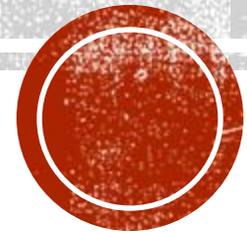
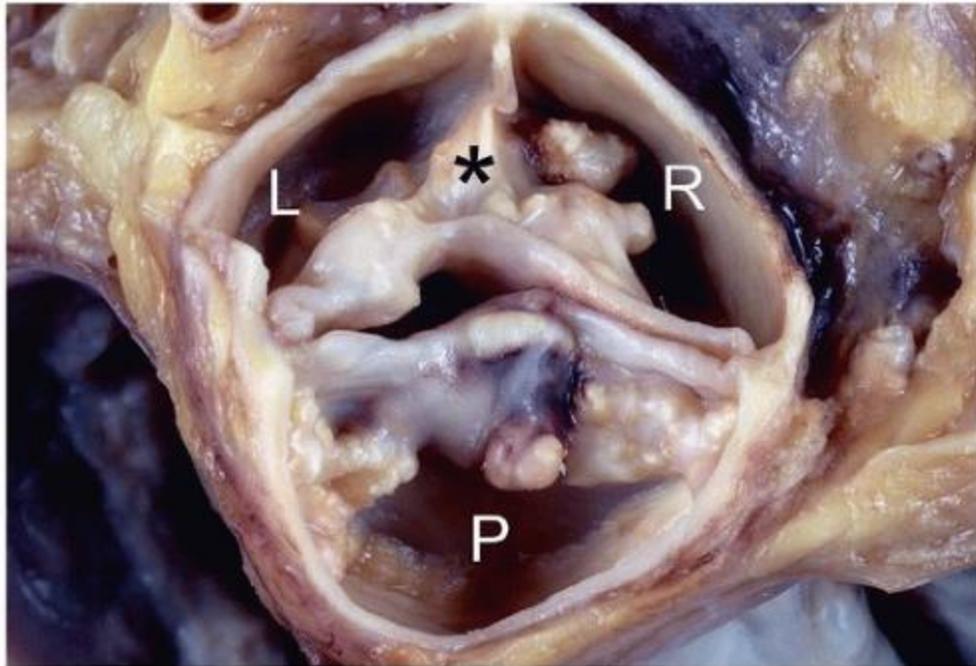


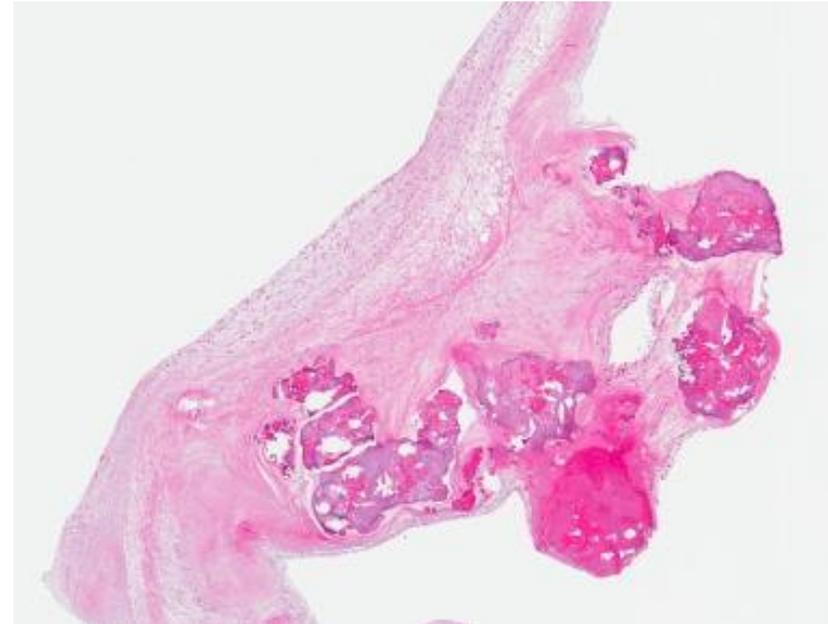
CVS MODULE PATHOLOGY LAB



Calcific Aortic Stenosis



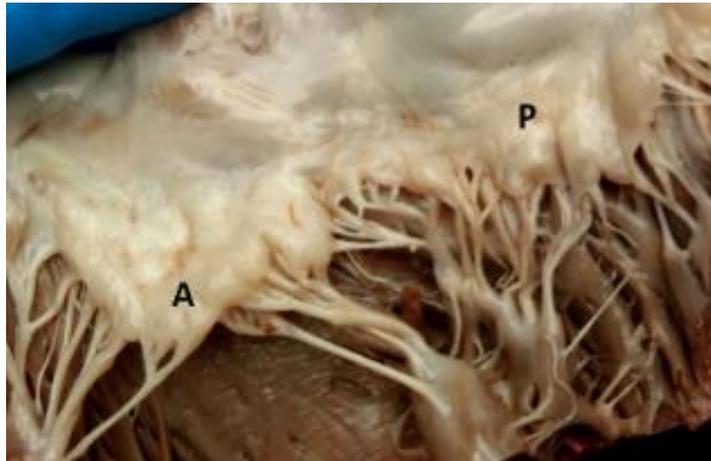
Nodular calcifications fill the cusp pockets



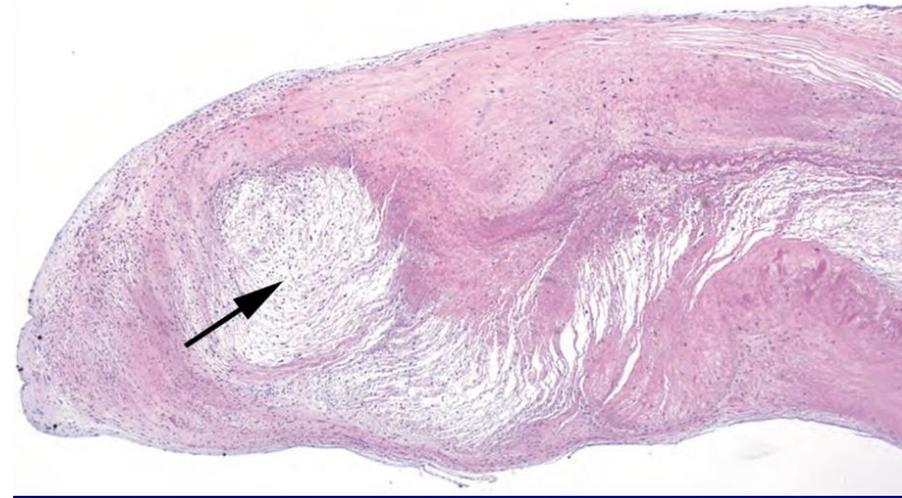
Large nodular calcific deposits in the wall



MYXOMATOUS MITRAL VALVE



voluminous and thickened leaflets



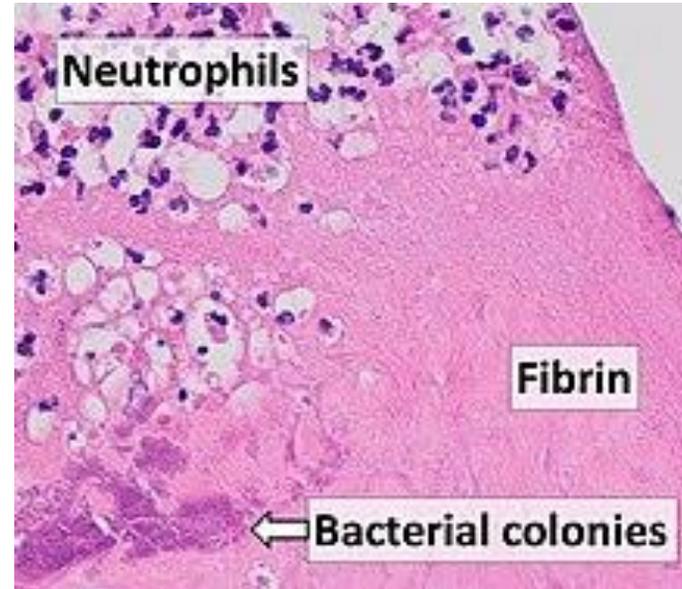
thickening and proliferation of the spongiosa with pooling of glycosaminoglycan that expands to the fibrosa.



MORPHOLOGY OF EI



Large vegetation on atrial aspect of valve



- Fresh vegetations contain platelets and fibrin with a rich infiltrate of neutrophils

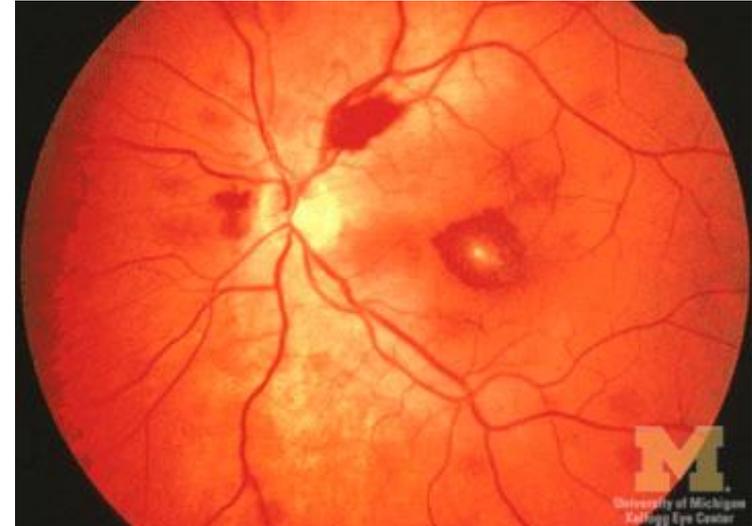
* In chronic lesions, vegetations may show varying degrees of organization, vascularization and calcification



CLINICAL FEATURES OF EI.



