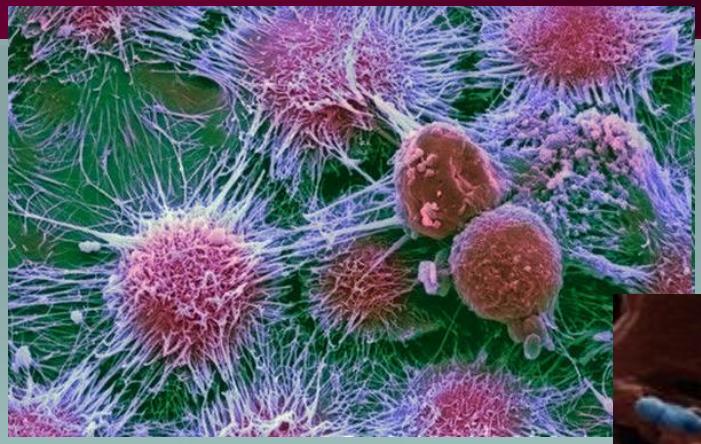
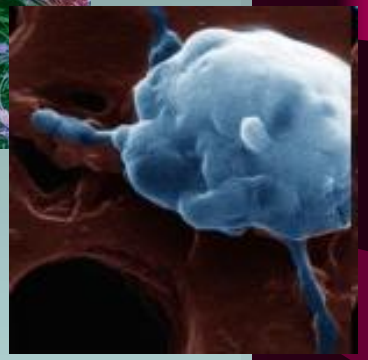
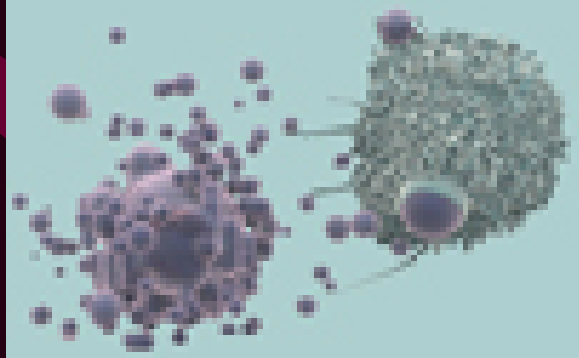




Lecture: **Oncology**



Lecture for general surgery
Chorna I.O.

Poltava

- **Oncology** – branch of science dealing with study of ethiology, pathogenesis, diagnosis and treatment of tumour. Name comes from word ”oncoma”, which in Greek language means tumour.
- A **tumor** or tumour is the name for a swelling or lesion formed by an abnormal growth of cells (termed neoplastic).
- Tumor is not synonymous with cancer.
- A tumor can be **benign**, **pre-malignant** or **malignant**, whereas cancer is by definition malignant
- Synonyms of the word are blastoma, neoplasm tumour.

Tumour

- **Tumour**— this is a self developing pathological formation. Developing in different tissues and organs.
- A tumor may be **benign, pre-malignant or malignant.** The nature of the tumor is determined by a pathologist after examination of the tumor tissues from a biopsy or a surgical excision specimen.

Ethiology and pathogenesis

- In present time there is not a single theory of arigin of tumour. From the existing theories doctors are attentive to following.

1. Theory of stimulation: given by R.O.Virkhov (1822—1902) according to this theory the mason of existence of cancer is due to long duration of effecting stimulating substance on tissue which leads to the charge of cellular structure and polymorphism of all and their progressive and unlimited growth.

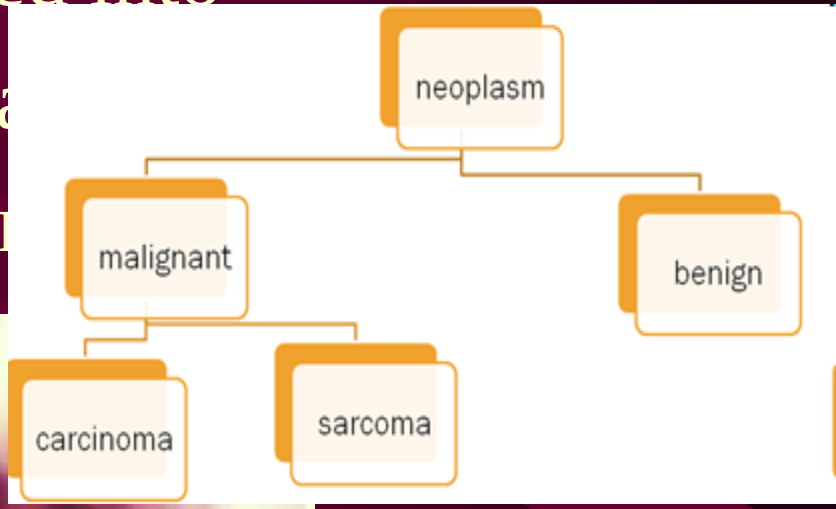
2 .Theory of embryonic origin: given by Kongame (1839—1884) according to this theory tumours arising due to embryonic cells which during the embryonic development did not take part in the formation of organs, not exbased to differ-entiation i.e. they remained in the facial composition. As a result any mechanical or chemical stimulator effect on them (hey study started reproducing and form tumours.

3. Virus immune - general theory: given by LA.2ecteberom in accordance with theory growth tumours is caused by apical kind of viruses, their existence is known by experiments on animals effects by cancer diseases. This virus is onco-gen injected into the all and leads to the formation of this effect the normal regulation of all division. Concurring these factors effecting of these viruses.

Depending upon morphological characteristics and development in organism tumour is divided into

-benign nonmalignant tumour a

-cancerous or malignant tumou



Benign nonmalignant tumour

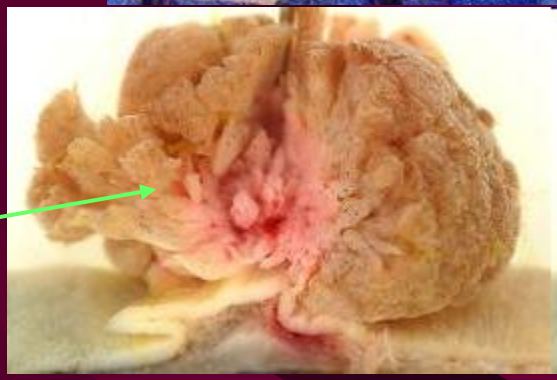
- Benign tumors aren't cancer. Malignant ones are.
- Benign tumors grow only in one place.
- They cannot spread or invade other parts of your body.
- Even so, they can be dangerous if they press on vital organs, such as your brain.
- Treatment often involves surgery.
- Benign tumors usually don't grow back.

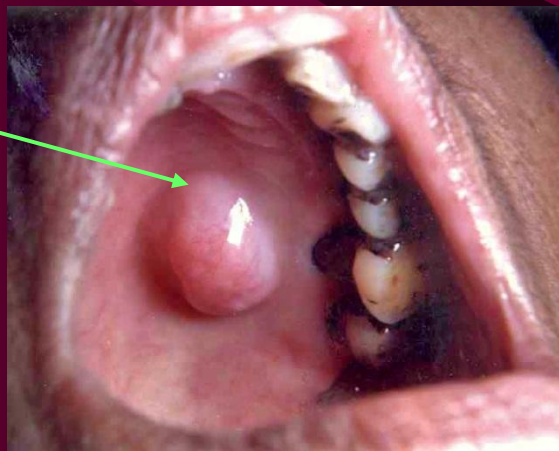
Usually designated by adding ‘’**-oma**’’ to cell type

- - adenoma - Benign tumor arising from glandular cells.
- - leiomyoma - Benign tumor arising from smooth muscle cells .
- - chondroma - Benign tumor arising from chondrocytes .
- - papilloma - has finger like projections .
- - polyp- projects upward , forming a lump
- - cystadenoma-has hollow spaces ‘’cysts’’ inside.

adenoma

- An adenoma is a benign tumor (-oma) of glandular origin. Adenomas can grow from many organs including the colon, adrenal glands, pituitary gland, thyroid, prostate, etc. Although these growths are benign, over time they may progress to become malignant, at which point they are called adenocarcinomas.
- Parathyroid Adenoma
- adenoma of the sigmoid colon
- pleomorphic adenoma
- adenoma of rectum

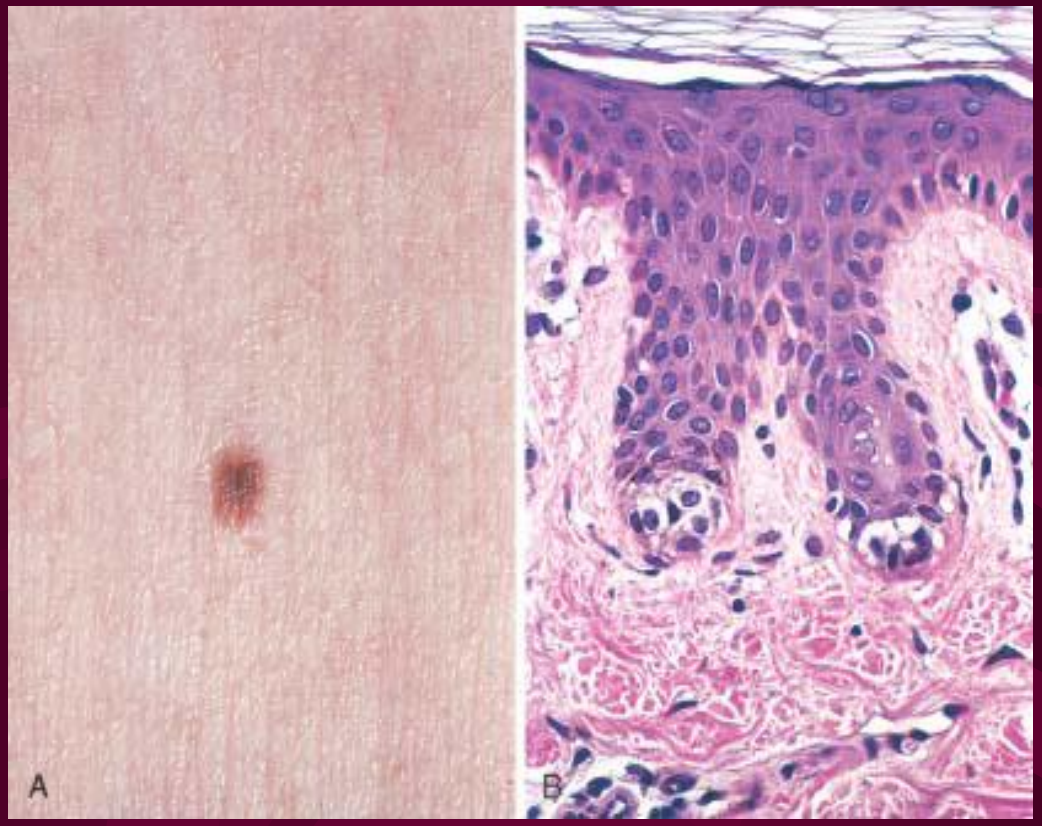




papilloma

- Papilloma refers to a benign epithelial tumor growing exophytically (outwardly projecting) in finger-like fronds. In this context papilla refers to the projection created by the tumor, not a tumor on an already existing papilla (such as the nipple)

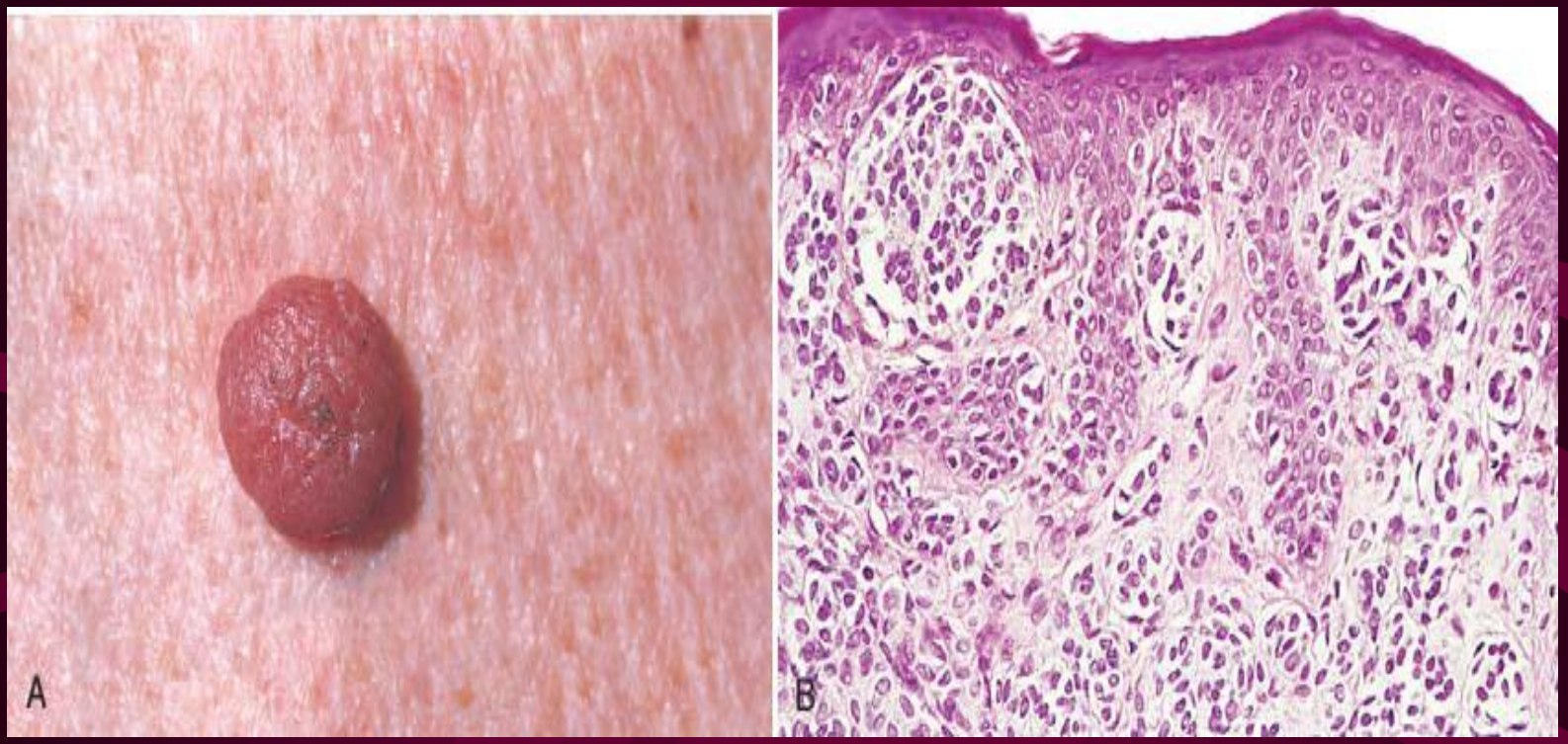
NEVOCELLULAR NEVUS (MOLE)



Nevocellular nevus, Junctional type.
A, In clinical appearance, lesions are small, relatively flat, symmetric, and uniform.

B, On histological examination, Junctional nevi are characterized by rounded nests of nevus cells originating at the tips of rete ridges along the dermoepidermal junction

COMPOUND NEVUS



Nevocellular nevus, compound type. In contrast to the Junctional nevus, the compound nevus (A) is more raised and dome shaped. The symmetry and uniform pigment distribution suggest a benign process.
Histologically (B), compound nevi combine the features of Junctional nevi (Intraepidermal nevus cell nests) with nests and cords of nevus cells in the underlying dermis.

