

**Tishk International University
Science Faculty
Medical Analysis Department**



Pathology

Neoplasia-1, Introduction, Nomenclature

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Introduction

- **In 2018:**

It was estimated that there were over 9.5 million deaths caused by cancer worldwide, representing nearly 1 in 6 of all deaths.

- **By the year 2030:**

Cancer cases and cancer-related deaths worldwide are projected to increase to 21.4 million and 13.2 million, respectively.

Terminology:

Neoplasia = new growth

Tumor= neoplasm

Oncology= onco is tumor, logy is study

Cancer= malignant tumors (crab)



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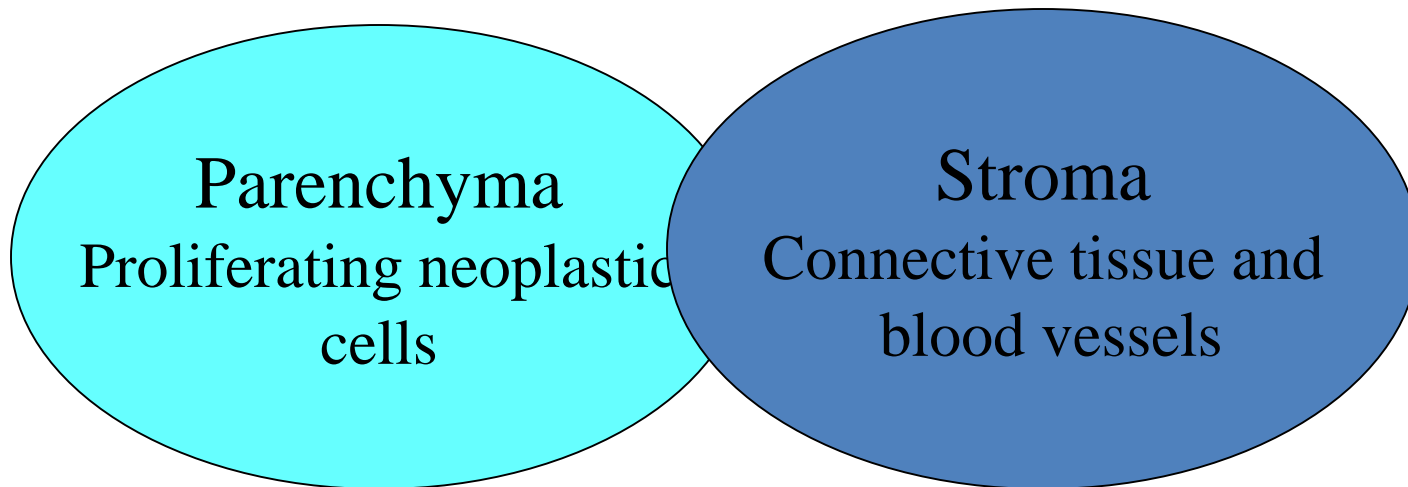
Concerning the war Against Cancer

What Is Neoplasia?

A neoplasm is defined as a genetic disorder of cell growth that is triggered by mutations affecting a single cell and its clonal progeny.

Structure of tumors

All tumors have 2 basic components:





Stroma

Parenchyma

Classification of tumors

Tumors are classified according to their behavior in to:

Benign tumors.

Malignant tumors.

Benign Tumors

A tumor is said to be ***benign*** when:

- Its microscopic and gross characteristics are remain localized,
- It cannot spread to other sites, and
- Is amenable to local surgical removal;
- The patient generally survives.

Malignant tumors

Malignant tumors are collectively referred to as *cancers*.

***Malignant*, as applied to a neoplasm, implies that:**

- **the lesion can invade and destroy adjacent structures**
- **and spread to distant sites (metastasize)**
- **may cause death..**
- **Some cancers are less aggressive and are treated successfully.**