Osler nodes: tender lesions found on finger pulps and thenar / hypothenar eminences

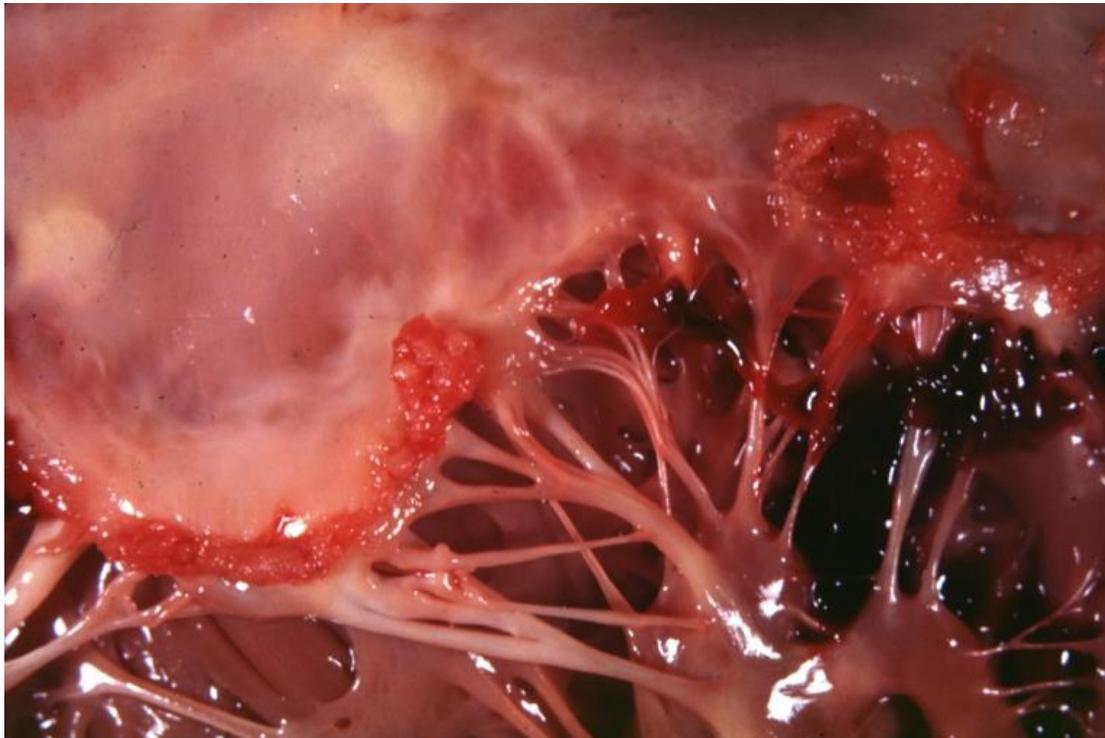


Eyes: Roth spots (boat shaped hemorrhages with pale centers, in retina) .

