Pathology –lab for dental students

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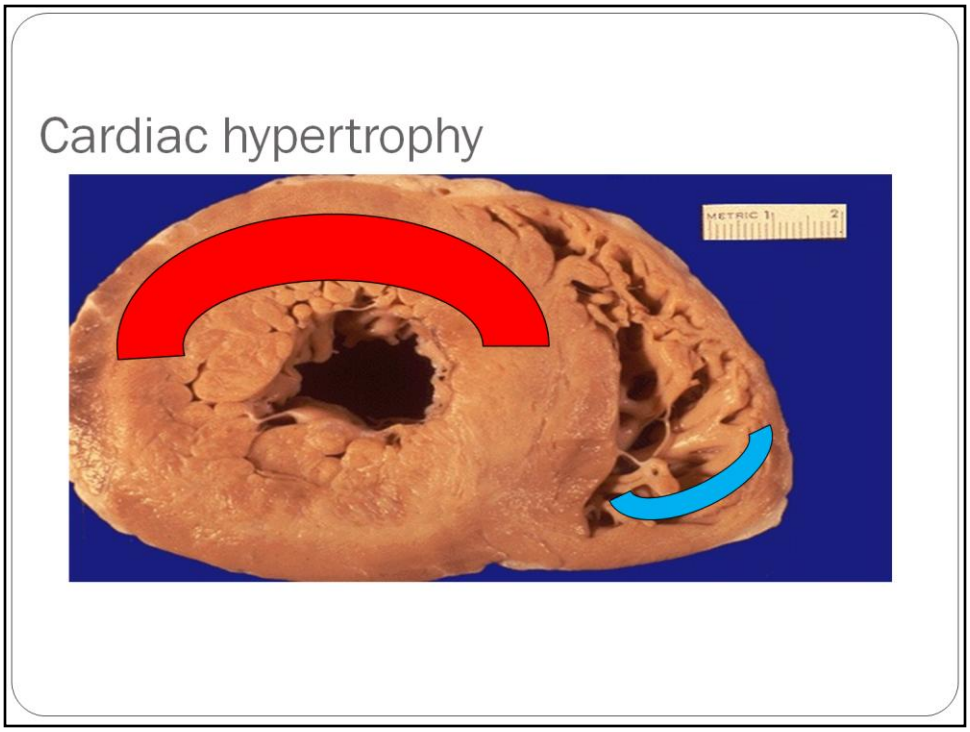
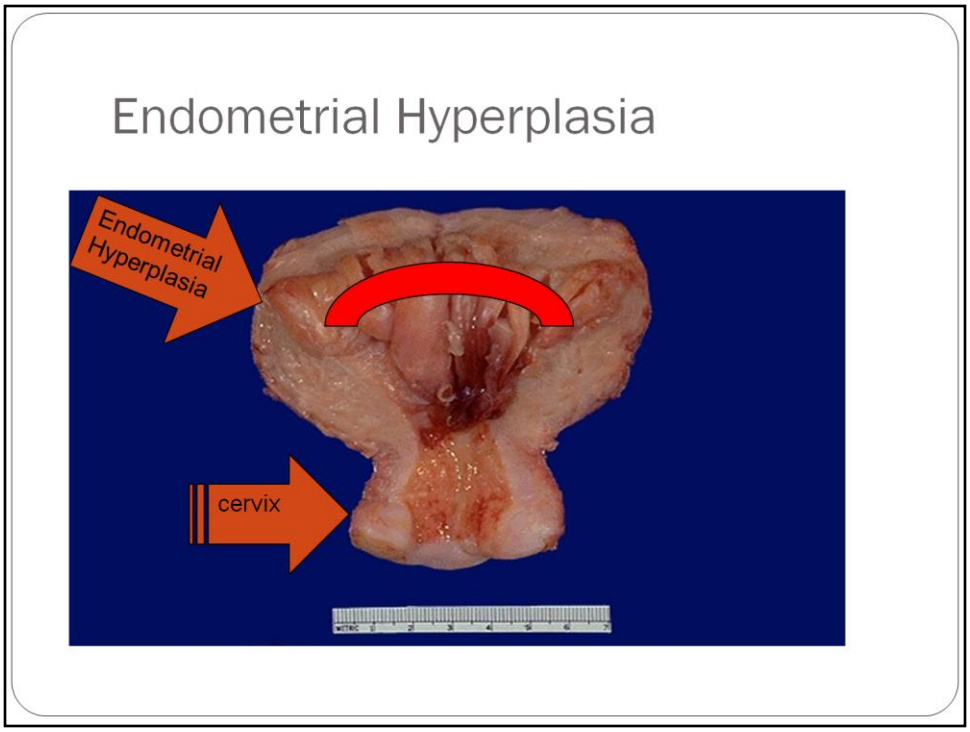
Note : slide#14&15 not required in final exam



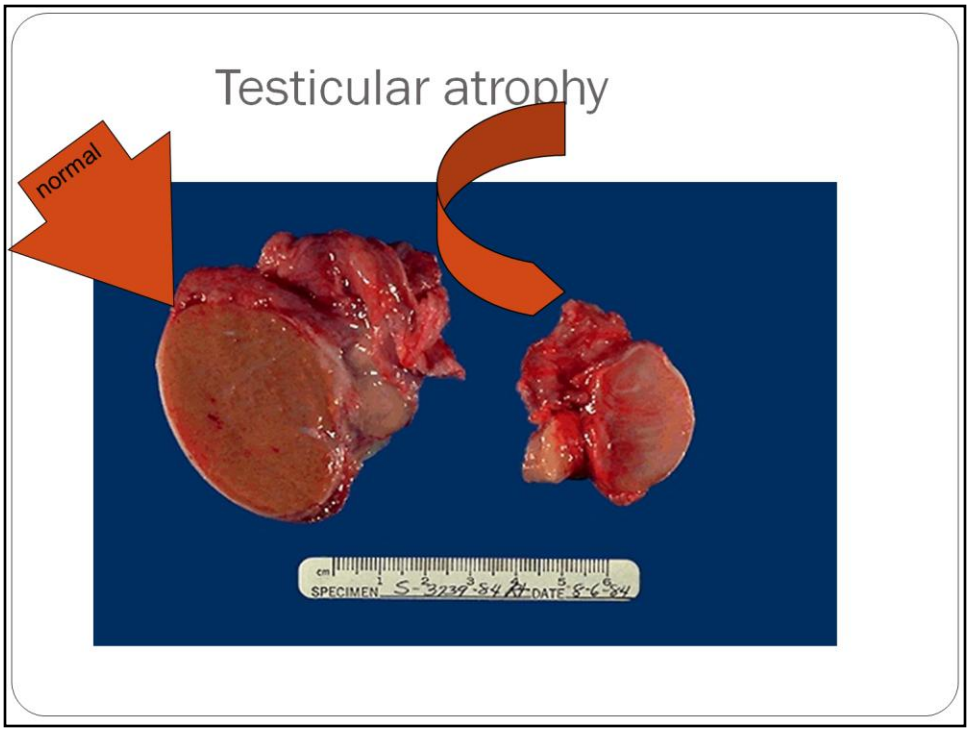
Red arch this is the left ventricle
Blue arch this is the right ventricle
Notice that lumen of LV narrower than RV ,, BUT in contrast the LV is thicker,, more muscles here to contract against resistance, E.g. there's an obstruction in the aorta or a stenosis causing the left ventricle to contract more, increasing the muscle size "hypertrophy".
Problem here is that LV contract very well but there are no spaces to accommodate amount of this bloods, ejection fraction are small .
Pay attention that normally, LV's wall is thicker than RV's, BUT not as much.

RV: right ventricle
LV: left ventricle

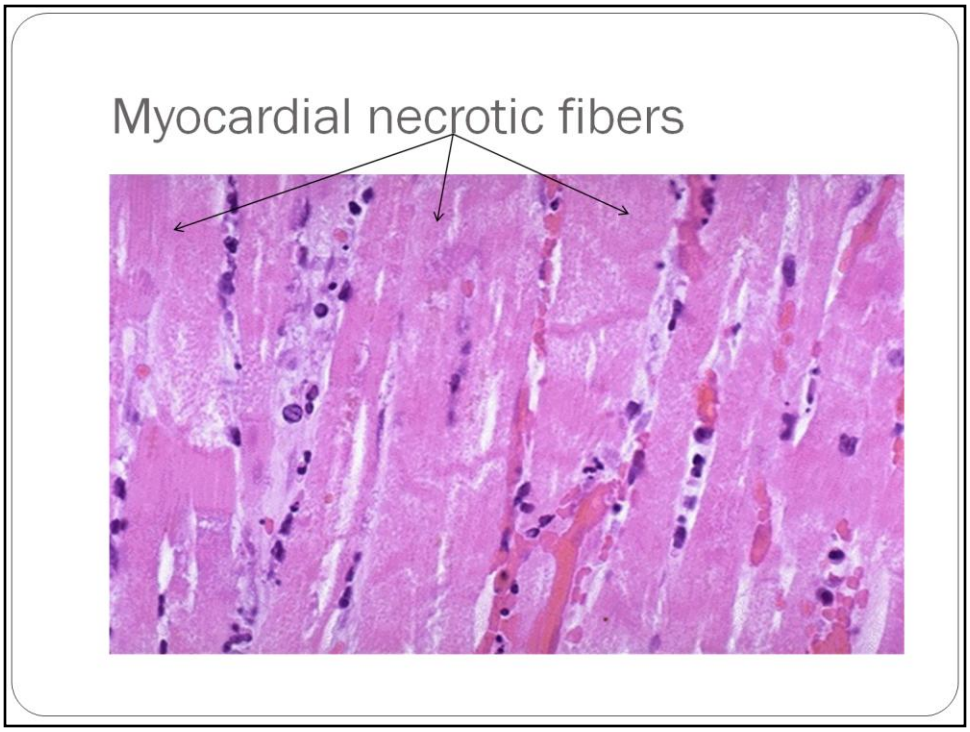


uterus
Red arch: this is endometrial cavity which is thicker and wider than normal because of hyperplasia.
Endometrial Hyperplasia is caused mainly by estrogen, then it will develop to Endometrial cancer.

*Hyperplasia: increase in the number of cells seen under MS.



*Atrophy mean that it will be smaller in size than normal
*Notice that both are in the same outline and shape, the difference is just on the size,,
*Main cause for Testicular atrophy is aging, blood supply will be reduced to the testis as a result of chronic ischemia.

