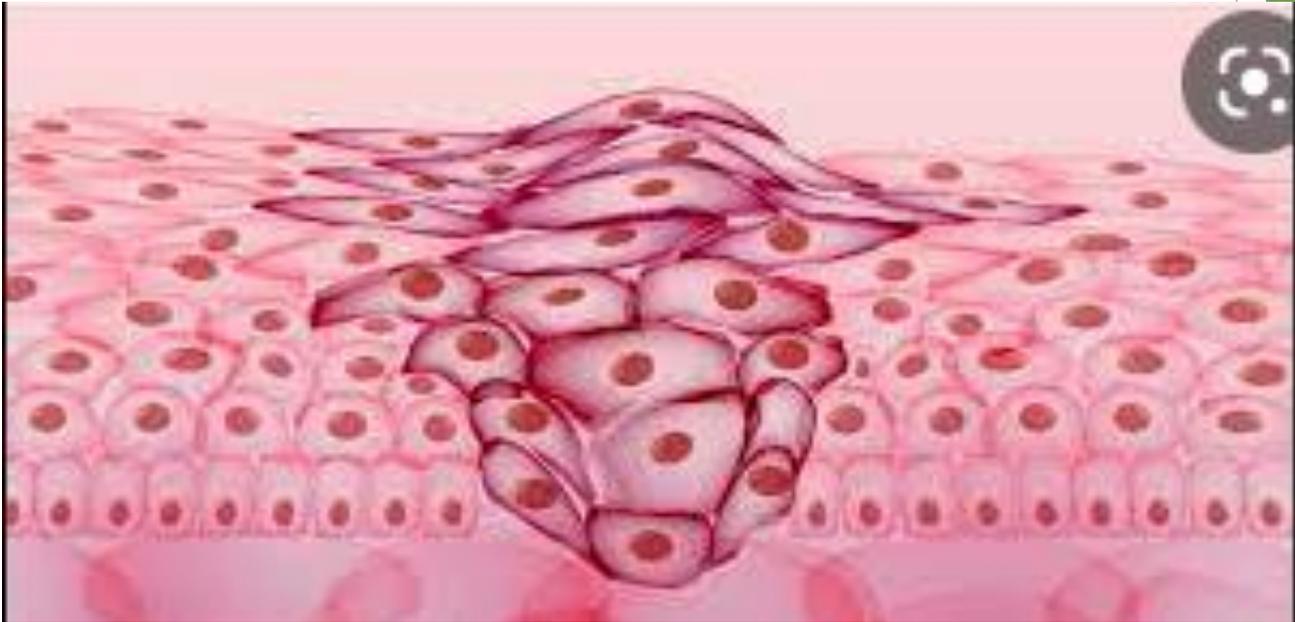


Neoplasia 1



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▶ Introduction.

- Characteristics of Benign and Malignant Neoplasms.
- Epidemiology.
- Cancer Genes.
- Carcinogenesis: A Multistep Process Hallmarks of Cancer.
- Etiology of Cancer: Carcinogenic Agents.
- Clinical Aspects of Neoplasia.

cancer

- ▶ Cancer is the second leading cause of death in the United States.
- ▶ Even more agonizing than the associated mortality is the emotional and physical suffering inflicted by neoplasms.

Most common characteristics of cancers:

- ▶ 1. Cancer is a genetic disorder caused by DNA mutations: spontaneous or induce.
- ▶ 2. Genetic alterations in cancer cells are heritable, being passed to daughter cells upon cell division.
- ▶ 3. • Mutations and epigenetic alterations impart to cancer cells a set of properties that are referred to collectively as cancer hallmarks

NOMENCLATURE

- ▶ Neoplasia means “new growth” referred to a tumor.
- ▶ They continue to replicate, apparently oblivious to the regulatory influences that control normal cells.
- ▶ They increase in size regardless of their local environment.
- ▶ All neoplasms depend on the host for their nutrition and blood supply.

NOMENCLATURE

- ▶ In common medical usage, a neoplasm often is referred to as a tumor, and the study of tumors is called **oncology** (from oncos, “tumor,” and logos, “study of”).
- ▶ The division of neoplasms into **benign** and **malignant** categories is based on a judgment of a tumor’s potential clinical behavior.

