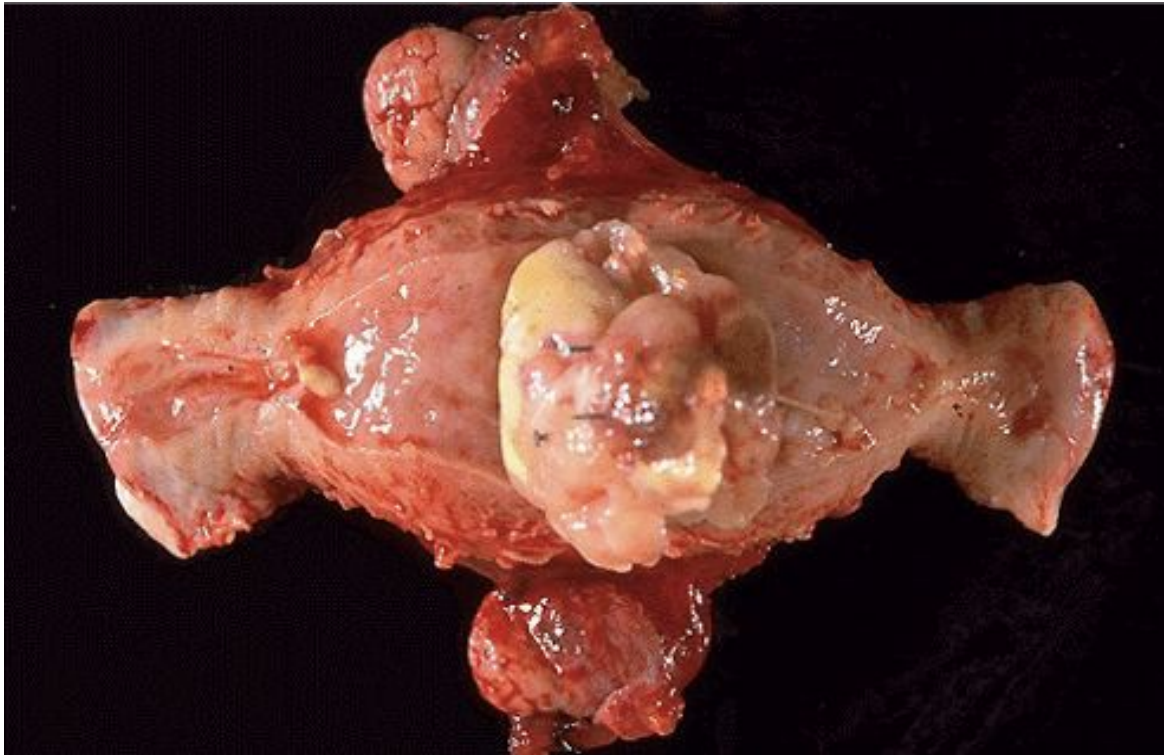


1. Abnormal malignant glands **invading** the smooth muscles of the myometrial wall
2. Desmoplastic reaction

Case#9: Uterine Leiomyosarcoma

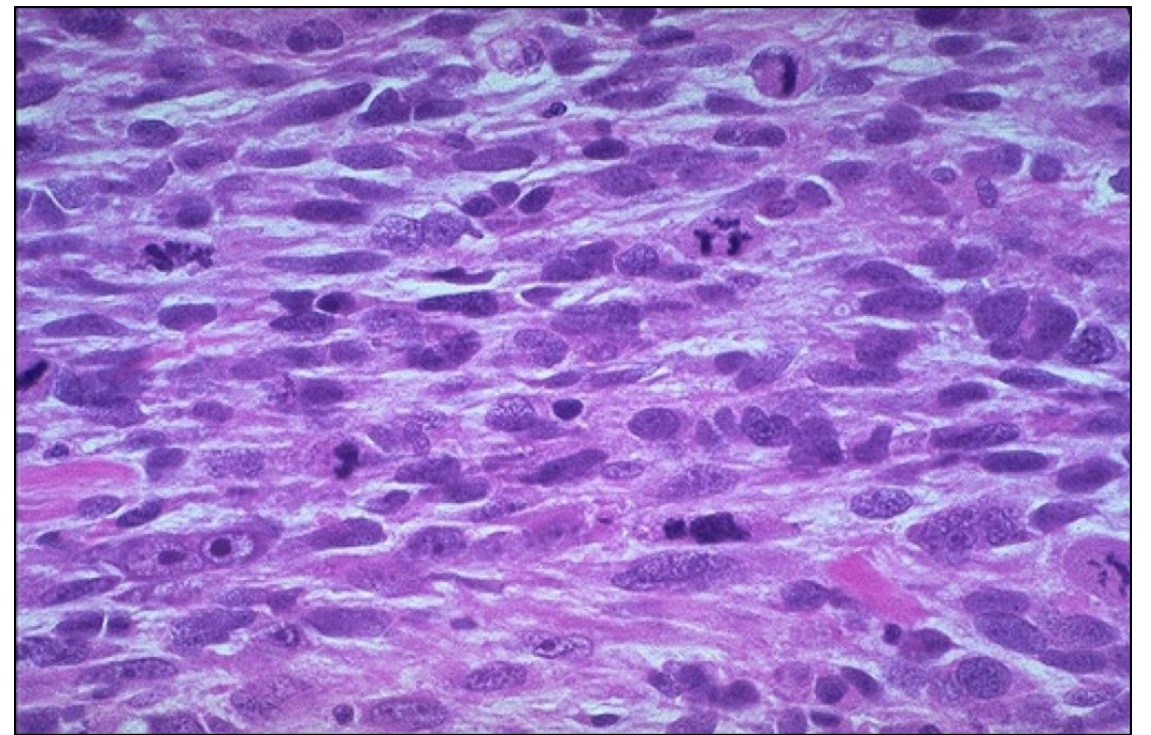
- **Etiology:** **Not common**, but when present it's **very aggressive** & has a poor prognosis.
- **Prognosis:** Malignant tumor of smooth muscles.
- Usual sites are the uterus and soft tissue.

Endometrial Leiomyosarcoma - Gross



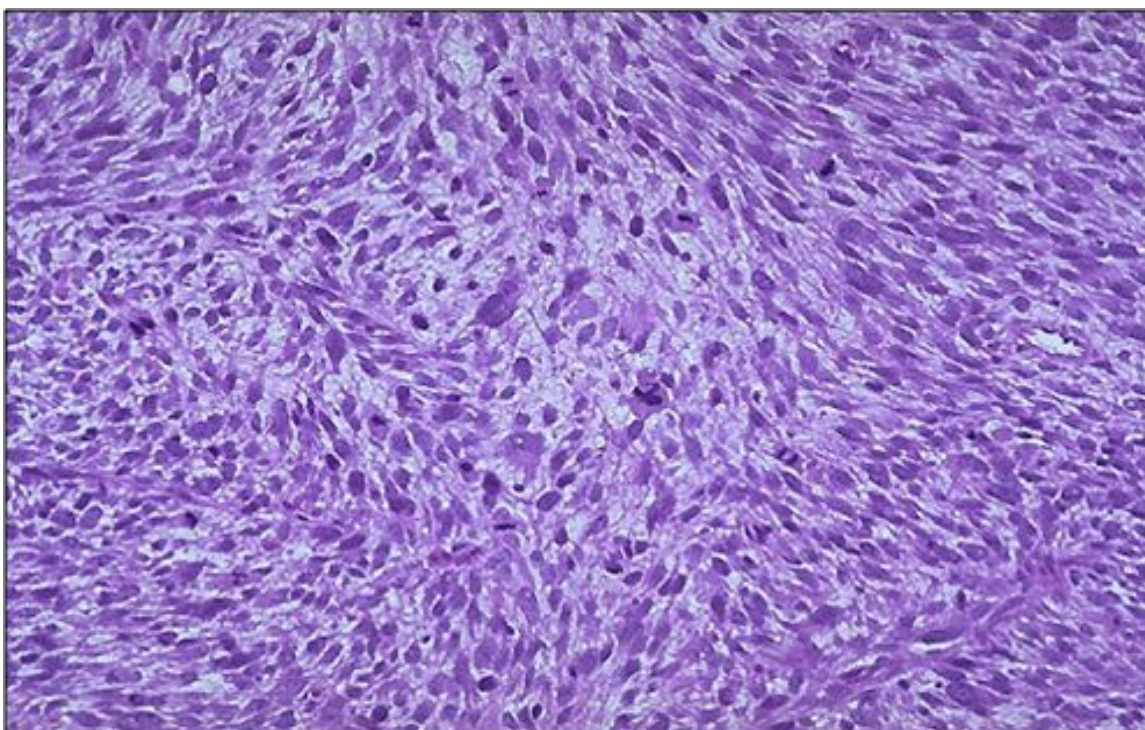
1. Leiomyosarcoma protruding from myometrium into the endometrial cavity.
2. Uterus that has been opened laterally so that the halves of the cervix appear at right & left
3. Fallopian tubes and ovaries project from top & bottom

