



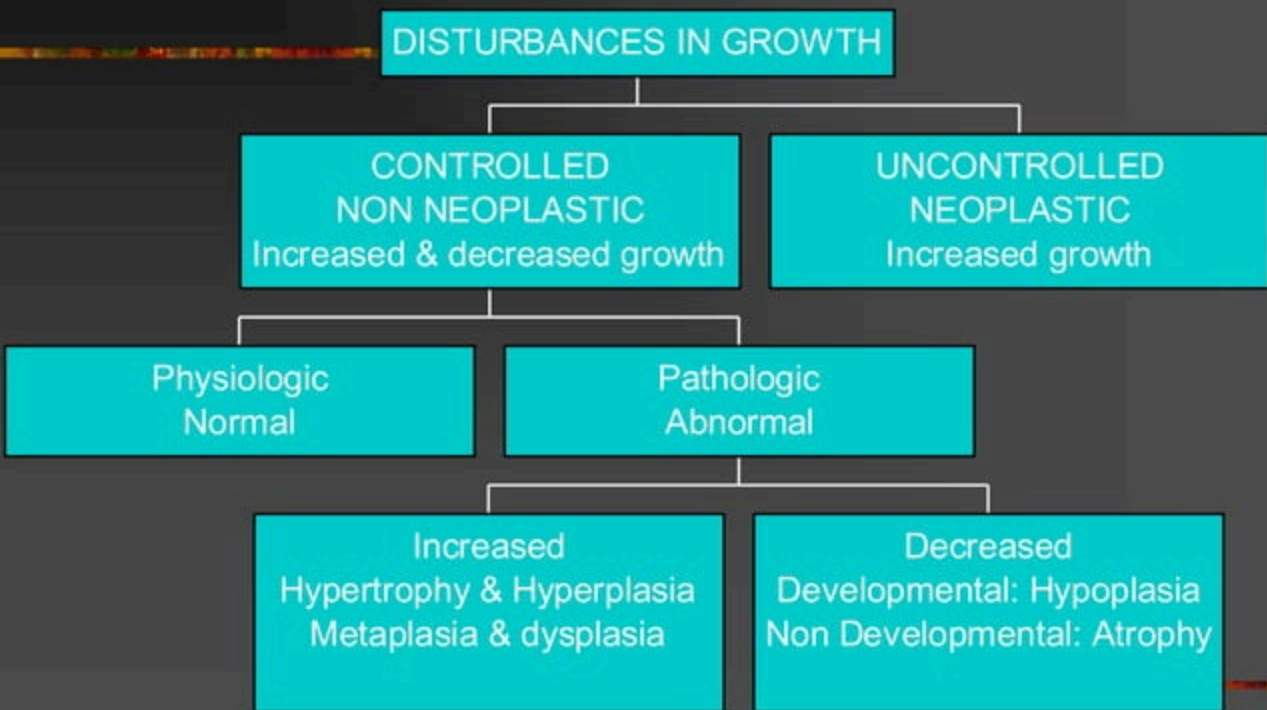
DISTURBANCES IN GROWTH & TUMOURS: NEOPLASIA L3

By
Prof. Soheir Mahfouz

NEOPLASMS

- Etiology : Co- carcinogens & carcinogens Lecture 2
- General characters of Benign & malignant neoplasms(APPEARANCE) & classification of tumours Lecture 3 pages 157-160
- General characters Behaviour of B & M tumours:– complications & methods of tumour spread Lecture 4
- Epithelial neoplasms: B& M Lecture 5
- Mesenchymal neoplasms: B& M Lecture 6
- Other neoplasms: B& M Lecture 7
- Types of Malignant tumours their diagnosis, prognosis & treatment Lecture 8

LECTURE 1 OUTLINE: DISTURBANCES IN GROWTH



NON NEOPLASTIC Increased growth (controlled)

- **Hypertrophy:** Increase size of cells
- **Hyperplasia:** Increase number of cells
- **Metaplasia:** change from one mature cell type to another mature more resistant cell type of the same origin
- **Dysplasia:** Disordered proliferation & maturation (it is a preneoplastic change)

All are characterized by:

- 1-Known stimulus (CELL INJURY)
- 2-Reversible nature: return to normal after removal of stimulus
- 3-Intact basement membrane
- 4-Still under body control



L3
General
characters of
tumours
(Appearance/
structure)

What do they
look like?

