



Practical pathology (CVS)

- 4 stations in OSPE
- You will be asked about
 - ✓ The diagnosis
 - ✓ Microscopic
 - ✓ Gross
 - ✓ Complications or causes

DONE BY:

SARA ALKHARASHI & ZIYAD ALAJLAN

REVISED BY:

MAHA ALZEHEARY

DR.SHAESTA

Contact us:



Pathology433@gmail.com






[@pathology433](https://twitter.com/pathology433)

ATHEROMA OF AORTA

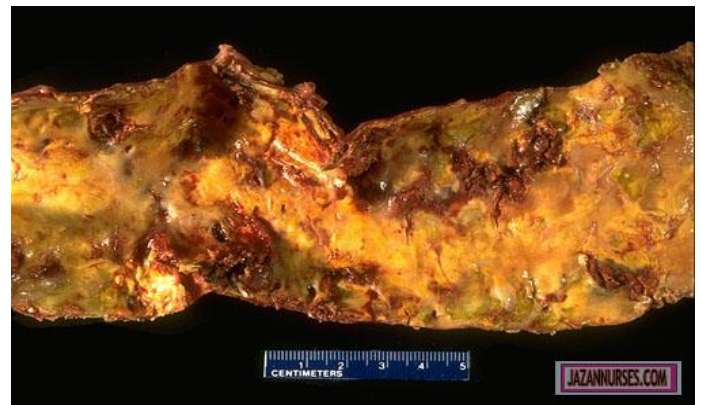


Case 1

These three aortas demonstrate different levels of atherosclerosis	Severity of atherosclerosis	Description GROSSLY
	Severe	Extensive ulceration in the plaques + mural thrombi
	Moderate	Many more larger plaques
	Mild	scattered lipid plaques.

This is severe atherosclerosis of the aorta in which the atheromatous plaques have undergone ulceration.