Intradermal melanocytic naevus with numerous shaved hairs.

Compound melanocytic naevus. No recent change.

Junctional melanocytic naevus

leiomyoma

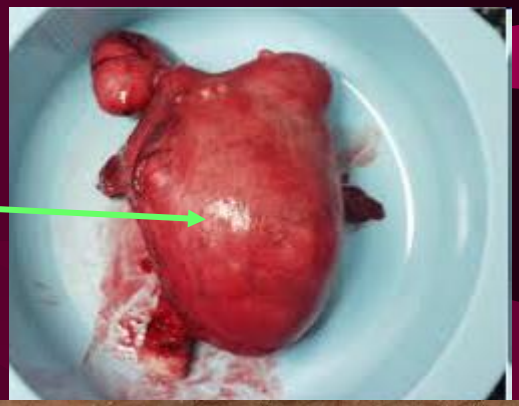
Benign tumor arising from smooth **muscle** cells. They can occur in any organ, but the most common forms occur in the uterus, small bowel and the esophagus

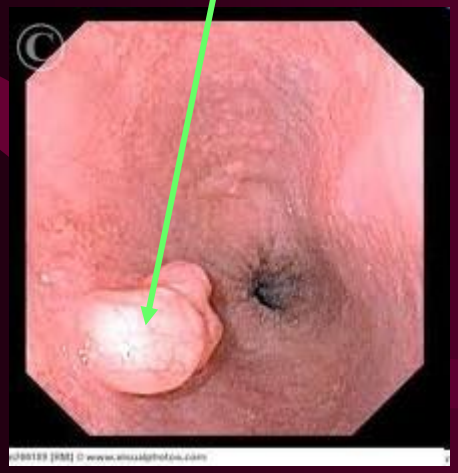
Uterine Leiomyoma

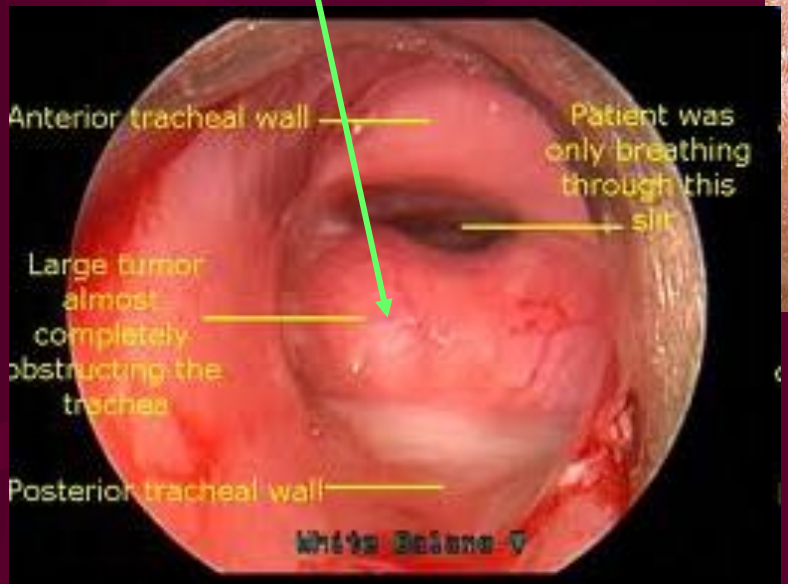
Leiomyoma on a leg

Leiomyoma of the Trachea

Oesophageal leiomyoma







chondroma

Benign tumor arising from chondrocytes.

Chondroma is a benign **cartilaginous** tumor, which is encapsulated with a lo growing pattern.

Polyp

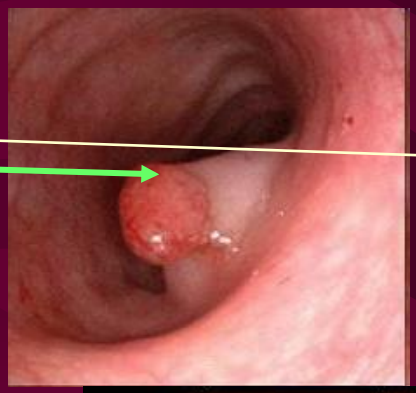
Polyp is an abnormal growth of tissue projecting from a **mucous membrane**. If it is attached to the surface by a narrow elongated stalk, it is said to be pedunculated. If no stalk is present, it is said to be sessile. Polyps are commonly found in the colon, stomach, nose, sinus(es), urinary bladder and uterus.

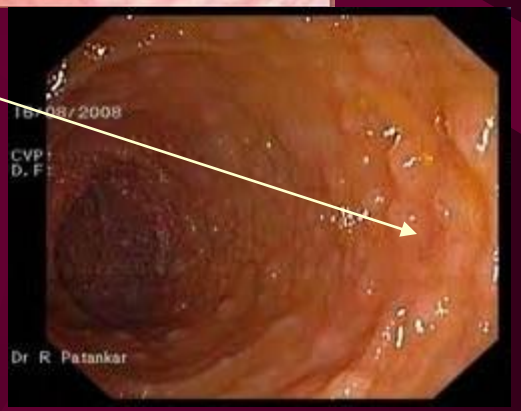
Polyp of sigmoid colon

Deudenal Polyp

Nasal Polyps

Larinx polyp



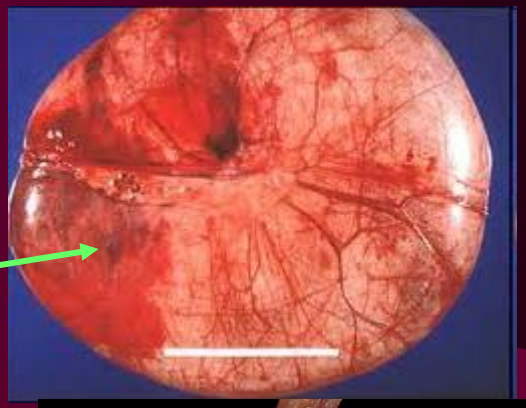


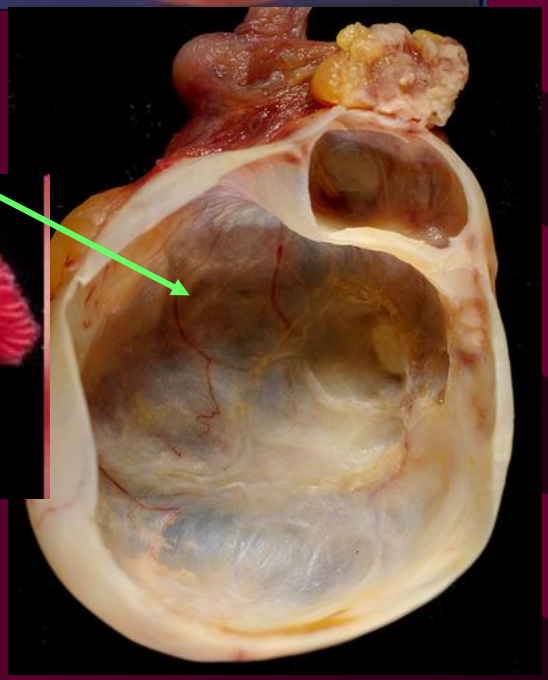
cystadenoma

Cystadenoma (or "cystoma") refers to a type of **cystic adenoma**.

When malignant, it is called cystadenocarcinoma

- Serous cystadenoma.
- Mucinous Cystadenoma of ovary
- Apocrine cystadenoma
- Papillary cystadenoma





Lipoma

- A lipoma is a benign tumor composed of **adipose** tissue. It is the most common form of soft tissue tumor.Lipomas are soft to the touch, usually movable, and are generally painless.

Atheroma

- Atheroma - the sebocystoma of a skin formed as a result of an occlusion of a lead-out duct of a gland..

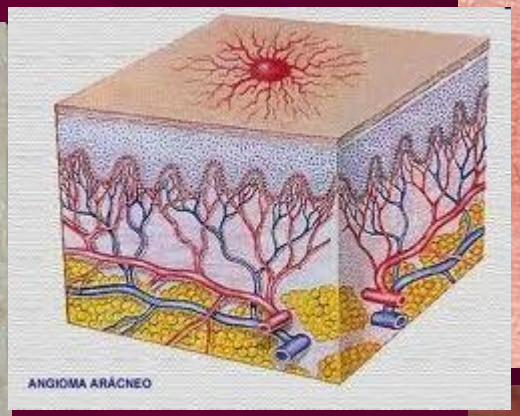
HIGROMA

They are benign tumors in a cystic nature including gelatinous fluid, oriented from the joint capsule, tendon or tendon sheath. It is the most frequent benign tumor of hand.

Angioma

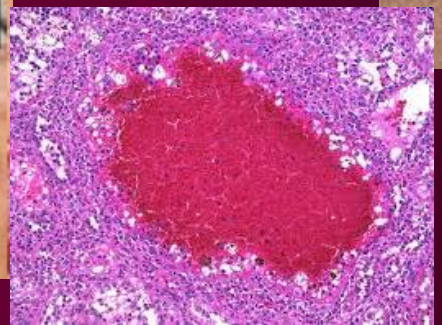
- Angiomas are benign tumors derived from cells of the vascular or lymphatic vessel walls (epithelium) or derived from cells of the tissues surrounding these vessels











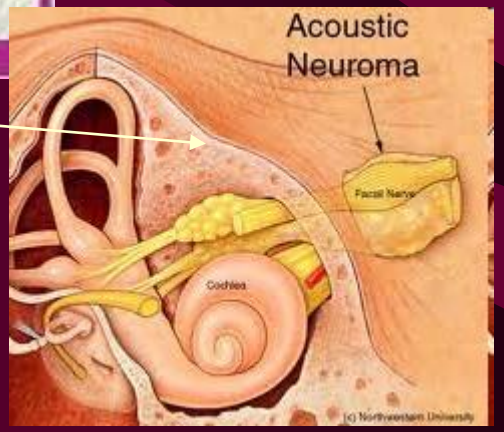
Fibroma

Fibromas (or fibroid tumors or fibroids) are benign tumors that are composed of fibrous or connective tissue. They can grow in all organs, arising from mesenchyme tissue.

Neuroma

- neuroma is a growth or tumor of nerve tissue. (Neuro- is from the Greek for nerve and the suffix -oma denotes swelling.). Thus, the typical modern usage of neuroma is for nerve tumors. However, many of the older, more general uses persist.

- Neurinoma (Neurilemmoma) - a benign slow growing tumor of the neurolemma (myelin sheath) of a nerve fibre.
- Acoustic neuroma - a tumor of the acoustic nerve
- Ganglioneuroma could be considered a type of neuroma, though it is not a nerve sheath tumor.

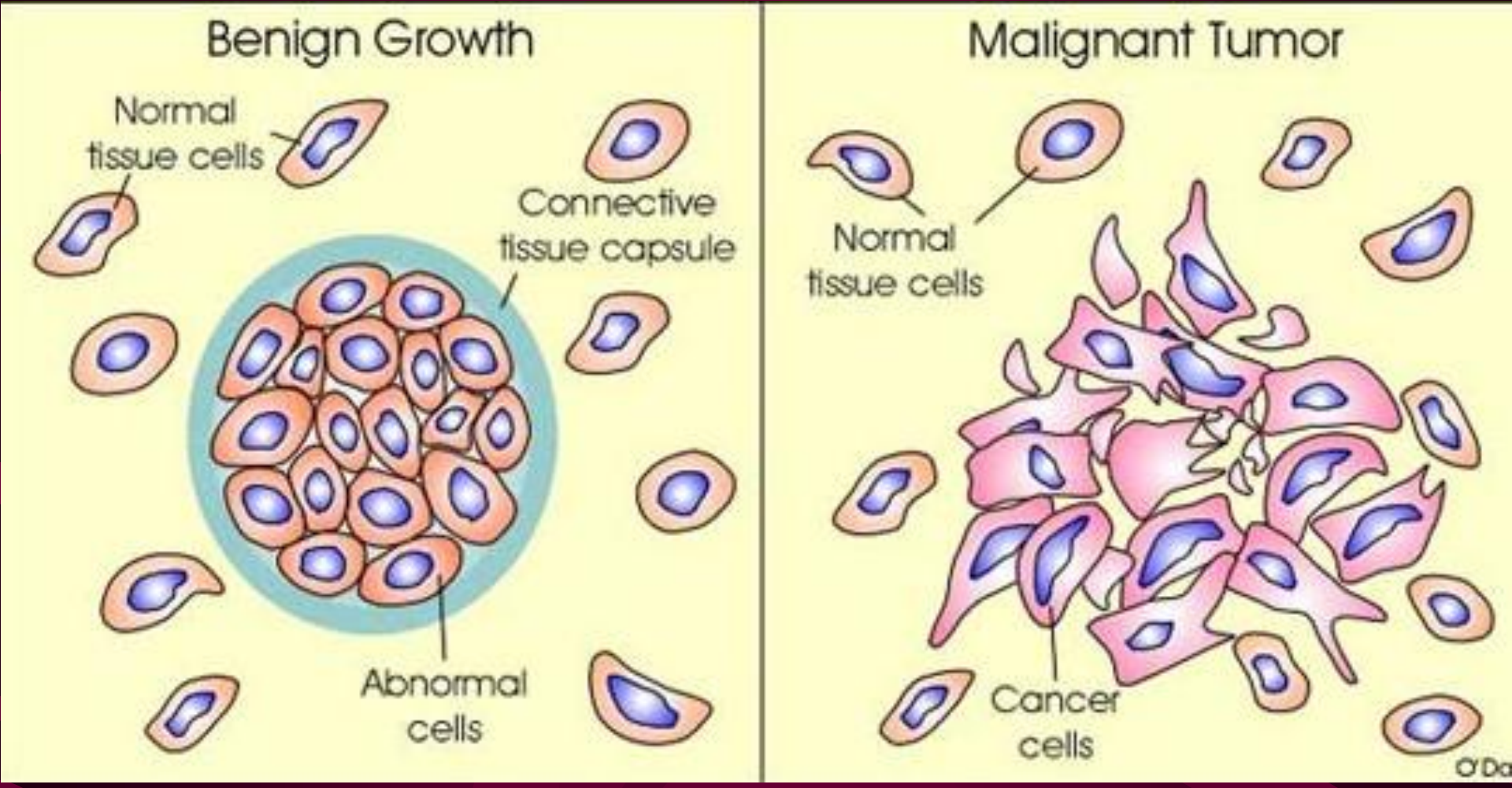


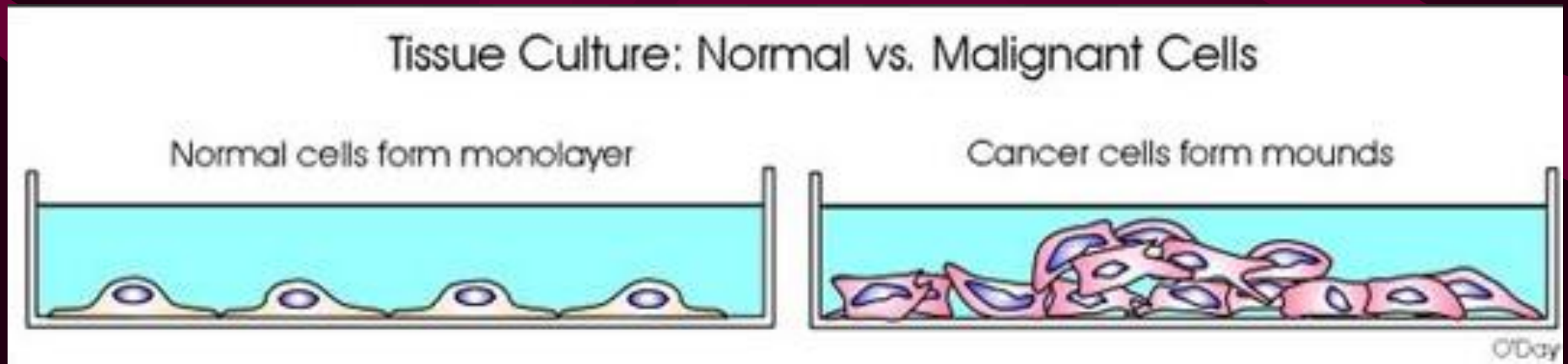
Osteoma

osteoma (plural: "osteomata") is a new piece of bone usually growing on another piece of bone, typically the skull. It is a benign tumor.