GENERAL CHARACTERS OF NEOPLASMS-Definition

NEOPLASM

A new growth due to the pathologic proliferation of any cell type (epithelial – mesenchymal, embryonic or neuro-ectodermal) which is characterized by being:

purposeless-for no reason

progressive

Irreversible & unlimited-cannot be stopped

uncontrolled-not affected by growth inhibitory factors

Neoplasia

Definition

- Pathologic new proliferation of any cell type (epithelial-mesenchymal & other) characterized by being:

- Irreversible
- Uncontrolled
- Progressive
- Purposeless

- Molecular disorder of growth regulation genes as tumour promoting genes (protoncogenes) & tumour suppressor (anti-oncogenes), resulting in a multistep proliferation & differentiation sequence



GENERAL CHARACTERS OF NEOPLASMS

HYPERPLASIA

- Has useful function
- Controlled
- Known stimulus
- Reversible & limited
- Normal shape & cell pattern (**identical**)
- **NO CAPSULE**

NEOPLASIA

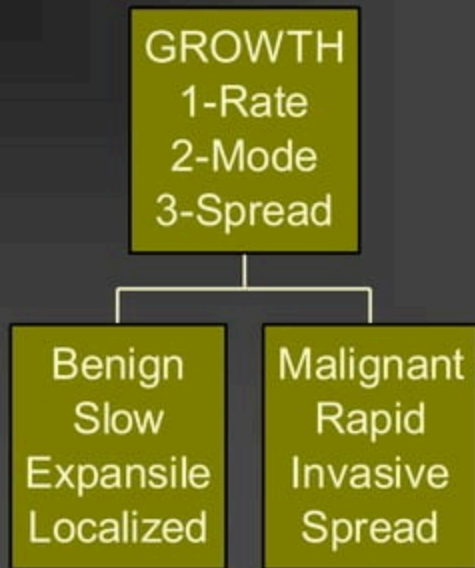
- Purposeless
- Uncontrolled
- Mostly spontaneous
- Irreversible & unlimited
- Forms a mass +/- Abnormal shape & cell pattern (**similar**)
- **CAPSULATED BENIGN**
T. Non capsulated
invasive malignant

GENERAL CHARACTERS OF NEOPLASMS

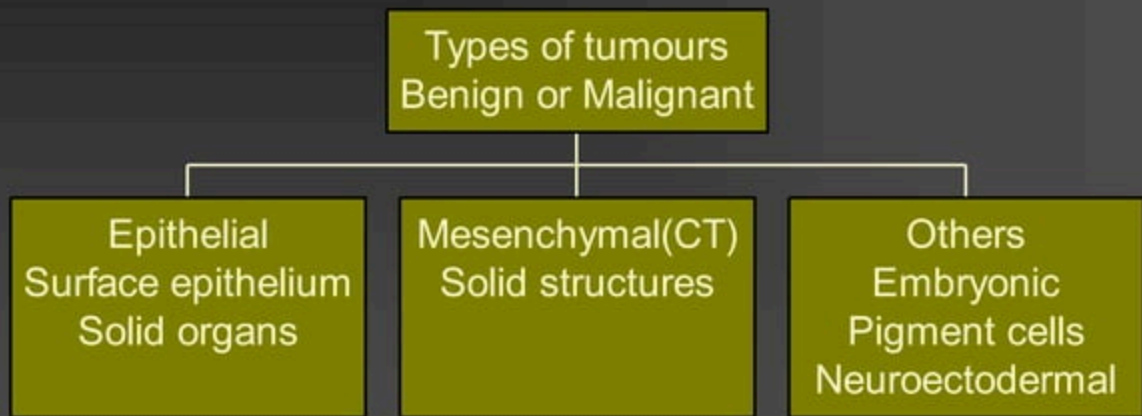
- Forms a **mass** with no specific function (**purposeless**)
- It is **uncontrolled & unlimited** in growth-not affected by growth inhibitory factors
- May arise from **any** cell/ tissue
- Tumour cells have a supporting **stroma** of FT and blood vessels derived from **host**
- **Proliferation** is the main activity but some tumours are functioning e.g. endocrine tumours
- Tumours are classified into **benign and malignant**

GENERAL CHARACTERS OF NEOPLASMS

The **structure & behaviour** of any neoplasm depends on:



GENERAL CHARACTERS OF NEOPLASMS



GENERAL CHARACTERS OF NEOPLASMS-

Gross appearance(surgical/museum specimen)

BENIGN

- **Shape:** well defined round/oval
 - **Surface:** smooth **capsulated**
 - **Size:**
 - **Cut sect :** homogenous
 - **Colour:** like origin **1** colour
 - **Consistency:** like origin
- Lumpectomy



GENERAL CHARACTERS OF NEOPLASMS-

Gross appearance(surgical/museum specimen)



MALIGNANT

- **Shape:** Irregular **ill defined** invasive border
- **Surface:** **Non** capsulated rough
- **Size:**
- **Cut sect:** mottled
- **Colour:** **red-yellow** –white (hemorrhage+necrosis) & original colour
- **Consistency:** **firm-hard** (more cells, FT, dystrophic calcific

Radical Surgery +....