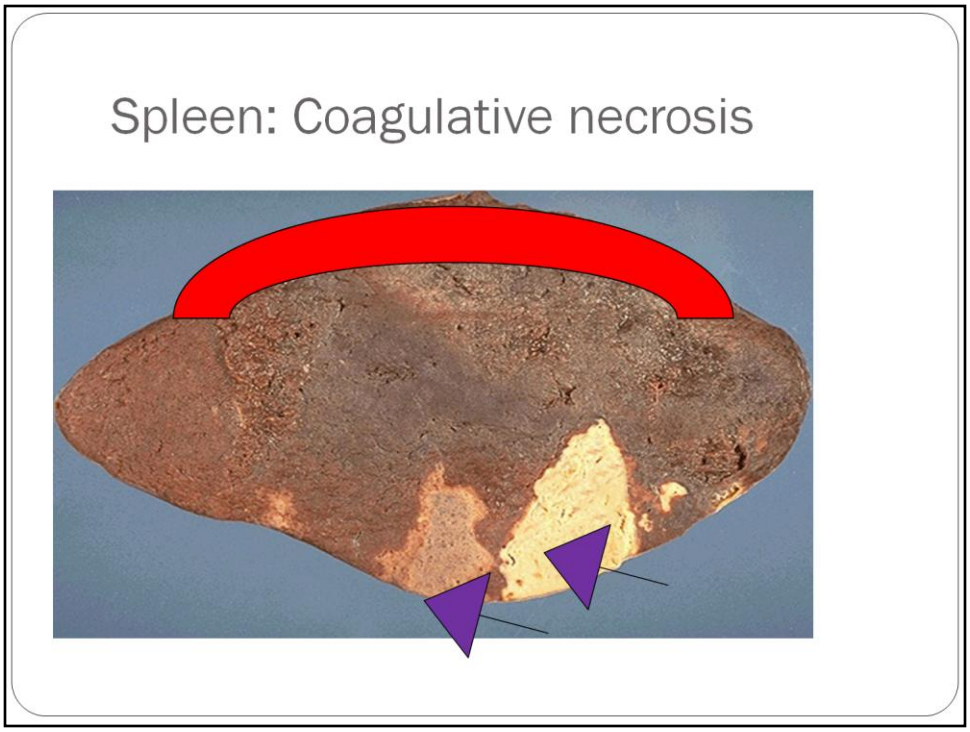


* black arrows: myocyte necrosis absence of nuclei
* We can Distinction Myocardial necrosis by:
1- their sizes are abnormal
2- color changes
3- Presence of inflammatory cells
Many of **eosinophilic cells appear here with violet color**

And in necrosis there's inflammation so we'll see inflammatory cells.

At the end of necrosis, you'll see an attack of inflammatory cells, all fibers have turned eosinophilic and a change in the original size.

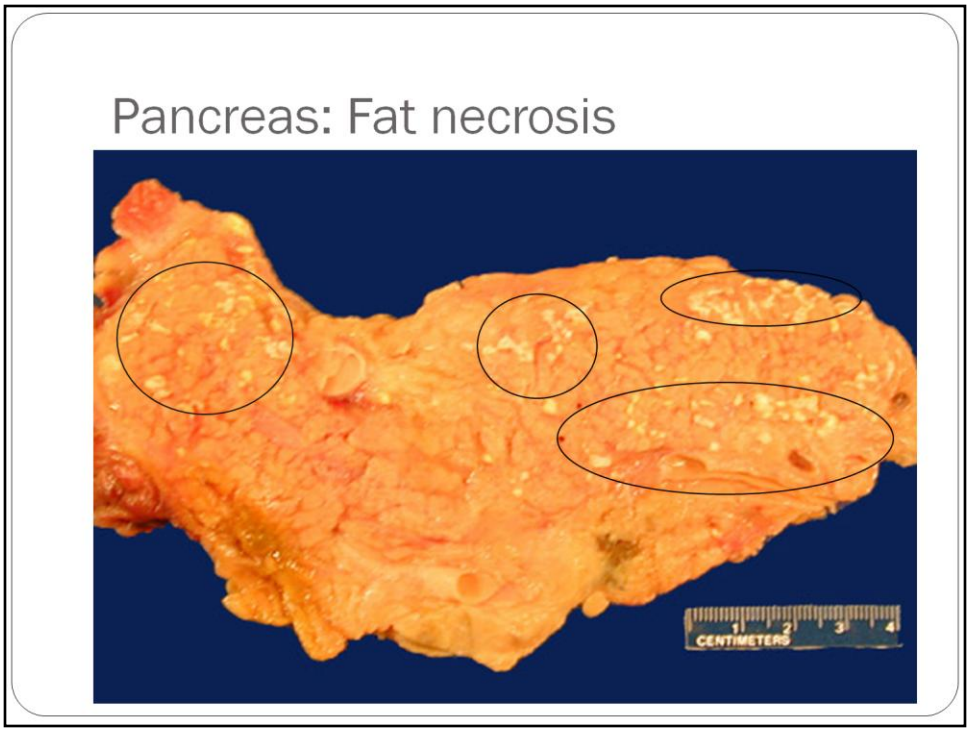
Nucleus of necrotic cells will disappear after a few processes, so you'll only see the nucleus of inflammatory cells.



Spleen: Coagulative necrosis result by ischemia
*Red arch normal liver that is in gray color
*Violet arrows those multi necrotic tissue that appear as white and friable like clumped cheese and solids notice that the outline structure is constant.

*coagulative necrosis is seen in all tissues except the brain which undergoes a liquifactive necrosis.

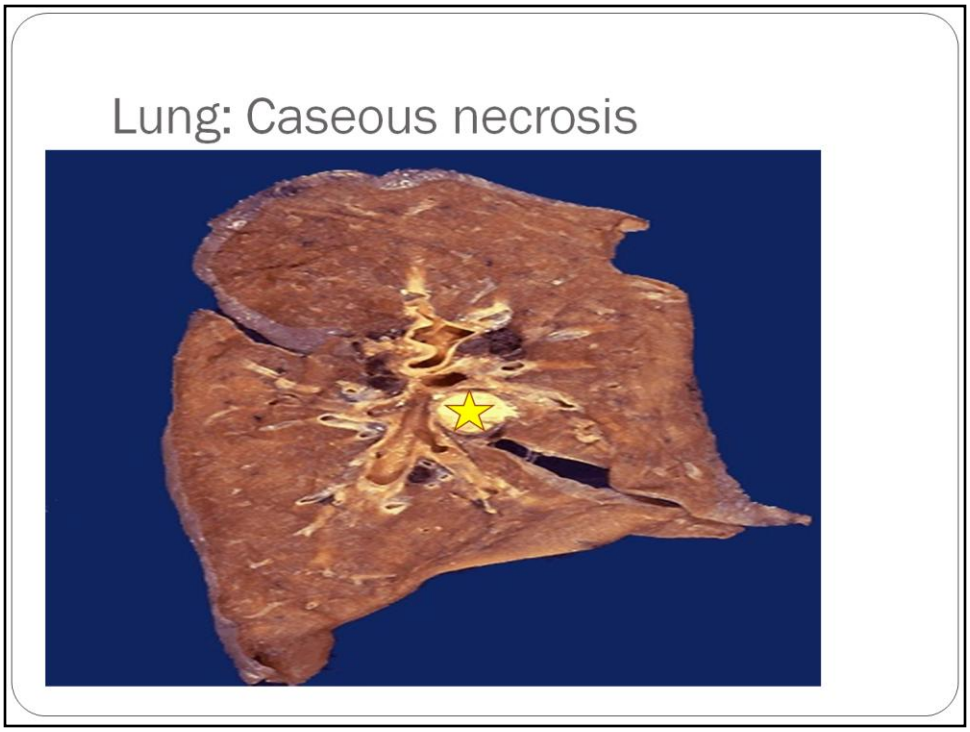
Brain: Liquifactive necrosis, a result of ischemia that happened in the brain
Notice the healthy normal brain tissue, cortex (white matter and grey matter) on the right half.
*Yellow arrow indicate Liquifactive necrosis that appears as liquid cavity, here there are no structural stability
Bacterial infection may cause coagulation



*Pancreas normally are loose structure no hard tissue appearance, a fatty organ.

*White spots these are fat necrosis, (black circulars)

*Microscopically adipocytes waere lost due to attack of inflammatory cells.



Caseous necrosis (yellow star) is a form of cell death in which the tissue maintains a cheese-like appearance.

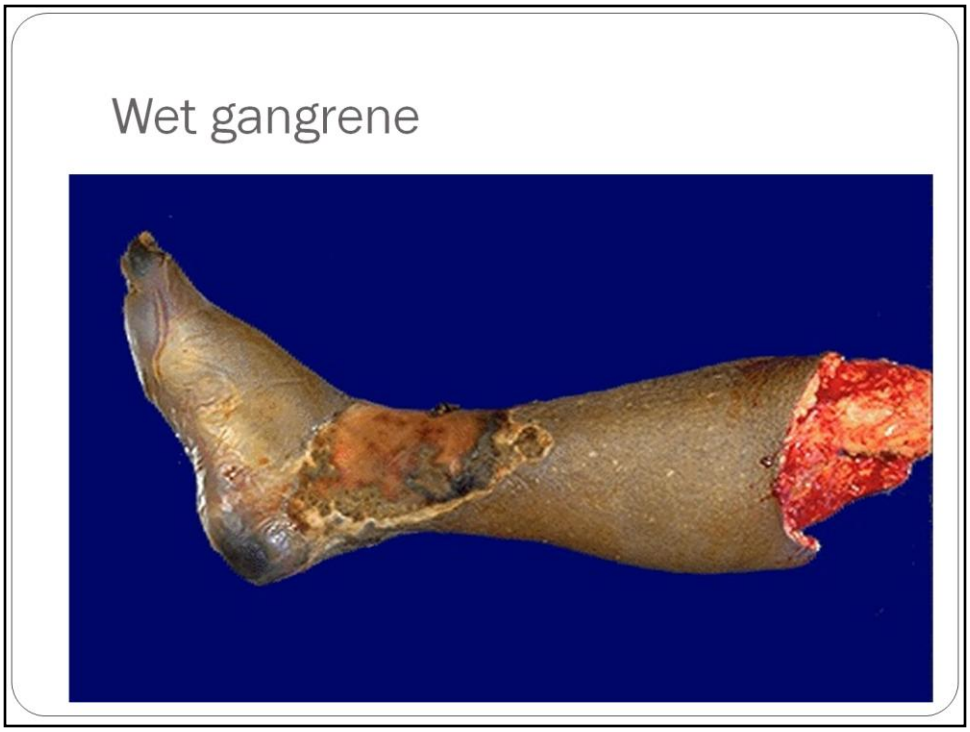
The dead tissue appears as a soft and white

Frequently, caseous necrosis is encountered of tuberculosis infections in lung.