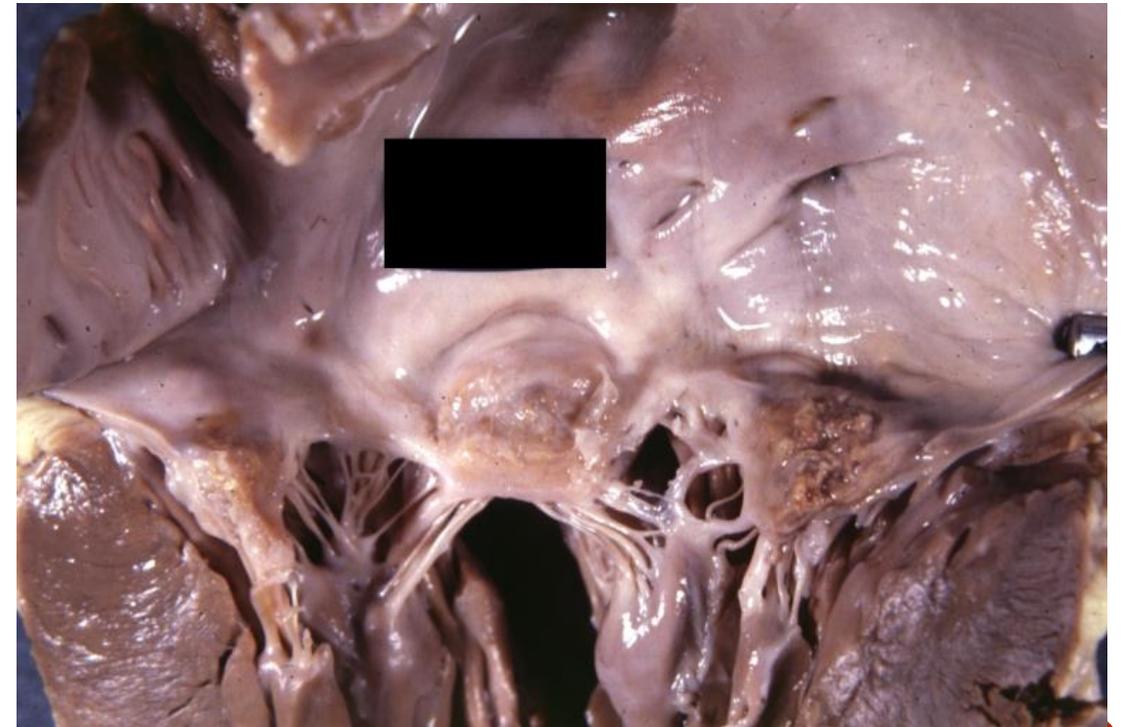


RHEUMATIC HEART DISEASE

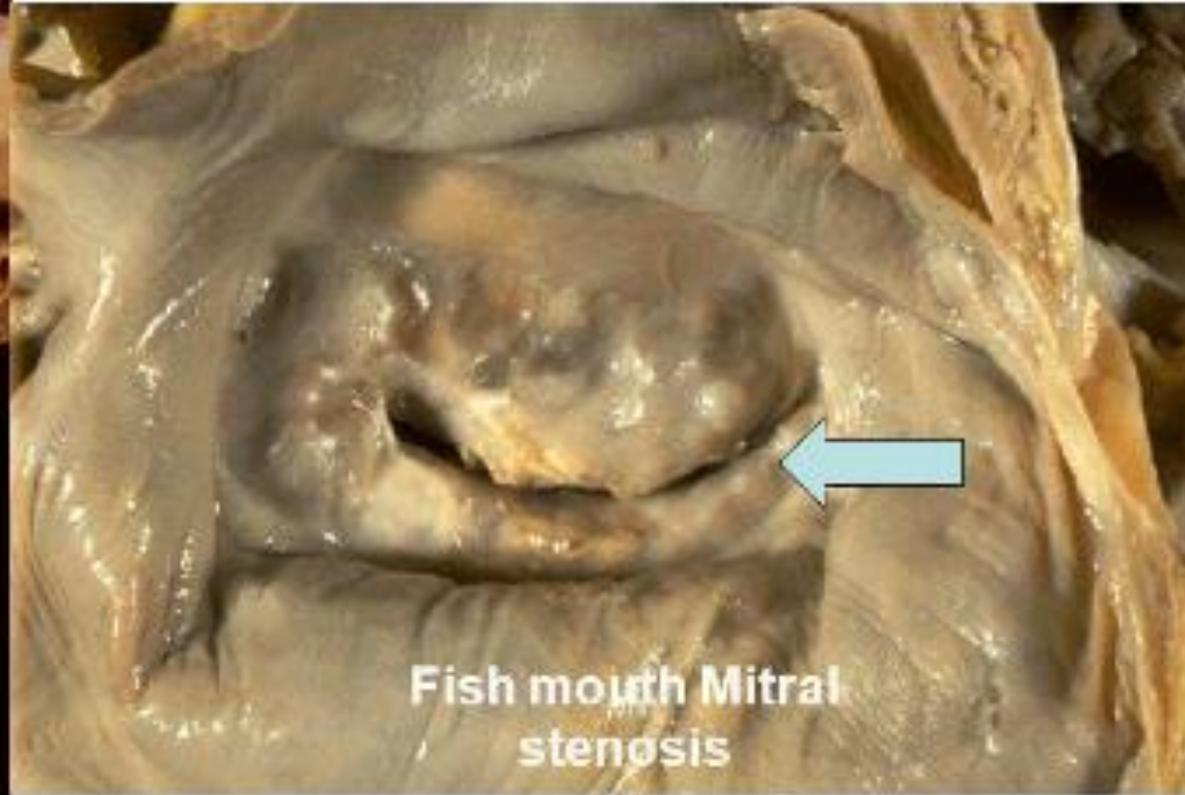
MITRAL VALVULITIS



MITRAL SCARRING



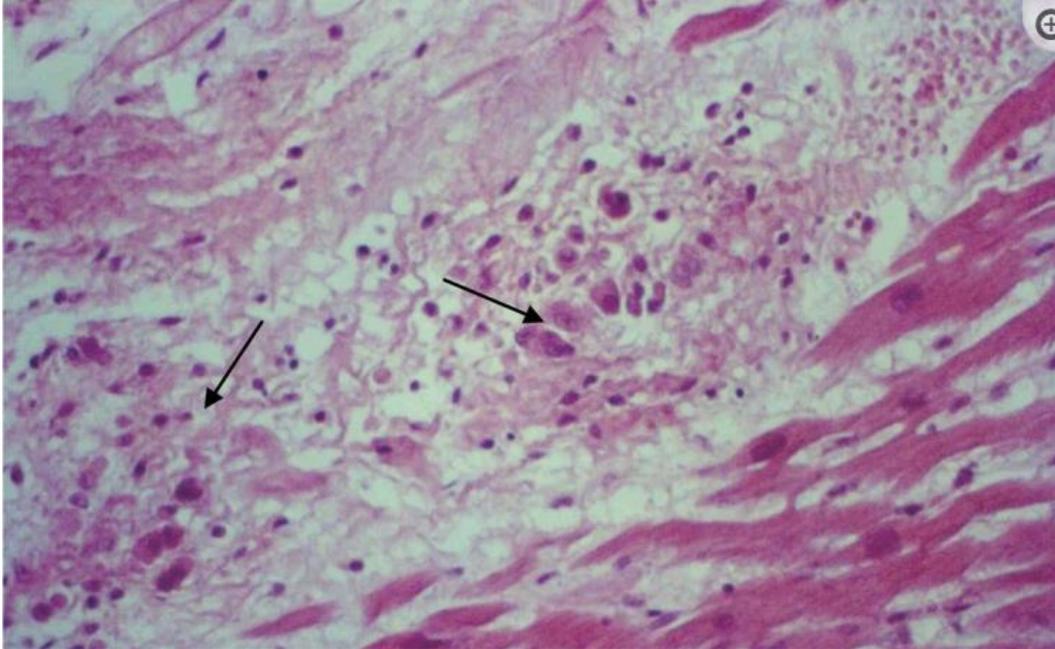
RHEUMATIC HEART DISEASE



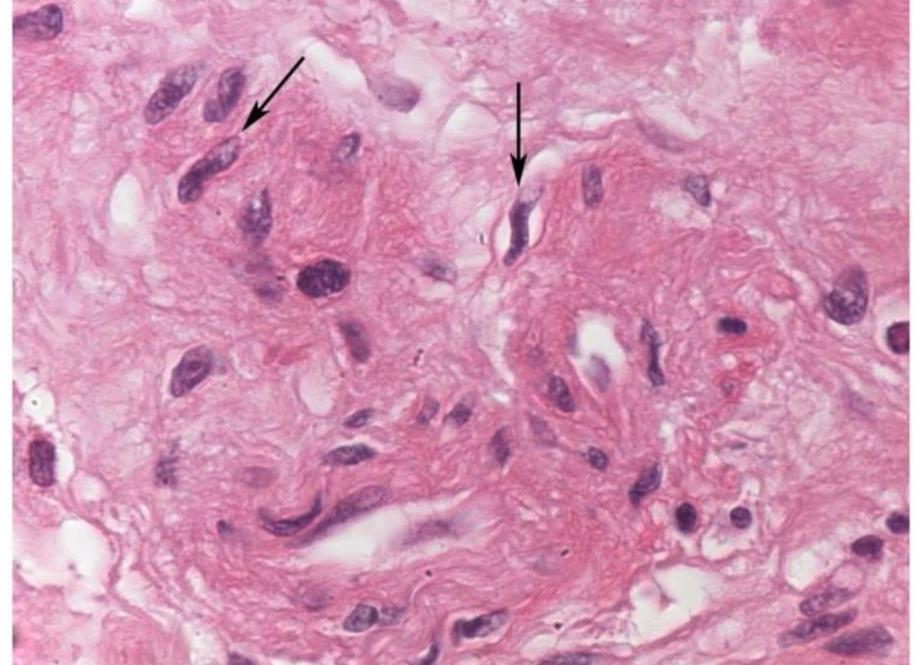
The pericardium with fibrinous exudate, seen in **RHEUMATIC HEART DISEASE**



Rheumatic heart disease



Aschoff nodules

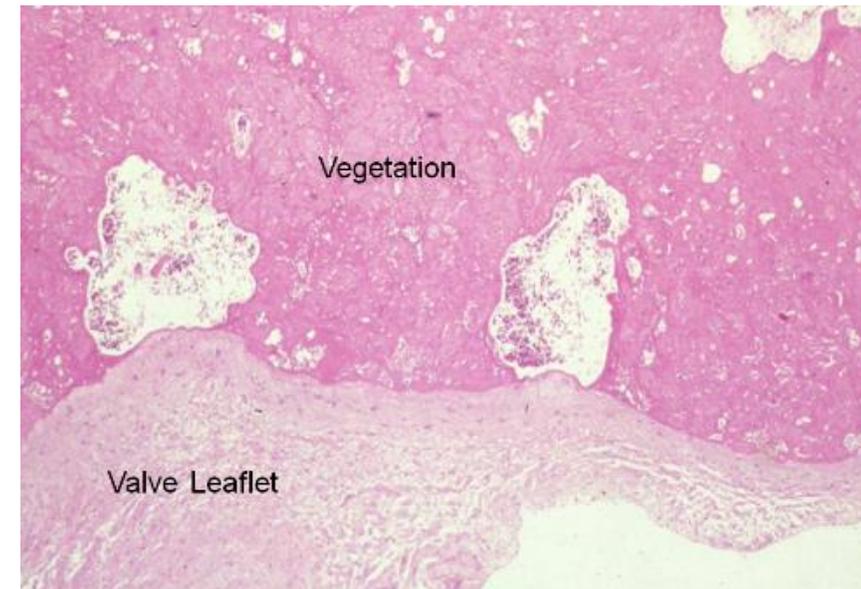
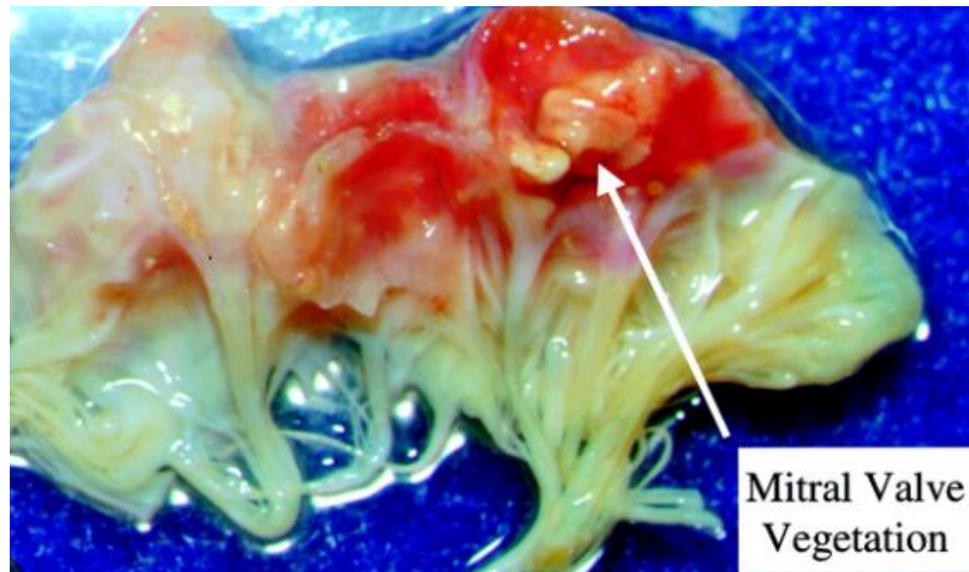


Anitschkow cells.



RHEUMATIC HEART DISEASE

- Valve involvement results in fibrinoid necrosis and fibrin deposition along the lines of closure forming 1- to 2-mm vegetations—verrucae—that cause little disturbance in cardiac function.



Rheumatic heart disease

Erythema Marginatum



ATHEROSCLEROSIS



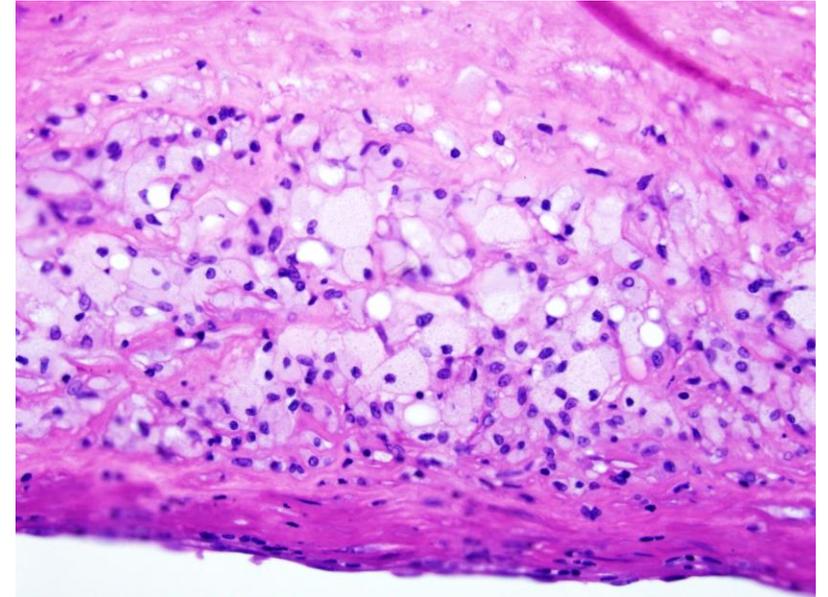
- a. raised fatty streaks.**
- b. raised fibrofatty nodules**
- c. Rupture plaque**



ATHEROSCLEROSIS HISTOLOGY

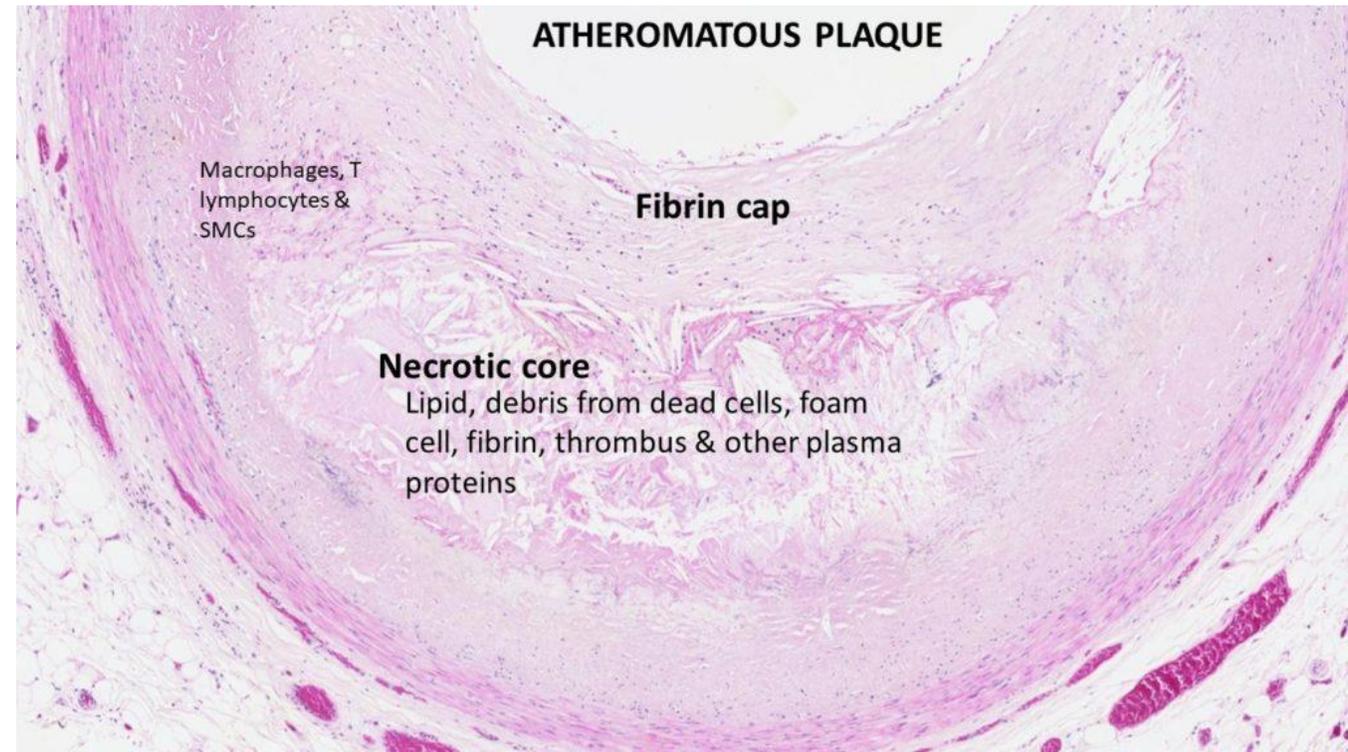
* The earliest lesion is the fatty streak:

They consist of many lipid-laden foam cells that contain cholesteryl esters and a variable amount of extracellular lipid



ATHEROSCLEROSIS HISTOLOGY

- Atherosclerotic plaques: have three principal components:
 - ❖ cells, including SMCs, macrophages, and T cells.
 - ❖ ECM, including collagen, elastic fibers, and proteoglycans.
 - ❖ intracellular and extracellular lipid.