NOMENCLATURE

▶ 1. Benign:

- it will remain localized and is amenable to local surgical removal.
- Affected patients generally survive.

▶ 2. Malignant:

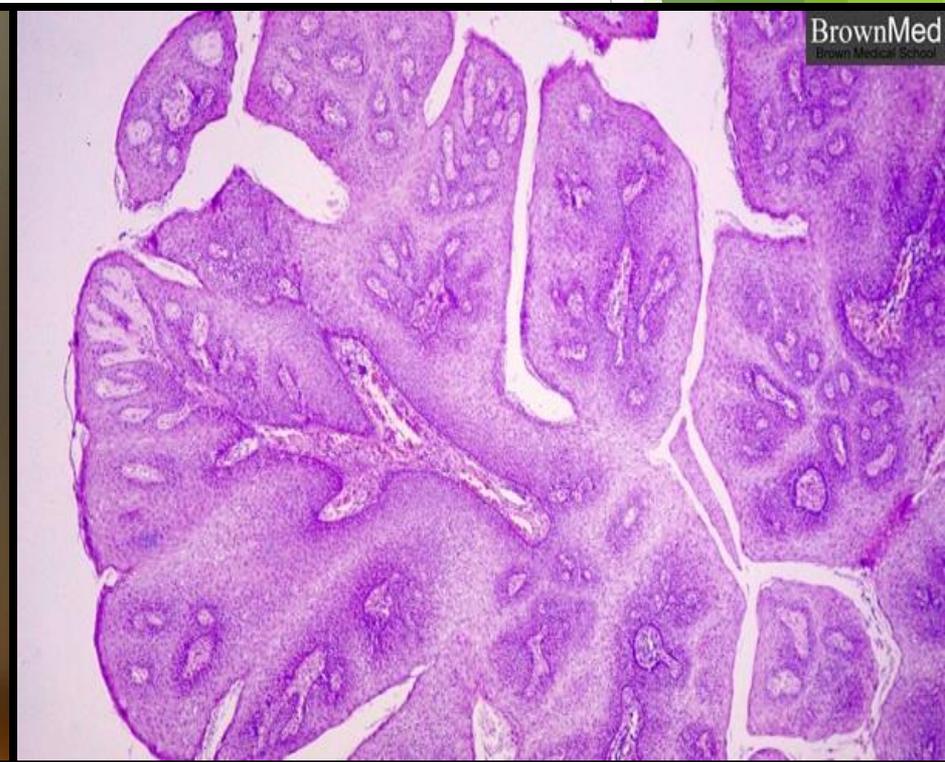
- as applied to a neoplasm, implies that the lesion can invade and destroy adjacent structures and spread to distant sites (metastasize) to cause death.
- Malignant tumors are collectively referred to as **cancers**.

- ▶ All tumors, benign and malignant, have two basic components:
- ▶ (1) The parenchyma, made up of transformed or neoplastic cells.
 - determines its biologic behavior
- ▶ (2) Non-neoplastic stroma :
 - The supporting, host-derived, non-neoplastic stroma, made up of connective tissue, blood vessels, and host-derived inflammatory cells.
 - The stroma is crucial to the growth of the neoplasm,