Endometrial Leiomyosarcoma - HPF



1. spindle cells.
2. Several mitoses.

Endometrial Leiomyosarcoma - LPF

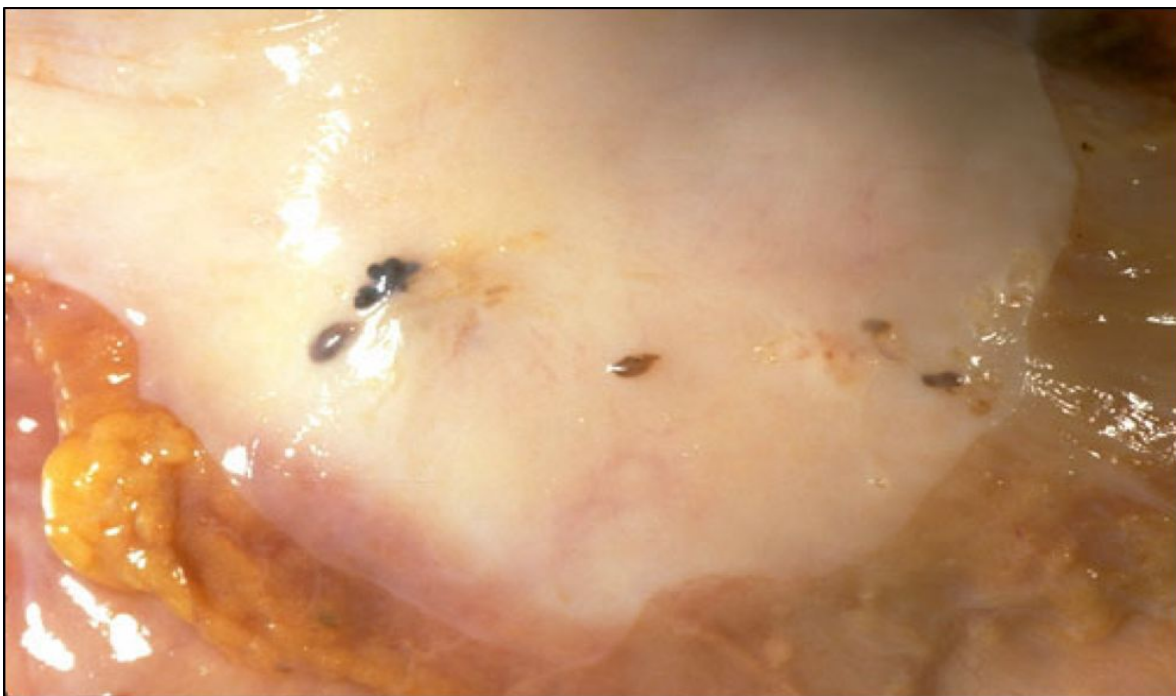


1. More cellular & more pleomorphism and hyperchromatism than the benign leiomyoma.
2. Irregular mitosis is seen in the center.

Case#10: Endometriosis

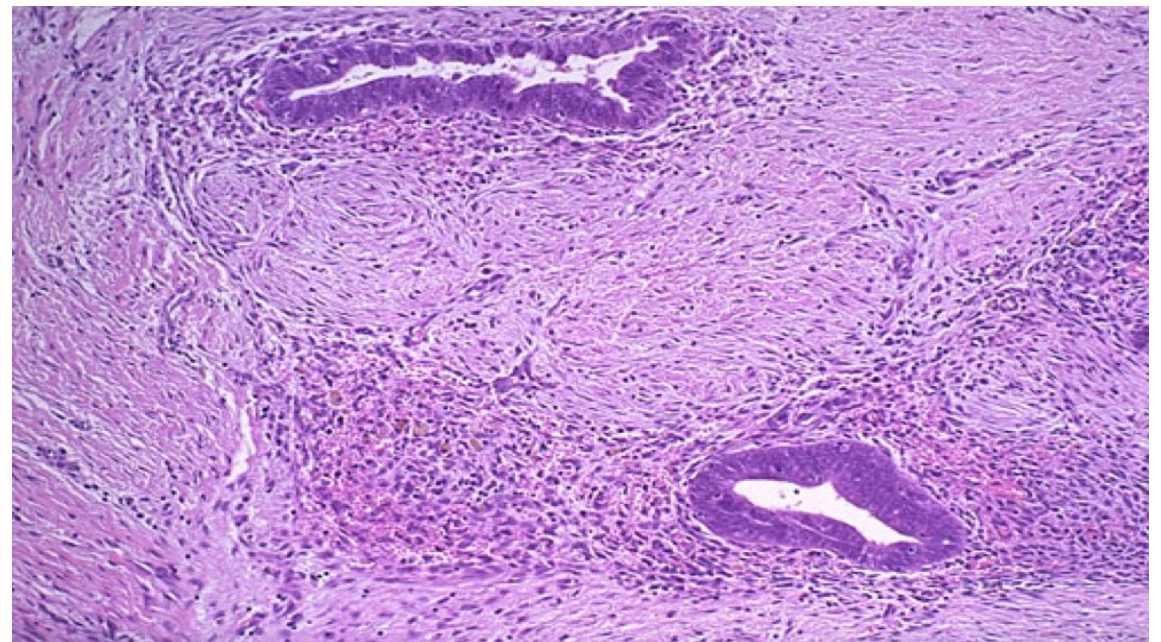
- **Endometriosis:** a chronic noncancerous disorder of the female reproductive system, develops when the endometrial inner lining grows outside the uterus.
- **Common sites for endometriosis:** include **ovaries, cervix**, fallopian tubes, external genitalia (vulva), ligaments supporting the uterus, intestine, bladder, and vagina.
- **Symptoms:** its symptomatic during reproductive years when patients may present with dysmenorrhea, pelvic pain, and infertility
- **Diagnosis:** the presence of both stroma and glands.
- **Adenomyosis:** The abnormal presence of endometrial tissue within the myometrium.

Endometriosis - Gross



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

Endometriosis - Gross



Endometrial glands along with stroma in the smooth muscle wall of the colon.

