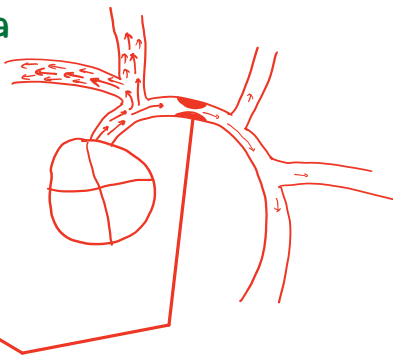


- Congenital adrenal hyperplasia
- Licorice ingestion
- Exogenous hormones



○ **CVS complications**

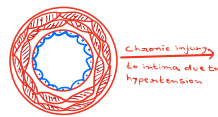
- Coarctation of Aorta
- Polyarteritis nodosa
- Increased cardiac output

○ **Neurologic conditions**

- Psychogenic
- Raised intracranial pressure
- Sleep apnoea

• **Morphological lesions of hypertension in vessels**

○ **Arteriosclerosis (Hyaline)**



Chemical injury to intima due to hypertension



Plasma Proteins

In several arterioles

Hyalinisation



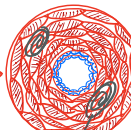
Extracellular matrix secreted by SM cells

○ **Arteriosclerosis (Hyperplastic)**

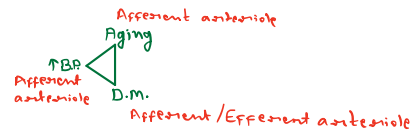
- Due to malignant hypertension
- Fibrinoid necrosis of arterial media



Concentric rings of media and intima



Necrotic arteria



• **Target organ injury**

○ **CNS**

- Cerebrovascular accidents

• **Transient Ischaemic Attack (TIA)**

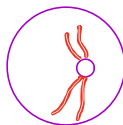
- Rapidly developing neurological dysfunction due to vascular events which lasts less than 24 hours and recovers completely

• **Stroke**

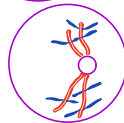
- Rapidly developing neurological dysfunction due to vascular events which lasts more than 24 hours and usually does not recover completely

○ **Retinopathy**

- Grade 1- Silver/Copper wiring



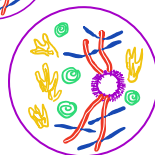
- Grade 2- Arterio-Venous nicking



- Grade 3- Flare hemorrhages



- Grade 4- Papilledema of optic disc



## ○ Cardiovascular complication

- Left ventricular hypertrophy
  - May develop IHD
    - Angina
    - MI
  - sudden cardiac death
- Benign Nephrosclerosis

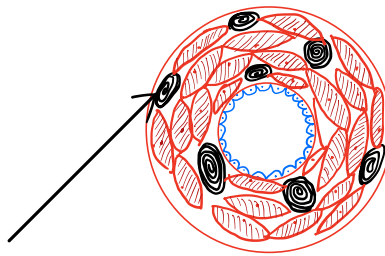
## Arteriosclerosis

- Hardening of Arteries with loss of elasticity

### • 3 types

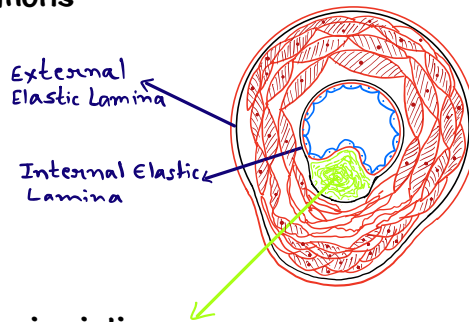
#### ○ Moenckeberg medial calcific sclerosis

- Medium sized arteries
  - Radial artery
  - Ulnar artery
- calcified patches in tunica media
- Less clinical complications



#### ○ Atherosclerosis

- Elastic arteries
  - Aortic artery
  - Iliac artery
  - Carotid artery
- fibro-fatty plaque in tunica intima
- Probability= abdominal aorta> coronary artery> popliteal artery> carotid artery> circle of willis



