



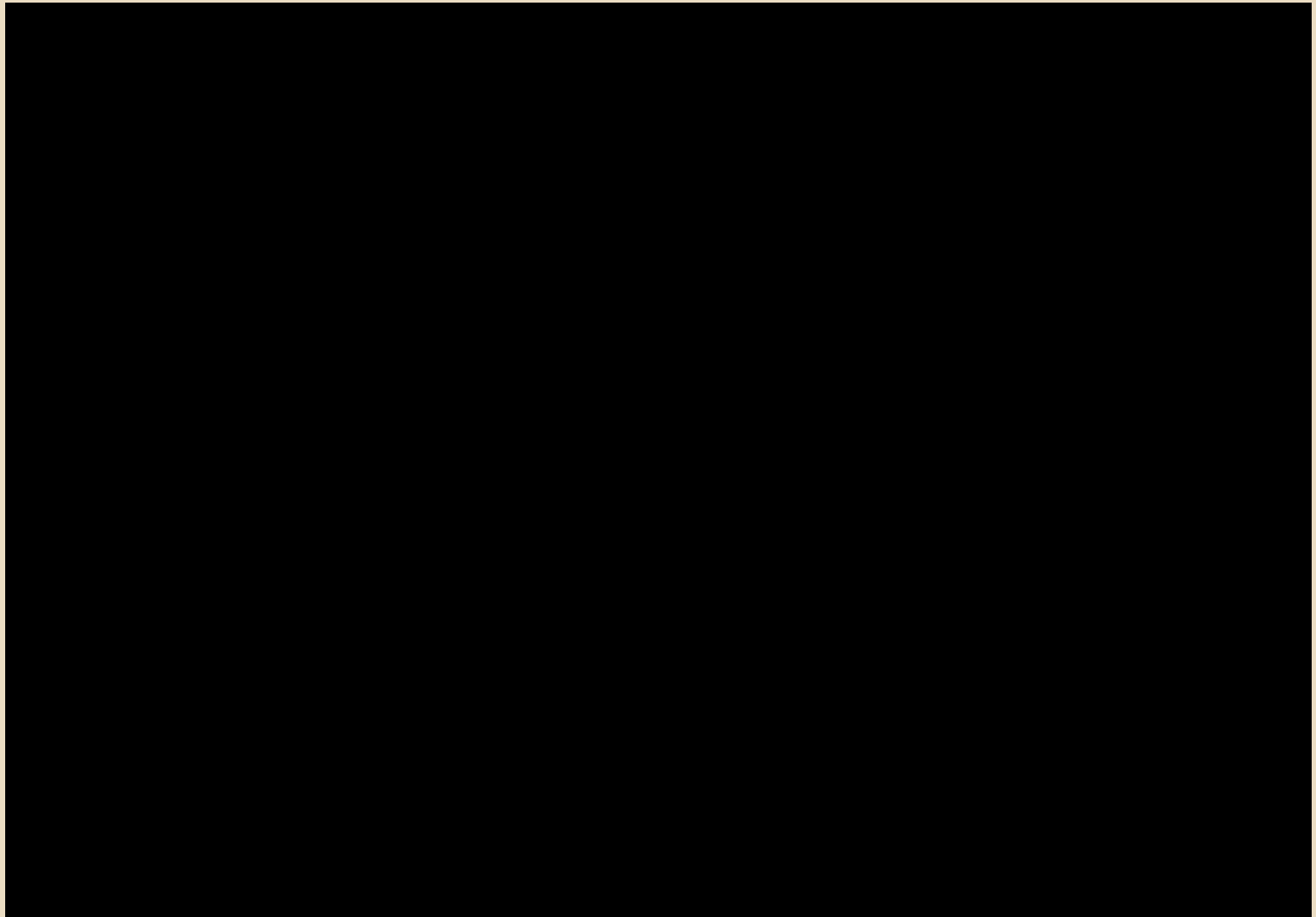
EXAMINATION OF THE HEART

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Interní kardiologická klinika FN Brno



**FAKULTNÍ
NEMOCNICE
BRNO**



History



- **Heart disease in patient's history**
- **Family history**
- **Risk factors (gender, age, smoking, cholesterol, diabetes)**
- **Physical performance**
- **Syncope**
- **Arrhythmias**
- **medication**



General inspection of the patient



- **Cyanosis**
- **Swelling**
- **Dyspnea (orthopnoic position)**
- **Clubbing**
- **Facies mitralis**
- **Increased jugular filling**
- **Xanthelasma (yellow plaques close to eyelids)**



General inspection of the patient



□ Cyanosis

Children with Tetralogy of Fallot exhibit bluish skin during episodes of crying or feeding.



ADAM

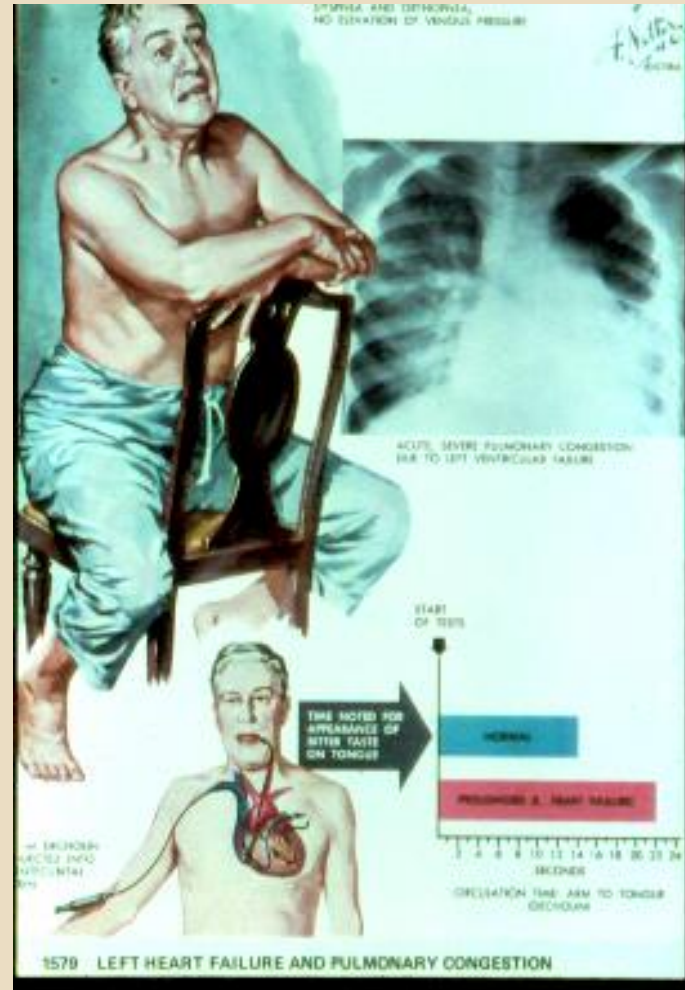


Reduced hemoglobin in capillary blood $> 50\text{g/l}$

General inspection of the patient



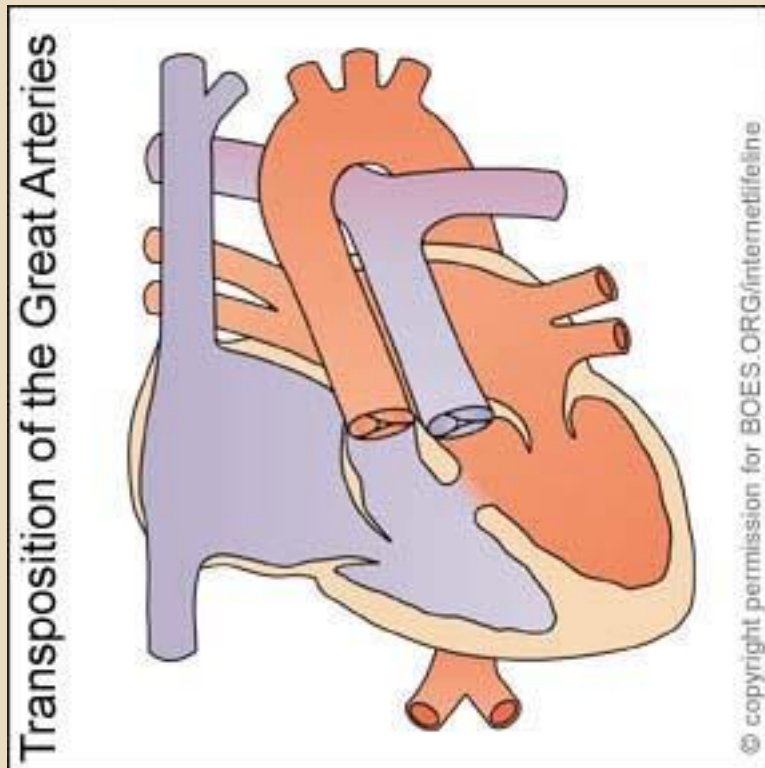
- **Dyspnea (orthopnoic position)**
- Left ventricular failure with increased blood pressure in lung circulation
- Vertical position decrease the venous blood return



General inspection of the patient



- **Clubbing**
- Congenital heart disease with cyanotic R –L shunt



General inspection of the patient



- **Facies mitralis**

- Mitral stenosis

- *Pale colour
around mouth,
eyes and
forehead contrast
with violet on
nose and lips*



General inspection of the patient



- **Xanthelasma** (yellow plaques close to eyelids)



General inspection of the patient



□ Splinter hematomas



Typical for infectious endocarditis

Inspection of the heart



- Asymmetrical bulge of the thorax – too big heart – voussure
- Pulsation – enlarged left or right ventricle



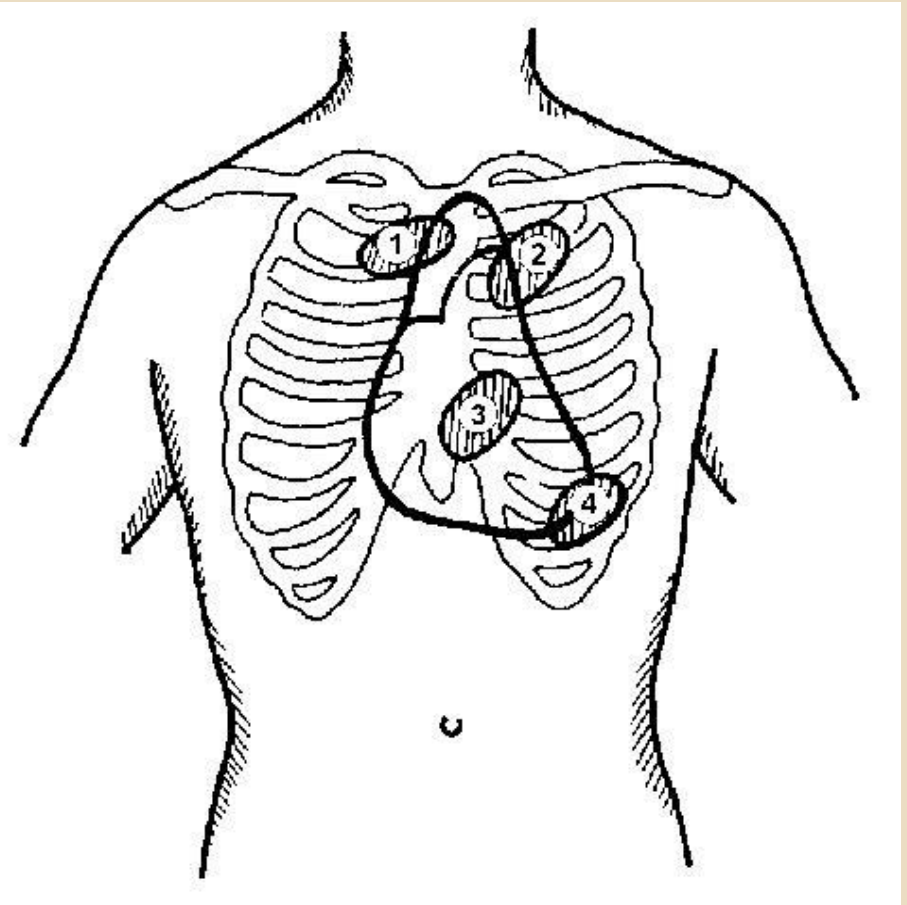
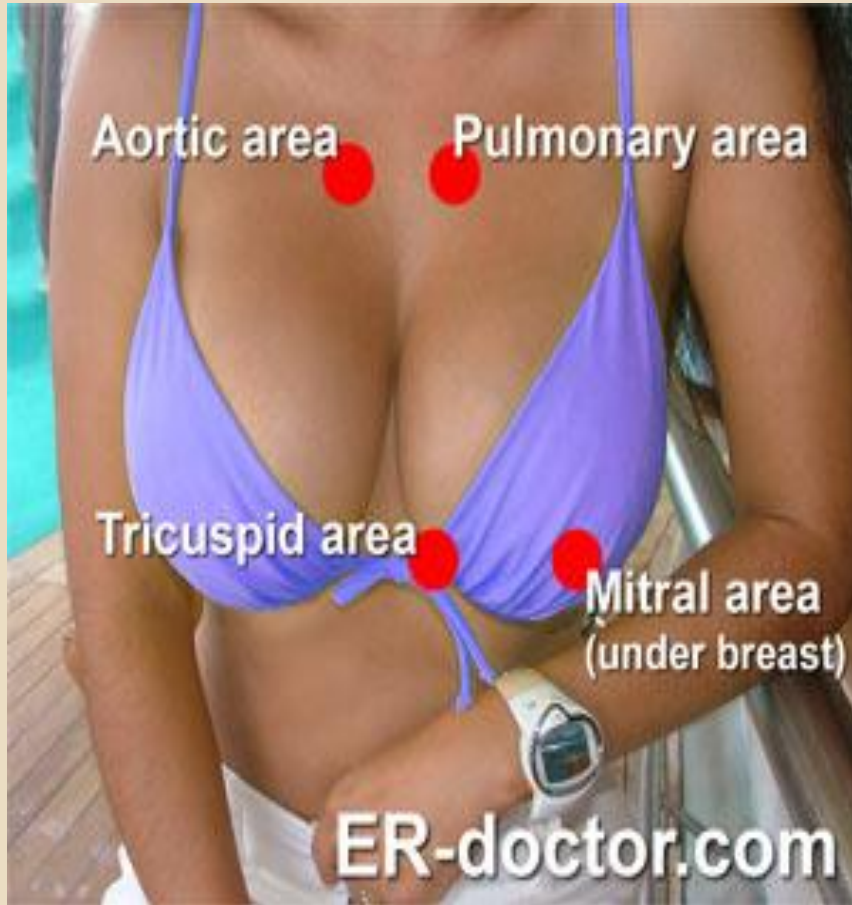
Palpation of the heart



