Arterial Diseases

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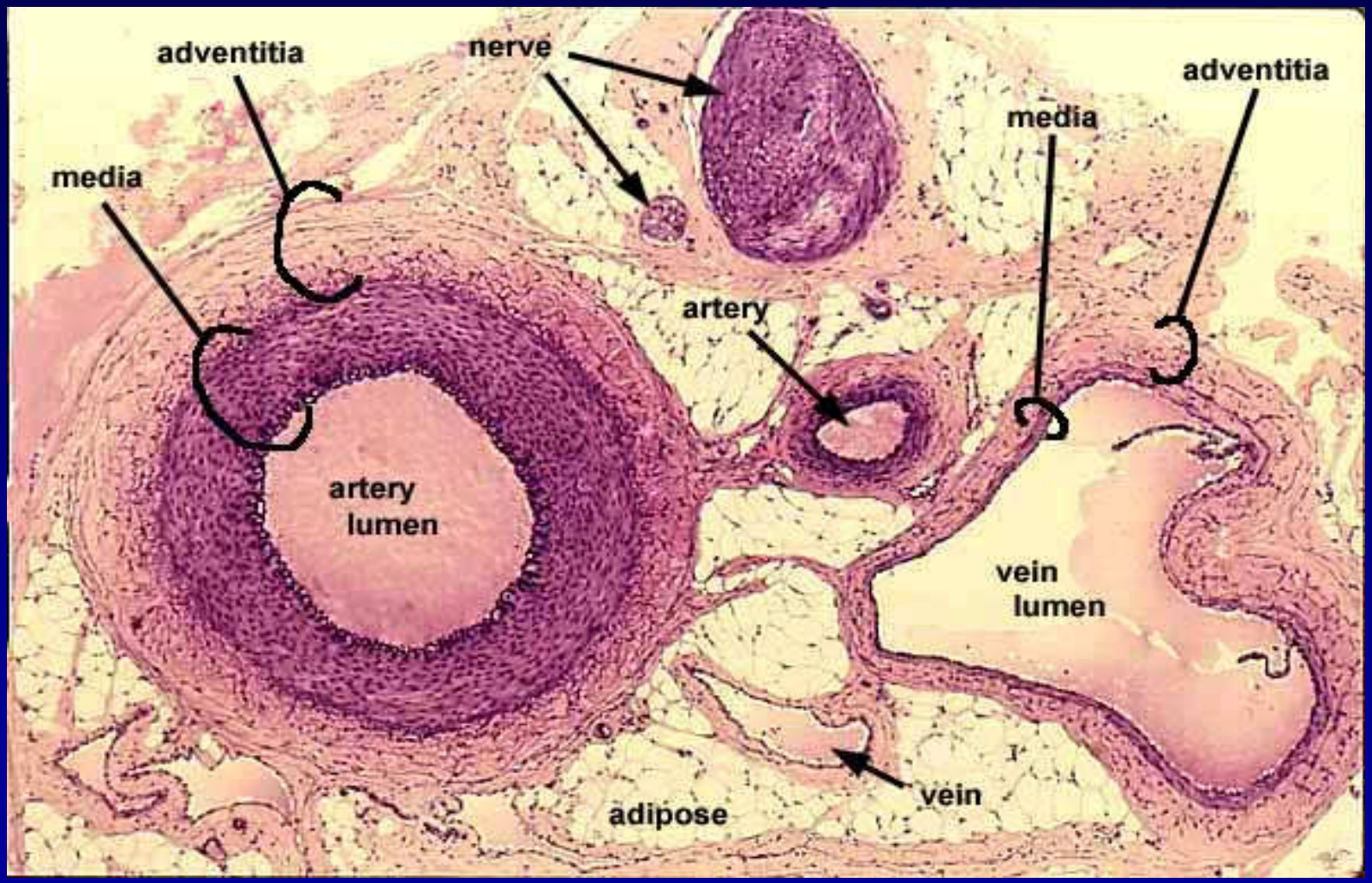
Disease Spectrum