❖ Deposition of fat and fibrin → block blood vessel



Risk factors of atherosclerosis

Hyperlipidemia

Hypertension

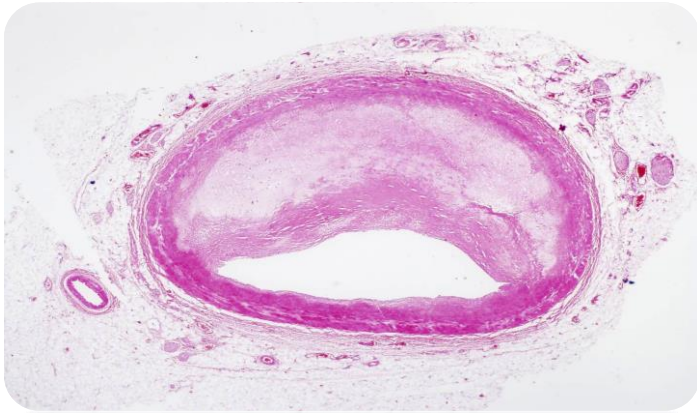
Cigarette smoking

Diabetes

complications

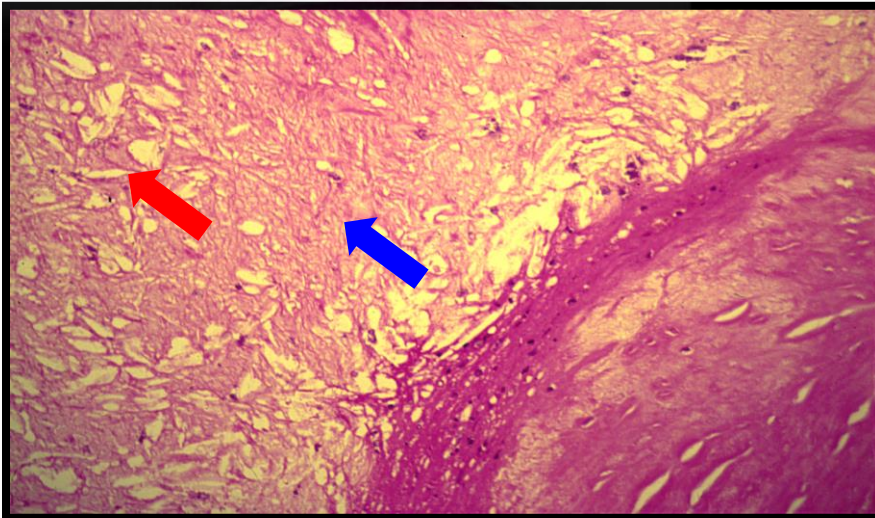
mural thrombi

rupture of aorta(aneurysm)





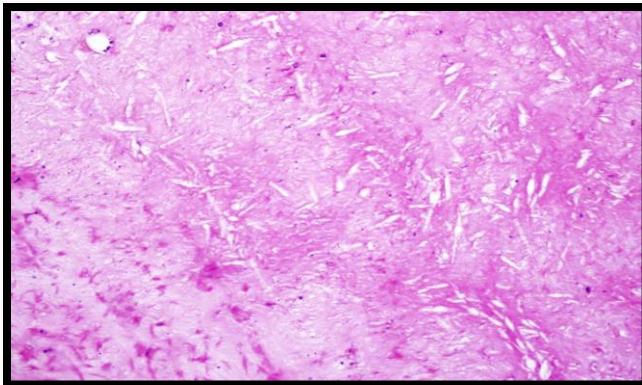
Histological findings:

1. Partial occlusion of the artery lumen by an atheromatous plaque (elastic lamina is lost).
2. Inflammatory cells (foam cells or macrophages)



The plaque consists of:

-  1- Dissolved, cholesterol clefts.
-  2- Hyaline fibrous tissue
- 3- Some blood capillaries
- 4. foamy macrophages

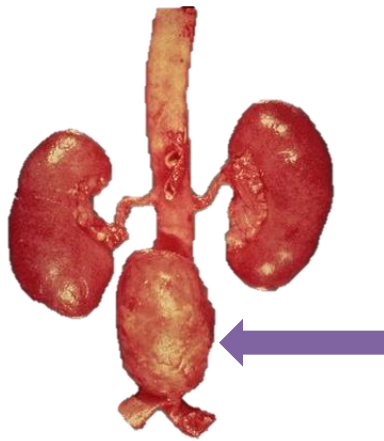


Atheromatous plaque with cholesterol clefts

ANEURYSM OF ABDOMINAL AORTA



Case 3



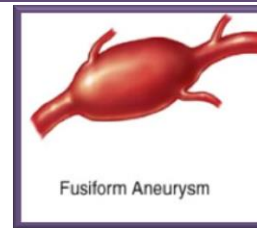
Atherosclerotic aneurysm of the aorta in which a large swelling is seen just above the aortic bifurcation.

- GROSS: abnormal dilatation



- **Aneurysmal dilatation of the lower aorta**
- With evidence of rupture.
- Intraluminal thrombus
- With extensive aortic atherosclerosis.

TYPES



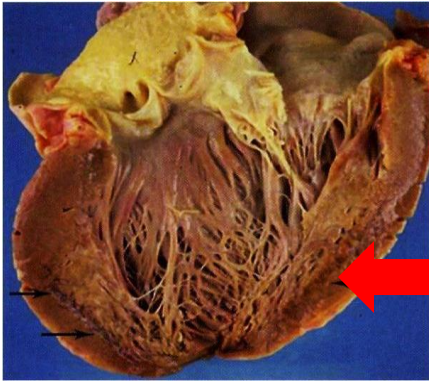
The causes of aneurysms are:

Advanced **atherosclerosis** (Usually abdominal aorta),

Fungal infection (Mycotic)

Syphilis (thoracic aorta)

Congenital (Berry aneurysm in circle of Willis).