- Apex of left ventricle – point of maximum impulse



Auscultation of the heart

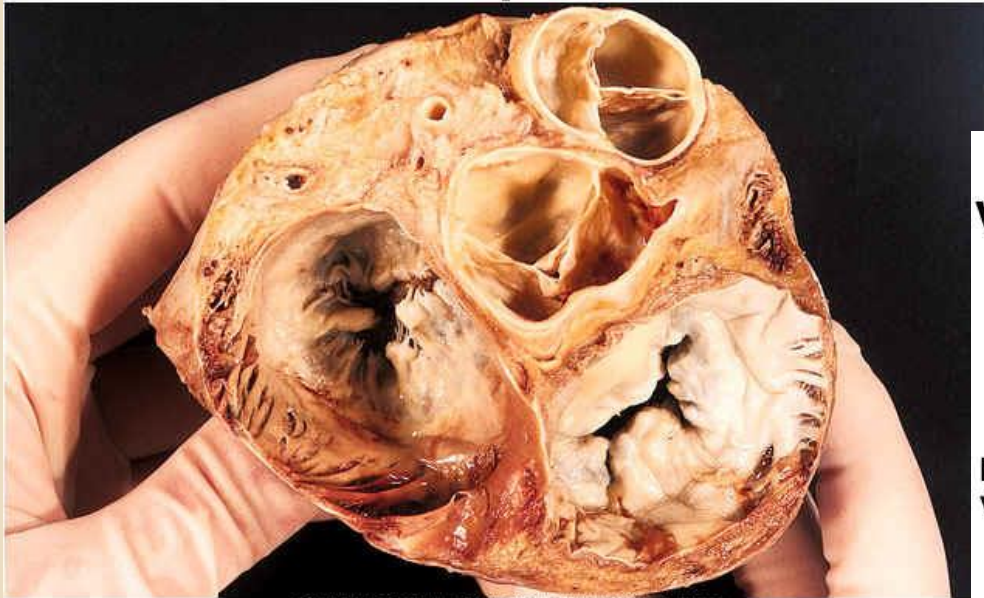


Heart valves



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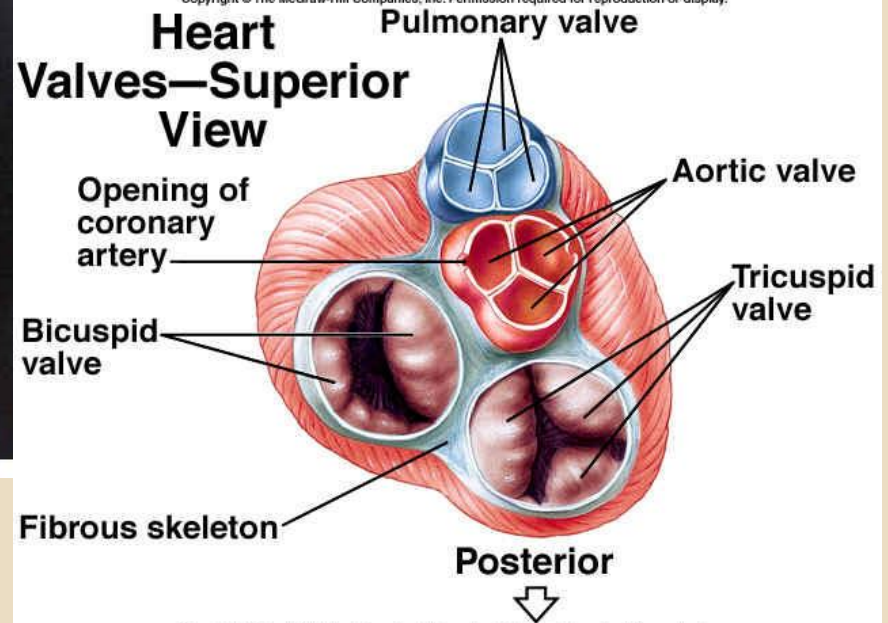
Pulmonary and Aortic Valves—Superior View



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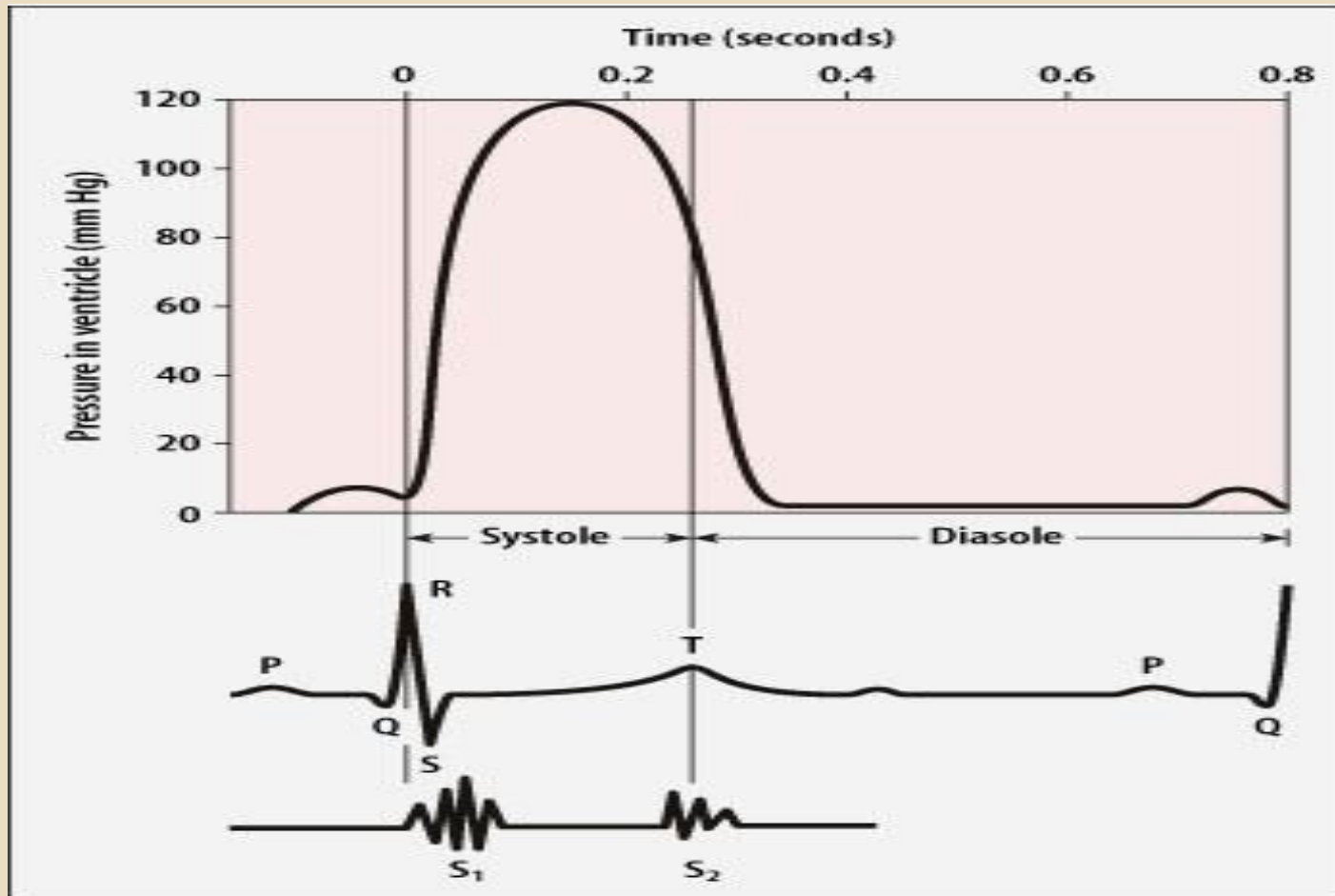
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Heart Valves—Superior View



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Heart sounds



Gallop



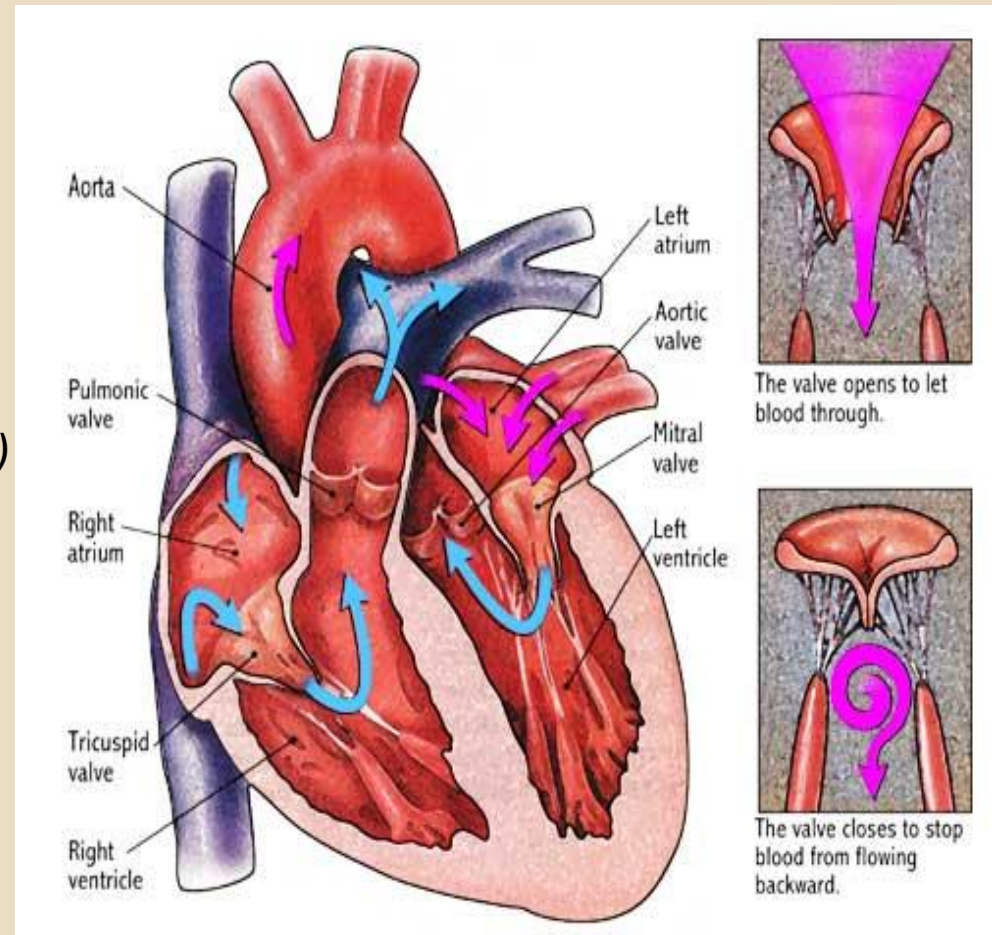
Increased BP in LA during left ventricular failure + tachycardia
Fast opening of the AV valves and rapid filling of the ventricles

