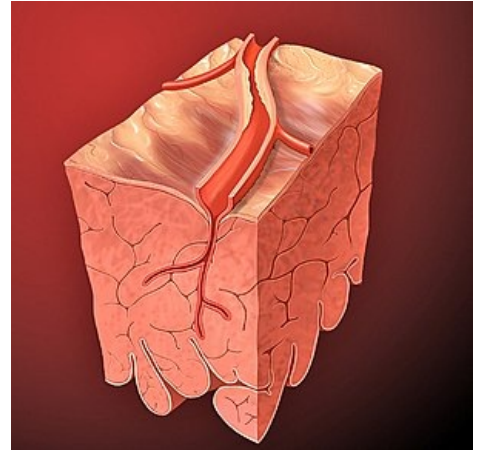


Ischemic heart disease

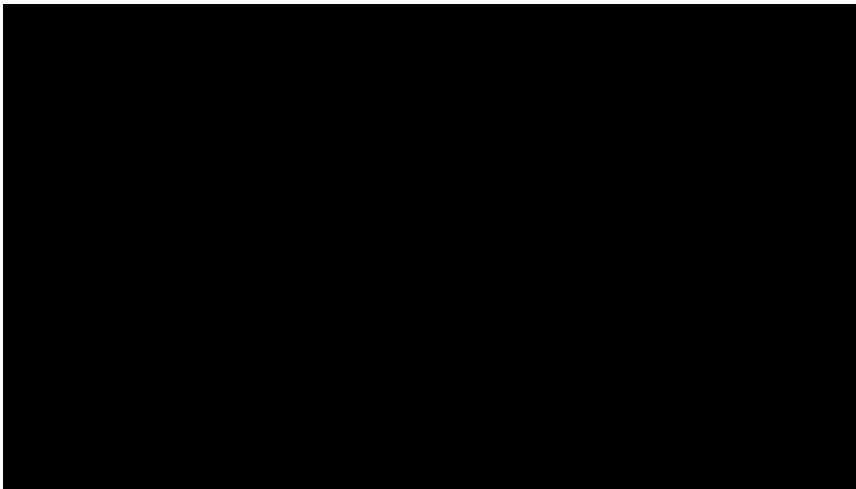
Ischemic heart diseases is a group of pathologic states that involve ischemia (i.e. a mismatch between oxygen demand and supply). We distinguish several forms of IHD:

Acute forms of IHD	Chronic forms of IHD
Acute myocardial infarction (STEMI, NSTEMI)	Status after acute MI
Unstable angina pectoris	Stable angina pectoris
Sudden coronary death	Prinzmetal's angina pectoris
	Coronary Syndrome X
	Silent myocardial ischemia
	IHD manifesting as heart failure
	IHD manifested by arrhythmias

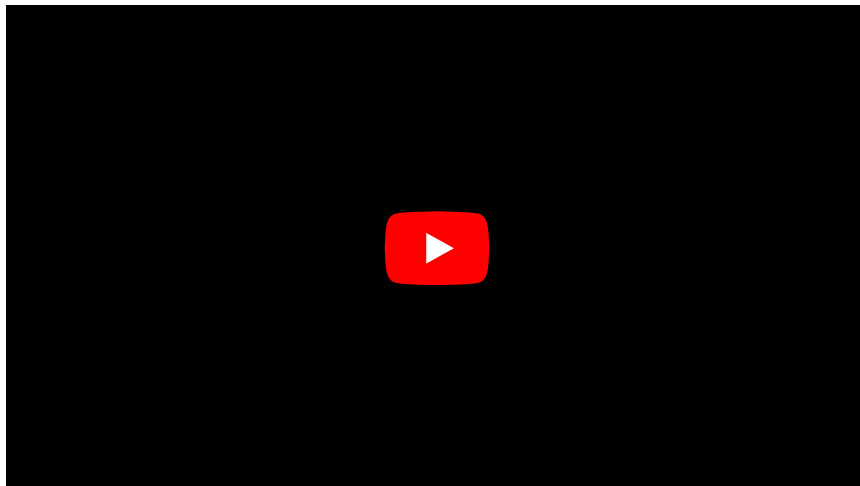


Atherosclerotic narrowing of the coronary artery

NSTEMI:



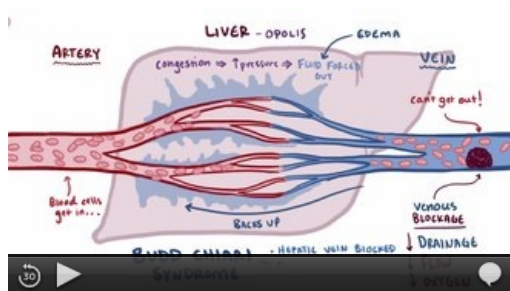
STEMI:



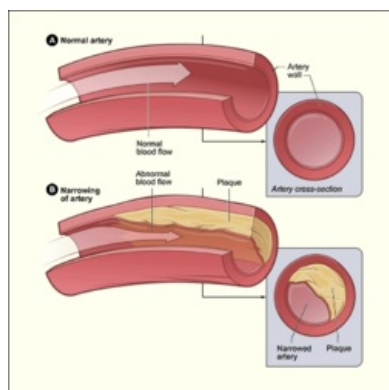
Causes of Ischemia

1. **Increased need for oxygen by the myocardium** - tachycardia during increased physical exertion
2. **Decreased blood oxygen content** - cyanotic CHD (with right-to-left shunt), severe anemia, CO poisoning, hypotension (shock), severe lung disease
3. **Reduced blood flow through the coronary arteries**

In more than 90% of CVD cases, reduced blood flow through the coronary arteries is present, most often on the basis of *coronary atherosclerosis*. More rarely due to **embolism in the main branches of the coronary arteries** (vegetation in infectious or non-bacterial thrombotic endocarditis), **dissection of the aorta** (its spread to the coronary arteries), **luetic aortitis**, **coronary arteritis** (polyarteriitis nodosa, Kawasaki disease) and **congenital malformations of coronary arteries**.