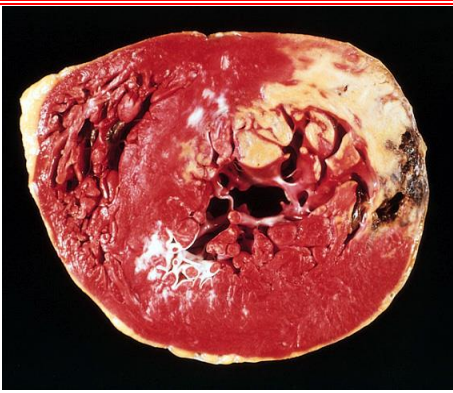


Patient come with chest pain (retro sternal pain)

Acute Myocardial infarction

- **GROSS:** The left ventricular wall is:

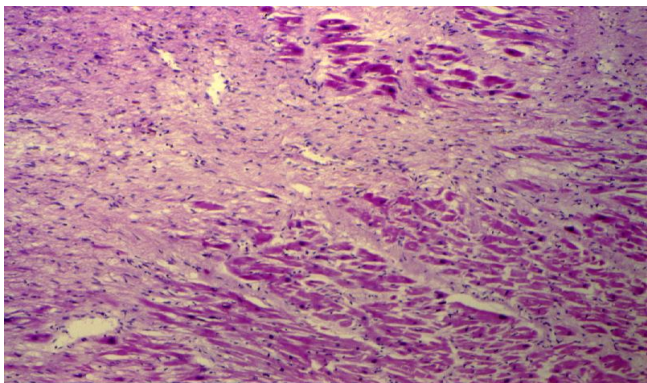
1. Congested
2. Hemorrhagic and
3. Soft area



Cross section of the left and right ventricles (chronic MI)

1. A pale and irregular focal fibrosis
2. Hemorrhagic/coagulative necrosis in the left ventricular wall *
3. With increased thickness.

* what type of necrosis is the most common in heart ?



Histological: MYOCARDIAL INFARCTION (LATE STAGE)

1- Dead myocardial fibers

Chronic ischemic fibrous scar replacing dead myocardial fibers

myocardial fibers show enlarged nuclei due to ventricular hypertrophy

2- Chronic inflammatory cells

COMPLICATIONS OF MI:

Arrhythmias

Heart failure

Ventricular rupture and hemopericardium

Sudden death

Ventricular aneurysm

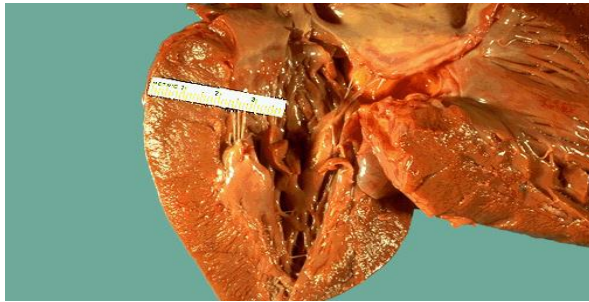
Pericarditis

The enzymes, which are usually elevated in cases of MI

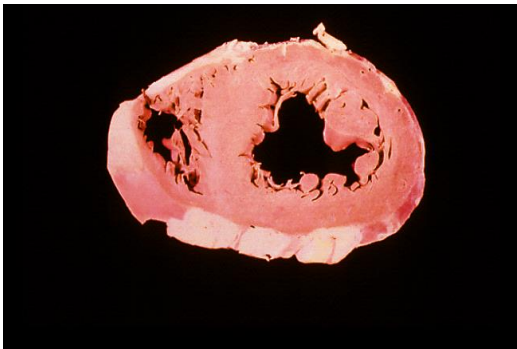
CKMB: Creatine Kinase (CK-MB)