Murmurs

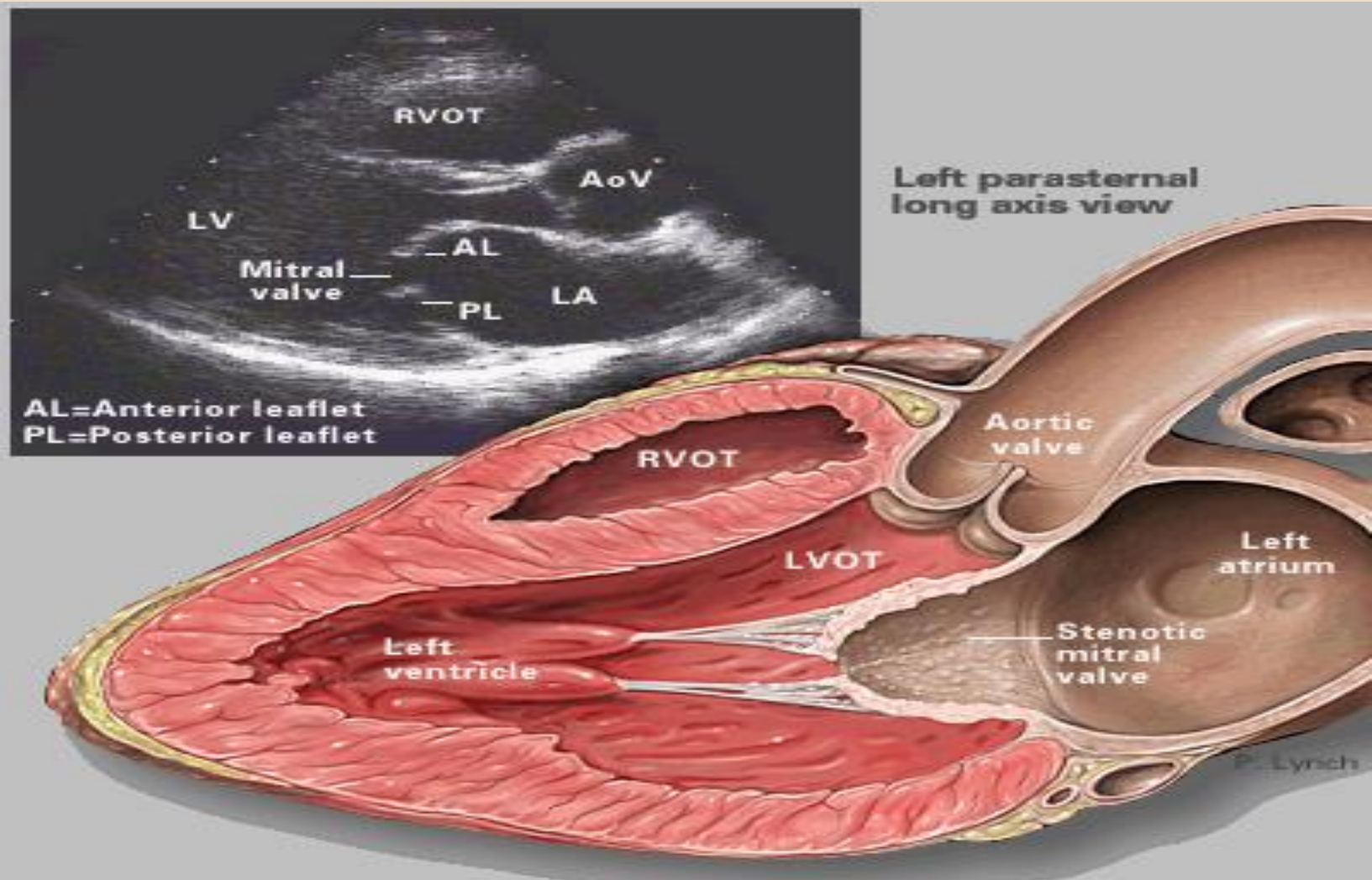


- **SYSTOLIC**
- - ejection (*Ao stenosis*)
- - regurgitation (*Mi insufficiency*)

- **DIASTOLIC**
- - flow related (*Mi stenosis*)
- - regurgitation (*Ao insufficiency*)



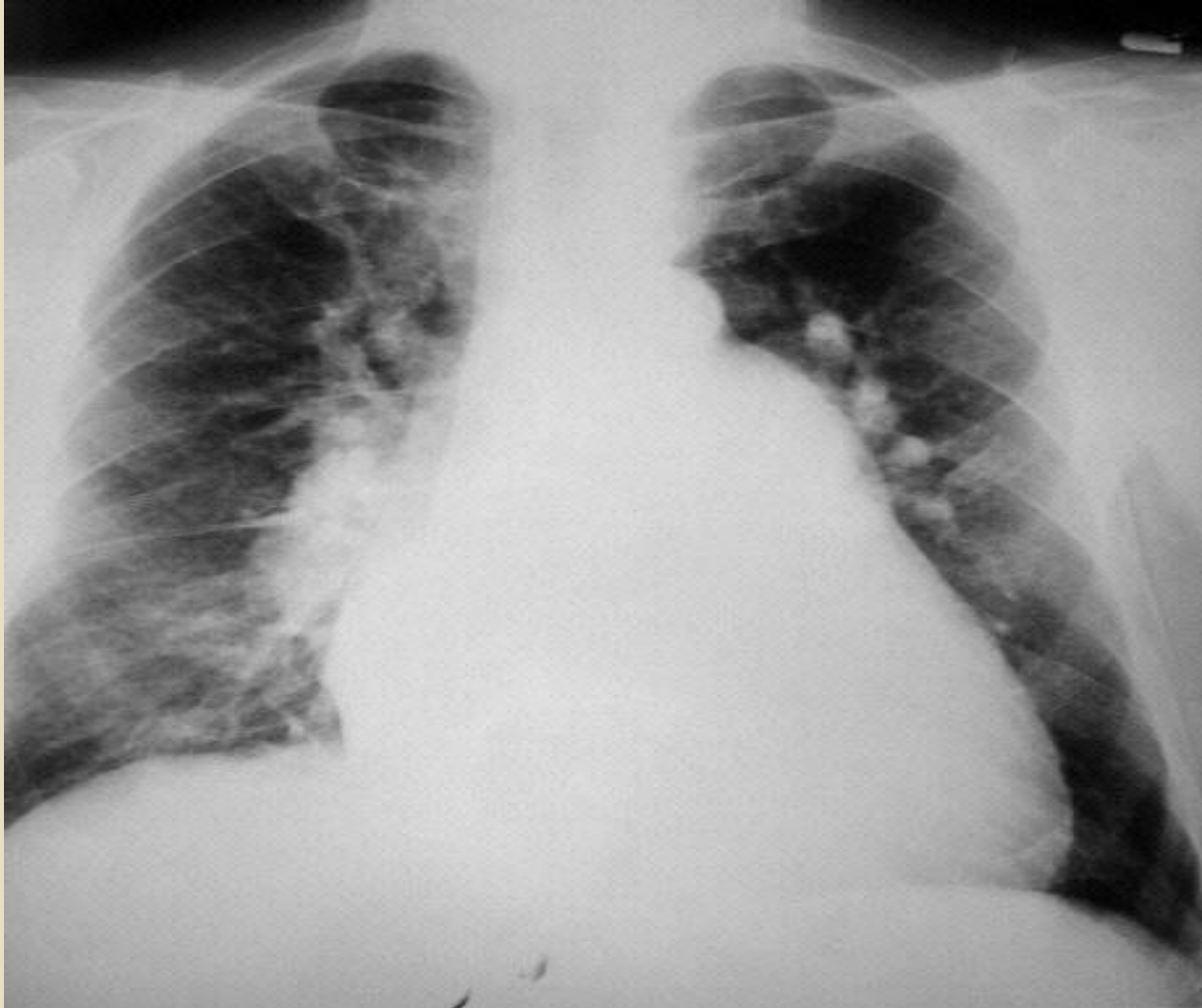
Mitral stenosis



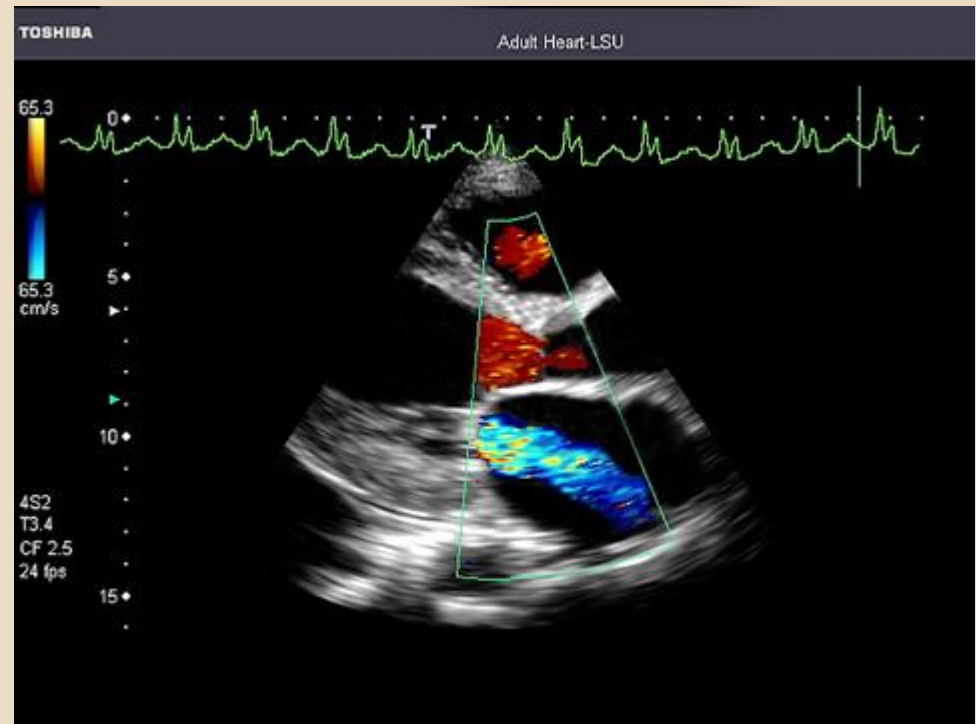
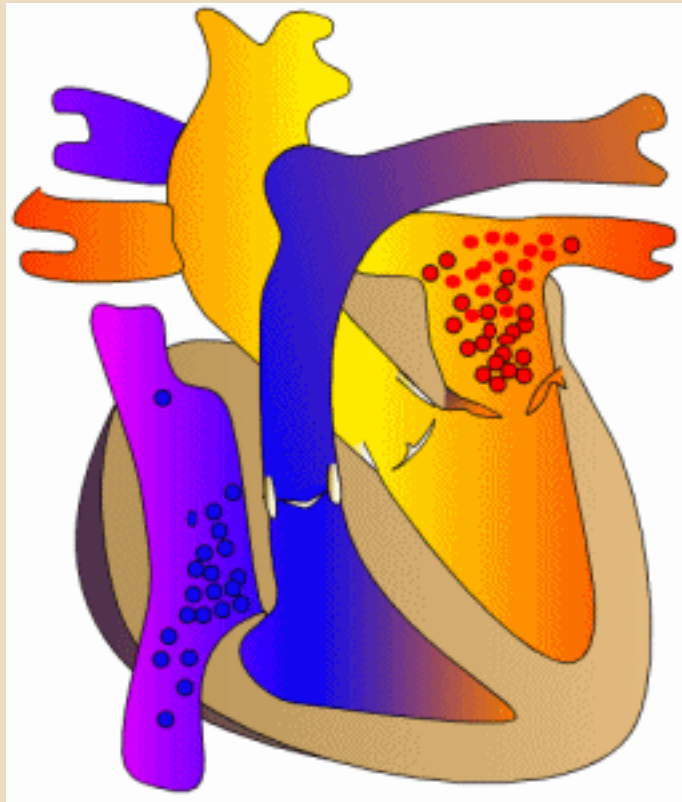
Mitral stenosis



