

NEOPLASIA

(Benign tumors)

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Outlines

By the end of this lecture; you should learn the following:

- ❑ General features and classification of benign tumors
- ❑ Describe definition and morphology (gross and microscopic features) of papilloma with examples
- ❑ Describe definition, morphology (gross and microscopic features) and types of adenoma
- ❑ Describe definition, morphology (gross and microscopic features) and types of lipoma
- ❑ Describe definition, morphology (gross and microscopic features) and types of leiomyoma

Features and classification of BENIGN TUMOURS

Features and classification

Definition:

Well differentiated neoplasms that tend to grow slowly, do not metastasize, and are mostly non-life threatening.

Main features:

- Slow rate of growth
- Grow by expansion
- Do not infiltrate nearby structures
- Do not metastasise
- Seldom recur after surgical removal.

Features and classification

General morphology of benign tumors

Grossly:

- ❑ In solid organs, tumor form mass with following features:
 - Number: single or multiple.
 - Size: mostly small
 - Shape: rounded or oval
 - Surface: smooth
 - Margins: well-defined
 - Capsule: mostly capsulated
 - Consistency: variable according to tumor type
 - Cut section: homogenous with NO hemorrhage or necrosis
 - Color: variable according to site

- ❑ In surface epithelium: Tumors of surface epithelium form non-capsulated papillary mass

Features and classification

General morphology of benign tumors

Microscopically:

- Differentiation: tumor cells are closely similar to normal cells
- Tumors are formed of mature cells with well-formed stroma.
- NO features of malignancy: tumor cells are uniform, equal in size with normal N/C ratio and rare mitosis.
- Tumors are confined within a capsule
- No hemorrhage or necrosis
- Secondary changes are common: hyaline change, myxoid change, cyst formation and dystrophic calcification