#### ○ Arteriolosclerosis

- Hyaline arteriolosclerosis
  - Senile changes
  - Diabetes malitus
  - Involved as a part of essential hypertension
- Hyperplastic arteriolosclerosis
  - Characteristic of malignant hypertension
  - Duplication of basement membrane

### • Pathogenesis of atherosclerosis

#### ○ Endothelial injury

- Hemodynamic stress



- ▶ Lipid abnormalities
  - Increased LDL level
  - Increased lipoprotein-a level
  - Decreased HDL level

- ▶ Smoking
- ▶ Diabetes malitus
- ▶ Homocysteine
- ▶ Toxins
- ▶ Microbes

- Cytomegalovirus
- Chlamydia pneumoniae

- ▶ Immune reactions
  - Increased CRP level

• Risk factors for Atherosclerosis

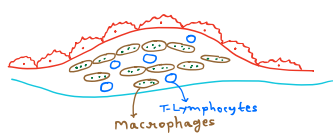
- Age
  - ▶ More common in male
  - ▶ In females after menopause
- Sex
- Genetics
  - ▶ Hypertension
  - ▶ DM
- Hyperlipidemia
- Hypertension
- Smoking
- Diabetes malitus
- Obesity

• American Heart Association Classification of Atherosclerosis lesions

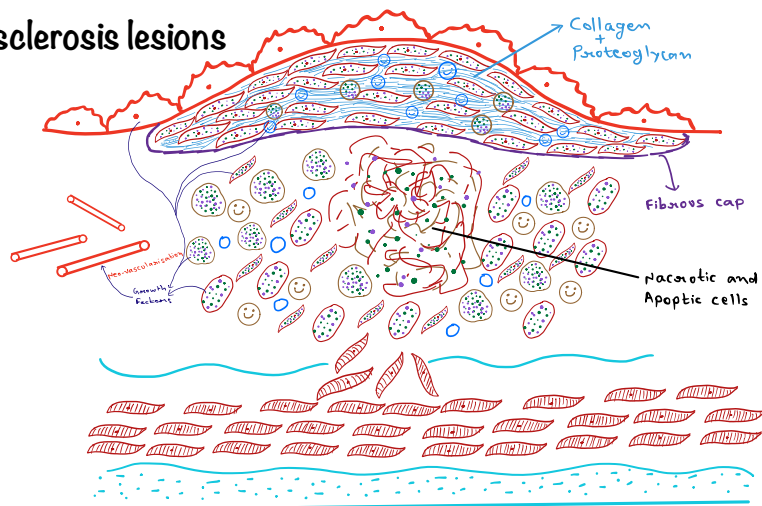
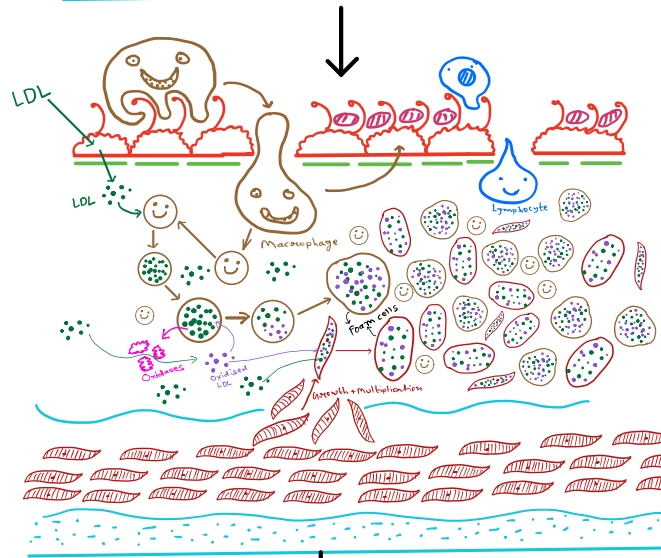
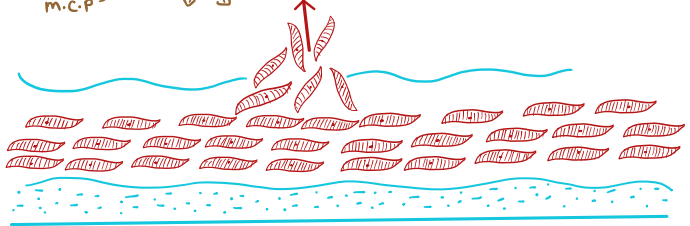
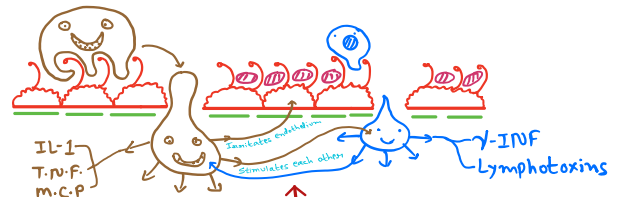
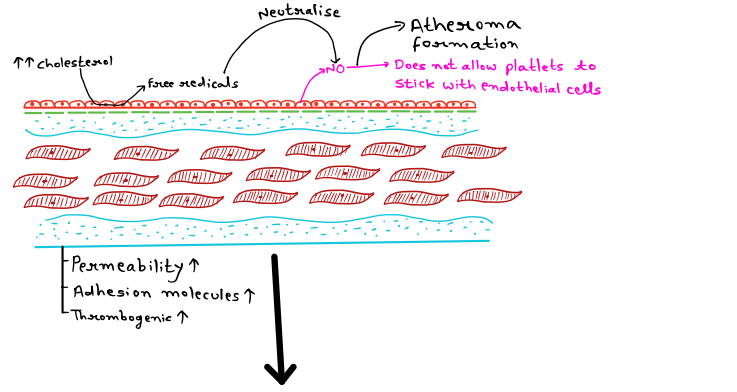
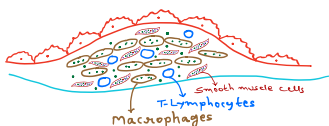
- Type-1/Initial/Fatty dot lesions



