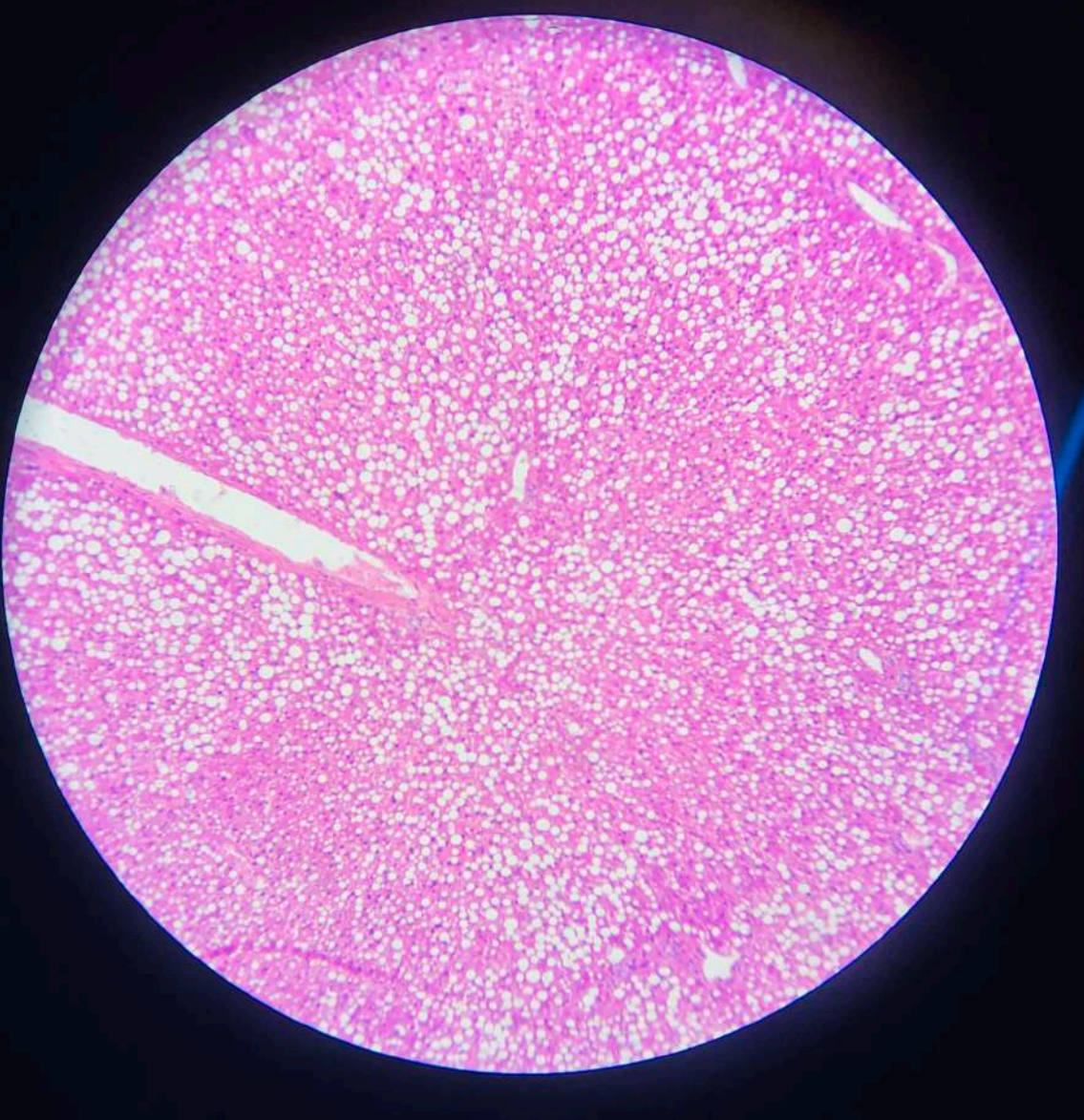


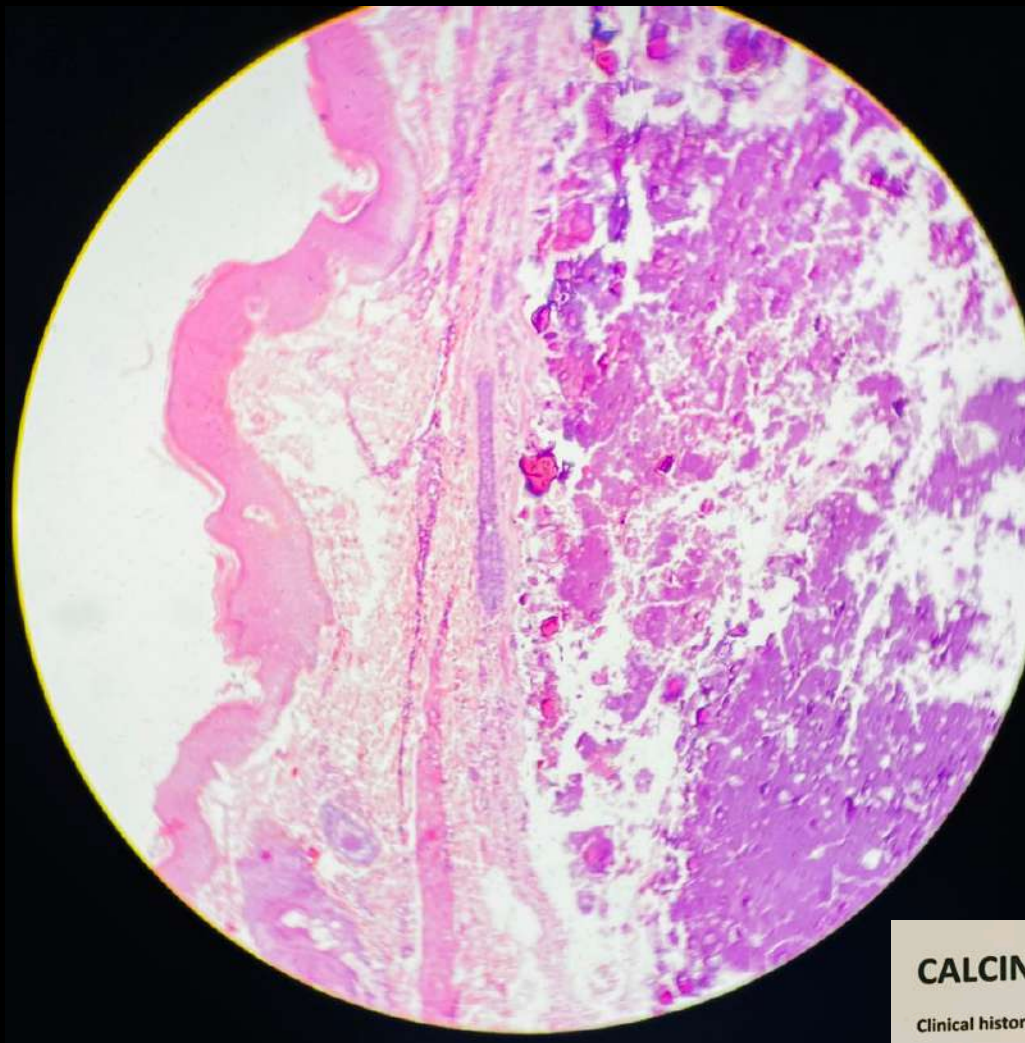
Sl. no.	Histopathology slides
1	Fatty liver
2	Calcinosis cutis
3	Coagulative necrosis (Infarction testis / spleen)
4	Acute appendicitis
5	TB lymph node
6	Lepromatous leprosy
7	Rhinosporidiosis
8	CVC lung
9	Atherosclerosis
10	Lipoma
11	Pleomorphic adenoma
12	Hodgkin's lymphoma
13	Adenocarcinoma-colon
14	Renal cell carcinoma
15	Fibroadenoma
16	Carcinoma breast
17	Papillary carcinoma thyroid
18	Teratoma ovary
19	Osteoclastoma
20	Squamous cell carcinoma
21	Basal cell carcinoma

1. Fatty liver



- Hepatocytes showing small vacuoles in the cytoplasm around the nucleus (**microvesicular steatosis**)
- Later, vacuoles get coalesce, creating clear spaces (**macrovesicular steatosis**) that displace the nucleus to the periphery of the cell (**signet ring appearance**)

2. Calcinosis cutis

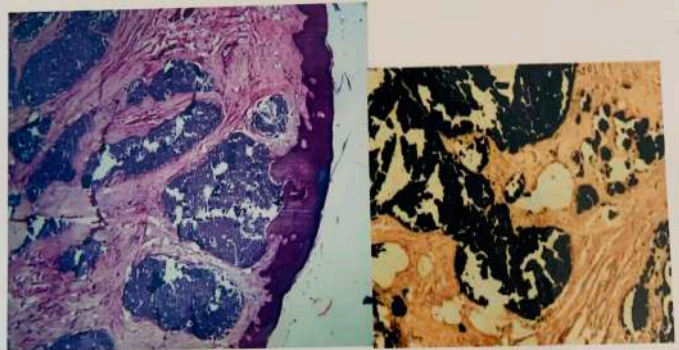


- Dermis shows **multiple amorphous basophilic deposits**.
- Deposits stain black with **Von kossa stain**

CALCINOSIS CUTIS

Clinical history

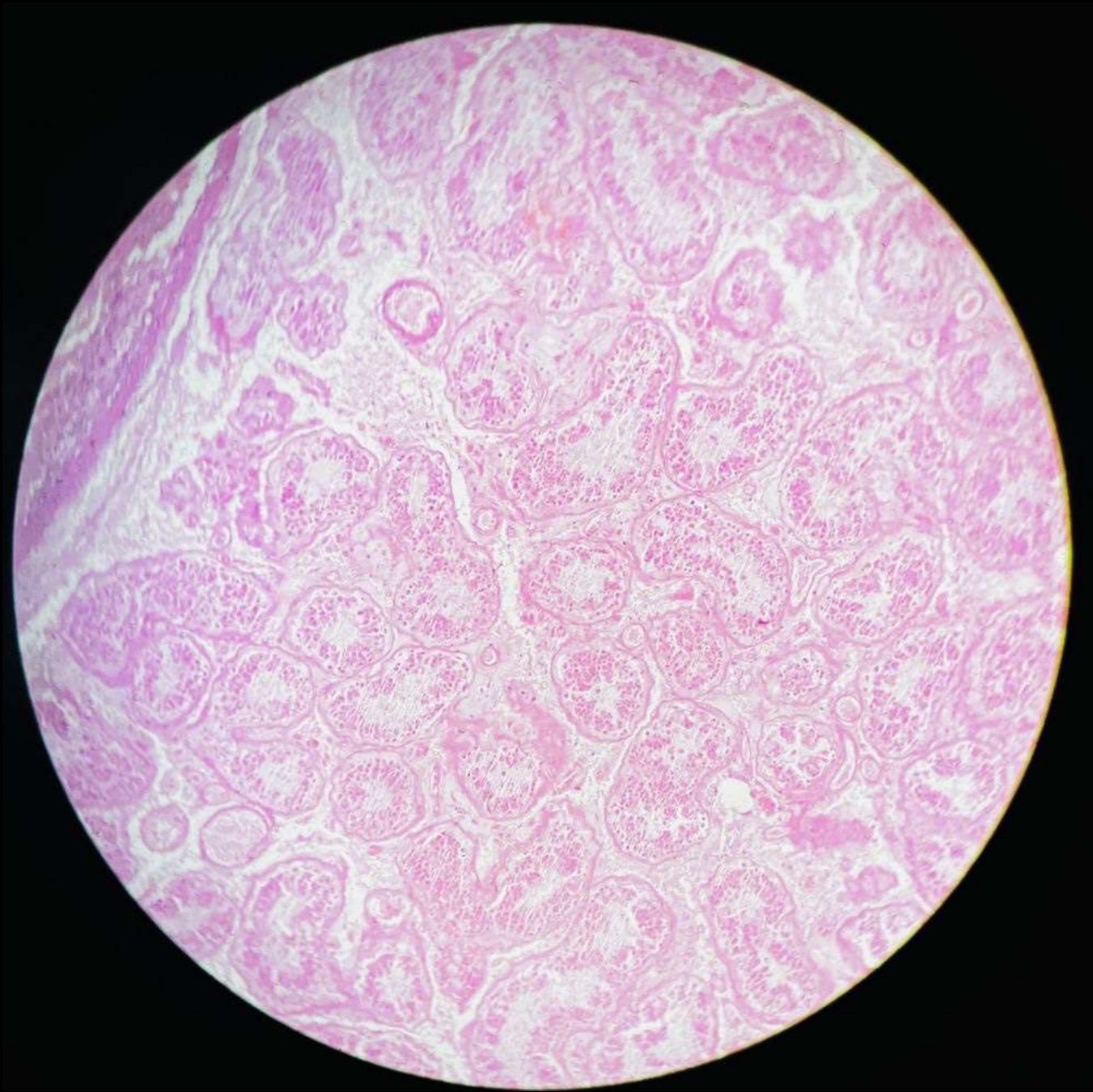
40 year old female had a firm thigh swelling. Swelling was excised