Features and classification

Histological classification

Benign tumors

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graph TD; A[Benign tumors] --> B[Epithelial]; A --> C[Mesenchymal]; B --> D["Surface epithelium: Papilloma"]; B --> E["Glandular epithelium: Adenoma"]; C --> F["Bone: Osteoma"]; C --> G["Cartilage: Chondroma"]; C --> H["Fat: Lipoma"]; C --> I["Muscles: Leiomyoma"]; C --> J["Blood vessels: Angioma"]; C --> K["Fibrous tissue: Fibroma"];
```

Epithelial

Surface epithelium: **Papilloma**

Glandular epithelium: **Adenoma**

Mesenchymal

Bone: **Osteoma**

Cartilage: **Chondroma**

Fat: **Lipoma**

Muscles: **Leiomyoma**

Blood vessels: **Angioma**

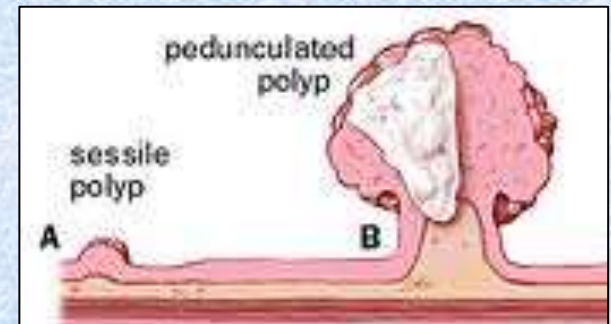
Fibrous tissue: **Fibroma**

**Examples for
benign epithelial tumors
(Papilloma and Adenoma)**

Benign epithelial tumors

● Papilloma

- **Definition:** benign tumor of surface epithelium