Endometriosis - HPF Microscopy

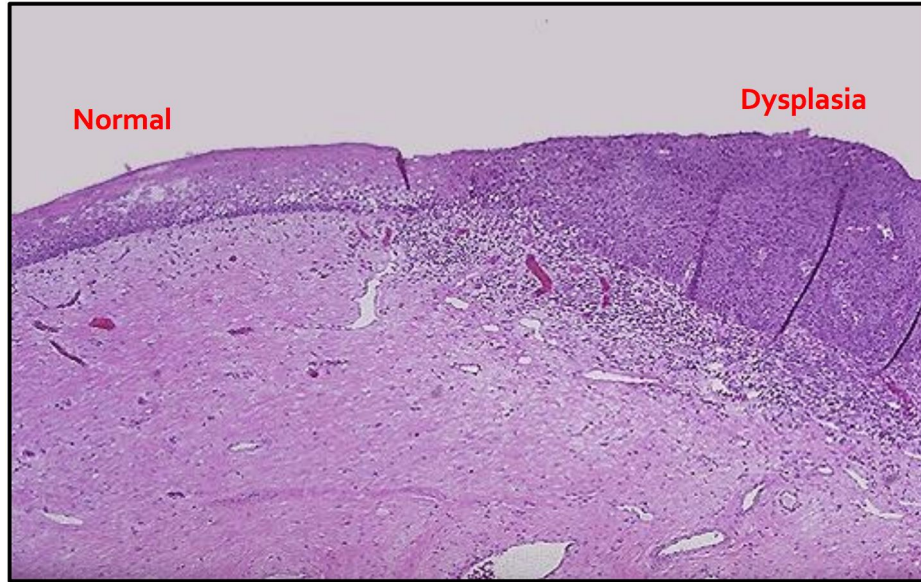


1. Areas of endometriosis the blood is darker and gives the small foci of endometriosis the gross appearance of "powder burns".
2. Small foci under the serosa of the posterior uterus in the pouch of Douglas.

Case#11: cervical Dysplasia

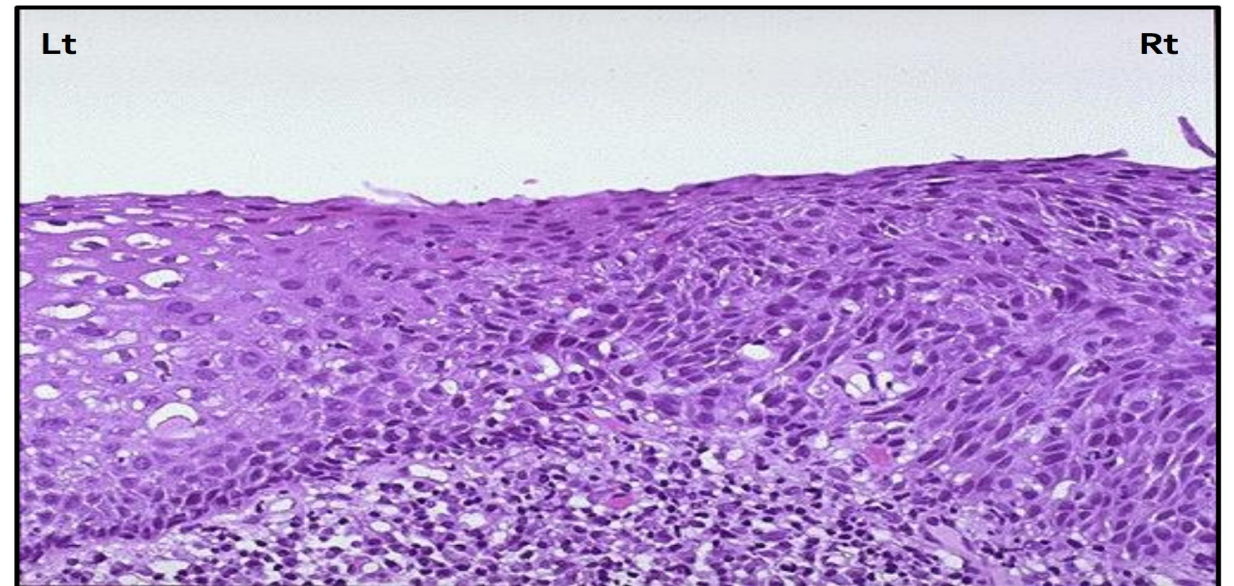
can be detected by pap-smear

Endocervical Squamous Dysplasia



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. Dysplastic cell nuclei at the right are larger and darker, and the dysplastic cells have a disorderly arrangement
3. The epithelium is normal at the left.

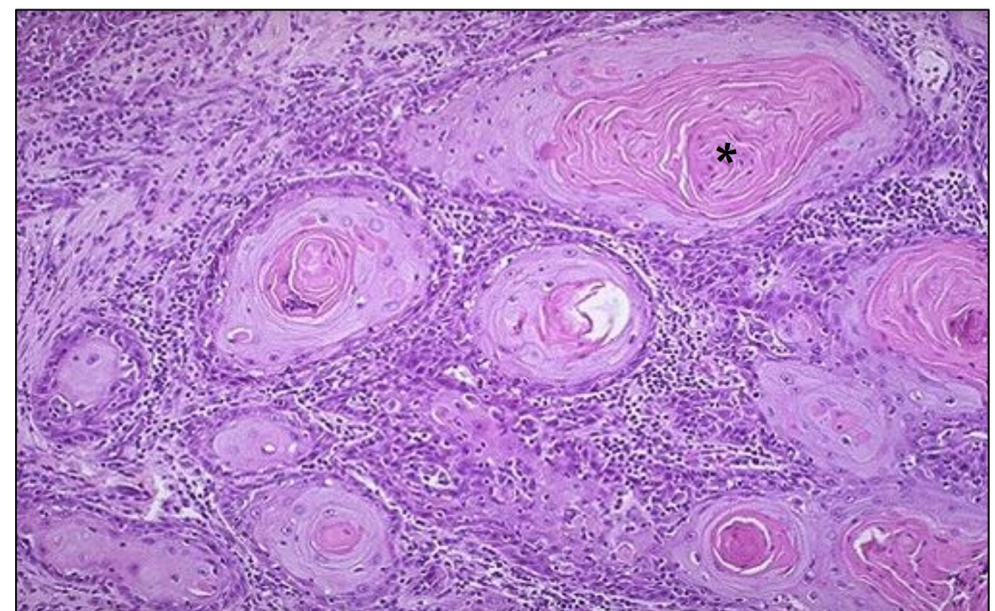
Case#12: Cervical Carcinoma

Cervical Squamous Cell Carcinoma



Cervical squamous cell carcinoma that is still limited to the cervix (stage I). The tumor is a fungating red to tan to yellow mass.

Cervical Squamous Cell Carcinoma - HPF



Nests of neoplastic squamous cells are invaded through a chronically inflamed stroma. Well-differentiated, as evidenced by keratin pearls* within nests of tumor cells. However, most cervical squamous carcinomas are non-keratinizing.

Case#13: Acute Salpingitis

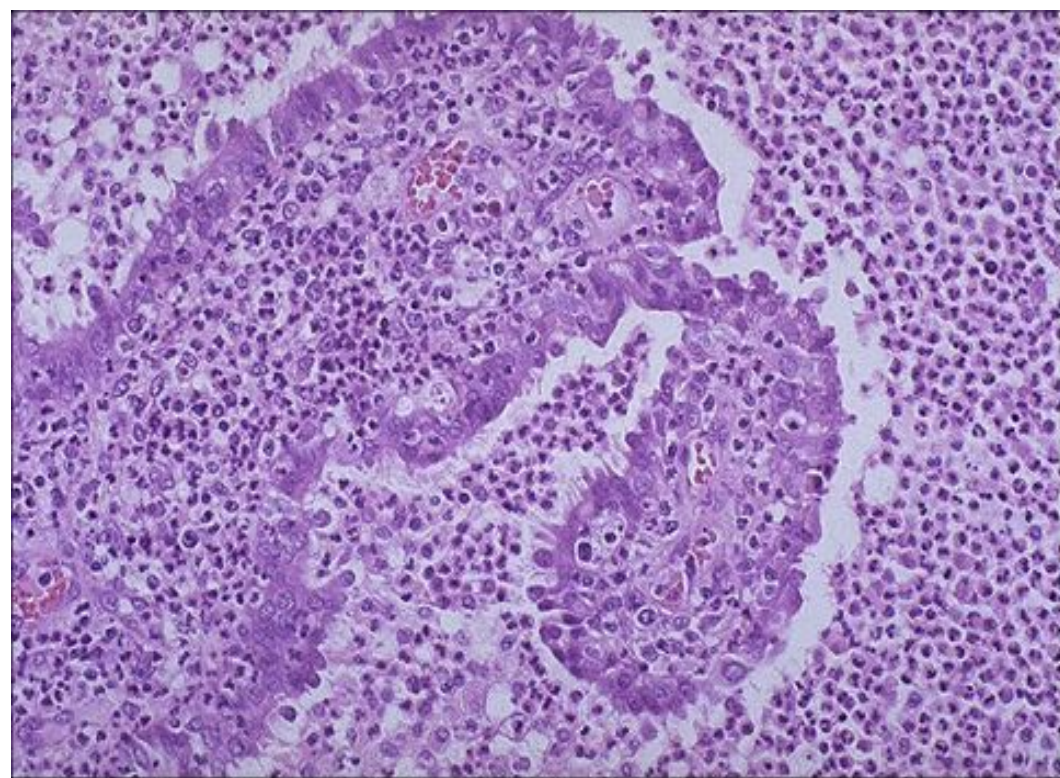
- **Complications:** 1. Infertility 2. Ectopic pregnancy 3. Tubo-ovarian abscesses
- **Organisms responsible:** 1. Gonococci, 2. Streptococci, 3. Staphylococcus aureus, 4. Chlamydia, Mycoplasma hominis 5. Mycobacterium tuberculosis.