Gross: Skin covered tissue with cutsection showing yellowish white plaques. Microscopy: Dermis shows multiple amorphous basophilic deposits (calcium). Deposits stain black with Von Kossa stain

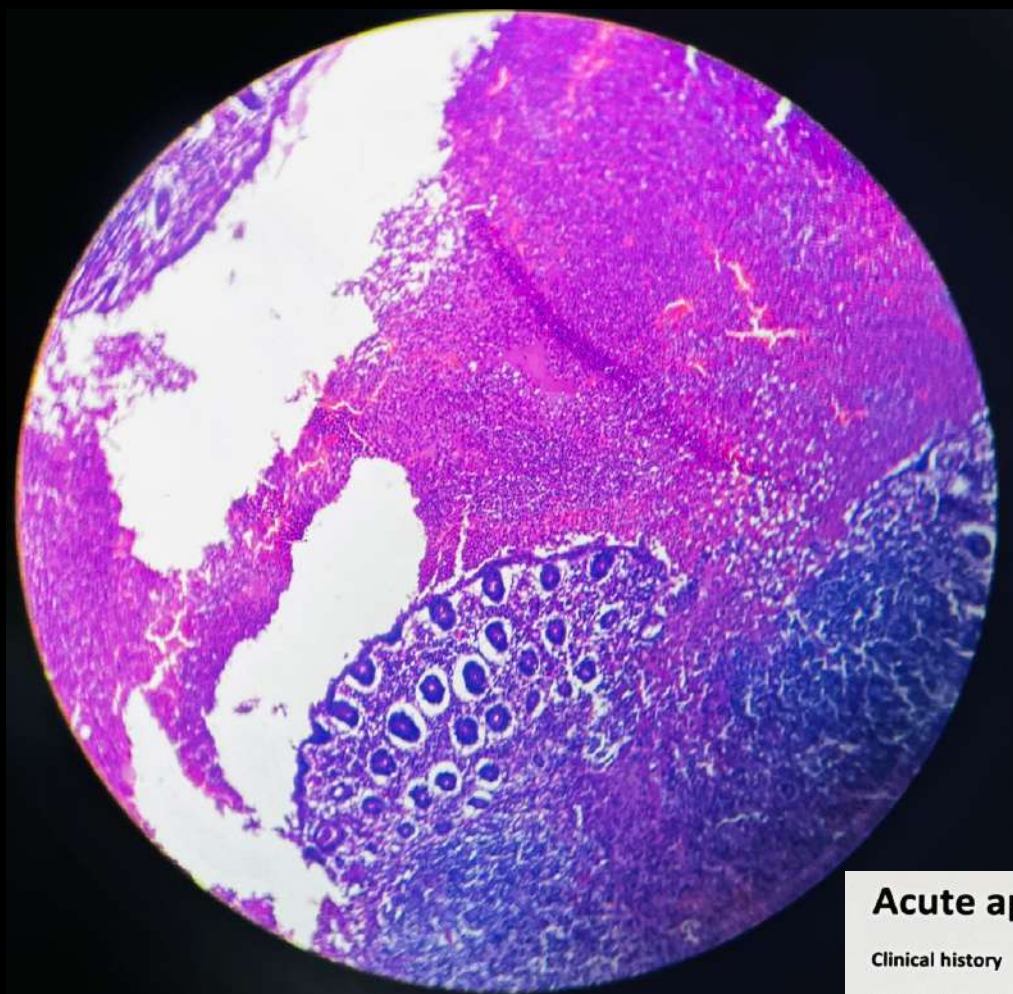
- 1) Describe the gross and microscopic findings
- 2) Which are the 2 types of pathologic calcification?
- 3) Tabulate the differences between these two with examples
- 4) Name the special stain used to demonstrate calcium

3. Coagulative necrosis



- Outline of dead cells maintained & Cell type can be recognized
- Cytoplasmic & nuclear details lost
- Nucleus: either absent or show karyolysis
- Leukocytes, macrophages & cellular debris can be seen.

4. Acute appendicitis



- Appendicular mucosa ulcerated. dense inflammatory infiltrates seen involving all layers including serosa.
- Congested Vessels, edema & neutrophilic infiltrates in muscularis propria.

Acute appendicitis

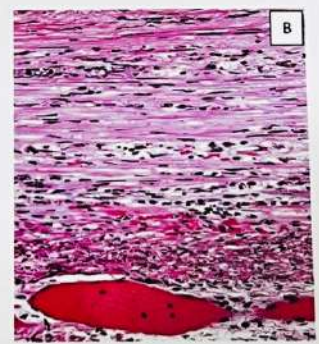
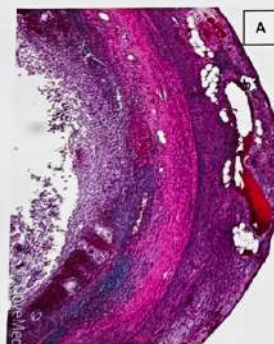
Clinical history

14 year old boy is having fever and right sided abdominal pain for pain 2 days. On examination tenderness was noticed in right iliac fossa. Appendicectomy was done.



Gross-Appendix is swollen. Surface shows exudates and congested vessels.

- 1)Mention the causes of appendicitis
- 2)What are the clinical signs and symptoms

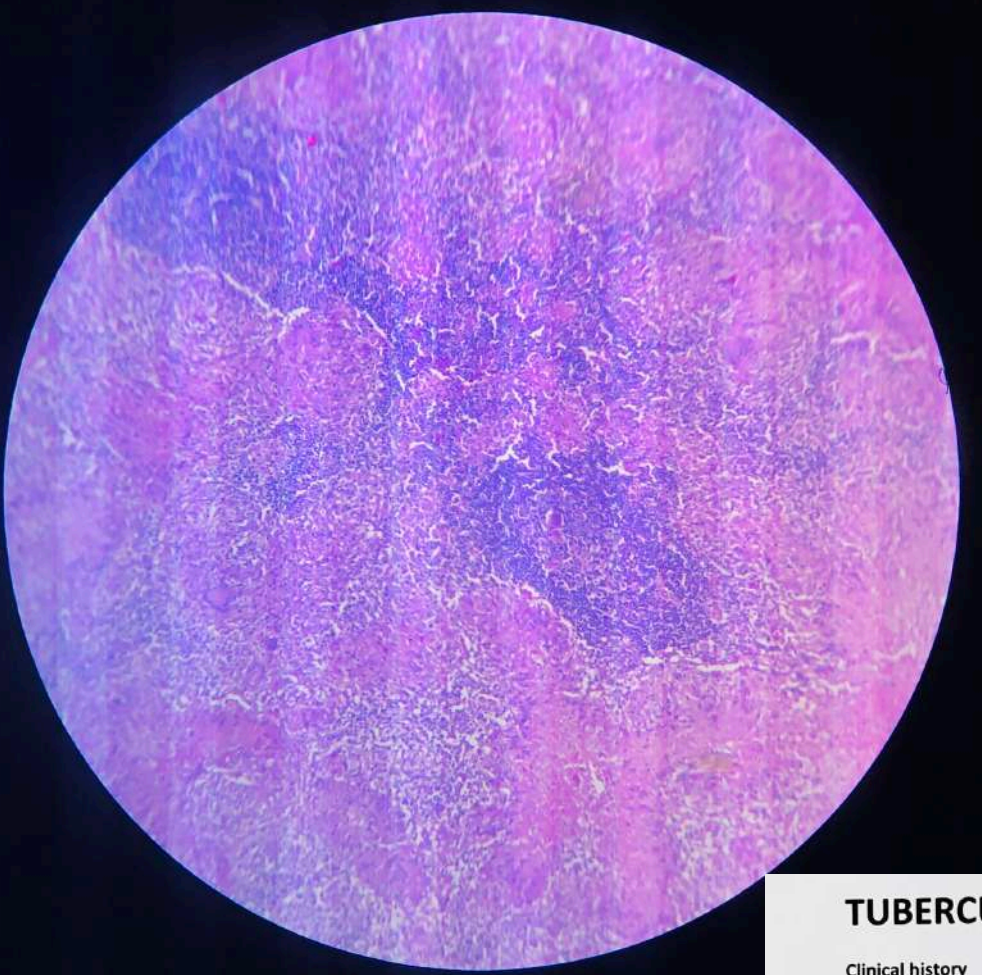


A- Appendicular mucosa is ulcerated. Dense inflammatory infiltrate seen involving all layers including serosa.

B- Features of acute inflammation like congested vessels, edema and neutrophilic infiltrate can be noticed in the muscularis propria

- 1) What are the complications of acute appendicitis
- 2) Name common tumors in appendix

5. TB lymph node

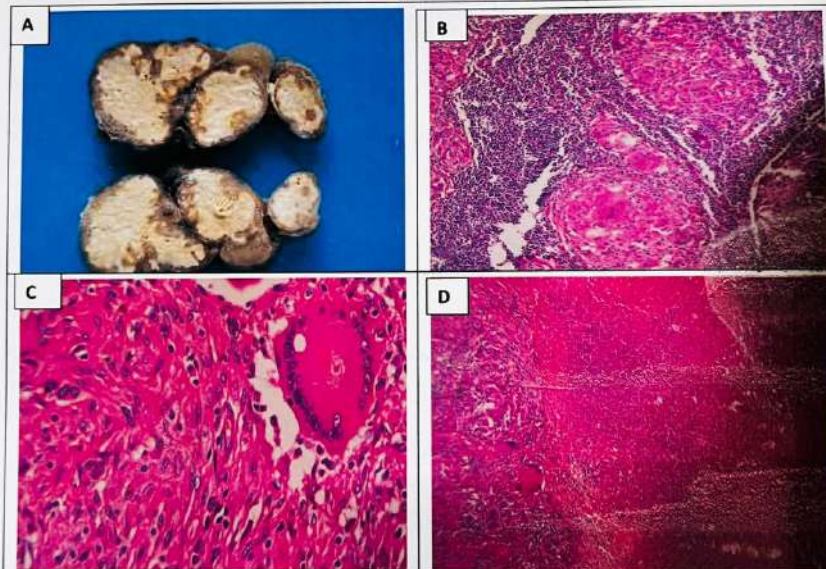


- **Tuberculous granuloma** with peripheral fibrosis
- Extensive **caseous necrosis** in the centre of granuloma, old lesions have fibrosis & calcification.