- **Gross:** Papillary or warty non-capsulated surface growth.
- **MP:** multiple papillae formed of vascular connective tissue cores covered with hyperplastic epithelium. The basement membrane is intact.
- **Types:**
 - According to gross appearance:
 1. sessile
 2. pedunculated
 3. villous or complex (branched)
 - According to type of covering epithelium:
 1. squamous cell papilloma
 2. transitional cell papilloma



Villous or complex polyp

Benign epithelial tumors

- **Squamous cell papilloma**

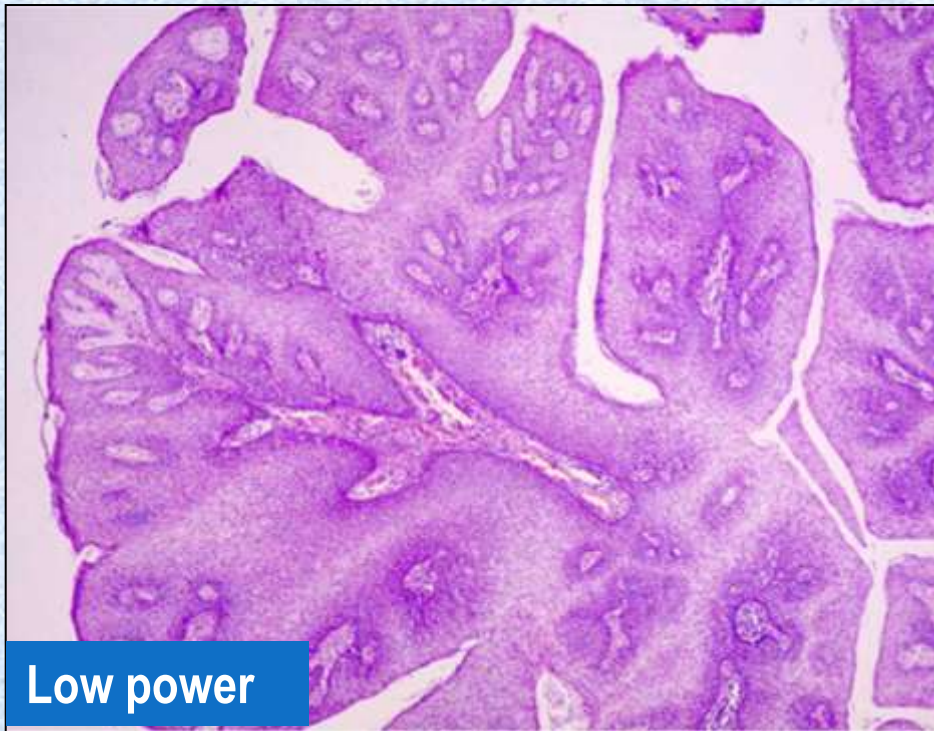
- **Definition:** benign tumor of surface squamous epithelium
- **Sites:** sites of squamous epithelium as: skin, tongue, larynx, esophagus, cervix, vagina
- **Gross:** papillary or warty non-capsulated surface growth usually sessile or pedunculated.



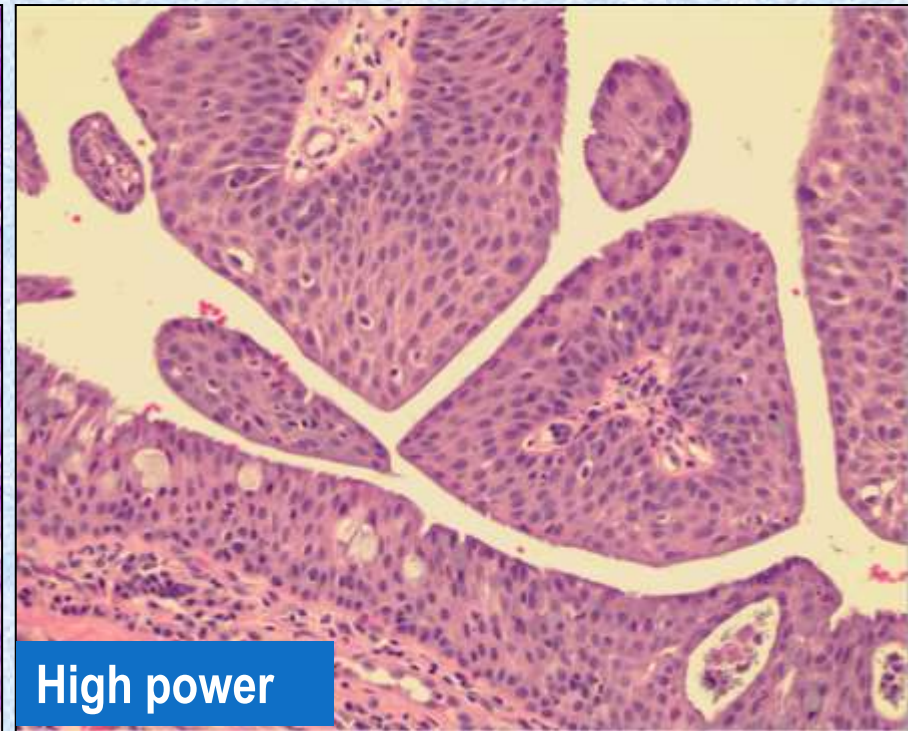
Benign epithelial tumors

- **Squamous cell papilloma**