Acute Salpingitis- Gross



1. Congested and swollen fallopian tube.
2. Haemorrhagic and yellowish patches (pus) on the serosal surface of the fallopian tube.

Acute Salpingitis - Microscopic



1. Oedematous and swollen fallopian tube mucosa.
2. Infiltration by numerous neutrophils.



Gross Salpingitis looks like shrimp.

Case#14: Ovarian Cyst

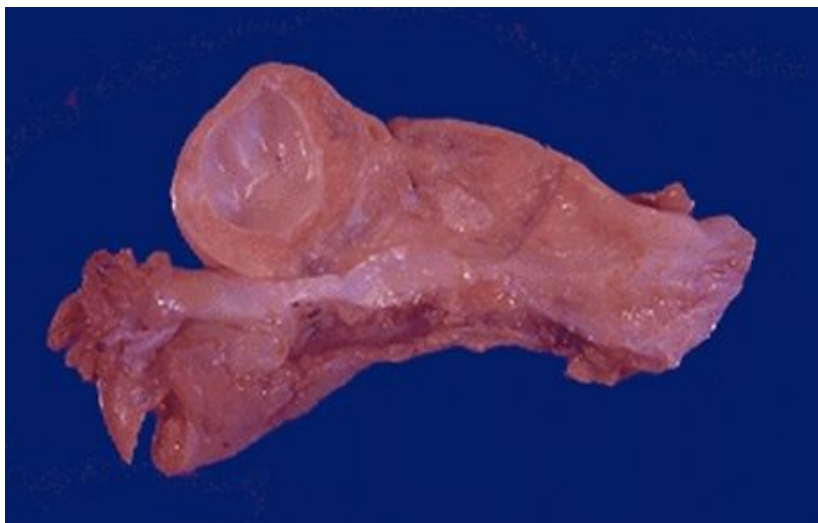
- The Cyst is a sac or cavity which is filled with something and it has to be lined by epithelium.

- The basic classification depends on the cell's origin:

Surface Epithelial:

1. **Serous Cystadenoma:** The cuboidal/ columnar ciliated cells, are more like fallopian tube secreting serous fluid. Types :Borderline Serous Tumors, Malignant Serous Tumors
2. **Mucinous Cystadenoma:** The cells are more like intestine, with abundant intracytoplasmic mucin and no cilia. Types: Borderline Mucinous Tumors– Malignant Mucinous Tumors

Benign Ovarian Cyst - Gross



Benign follicular cyst, Such cysts may reach several cm in size and, if they rupture, can cause abdominal pain.

Serous Cystadenoma of the Ovary

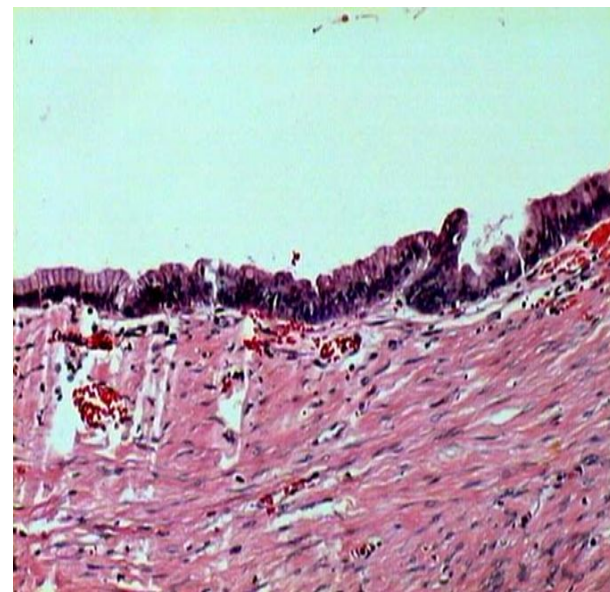


Serous cystadenoma fills a surgical pan and dwarfs the 4 cm ruler.

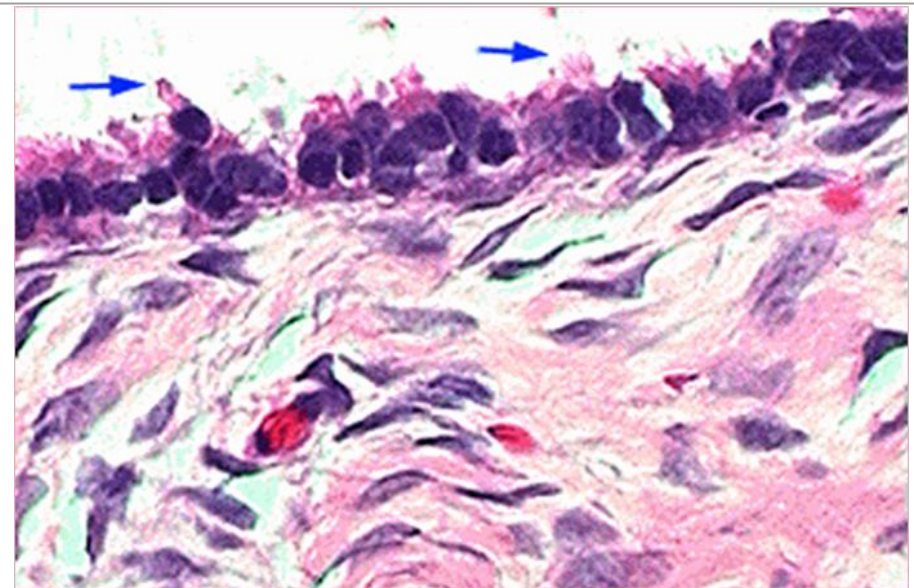
Serous Cystadenoma of the Ovary



Microscopy shows the thin wall lined by a simple epithelium with cilia that may be columnar or flat.