TUBERCULOSIS LYMPHNODE

Clinical history

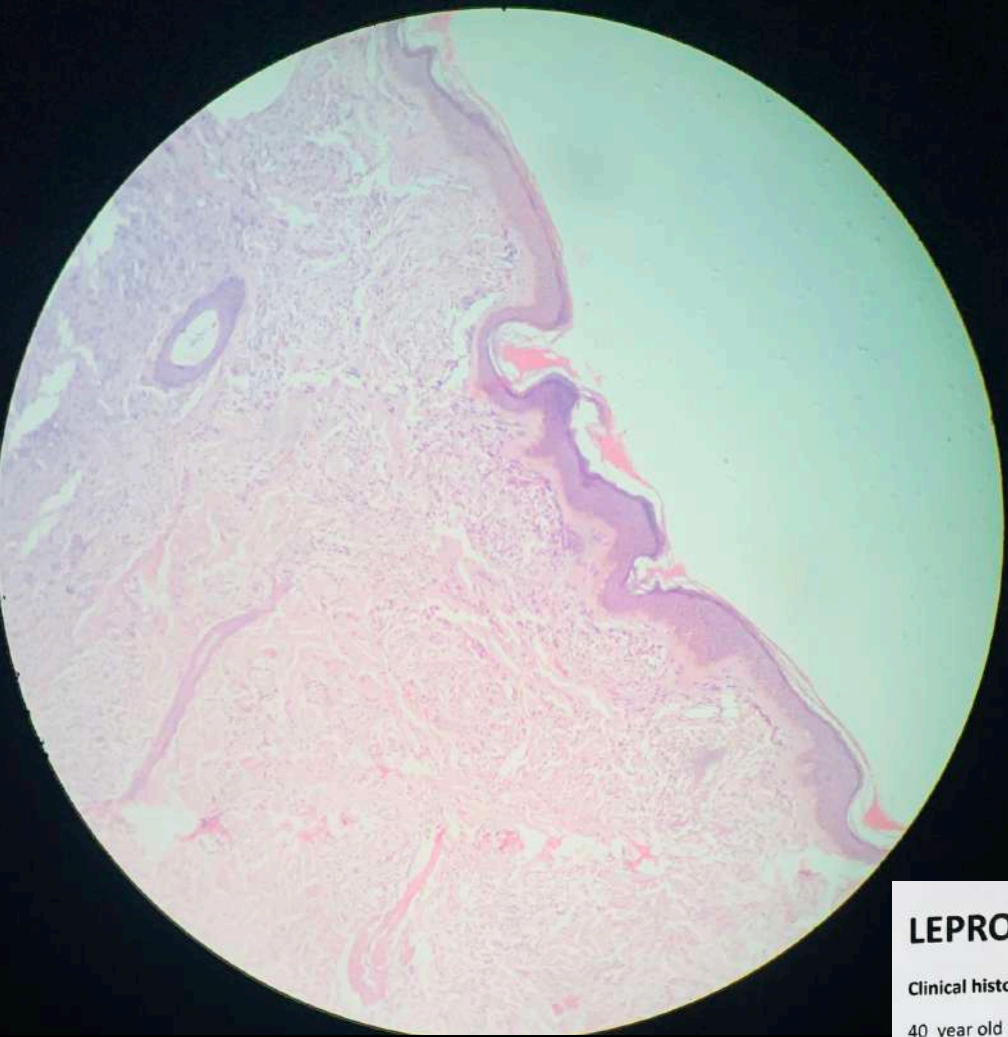
13 year old boy came to OPD with complaints of evening rise of temperature for past 2 months and weight loss. On examination there were matted cervical lymphnodes. His ESR was 100 mm. Excision of lymphnode was done.



Gross(A) – Cut section of lymph node showing areas of necrosis(cheesy white appearance). Microscopy: B) Granuloma with lymphocytic cuffing C) High power of granuloma showing Langhans giant cell with horse shoe shaped nucleus and surrounding slipper shaped epithelioid histiocytes D) Areas of caseous necrosis

- 1) Describe the gross and microscopic findings
- 2) Name the causative organism & the special stain used to demonstrate it
- 3) What is primary complex / Ghon complex; mention the sites of primary tuberculosis
- 4) What is secondary TB; what is meant by miliary TB
- 5) Give examples of granulomatous diseases; which type of hypersensitivity reaction is this

6. Lepromatous leprosy

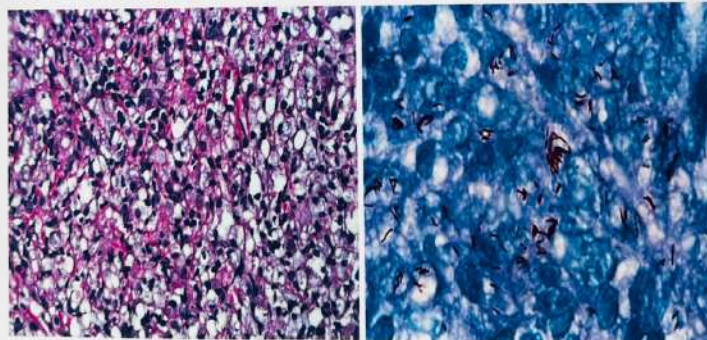
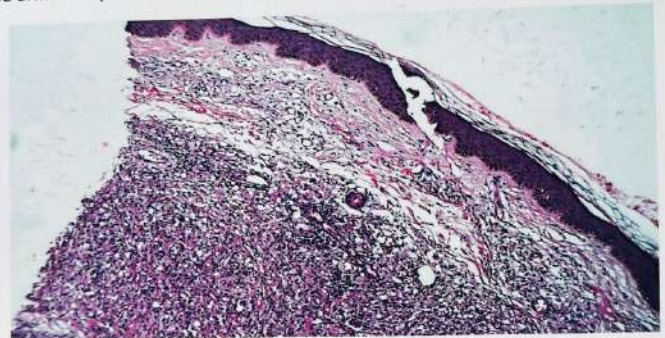


- **Grenz zone** narrow, uninvolved dermis, separating epidermis from nodular accretion of macrophages
- Nodular lesions contain large aggregates of lipid-laden foamy macrophages (**lepra cells**)

LEPROMATOUS LEPROSY

Clinical history

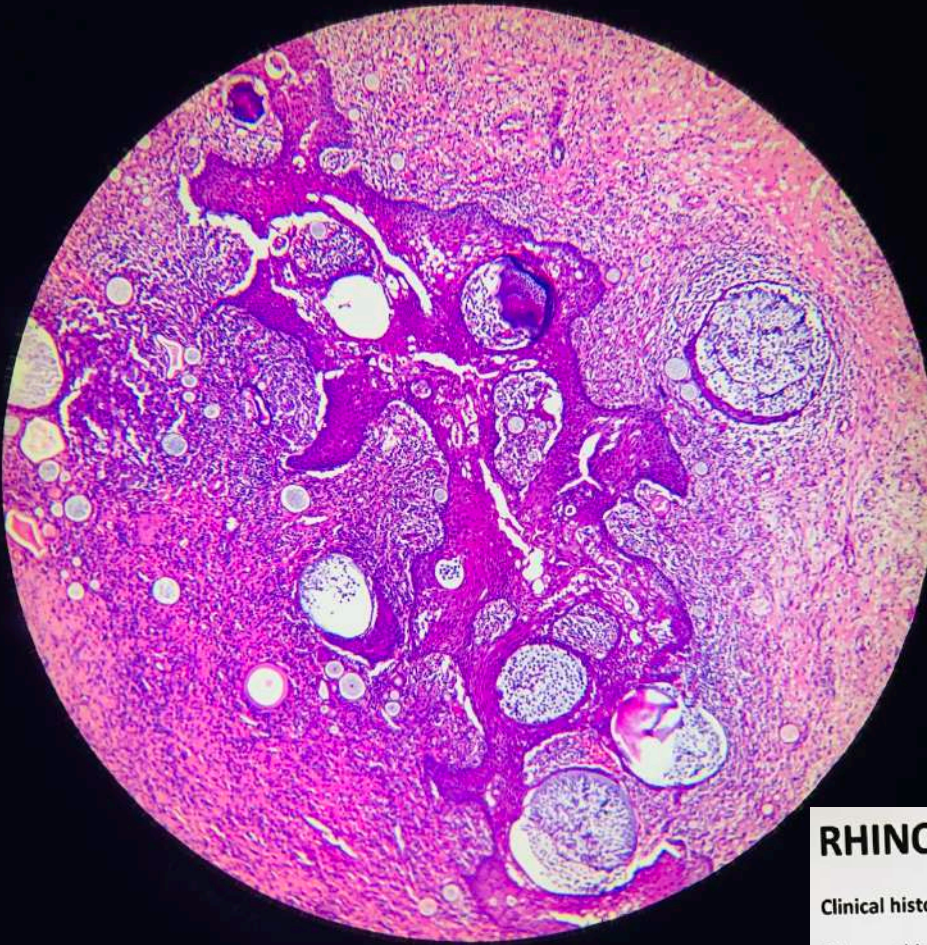
40 year old male came to dermatology OP with nodules and plaques on the face and arms. Peripheral nerves were thickened. Skin biopsy was done



Microscopy : Skin biopsy show a Grenz zone and collection of foamy macrophages (lepra cells) in the dermis. No granulomas present. Wade Fite stain shows rod shaped bacilli within the foamy cells

- 1) Describe the microscopic findings
- 2) Name the causative organism and the special stain done in this case
- 3) Mention the differences between lepromatous and tuberculoid leprosy

7. Rhinosporidiosis

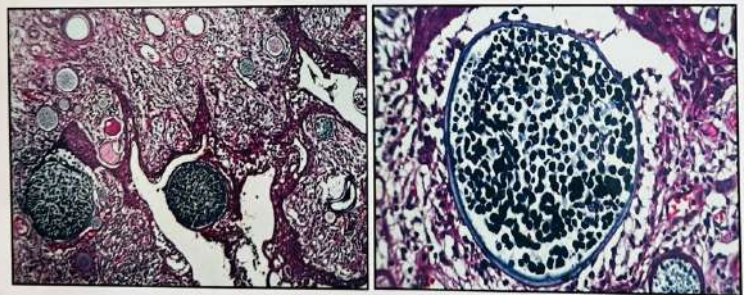
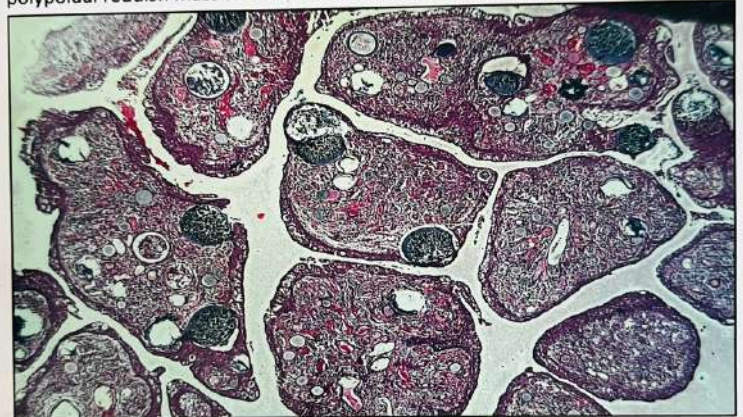


- Stroma shows multiple thick walled round **sporangia** of various sizes & **inflammatory cells**.
- Each sporangium contains numerous small **basophilic round spores**.