GROSS Solid-OMA

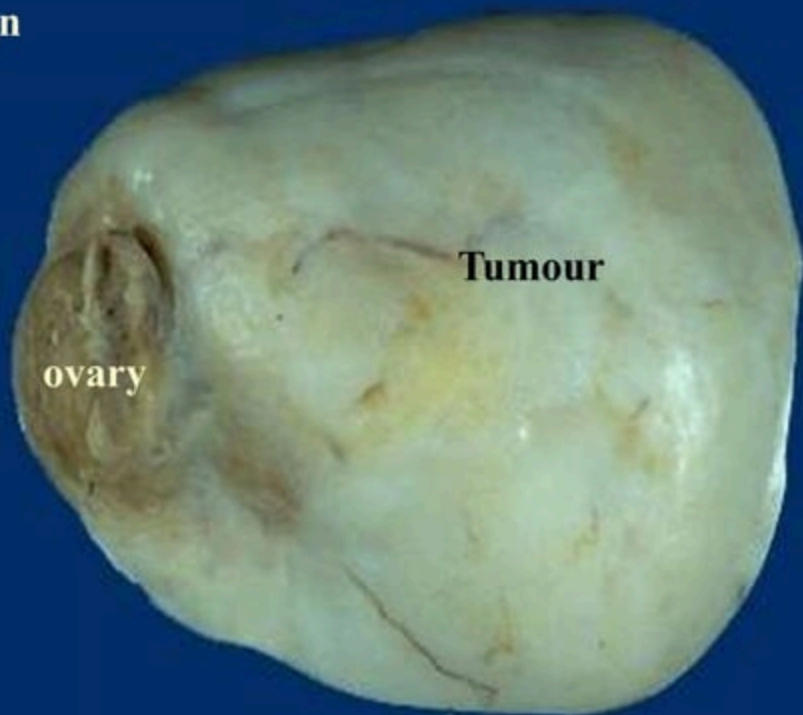
BENIGN



MALIGNANT



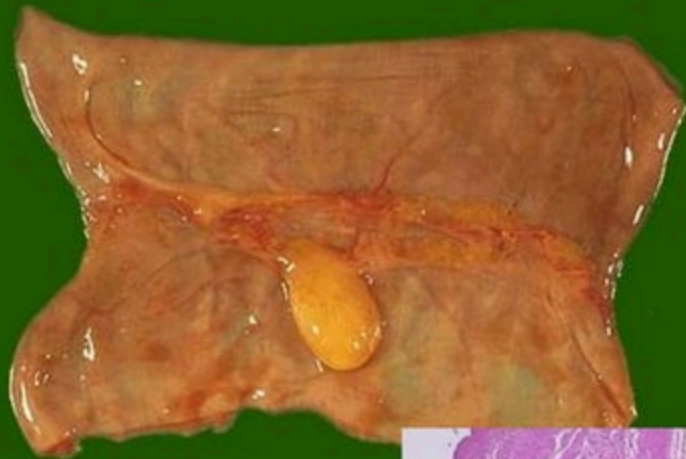
Benign



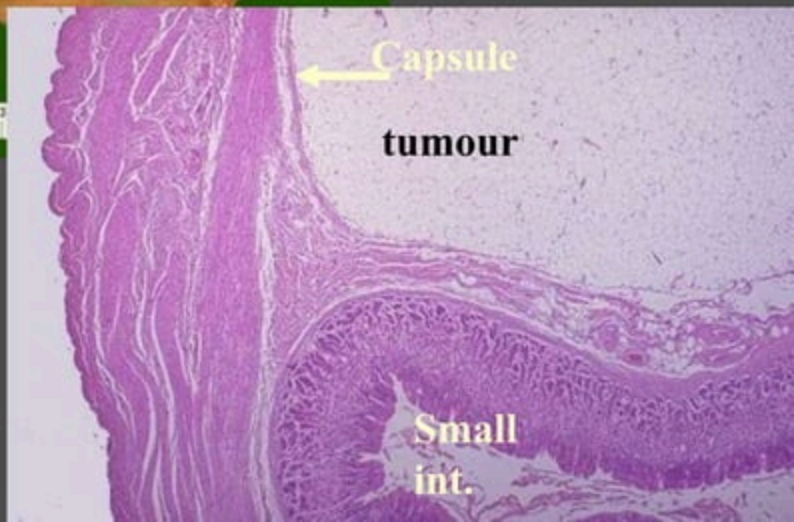
ovary

Tumour





Benign

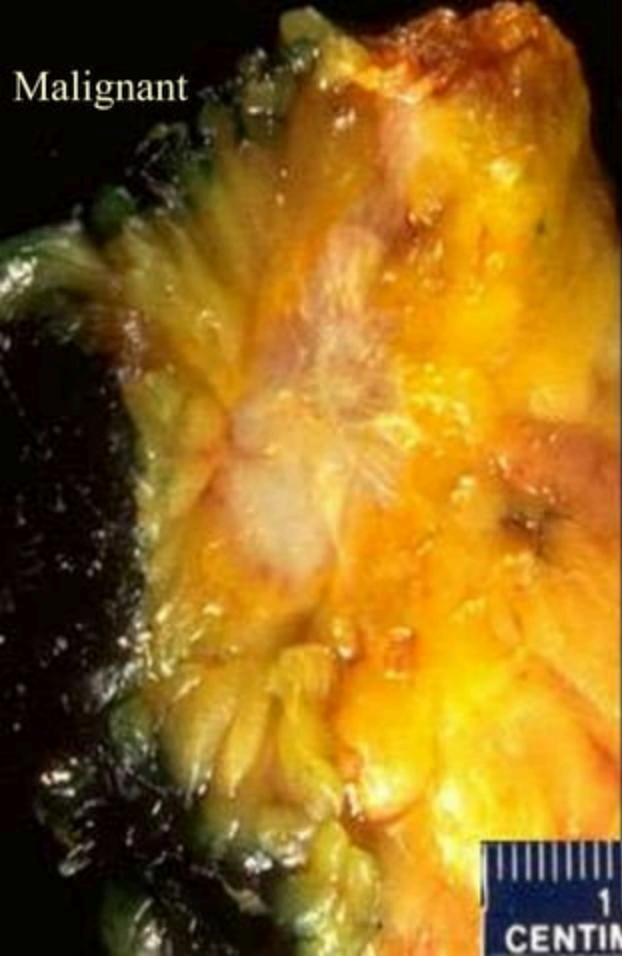


Capsule

tumour