Different between benign and malignant tumor

Benign tumors	Malignant tumor
Encapsulated	Not-encapsulated
slow growing	fast growing
Non invasive	invasive
well differentiated	poorly differentiated
stay localized Limited growth	Uncontrolled growth
Benign tumor can't metastasize	Malignant tumors can. Metastasize. The only indisputable equality of malignancy is metastasis. If it is metastatic, it must b Malignant
Small (more often)	large


Benign Growth
Normal tissue cells
Connective tissue capsule
Abnormal cells
Malignant Tumor
Normal tissue cells
Cancer cells


Tissue Culture: Normal vs. Malignant Cells
Normal cells form monolayer
Cancer cells form mounds

Cancer

Cancer begins when a cell begins dividing **uncontrollably**. Eventually these cells form a visible mass or tumor. This initial tumor is called the **"primary"** tumor. Cells from the primary tumor can break off and lodge elsewhere in the body where they then grow into **secondary tumors.** This process is called **"metastasis"** and a cancer which has spread to other organs is called "metastatic."

When cancer spreads to another organ, the type of cancer remains the type of the primary tumor. Thus cancer that started in the colon and spread to the liver is still colon cancer. It is not "liver cancer". Similarly breast cancer that has spread to the bone is not "bone cancer", it is metastatic breast cancer.

Malignant tumor named of cancer

Cancer incidence

- 1.4 million new cases of cancer 2006 usa.
- 565.000 death from cancer 2006 usa.
- Cancer is 2nd leading cause of death after heart.

• Most common cancers:

- * men: prostate
- * women: breast

Deadliest cancers:

- * men and women: Lung

• <u>Death rate have changed over past 4 years.</u>

• Decrease in death rate:

– Cervical cancer (pap smear).
– Colon cancer (earlier detection).
– Breast cancer (earlier detection).
– Lung cancer in men (less smoking).
– Some type of leukemia (new treatment).

• Increase in death rate:

- – Lung cancer in women (more smoking)

Epidemiology on Neoplasms

- Cancer incidenceb (заболеваемость).
- Environmental variables.
- Age.
- Heredity (наследственность).
- Acquired preneoplastic syndromes.

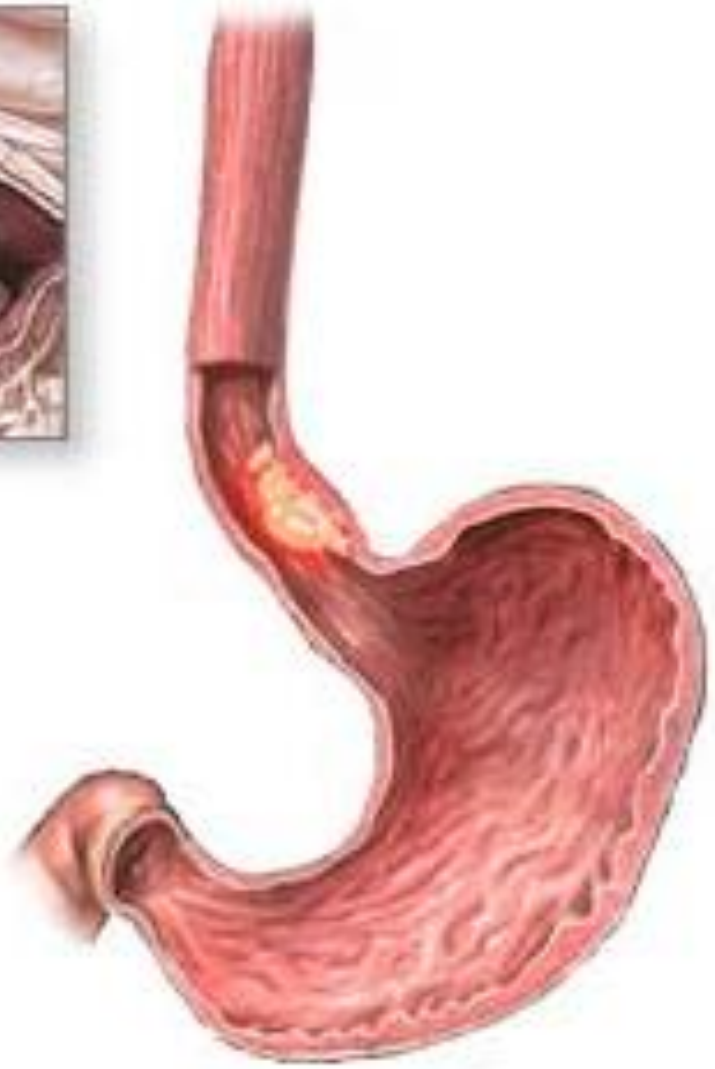
Environmental variables

- • Breast cancer death rate in US is 5x than japan.
- • Stomch cancer death rate in japan is 7x than US.
- • Liver cancer infrequent in US, common in africa.
- • Probably due to environmental factor (not hereditary factor) .
- • Most sporadic cancer are caused by environmental factor.

Environmental carcinogen

- • Sun light : skin cancer.
- • Smoking: lung cancer.
- • Alcohol: liver& breast cancer.
- • HPV: cervical carcinoma.

Tobacco use is associated with increased risk of cancers of the lung, mouth and esophagus



Skin type chart

	1	2	3	4	5	6
NATURAL SKIN COLOUR	Very fair, pale white, often freckled	Fair, white skin	Light brown	Moderate brown	Dark brown	Deeply pigmented dark brown to black
						
UV SENSITIVITY & TENDENCY TO BURN	Highly sensitive Always burns, never tans	Very sensitive Burns easily, tans minimally	Sensitive Burns moderately, usually tans	Less sensitive Burns minimally, tans well	Minimal sensitivity Rarely burns	Minimal sensitivity Never burns
SKIN CANCER RISK	Greatest risk of skin cancer	High risk of skin cancer	High risk of skin cancer	At risk of skin cancer	Skin cancers are relatively rare, but those that occur are often detected at later, more dangerous stage. Increased risk of low vitamin D levels.	Skin cancers are relatively rare, but those that occur are often detected at later, more dangerous stage. Increased risk of low vitamin D levels.

Skin Type Table adapted by SunSmart Victoria (2011) using Fitzpatrick Scale (1975). Images courtesy Cancer Research UK.

Age

- • Cancer is most frequent at two extremes of age
- **Elderly**
- * frequency of cancer increase with age
- * most cancer deaths occur between 55-75 .
- **Children**
- * 10% of all childhood deaths.
- * leukemia/lymphoma, CNS tumors, sarcom

Heredity. • Three categories of heredity cancer:

1. Inherited cancer syndrome.
2. Familial cancer.
3. Syndrome of defective DNA repair.

1. Inherited cancer syndrome

• Dominantly inherited. • Retinoblastoma. • Familial polyposis coli

2. Familial cancer

• Most common sporadic cancers have familial formation.
• Breast, colon, brain, ovary.
• Occur earlier are often deadlier.

3. Syndrome of defective DNA repair

• Recessively inherited. • Xeroderma pigmantosum.

Acquired preneoplastic syndromes

- Persistent regeneration cell replication

 * chronic skin fistula – squamus cell carcinoma * cirrhosis – liver cancer

- Hyperplastic and dysplastic proliferation

 * Atypical endometerial hyperplasia àendometrial cancer

 * Dysplastic bronchial mucosa à lung cancer.

- Chronic atrophic gastritis à stomach cancer.
- Chronic ulcerative colitis à colon cancer.
- Leukoplakia à squamous cell

Malignant Tumors

- **- carcinomas – arise in epithelial tissue.**
- - adenocarcinoma- Malignant tumors of glandular cells
- - squamous cell carcinoma- Malignant tumor of squamous cells.
- **- Sarcomas – arise in mesenchymal tissue .**
- - chondrosarcoma- Malignant tumor of chondrocytes.
- - angiosarcoma- Malignant tumor of blood vessels.
- - rhabdomyosarcoma- Malignant tumor of skeletal muscle cells .

Mixed Tumor

Mixed Tumor show divergent differentiation.

e.g. -pleomorphic adenoma-glands+fibromyxoid stroma

- **- fibroadenoma- glands + fibrous tissue .**
- **- Not to be confused with teratomas.**

Confusing Terms

Malignant tumor that sound benign .

- **- lymphoma. -mesothelioma.**
- **- melanoma. -seminoma.**

Non-tumors that sound like tumors:

- **- hamartoma-mass of disorganized indigenous tissue.**
- **- choristoma-hetero topic rest of cells.**

Names that seem to come out of now here:

- **- Nevus -leukemia**
- **- hydatidiform mole(пузырный занос)**

Tumors characteristic

- • Differentiation and anaplasia

- **Differentiation= how much the tumor cells resemble their cells of origin**

- **weel** differentiated – closely resemble normal countepart

- **moderately** differentiated – sort of resemble normal countepart

- **poorly** differentiated – doesn't resemble normal countepart

- • Benign Tumors are usually well differentiated

- • malignant Tumors can show any level of differentiated

Anaplasia

Anaplasia = a state of complete un –Differentiaion

- literally “ to form (– plasia) backword (ana –)

- • Misnomer cells don’t differentiate
- • just mean cells are very poorly differentiated
- • Almost always indicates malignancy

Anaplastic cells show:

- • pleomorphism
- • hyperchromatic , large nuclei
- • bizarre nuclear shapes , distinct nucleoli
- • losts of mitosis , and atypical mitosis
- • architectural anarchy

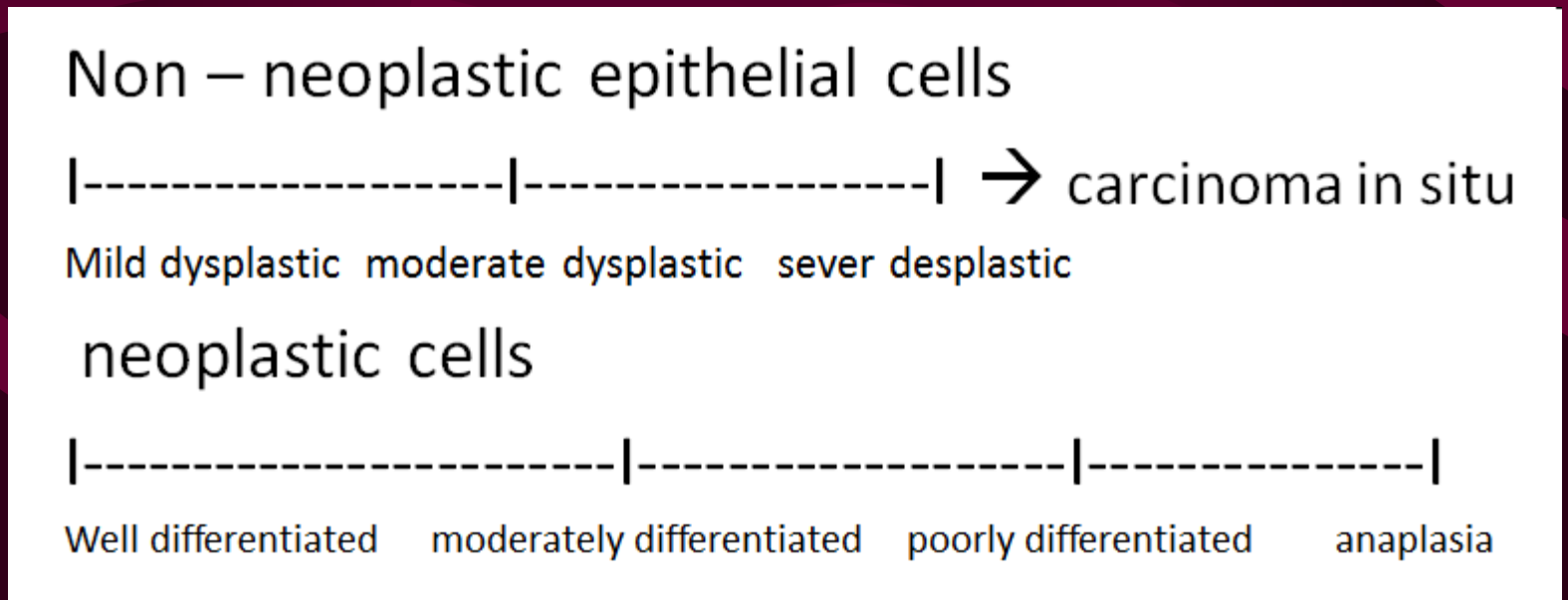
Dysplasia

Dysplasia = disorderly (dys –) growth (– plasia)

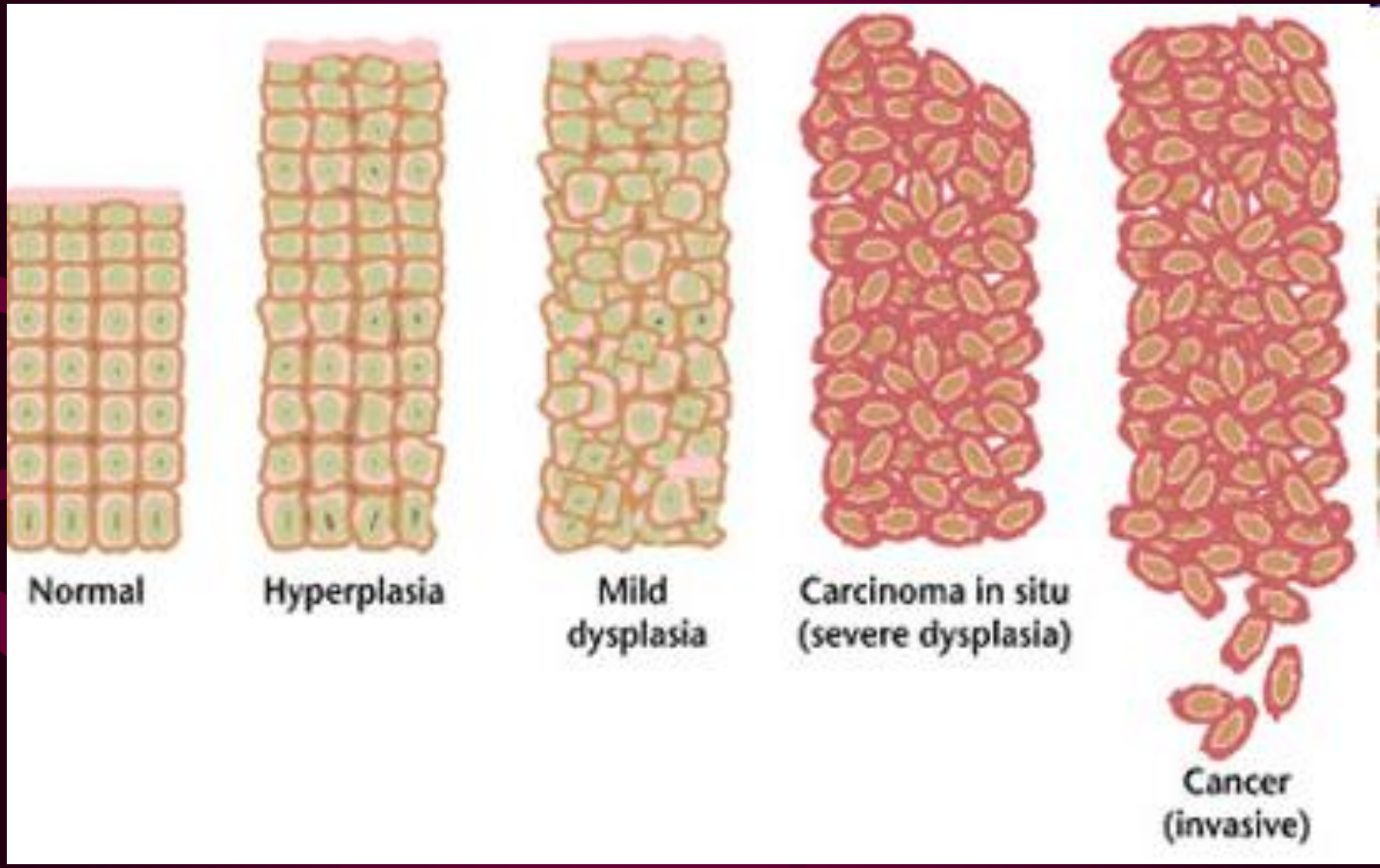
- Dysplasia is used to describe disorderly change in non- neoplastic epithelial cells
- • Graded as mild , moderate , or sever
- mild – moderate : usually reversible
- sever : usually progresses to carcinoma in situ (CIS)
- Next step after CIS : invasive carcinoma