- Arteriosclerosis
- Atherosclerosis
- Aneurysm
- Systemic hypertension
- Malignant hypertension

Normal Histology Review



Ref: Wikipedia

Arteriosclerosis & Atherosclerosis

- 3 types of vascular disorders: All characterised by rigidity (sclerosis) and thickening of blood vessels.
- **Monckeberg arteriosclerosis** (medial calcific sclerosis): involves media of medium-sized arteries. E.g. radial & ulnar arteries.
- Affects persons older than 50 yrs of age. Does not obstruct arterial blood flow because intima is not involved.

Monkeberg arteriosclerosis

- Ring-like calcifications in the media
- Stiff, calcific "pipestem" arteries result.
- May co-exist with atherosclerosis but is distinct from and unrelated to it.

Ref: Wikipedia

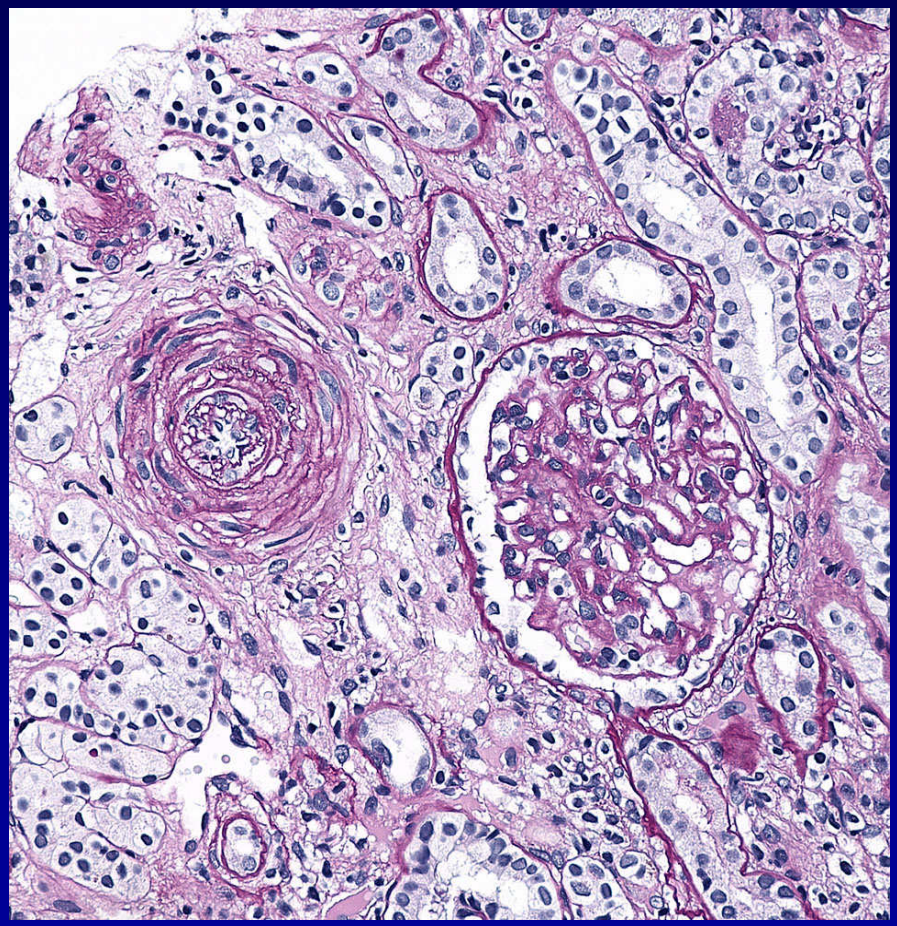