Small
int.

Malignant



Benign





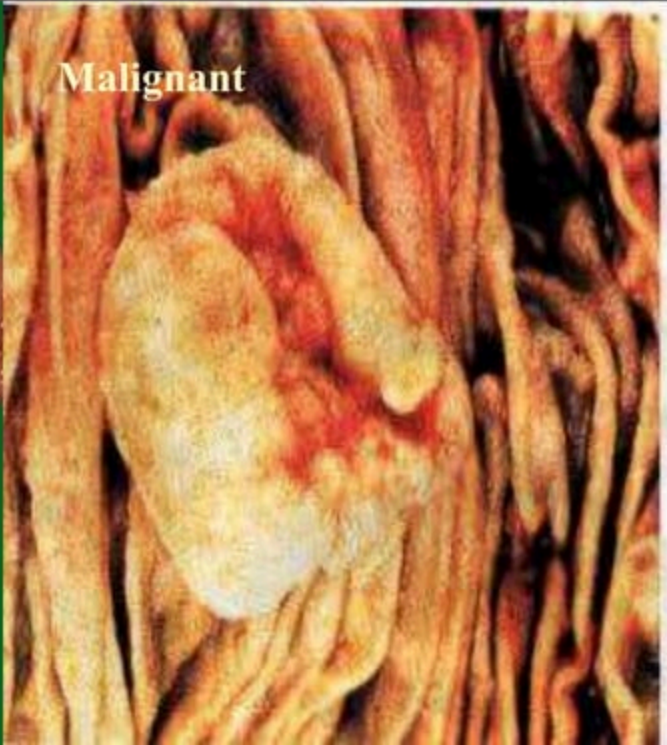
Surfaces & linings of hollow organs

Papilloma-Polypoid fungating carcinoma

Benign



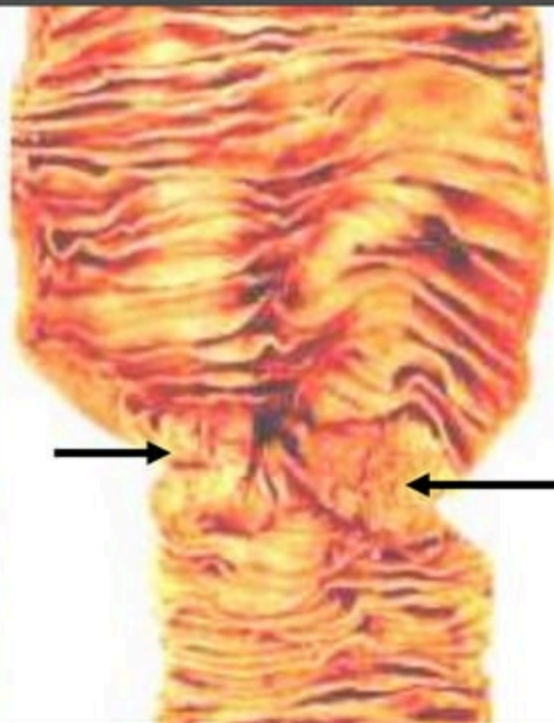
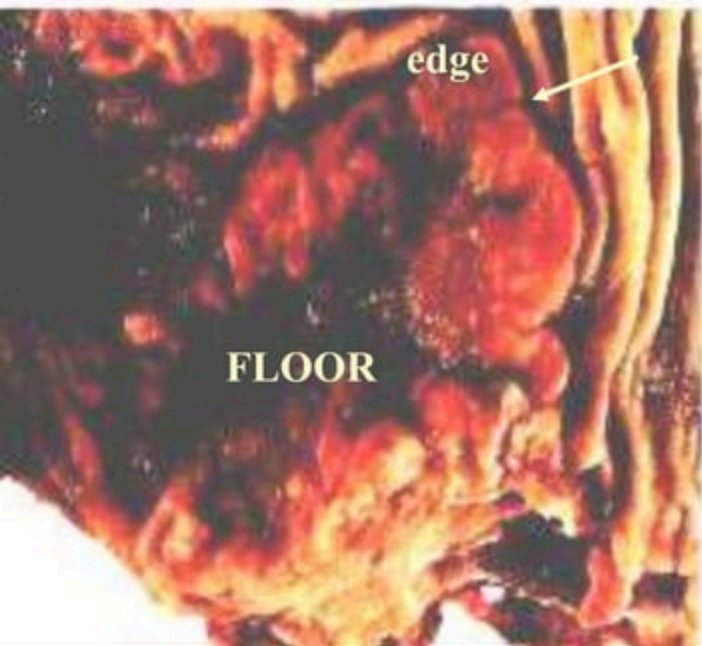
Malignant