Dry Gangrene

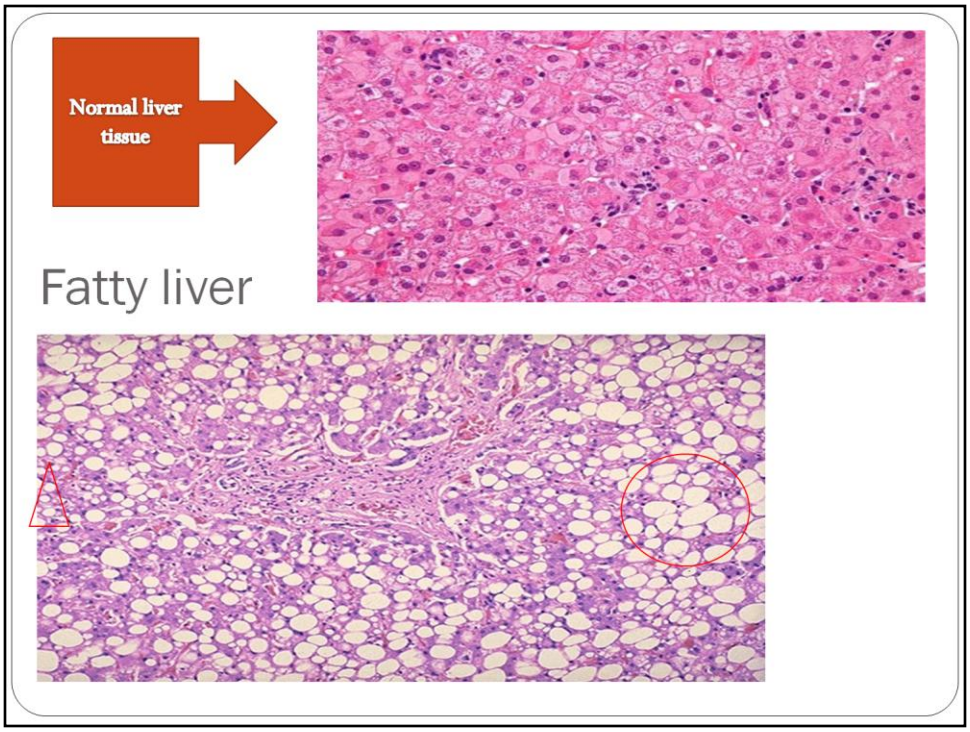
*The primary cause of gangrene is reduced blood supply to the affected tissues (ischemia) , which results in cell death especially in the Diabetic patients

Black in colour due to ischemia, blood vessels are completely blocked leaving no cure but amputation. This pt. is usually asked if they have diabetes. Dry gangrene happens where there is no infection. If there was a superimposed infection then it is wet gangrene. Diabetic patients have a high susceptibility to get ischemia in the lower limbs.



A wet gangrene, mainly caused by superimposed infections resulting in ulceration of skin, swelling of tissue and emitting a fetid smell with pus,

Below knee amputation



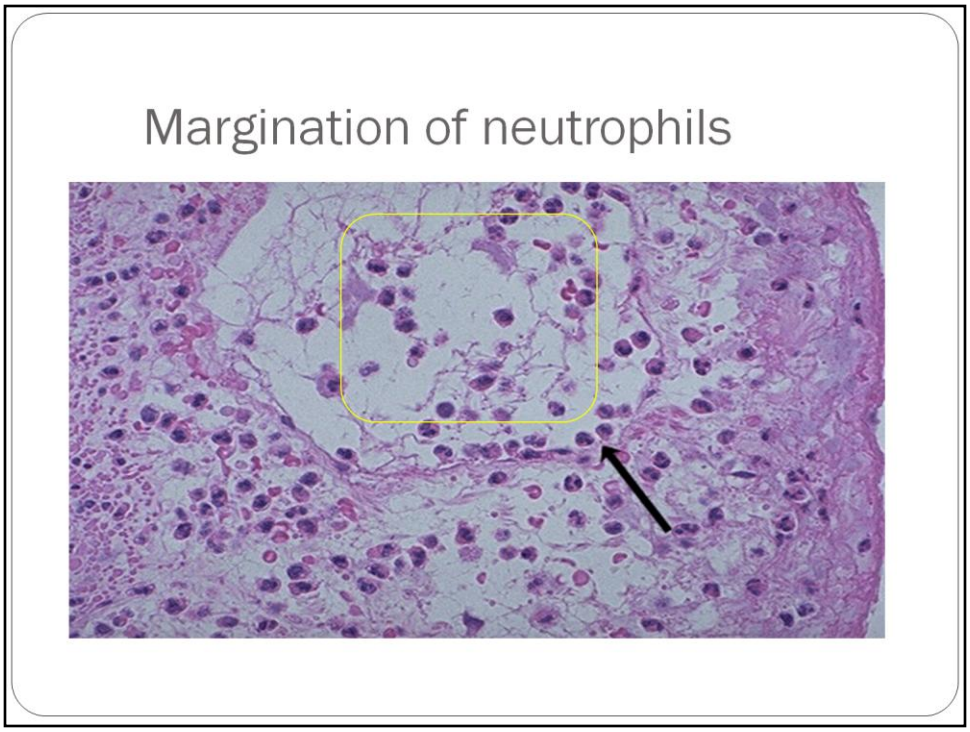
* In obese people

fat accumulate in liver cells via the process of steatosis

Steatosis are 2 types microvesicular and macrovesicular

Microvesicular: fatty droplets inside cells [triangle]

Macrovesicular: fatty droplets are large and outside the cells [circle]the most in this slide are macro



** Margination:

accumulation and adhesion of leukocytes to the epithelial cells of blood vessel walls at the site of injury in the early stages of inflammation.

*Black arrow indicate margination stage

*Yellow rectangular: those neutrophils reach the site of inflammation

Fibrinous inflammation

*Fibrinous inflammation is a form of inflammation which is characterized by fibrin deposition.

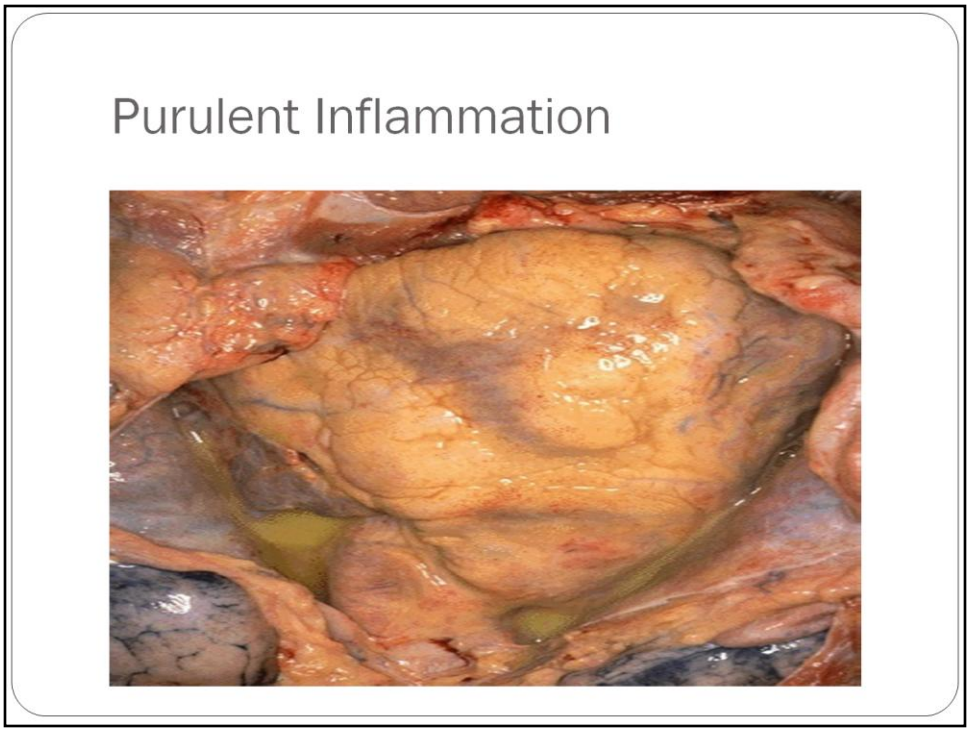
It results from the exudation of a high concentration of the plasma protein fraction.

*Body cavities and potential spaces are sites where fibrinous inflammation is more common,

examples are:

1. pericardial cavity most common as you see in this slide
2. pleural space
3. peritoneal cavity

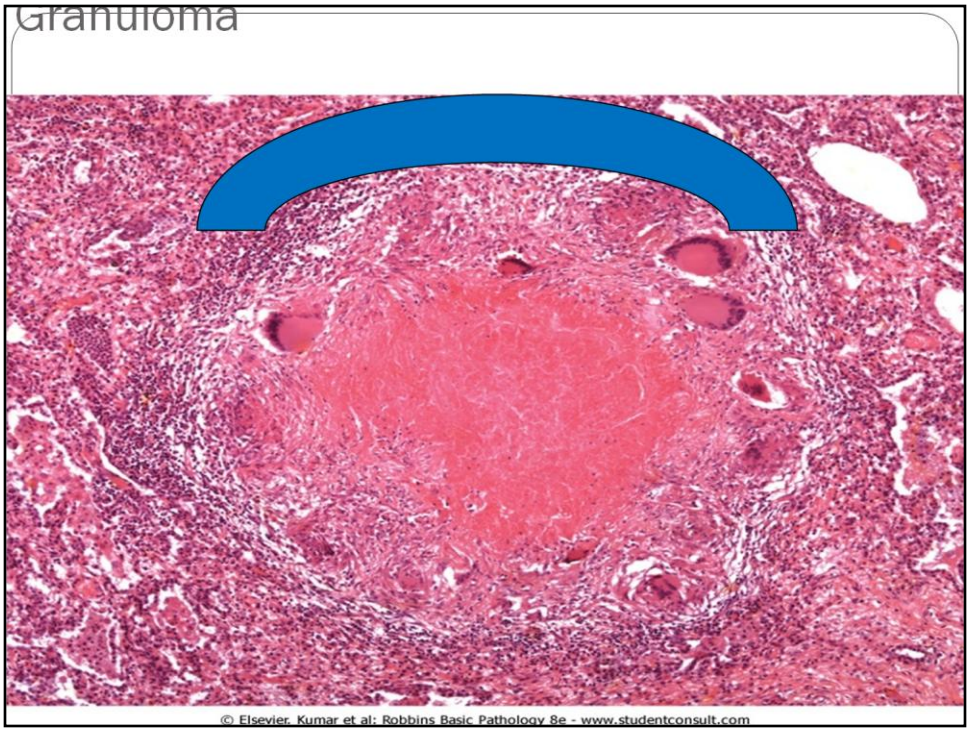
*low in inflammatory cells.



* Purulent : قيح

formation of pus, as seen in bacterial infections.