Arteriosclerosis

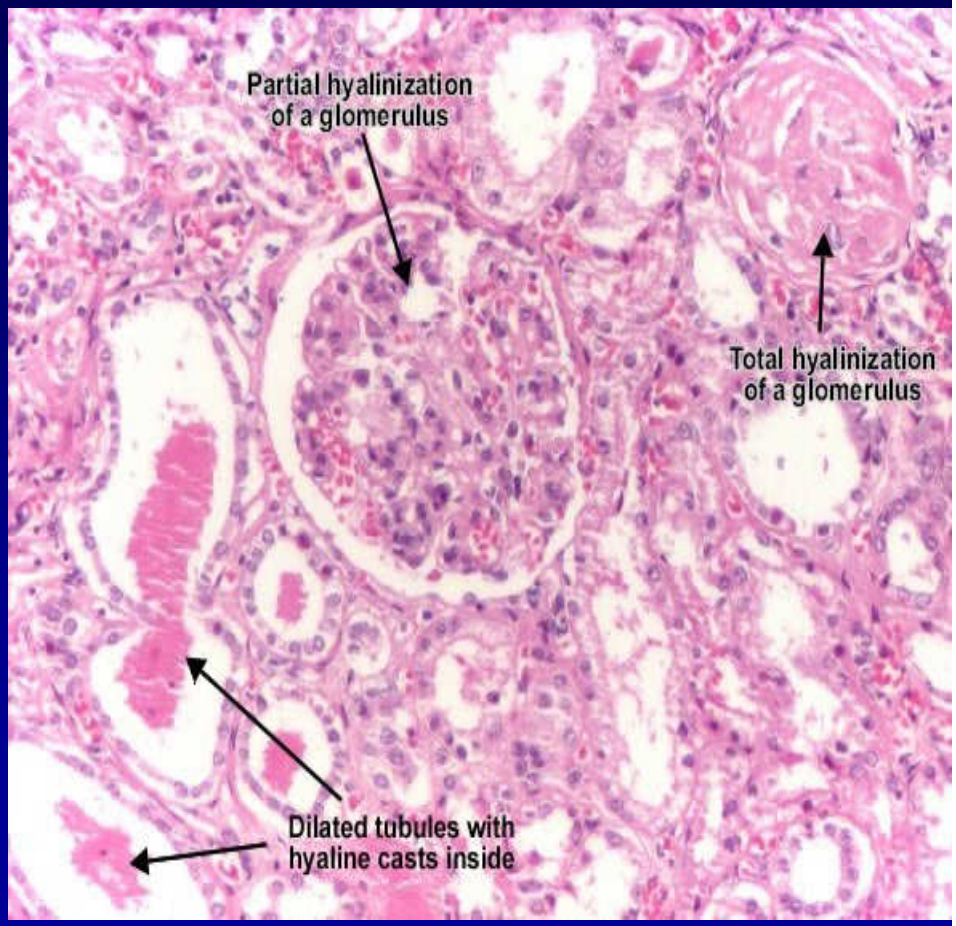
- **Arteriosclerosis:** characterised by hyaline thickening or proliferative changes of small arteries and arterioles, especially in the kidneys. Associated with hypertension & diabetes mellitus.
- 2 variants recognised: *hyaline arteriosclerosis* & *hyperplastic arteriosclerosis*.
  - Hyaline arteriosclerosis: hyaline thickening of arteriolar walls. Kidneys – benign nephrosclerosis. Associated with hypertension.

Arteriosclerosis

- Hypeplastic arteriosclerosis: concentric, laminated, "onion-skin" thickening of the arteriolar walls. May be accompanied by necrotizing arteriolitis, intramural deposition of fibrinoid material, arterioles with vascular necrosis & inflammation. Kidneys – malignant nephrosclerosis.

