

## First year Medicine-Foundation Block

Pathology Team

November 2012

**Please note: This papers are not a replacement of the main sources**

Upon completion of these lectures, the student should:

- Define a neoplasm. Contrast neoplastic growth with hyperplasia, metaplasia, and dysplasia.
- Know the basic principles of the nomenclature of benign and malignant processes.
- Define and use in the proper context:
  - Adenoma.
  - Papilloma.
  - Polyp.
  - Cystadenoma.
  - Carcinoma.
  - Adenocarcinoma.
  - Sarcoma.
  - Teratoma.
  - Blastoma.
  - Hamartoma.

## Cancer is MALIGNANT TUMOR or MALIGNANT NEOPLASIA

تعريفه: عبارته عن ماس غير طبيعيه تكون بالتشيو وطبعاً سببه انو بيكون فيه نمو غير Neoplasia: new growth مرتب لهذي الخلايا حتى لو توقف السبب اللي حفز هالخلايا انها تتغير وراح نخسر الكونترول لهذا النمو وهو مختلف عن الـhyperplasia, metaplasia and dysplasia

Chemotherapy and radiation are ways for controlling cancer

Pancreatic and lungs and gastric cancers are having no ways to stop them

Hyperplasia, metaplasia and dysplasia are REVERSIBLE

Dysplasia is Pre-Malignant and has the neoplastic feature BUT localized and cannot invade and destroy the tissues

dysplasia اذا شخص مدخن وتوقف عن التدخين فسيتخلص الجسم من الـ

Growth of abnormal cells "tumor" is not controlled by any growth factor or hormone

نمو الرحم اثناء الحمل يتم تنظيمه عن طريق هرمونات خاصة أما الأورام فهي لاتحتاج أي عامل نمو لأنها تحتوي على مكوناتها الخاصة التي تساعد على التكاثر فالجسم له قابلية على ايقاف النمو غير المرغوب لكنه غير قادر على ايقاف نمو الاورام

Most of brain tumor are arising from supporting cells e.g. astrocytes

## Neoplasia :

- Benign
- malignant

## \$\$ Benign: حميد مثل الكيس الدهني

Localized in capsule

Cannot spread

If it completely removed, the patient will survive "ان شاء الله"

Usually Not harmful except if it locates at sensitive area that cause pressure e.g. Pituitary Gland

Some tumors have irregular capsule so when it removed some small parts might not be seen and stay to produce tumor again

## \$\$ Malignant neoplasms:

- Can invade and destroy adjacent structure
- Can spread to distant sites
- Cause death (if not treated )

## Component of tumor:

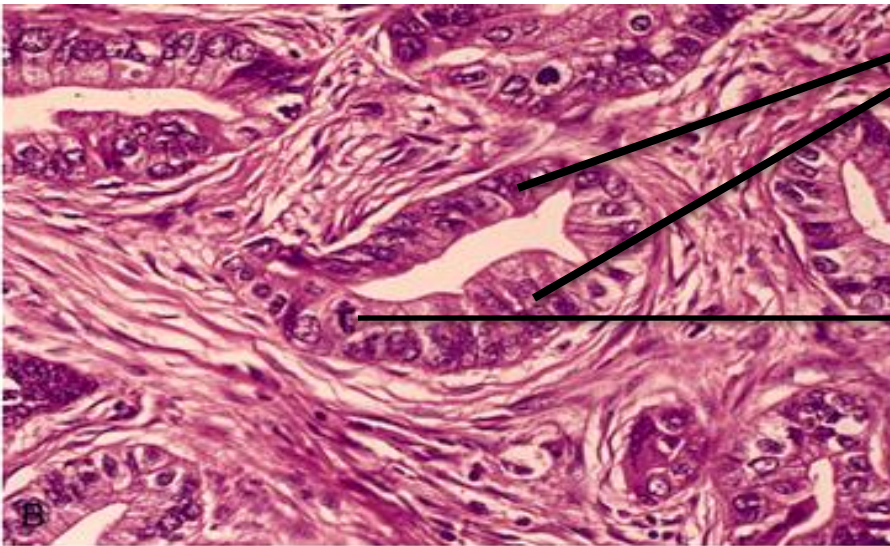
The parenchyma, Malignant cells:  
Determines the biological  
behavior of the tumor  
From which the tumor derives  
its name . وهي اللي تحدد لو كان  
خبِيث او حميد  
”الخلايا السرطانية النامية

The stroma:  
Carries the  
blood supply  
Provides  
support for the  
growth of the  
parenchyma

## Features to differentiate between normal cells and tumor:

\*Variation of the shape and color and size between the cells

\*Abnormal mitosis



Variation in size

Abnormal mitosis

نلاحظ ان الكروموسومات  
غير منتظمة ع خط بل  
تكون 3 اجزاء

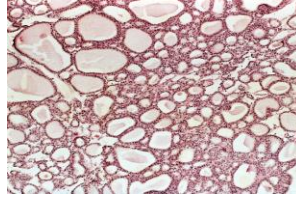
## \$\$ Benign tumors:

Type of cell + (-oma) e.g. fibrous tissue:

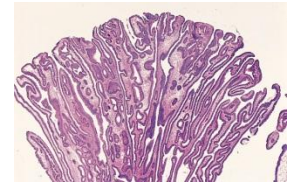
Fibro + oma = Fibroma

### Epithelial benign tumors are : حسب شكلها تحت المجهر

- 1) **Adenoma:** benign EPITHELIAL neoplasm producing gland pattern e.g. Villous **Adenoma** in colon مثل الغدد أو مشتقة منها