Surfaces & linings of hollow organs

Malignant: Ulcerative

-infiltrative / stricture





Brain Cud

WEEKDAYS BY MATT JORDAN

Talk racing at
ShortTrackTalk.com



"Well, I'll have to run some tests to be sure,
but it looks like this mole could be malignant."

Microscopic appearance

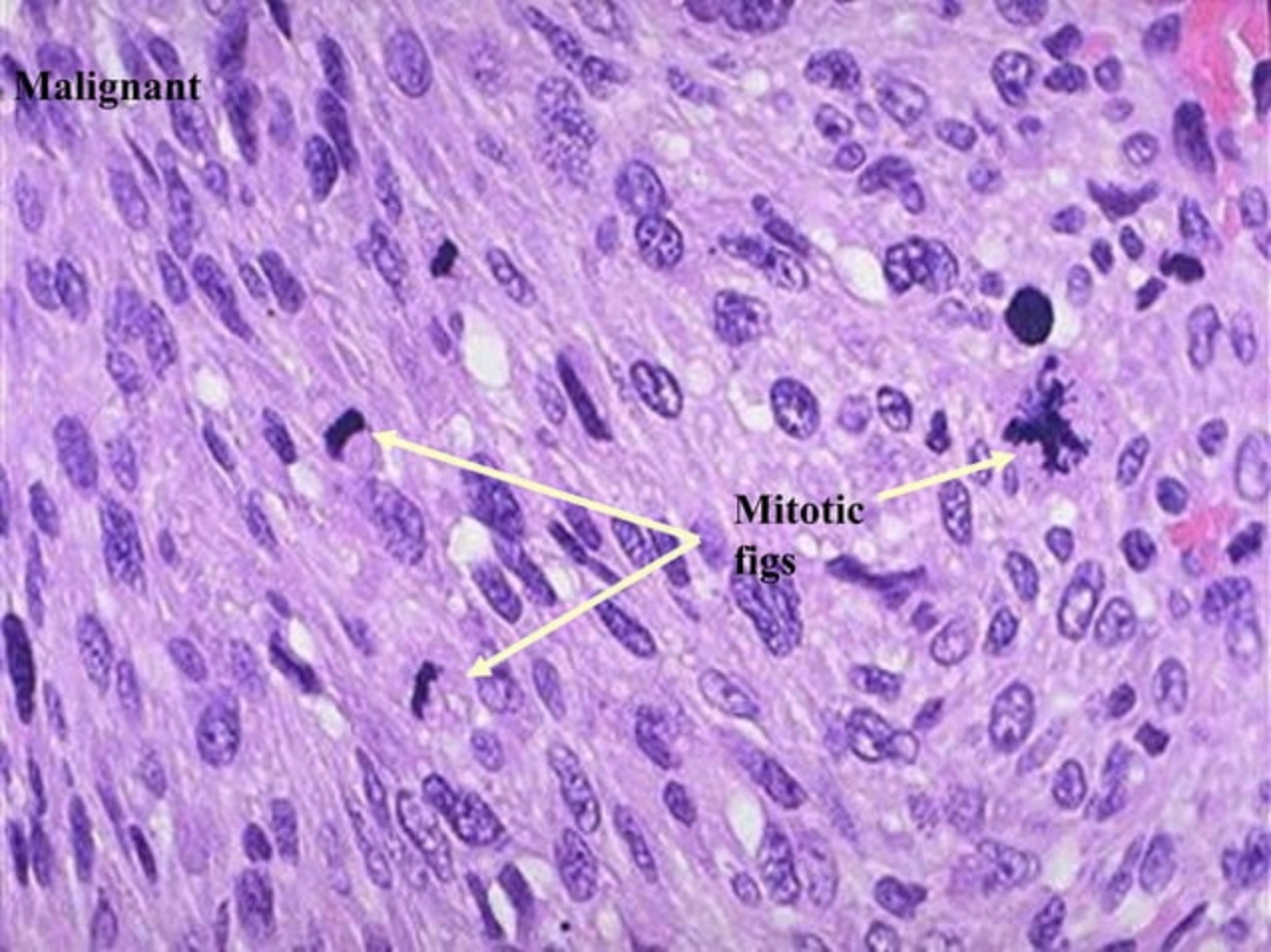


GENERAL CHARACTERS OF NEOPLASMS-

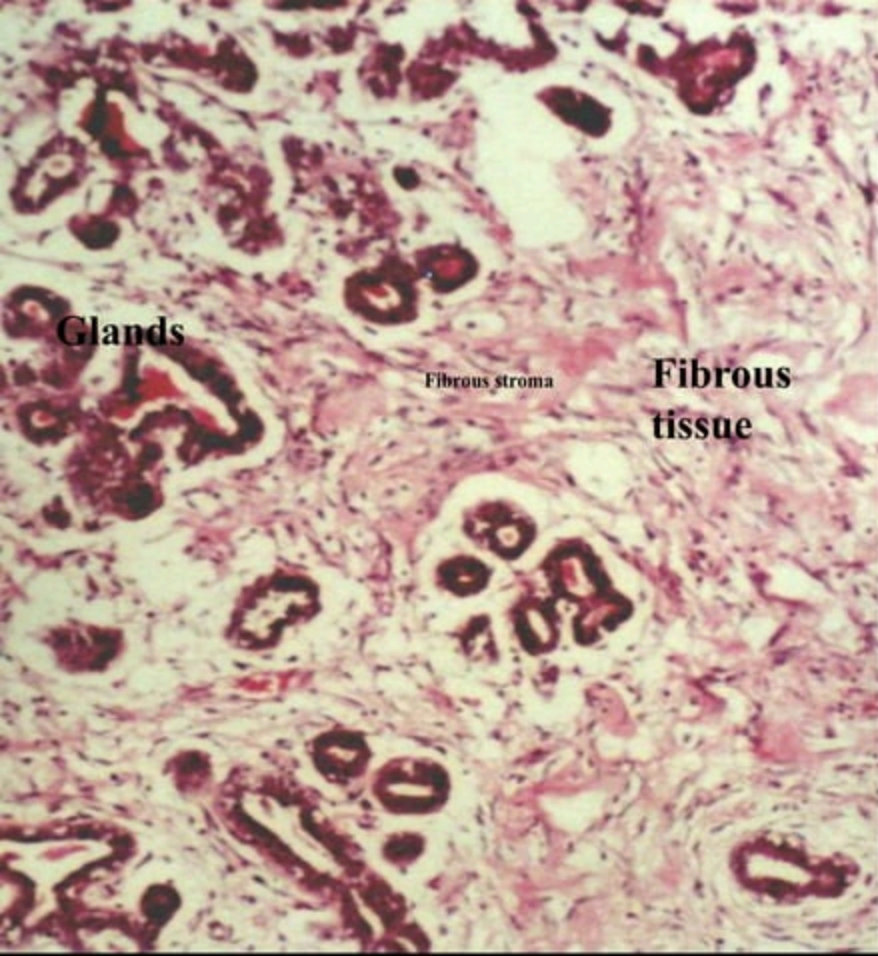
Microscopic Appearance

CELLS	BENIGN	MALIGNANT Criteria of Malignancy/ anaplasia
Size & shape	Like original	Pleomorphism
Number	Cellular but no crowding	Hypercellularity
Nucleus Colour & shape N/C ratio MF Nucleoli	Round -oval Normochromic 1/5 -no abnormal MF -----	Pleomorphic Hyperchromatic 1/1 High N/C ratio Many & abnormal Prominent
	Localized & surrounded by FT capsule	Invasive: cells all over