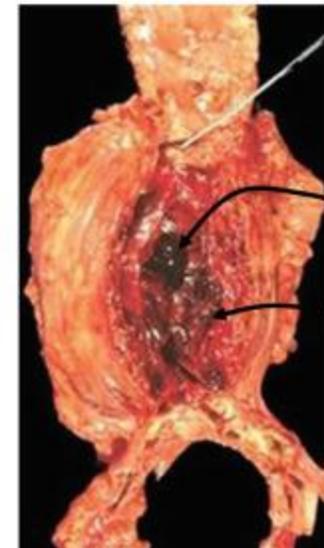
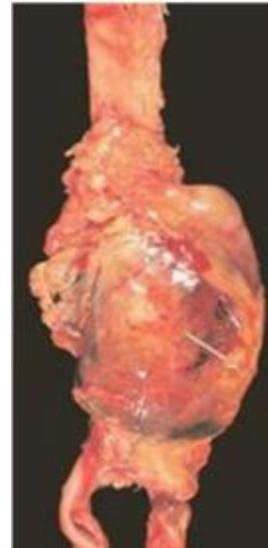
CLINICAL EXAMPLES

- Marfan syndrome result from defective synthesis of the scaffolding protein fibrillin and progressive loss of elastic tissue leading to dilation.
- Ehlers Danlos syndrome result from defective in type III collagen synthesis leading to aneurysm formation.



ANEURYSMS MORPHOLOGY

- The aneurysm sac usually contains bland, laminated, poorly organized mural thrombus, which can fill much of the dilated segment, usually extensive atherosclerosis is present.



deposited
thrombus

lumen



ANEURYSMS , HISTOLOGY

- Destruction of the tunica media which is thinned or no longer and replaced by hyalinized connective tissue.
- The inflammatory reaction consists primarily of lymphocytes and macrophages.
- Thrombus formation is invariably present on the luminal surface of coronary aneurysms



DVT

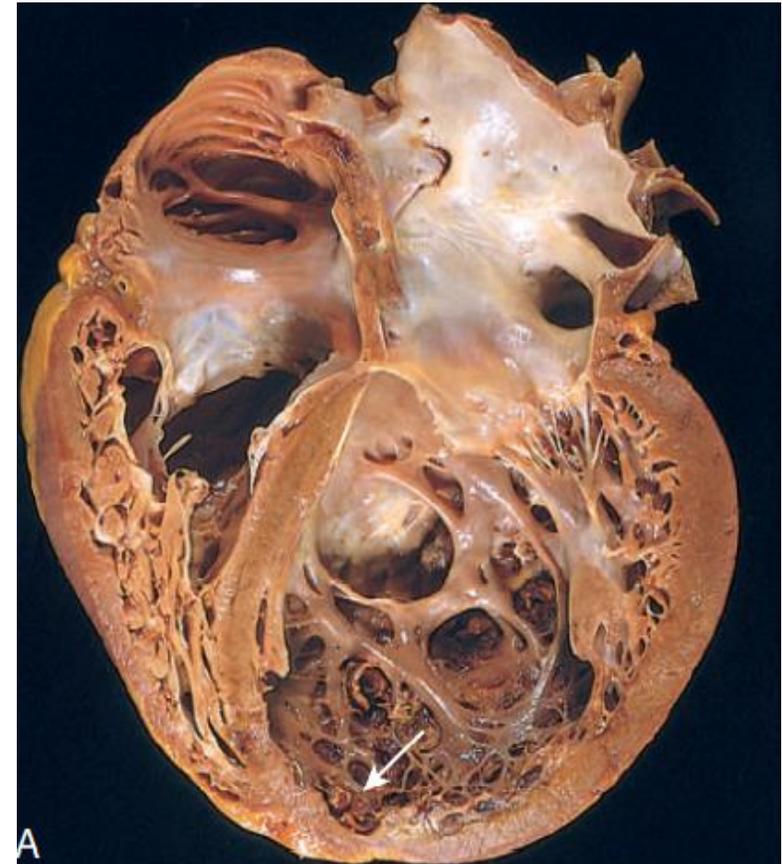


VARICOSE VEIN



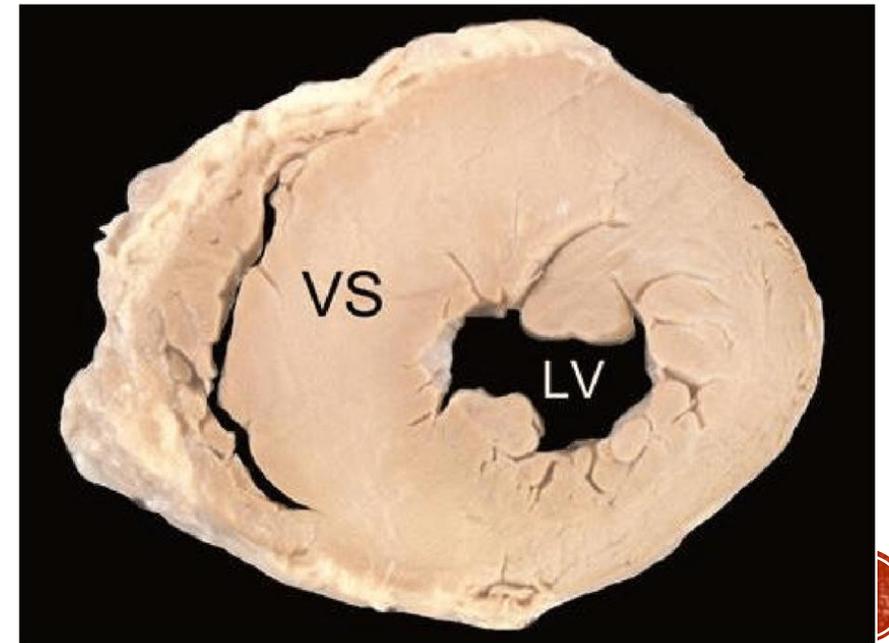
DCM

- The heart assumes a globular shape.
- ventricular chamber dilatation.
- atrial enlargement.
- Mural thrombi are often present and may be a source of thromboemboli.



HCM

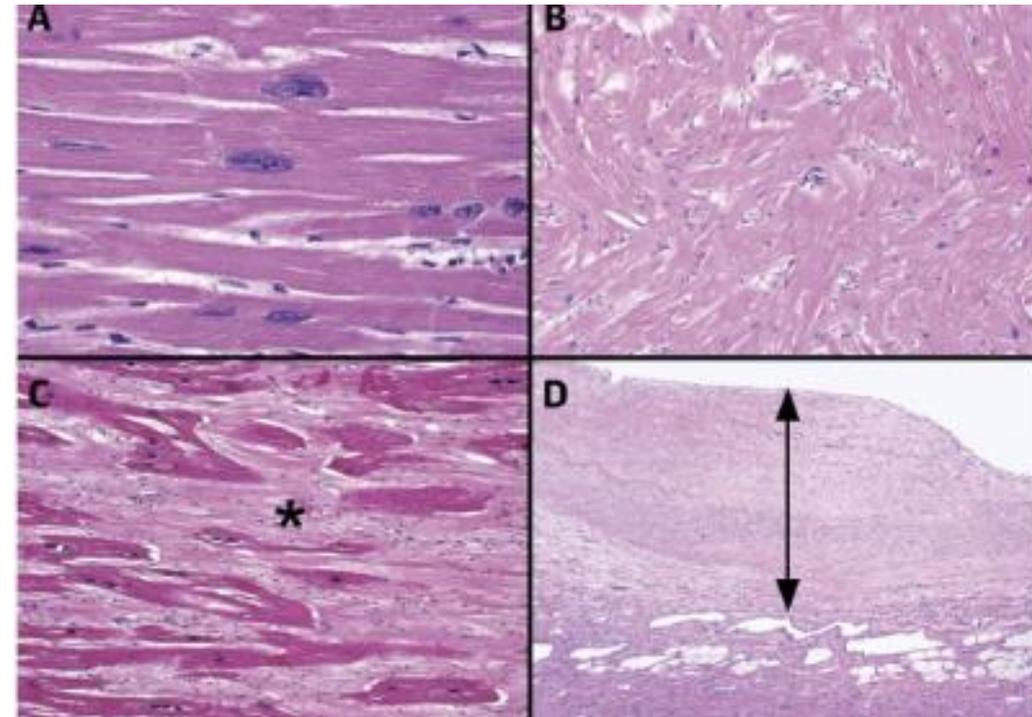
- Hypertrophic cardiomyopathy is marked by massive myocardial hypertrophy without ventricular dilation.