RHINOSPORIDIOSIS

Clinical history

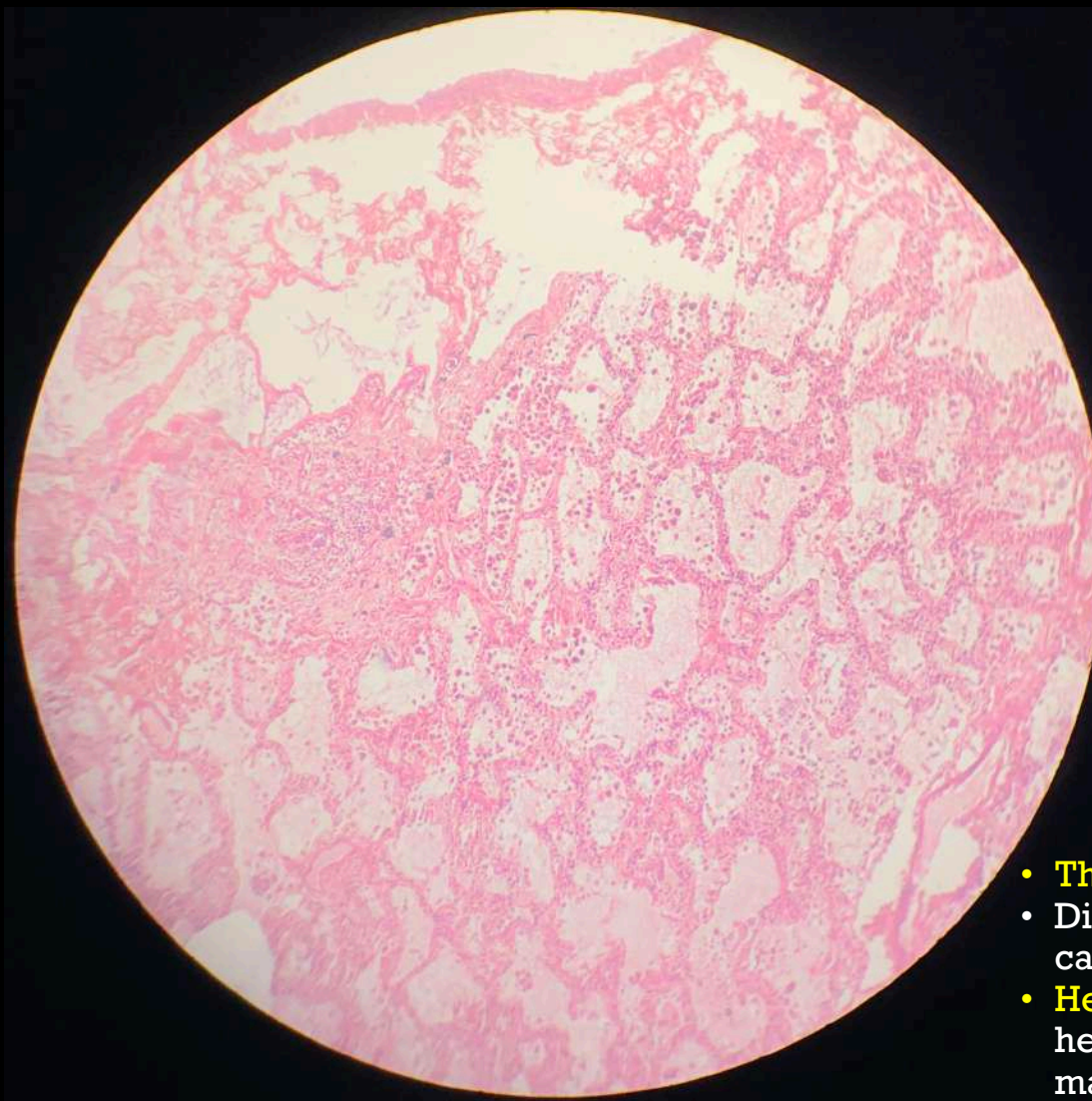
35 year old male complaints of epistaxis and nasal obstruction. On examination a polypoidal reddish mass was seen in the nasal cavity. Biopsy was done.



Microscopy: Tissue lined by respiratory and squamous epithelium with stroma showing multiple thick walled round sporangia of various sizes and inflammatory cells composed of lymphocytes plasmacells and eosinophils. Higher power shows sporangia filled with basophilic endospores surrounded by a thick chitinous wall.

- 1) Describe the microscopic findings
- 2) Name the causative organism
- 3) Mention the sites affected
- 4) What is the mode of transmission of this disease

8. CVC lung

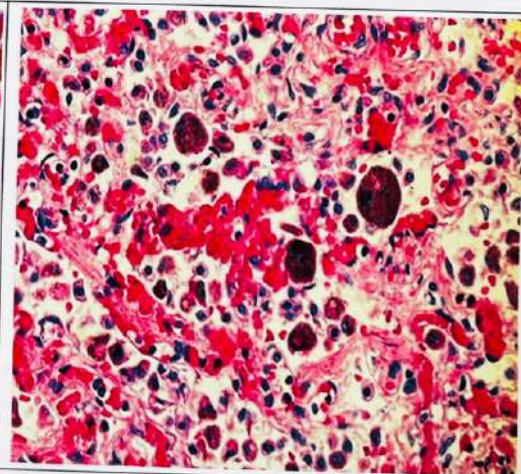
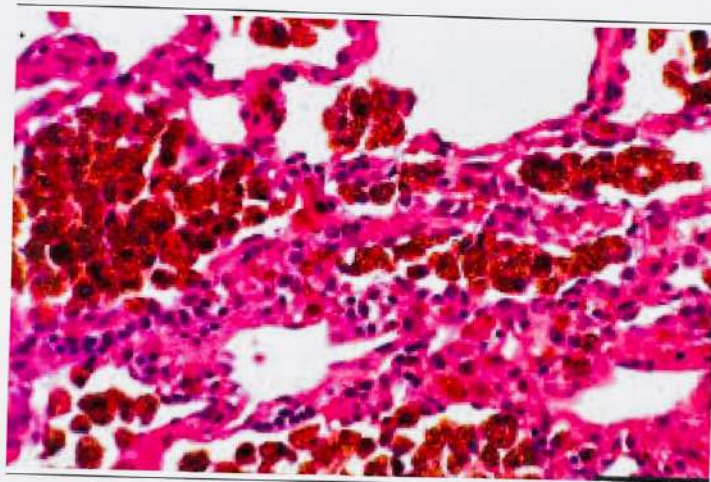


- **Thickened alveolar septa.**
- Distension & congestion of capillaries in the alveolar septa.
- **Heart failure cells** - hemosiderin laden macrophages

CVC LUNG

Clinical history

50 year old female died of cardiac failure and she had mitral valve stenosis. Autopsy was done.



Microscopy: Section from lung show thickened alveolar septa, hemorrhage and hemosiderin laden macrophages

- 1) Describe the microscopic findings
- 2) What is the gross appearance of CVC lung known as?

9. Atherosclerosis



- Atheromatous plaque consist of 3 regions.

1. **superficial fibrous cap**- smooth muscle cells & collagen

2. **Necrotic core**- deep to fibrous cap

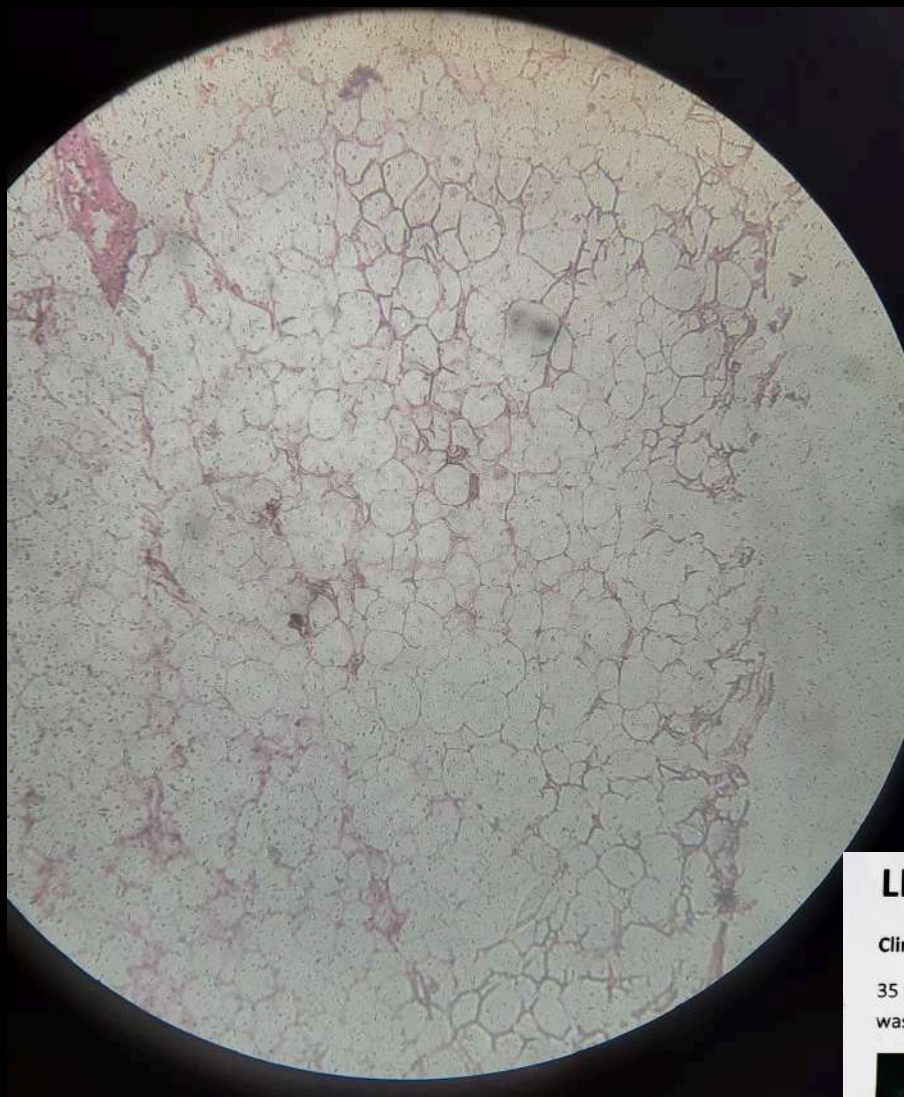
Consist of :

- abundant lipid(mainly cholesterol) appear as **empty needle shaped cleft spaces**.

- foam cells

3. **shoulder**: peripheral region beneath & to the side of cap.

10. Lipoma

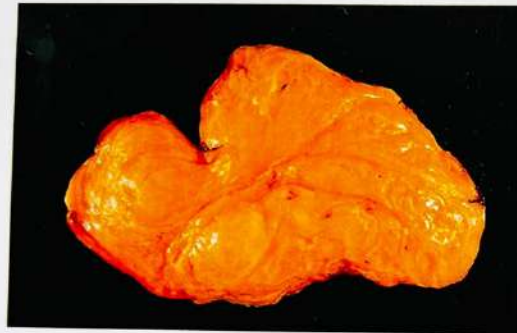


- Lobules of mature adipocytes separated by a delicate fibrous septa.
- Adipocytes have clear cytoplasm & eccentrically placed nucleus.

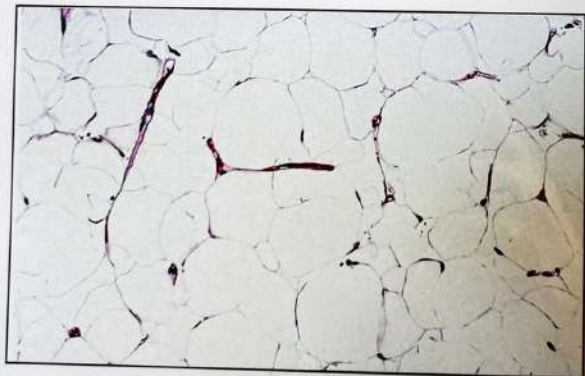
LIPOMA

Clinical history

35 year old male complaints of slow growing swelling in the arm. O/E- slip sign was positive. Excision biopsy done.