Nomenclature

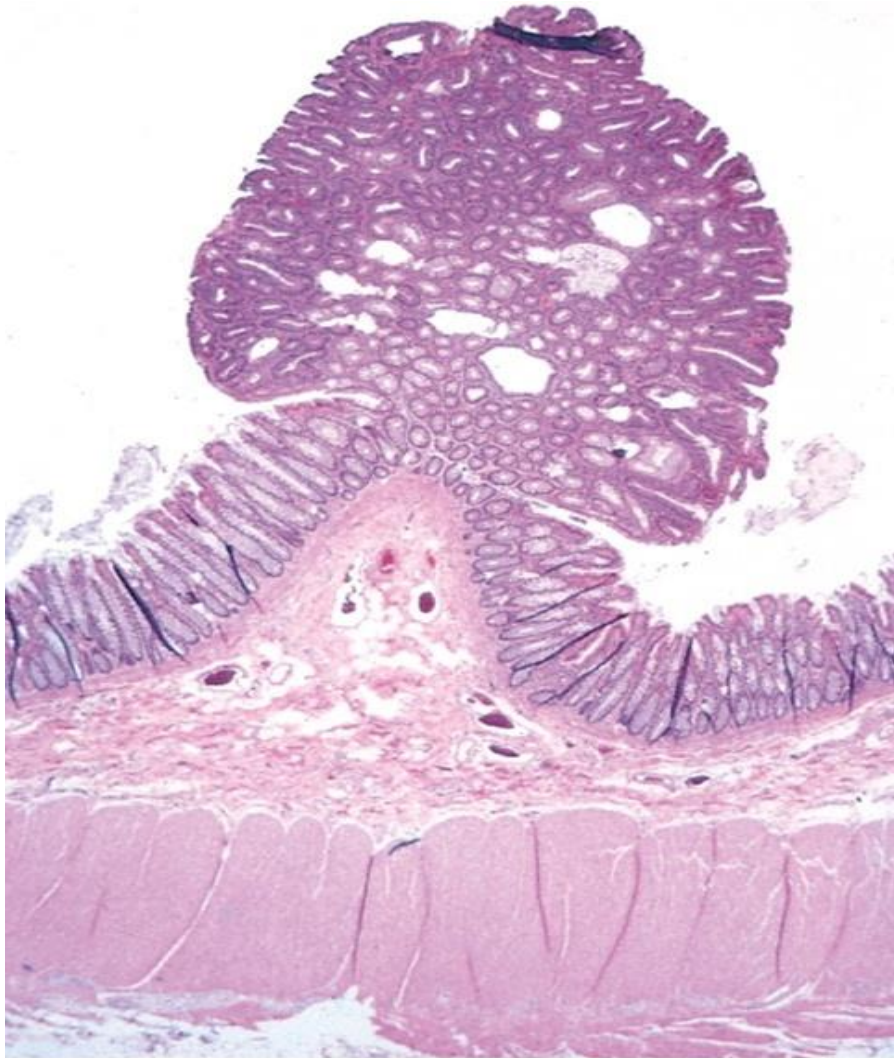
In general, benign tumors are designated by attaching the suffix **-oma** to the cell type from which the tumor arises.

- A benign tumor arising in fibrous tissue is a ***fibroma***;
- A benign cartilaginous tumor is a ***chondroma***.
- A benign adipose tissue tumor is ***lipoma***.
- A benign vascular tumor is ***hemangioma***.

- The nomenclature of benign epithelial tumors is more complex.
- They are classified sometimes on the basis of their **microscopic pattern** and sometimes on the basis of their **macroscopic pattern**.
- Others are classified by their **cells of origin**.

- For instance, the term ***adenoma*** is applied to benign epithelial neoplasms producing gland patterns and to neoplasms derived from glands.
- ***Papillomas*** are benign epithelial neoplasms, growing on any surface, that produce microscopic or macroscopic finger-like fronds.
- ***Cystadenomas*** are hollow cystic masses; typically they are seen in the ovary.

A **polyp** is a mass that projects above a mucosal surface, as in the gut, to form a macroscopically visible structure.



Malignant neoplasms arising in mesenchymal tissue or its derivatives are called sarcomas.

- **A cancer of fibrous tissue origin is a fibrosarcoma, and**
- **A malignant neoplasm composed of chondrocytes is a chondrosarcoma.**
- **Liposarcoma**
- **Angiosarcoma**
- **Leiomyosarcoma**

Malignant neoplasms of epithelial cell origin are called ***carcinomas***.

Carcinomas that grow in a **glandular pattern** are called ***adenocarcinomas***, and

Those that produce **squamous cells** are called ***squamous cell carcinomas***.

The parenchymal cells in a neoplasm, whether benign or malignant, resemble each other, as all had been derived from a **single progenitor cell.
So neoplasms are of **monoclonal origin**.**

Variations in terminology

- **Some inconsistencies may be noted.**
- **For example, the terms**
- ***lymphoma,***
- ***mesothelioma,***
- ***melanoma, and***
- ***seminoma***
- **Are used for malignant neoplasms.**
- **These inappropriate usages are firmly established in medical terminology.**

Tissue of Origin	Benign	Malignant
One Parenchymal Cell Type		
Connective tissue and derivatives	Fibroma Lipoma Chondroma Osteoma	Fibrosarcoma Liposarcoma Chondrosarcoma Osteogenic sarcoma
Endothelium and related cell types		
Blood vessels	Hemangioma	Angiosarcoma
Lymph vessels	Lymphangioma	Lymphangiosarcoma
Mesothelium		Mesothelioma
Brain coverings	Meningioma	Invasive meningioma
Blood cells and related cell types		
Hematopoietic cells		Leukemias
Lymphoid tissue		Lymphomas
Muscle		
Smooth	Leiomyoma	Leiomyosarcoma
Striated	Rhabdomyoma	Rhabdomyosarcoma

Skin		
Stratified squamous	Squamous cell papilloma	Squamous cell or epidermoid carcinoma
Basal cells of skin or adnexa		Basal cell carcinoma
Tumors of melanocytes	Nevus	Malignant melanoma
Epithelial lining of glands or ducts	Adenoma Papilloma Cystadenoma	Adenocarcinoma Papillary carcinomas Cystadenocarcinoma
Lung	Bronchial adenoma	Bronchogenic carcinoma
Kidney	Renal tubular adenoma	Renal cell carcinoma
Liver	Liver cell adenoma	Hepatocellular carcinoma
Bladder	Urothelial papilloma	Urothelial carcinoma
Placenta	Hydatidiform mole	Choriocarcinoma
Testicle		Seminoma Embryonal carcinoma

Teachers should have the same attitude as parents.

**They must think that their students should not
struggle like they were with studies !!**

Dr. Shiva M.D.