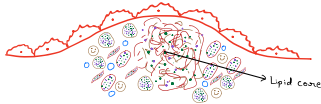
- Type-2 lesions/Fatty streaks



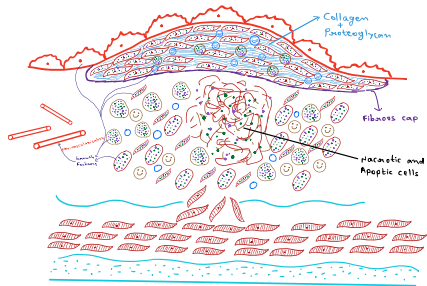
- Type-3/Intermediate lesions



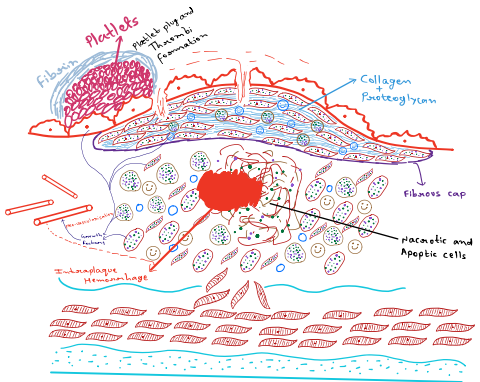
- Type-4 lesions/Fatty atheromas



- Type-5 lesions



- Type-6/Complicated lesions



- Larger vessels- Aneurysmal dilatations
- Smaller vessels- Obstructive complications
- Complications
  - Fibrosis
  - Calcification
  - Surface defects- Leads to formation of platelet plug and thrombogenesis
    - Erosions
    - Ulcerations
    - Ruptures
  - Athero-Emboli
  - Intraplaque haemorrhage
  - Aneurysmal dilatation due to secondary degenerative changes in tunica media
- Clinical
  - Abdominal aorta
    - Thrombosis
    - Lower limb ischaemia due to thromboembolism
    - Rupture
  - Coronary artery
    - IHD
      - Angina pectoris