Dysplastic cells show:

- • Pleomorphism
- • hyper chromatic , large nuclei
- • losts of mitosis
- • architectural anarchy



Stage of dysplasy



Generalization

Malignant tumors grow faster than benign ones

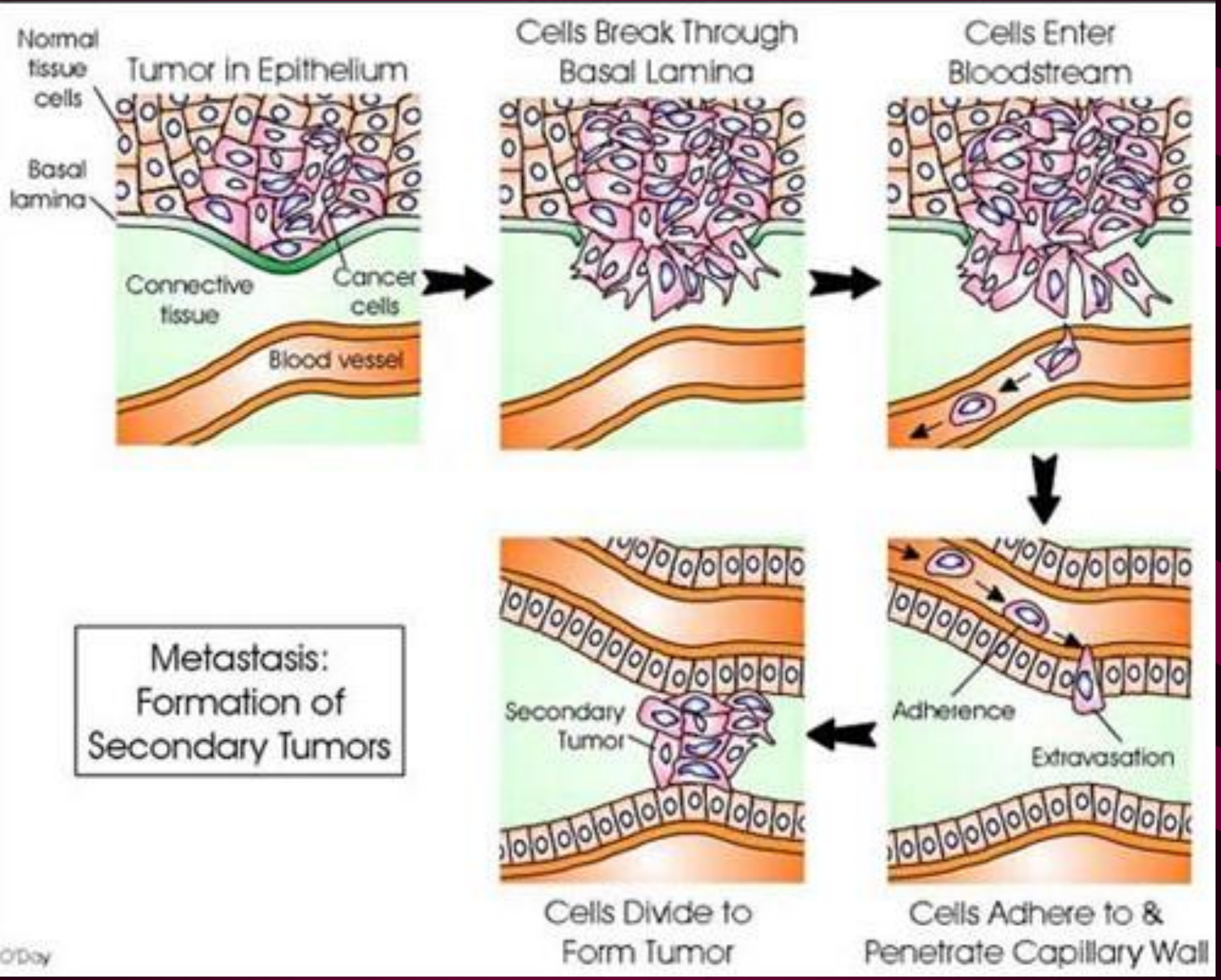
poorly differentiated tumors grow faster than Well differentiated one

Growth is dependent on :

- - blood supply
- - hormonal factor
- - emergence of aggressive sub – clones

Metastasis

- Initially the tumour shows slow growth, called **Latent stage**. But later growth rate becomes very rapid, causing overcrowding and damage to normal cells. But later these enter **the metastasia stage** (stage of secondary growth) in which the cancer extends to the neighbouring tissues like the roots of a tree. Small pieces of primary tumour breaks off and are carried to other parts of the body by blood or lymph, where these form the secondary tumours. This process is called metastasis.
- So metastasis is the process of transference of cancerous cells from the site of origin **to distant parts** of the body.
- The **most frequent sites of metastasis** are lymph nodes, lungs, liver, skin and brain. Metastatic stage usually occurs after the age of 50 yrs, when it is practically impossible to cure and proves to be fatal.


Normal tissue cells
Basal lamina
Tumor in Epithelium
Connective tissue
Cancer cells
Blood vessel
Cells Break Through Basal Lamina
Cells Enter Bloodstream
Metastasis: Formation of Secondary Tumors
Secondary Tumor
Adherence
Extravasation
Cells Divide to Form Tumor
Cells Adhere to & Penetrate Capillary Wall

Metastasis depends on:

- - Type of tumor.
- - Size of tumor.
- - Degree of differentiation of tumor.

Three ways tumor metastasize:

- - Seeding.
- - Lymphatic spread.
- - Hematogenous spread.

Lymphatic spread:

- - Tumor spreads to local lymph nodes
- - Sentinel lymph node first.
- - Moves through thoracic duct.
- - Empties into subclavian vein.
- - Carcinomas like to spread this way.

Hematogenous spread:

- - Veins are easier to invade than arteries.
- - Liver and lungs are most common metastatic destinations.
- - Some tumor like other sites better:

Prostate à Bone

Most lung cancer à adrenals, brain

- Sarcomas like to spread this way [but so do carcinomas].

- Lymphatic vessels with conglomerates of tumor’s cells

How cancer develop

Classification of malignant tumours:

four oncological study:

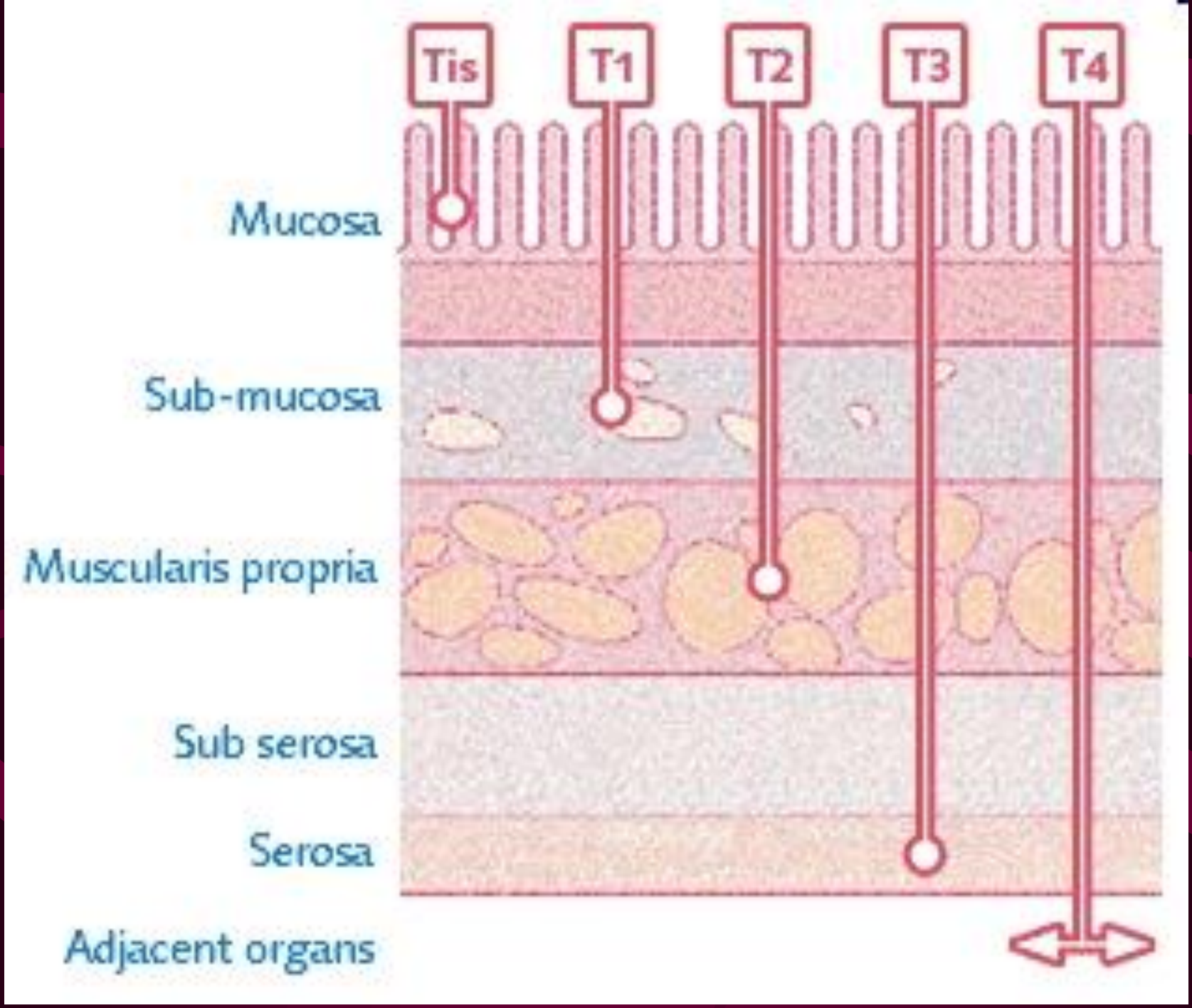
- **1st study:** localisated tumour, diameter more than 2 sm., present in only in this layer of organ in which it occurred, lymph node not effected, no far metastases.
- **2nd study**: tumour diameter of 2 — 5 sm. found in nominative layer of organ but does not enter redistribution enter near by lymph node, metastases of after systematic organs is not found.
- **3rd study:** tumour diameter 5 — 10 sm. enter on layer of organ, cover serouse covering may be fission tumour, lymph metastases of after organs systematically.
- **4th study:** tumour of large size, enter near connected organ and much more metastases of different organs and lymph node.

- In year 1964 two international conference gain, **international clinical classifica-tion** of malignant tumours. This classification gave due study of tumour have specifically symptoms:
- size of tumour cure disease of lymph node,
- lymph nodul lymphocytes, lymphatic node and
- cure metastases, M - meastases

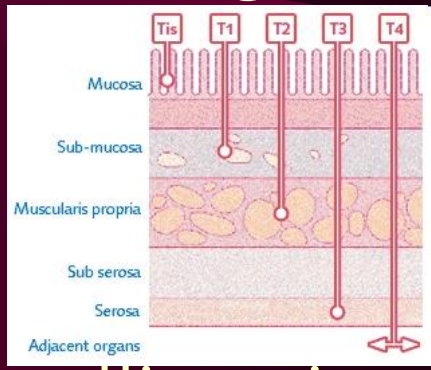
and joint of there classification is called **classification of system TNM**

symbol T— give character and size of tumour and have next stage:

- T_0 - first slage of tumour not grown.
- T_{1-2} - are of more size (about 5 sm. in size) may be radical opera-tion.
- T_3 - tumour may be of 5 -10 sm. in diameter in this operation may be of different of size and volume.
- T_4—tumour grown all near lay organs and give stoppage or effects in function can be only given symptomatic cure.


Tis
T1
T2
T3
T4
Mucosa
Sub-mucosa
Muscularis propria
Sub serosa
Serosa
Adjacent organs

- In category T of tumour of organs have self peculiar signs, for example: **cancer of intestine**:



- T1 — tumour is found only in part of internal wall of intestine.
- T2 — tumour is found in half of intestine wall.
- T3 — tumour enter whale intestine wall, give swelling, give problems in enter in intestine.
- T4 — tumour is swelling and charge in intestine. In tumour of mammary gland:
- T1 — tumour of 2 sm. size, little effect skin undoing tissue.
- T2 — tumour 2 — 5 sm., touching skin.
- T3 — tumour 5—10 sm. touching skin effect.
- T4 — tumour make than 10 sm., enter lymph node, give effect in submuscular, subclavicular lymph nodes; for tongue cancer in submandibular nodes; for stomach cancer—nodes of small and big sebaceaus.

Symbol N characterized enter lymph node:

- N_0 — lymph node arc not palpated.
- Nx — lymph node are not effected.
- N_1 — have metastases in lymph nodes 1st slage.
- N_2—have metastases in lymph nodes 2nd slage.
- N_3 — defeat different lymph nodes.

Symbol M give metastases in different parts of different organs and systems:

- M_0— absent different signs of metastases.
- Mx — about metastases it is not known.
- M_1—have far metastases in different organs and systems.

A numerical system also is used to classify the extent of disease.