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



1. **Blue arrows:** point to cilia.
2. Dark nuclei without nucleoli or mitoses.
3. Cytoplasm is eosinophilic & ciliated like tubal epithelium.
4. stroma contains spindly fibroblasts

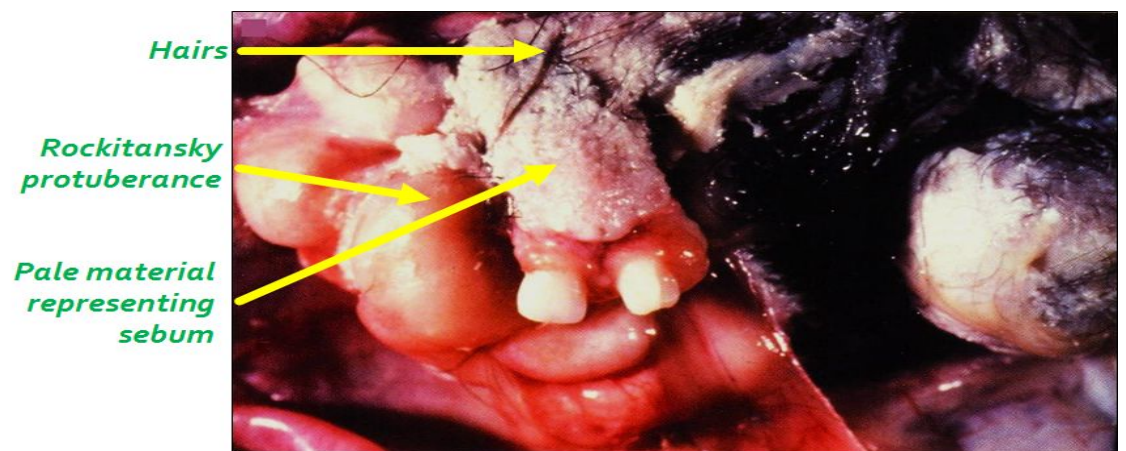
Case#15: Dermoid Cyst (Teratoma) of the Ovary

- **Germ Cell Tumors: Teratoma:** Immature "Carry bad prognosis", Mature "carry good prognosis" (Solid, Cystic "Dermoid cyst"), Monodermal (Struma Ovarii, Carcinoid) Dysgerminoma, Yolk sac tumor, and Mixed germ cell tumors.
- **Sex Cord-Stromal Tumors:** Granulosa tumors, Fibromas, Fibrothecomas, Thecomas, Sertoli-Leydig cell tumors, Steroid (lipid) cell tumors.

Mature Cystic Teratoma

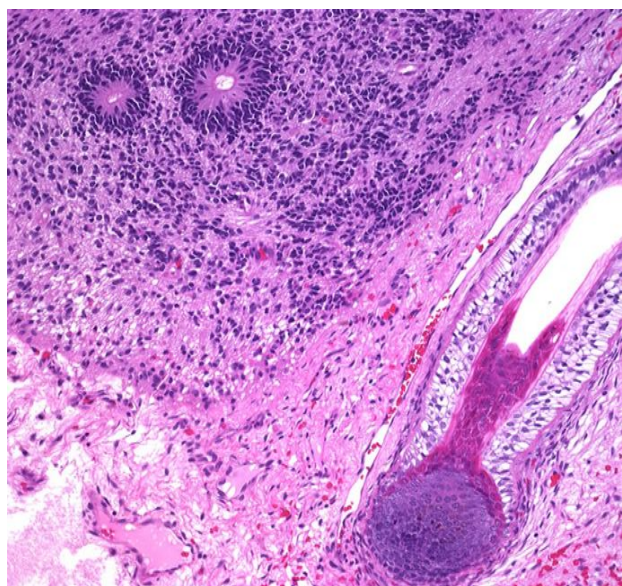


- Hairs.
- Pale material representing sebum.
- Rokitansky protuberance.



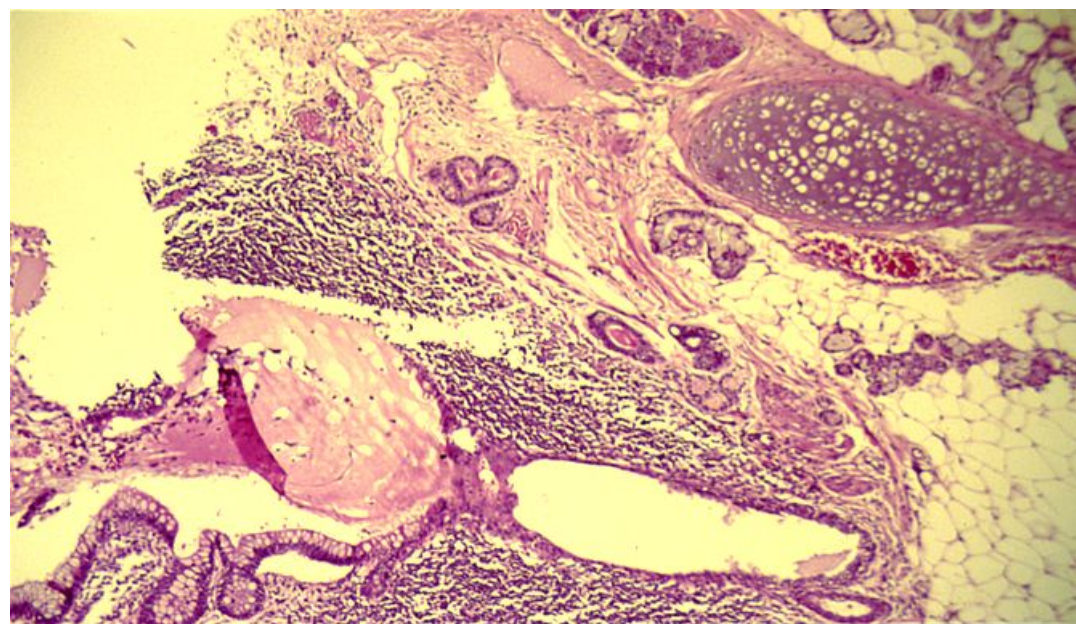
Cyst containing teeth and hairs with nail tissue and skin . It may be complicated by torsion infarction , struma ovarii and immature teratoma .

Immature Teratoma

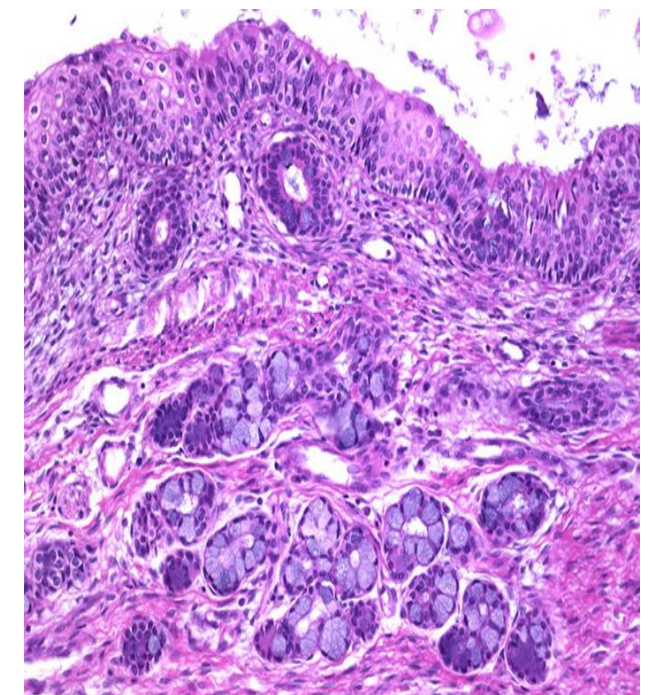


1. Neuroepithelial elements.
2. Immature neural cell
3. Hair follicle at the lower right part of the picture.

Mature Cystic Teratoma



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 and brain tissue containing neurons and glial cells