HISTOLOGICAL FEATURES OF HCM

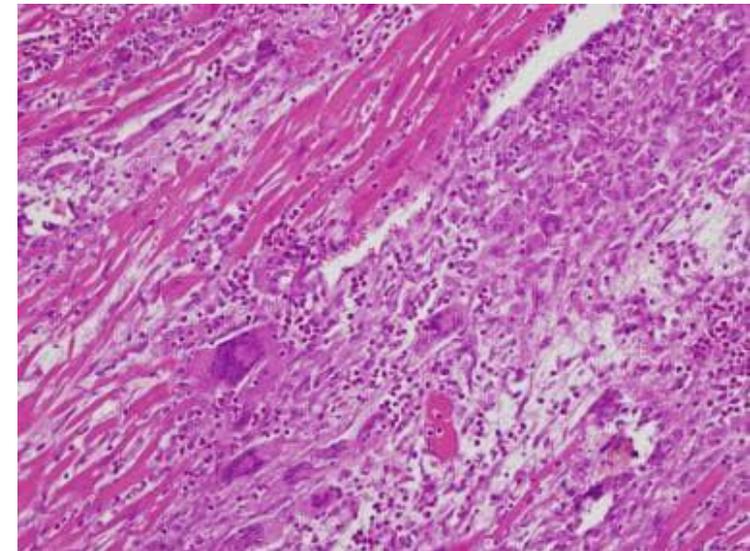
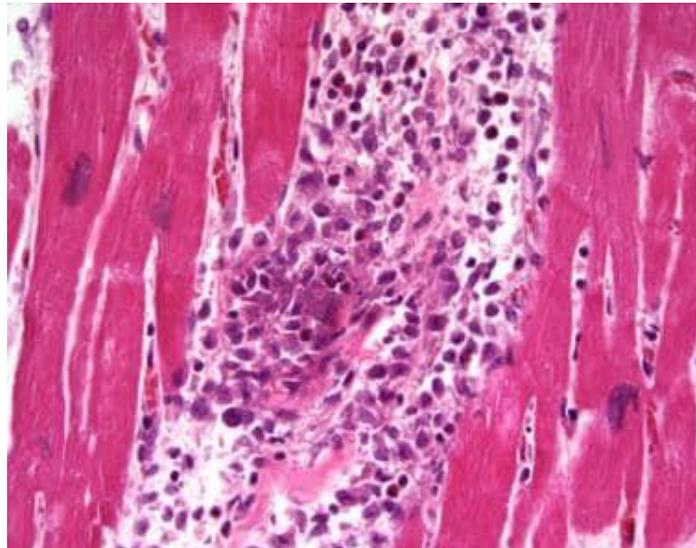
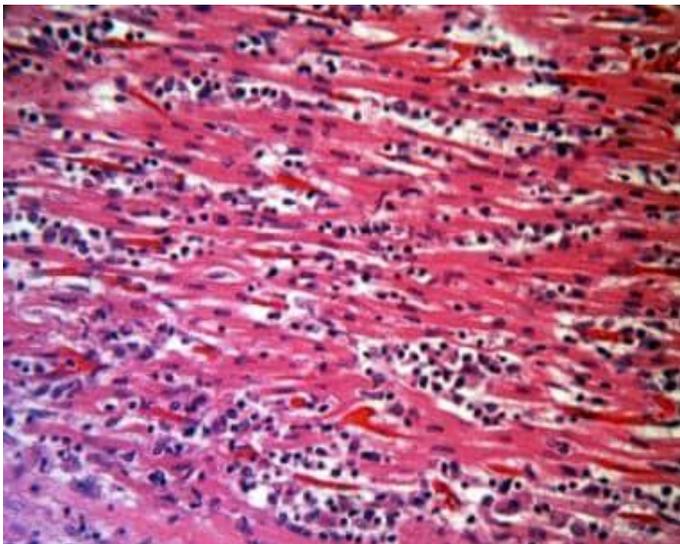
- The characteristic histologic features in HCM are marked myocyte hypertrophy, haphazard myocyte (and myofiber) disarray, and interstitial fibrosis

- A) Myocyte hypertrophy.
- (B) myocyte disarray.
- (C) interstitial (pericellular-type) fibrosis (asterisk).
- (D) endocardial fibrosis (double-headed arrow).

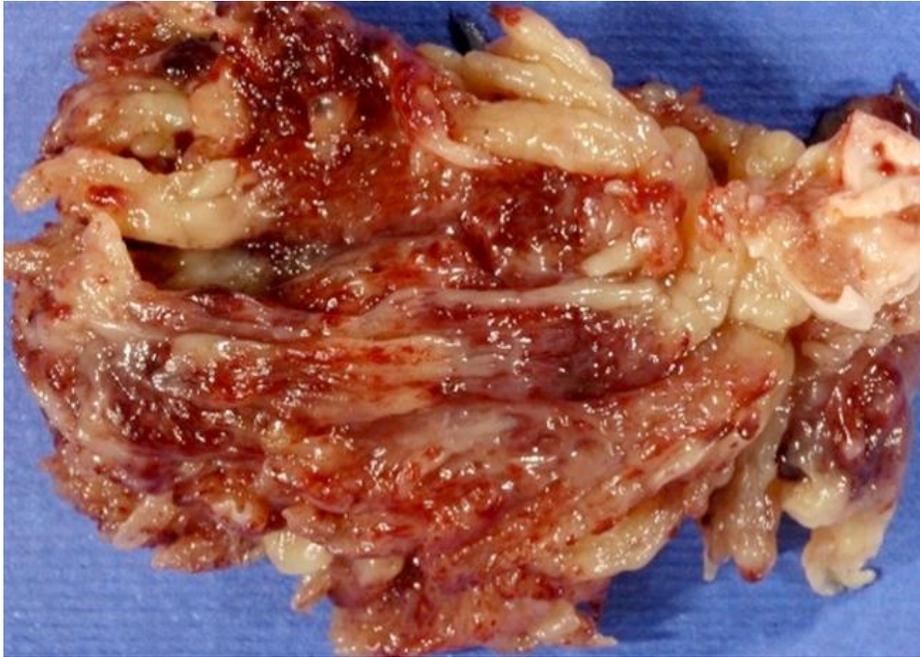


HISTOLOGICAL FEATURES OF MYOCARDITIS

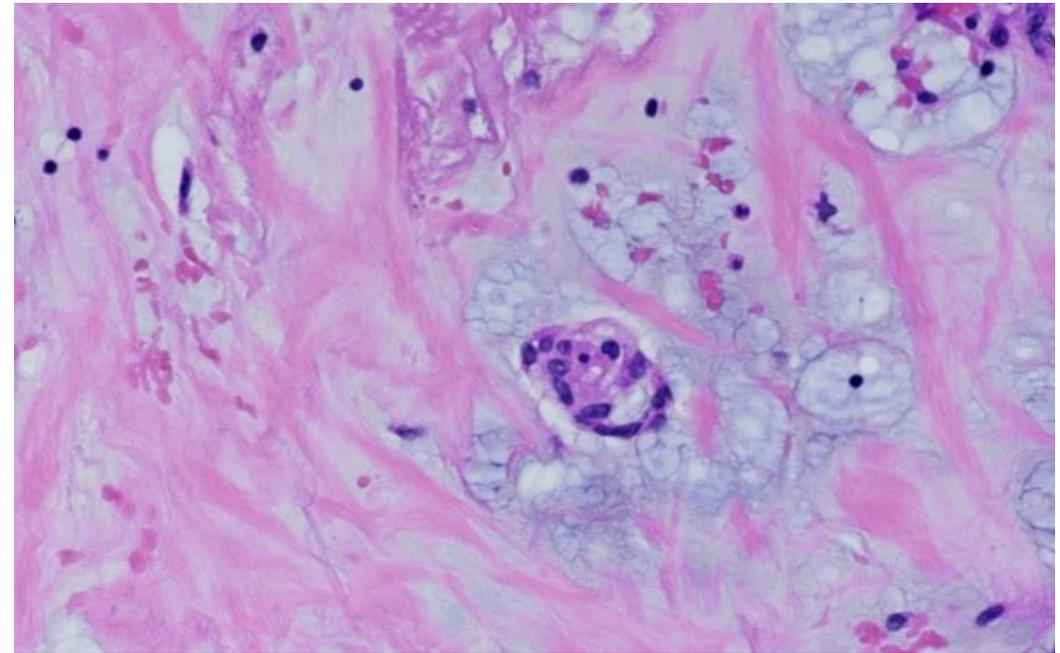
- edema and myocyte injury.
- interstitial inflammatory infiltrates:
 - Lymphocytic type: numerous lymphocytes.
 - hypersensitivity myocarditis: abundant eosinophils.
 - Giant cell myocarditis: containing multinucleate giant cells



CARDIAC MYXOMA MORPHOLOGY



Grossly : appear as sessile or pedunculated mass.

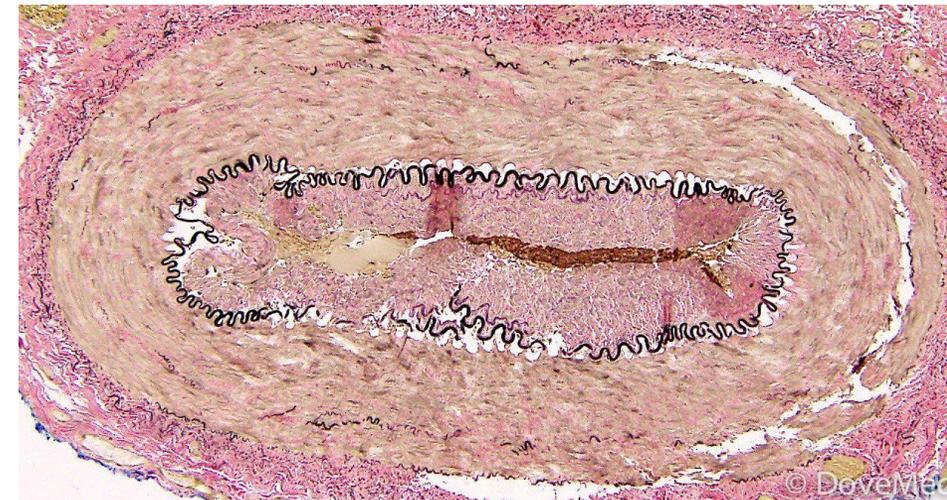
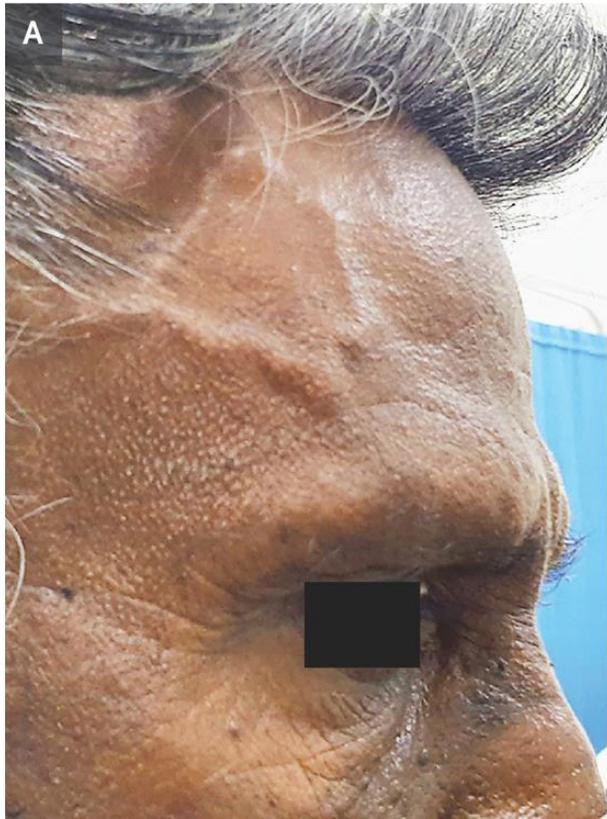