Hyperplastic Vs Hyaline Arteriosclerosis





Ref: Wikipedia

Atherosclerosis

- Most frequent cause of vascular disease worldwide.
- Characterised by: fibrous plaques or atheromas in intima or arteries affecting coronary arteries, carotid arteries, circle of Willies, large vessels of lower limbs, renal and mesenteric arteries.
- Plaques have a central core of cholesterol & cholesterol esters, lipid-laden macrophages or foam cells, calcium and necrotic debries.
- Core covered by a subendothelial fibrous cap made up of smooth muscles, foam cells, fibrin and coagulation proteins, collagen, elastin, glycosaminoglycans, proteoglycans and ECM.

Atherosclerosis

- Plaques maybe complicated by: Ulceration, haemorrhage into plaque or calacification of plaque, thrombus formation at the site causing obstruction to blood flow or embolization of an overlying thrombus/plaque material.
- Consequences of atherosclerosis: IHD, MI, stroke, ischaemic bowel disease, peripheral vascular occlusive disease & hypertension (from renal ischaemia).

ATHEROMA: MORPHOLOGY and EFFECTS

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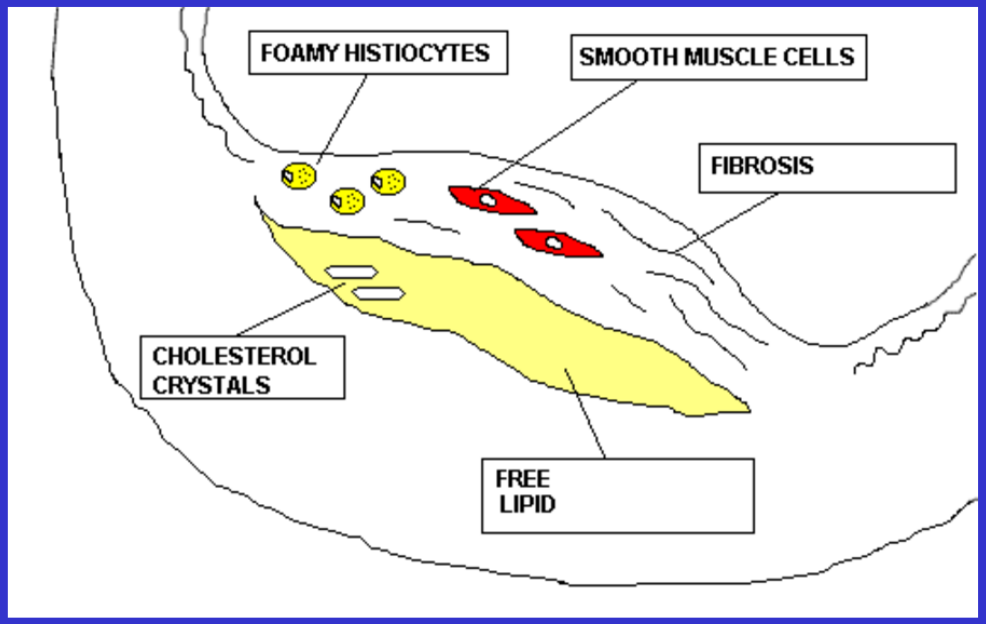