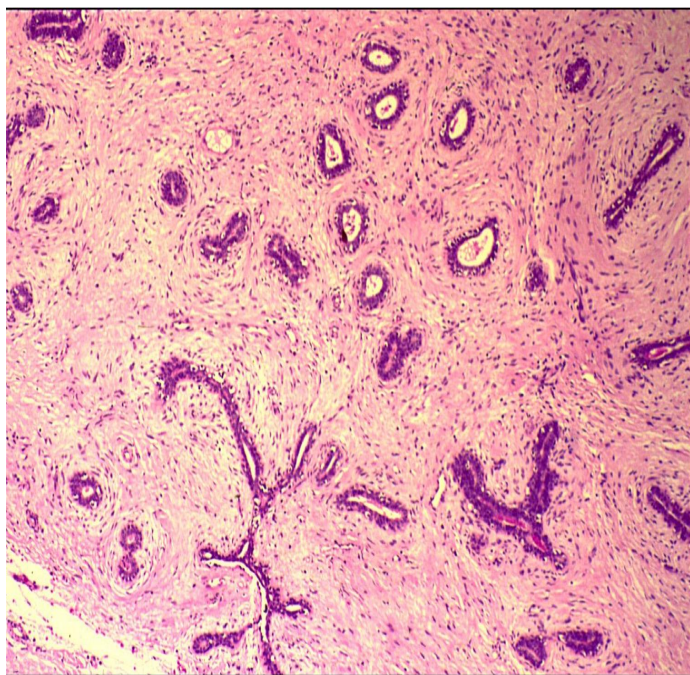


1. Skin and eccrine glands.
2. Mucinous glands.

Case#16: Fibroadenoma of the Breast

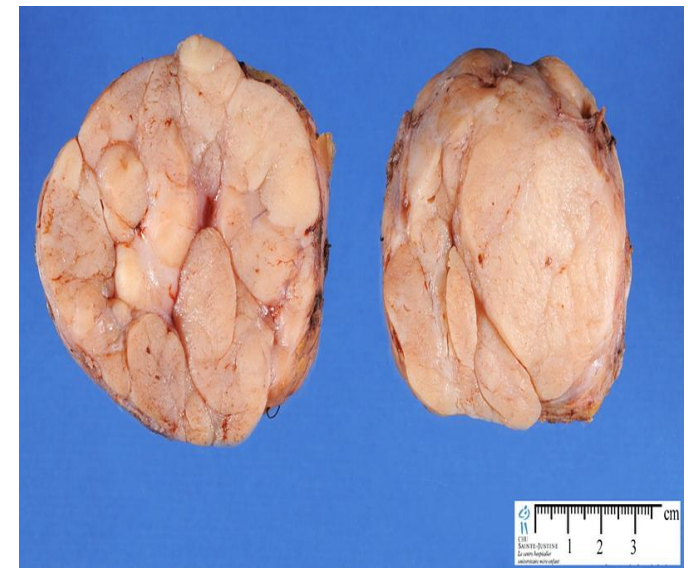
- **On Clinical presentation/examination:** Well-circumscribed, movable, rubbery and discrete mass.
- It is the most common benign breast lesion
- **Prognosis:** Good prognosis

Fibroadenoma of the Breast - HPF



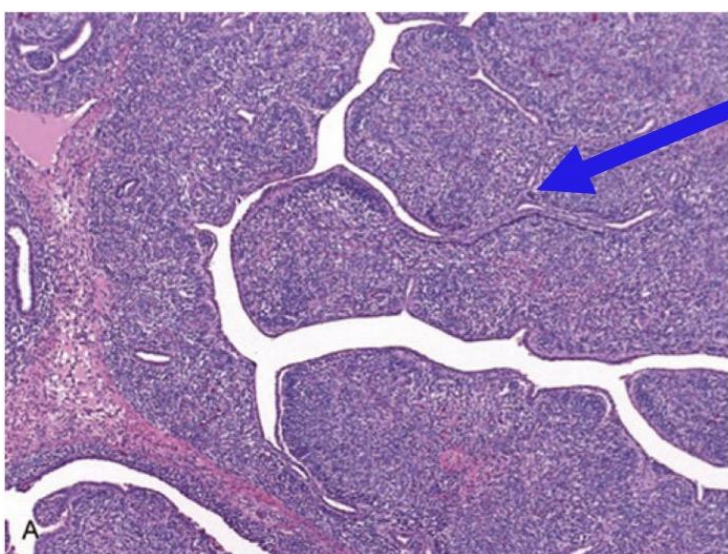
1. Proliferating fibrous stroma.
2. Elongated and compressed ducts.

Fibroadenoma - Gross



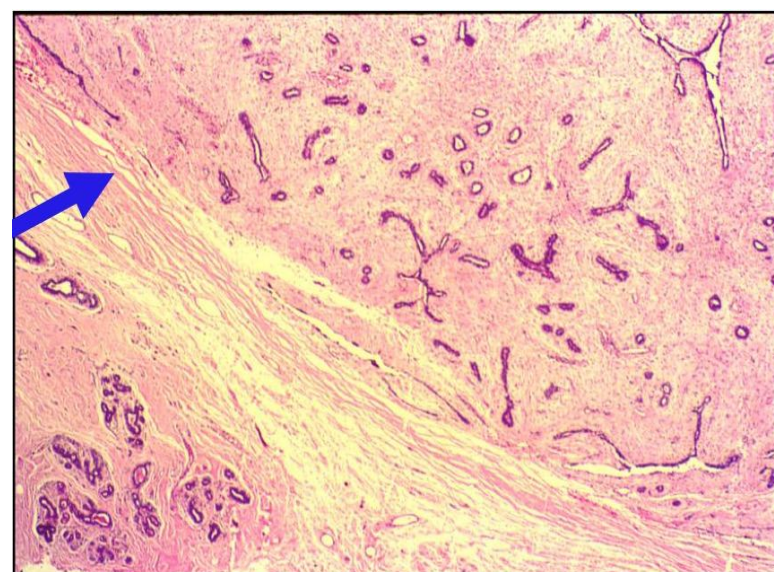
Pale, bulging white mass with “slit-like” spaces.

Fibroadenoma of the Breast - LPF



Phyllodes tumor:

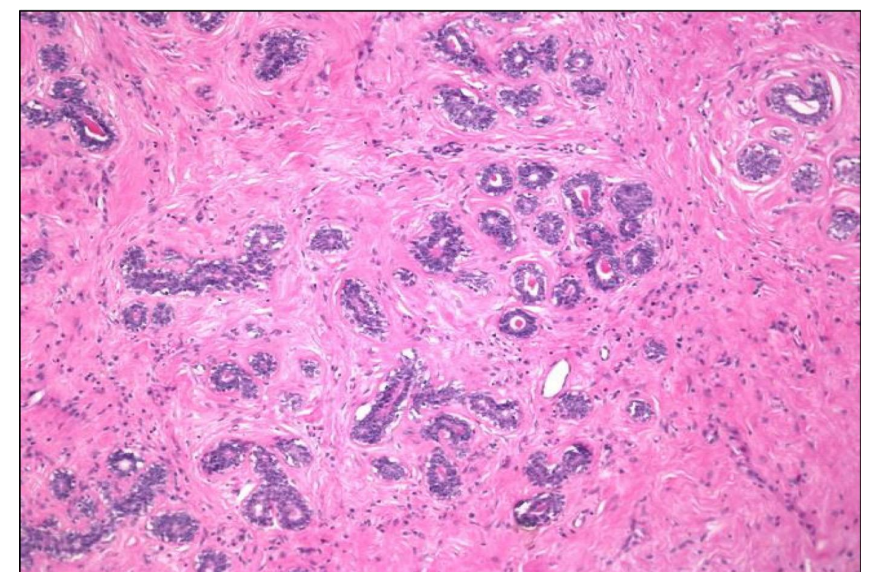
1. Increased stromal cellularity.
2. Leaf-like epithelium lined projections.



Fibroadenoma:

Proliferation of both glandular tissue & fibrous tissue with **intracanalicular & pericanalicular** fibrous and ductular tissue growth pattern.