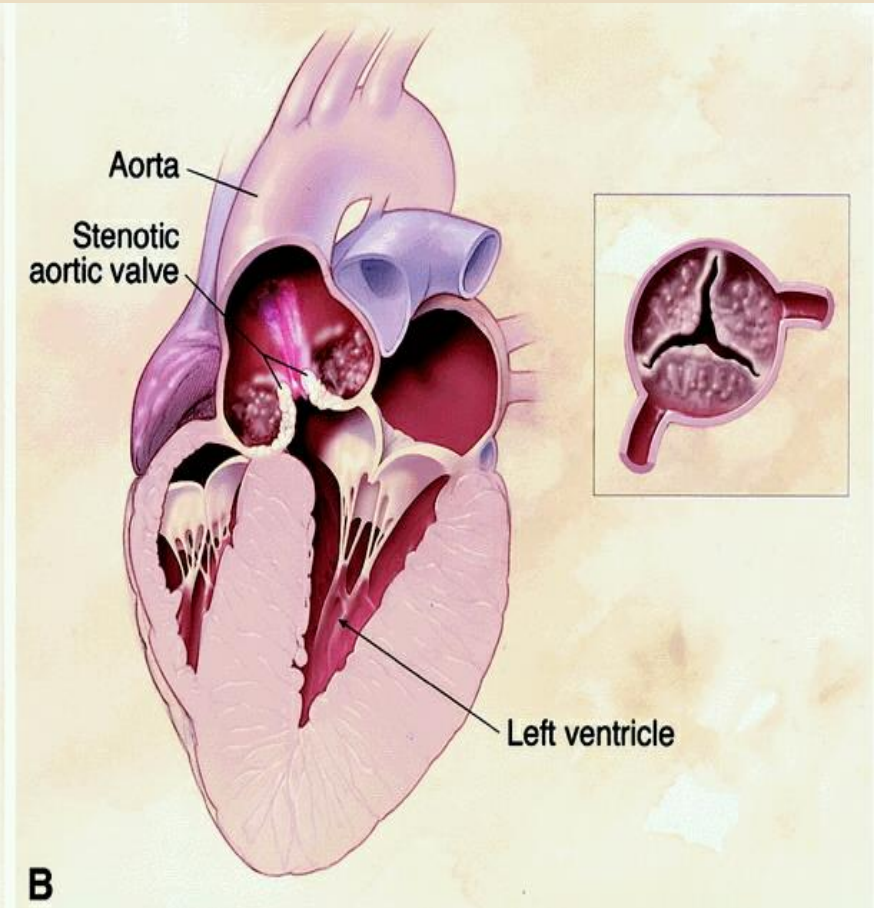
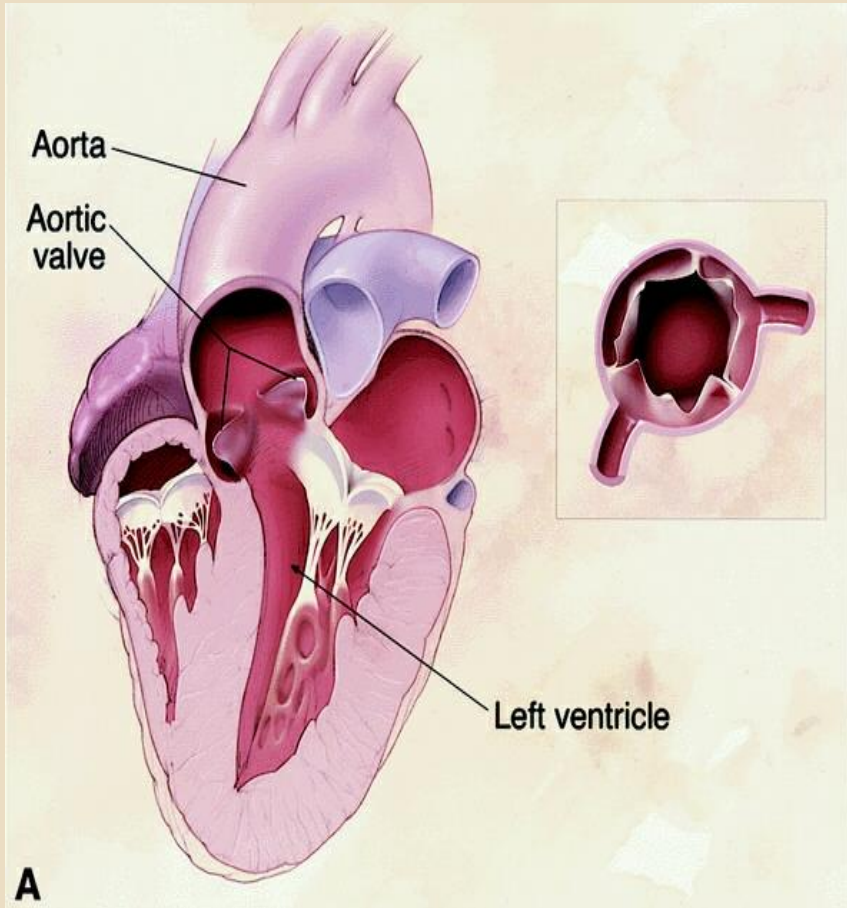
Mi stenosis