- *MP*: vascular connective tissue cores covered with several layers of squamous epithelium.



Low power



High power

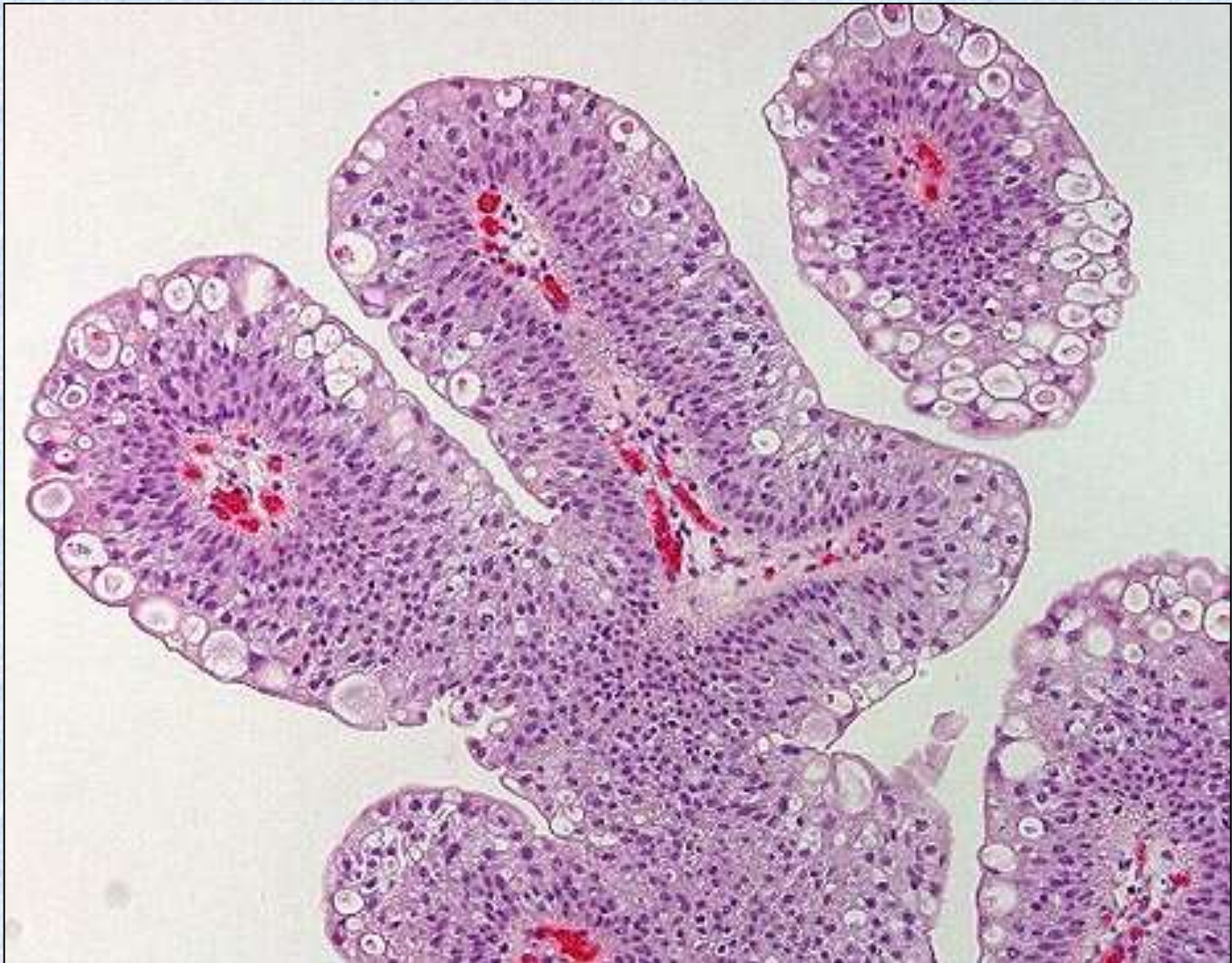
Benign epithelial tumors

- **Transitional cell papilloma**

- **Definition:** benign tumor of surface transitional epithelium
- **Sites:** transitional epithelium as UB, ureter and renal pelvis
- **Gross:** thin finger-like projections, pink, non-capsulated surface growth, usually villous and sometimes multiple.
- **MP:**
 - Highly vascular connective tissue cores covered with several layers of transitional epithelium (> 7 layers)
 - Basement membrane is intact
- **Complications:**
 - Hematuria
 - Bladder neck obstruction
 - Stasis of urine and secondary stone formation
 - Malignant change is extremely common giving??

Benign epithelial tumors

- **Transitional cell papilloma**



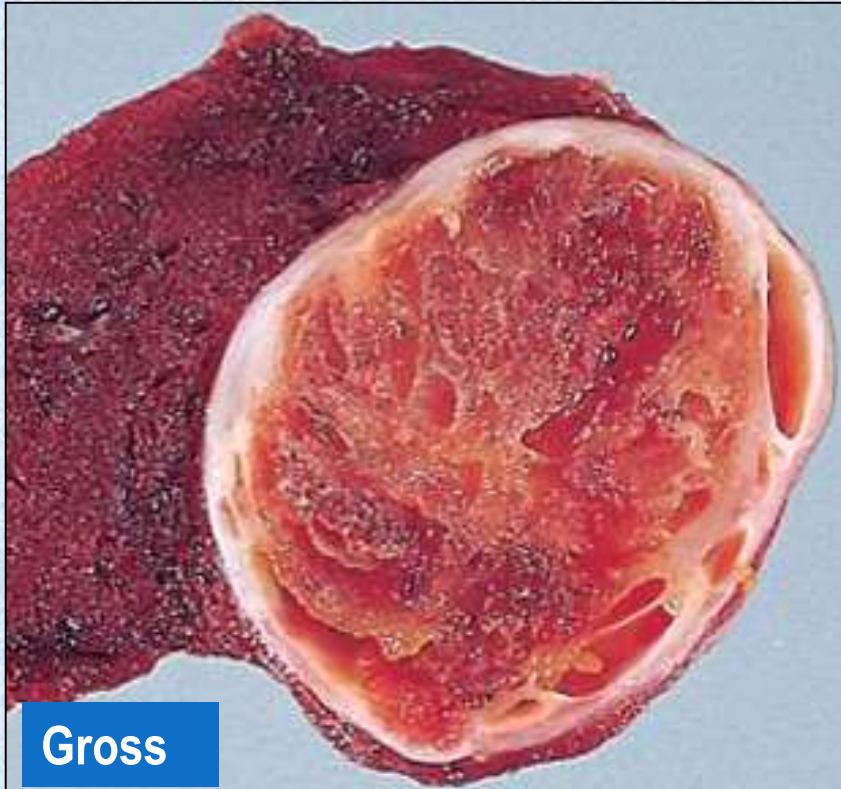