Microscopic: neoplastic cells within myxoid stroma

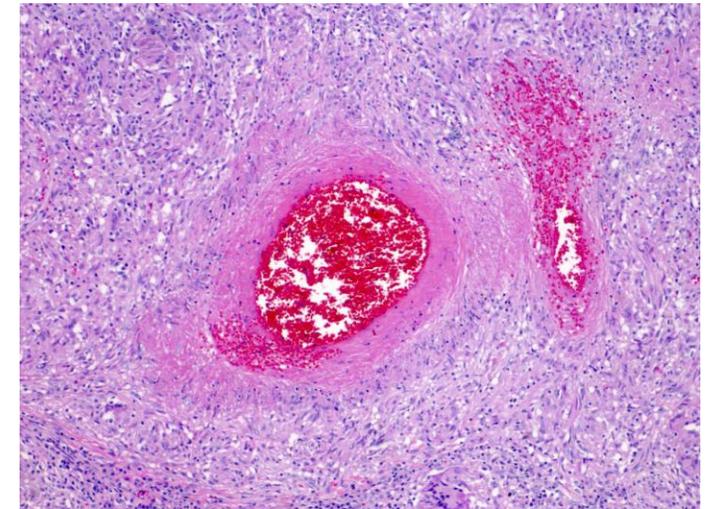


GIANT CELL (TEMPORAL) ARTERITIS

- Transmural inflammation pattern with lymphocytes, giant cells and macrophages arranged in concentric rings, surrounding the external and internal elastic lamina, the later is disrupted as viewed by- an elastic stain.



TAKAYASU ARTERITIS (PULSELESS DISEASE).



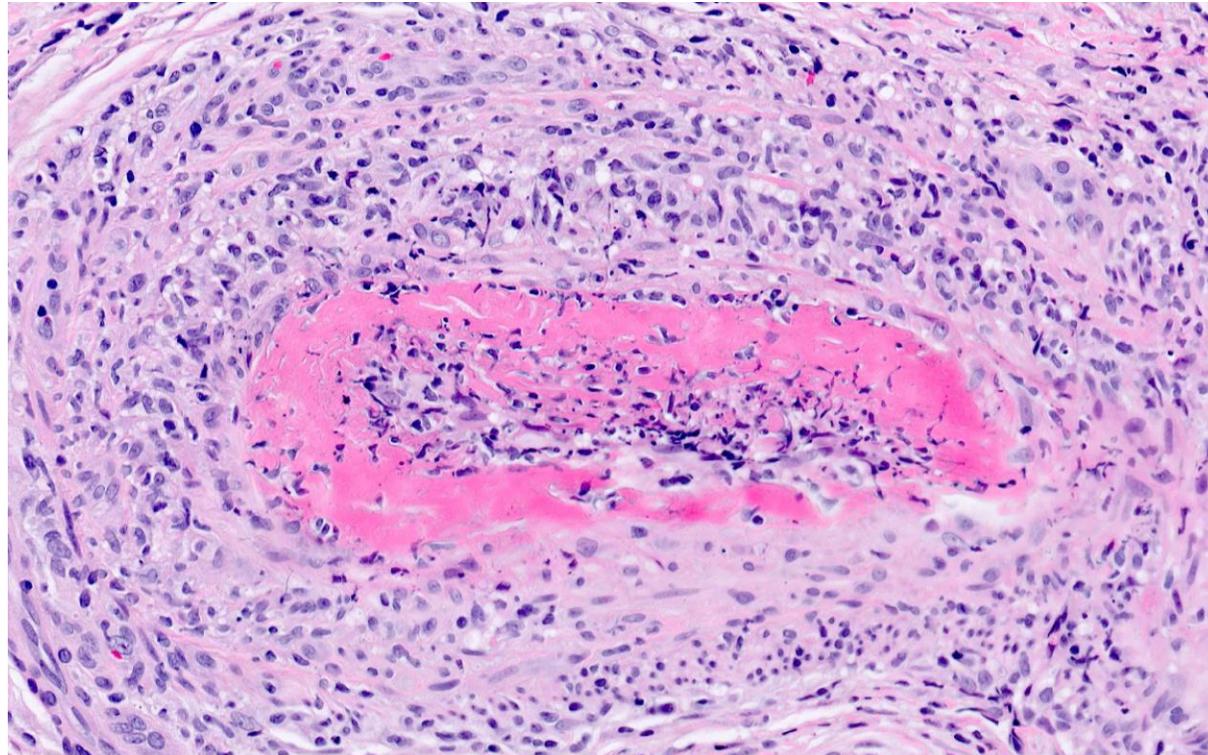
transmurular (including the adventitia) mononuclear inflammation



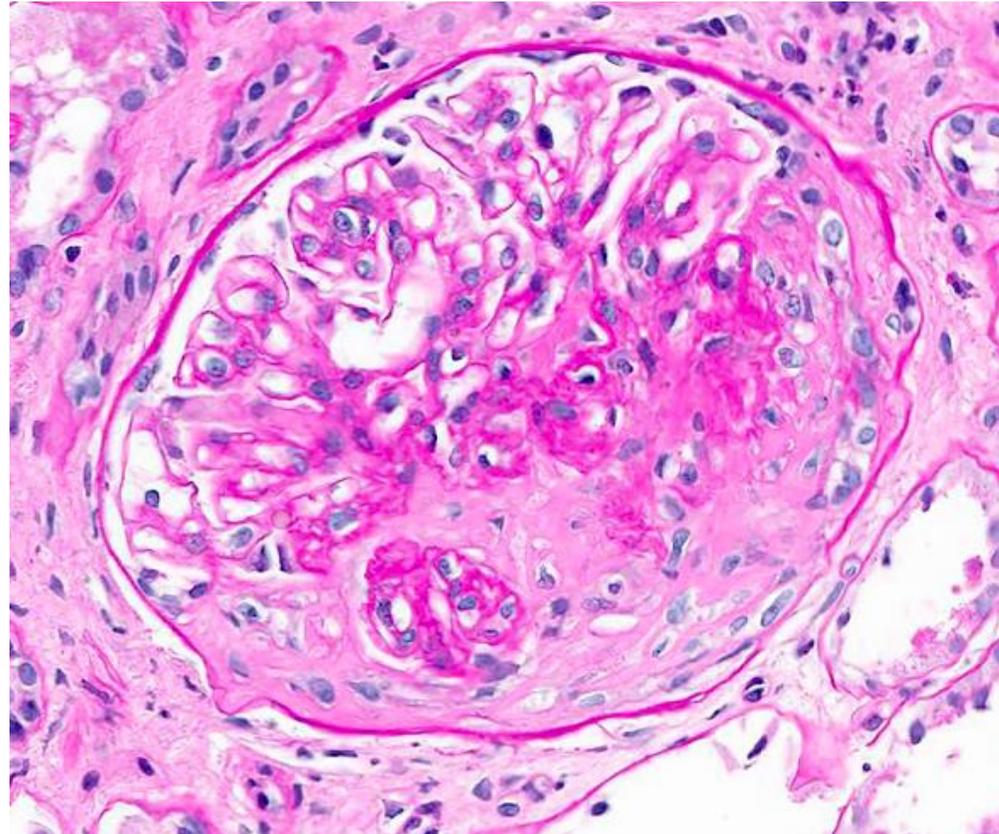
KAWASAKI DISEASE



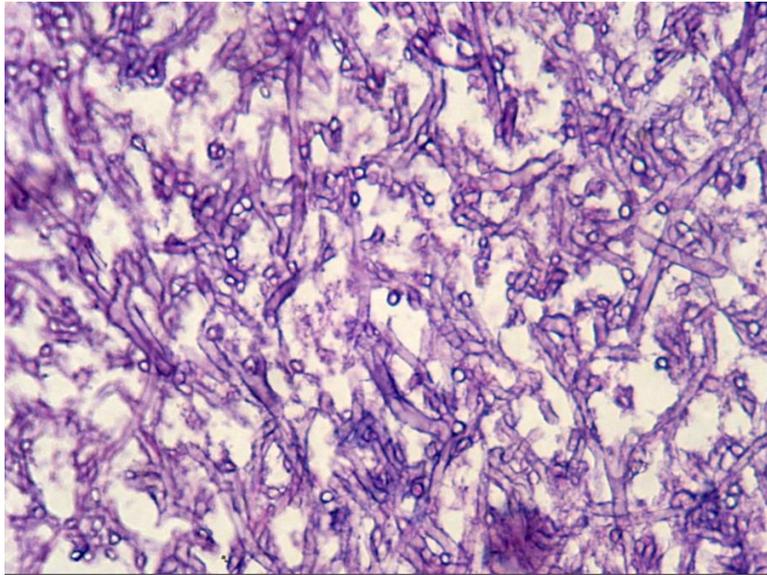
LEUKOCYTOCLASTIC VASCULITIS



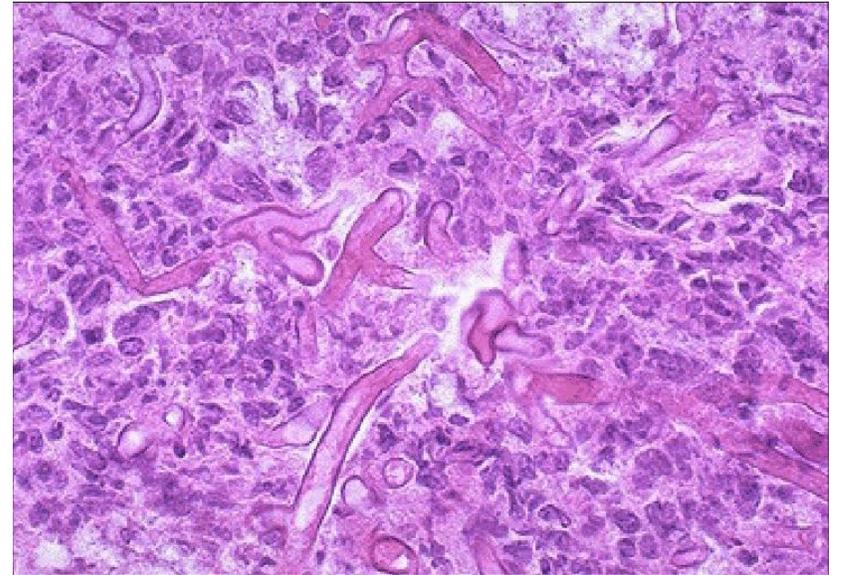
GRANULOMATOSIS WITH POLYANGIITIS CRESCENTIC GLOMERULONEPHRITIS.