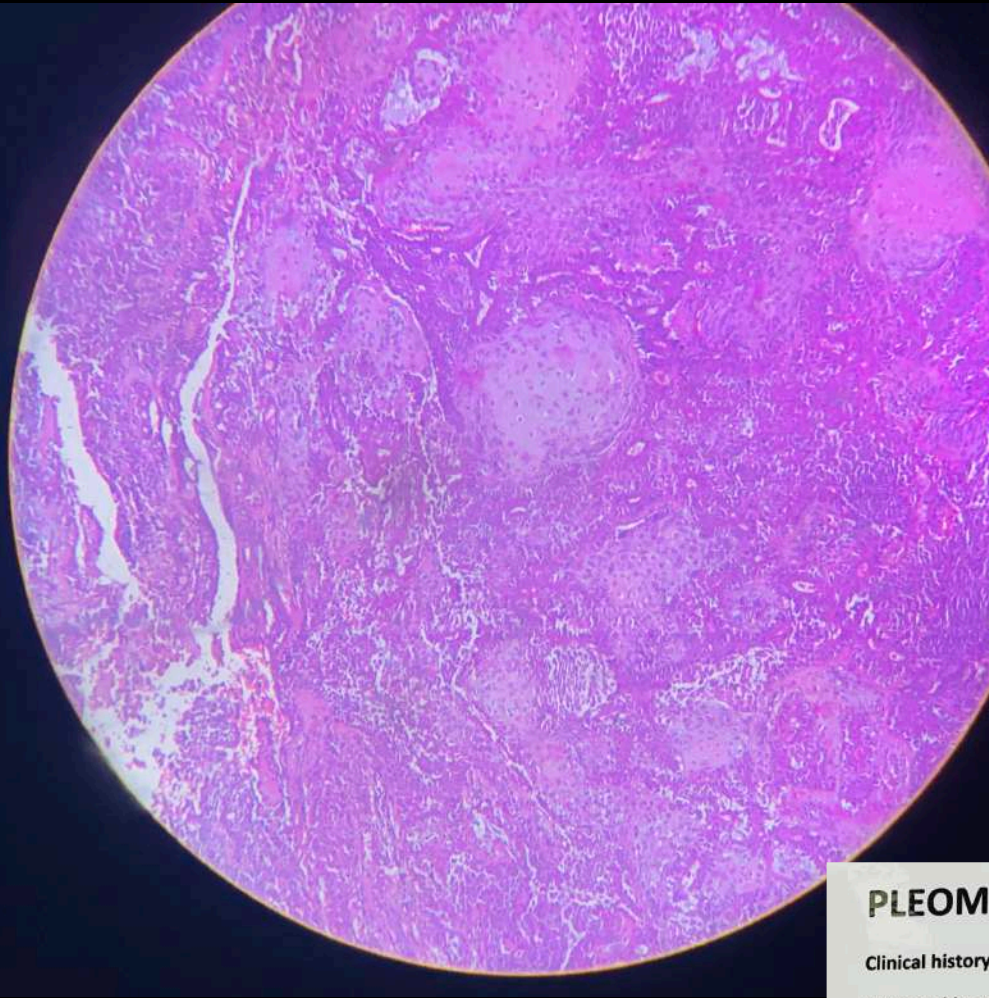
Gross: well circumscribed lesion composed of fat.



Microscopy: Section shows lesion composed of adipocytes with abundant clear cytoplasm and eccentrically placed nucleus.

- 1) Mention the gross and microscopic features
- 2) Mention the special stain used to demonstrate fat and on what sections the stain is done
- 3) Name few common sites of lipoma
- 4) Name the malignant counterpart of lipoma

11. Pleomorphic adenoma

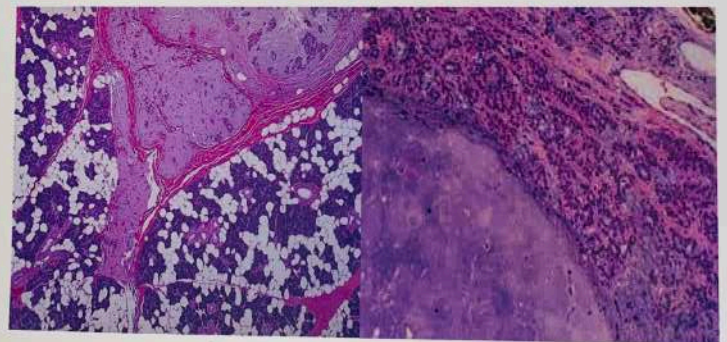


- Varying mixture of epithelial components intermingled with mesenchymal like cells. (pleomorphic appearance)
- **Epithelial components:** arranged in the form of **ducts, acini & irregular tubules**.
- **Mesenchymal like cells** :form loose myxoid tissue, islands of hyaline, chondroid & mucoid matrix.

PLEOMORPHIC ADENOMA

Clinical history

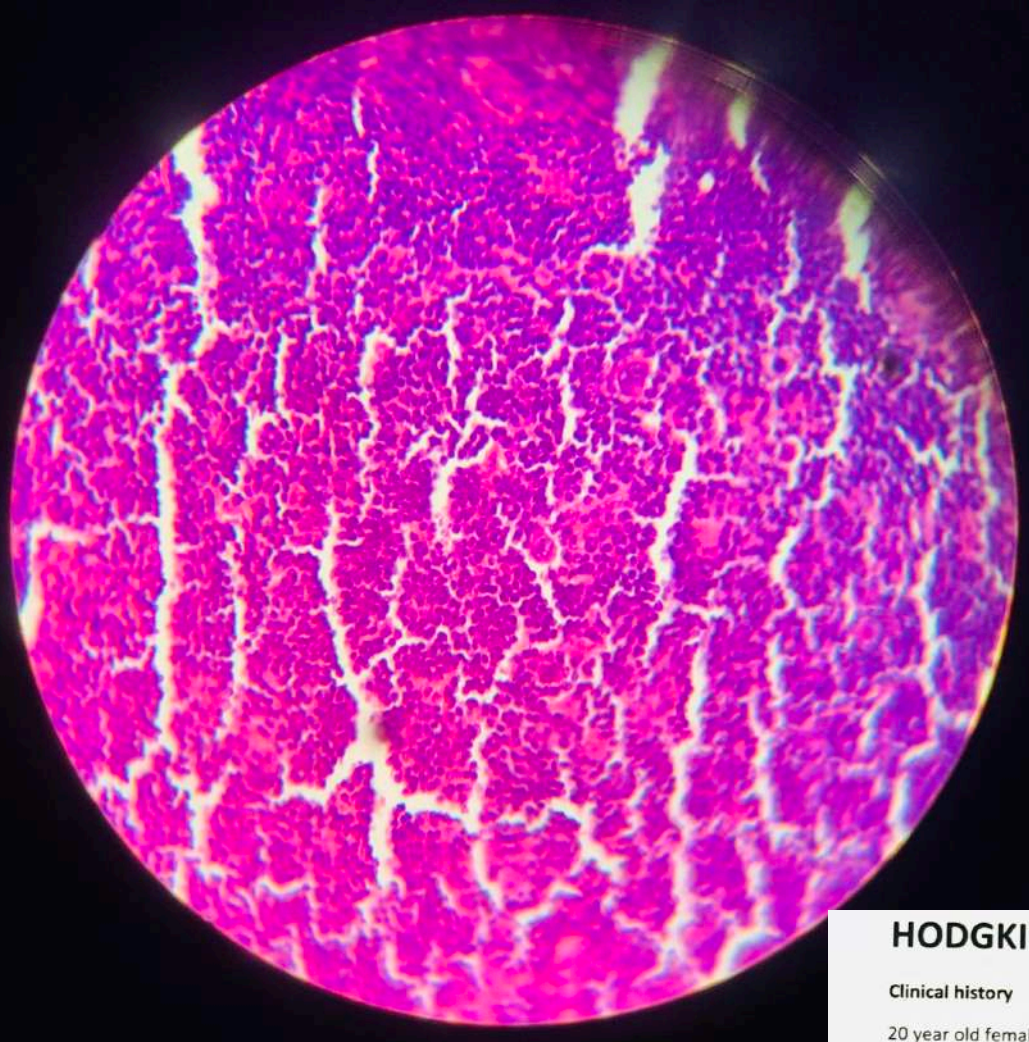
40 year old male complaints of swelling in front of the ear lobule. O/E- a firm lesion which lifts the ear lobule was seen. Resection of the tumor was done



GROSS: Normal salivary gland tissue with an encapsulated tumour. Cut section of the tumour shows glistening and grey white areas. Microscopy: Sections show normal salivary gland acini with an encapsulated neoplasm. Neoplasm has epithelial and myoepithelial cells embedded in a chondromyxoid stroma

- 1) Describe the gross and microscopic findings
- 2) Name 3 salivary gland tumours
- 3) What is the biological behaviour of this tumour
- 4) Name the nerve which could be injured during the surgical resection of this tumour

12. Hodgkins lymphoma



- **Reed sternberg cells** (large cells with abundant eosinophilic cytoplasm, 2 mirror image nuclei, prominent nucleolus surrounded by a halo)& **mononuclear Hodgkin cells**
- Background cells : lymphocytes & eosinophils, macrophages.
- Loss of lymph node architecture.

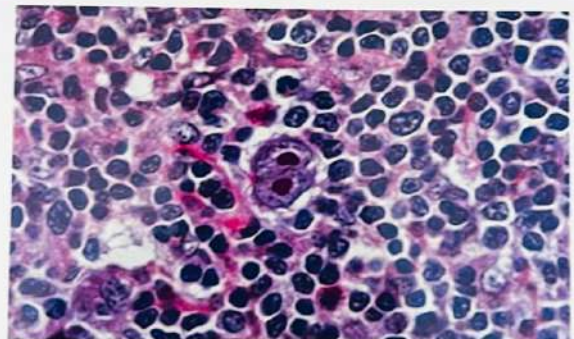
HODGKIN LYMPHOMA

Clinical history

20 year old female came to medicine op with enlarged painless cervical and axillary lymphnodes. Lymphnodes had rubbery consistency. Biopsy was done.



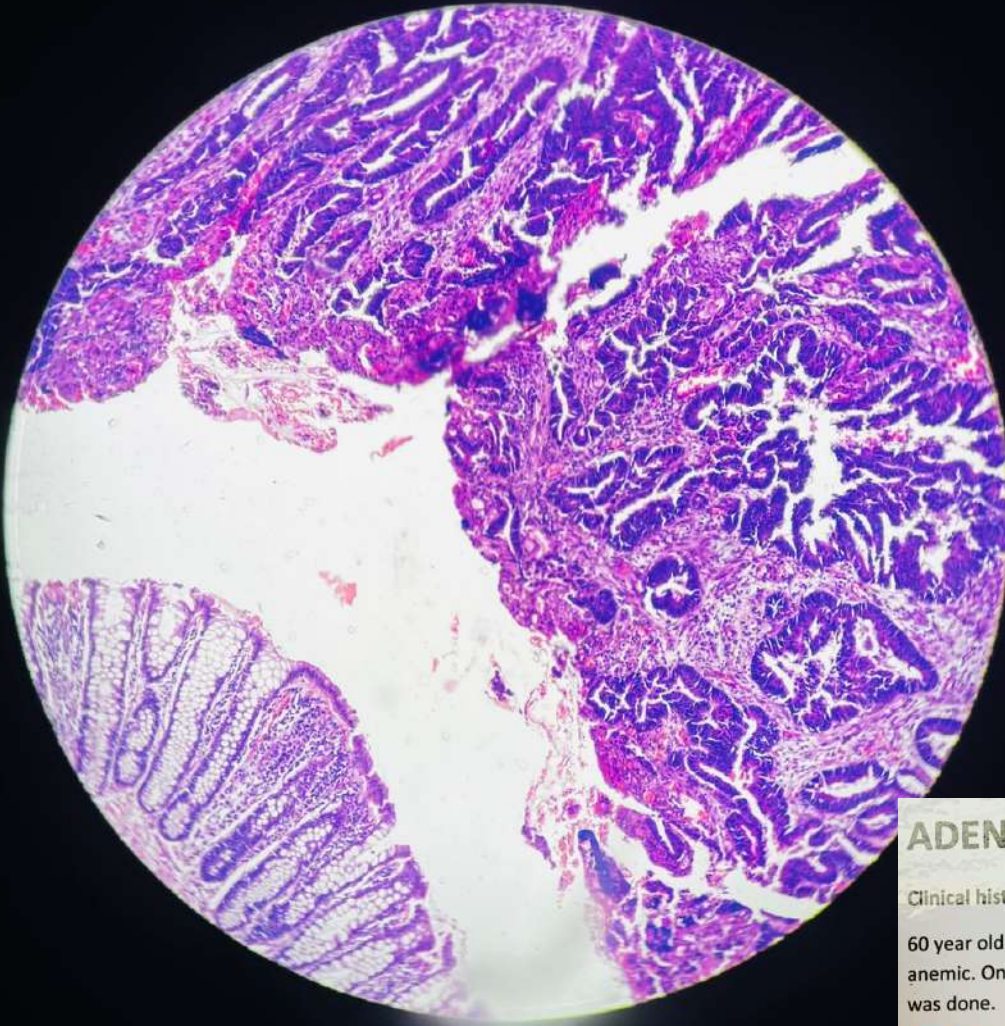
GROSS: The lymphnode is enlarged and cutsection is greywhite, homogenous with fish flesh appearance



Microscopy: Lymphnode architecture is effaced. Classical Reed Sternberg cells and mononuclear Hodgkin cells are seen in a background of lymphocytes and eosinophils. RS cells are large cells(45 μ m) with abundant eosinophilic cytoplasm, bilobed, mirror image nucleus with large central eosinophilic nucleoli.