Pericanalicular Fibroadenoma

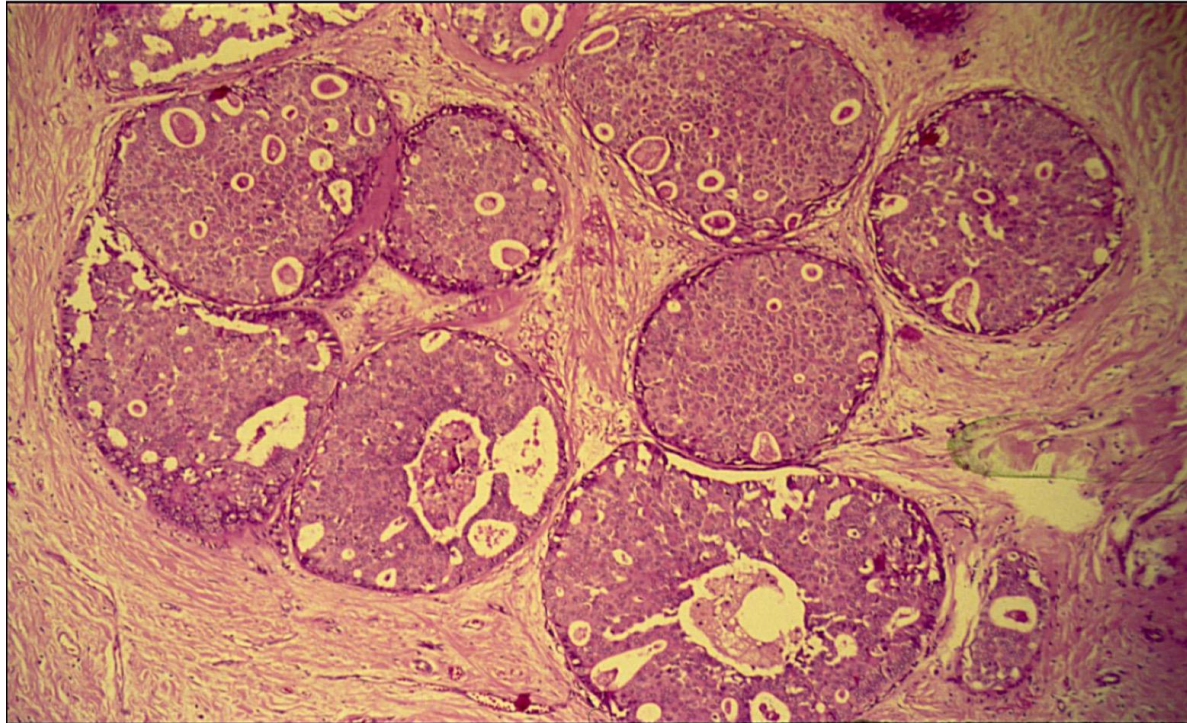


Pericanalicular Fibroadenoma:

1. The glands maintain their round or oval profiles.
2. No prognostic or clinical significance attached to the pericanalicular & intracanalicular patterns.
3. Both may be seen within the same lesion

Case#17: Carcinoma of the Breast

Intraductal (In-situ) Carcinoma of the Breast - LPF

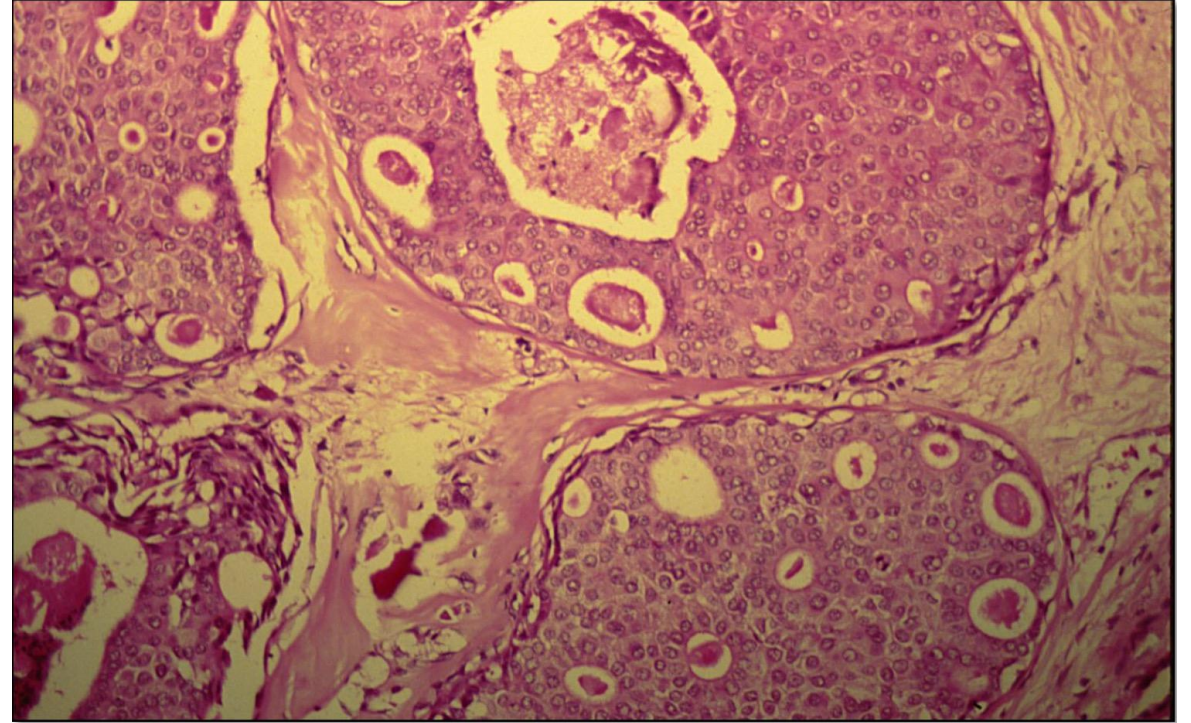


Cells are forming imperfect acini and shows a cribriform pattern.

Small groups of cells in the center of many ducts are necrotic.

No invasion of basement membrane of the ducts.

Intraductal Carcinoma of the Breast - HPF



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

Case#18: Invasive Ductal Carcinoma of the Breast

- **Risk factors:** -Family history - advanced age - Oral contraceptives -Smoking and obesity - High fat diet - Exogenous estrogens
- **Prognosis & treatment:**
 - Hormonal markers: Estrogen and Progesterone.
 - Receptor: Her 2 / NEU are checked

Breast Cancer – Clinical Signs



1. Inverted nipple, lump and skin dimpling.
2. Peau de'orange.
3. Retraction of nipple

Breast Cancer – Gross Biopsy



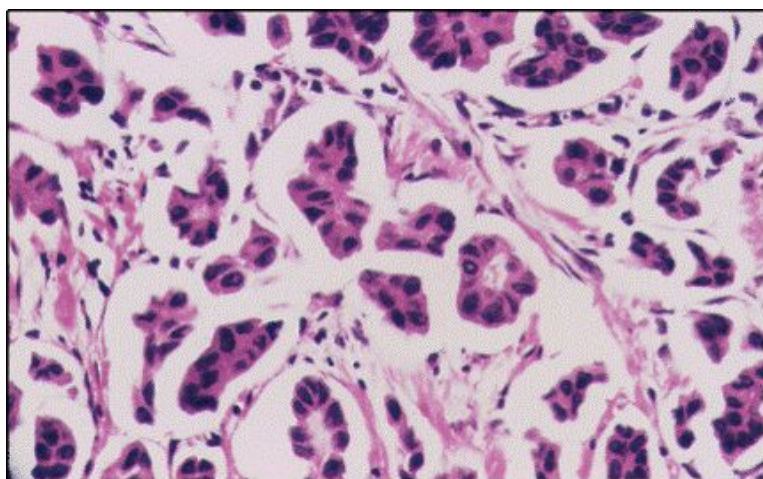
- Ill-defined pale and firm nodule with overlying retracted nipple and surrounding skin.