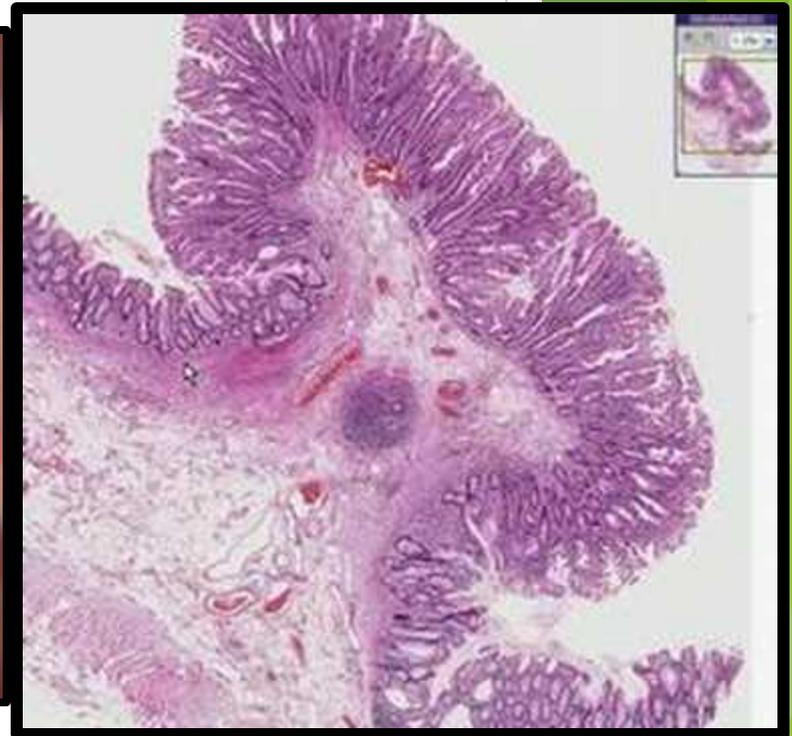
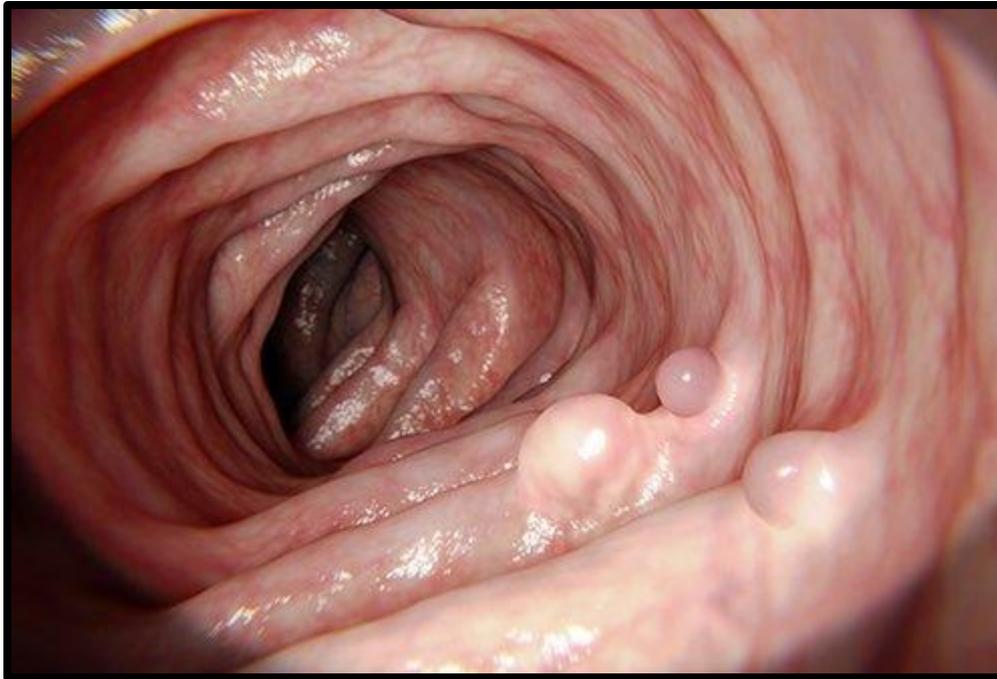
1. Benign Tumors

- ▶ Benign tumors are designated by attaching the suffix -oma to the cell type from which the tumor arises.
- ▶ For example:
- ▶ A benign tumor arising in fibrous tissue is a fibroma.
- ▶ A benign cartilaginous tumor is a chondroma.
- ▶ Adenoma is applied to benign epithelial neoplasms