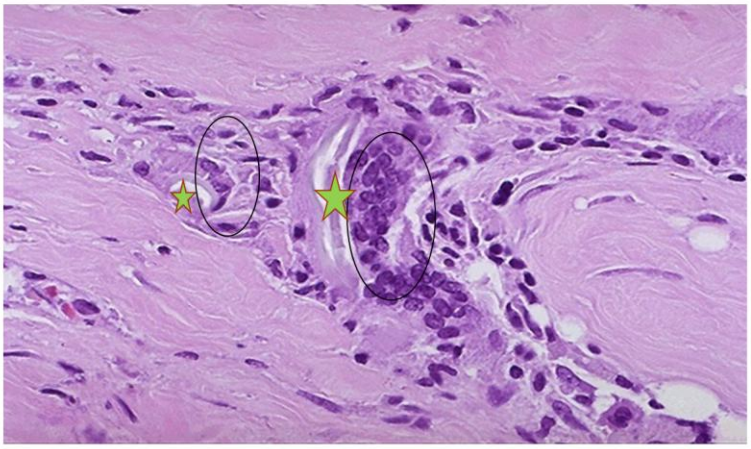
-a lot of inflammatory cells appear in purulent, but in Fibrinous low amount.



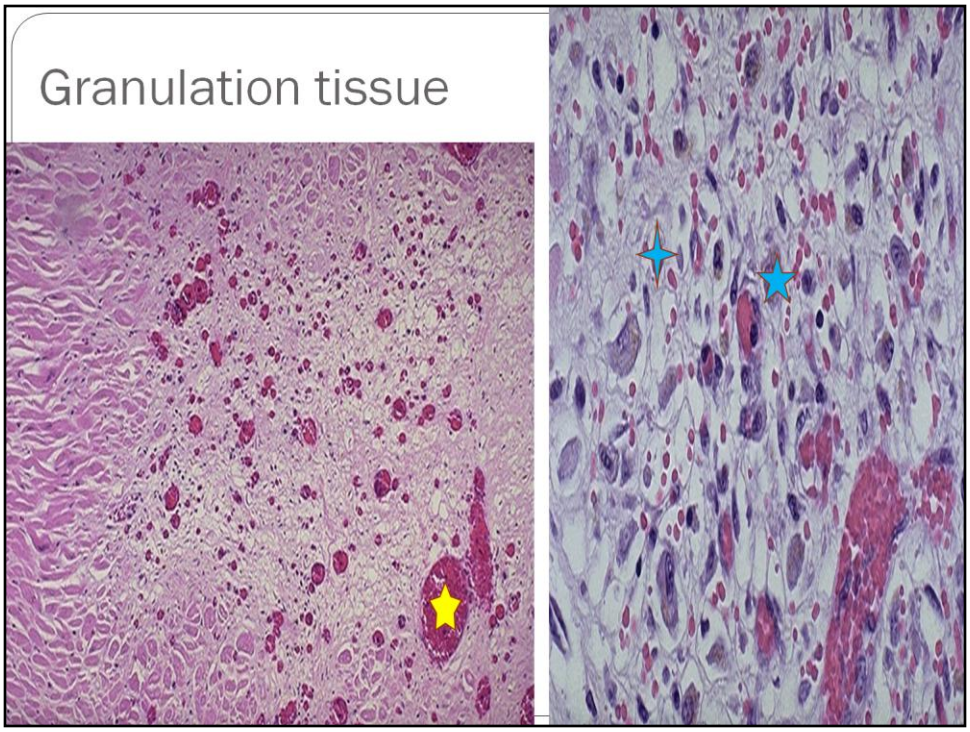
* Blue arch this multinuclated GIANT cell

A **giant cell** is a mass formed by the union of several distinct cells (usually macrophages), it can arise in response to an infection, such as from tuberculosis, herpes, or HIV, or foreign body.

Foreign body granuloma



* Black circular: multinucleated GIANT cell engulfing foreign body
* Green star : foreign body

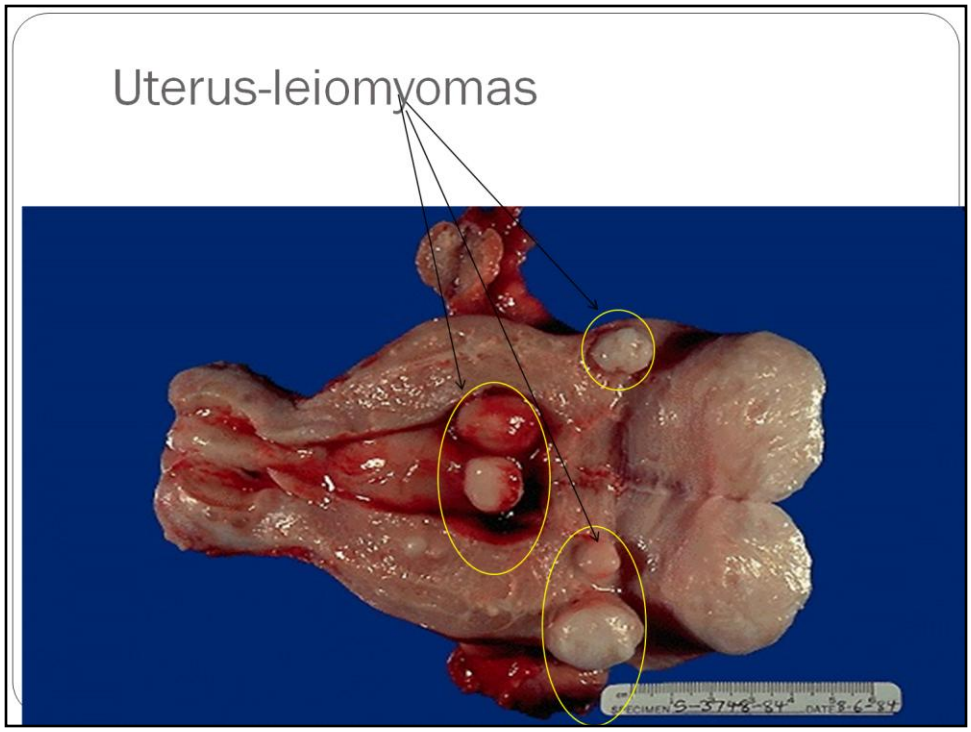


Granulation tissue is new connective tissue and tiny blood vessels that form on the surfaces of a wound during the healing process" before scar formation "

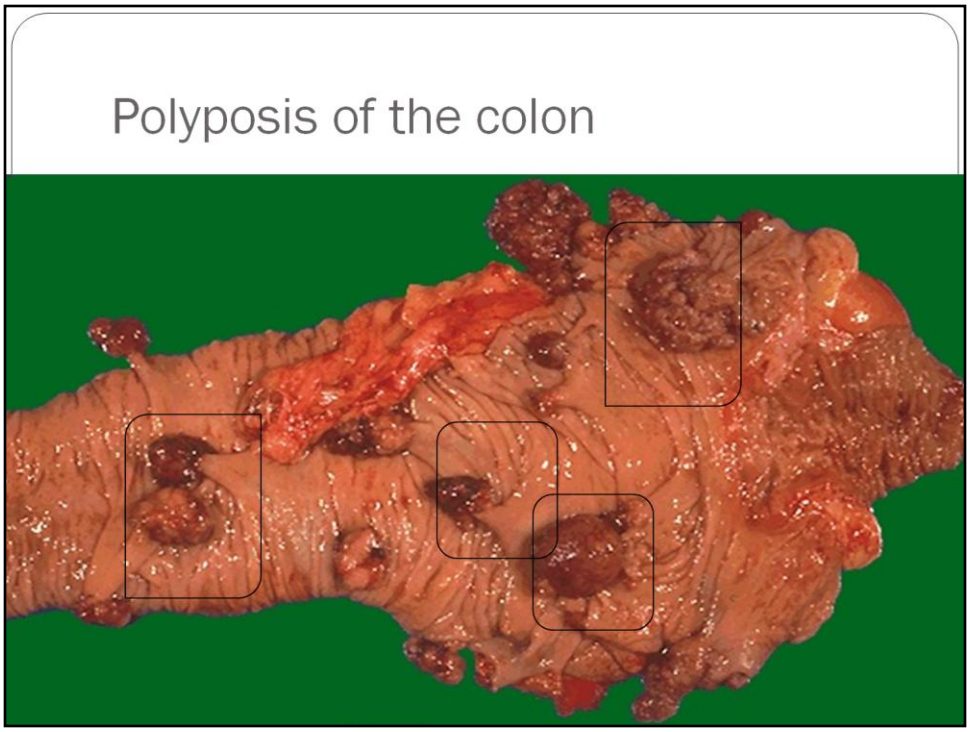
Contain blood vessels, fibroblast (blue star)

Blood vessels (yellow star)

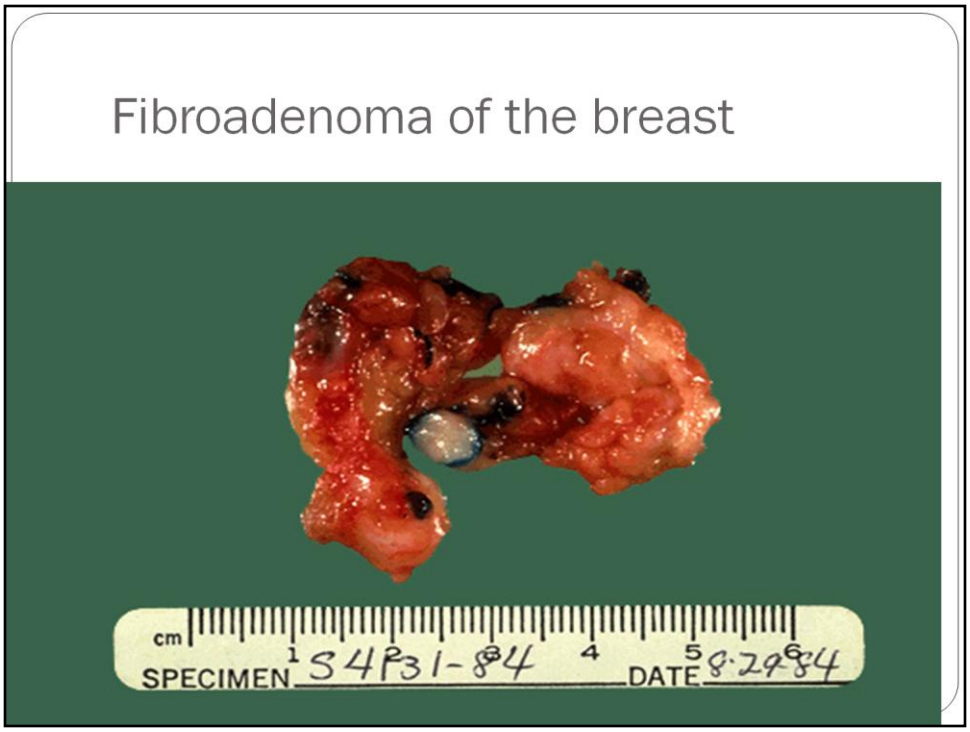
* keloid: Excessive collagen deposition.
* Arrow: multi layer of collagen fibrosis, abnormal