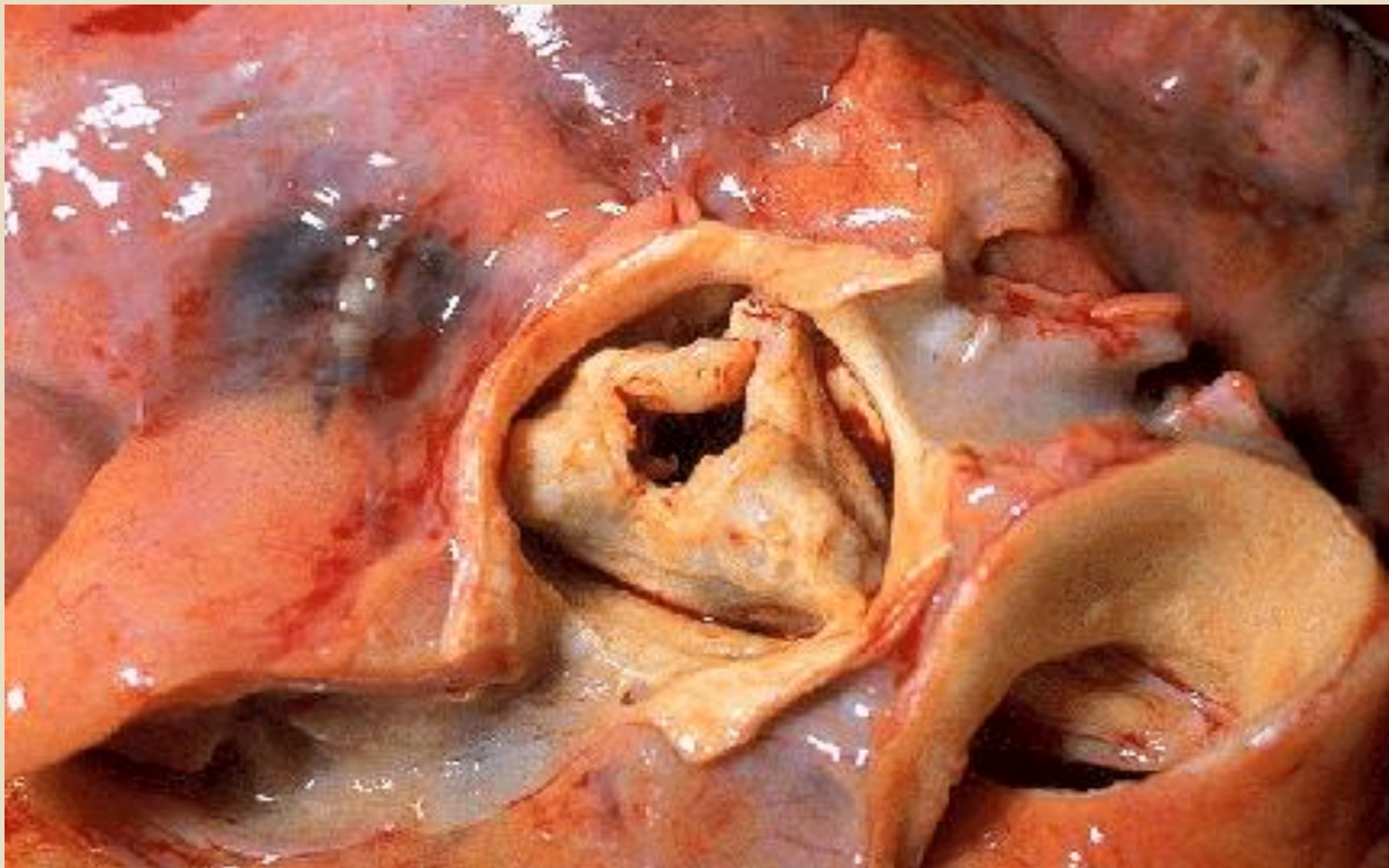
Mitral regurgitation



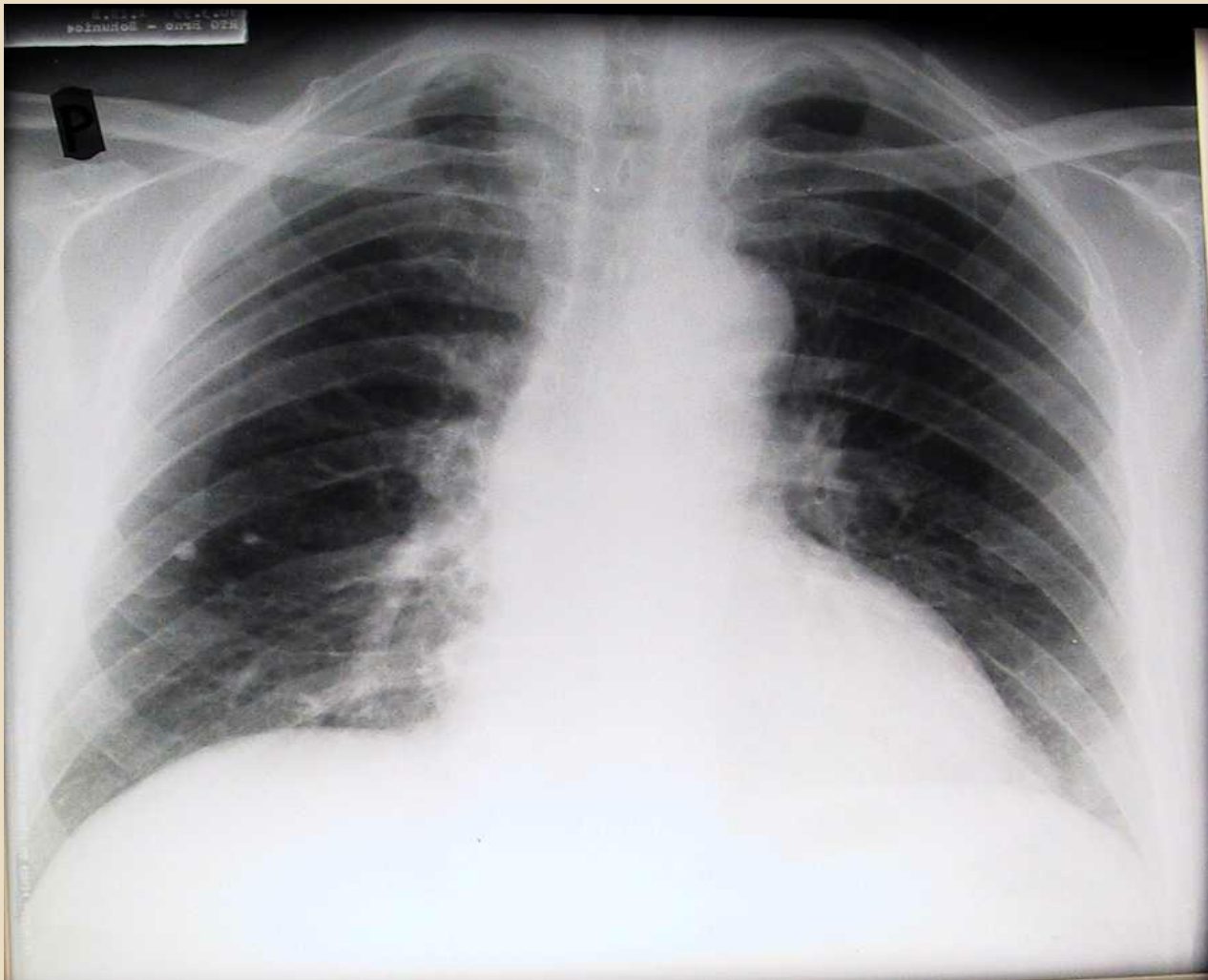
Aortic stenosis



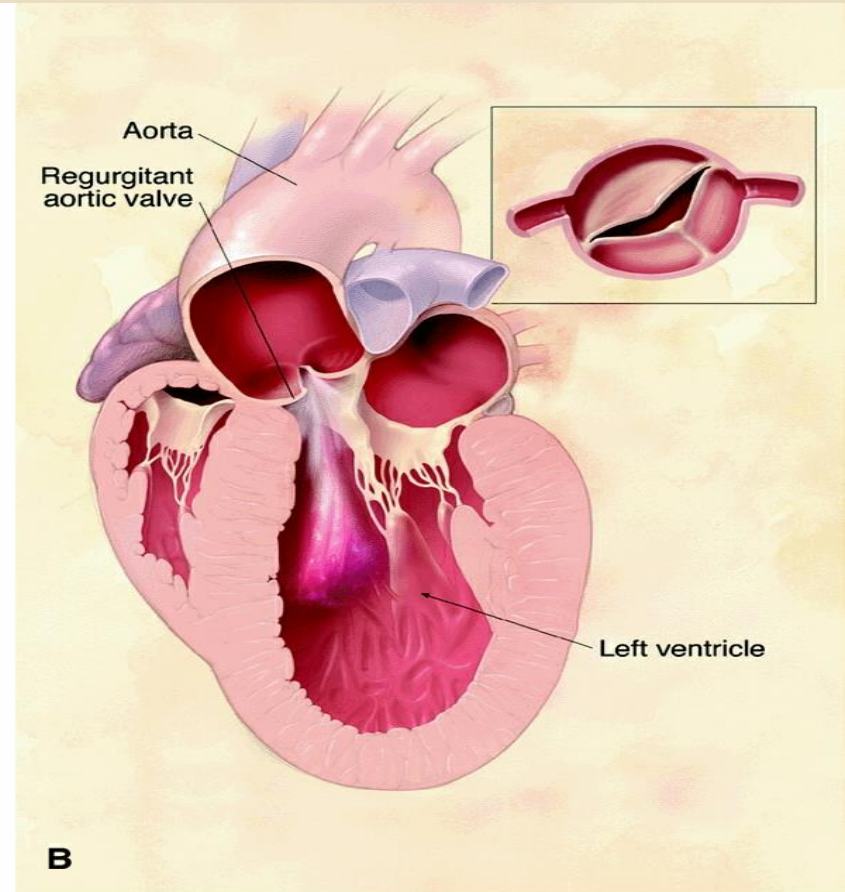
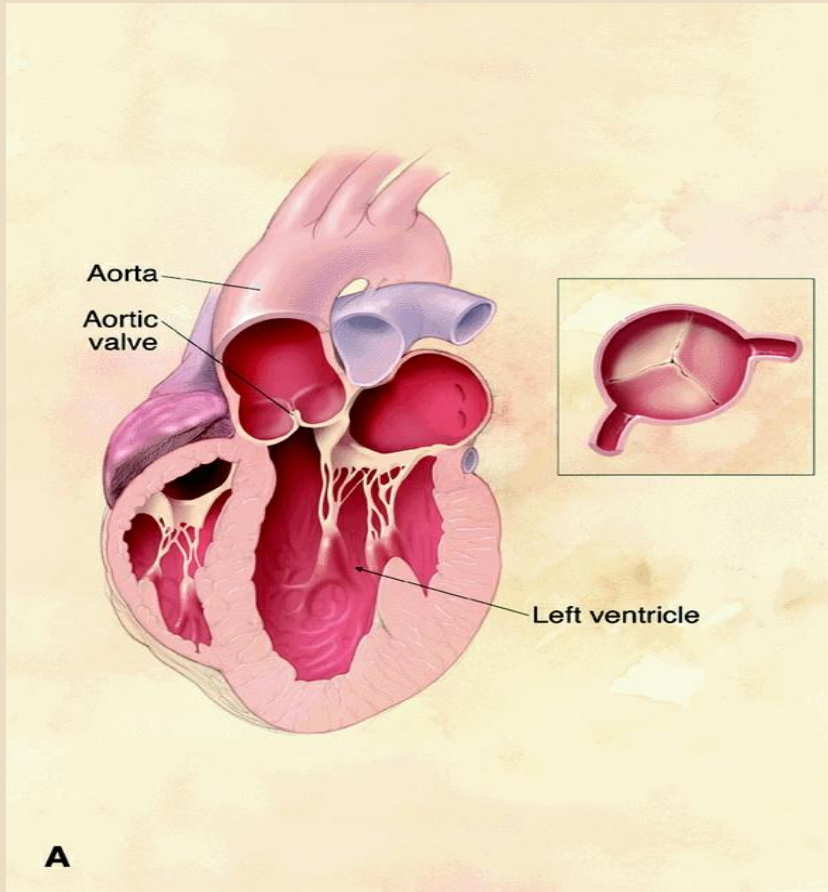
Aortic stenosis