INFECTIOUS VASCULITIS



Aspergillus

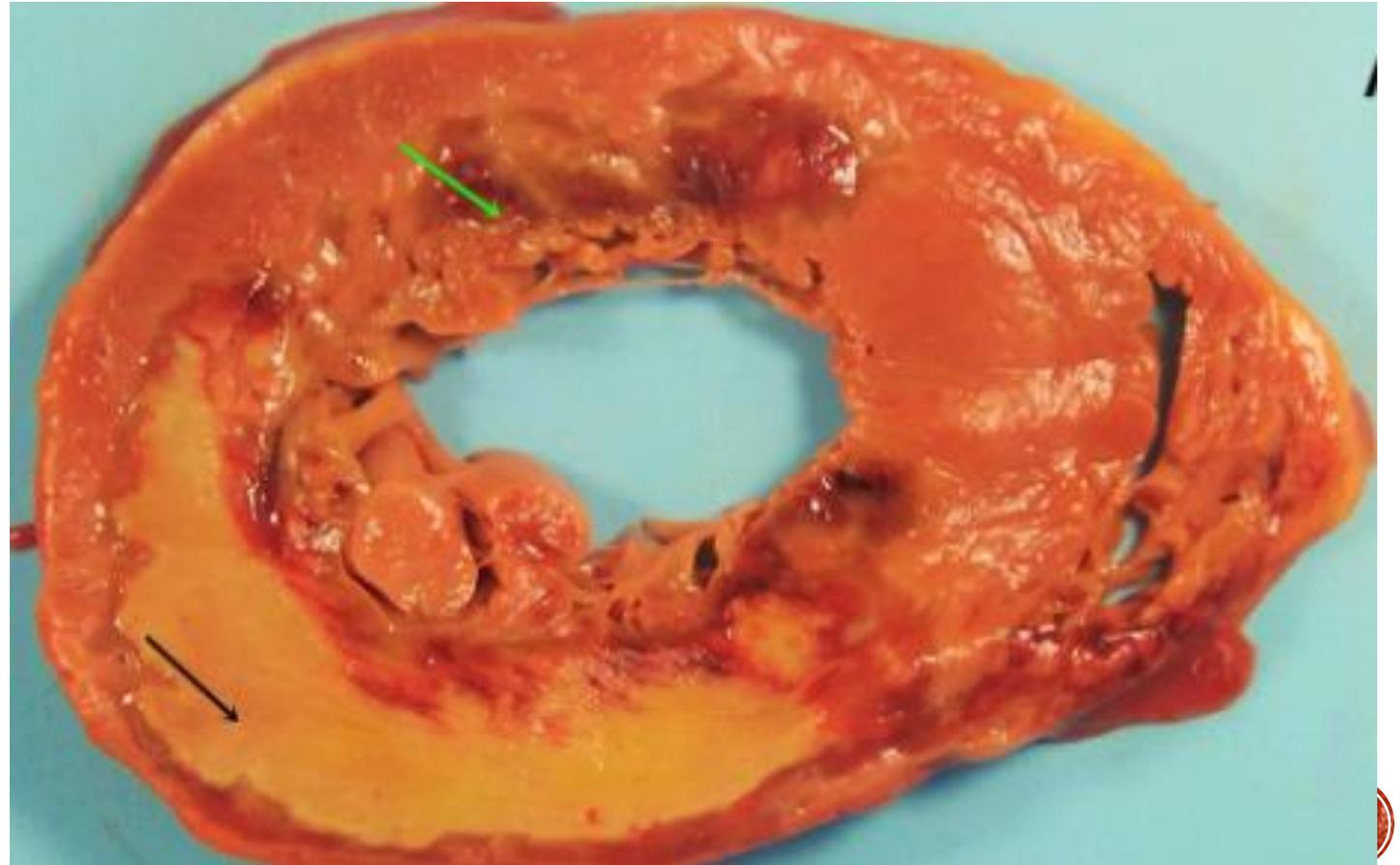


Mucor mycosis

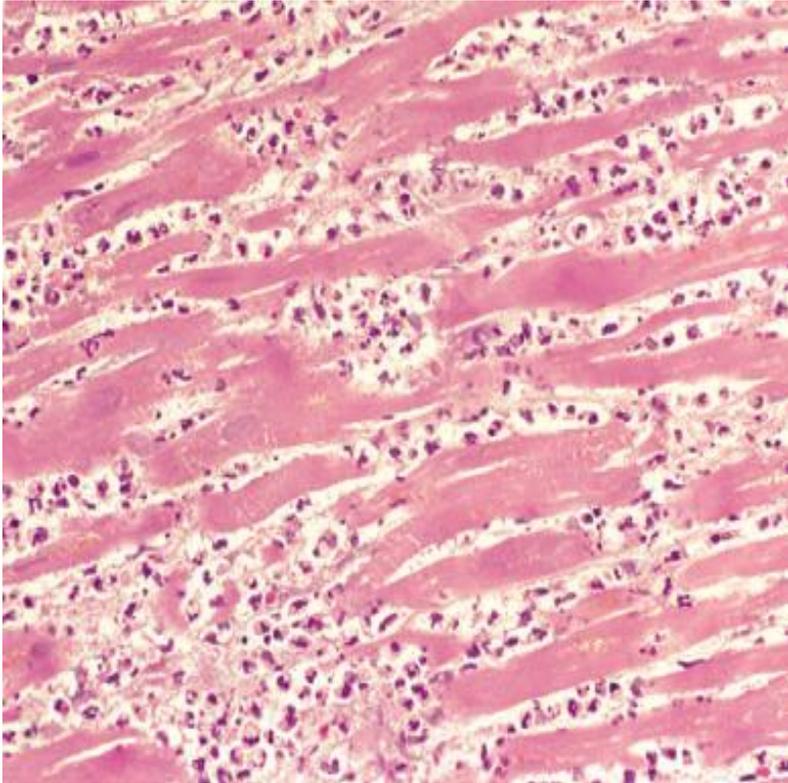


GROSS MORPHOLOGY OF MI

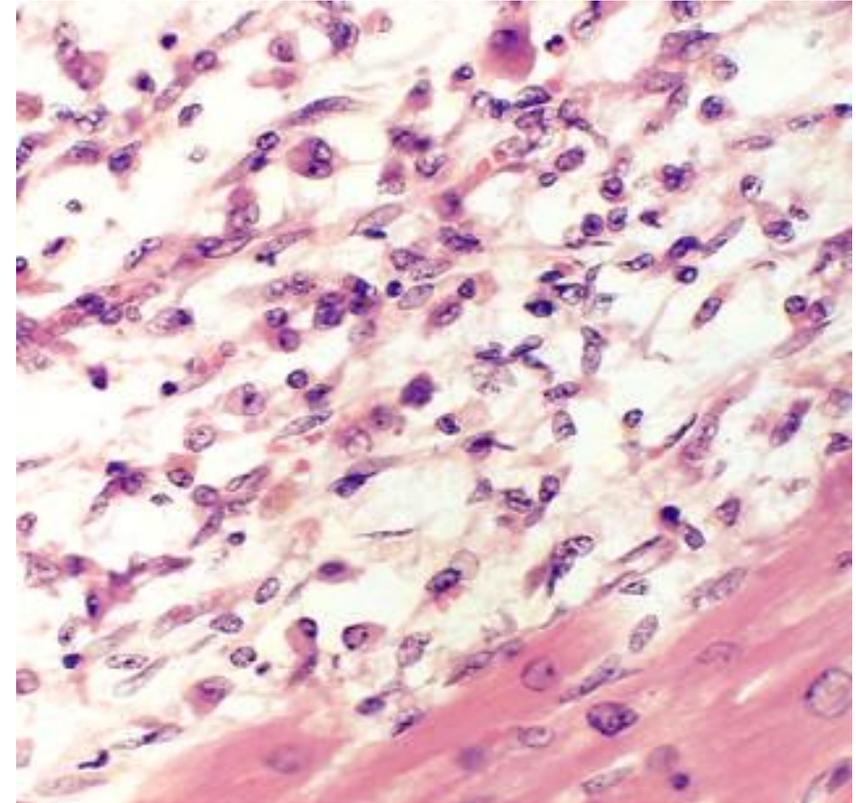
postmortem autopsy revealed areas of Coagulative necrosis.