* Uterus-leiomyomas: are Benign fibroid tumor that happens in the uterus
* WORRLY and homogenous cut surface
*Smooth muscle tumor
*Necrosis and hemorrhage occur mostly here
* Outerborder irregular



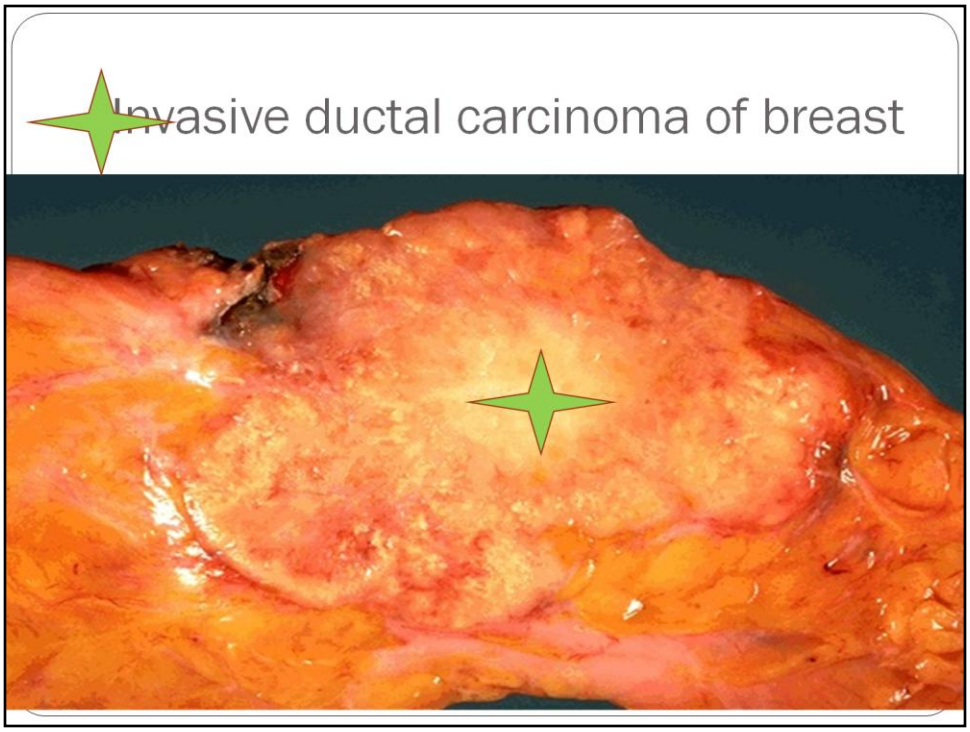
- May have more than 100 polyposis in the colon ,
- * finger like projections
- Could be associated with familial adenomatous polyposis



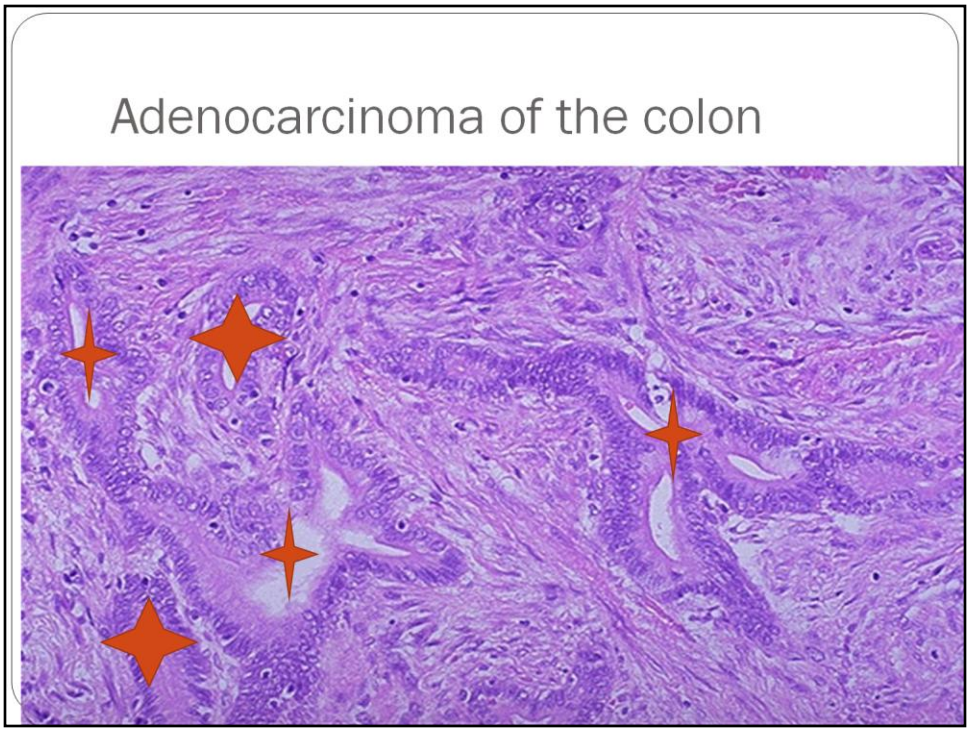
* Its benign tumor

0.1 % chance it will be converted to cancer (very small %)

* Widely seen



* Invasive ductal carcinoma (IDC), also known as infiltrating ductal carcinoma, is cancer that began growing in the duct and has invaded the fatty tissue of the breast outside of the duct.

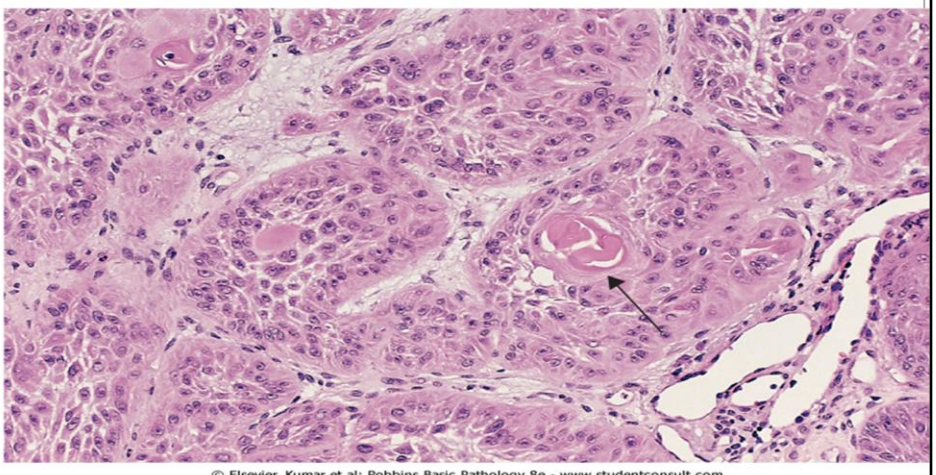


* Malignant tumor ,

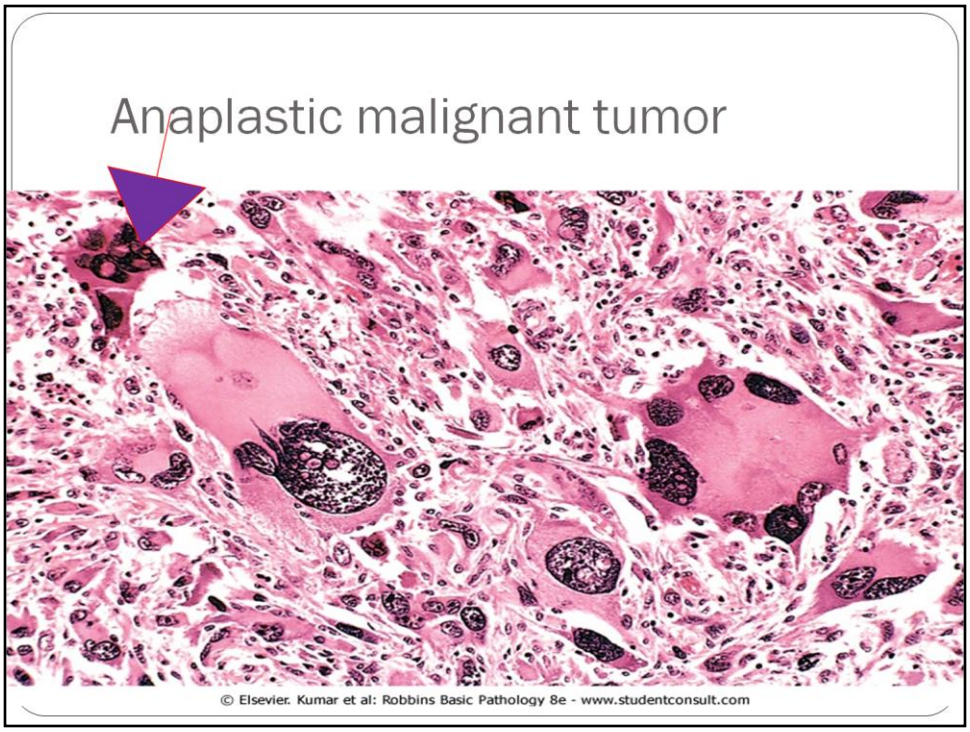
•Notice diffusing glands " orange stars "

•Cells have abnormal shapes with more mitosis than normal

Well-differentiated squamous cell carcinoma

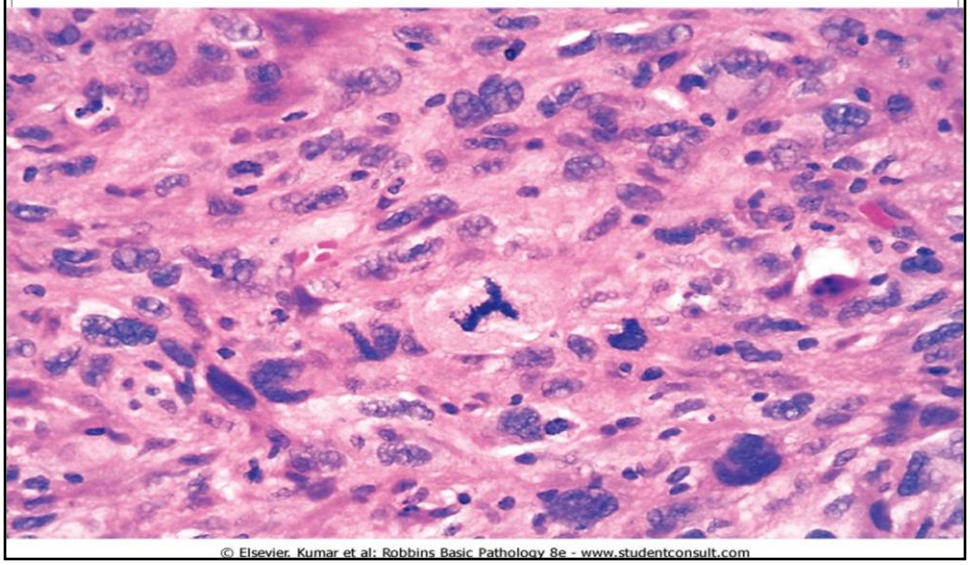


* Black arrow: keratin
* Cells begin to show an ugly appearance …between them intercellular bridges