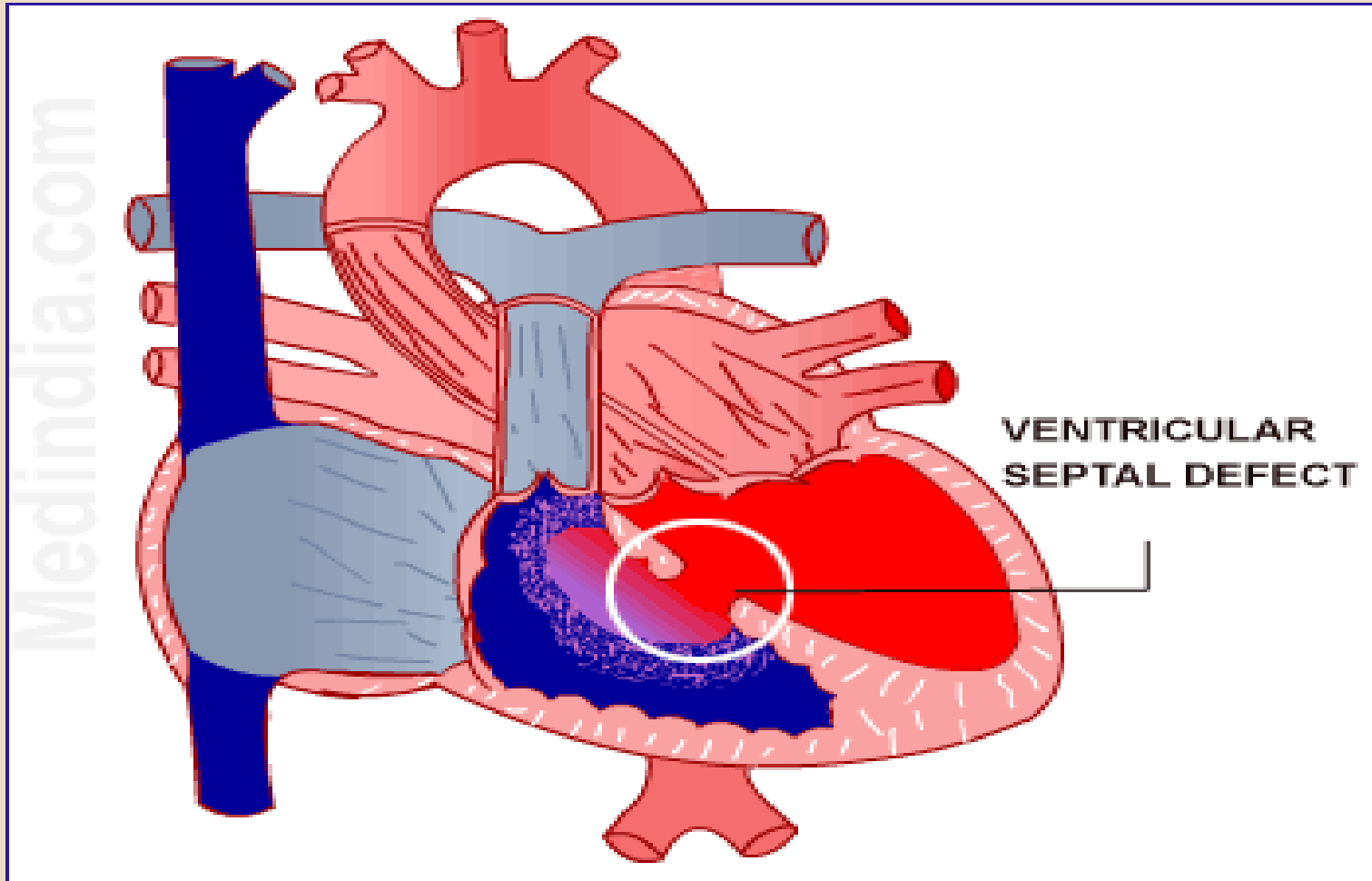
Ao stenosis



Aortic regurgitation



Continuous systolic murmur



Extracardiac murmurs



- **Pericardial friction rub - pericarditis**

- **Functional murmur – anemia, hyperkinetic circulation**

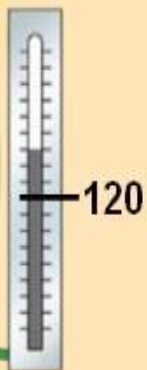


Blood pressure



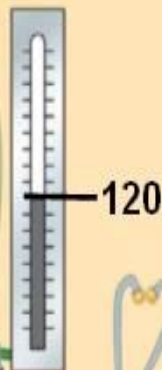
Pressure in cuff greater than 120 mm Hg

Rubber cuff inflated with air



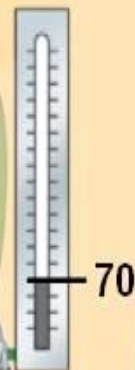
Artery closed

Pressure in cuff drops below 120 mm Hg



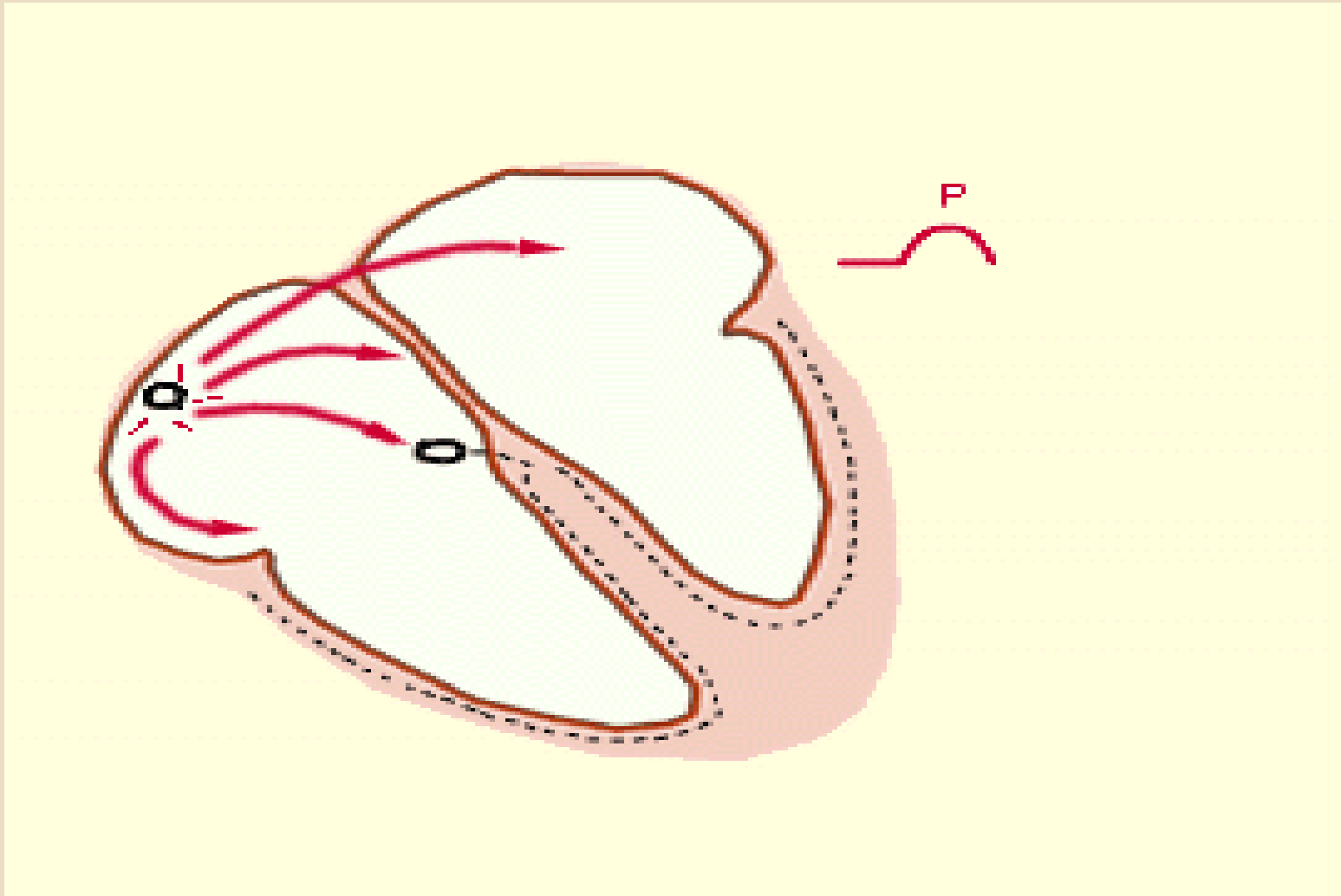
Sounds audible in stethoscope

Pressure in cuff below 70 mm Hg

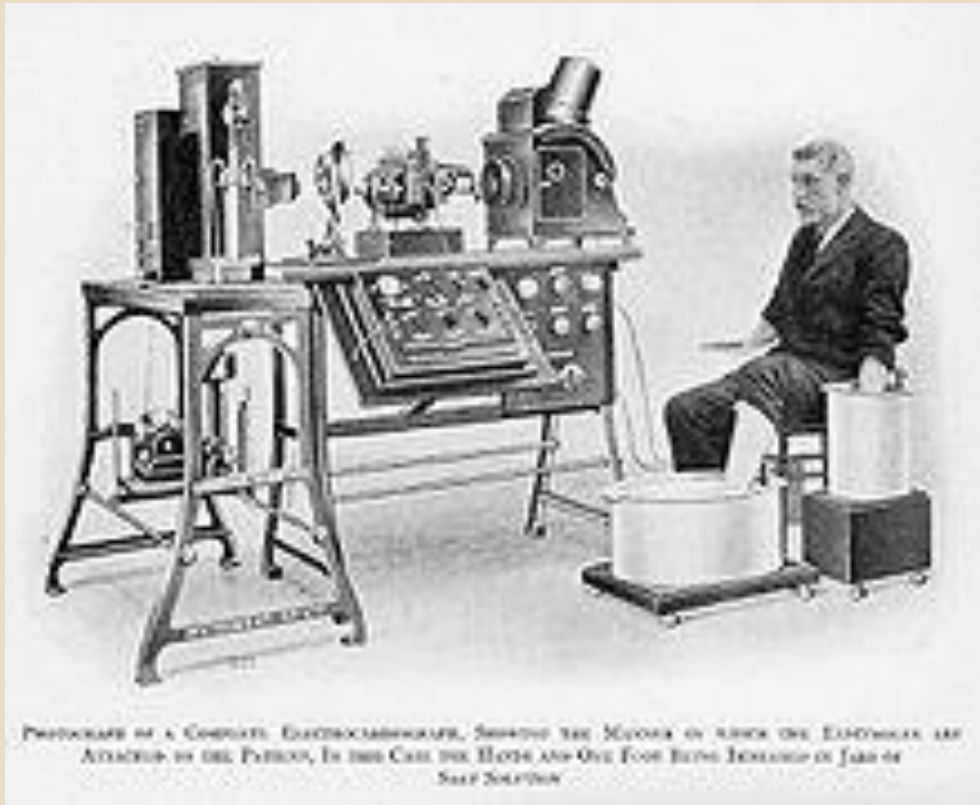


Sounds stop

ECG (Willem Einthoven 1893)



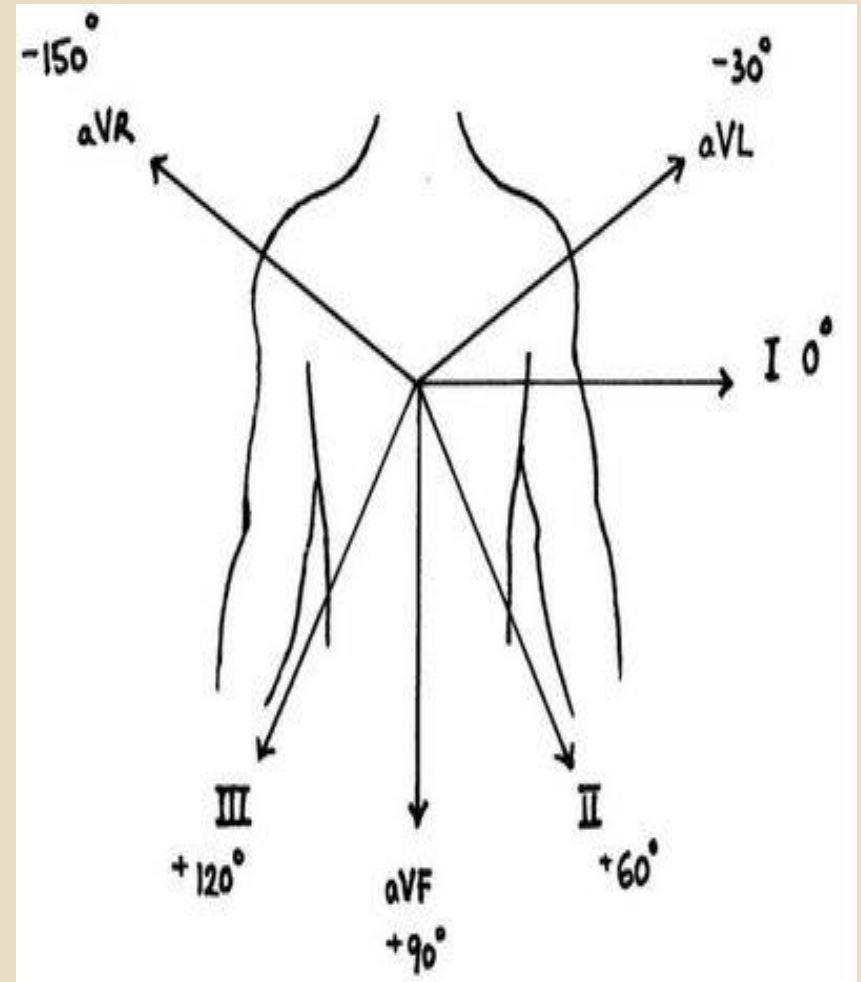
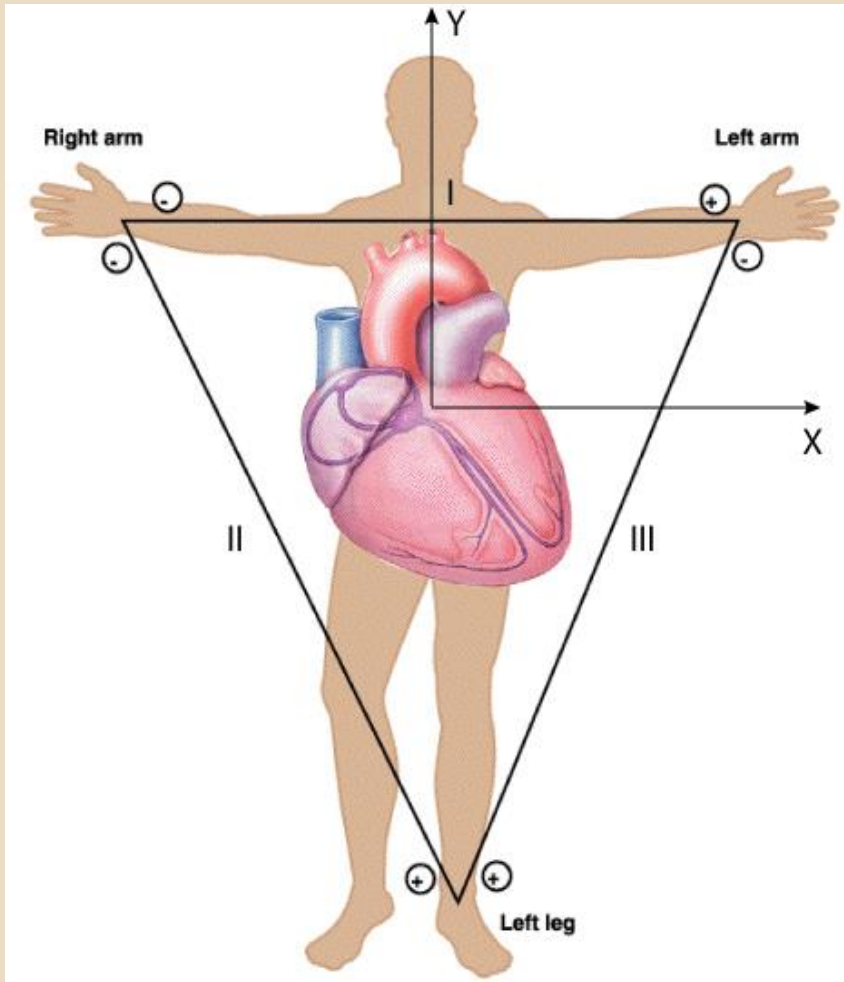
ECG history



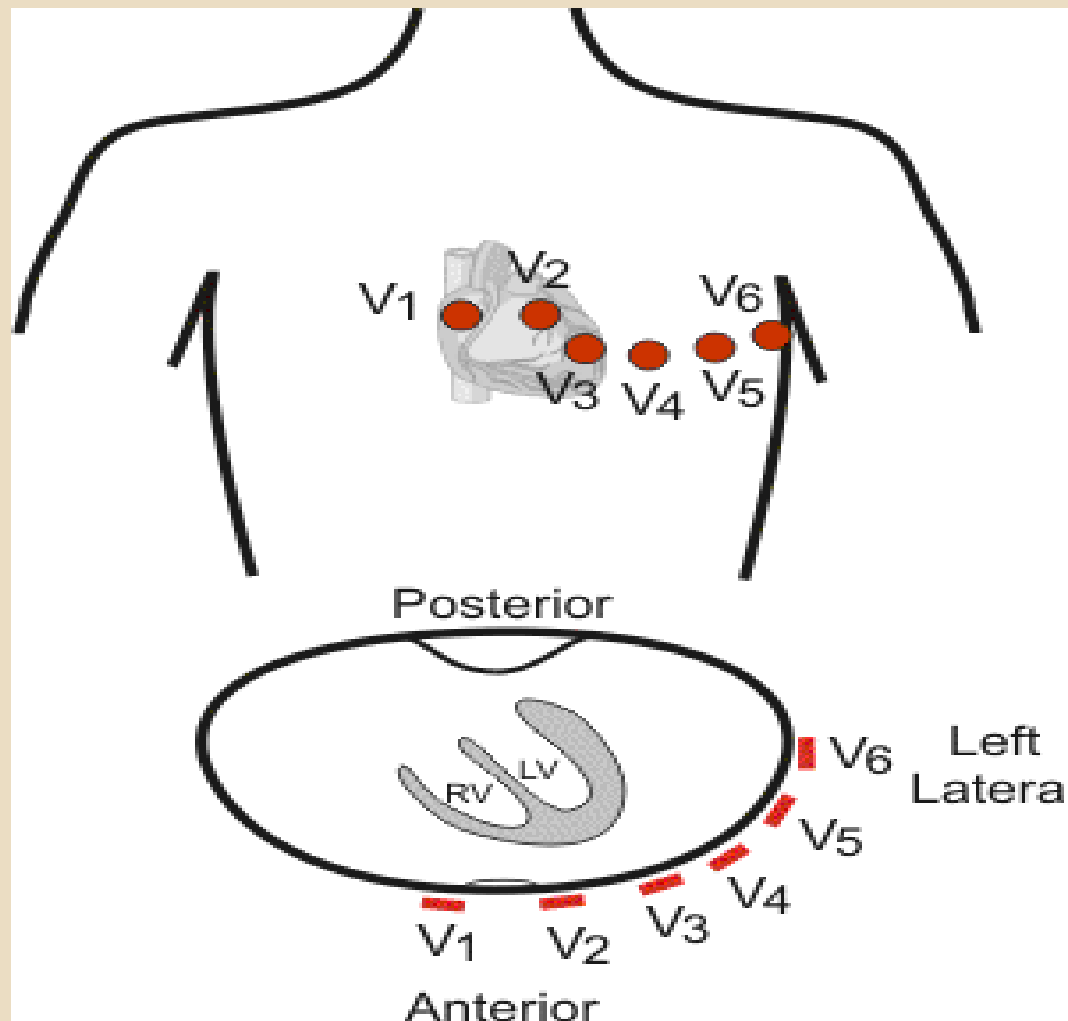
PHOTOGRAPH OF A COMPLETE ELECTROCARDIOGRAPH, SHOWING THE MIRROR IN WHICH THE ELECTRODES ARE ATTACHED TO THE PATIENT, IN THIS CASE THE HANDS AND ONE FOOT BEING IMMERSED IN JARS OF SALINE SOLUTION