Benign epithelial tumors

- **Adenoma**

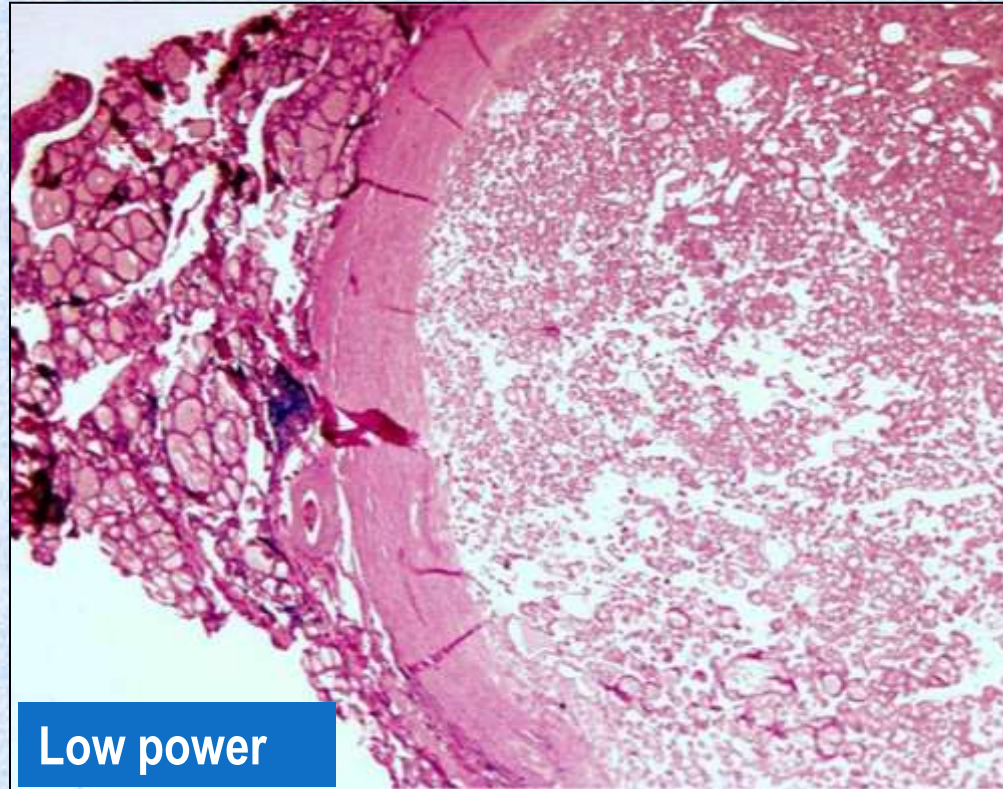
- **Definition:** benign tumor of glandular epithelium.
- **Sites:** Glandular organs as: endocrine, salivary, intestinal and gastric glands, liver, renal tubules and ovary.
- **Gross:** rounded or oval, well-defined mostly capsulated mass of variable size that can be solid or cystic
- **Microscopic types:**
 1. *Simple adenoma:* proliferated small sized glands lined by cuboidal or columnar cells and separated by vascular stroma (e.g: thyroid gland)
 2. *Fibro-adenoma:* proliferated glands are separated by fibrous tissue (e.g fibroadenoma of breast)
 3. *Cyst-adenoma;* the proliferated glands show cyst formation (e.g. ovary)
 4. *Papillary cyst-adenoma:* lining epithelium of cyst-adenoma proliferates and form papillary projections within cystic spaces (e.g. ovary)