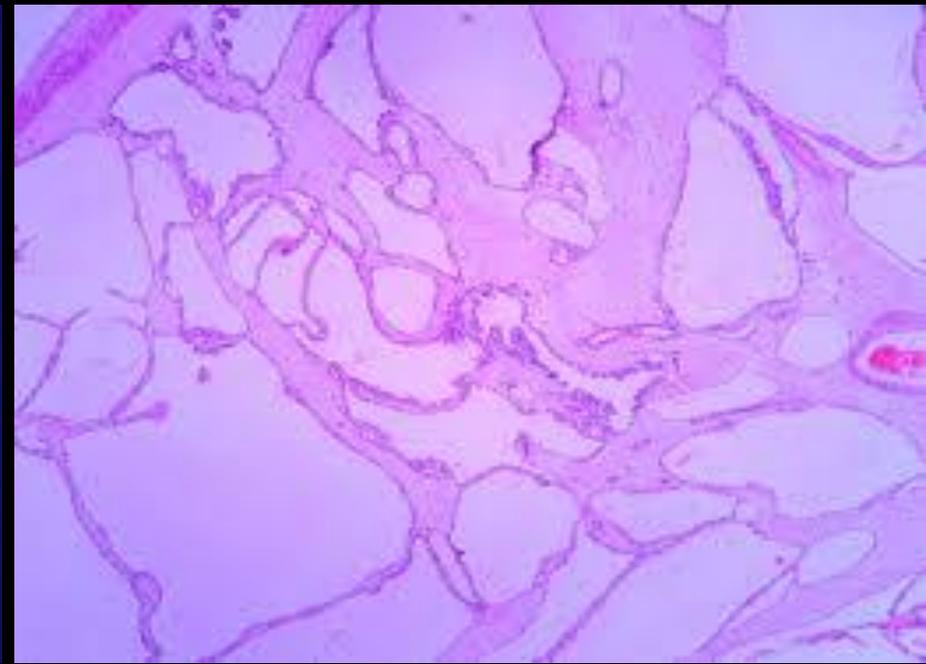
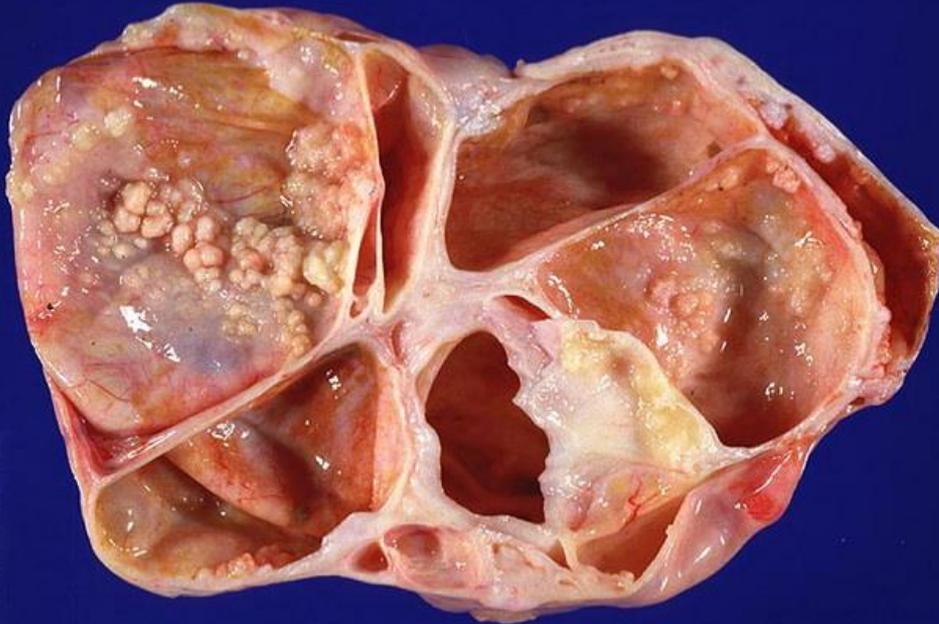
- ▶ Papillomas are benign epithelial neoplasms, growing on any surface with fingerlike fronds.



- ▶ A polyp is a mass that projects above a mucosal surface, as in the gut.