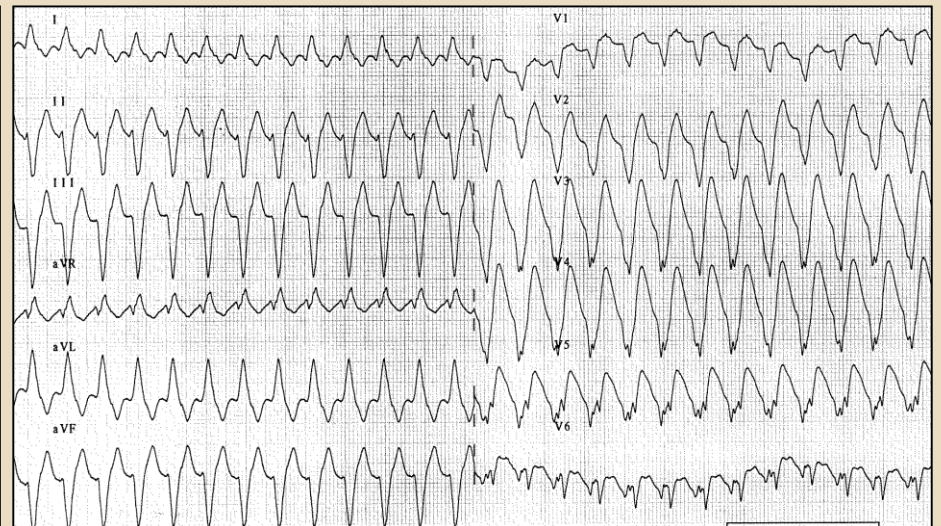
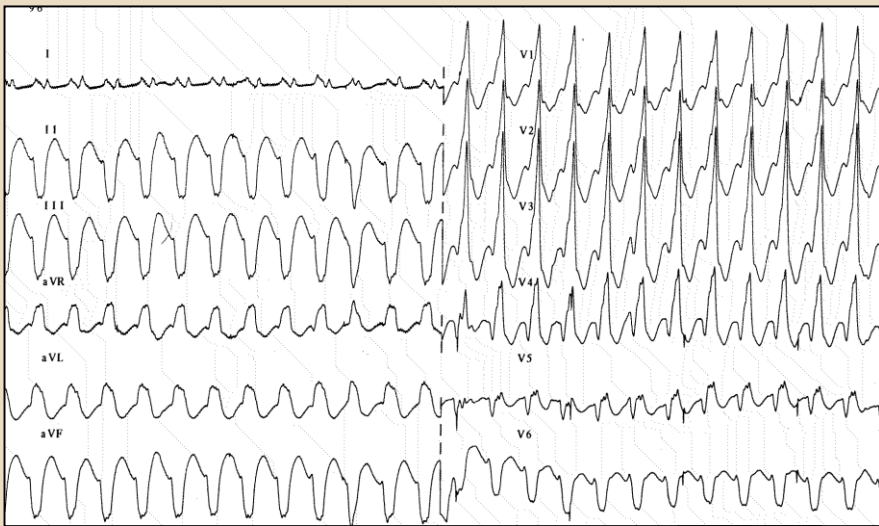
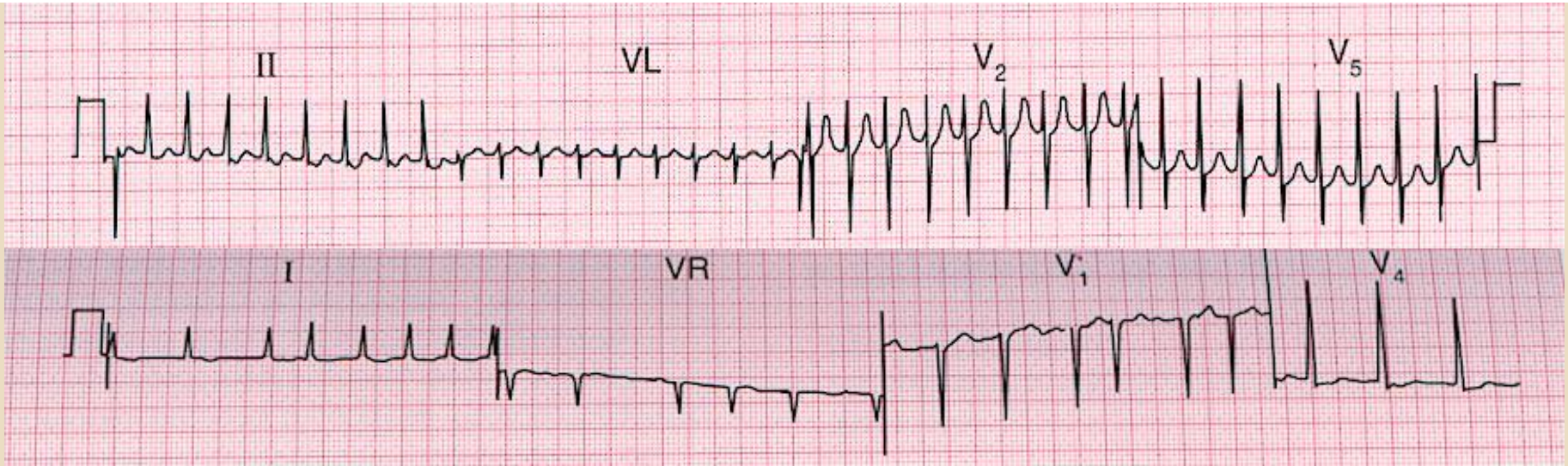
ECG – limb leads