- Stage 0 Cancer in situ (limited to surface cells)
- Stage I Cancer limited to the tissue of origin, evidence of tumor growth
- Stage II Limited local spread of cancerous cells
- Stage III Extensive local and regional spread
- Stage IV Distant metastasis

Stage of carcinogenesis

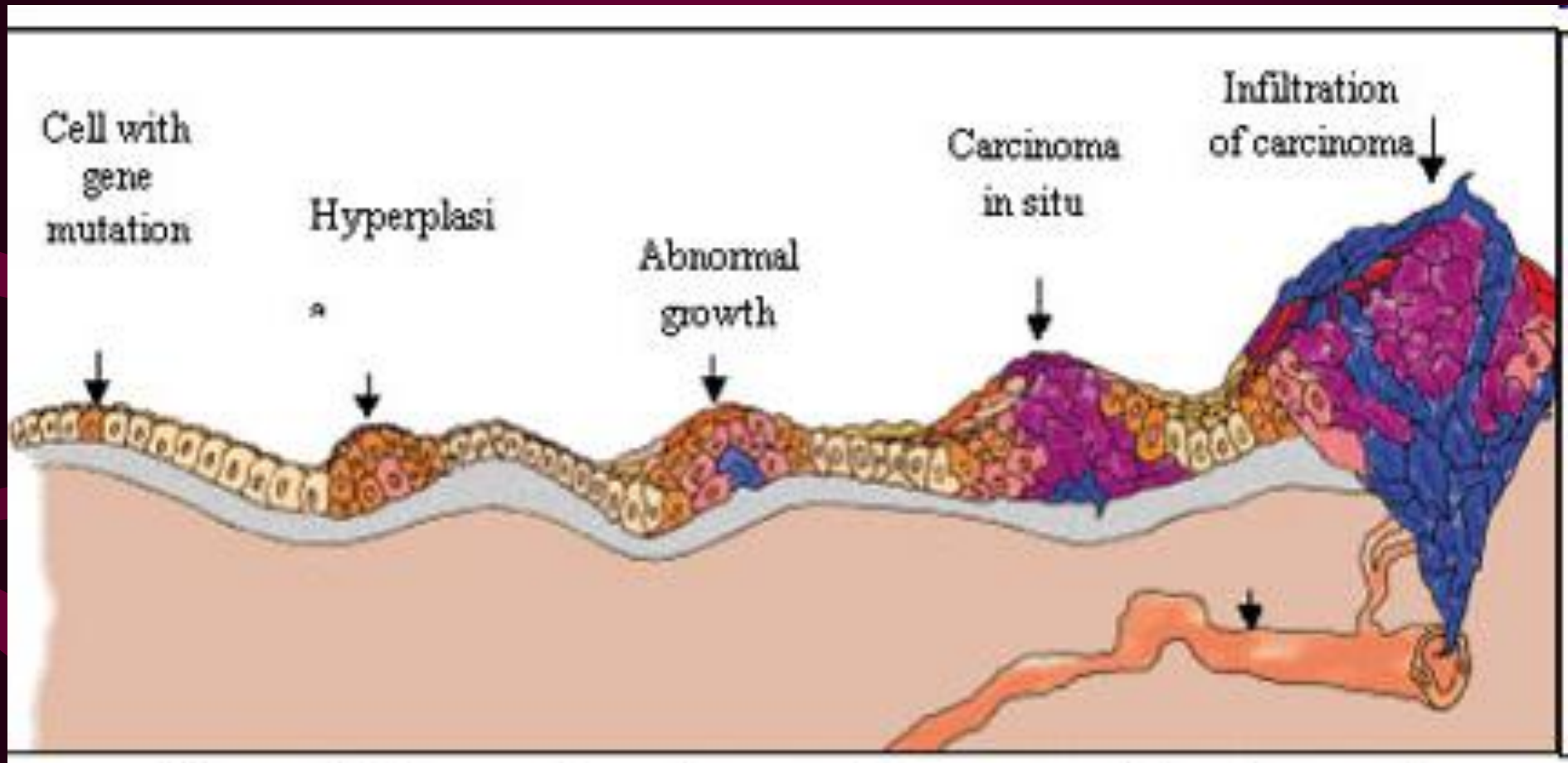
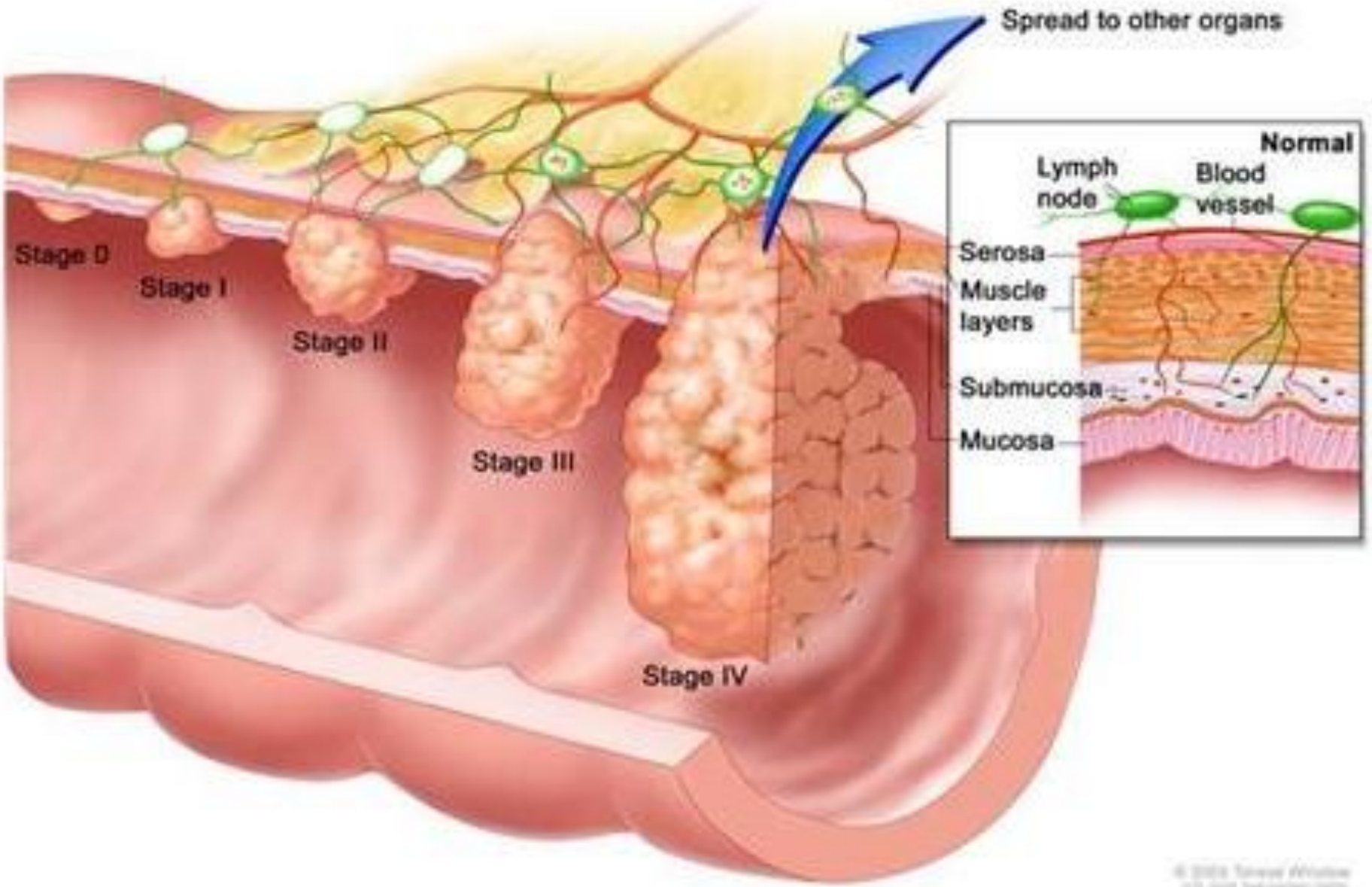
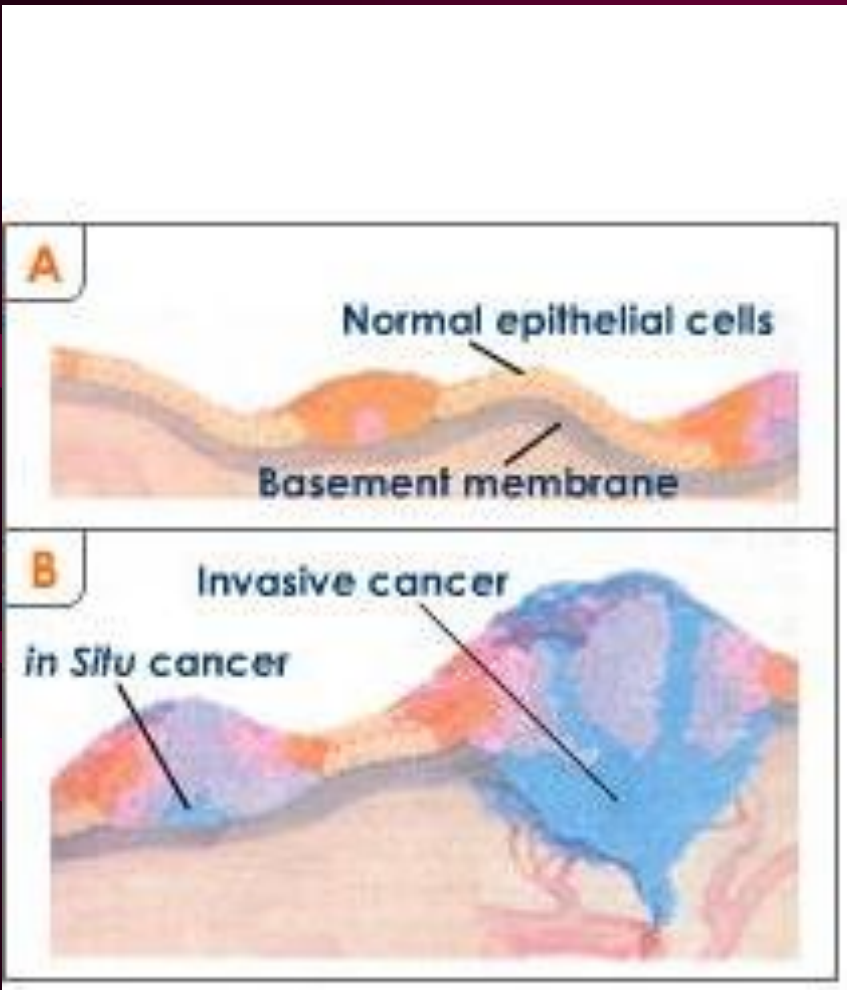
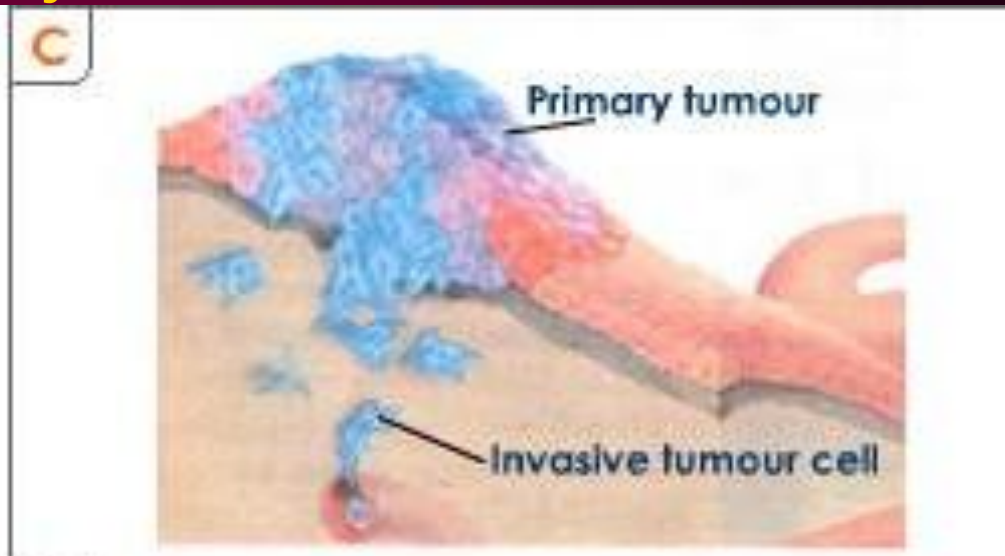


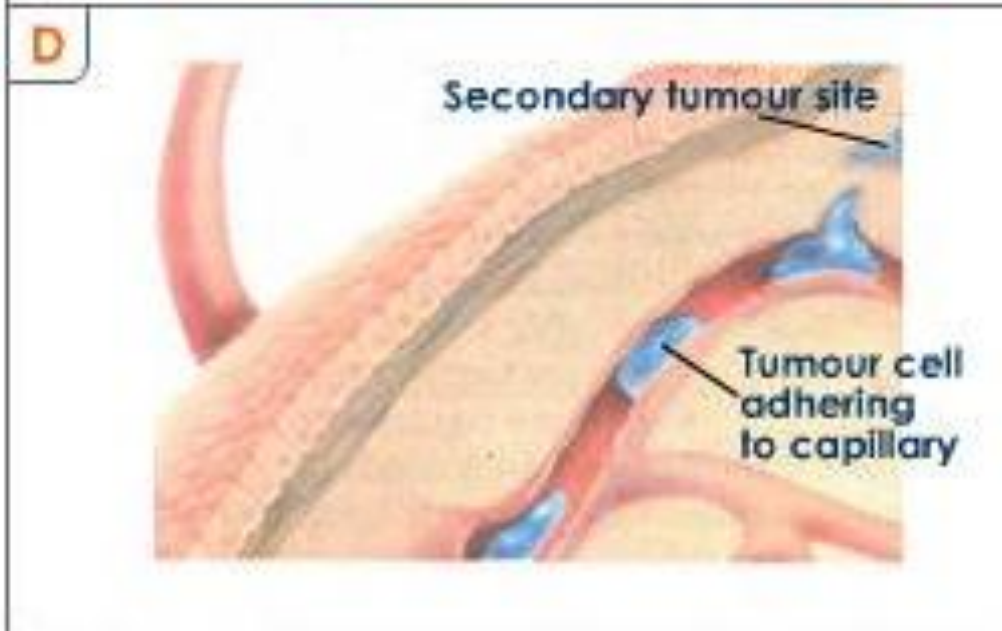
Figure 1. Stages of carcinogenesis occur and development