- ▶ Cystadenomas are hollow cystic masses that typically arise in the ovary

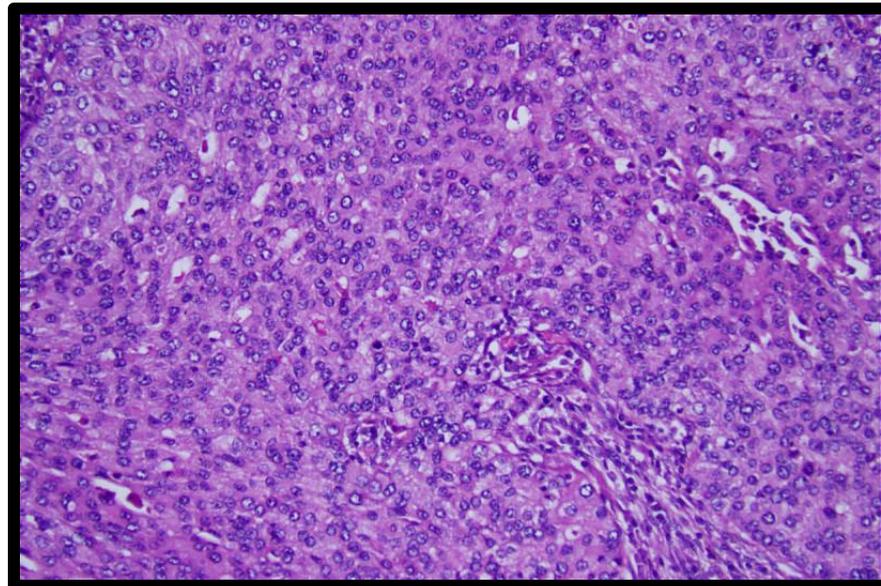
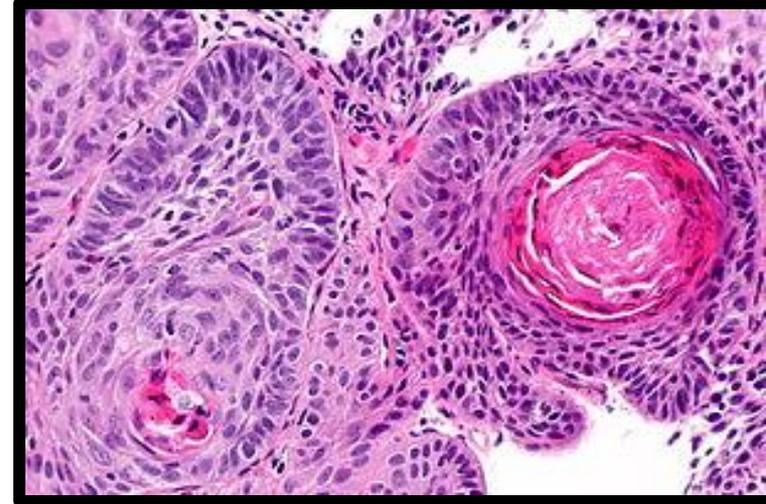
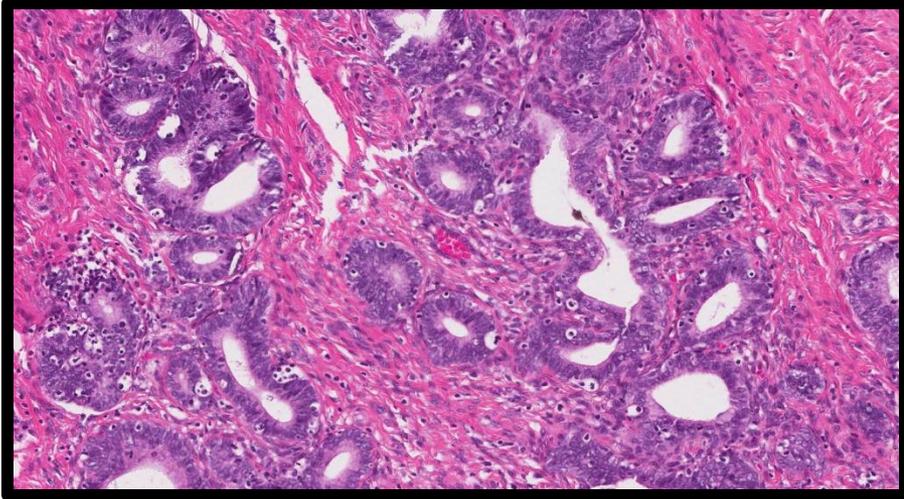


2. Malignant Tumors

- ▶ Malignant neoplasms arising in “solid” mesenchymal tissues are called sarcomas, e.g:
- ▶ Malignant neoplasm comprised of fat-like cells is a liposarcoma,
- ▶ Malignant neoplasm composed of chondrocyte-like cells is a chondrosarcoma.
- ▶ Those arising from cells of the blood are called leukemias or lymphomas.