Malignant



**Mitotic
figs**



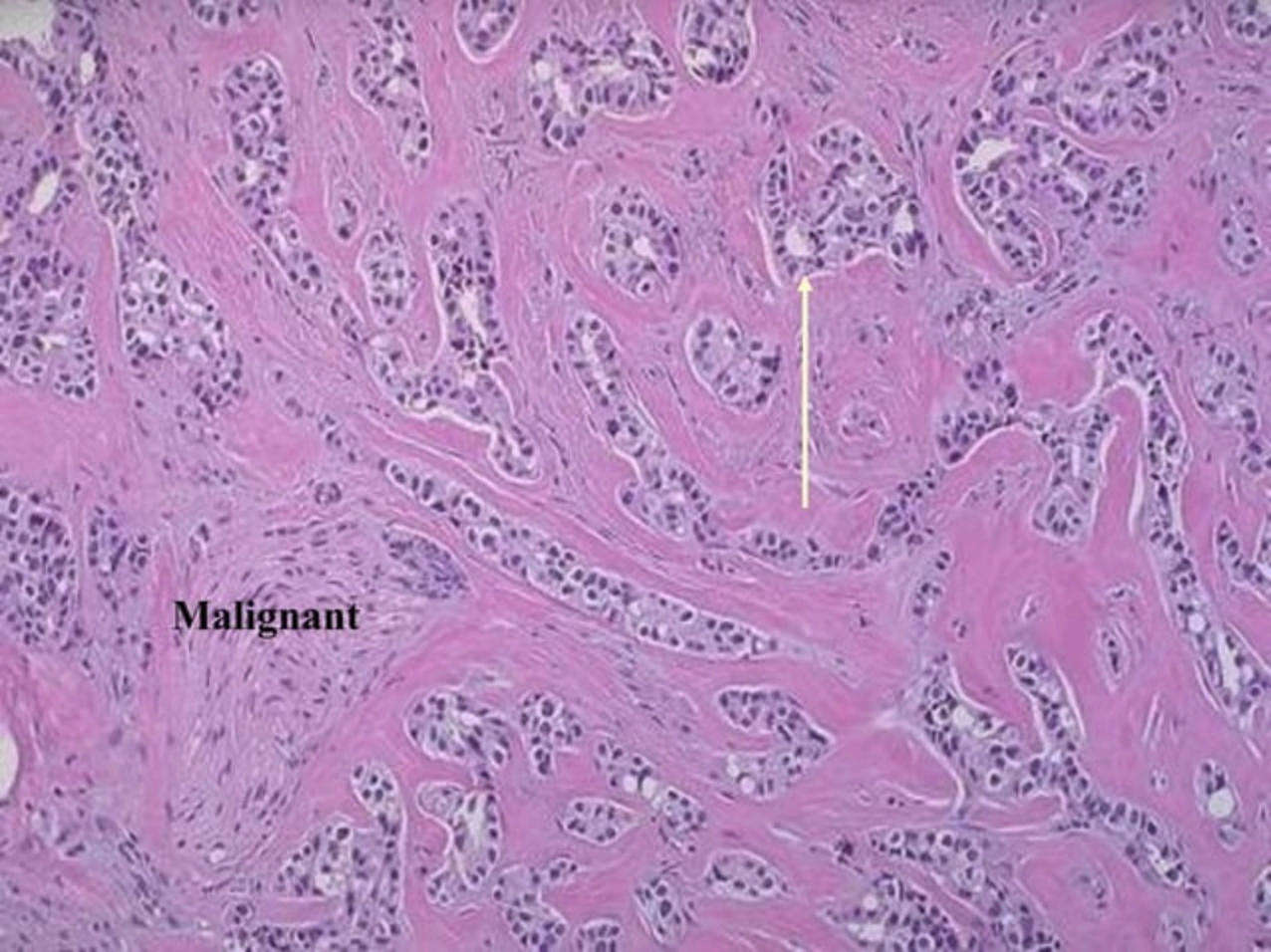
Glands

Fibrous stroma

**Fibrous
tissue**

Benign breast T

Fibroadenoma



Malignant

REMEMBER THIS

Benign Tumors are like organs:

- All have **parenchyma** and **stroma**.
- Cells **usually look similar** to cells in the organ where the tumor arose.
- Cells will continue to **perform some of the functions of the parent organ**.

Malignant Tumors are different from organs:

- They **don't contribute** to the homeostasis of the **body**.
- They usually **grow more rapidly** than surrounding tissues.
- **Some benign and all malignant tumors never cease to grow.**

TERMINOLOGY

TUMOUR MASS = OMA

Benign

Epith=

Surface: tissue + papilloma

Solid Mass- adenoma

Mesench=Tissue + oma

Benign tumour of FT?