HISTOPATHOLOGICAL FEATURES OF MI



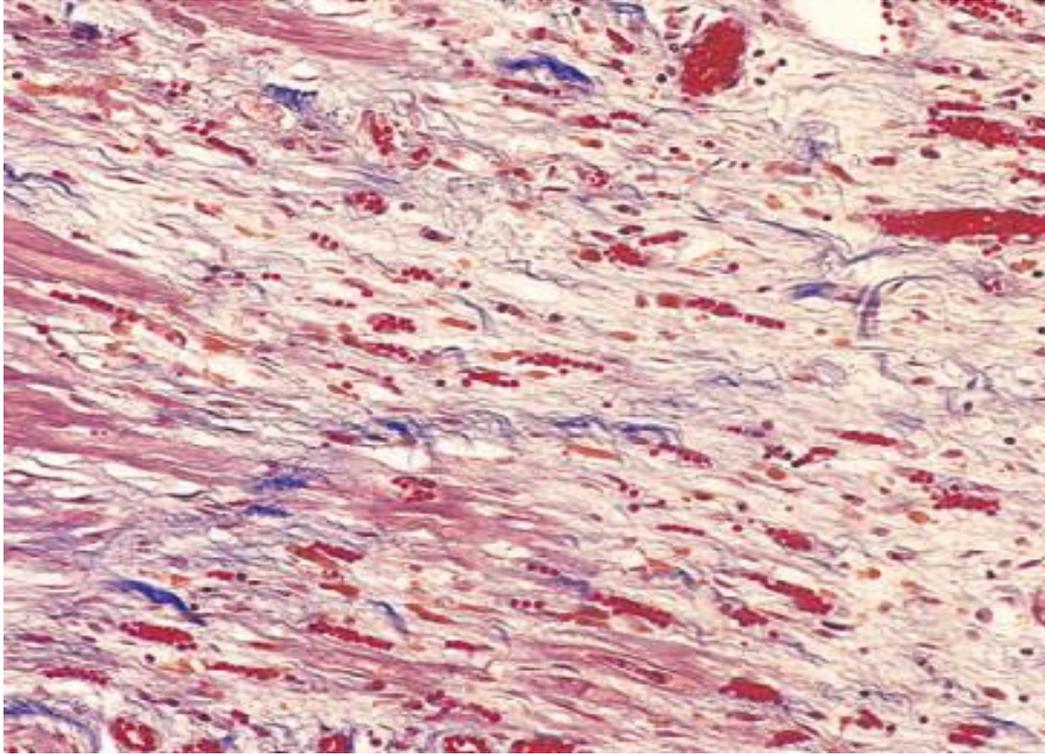
Coagulation necrosis with loss of nuclei and striations; interstitial infiltrate of neutrophils



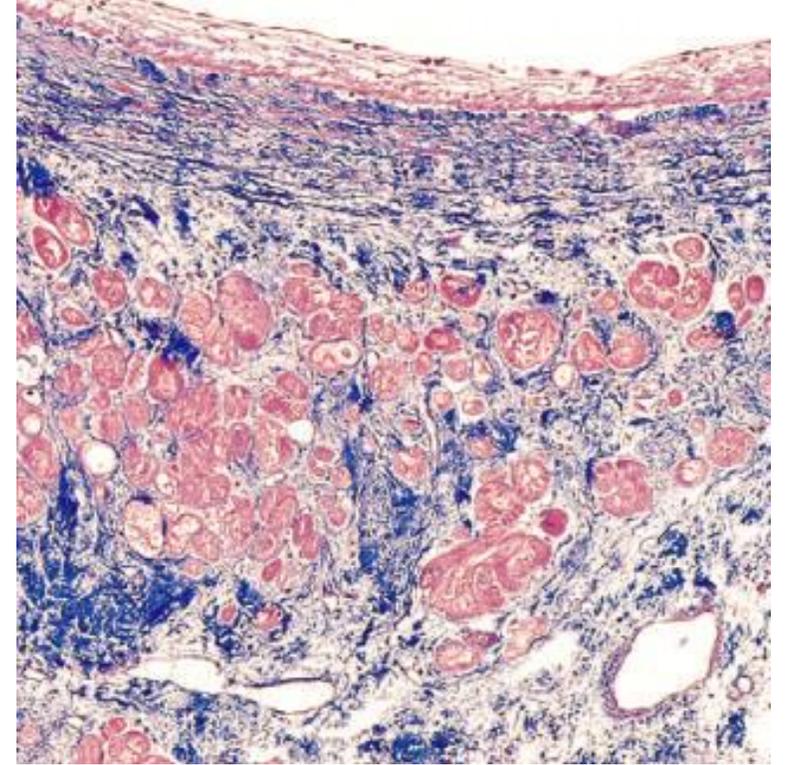
Complete removal of necrotic myocytes by phagocytic macrophages



Histopathological features cont.



well established granulation
tissue with new blood vessels &
collagen deposition.

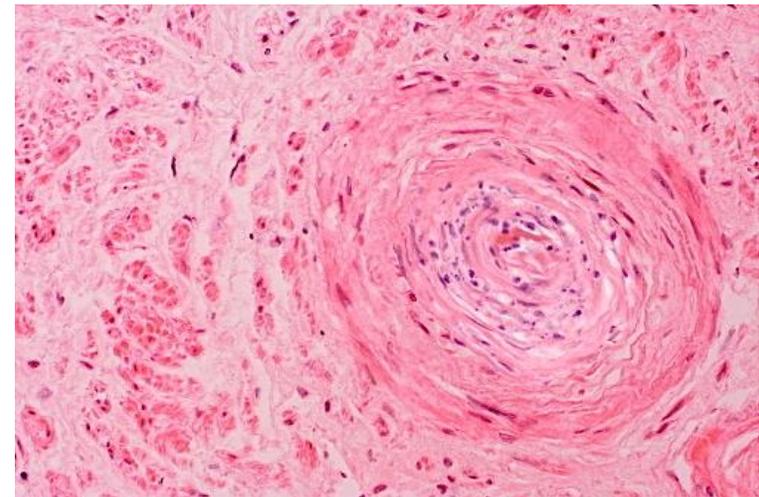
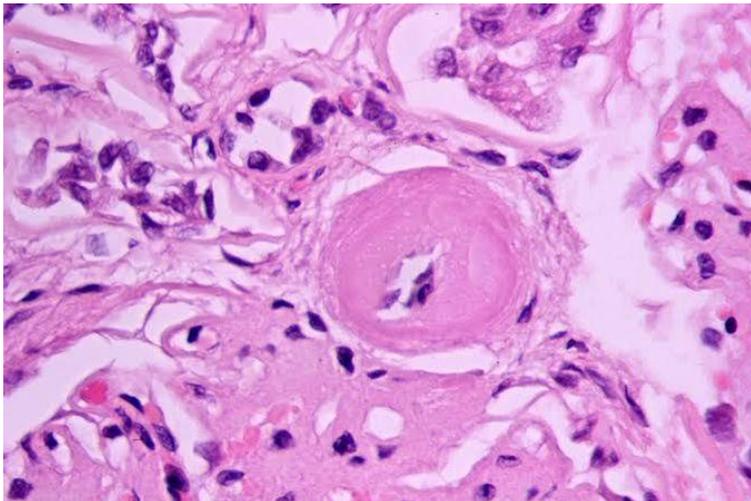


Dense collagenous scar



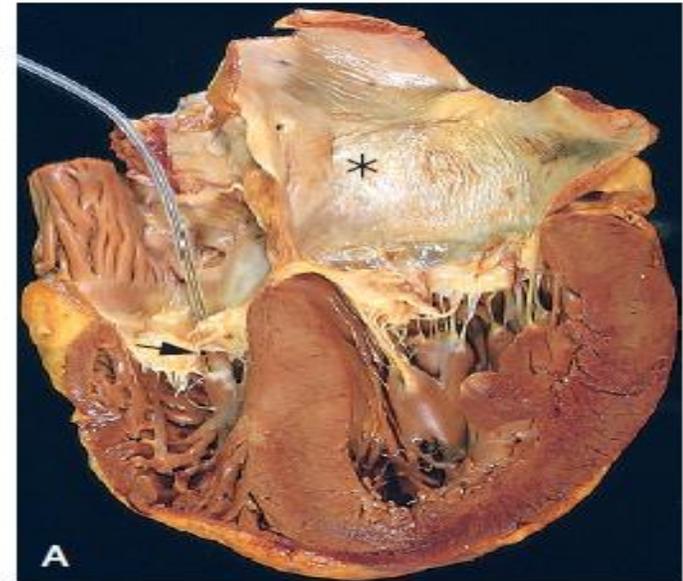
HYPERTENSION-RELATED SMALL BLOOD VESSEL DISEASE

- 1-Hyaline arteriosclerosis: associated with benign hypertension.
- It is marked by homogeneous, pink hyaline thickening of the arteriolar walls, with loss of underlying structural detail, and luminal narrowing.
- 2. Hyperplastic arteriosclerosis: Associated with severe hypertension.
- Vessels exhibit “onionskin,” concentric, laminated thickening of arteriolar walls and luminal narrowing.
- The laminations consist of smooth muscle cells and thickened, reduplicated basement membrane.



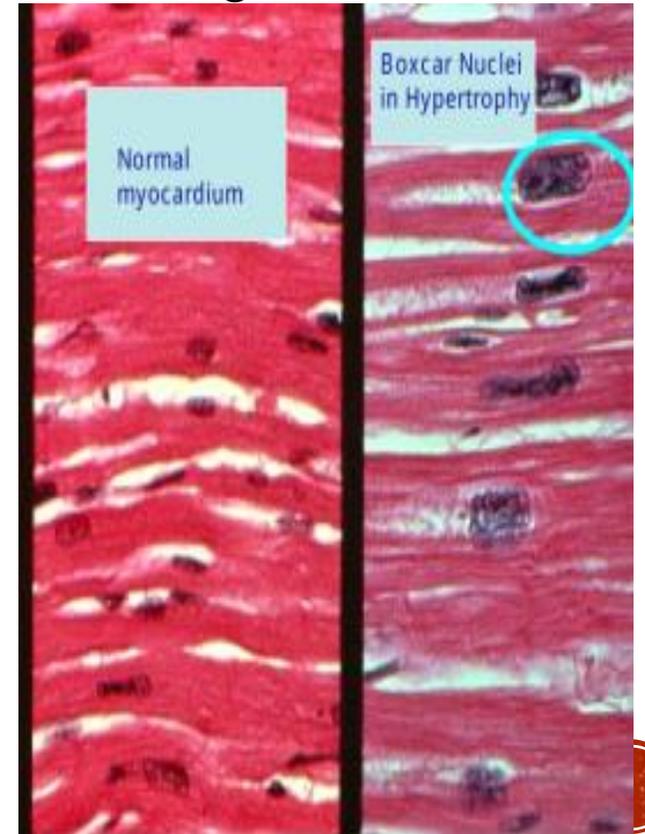
CARDIAC MORPHOLOGY IN SYSTEMIC HTN

- left ventricular hypertrophy:
- heart weight can exceed 500 g, left ventricular wall thickness can exceed 2.0 cm.
- left atrial dilation : due to increased left ventricular wall thickness that impairs diastolic filling .



MICROSCOPICALLY

- The transverse diameter of myocytes is increased with prominent nuclear enlargement and hyperchromasia (“boxcar nuclei”).
- Intercellular Fibrosis.



MORPHOLOGY OF COR PULMONALE

- In acute cor pulmonale, the right ventricle usually shows only dilation; if an embolism causes sudden death, the heart may even be of normal size.
- Chronic cor pulmonale is characterized by right ventricular (and often right atrial) hypertrophy.
 - The right ventricle is markedly dilated and hypertrophied with a thickened free wall and hypertrophied trabeculae.