- 2) **Papilloma:** benign EPITHELIAL neoplasm growing on any surface that produce microscopic or macroscopic finger-like pattern

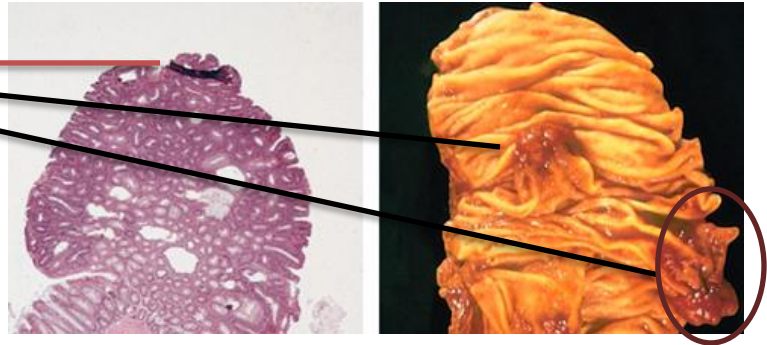


Wart ثالول

Is a benign tumor of squamous cell papilloma

- 3) **Polyp:** فتوء projection of mass above a mucosal surface and might be a malignant or benign

Projections above surface



colonic polyp, nasal polyp

بعد الفحص يتم تحديد اذا ما كان:

adenoma "benign" or carcinoma "malignant"

**Papilloma and Polyp** are both of them are on the surface BUT **Papilloma:**

Produce microscopic or macroscopic finger-like pattern

## \$\$ Malignant tumors:

### Malignant tumor arising in mesenchymal tissue : SARCOMA

- From fibrous tissue: Fibrosarcoma
- From bone : Osteosarcoma
- From cartilage : chondrosarcoma

<i>Type of tumor\ Arise from</i>	<i>connective tissue</i>	<i>epithelial</i>
<i>Benign tumor</i>	<i>-oma</i>	<i>depend on shape: adenoma, papilloma</i>
<i>Malignance tumor</i>	<i>- Sarcoma</i>	<i>-carcinoma</i>

### Other descriptive terms may be added such as:

Papillary Cystadenocarcinoma of the Ovary “has a finger-like shape, lined by glands, forming cyst and malignance” عرفنا من الاسم الموقع ونوعه وشكله

### Exceptions

- Melanoma ( skin ) >> Malignance | nevus حبة الخال أو الوحمة >> Benign
- Mesothelioma (mesothelium ) >> Malignance
- Seminoma ( testis ) >> Malignance
- Lymphoma ( lymphoid tissue ) >> Malignance

See table 6 – 1 page 168 (Robin’s)

## Some tumors are arising from more than one cell type and some cells have the ability to differentiate to more than one component :

- **More than one neoplastic cell type** : fibro adenoma >> mixture of “ADENOMA” means benign tumor in the glands and “FIBRO” fibroma.

Fibroadenoma is a benign tumor in the breast common in ladies between 15-25 years and localized within a capsule.

- More than one neoplastic cell type derived **from more than one germ-cell layer** “sperm and ova”: teratoma >> **cells will form embryo so these cells have the power to differentiate into ectoderm, mesoderm and endoderm.**

Mass in testis or ovary when we cut we see ectodermal structure e.g. skin and hair Also different tissues are seen. All these cells and tissues are forming the tumor in haphazard way.

**Teratoma contains recognizable mature “benign” or immature “malignant which called teratocarcinoma” cells**

- Derived from **embryonic tissue**: blastoma (could be benign e.g. osteoblastoma, or

Malignant e.g. neuroblastoma) **blastoma could be at any organ** because it arises from the stem cells

(Chondroblastoma and osteoblastoma) are benign and (neuroblastoma, pancreaticblastoma and hepatoblastoma) usually below 3 years old.

## WHAT ARE HAMARTOMAS AND CHORISTOMA?

**NOT TUMORES! THESE ARE MALFORMATION** اثناء تكون الجنين حصل تشوه

**Hamartoma:** a mass composed of cells native to the organ e.g. pulmonary hamartoma.

نفس الخلايا الاصلية لكن بطريقة عشوائية ولكن تتم ازلتها لانها قد تعمل خلل في الوظائف الاساسية .

**Choristoma:** a mass composed of normal cells in a wrong location

e.g. pancreatic choristoma in liver or stomach.

**They are distinguished from neoplasms by the fact that they do not exhibit continued growth. they are group of tumor-like tissue masses which may be confused with neoplasms**

<u>Hodgkin's disease</u>	<u>Malignant lymphoma (HL) of B Ly cell origin</u>
<u>Burkitt tumor</u>	<u>NHL – B Ly cell in children (jaw and GIT)</u>
<u>Ewing tumor</u>	<u>Bone tumor (PNET)</u>
<u>Grawitz tumor</u>	<u>Kidney tumor - clear cell adenocarcinoma</u>
<u>Kaposi sarcoma</u>	<u>Malignant tumor derived from vascular epithelium (AIDS)</u>
<u>Brenner tumor</u>	<u>Ovarian tumor derived from Brenner cells</u>
<u>Askin tumor</u>	<u>Malignant chest wall tumor of PNET</u>
<u>Merkel tumor</u>	<u>Skin tumor derived from Merkel cell</u>

اللي مطالبين نحفظه من هالجدول هو

Some tumors are named according to the person who discovered them AND majority of them are malignant.