- 1) Describe the gross and microscopic findings
- 2) Classify Hodgkin lymphoma with salient features of each type
- 3) Describe Ann Arbor staging system
- 4) Name the virus associated; name other diseases caused by same virus
- 5) Describe the classical Reed Sternberg cell; mention the variants of RS cells

13. Adenocarcinoma colon



- Neoplasm composed of tumor cells arranged in **glandular pattern** invading deeper layers.
- Glands show variable size & configuration.
- Separated by moderate amount of stroma.

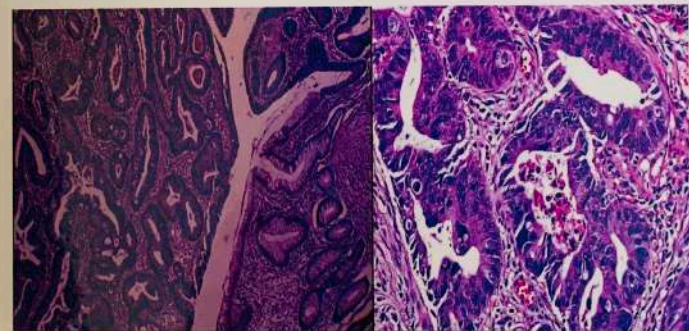
ADENOCARCINOMA COLON

Clinical history

60 year old male complaints of bleeding per rectum and weakness. He was anemic. On colonoscopic examination, there was a mass in the rectum. Colectomy was done.



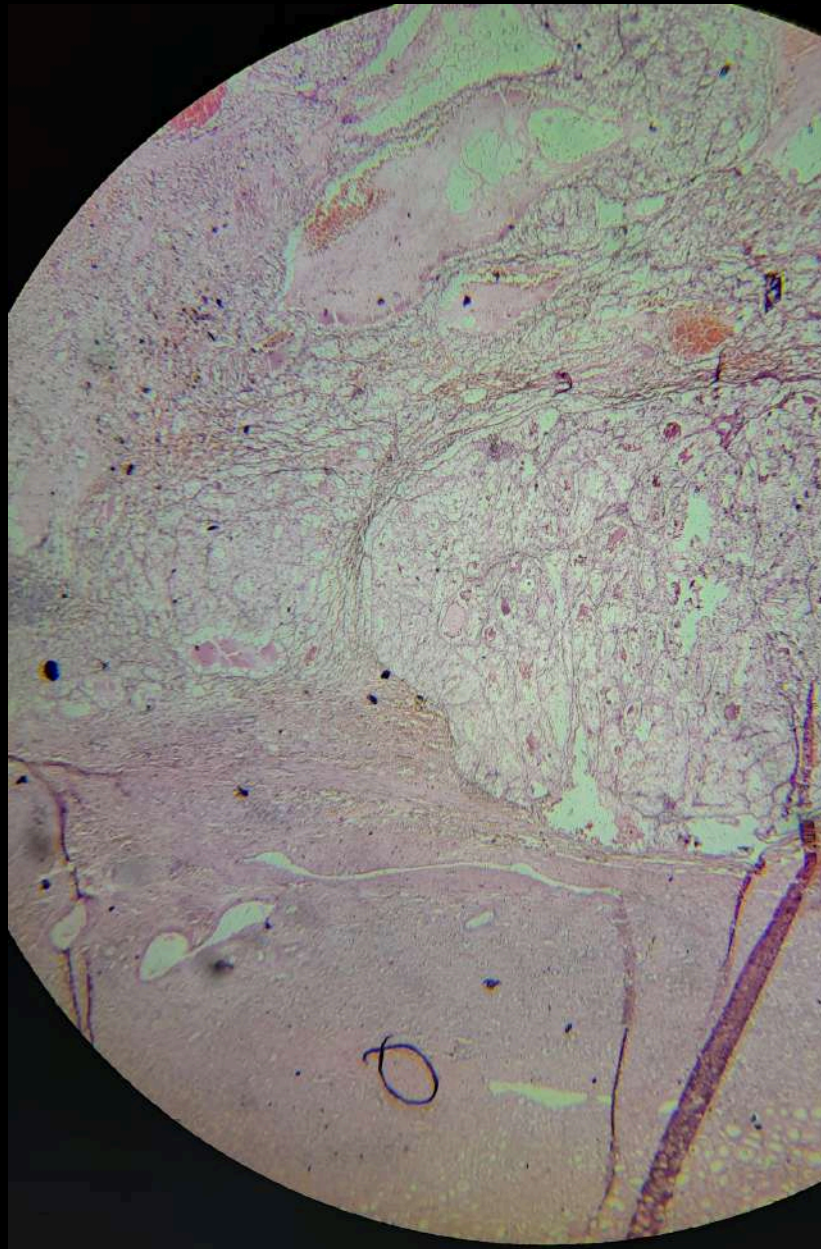
GROSS: Colectomy specimen shows an infiltrating, ulcerated mass lesion. Lesion has irregular indurated and raised margins.



Microscopy: Section shows normal colonic glands on the right side and a neoplasm composed of tumor cells arranged in glandular pattern. Higher power shows glands lined by tumor cells with marked nuclear pleomorphism.

- 1) Mention the gross and microscopic features
- 2) Mention the difference in the gross appearance of right & left sided colon ca
- 3) Mention the precursor lesion of colon ca
- 4) Name two genes mutated in colon cancer pathogenesis

14. Renal cell carcinoma

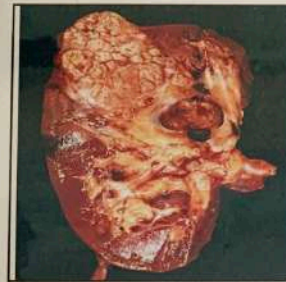


- Tumor shows nest of tumor cells with **clear cytoplasm** with centrally located nucleus.
- Stroma contain abundant thin walled **branching blood vessels**.

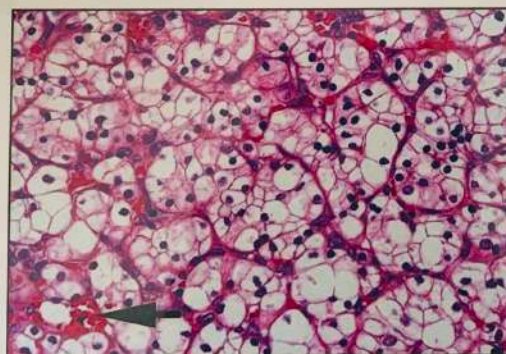
RENAL CELL CARCINOMA

Clinical history

60 year old male complaints of flank pain and hematuria. USG showed a renal mass. Radical nephrectomy was done.



GROSS: Cut section of kidney shows a yellowish, lobulated neoplasm in the upper pole of kidney. Dilated renal vein shows tumor deposit.



Microscopy: Tumor composed of nests of tumor cells with clear cytoplasm, surrounded by abundant thin walled blood vessels.

- 1) Describe the gross and microscopic findings
- 2) Mention the classical triad of clinical features in renal cell carcinoma
- 3) What are the risk factors
- 4) Name 3 histological subtypes
- 5) Name a hereditary syndrome associated and mention the gene mutated in the condition
- 6) Mention the paraneoplastic manifestations associated with renal cell carcinoma
- 7) Which are the common sites of metastasis

15. Fibroadenoma



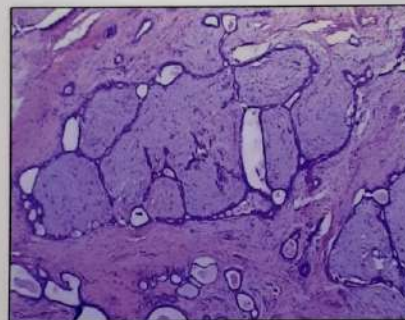
FIBROADENOMA

Clinical history

20 year old female complaints of a painless, mobile swelling in the breast.
Resection of the tumor was done.



Gross- Well circumscribed solid, firm mass. Cutsection is gray white, lobulated with slit like spaces

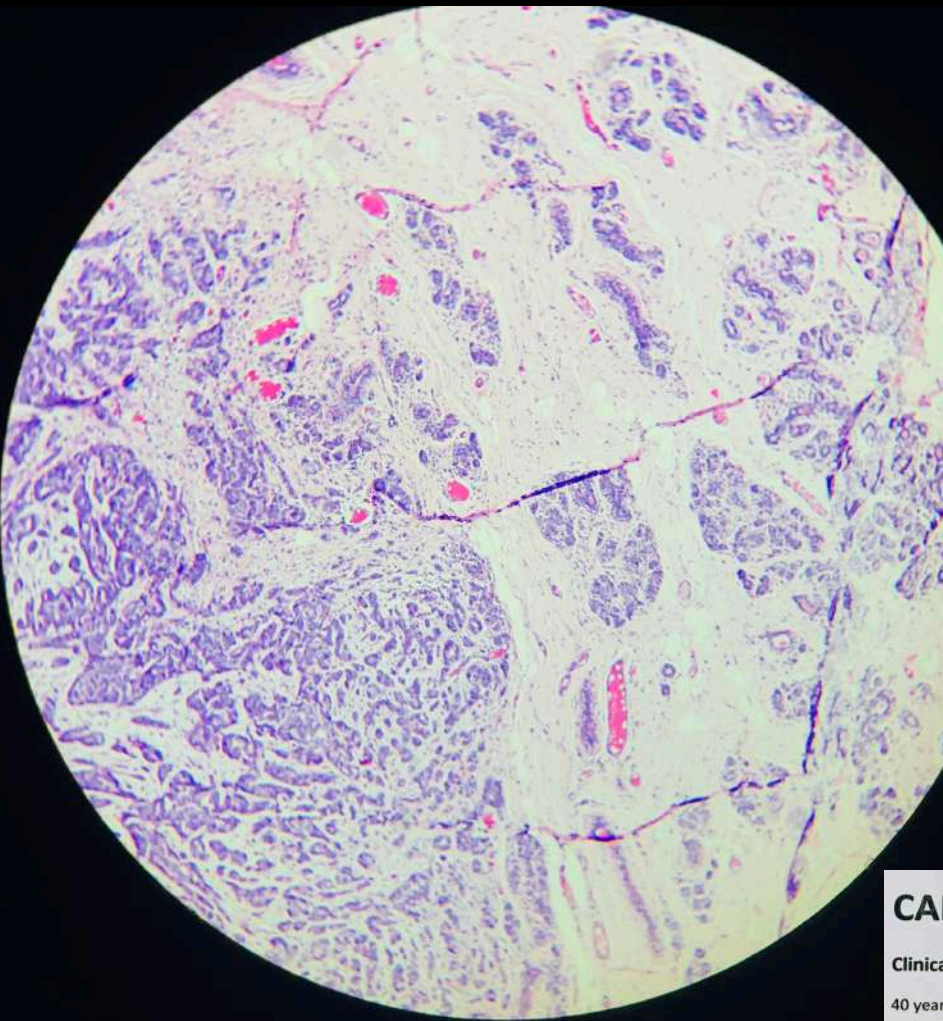


Microscopy- Proliferation of intralobular stroma compressing and distorting the ducts. Stroma is fibromyxoid in nature. Ducts are lined by inner cuboidal and outer myoepithelial cells

- Composed of mixture of duct like structures & fibrous connective tissue.
- Proliferation of intralobular stroma which constitute major part of tumor
- distortion of ducts - round, elongated & branching which is lined by inner cuboidal & outer myoepithelial cells.

