

Pathology of the atherosclerosis

Dr. Attila Zalatnai

Arteriosclerosis

Hardening and remodeling of the arterial walls

- atherosclerosis
- arteriolosclerosis
- calcific medial sclerosis of Monckeberg

Predisposing factors

hyperlipidemia (cholesterol, triglycerid)

- primary
- familial (autosomal dominant)
- secondary (DM, hypothyreosis, nephrotic sy.)

diabetes mellitus

hypertension (of any cause)

obesity

cigarette smoking

high LDL, low HDL levels

Background of the atherogenesis

Many different theories; most widely accepted: „response to injury”

1. Endothel damage (oxidized LDL-cholesterol, turbulence, infections, toxins...)
2. Circulating macrophages infiltrate the intima, take up LDL-cholesterol
(foamy cells)
3. Thrombocyte, coagulative factors activated, release of inflammatory mediators
4. Myofibroblast migration and proliferation ⇒ collagen deposition, fibrous cap
5. Calcium deposition

Hallmark of the atherosclerosis: plaque

Complications of the atherosclerotic plaques

progressive growing

edema

hemorrhage

necrosis

rupture

usuration

thrombus formation ⇒ embolisation

dissection

aneurysm formation

Consequences of the atherosclerosis

Cerebral arteries: emollition, apoplexia, vascular dementia

Carotid arteries: massive emollition

Aortic arch: aortic dissection

Subclavian arteries: subclavian steal syndrome

Coronaries: myocardial infarct, myocardial fibrosis

Descending aorta: aneurysm, dissection

Abdominal aorta: aneurysm, rupture

Mesenteric artery: hemorrhagic bowel necrosis

Celiac trunc: hepatic, splenic anemic infarctions

Renal arteries: anemic infarction; atrophy

Aortic bifurcation: Leriche syndrome

Arteries of the lower limbs: gangrene