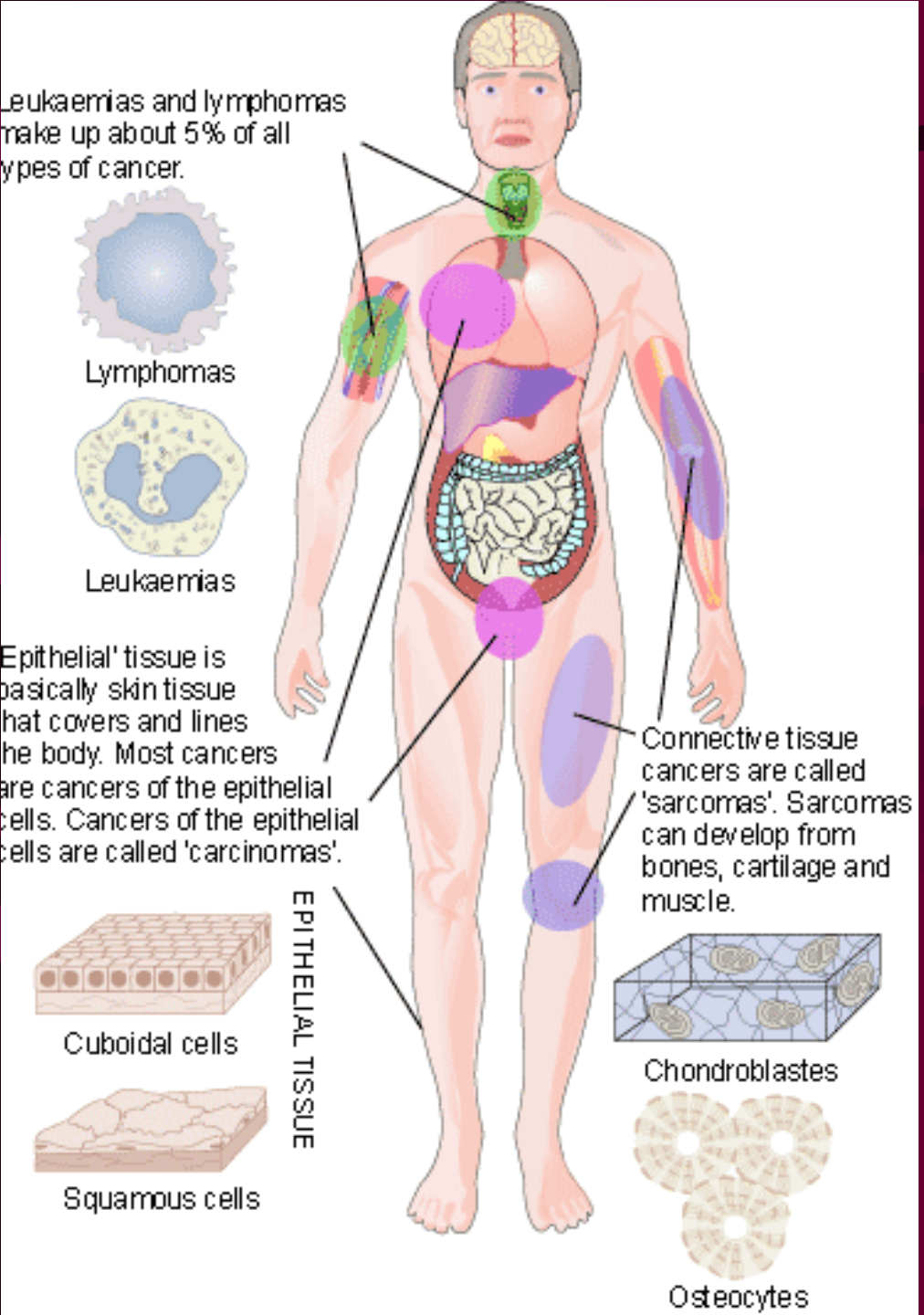

Spread to other organs
Stage 0
Stage I
Stage II
Stage III
Stage IV
Normal
Lymph node
Blood vessel
Serosa
Muscle layers
Submucosa
Mucosa

Stages in development of cancer A to D. Primary tumour may become metastatic and get transformed into secondary tumour









- ***Mains origins of tumours are epithelial and connective tissue***

- Different types of cancer are derived from different tissues within the body.

Sarcoma — taken from Greek word “Sarx” in translation — «meat», composed of unmature cells of **connective tissue**.

On cutting it is pale yellow and reminds the meat of fish. It grows rapidly and strikes the neighboring tissues. It gives rue metastases and repeats removal. Metastases spreads in a **haemotogenic way** there appear in separated parts and organs. Histologycally there are different types of sarcomas — **round ceils, spindle celled, giant, cells** etc.

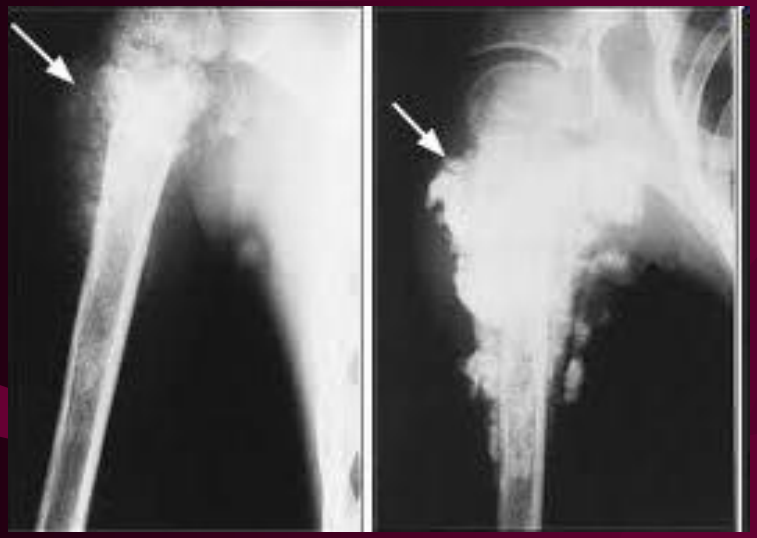
Sarcoma is generally found in young persons, younger is the patient more is the difficulty in prognose.

Osteosarcoma develops in long tubular bones, pelvic bones and scull. They can develop in bone marrow (central or myogenic), or from periostium (periferical or periostal).

Osteosarcoma rapidly grows and by short time give metastases.

Treatment is often done by amputation of limbs or exarticulation. In other causes radio and chemical therapy is used.

Osteosarcoma



Malignant epithelial tumours:

Cancer (adenocarcinoma, malignant epithelioma) — develops from intergumentary and glandular epithelium. Composed of stromas of connective tissue in which lies blood and lymphatic vessels, and parenchyma of epithelial cells.

If tumour is composed of large epithelial cells it is known as nodular cancer.

In cases when stroma of connective tissue predominates it is known as skirr predominate of glandular cells and it is called as adenocarcinoma.

Cancer may develop in all tissues and organs, which exists epithelial formation, but usually it is found in stomach, uterus, mammary glands, on the skin and in the lungs.

Formation of cancer starts with appearance of atypical cells after which reproduction takes place and formation of element of stroma in connective tissue starts.

Cancer rapidly transfer into surrounding and gives metastases in lymphatic nodes metastases usually spread through by lym-phatic vessels.

Treatment is done basically by operations, but in some time treatment can be done by method like radiotherapy.

Radical operations with observations of ablastic and antiblastic carried only in 1st and 2nd clinical stages, almost impossible.

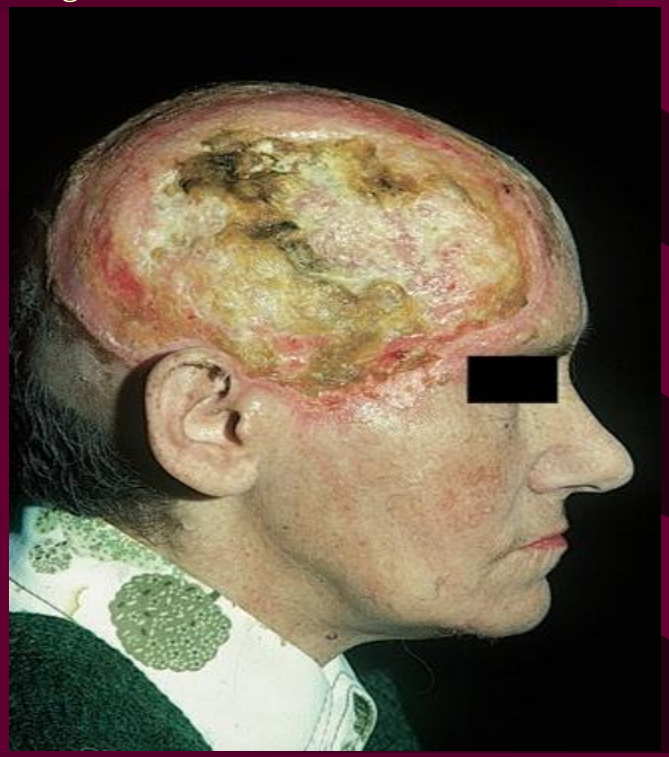
In these cases symptomatic treatment is done which supplements with the indication of radio or chemotherapy palliative operations.

Basal cell carcinoma (rodent ulcer)

- Nodulo-ulcerative
- Cystic
- Cicatricial (morphoeic)
- Superficial (multicentric)
- Histological finding:islands and lobules of basaloid
  palisading arrangem

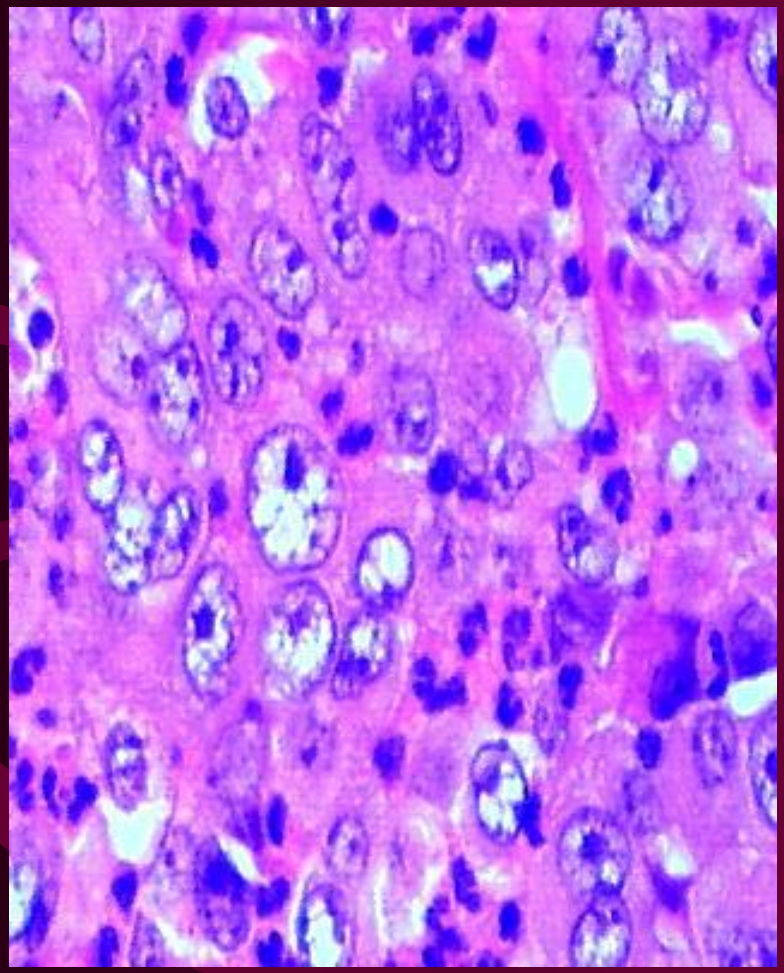
Basal cell carcinoma with marked Telangiectasia and ulceration

Early basal cell carcinoma with rolled opalescent edge and central crusting.



A grossly neglected basal cell carcinoma invading underlying bone

Squamous cell carcinoma of lung

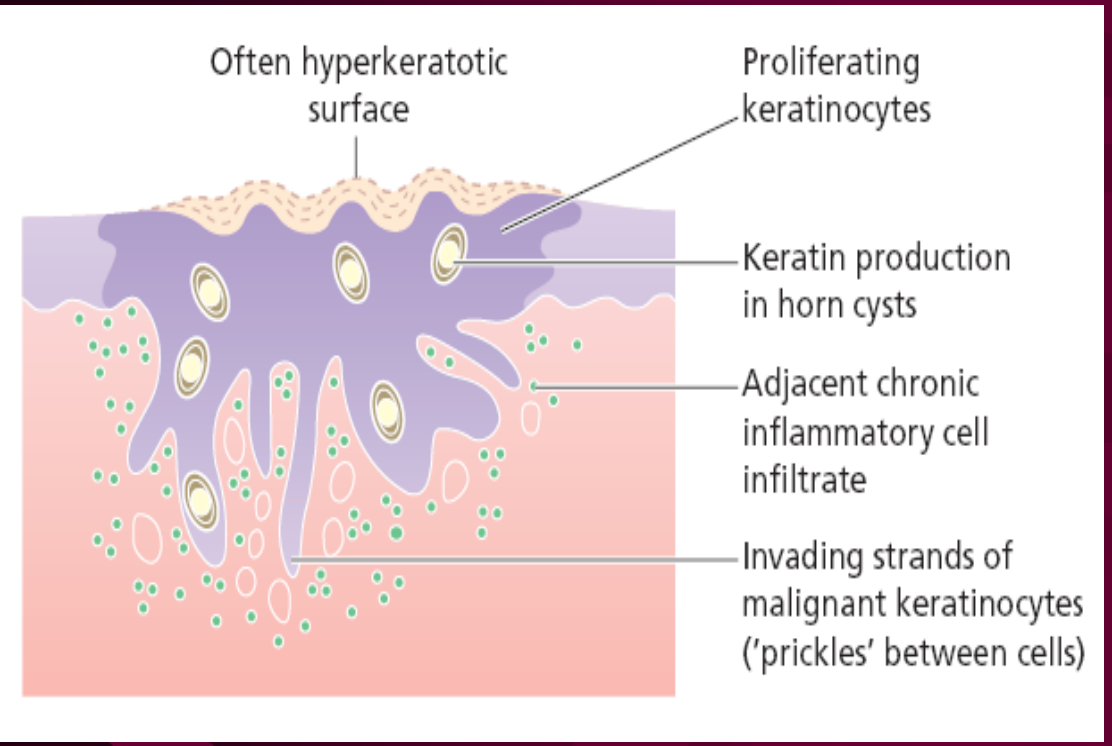


Squamous Cell Carcinoma of **Lung**. Note infiltration of leukocytes betweenTumor Cells

Basal Cell Carcinoma

SQUAMOUS CELL CARCINOMA

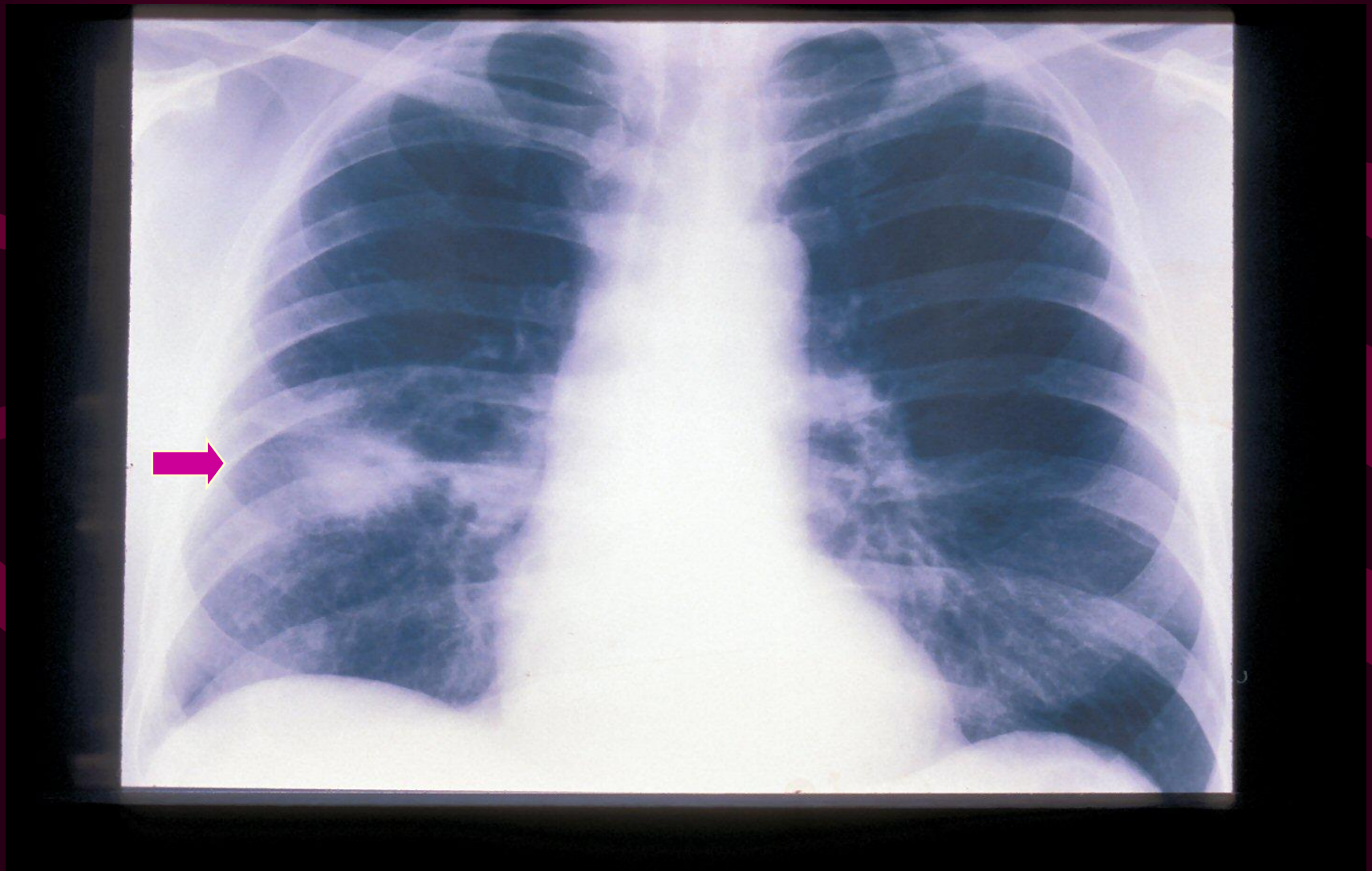
- This is a common tumour in which malignant keratinocytes show a variable capacity to form keratin.