- 1) Describe the gross and microscopic findings
- 2) Which is the age group commonly affected
- 3) What is the biological behavior of fibroadenoma
- 4) Name 2 stromal tumors of breast
- 5) What is it clinically otherwise called and why

16. Carcinoma breast

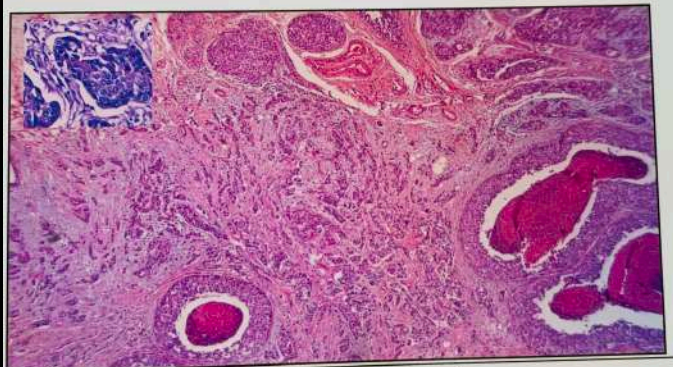
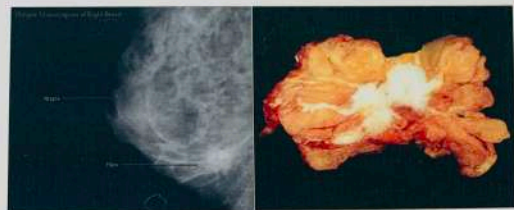


- Tubules & solid sheets of malignant epithelium infiltrates into stroma.
- Tumor cells - enlarged nucleus, prominent nucleolus, nuclear Pleomorphism, numerous mitotic figures.

CARCINOMA BREAST

Clinical history

40 year old female had a swelling in the breast. O/E- the mass was hard, mobility was restricted and axillary lymphnodes were palpable. Mammography showed a spiculated mass lesion in the breast-BIRADS- V

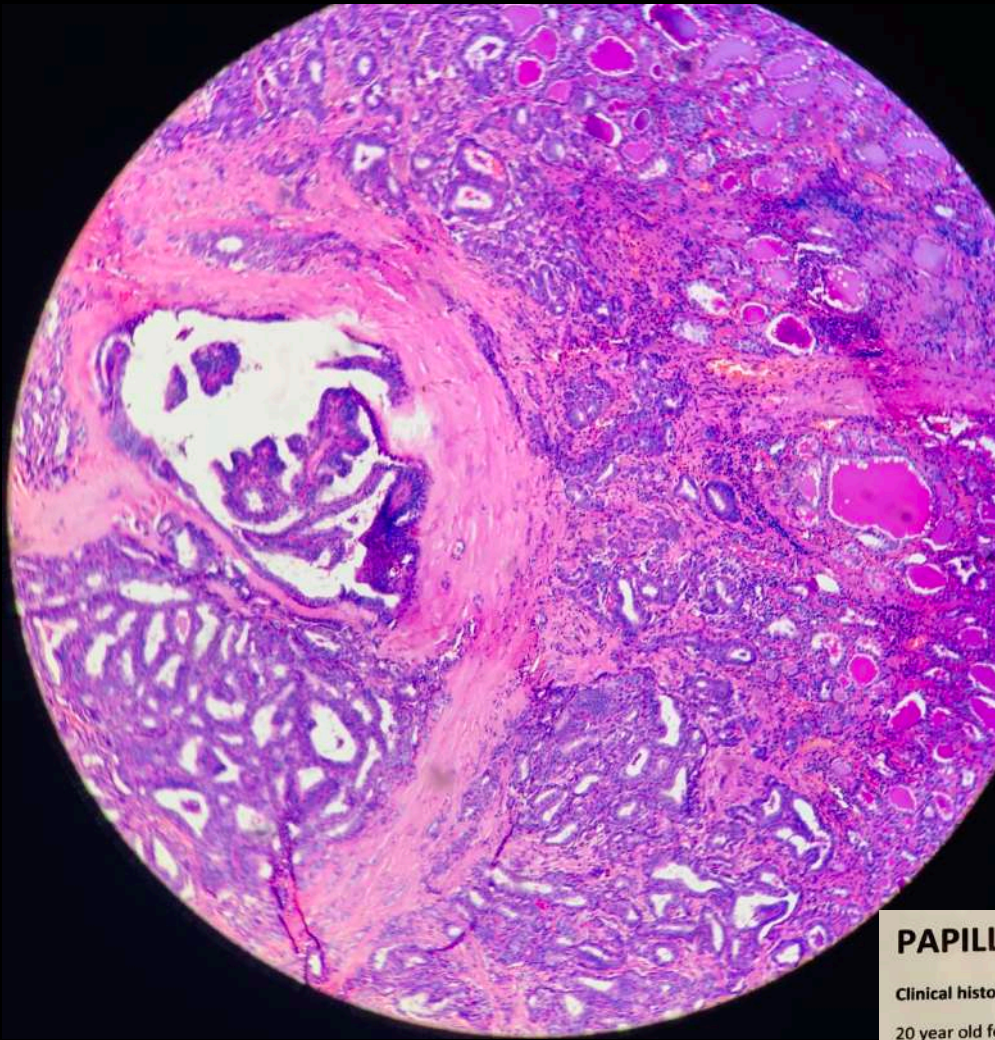


Gross- Firm to hard irregular, gray white lesion with infiltrative margins.

Microscopy- Tubules and solid sheets of malignant epithelium infiltrate into a desmoplastic stroma. Insitu component also seen. Tumor cells in high power showing pleomorphic tumor cells and an atypical mitosis(inset)

- 1) Describe the gross and microscopic findings
- 2) Which is the age group commonly affected
- 3) What are the risk factors for carcinoma breast
- 4) Mention the histological subtypes
- 5) Name the commonest subtype of breast carcinoma
- 6) Name the genes mutated in hereditary breast cancer
- 7) Which are the IHC markers done for prognostication
- 8) Name the prognostic factors of carcinoma breast

17. Papillary carcinoma thyroid



- Neoplasm consist of **branching papillae** lined by tumor cells.
- nuclear features of tumor cells:
- ground glass or **Orphan Annie eye nucleus**, nuclear inclusions, nuclear grooves, nuclear crowding & overlapping.
- **Psammoma bodies**

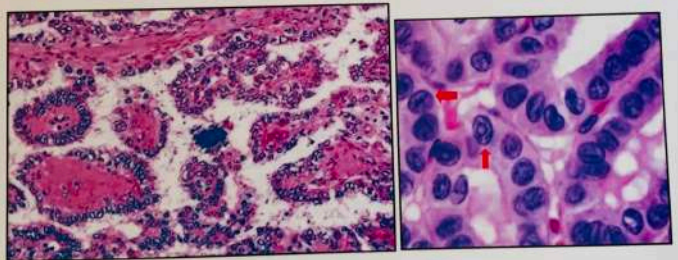
PAPILLARY CA THYROID

Clinical history

20 year old female complaints of a thyroid swelling. O/E- solitary nodule seen on the right lobe. Cervical lymphnodes were enlarged. Total thyroidectomy was done.



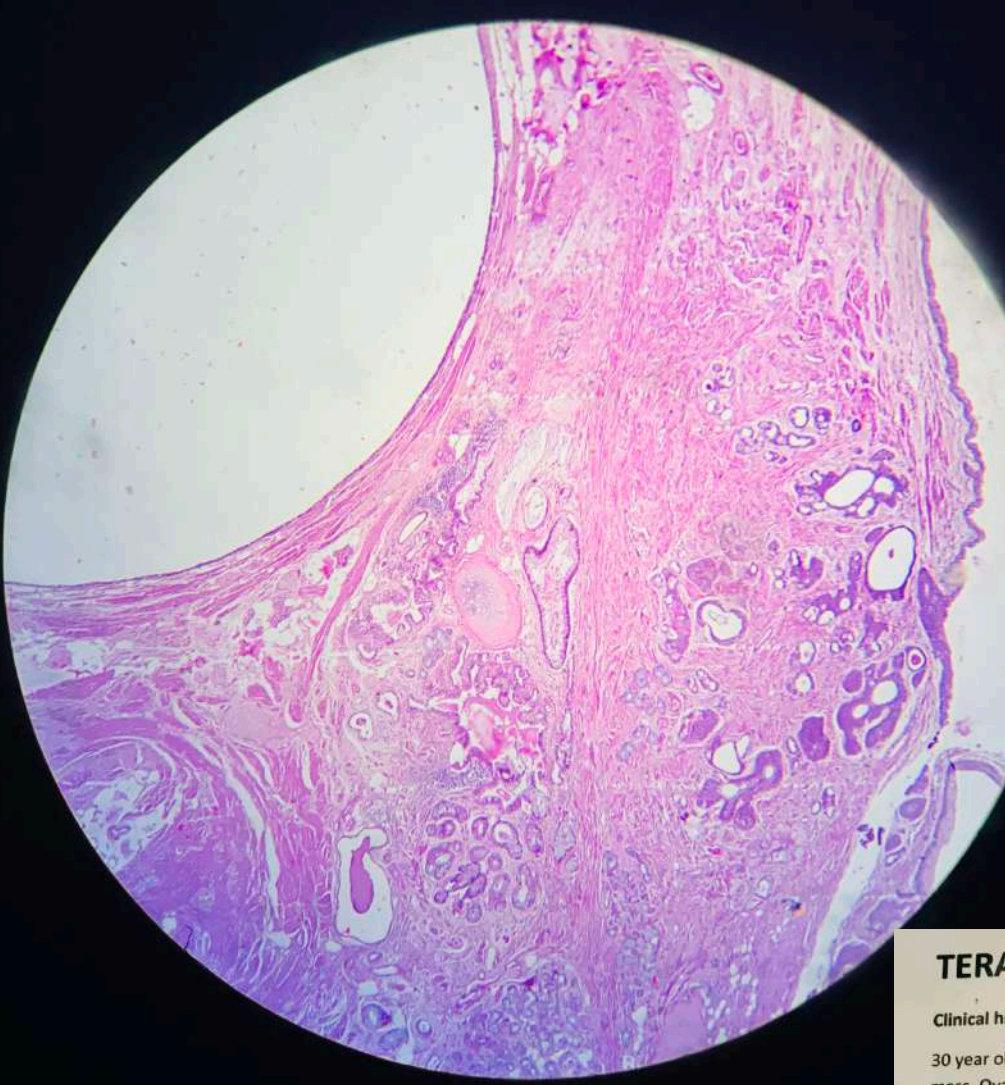
Gross- Cut section of thyroid shows an infiltrating, grey white papillary lesion.



Microscopy: Section shows a neoplasm composed of branching papillae lined by tumor cells. Tumor cells have moderate eosinophilic cytoplasm and characteristic nuclear features which include ground glass or optically clear nuclei(Orphan Annie appearance), nuclear crowding and overlapping, nuclear grooves and nuclear pseudo-inclusions. Psammoma bodies also seen. High power highlights nuclear groove and pseudo inclusion.

- 1) Mention the gross and microscopic features
- 2) Which is the age group commonly affected; mention the etiological factors
- 3) What is the mode of spread of papillary carcinoma
- 4) Name two mutations associated with the tumor
- 5) Name two histological variants

18. Teratoma ovary

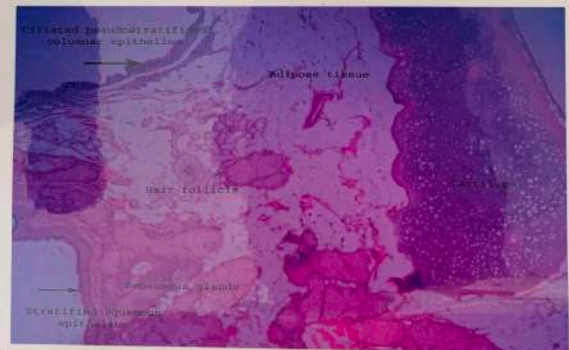


- Tumor consist of **derivatives of all three germ layers**.
- Ciliated pseudostratified columnar epithelium, hair follicles, sebaceous glands, apocrine glands, cartilage, adipose tissue, etc.