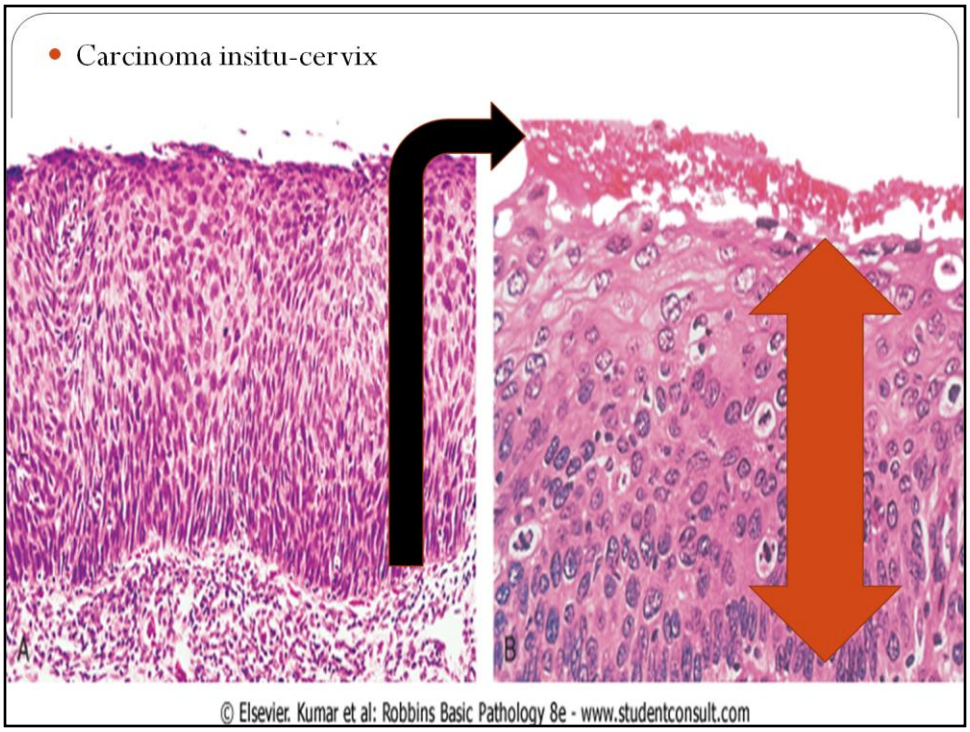


* We cant know where the origin of it.

Anaplastic tumor cells with abnormal mitoses



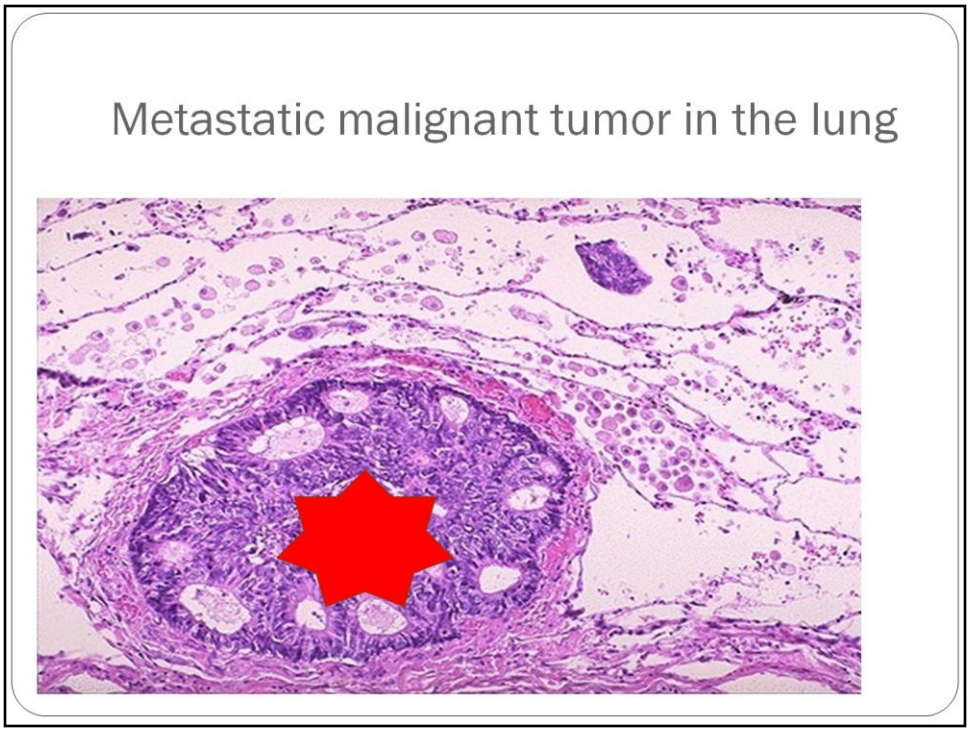
- Cause by Abnormal mitosis " tribplar mitosis "
- "Mercedes sign"



•Insitu means not intact “invasion “

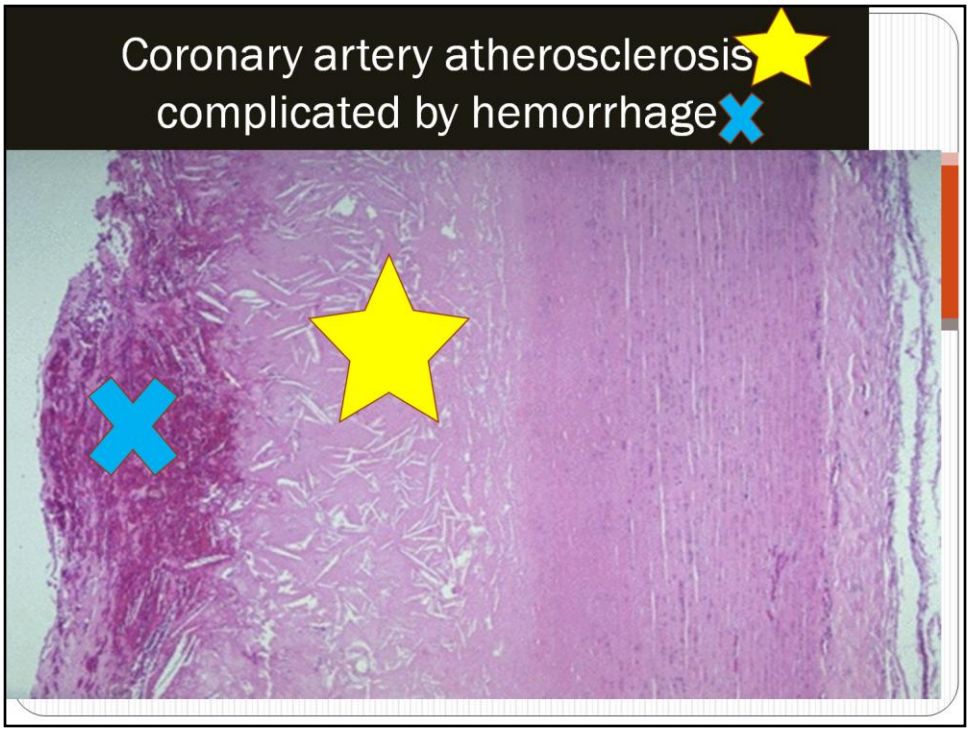
•This is an epithelium structure the mitosis in normal state must be in the basal layer, but here it is in all layers so this is a carcinoma inisitu

•Black arrow just to give you note that is the same layer that in orange arrow but with different magnification

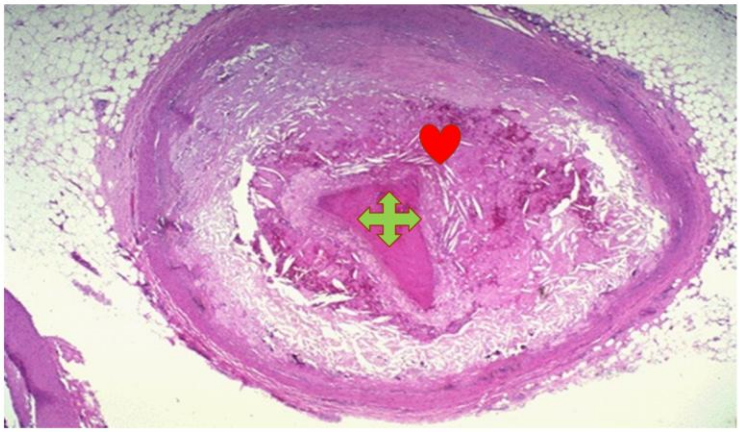


We have another structure with complete morphology but in another site like (cell from another tissue maybe here from breast cancer ”red star “ located in the lung cells) so this is metastasis

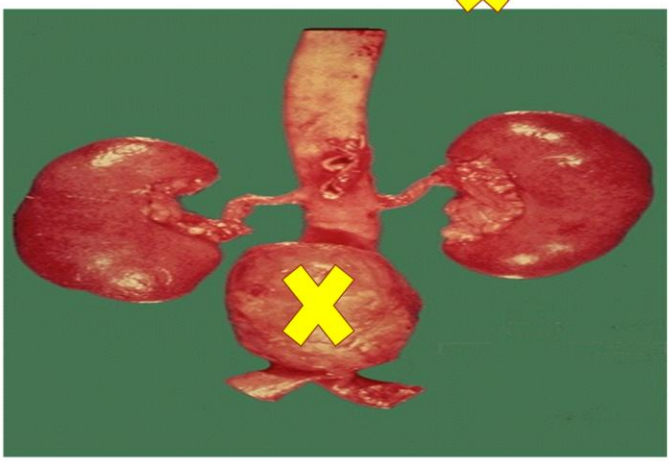
Coronary artery atherosclerosis complicated by hemorrhage