Squamous cell carcinoma. Not a venous ulcer – too high up the leg, too raised and no signs of venous insufficiency

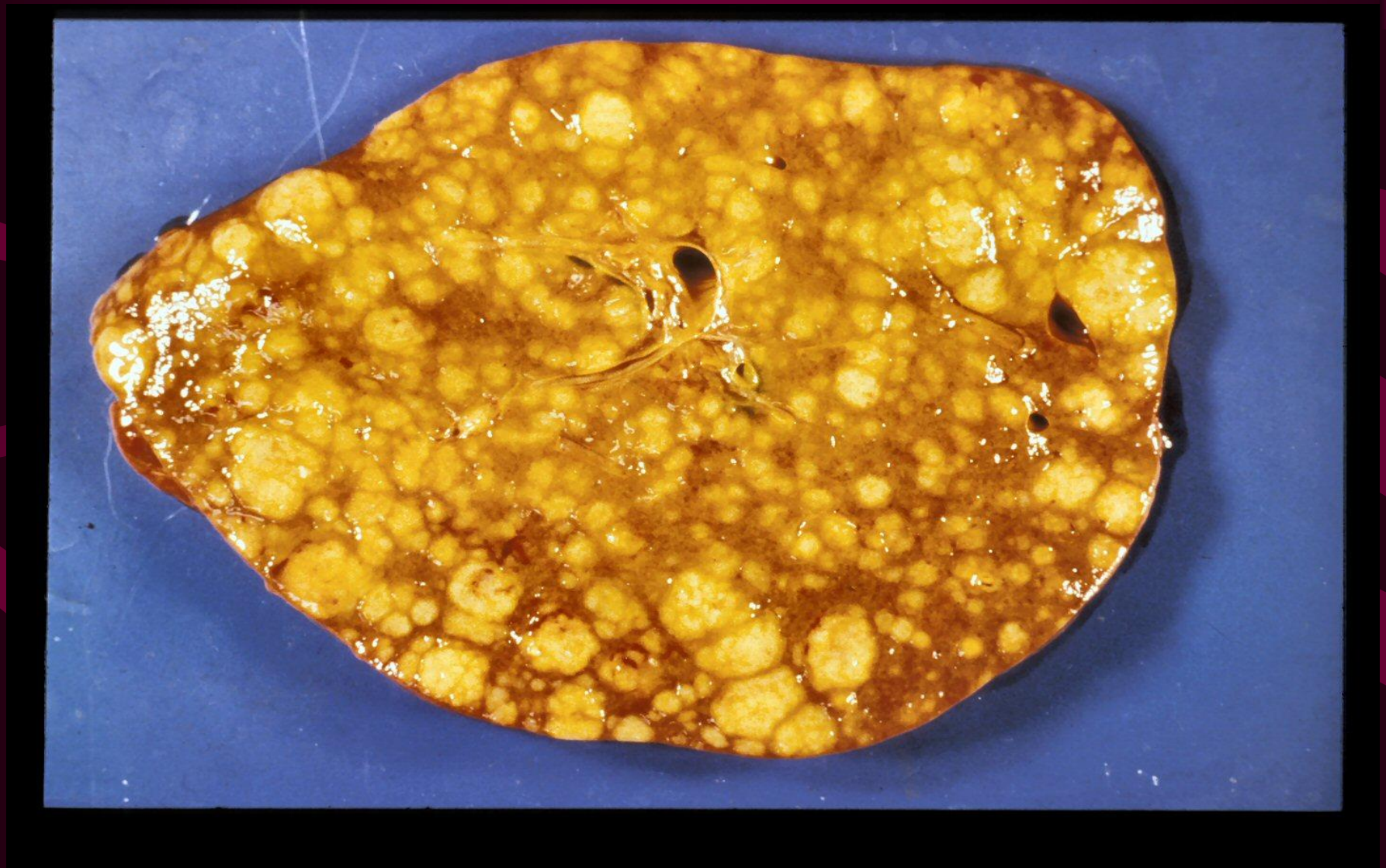
Male 21 – metastatic osteosarcoma

Suspicious lesion on CXR…..

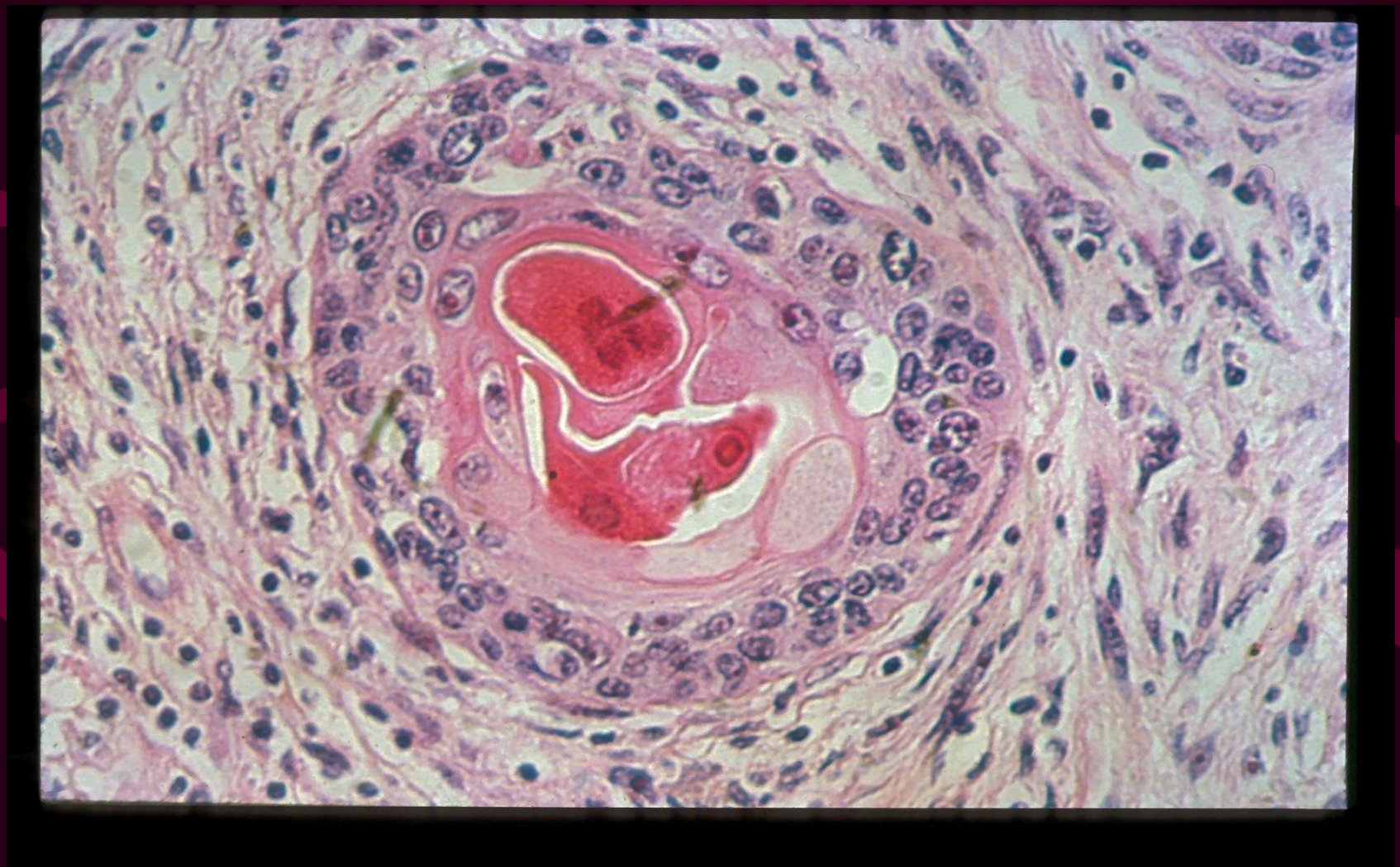


White tumour obstructing bronchus. Distal area of yellow discolouration represents pneumonia.

Metastatic small cell lung cancer in liver at autopsy.



Squamous carcinoma (keratinising)



MALIGNANT MELANOMA

Predisposition-UVR ,xeroderma pigmentosa,dysplastic nevus syndrome,congenital melanocytic nevi

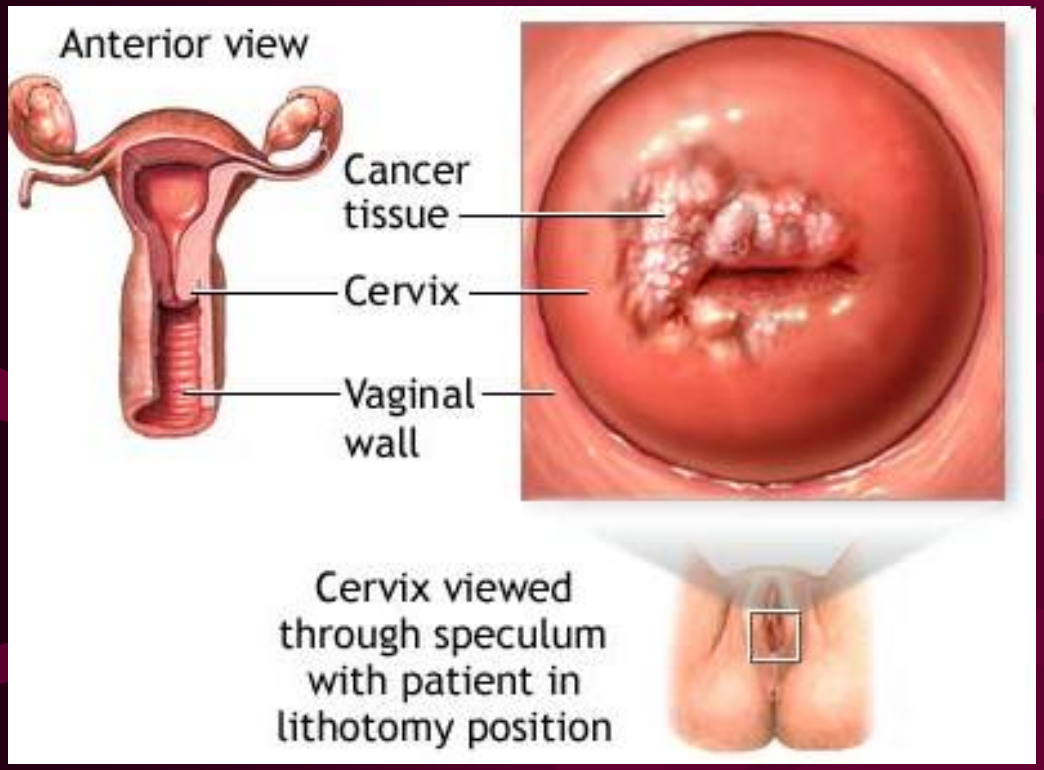
Clinical features

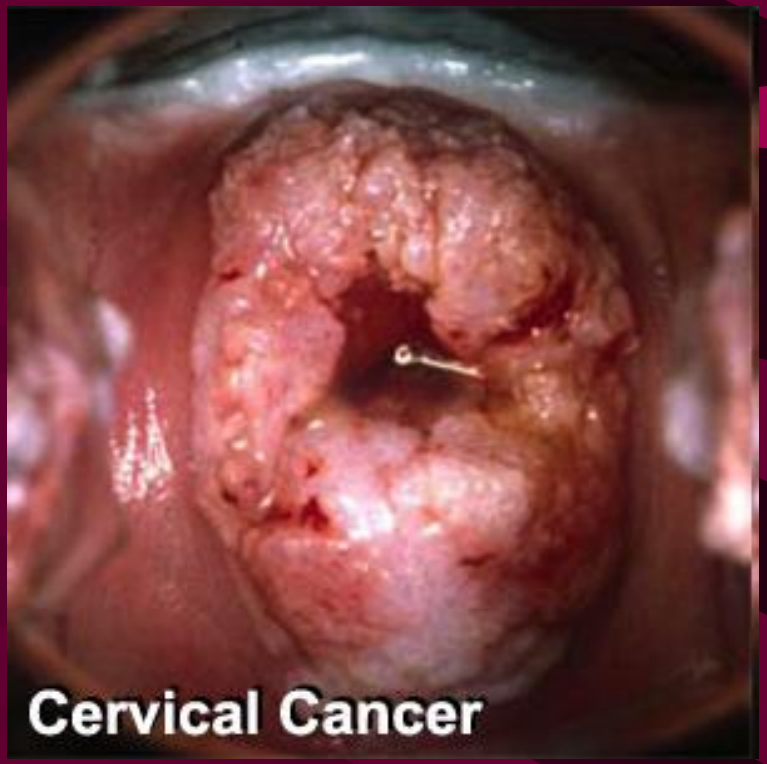
- Preceded by a superficial and radial growth phase, shown clinically as the expansion of an irregularly pigmented macule or plaque
- Most are multicolored mixtures of black, brown, blue and pink.
- Margins are irregular with reniform projections and notches
- Malignant cells are at first are usually confined to the epidermis and uppermost dermis
- Later they invade more deeply

and may metastasize

Hallmarks of a malignant melanoma with its asymmetry, irregular borders and variations in colour. The pink Amelanotic nodule signifies
deep dermal invasion