Troponin I

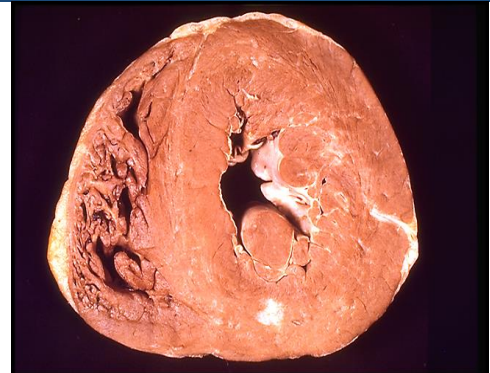
LDH: Lactate dehydrogenase



- Heart from a hypertensive patient.
- The left ventricle is very thick (over 2 cm). However the rest of the heart is fairly normal in size as is **typical for hypertensive heart disease**.
- The hypertension creates a greater pressure load on the heart to induce the hypertrophy



Heart, normal

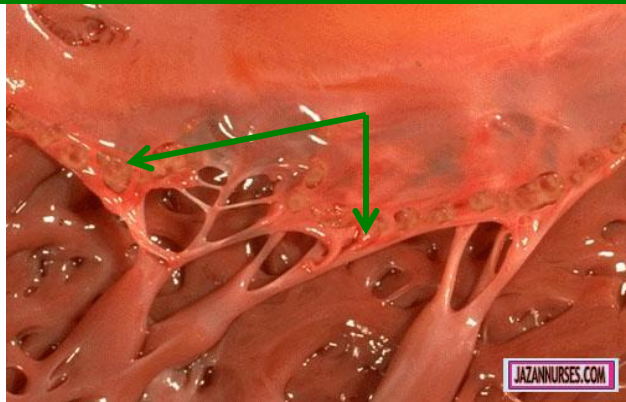


Heart, left ventricular hypertrophy

VEGETATIONS OF RHEUMATIC FEVER ON MITRAL AND AORTIC VALVES



Case 6



-GROSS

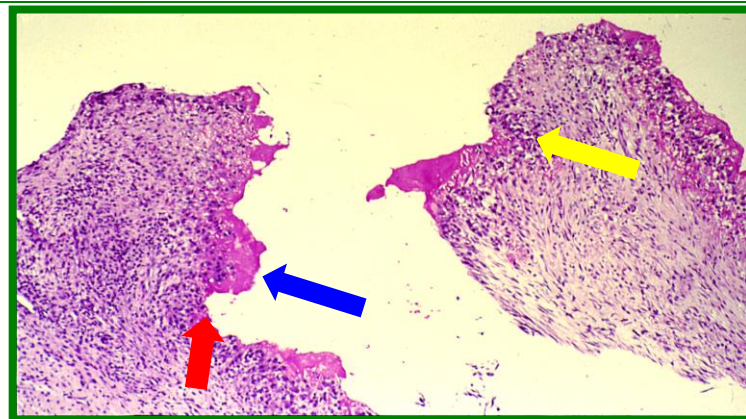
- The small **verrucous vegetations**
- Along the closure line of mitral valve






-GROSS

Vegetations of rheumatic fever on aortic valve

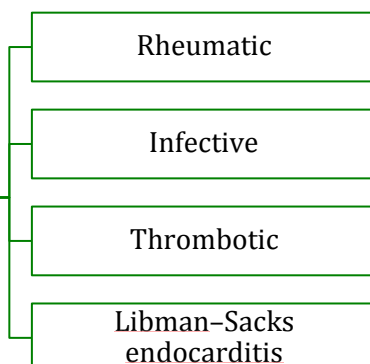
Aortic valve is yellowish with vegetation

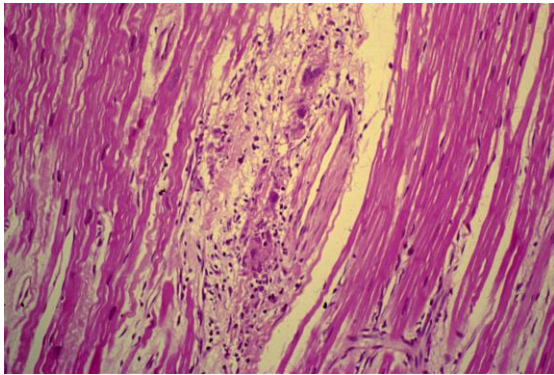


RHEUMATIC VALVULITIS (HEART) (microscopic)