Coronary atherosclerosis



Atherosclerotic plaques can narrow the lumen of the coronary artery concentrically or eccentrically, the severity of the sclerosis is determined by the percentage of narrowing of the lumen of the artery (intra vitam - coronarography, post mortem - cross-sections):

- Grade I** - up to 25%
- Grade II** - up to 50%
- Grade III** - up to 75%
- Grade IV** - above 75%

Grade IV is clinically significant in the case of hypertrophy of the left heart (e.g. in aortic stenosis or systemic hypertension). So-called *relative coronary insufficiency* occurs even with a lower degree of stenosis, as the hypertrophic myocardium has higher metabolic demands. **Occlusions** occur more in the left coronary artery (here most often in the first 2 cm of the RIA and RC course) than in the right (here most often in the first and third third of its course).

The plates are of two types:

1. **Fibrous** - hyalinized collagen tissue, few lipids, are the basis of chronic forms of IHD (stable angina pectoris, chronic IHD).
2. **Atheroma** - contains mushy masses containing lipids, the surface is covered with a cap of hyalinized tissue; it is a predisposition to the development of acute forms of IHD (unstable angina pectoris, acute myocardial infarction, sudden coronary death), which develops due to an acute change in the plaque - rupture with encroaching thrombosis, bleeding into the plaque, spasm at the site of the plaque (caused by inadequate irritation of the vagus nerve) - it does not occur in a healthy artery.

Risk Factors

Affectible: arterial hypertension, dyslipidemia, smoking, diabetes, hyperhomocysteinemia, obesity, lack of exercise.

Uninfluenceable: age, gender, family burden.

Links

- Cardioblog: Wellens syndrome (<http://kardioblogie.blogspot.com/2012/07/pokrocili-wellensuv-syndrom.html>)
- Acute coronary syndrome (TECHmED) (<https://www.techmed.sk/akutny-koronarny-syndrom/>)

Related Articles

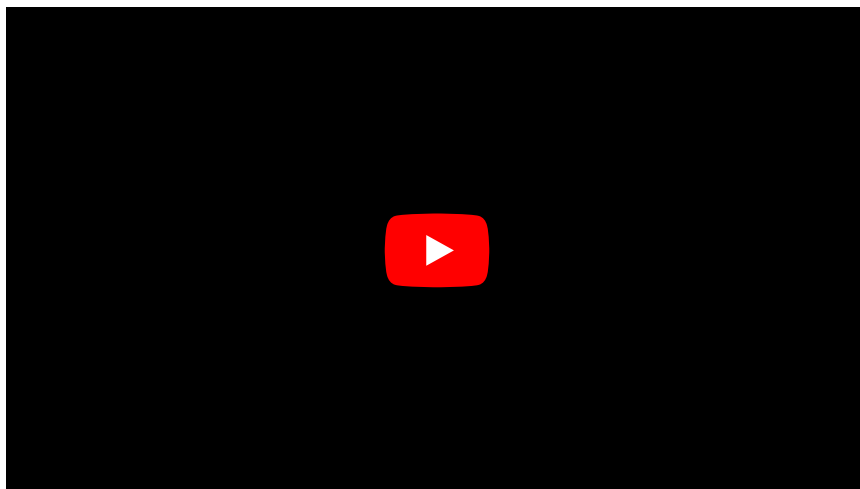
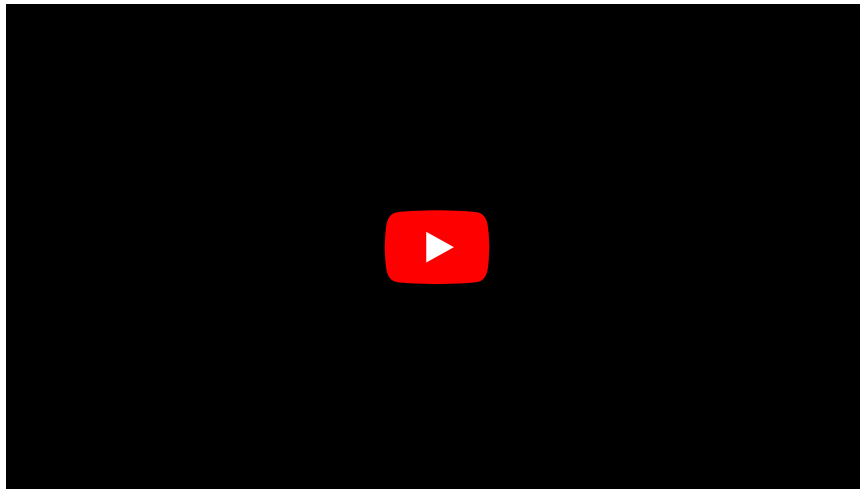
- Treatment of ischemic heart disease
- IHD Repetitorium
- Heart-attack
- Angina pectoris
- Prinzmetal's angina pectoris
- Vascular supply of the myocardium
- Chronic ischemic disease of the lower limbs

Source

- PASTOR, Jan. *Langenbeck's medical web page* [online]. ©2004. [cit. 2010-04-22]. <<https://www.freewebs.com/langenbeck/Specialka1.rar>>.

References

- KLENER, P. *Internal medicine*. 3. edition. Prague : Galen, 2006. ISBN 80-7262-430-X.



ECG changes and mechanisms of their formation during ischemia and myocardial infarction