Breast Cancer – Gross Biopsy

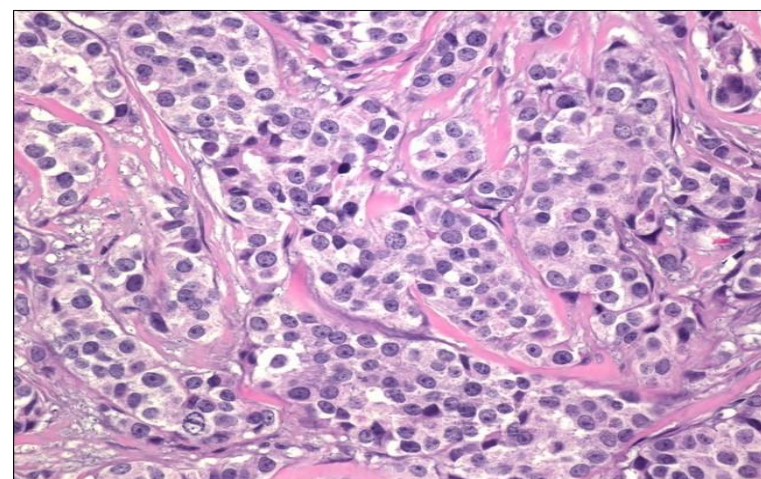


1. Firm & poorly circumscribed tumour mass.
2. Yellowish pale cut-surface.
3. Radiating strands into surrounding fats.

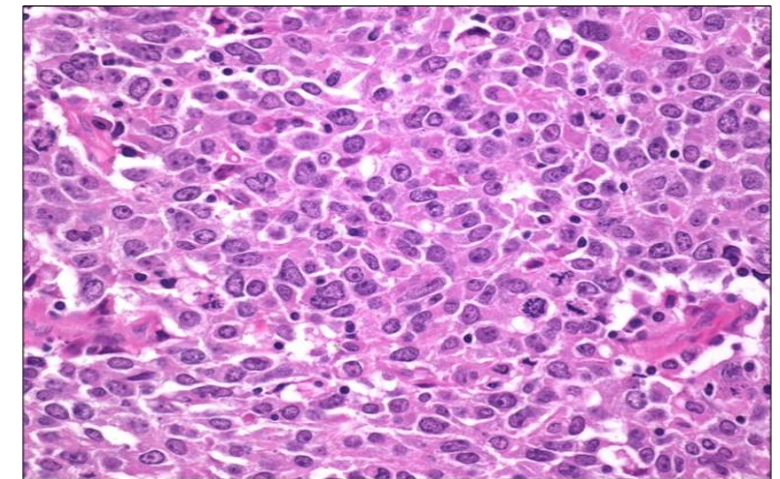
Invasive Ductal Carcinoma of Breast



- Tumour cells are round to polygonal with deeply stained nuclei and occasional mitoses. Nuclear atypia is mild



- Cords, sheets & nests of tumour cells surrounded by dense fibrous tissue stroma containing scattered lymphocytes



1. Malignant pleomorphic cells.
2. Frequent mitotic figures.
3. Minimal tubular formations or differentiations.

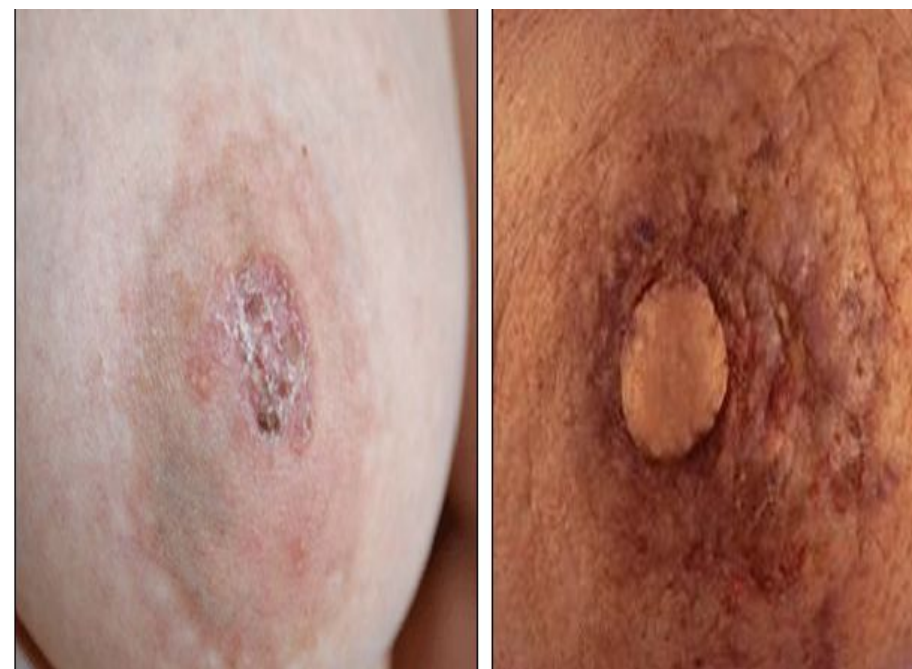
Case#18: Paget's Disease of the Nipple

- **Definition:** is a rare type of breast cancer that is characterized by a red, scaly eczematous lesion on the nipple and surrounding areola.
- **Clinical presentations:** Appear as an eroded and weeping erythematous eruption. Pruritus is common and it might be mistaken for eczema.
- **Associated with:** **Invasive ductal carcinoma of the breast OR ductal carcinoma in situ**

Paget's Disease of the Nipple -Gross

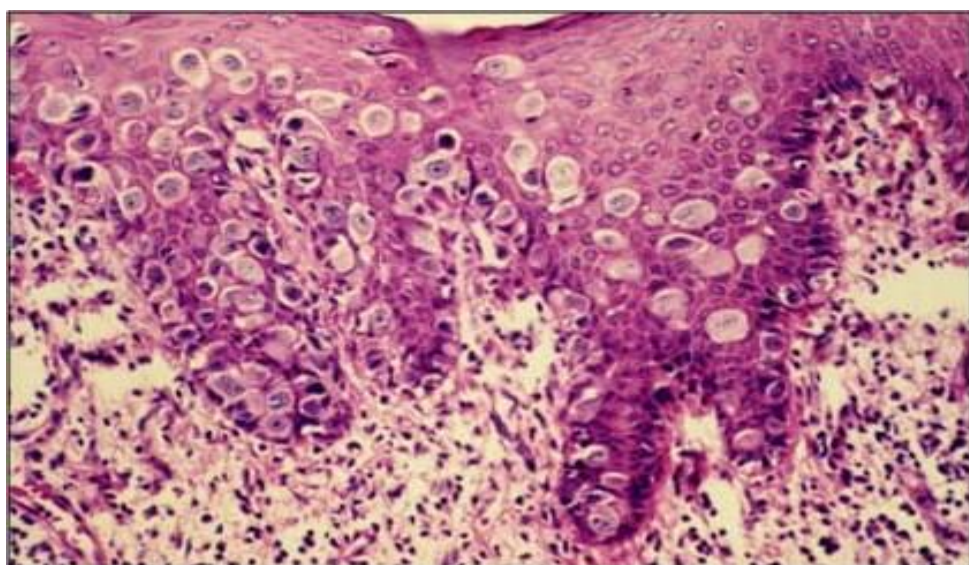


1. Erythema and redness of the nipple skin.
2. Erosion of the epidermis.



1. **Clinically:** **Eczema--like with hyperemia** and erosion of the epidermis, Initially may be treated by cortisol-containing cream.

Paget's Disease of the Nipple- HPF



1. Epidermis is infiltrated by **large, pale and vacuolated cells**/Paget's cells.
2. Most of the abnormal cells are seen in **lower epidermis**



- Hyperkeratosis of epidermis** and **chronic inflammation** in the dermis are common. Ulceration and invasion of epidermis by ductal carcinoma cells (Paget cells), present between basal cells in elongated rete pegs.



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Reema Alhidan

Samar AlOtaibi

Sarah AlMutawa

Revised By:

Samar AlOtaibi

Lina alshehri

Raghda Alqassim

و في الختام نسأل الله أن يجعل
هذا العمل في ميزان حسنات كل
من شارك بإنجازه على مدار
السننتين و أن يجعلها رفعة لهم في
درجاتهم.