-  Irregular endocardial surface, no endocardial lining.
-  Focal fibrin deposits.
-  The valve is thickened by dense hyalinized fibrous tissue with vascularization and chronic inflammatory cell infiltrate

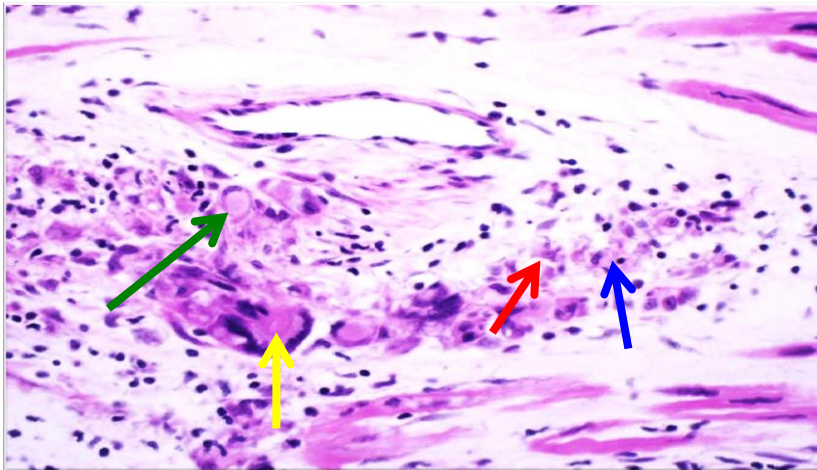
4 major forms of vegetative endocarditis





Aschoff bodies /nodules

- In the intermuscular fibrous septa.
- They are oval in shape and seen in relation to blood vessels.



RHEUMATIC MYOCARDIITIS (ASHOFF NODULE) (**microscopic**)

Consists of:

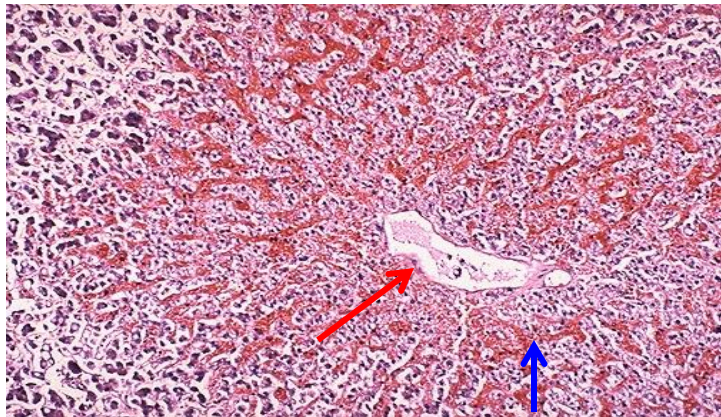
- ➔ Focus of fibrinoid necrosis.
- ➔ Few lymphocytes
- ➔ Macrophages
- ➔ Aschoff giant cell (few small giant cells with one or several nuclei).



NUTMEG LIVER

Section of liver showing
(GROSS):

- Alternating pale and dark areas
- With a nutmeg like appearance
- Possibly due to passive **congestion secondary to right sided heart failure.**