- ▶ Malignant neoplasms of epithelial cells are called carcinomas:
- Carcinomas are subdivided further:
- That grow in a glandular pattern are called adenocarcinomas.
- That produce squamous cells are called squamous cell carcinomas.
- Some carcinoma show little or no differentiation. Such tumors are referred to as poorly differentiated or undifferentiated carcinoma.

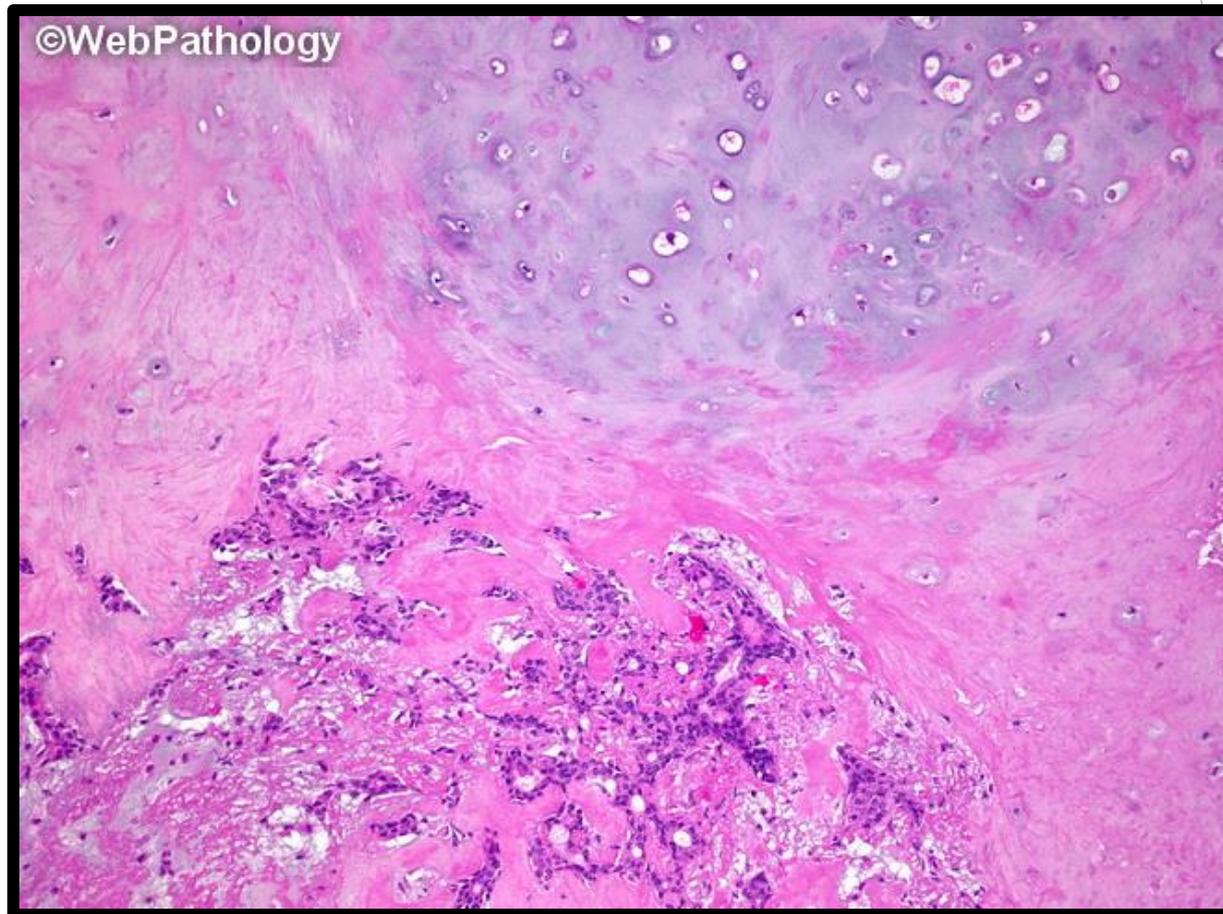
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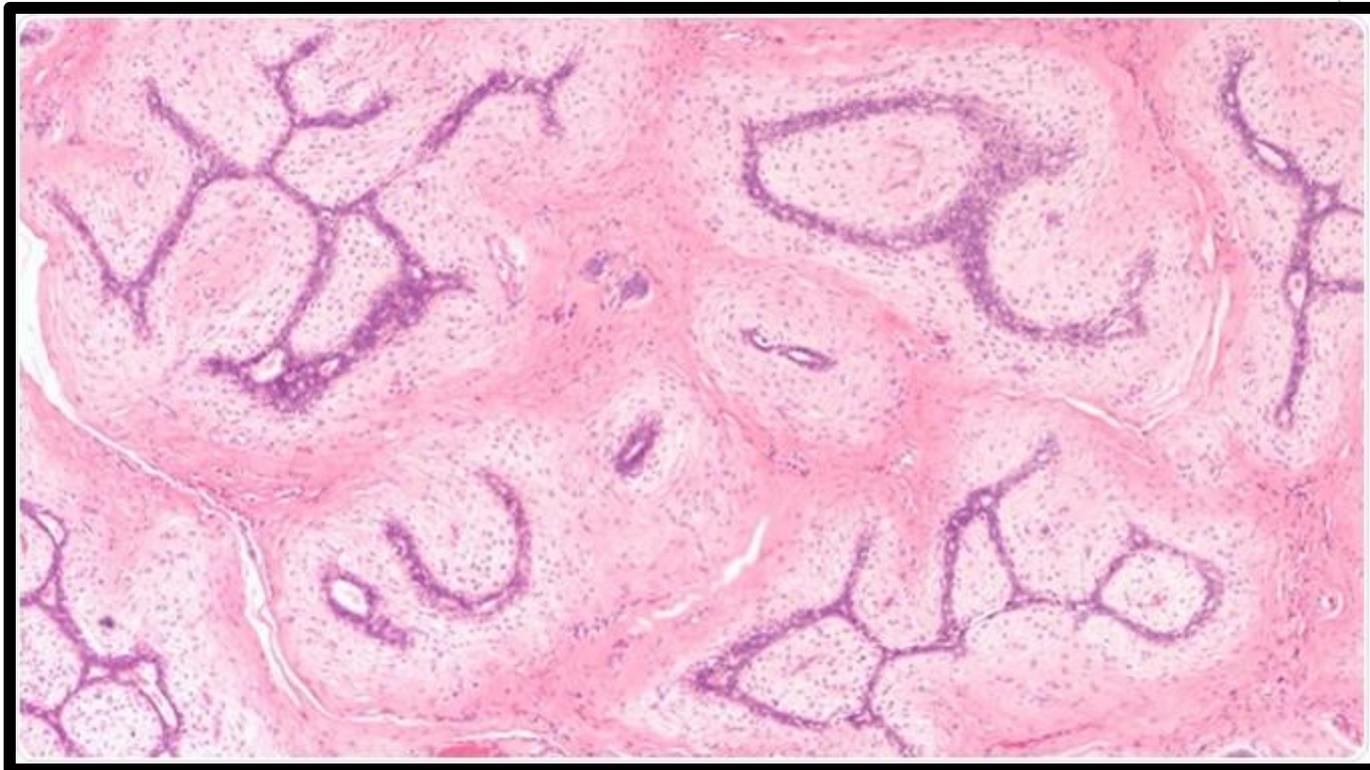
Mixed tumors

