(b) Atherosclerosis

Disease in which plaque builds up inside the arteries.
Plaque is made up of fat, cholesterol & Ca^{++} and other substances.
This limits flow of blood to the organs and parts of body.

* Etiology

It develops gradually.

The arteries get blocked due to deposition of plaque.
The signs and symptoms depend upon which artery is affected —

1. Heart arteries — obstruction of heart arteries (coronary) may cause symptom of heart attack or chest pain.
2. Arteries supplying the brain — Obstruction of the carotid arteries the neck causes symptom of stoke.
3. Arteries in arms and legs — legpain while walking

* Pathogenesis

Atherosclerosis is generally caused due to hypercholesterolemia, hypertension, high blood fibrinogen, smoking and diabetes, high cholesterol (specially LDL & VLDL cholesterol).

High levels of Low Density lipid (LDL)

↓ oxidn without any enzyme

oxidized LDL (OX-LDL)

↓ causes

Release of bioactive phospholipids

↓ this activates

Endothelial cells

↓

Allows leucocyts to enter & into the artery

↓

and causing sticking (adhesion) of platelets. (6)

↓

Monocytes ——— differentiates to ——— Macrophages (6)

↓

Take large amt of lipids

↓ they form

large foam cells in artery wall

Atherosclerosis — Artery loose elastin protein & Hardening of arteries & Blocks

* Diagnosis

BP check, pulse check ; whooshing sounds over arteries.

Medical test

1. Blood test
2. Doppler ultrasound - A special device used to measure the BP at various parts of body
3. Electrocardiogram ECG
4. CT scans
5. Magnetic resonance Imaging.

* Treatment

1. Antiplatelet — It is given to reduce the sticking of platelets to the artery wall
   Eg : Aspirin
2. Anti-coagulant — helps to thin the blood to prevent clots formⁿ.
   Eg : Heparin, warfarin.
3. BP medications — Such as β & Ca^{++} channel blockers, ACE inhibitors.
4. Cholesterol medⁿ — It lowers the LDL levels and boosting HDL cholesterol & good cholesterol
5. Surgery and other procedures such as angioplasty.