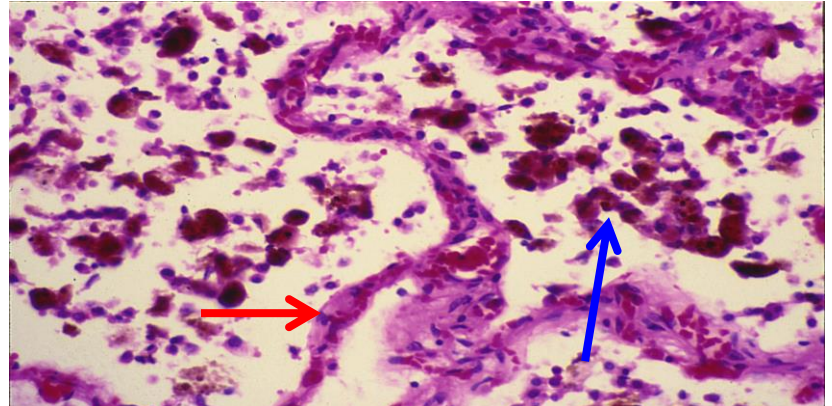
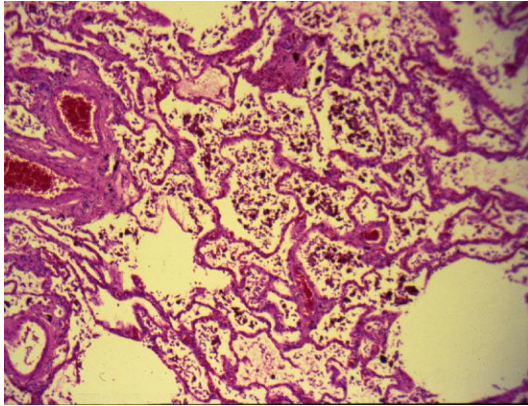


(microscopic)

Histology

- ➔ The central portion of liver lobules shows:
 - Collection of RBC's and dilatation of central veins
 - Blood in sinusoids.
- ➔ With atrophy and necrosis of liver cells.
- ➔ Normal adjacent hepatocytes.

Kupffer cells contain few brown hemosiderin pigment granules.




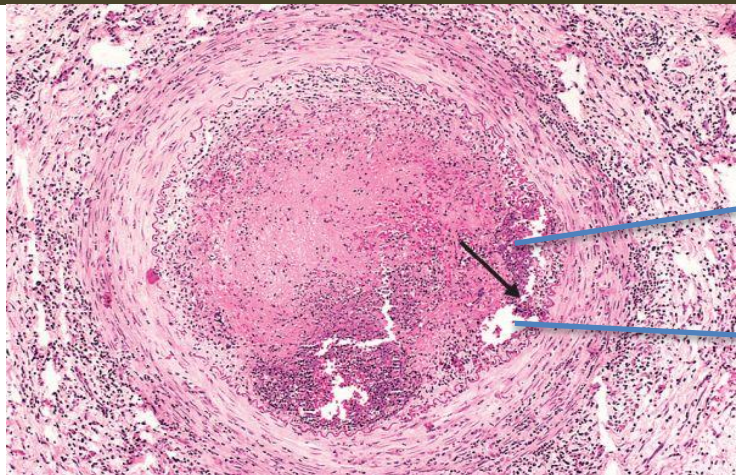
- ➔ The alveolar walls(septa) are thickened and congested
- ➔ The alveoli contain
 - Edema fluid,
 - Red blood cells
 - Hemosiderin (Heart failure cells) (1)

(1) **Hemosiderin pigment** derived from red cells breakdown.
HF cells: large alveolar macrophages

THROMBOANGITIS OBLITRANS (BUERGER DISEASE)



Case 10

	<p>Gross: Black discoloration of toes and fingers Risk factor(etiology): heavy smoking medium and small sized artery. Most effected site: tibia and radial artery involved.</p>
	<p>Histology:</p> <ol style="list-style-type: none">1. The lumen is occluded by organized thrombus (1) containing:<ul style="list-style-type: none">→ Abscesses→ Leukocytes.→ Fibrin2. Recanalization.