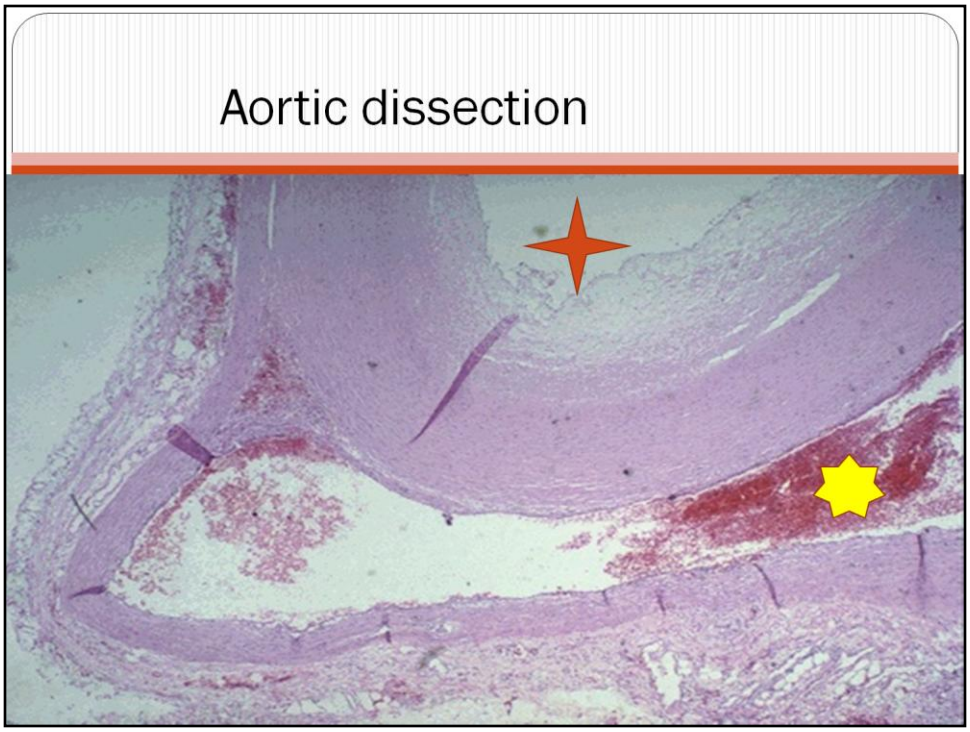

Coronary artery atherosclerosis
complicated by hemorrhage

- Atherosclerosis complicated by thrombus



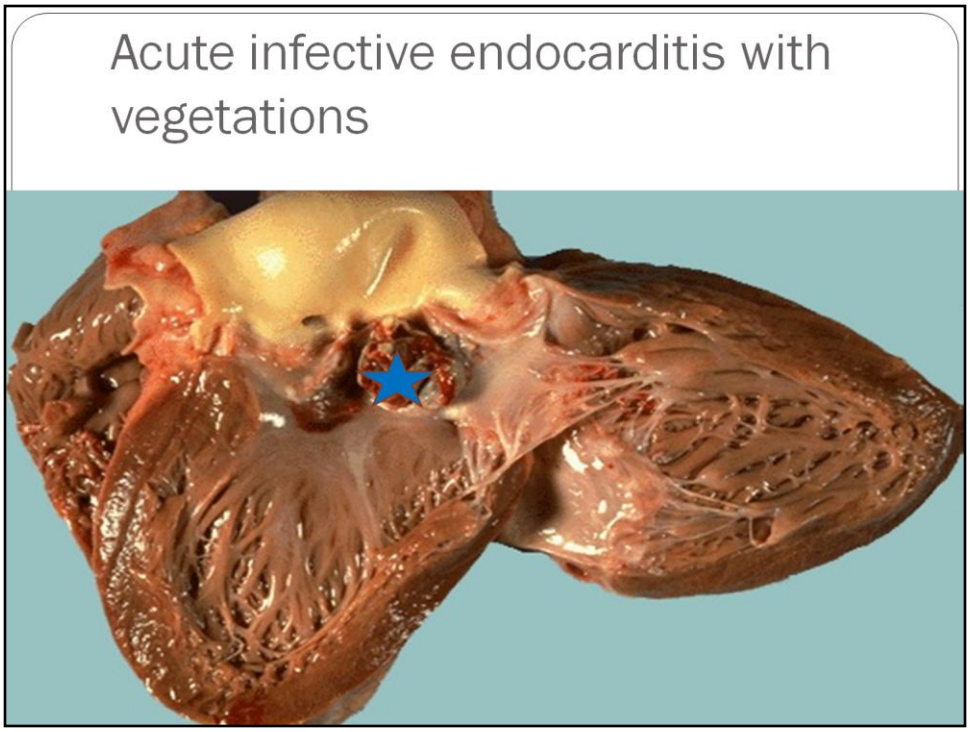
Abdominal Aorta atherosclerosis complicated by aneurysm



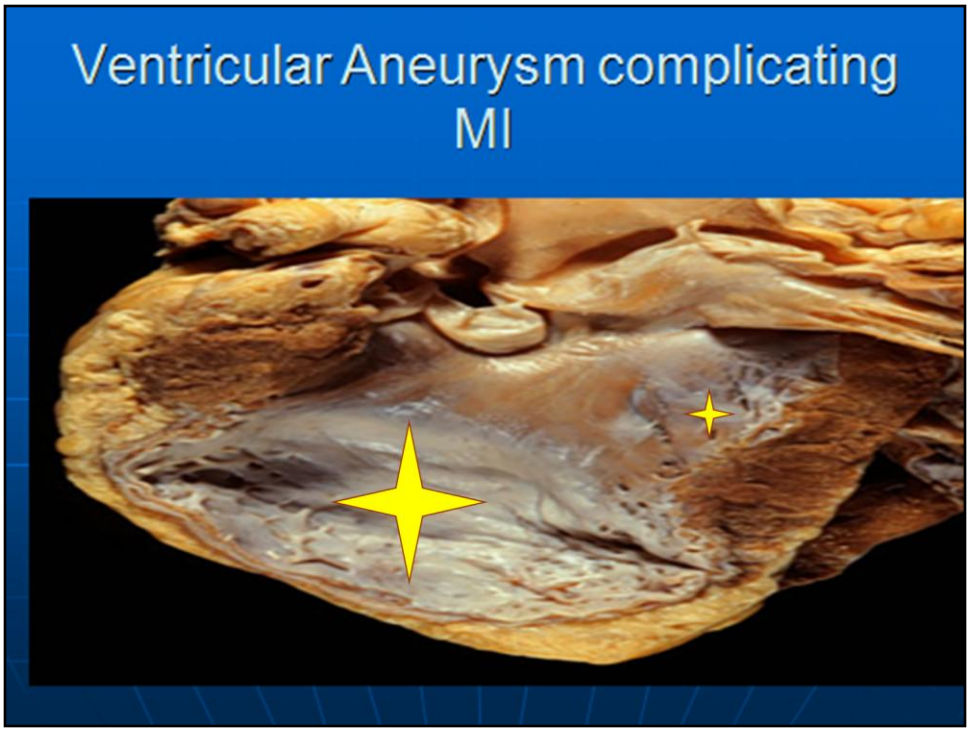


Orange star: This lumen in blood vessels

Blood will enter in media with high systolic pressure, this will cause rupture with hemorrhage (yellow star)



Blue star: vegetations that contain many microorganism in the aortic valve cause by staphylococcus aurous



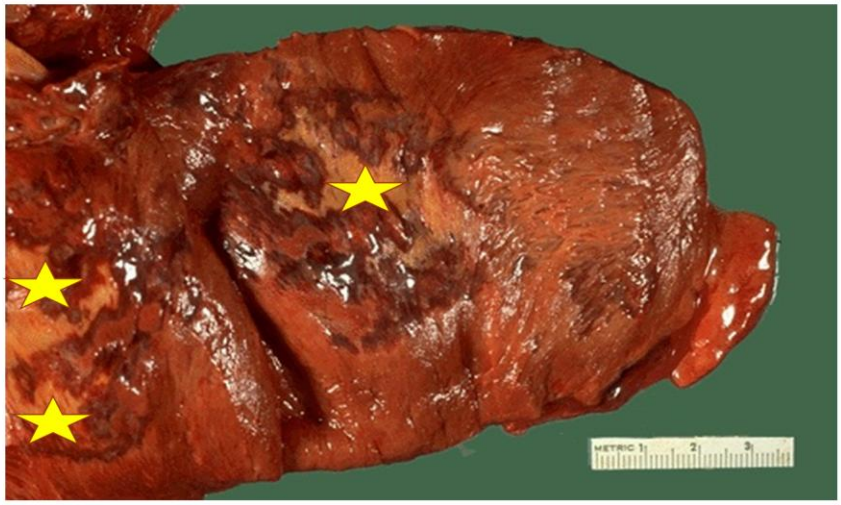
✓Late complication

✓Fibrosis formation (yellow star)

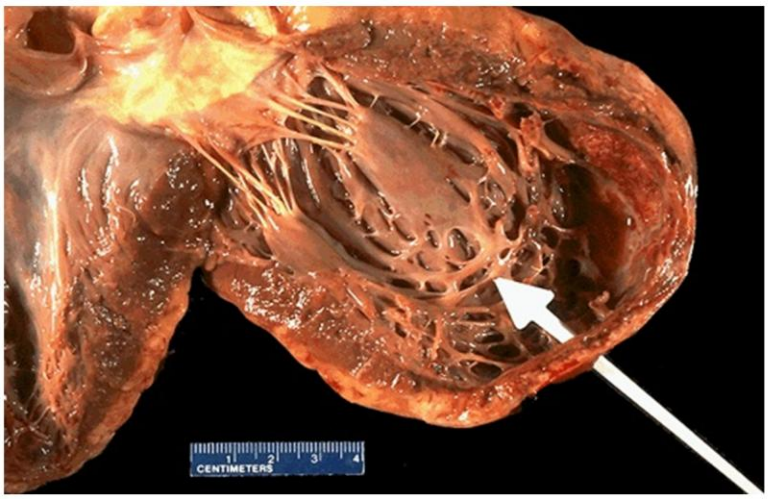
✓Localized dilation in LV mainly

✓Stasis and thrombosis may also be formed

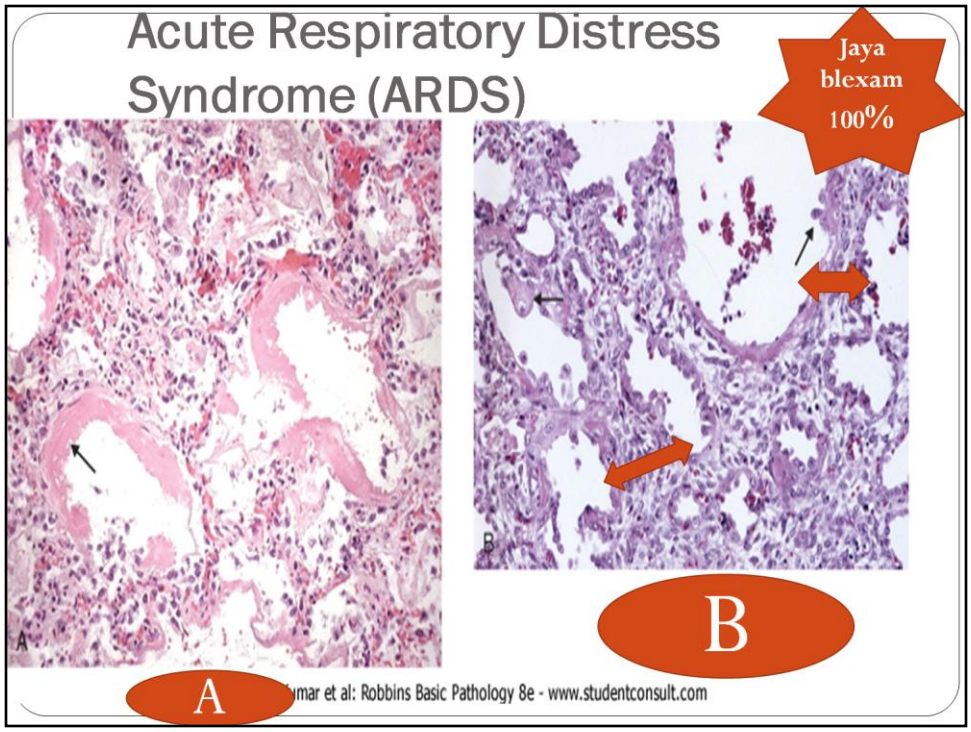
Acutemyocardial infarction



Left ventricular rupture complicating MI



Arrow indicate where the rupture is located



A: **acute phase of ARDS(** first phase) ,, black arrow represent hyaline membrane (esenophilc)