- **Complications:** Functioning adenoma (induce hormone) and malignant change

Benign epithelial tumors

- Simple adenoma



Gross



Low power

Simple adenoma of thyroid gland

Benign epithelial tumors

- **Cyst-adenoma**



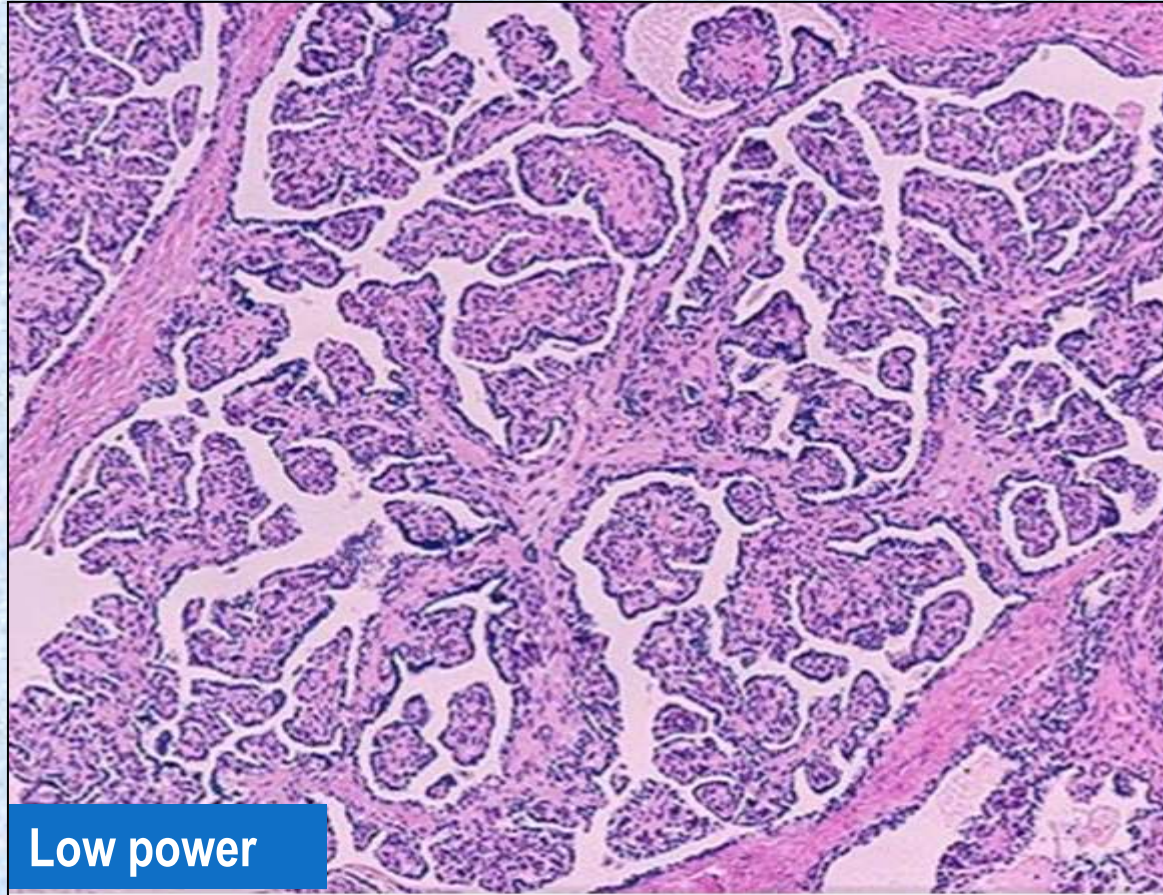
Cyst-adenoma of ovary

Papillary cyst-adenoma of ovary



Benign epithelial tumors

- Adenoma

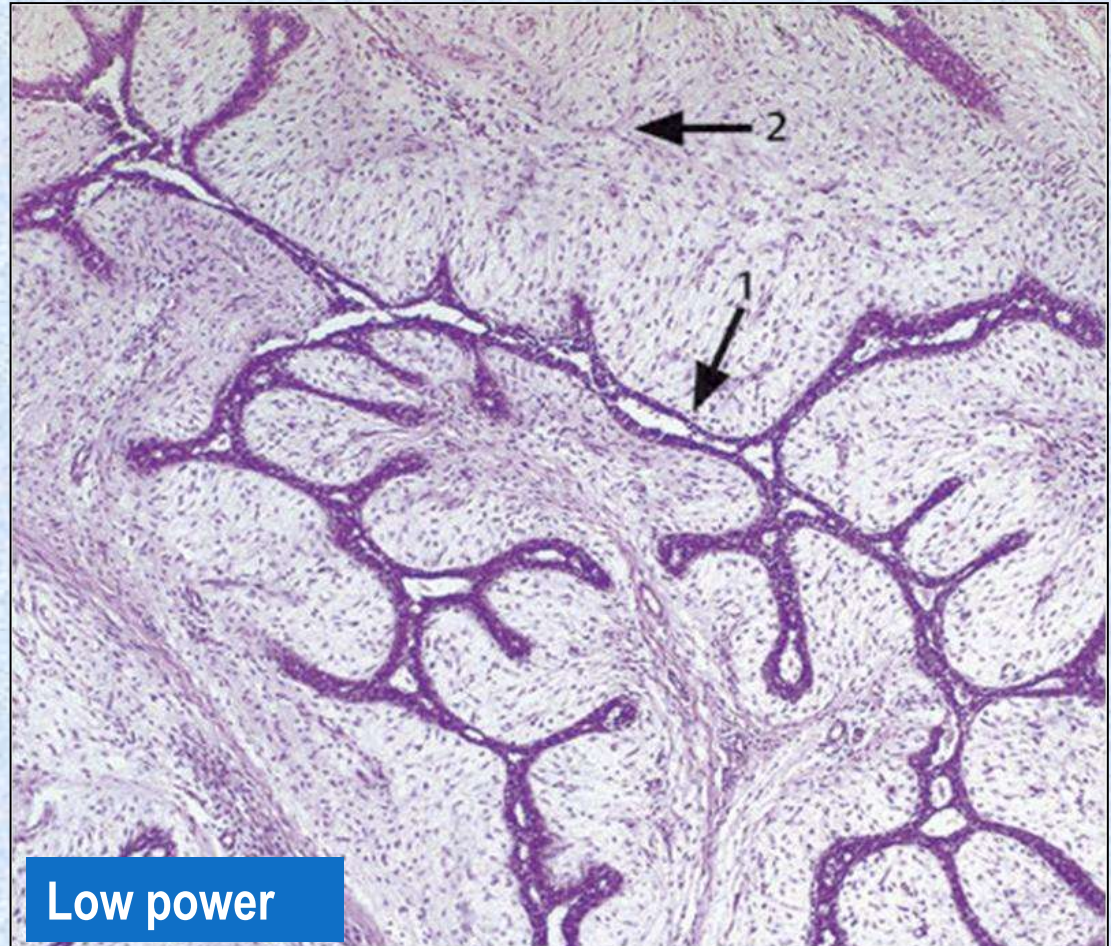


Low power

Papillary cyst-adenoma of ovary

Benign epithelial tumors

- **Fibro-adenoma of breast**



The proliferated glands are separated by proliferated fibrous tissue.

**Examples for
benign mesenchymal tumors
(Lipoma, Chondroma and Leiomyoma)**

Benign mesenchymal tumors

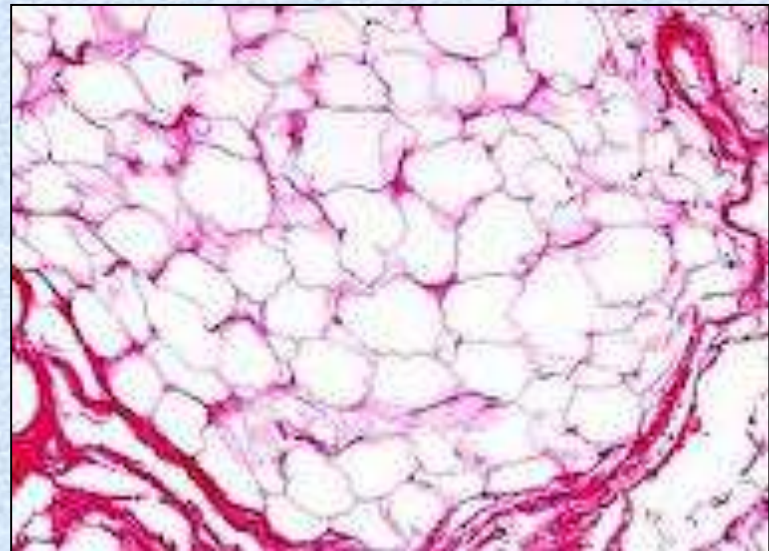
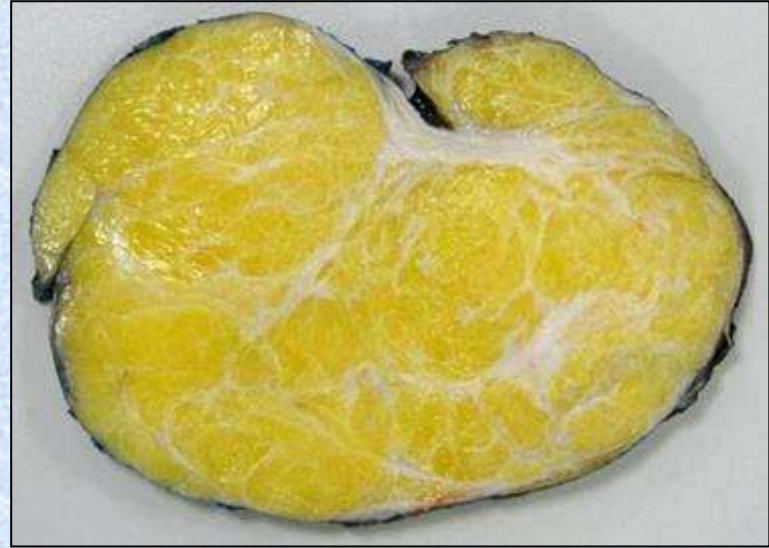
● Lipoma

- **Definition:** benign mesenchymal tumor of adipose tissue
- **Sites:** (sites of fat)
 - Subcutaneous fat of the neck, shoulder, back and buttocks