TERATOMA OVARY

Clinical history

30 year old female came with complaints of abdominal pain. USG showed ovarian mass. Ovariectomy was done



GROSS: A cystic lesion filled with pultaceous material and shows hair and teeth . **Microscopy:** Section shows tumour composed of mature tissues arising from all the three germ cell layers. Stratified squamous epithelium with sebaceous glands, ciliated columnar epithelium, adipose tissue, cartilage etc seen

- 1) Describe the gross and microscopic findings
- 2) Which class of ovarian tumour does this belong to
- 3) Mention the classification of ovarian tumours with examples of each group
- 4) Name any 2 tumour markers elevated in ovarian tumours

19. Osteoclastoma



- Neoplastic cells (stromal cells) - monotonous population of mononuclear cell with prominent nuclei.
- Non neoplastic cells - numerous osteoclastic giant cells in background

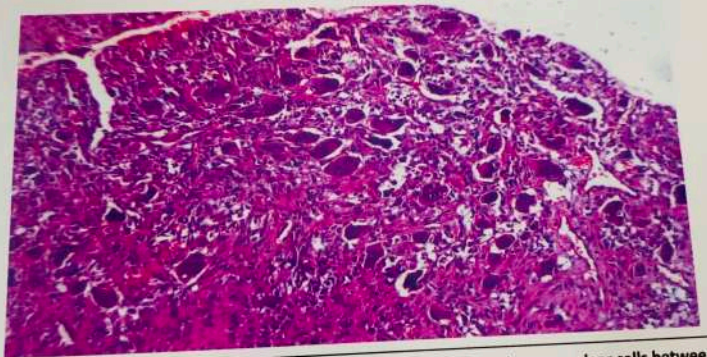
GIANT CELL TUMOR

Clinical history

20 year old male complaints of a bony swelling near knee joint. X ray showed an expansile epiphyseal lesion in the distal femur. Resection of the tumor was done.



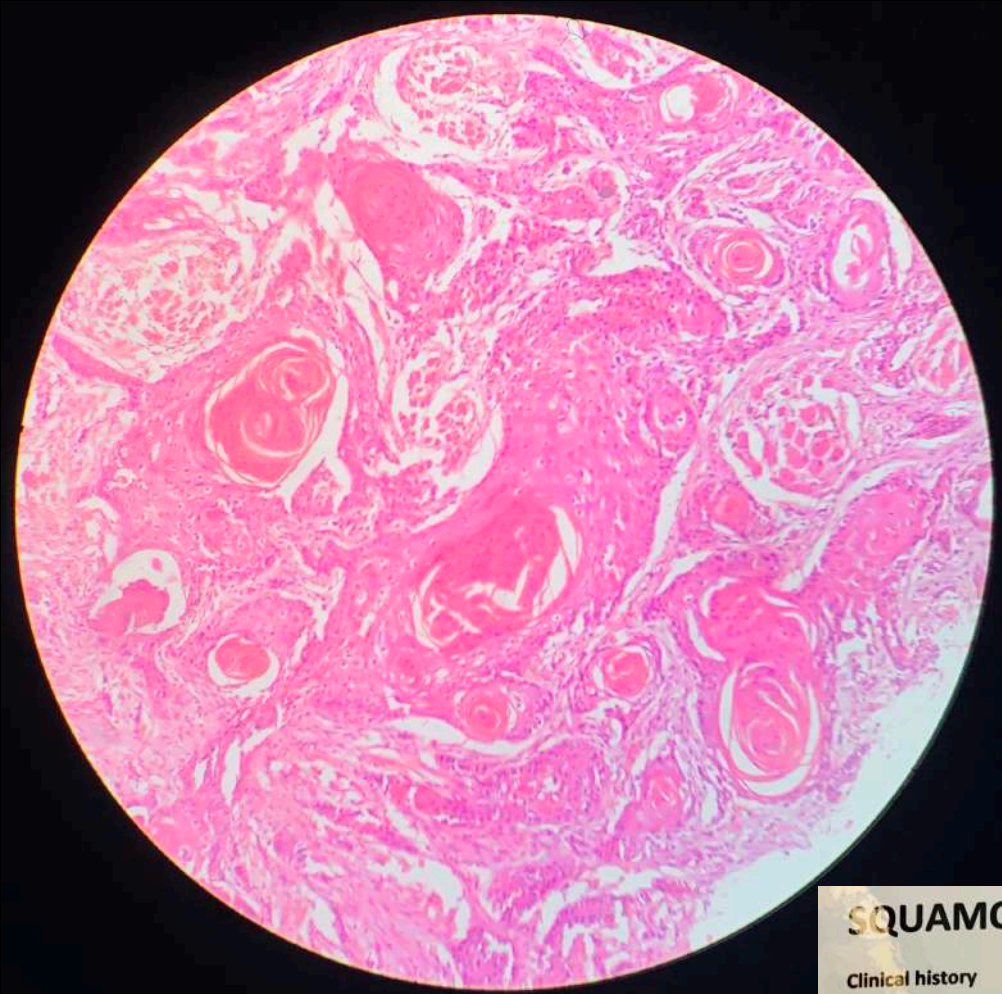
Gross- Expansile lytic lesion with hemorrhagic areas seen in the epiphyseal region of lower end of femur



Microscopy- Tumor shows numerous osteoclast like giant cells and mononuclear cells between the giant cells

- 1) Describe the gross and microscopic findings
- 2) Mention the location of bone from which this tumor arise
- 3) Name the age group and sites affected
- 4) Classic X ray appearance
- 5) Name 2 epiphyseal and 2 diaphyseal bone tumors
- 6) Which are the neoplastic cells in giant cell tumor

20. Squamous cell carcinoma



- Neoplasm arising from epidermis, infiltrating downwards into dermis.
- keratin pearl formation.
- Tumor cells arrange concentrically

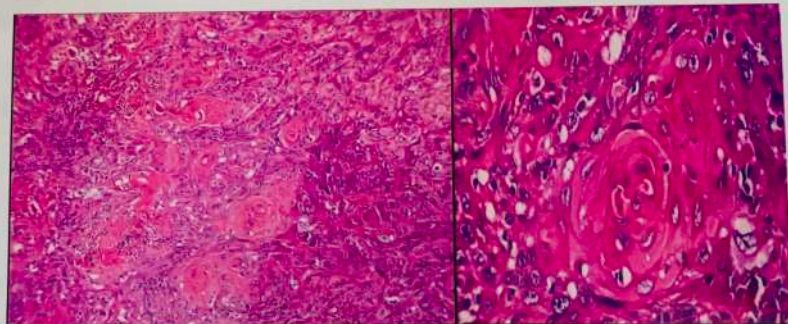
SQUAMOUS CELL CARCINOMA

Clinical history

60 year old male complaints of a ulcerated lesion in the leg. Biopsy was done



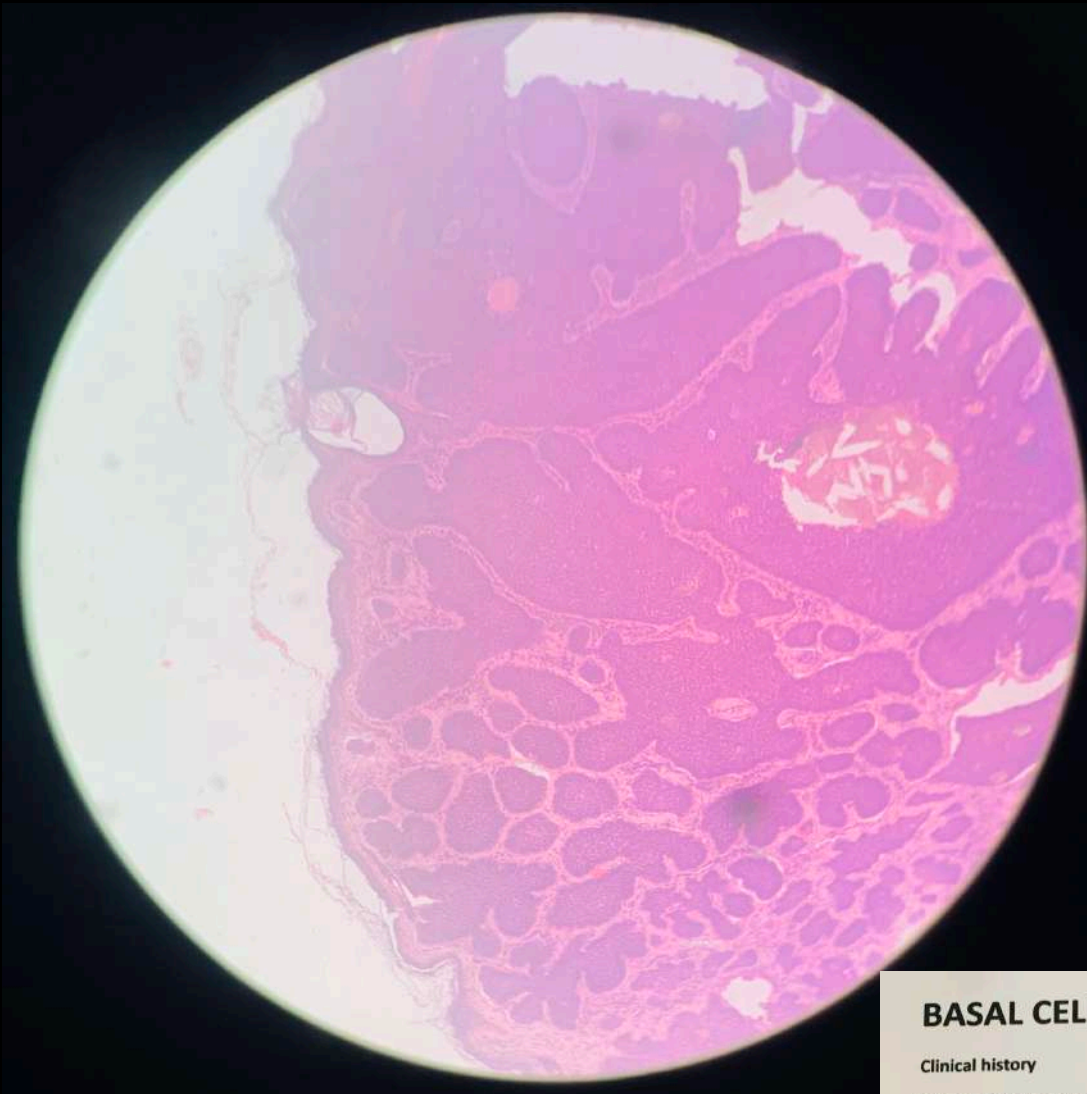
GROSS: Large ulcero- proliferative lesion seen on the skin. Ulcer has indurated, irregular margins



Microscopy: Section show tumor with keratin pearl formation. Higher power shows keratin pearl with tumor cells arranged concentrically with keratin formation. Tumor cells are pleomorphic having large nucleus with prominent nucleoli

- 1) Describe the gross and microscopy
- 2) Name few common sites of squamous cell carcinoma
- 3) Name the precursor lesion that predispose to squamous cell ca skin
- 4) Mention the risk factors for squamous cell ca skin

21. Basal cell carcinoma

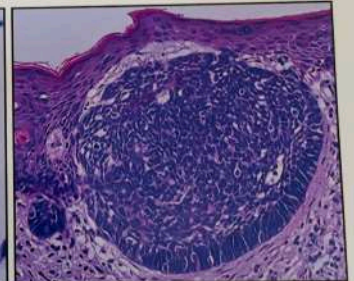


- Neoplasm arising from epidermis & infiltrating deep into dermis
- Tumor cells arranged as lobules & nest with **peripheral palisading of the nucleus**.
- **Clefting artifact** between tumor islands & adjacent stroma.

BASAL CELL CARCINOMA SKIN

Clinical history

50 year old male complaints of an ulcerative lesion in front of the ear lobule. O/E- an ulcer with rolled out edges present. Resection of the tumor was done



GROSS: An ulcer with raised out and irregular margins seen. **Microscopy:** A tumor with connection to the overlying epidermis, composed of basaloid cells arranged as lobules and nest with peripheral palisading of the nucleus. On higher power shows basaloid cells with scant cytoplasm and peripheral nuclear palisading

- 1) Describe the gross and microscopic findings
- 2) Mention the common site of basal cell carcinoma
- 3) Name the synonym of the tumor