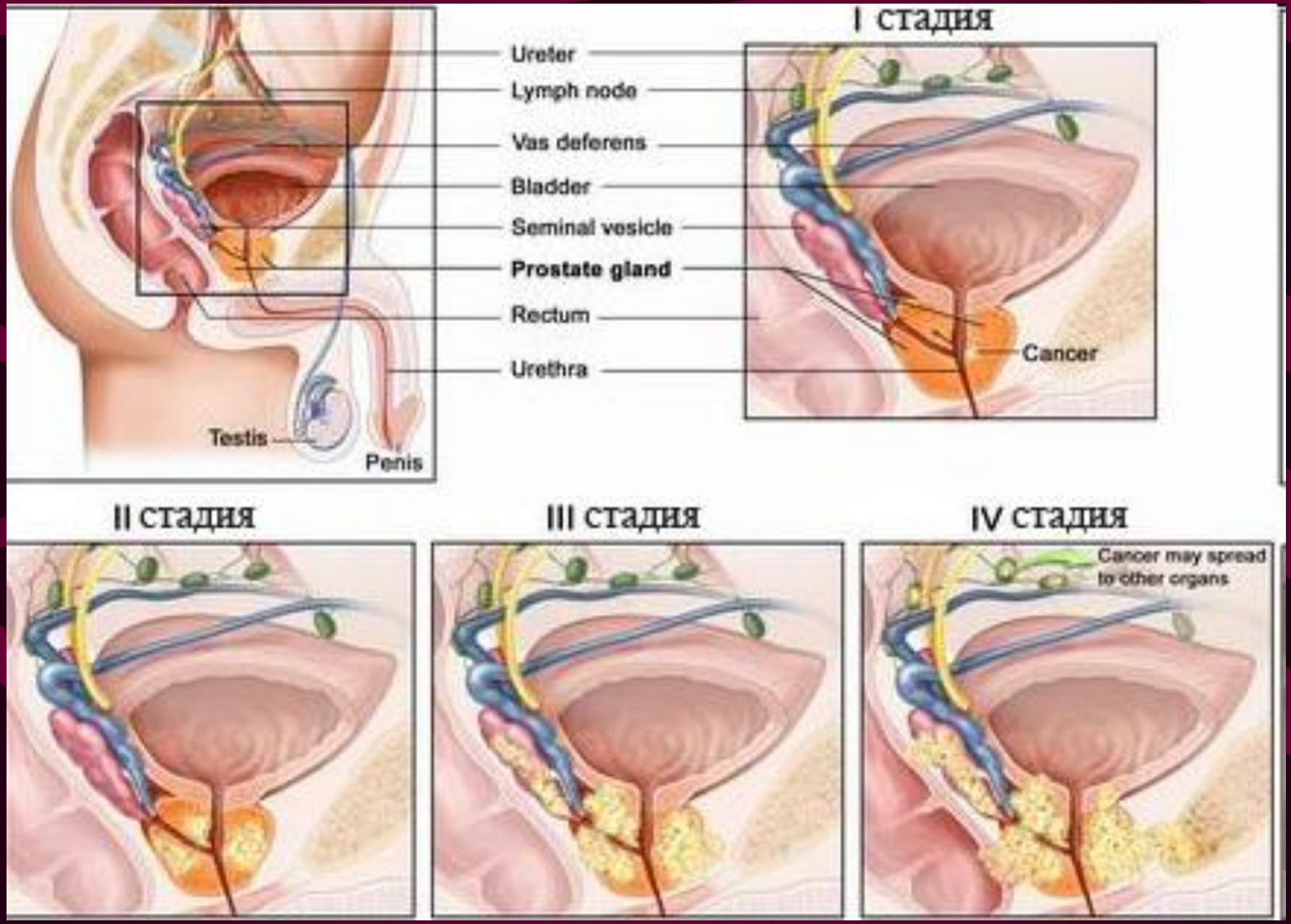
- Cervical cancer pictures

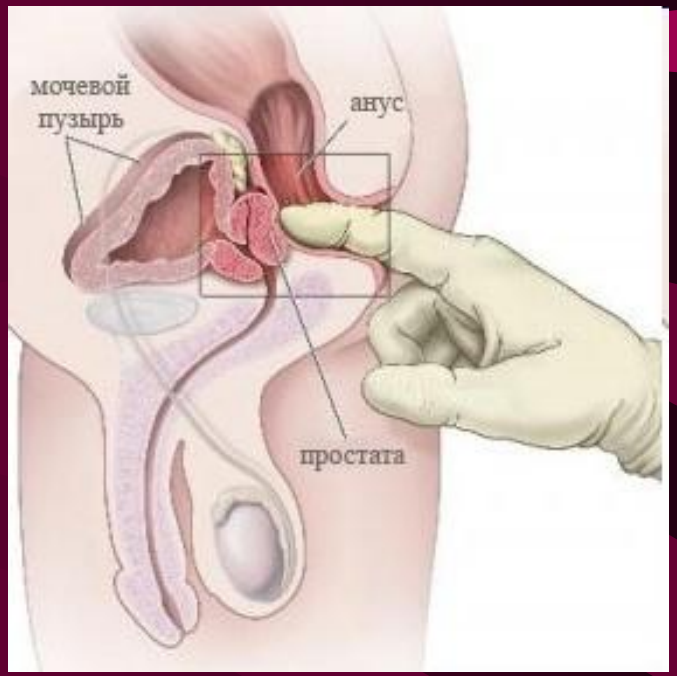




Skin Cancer Malignant Melanoma

Stage develop of tumor of prostate gland

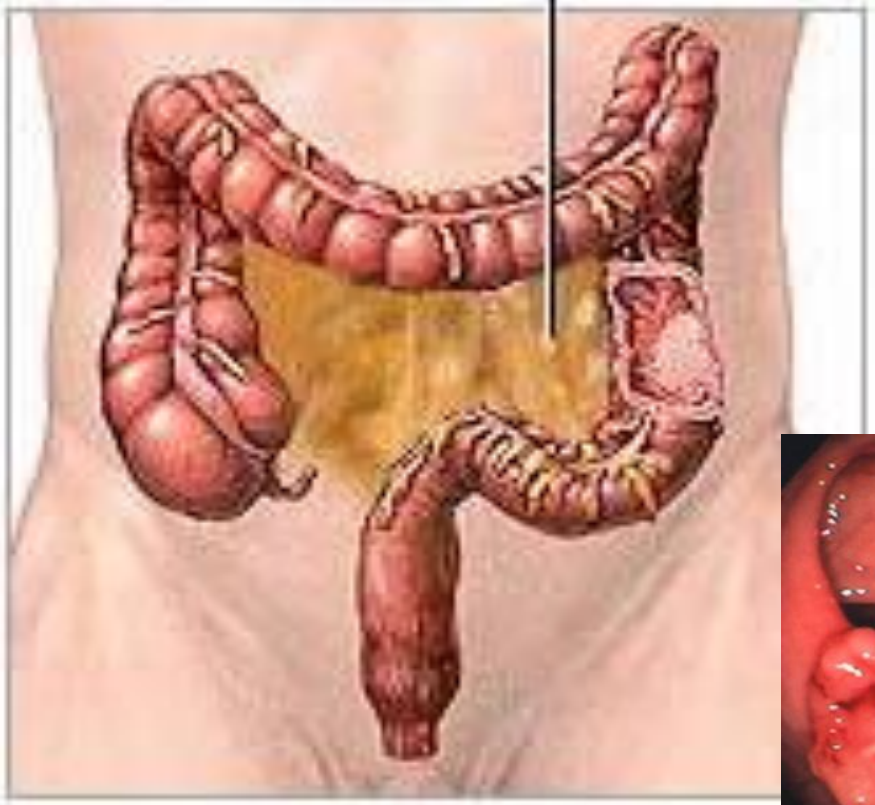



мочевой
пузырь
анус
простата

Colon Cancer

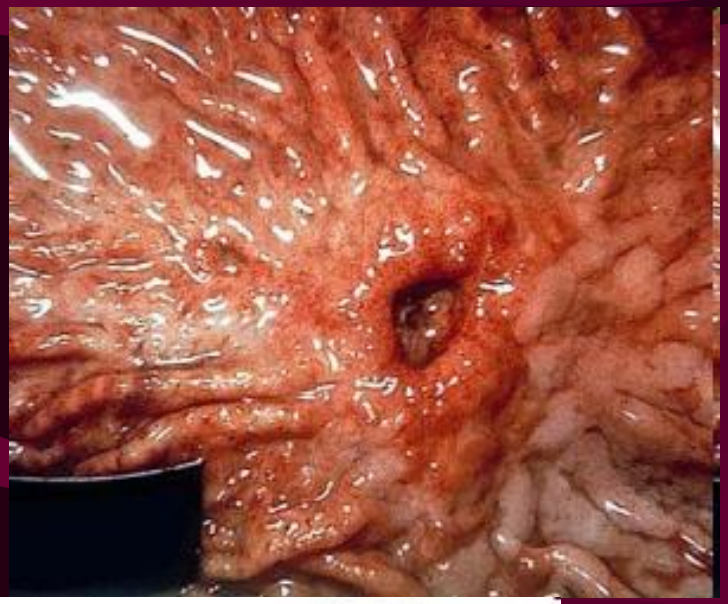
Stage I

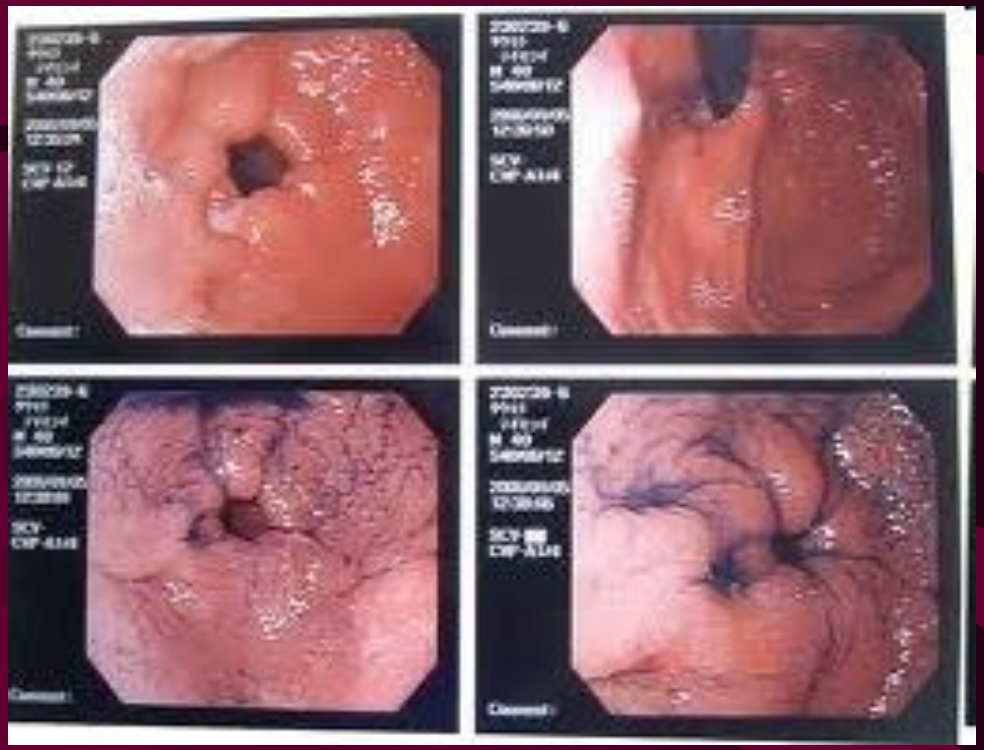
Stage II

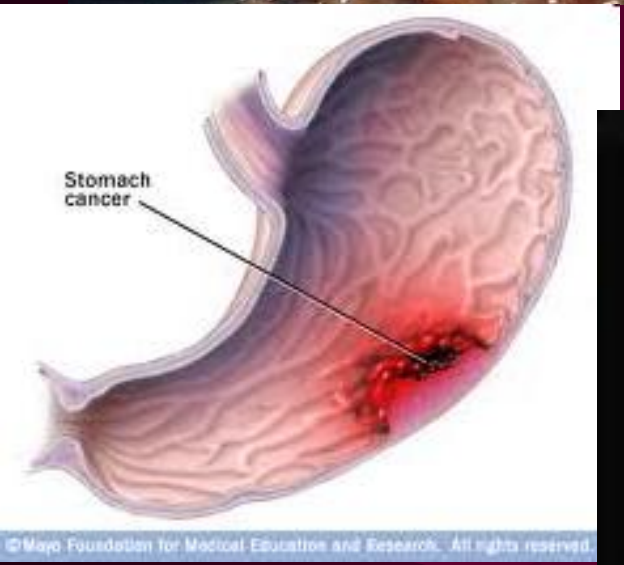


Stage III

- Stomach Cancer







- Cancer of mammaria gland

Signs and symptoms

- Bleeding or occult blood loss causing anemia
- Pressure causing pain or dysfunction
- Cosmetic changes
- Itching (зуд)
- 'Hormonal syndromes' resulting from hormones secreted by the tumor
- Obstruction, e.g., of the intestines
- Compression of blood vessels or vital organs


Abdominal pain
Jaundice
(Yellowish color of the skin and eye)
Nausea/Vomiting
Swollen abdomen
Itchy skin
Weight loss

cacheksia

What are diagnostic procedures for cancer?

When symptoms suggest cancer, physician may request/perform any of the following procedures to help positively diagnose it:

- a detailed medical history - family and personal
- thorough physical examination
- pelvic examination of the uterus, vagina, ovaries, bladder, and rectum
- Pap test may be requested at the time of pelvic examination

Other diagnostic procedures that may be requested include: imaging tests, such as:

- **x-ray**
- **computed tomography (CT or CAT scan)** - a non-invasive procedure that takes cross-sectional images of the brain or other internal organs; to detect any abnormalities that may not show up on an ordinary x-ray. The CT scan may indicate enlarged lymph nodes - a possible sign of a spreading cancer or of an infection.
- **radionuclide scan** - an imaging scan in which a small amount of radioactive substance is injected into the vein. A machine measures levels of radioactivity in certain organs, thereby detecting any abnormal areas or tumors.
- **ultrasound** - an imaging technique that uses sound waves to produce an image on a monitor of the abdominal organs, such as the uterus, liver, and kidneys.

- **magnetic resonance imaging (MRI)** - a non-invasive procedure that produces a two-dimensional view of an internal organ or structure, especially the brain and spinal cord. The MRI may show abnormal nodules in bones or lymph nodes - a sign that cancer may be spreading.
- **endoscopy** - use of a very flexible tube with a lens or camera (and a light on the end), which is connected to a computer screen, allowing the physician to see inside the hollow organs, such as the bladder or uterus. Biopsy samples can be taken through the tube.
- **laboratory tests** - to examine blood, urine, other fluids, or tumor tissue
- **biopsy** - to remove a sample of the suspicious tissue for examination in a laboratory by a pathologist
- **thinprep - a Pap Test alternative** - Approved by the US Food and Drug Administration (FDA), Thinprep is a liquid-based procedure in which cells from the cervix are put into a vial of liquid instead of being "smeared" onto a slide. The liquid is then filtered and only the cervical cells are placed onto a slide for examination.

Once the cancer is diagnosed, an evaluation will be made to determine the extent (stage) of the cancer.

Cancer Treatment

Hematology/Oncology and Other Medical Therapies

- Bone Marrow Stem Cell Transplant
- Chemotherapies
- Photodynamic Therapy

Radiation Oncology Therapies

Radiation Therapies Radiosurgery

Surgical Oncology Treatment Options

- Traditional Open Surgery
- Robotic and other Minimally Invasive Surgery
- Mohs Surgery for Skin Cancer

Clinical Trial Research Therapies

Clinical Trials by Cancer Type Integrative Medicine Therapies

Henry Ford Center for Integrative Medicine

- Exercise Therapy for Cancer Patients (the ExCITE Program)

Palliative Therapies

Palliative Medicine Hospice Care

Shanks for your attention!