Those alveoli inside edema

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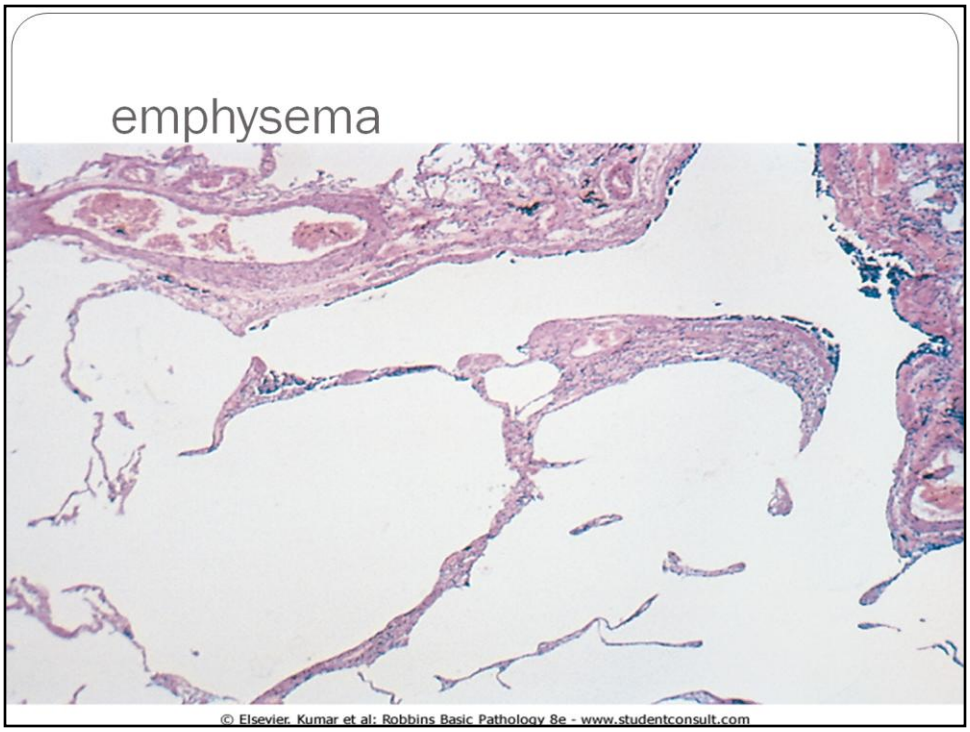
B: organized stage

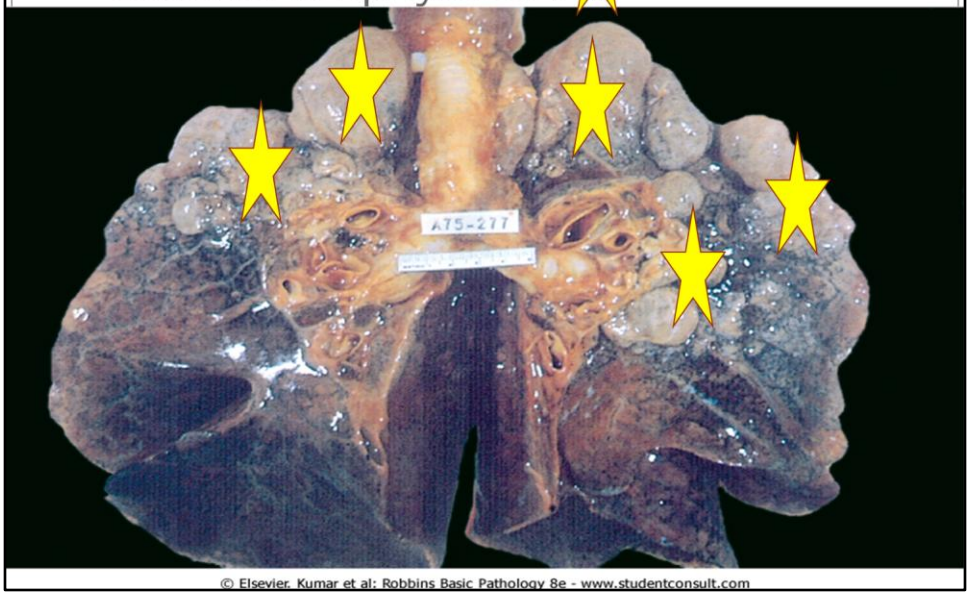
Notice the thickness of septa (will INCRESE more than A) orange arrow, and the fibroblast that will form fibrosis

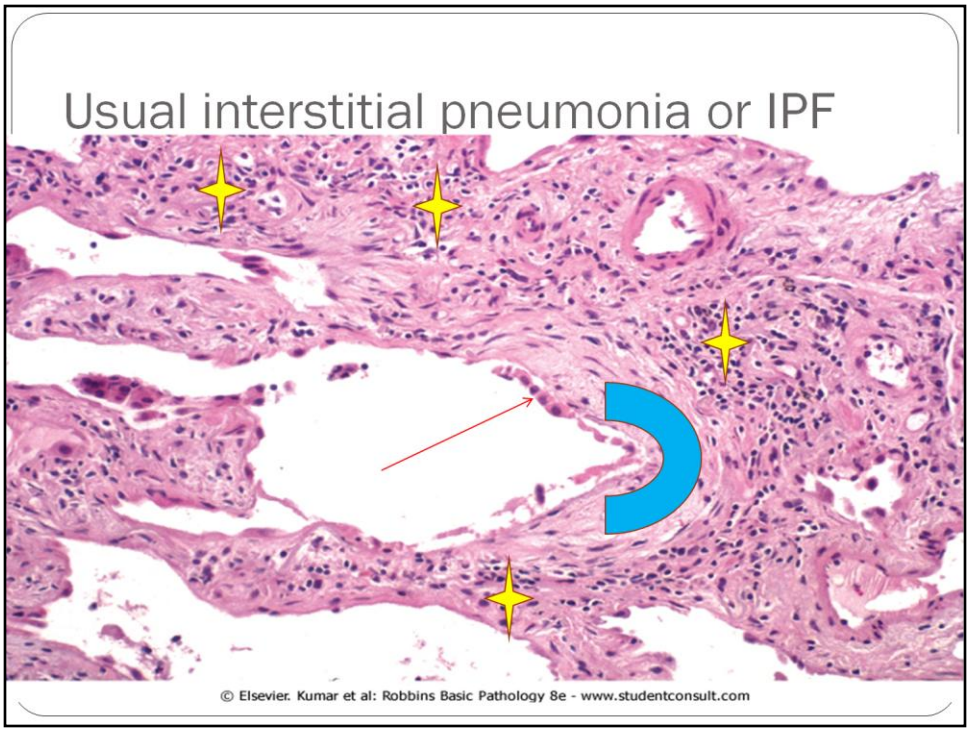
Black arrow represent the reactive pneumocyte type II



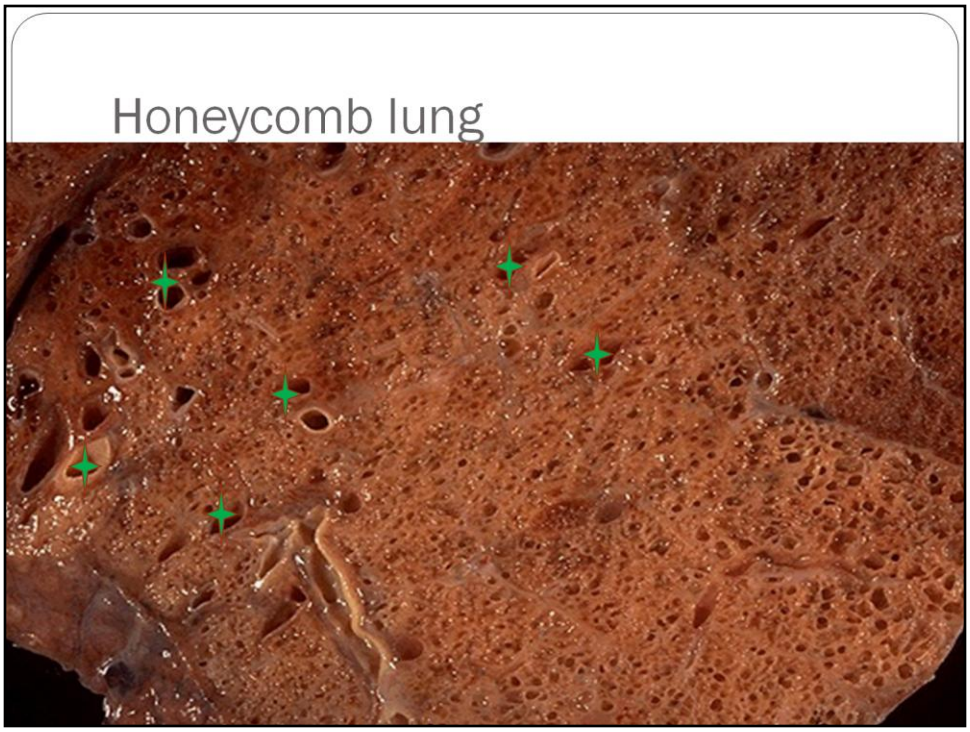
- there are multiple enlargement of air spaces
- Septa here destructed
- No fibrosis formed in the lung
- Bulla may be formed especially adjacent to the pleura (pneumothorax)

Bullous emphysema





- Dilated air spaces
- Dark area those have lymphocyte (yellow star)
- Fibrosis all around the cells (blue arch)
- Pneumocyte cell type II (red arrow)



Large alveoli (green star) separated by fibrosis

- The last 13 slides are from theory lectures,,, doctor fatima told us to study it for the lab exam ,,
- PLZZ don't forget to refer to doctor tariq idily subjects that include some picture also ,,
- Pay attention doctor fatima told us to focus on the subject that was taken in midterm to study the slides with theory subject (cell injury) ,,, but the final subject just focus in labeling with some extra notes as I did it in this presentation .

- Good luck