(1) **Organized thrombus** means recent thrombus

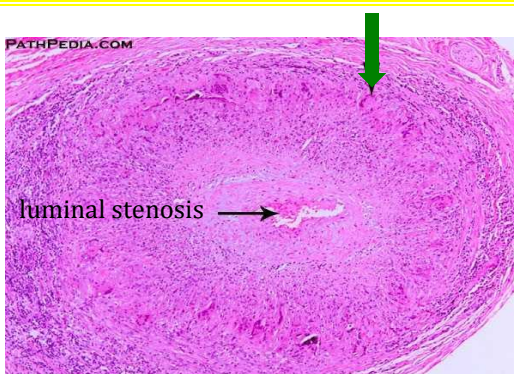


Gross

- Prominent **tortuous** and tender thickened scalp veins (temporal area)

Serous complication that might occur as a result of this disease include:

- **Complete loss of vision**
- **And diplopia.(double vision)**

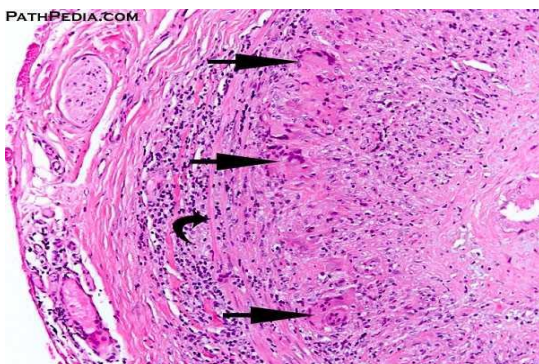


Histology

- ➔ Circumferential involvement of the vascular media is present
- Also note the presence of chronic lymphocytic inflammation in the media and adventitia.



- ➔ **Elastic lamina disruption.**
- ➔ **Giant cell infiltration in the wall of artery**
- ➔ **Chronic inflammation**



Giant cells can be of:

- ➔ Langhans type or
- ➔ Foreign-body type (three arrows)
- ➔ Tumor giant cells

LEUKOCYTOCLASTIC / HYPERSENSITIVITY VASCULITIS (MICROSCOPIC POLYANGITIS)



Case 12



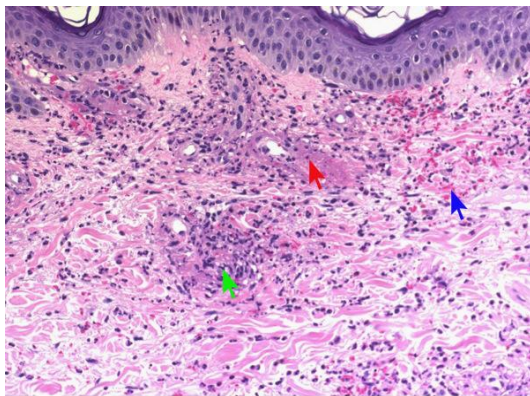
This condition might be complicated by: glomerulonephritis leading to:

- Hematuria and
- Hemoptysis (due to: pulmonary capillaritis.)



Leukocytoclastic vasculitis, foot.

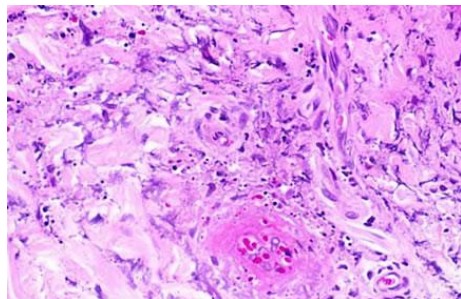
- Erythematous and purpuric eruption (Subcutaneous bleeding patches)
- It tends to be most pronounced on dependent areas like the foot.



- Fibrinoid type necrosis
- Red cell extravasation
- Inflammation

Section of the skin shows:

- Fibrinoid necrosis of blood vessels
- Extravasation of RBCs
- Neutrophilic infiltration with debris (leukocytoclasia/nuclear dust).



Fibrinoid necrosis of small dermal vessels is present, necessary to establish the diagnosis of leukocytoclastic vasculitis.