- ▶ Tumor undergo divergent differentiation.
- ▶ Such tumors has the capacity to differentiate down more than one lineage.
- ▶ The best example is mixed tumor of salivary gland and the Fibroadenoma of the female breast

- ▶ Mixed tumor of salivary gland= pleomorphic adenoma
- ▶ It contain epithelial components with islands of cartilage or bone.



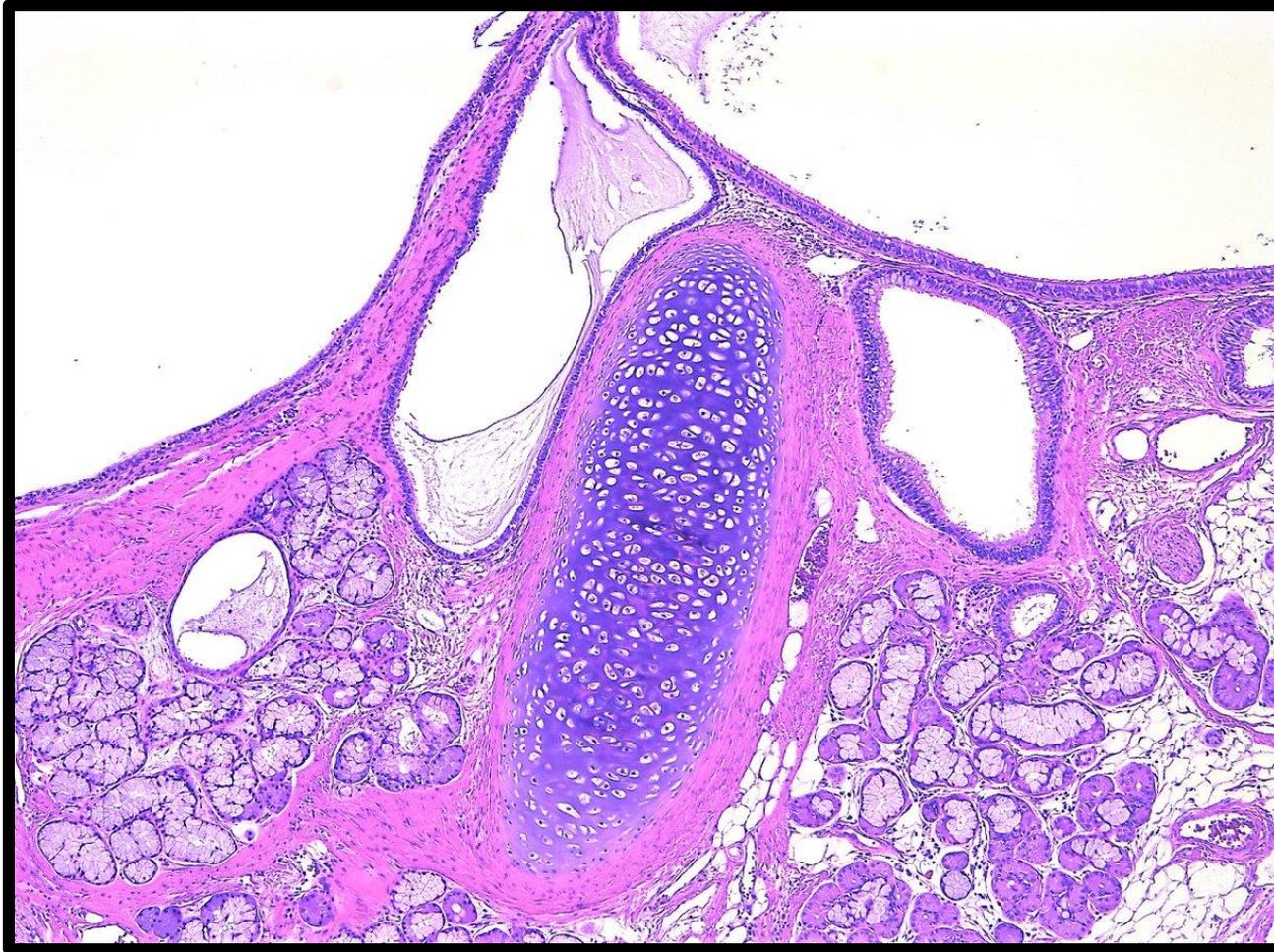
- ▶ Fibroadenoma of the female breast contain:
- proliferating ductal elements (adenoma)
- embedded in loose fibrous tissue.



▶ Teratoma:

- ▶ is a special type of mixed tumor that contains recognizable mature or immature cells or tissues derived from more than one germ cell layer, and sometimes all three.
- ▶ Germ cells have the capacity to differentiate into any of the cell types found in the body.
- ▶ they may give rise to neoplasms that contain elements resembling bone, epithelium, muscle, fat, nerve, and other tissues,





Mixture of mature, benign tissues

confusing terminology

- ▶ Hamartoma:

- is a mass of disorganized tissue indigenous to the particular site, such as the lung or the liver.

- ▶ Choristoma:

- is a congenital anomaly consisting of a heterotopic nest of cells.