 - Mesenteric, retroperitoneal, omental & intramuscular septa
 - Fat of internal organs as the kidney.
- **Gross:** capsulated variable-sized rounded or lobulated yellow soft mass with bulging cut section
- **MP:**
 - Lobules of fat cells separated by thin vascular fibrous septa.
 - The lobule consists of large, vacuolated cells with eccentric nuclei (signet-ring cell)

Benign mesenchymal tumors

- **Lipoma**

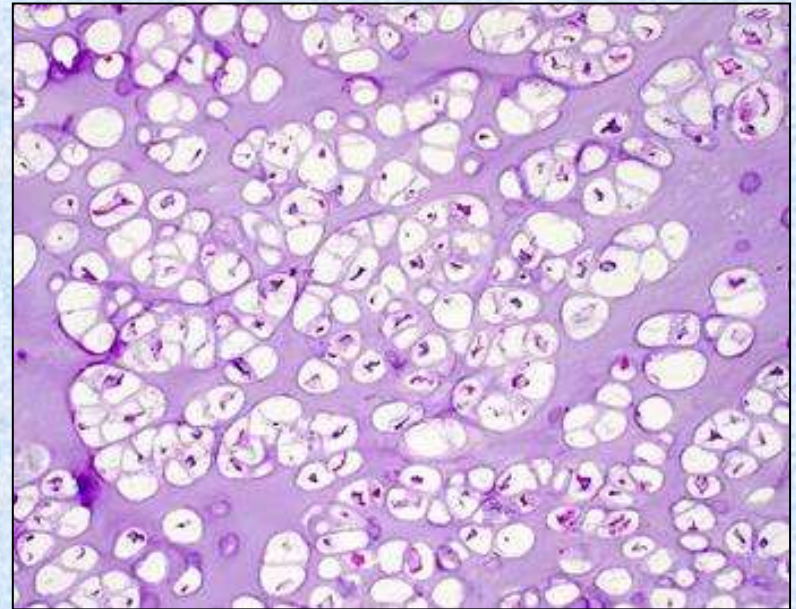
- **Types:** Fatty tissue may be mixed with other tissues
 - Fibrolipoma
 - Angiolipoma
 - Myolipoma
 - Angiomyolipoma
- **Complications:** Malignant change is rare



Benign mesenchymal tumors

- **Chondroma**

- ❖ **Definition:** Benign mesenchymal tumors of cartilage.
- ❖ **Sites:** Short bones of the hands and feet
- ❖ **Gross picture:** Capsulated rounded or lobulated tumor, with pale blue color
- ❖ **Microscopically:**