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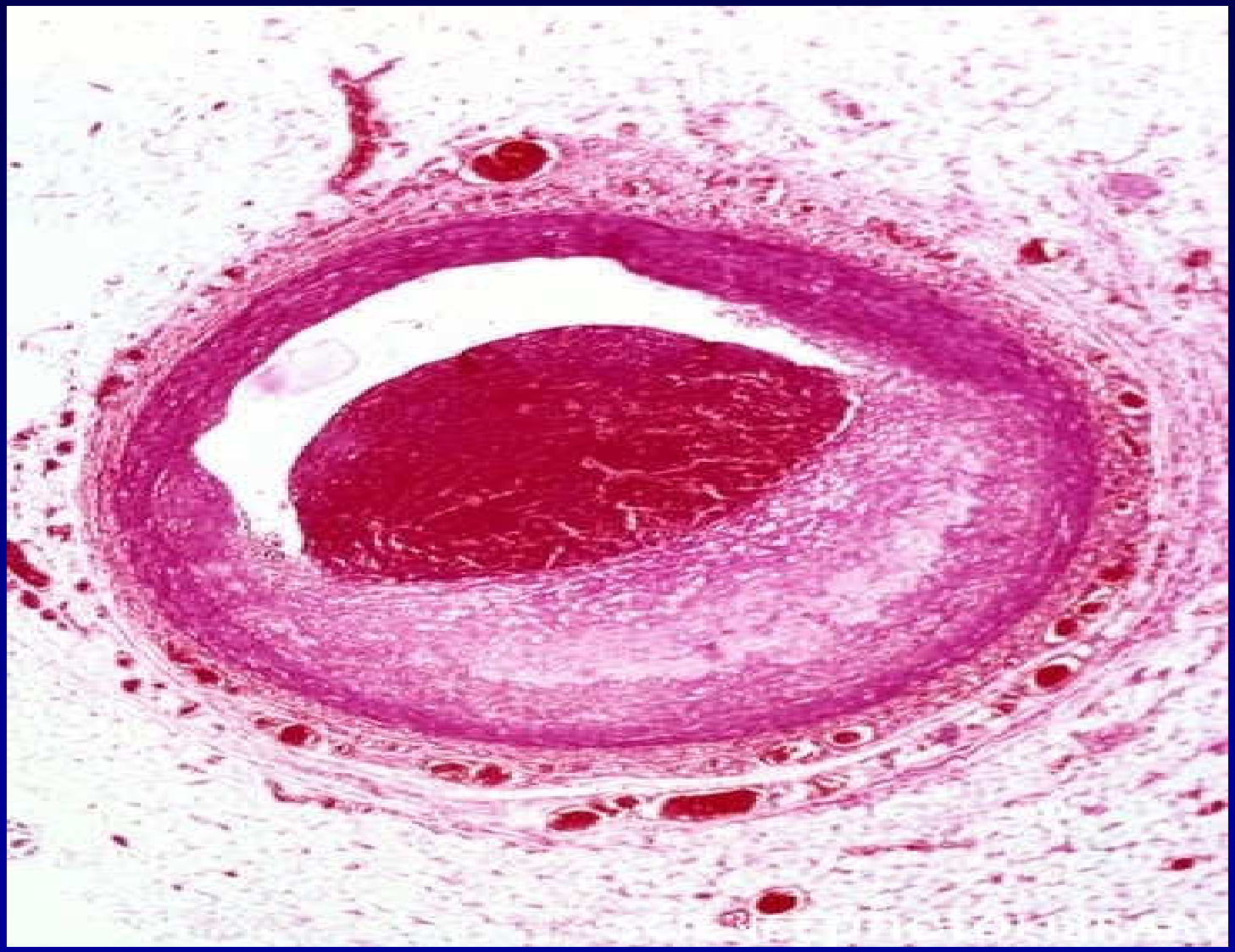
AAAtheroma with intraluminal thrombus



Study Guide

- What are the risk factors for atherosclerosis? List them and explain how each contribute to the development of atherosclerosis.
- Describe the pathogenesis of atherosclerosis (current concept: reaction to injury formulation).

Aneurysm

- Localised abnormal dilations of either arteries or veins. They can erode adjacent structure or rupture.
- Types: Atherosclerotic aneurysm, Berry aneurysms, aneurysms due to cystic medial necrosis, syphilitic (luetic) aneurysm, dissecting aneurysm or arterio-venus fistula.
- **Study guide**: describe the characteristics of each of the types of aneurysms. Describe the gross and micro anatomy of the different types of aneuryms.

Systemic Hypertension, Malignant Hypertension & Benign Hypertension

Self study and reading guides: Read and take notes under the following headings:

- Definition
- Incidence & Prevalence
- Pathogenesis
- Clinical signs & symptoms
- Laboratory diagnosis

End

Main Reference: Robins Pathological Basis of Diseases,

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