Tissue+oma

FIBR**oma**

Malignant

Epith=tissue +CARCIN**oma**

Mesenchymal= tissue SARC**oma**

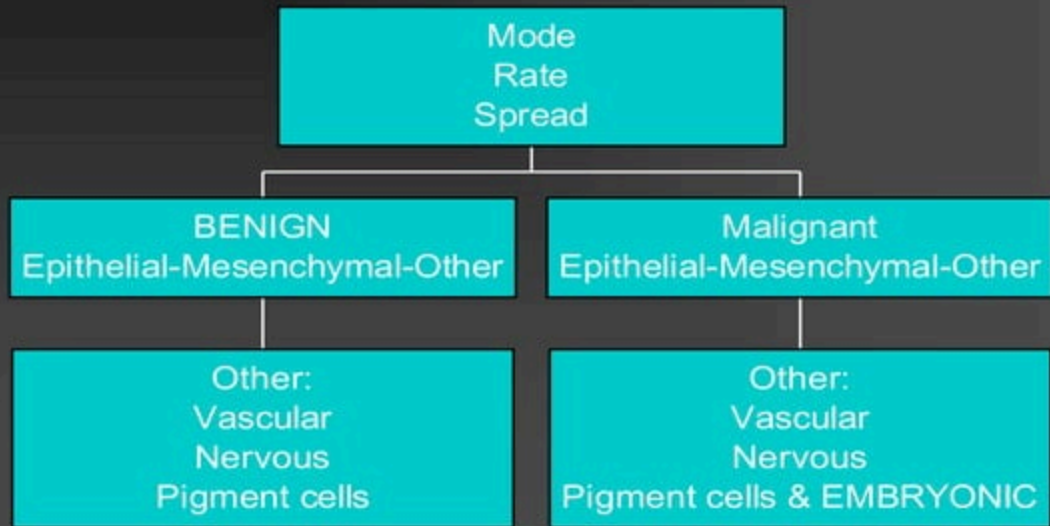
Embryonic= tissue+EMBRY**oma**

Malignant tumour of FT?

Tissue+Mesenchymal+oma

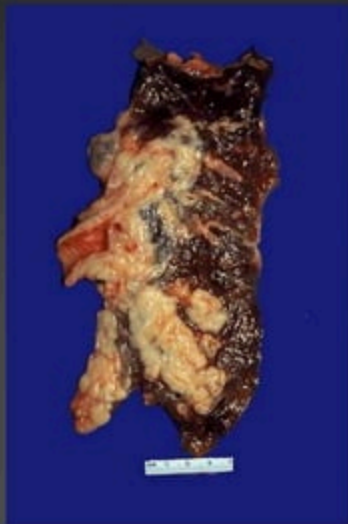
FIBRO**sarcoma**

NEOPLASIA

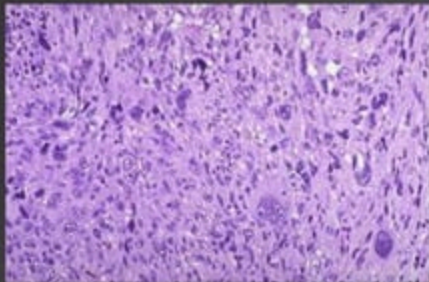


Benign or Malignant?

A- Lung mass



B- Mesenchymal tissue

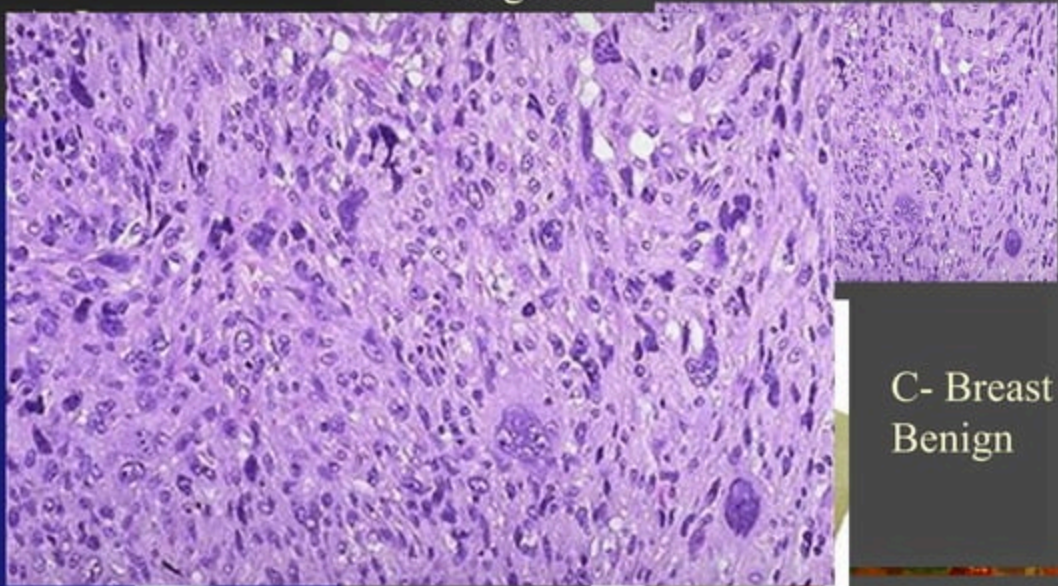


C- Breast mass



Quiz Benign or Malignant?

B- Mesenchymal tissue
Malignant



C- Breast mass
Benign



Now try these questions

- 1. What are the main differences between benign and malignant tumors?
 - 2. How are benign tumors distinguished from malignant tumors in practice?
 - 3. What is anaplasia?
 - 4. How are neoplasms classified clinically?
 - 5. What is the basis of histologic or histogenetic classification of tumors?
-

Lecture 3 outline: General characters of tumours (Appearance/ structure)

- Classification of tumours

- A) According to type of growth (Benign or malignant)

- B) According to histological origin of tumour (epithelial, mesenchymal or other)

- Gross appearance of Benign & malignant

- Microscopic appearance of Benign & malignant

Resources

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Resources

WEB

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