 - Mature cartilage with uniform chondrocytes separated by a pale matrix.
 - Chondrocytes have a vacuolated cytoplasm due to high content of glycogen and lipids



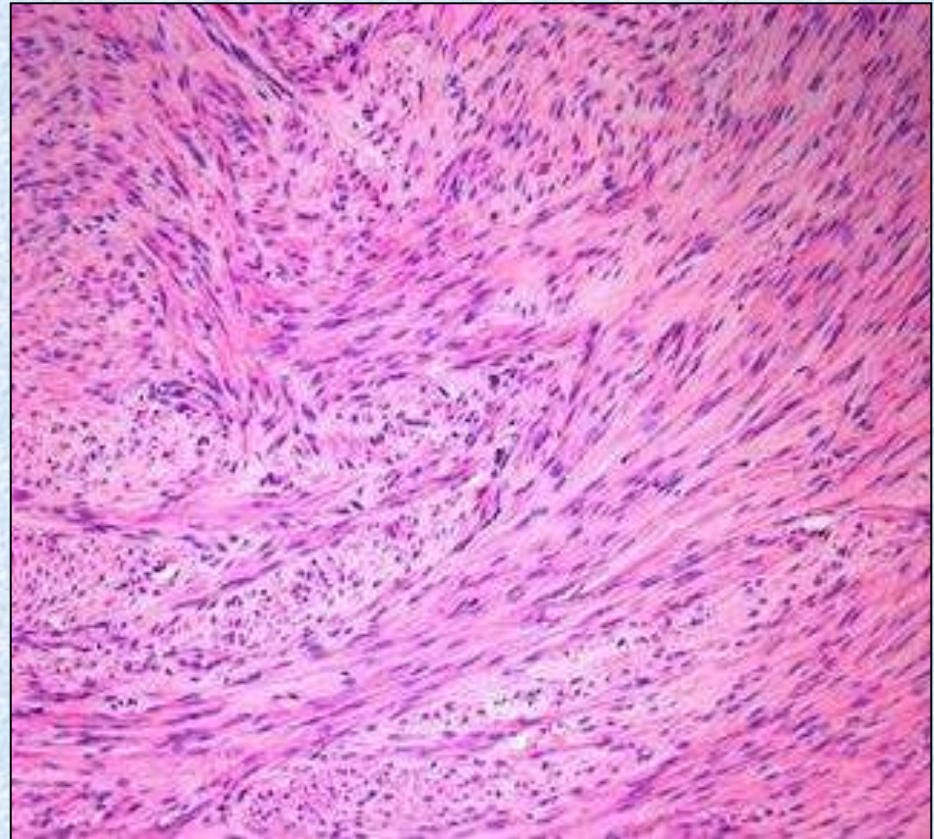
Benign mesenchymal tumors

- **Leiomyoma**

- ❖ **Definition:** Benign tumor of smooth muscles.
- ❖ **Incidence:** it is the most common benign mesenchymal tumor
- ❖ **Sites:** Leiomyoma occurs at sites of smooth muscle. **Uterus** is the most common site; followed by wall of gastrointestinal tract as stomach and small.
- ❖ **Gross picture:** Single or multiple, variable in size. The tumors have well-defined outlines (pseudo capsule) with solid pink to pale brown and whorl appearance on cut section.
- ❖ **MP:** Proliferation of spindle shaped cells arranged in interlacing bundles. The cells have eosinophilic cytoplasm and spindle uniform nuclei.

Benign mesenchymal tumors

- Leiomyoma



Good Luck