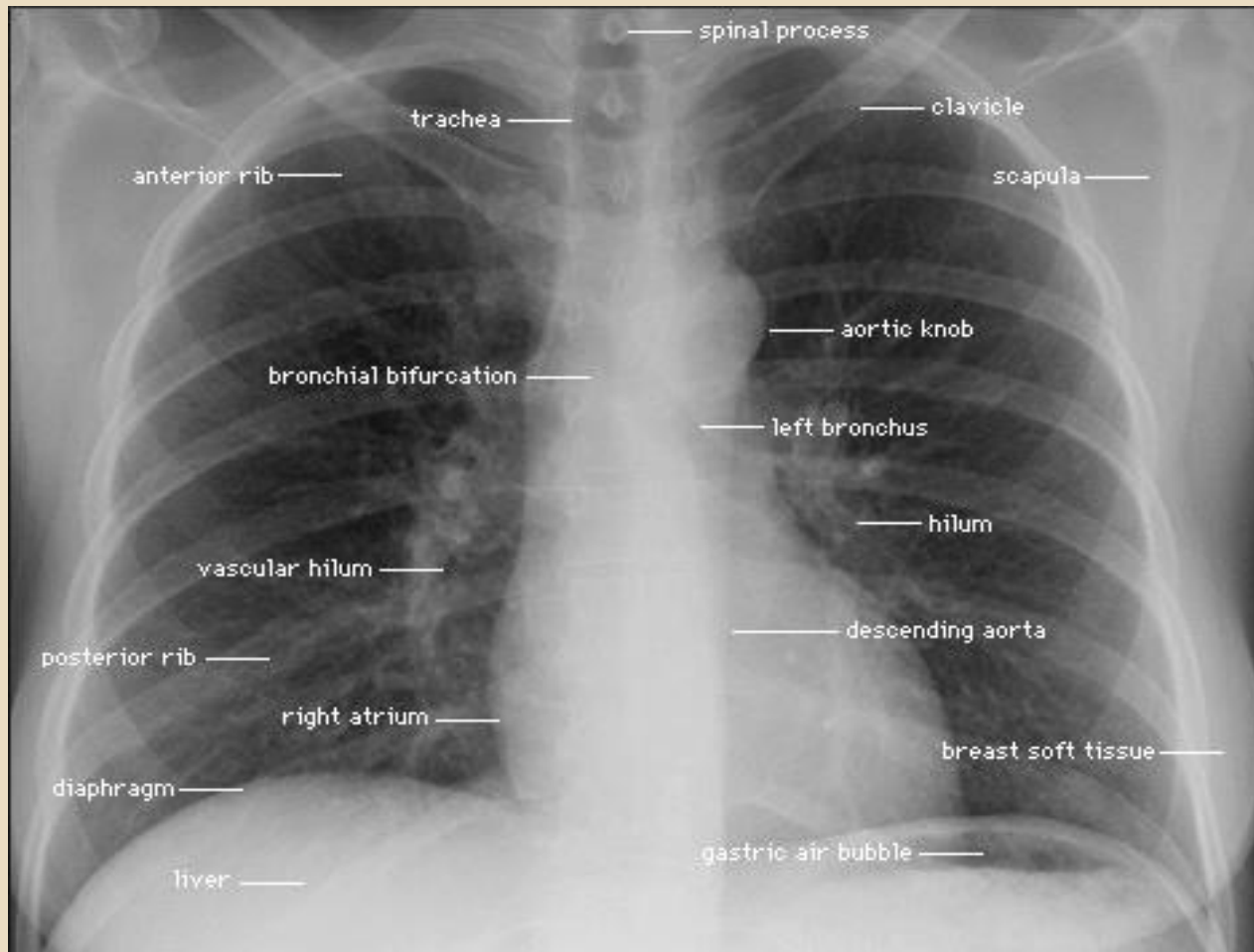
ECG- precordial leads



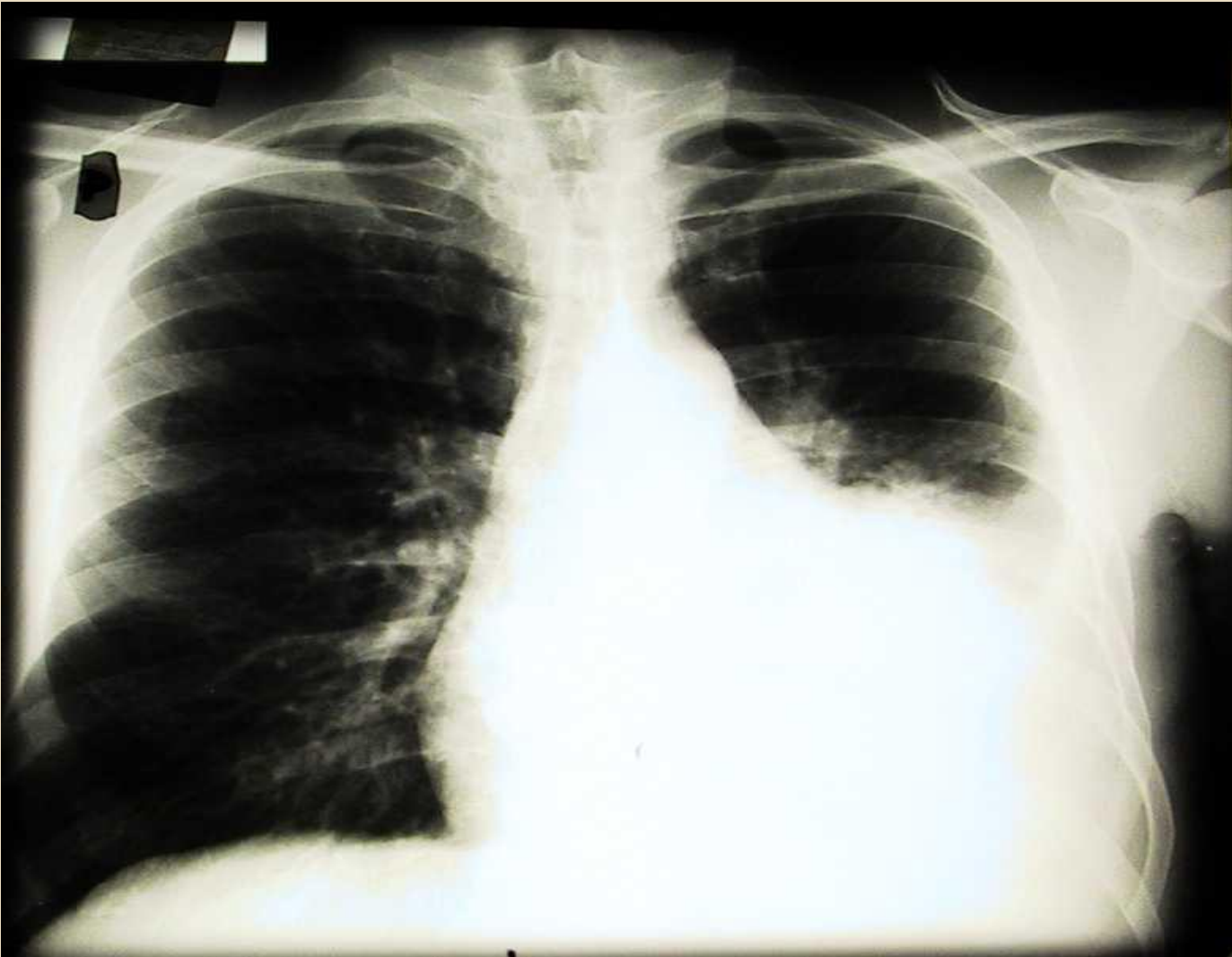
ECG



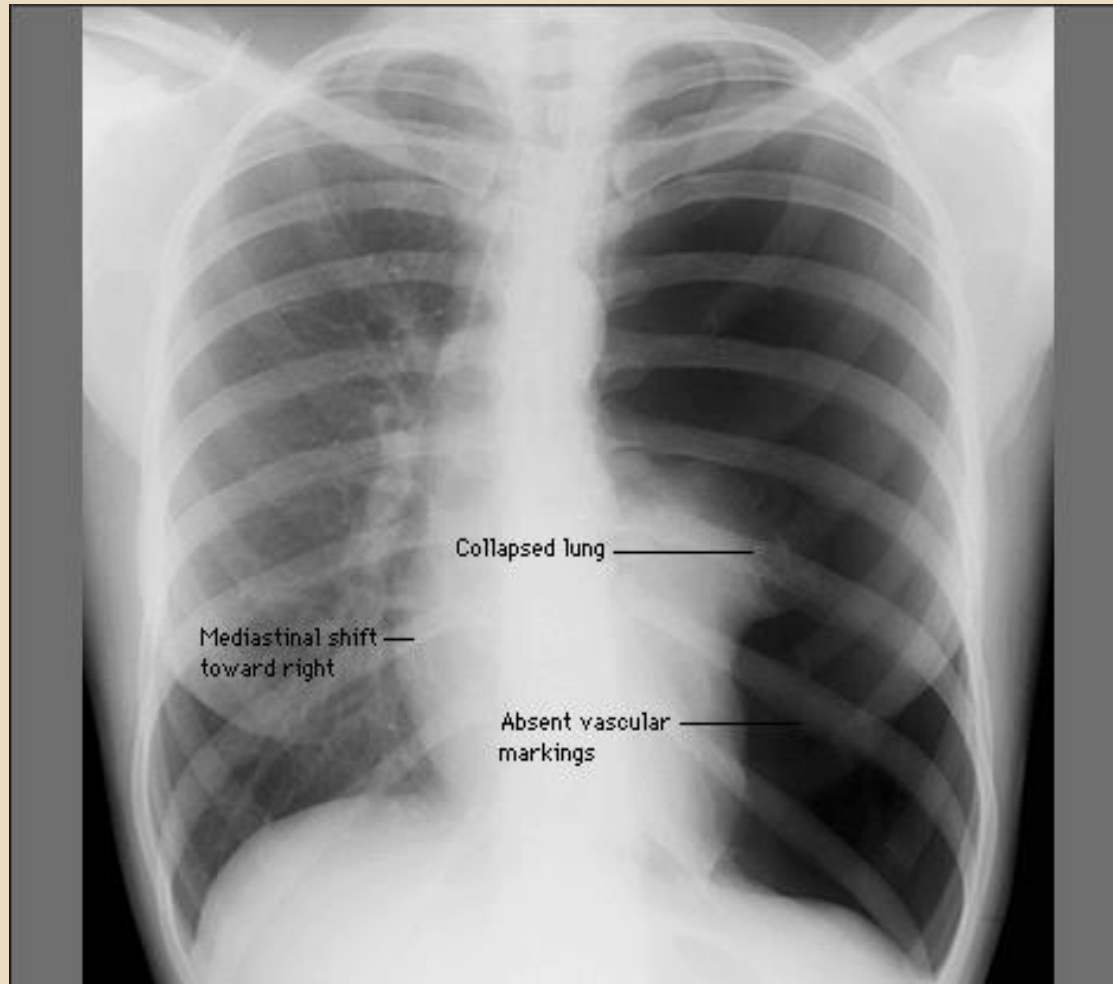
X – ray (W.C. Roentgen 1895)



Tumor of the left lung



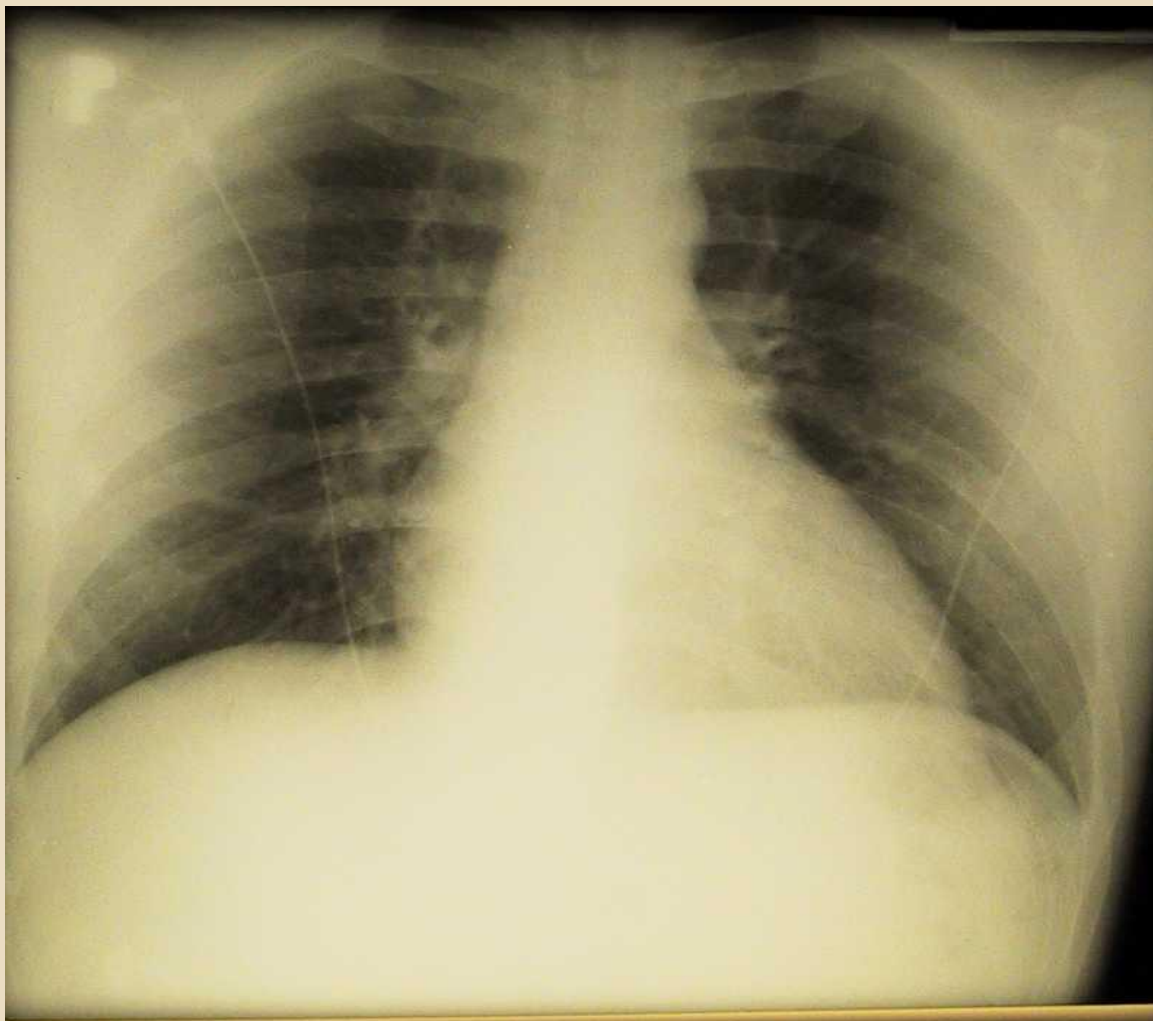
PNO



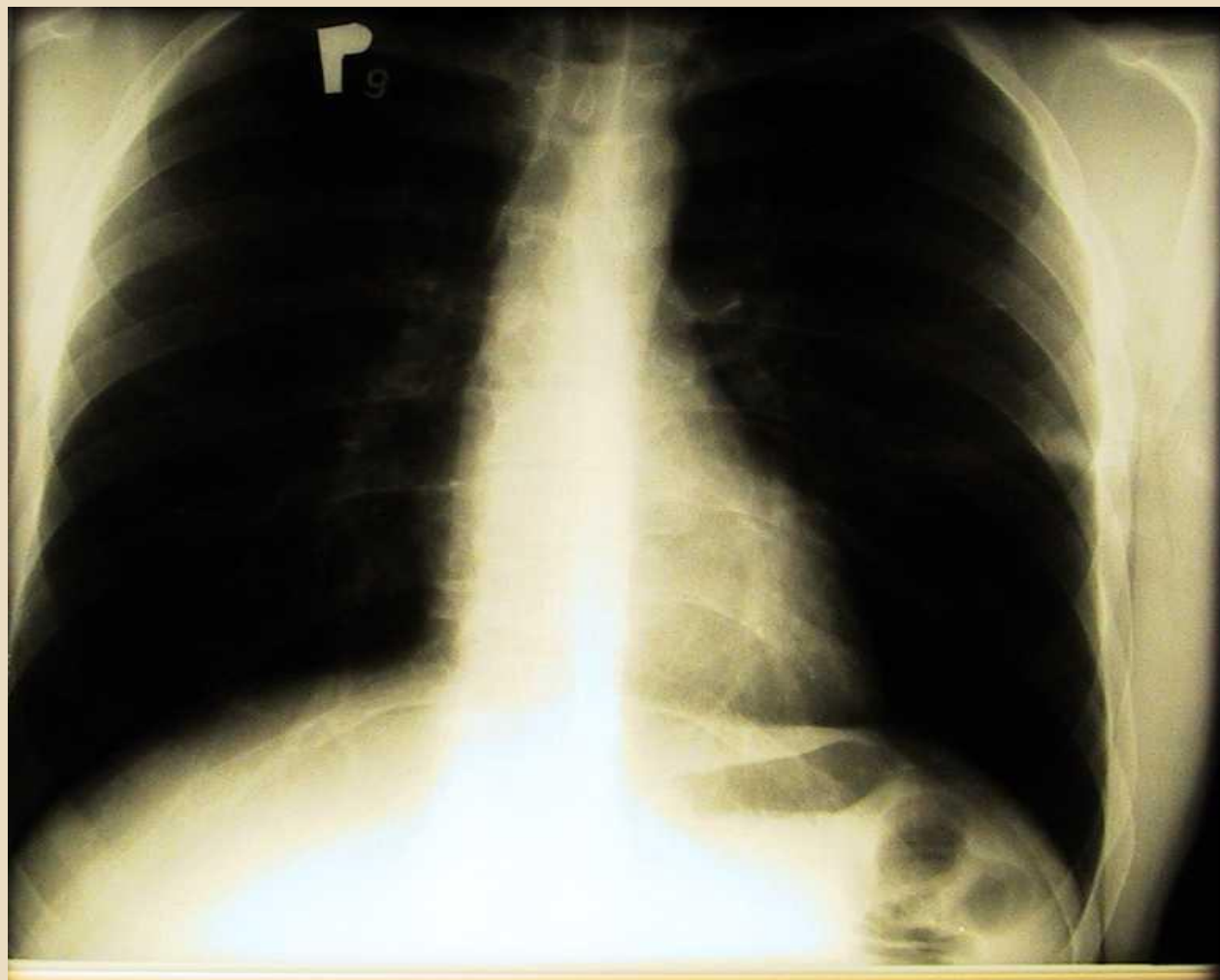
Diaphragmatic hernia – stomach in the chest



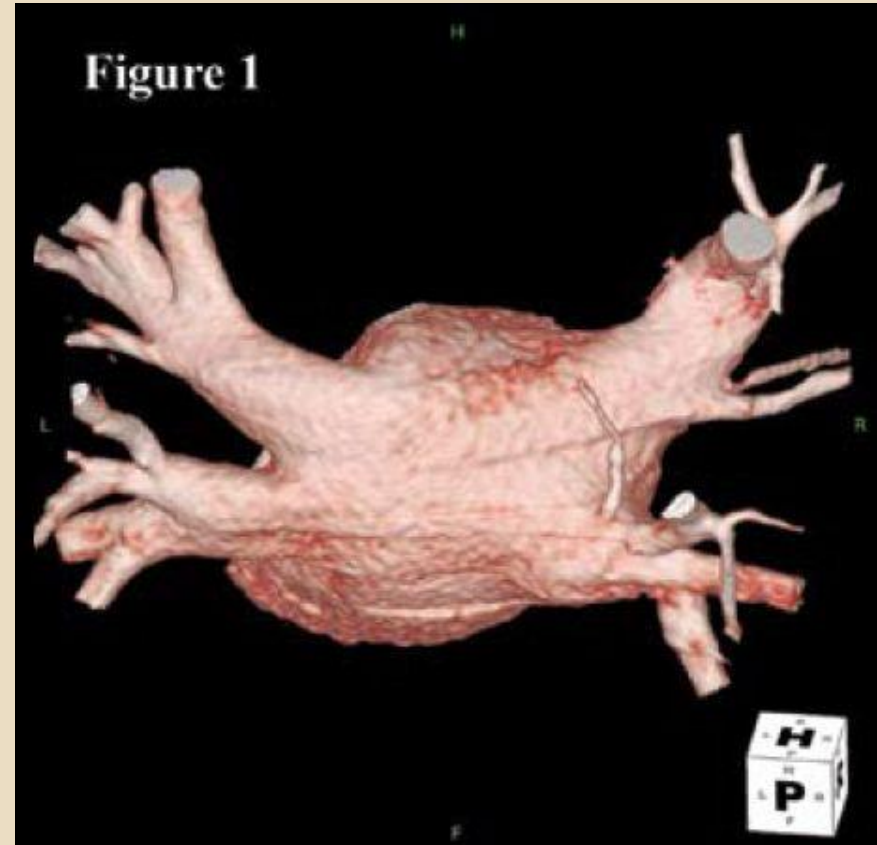
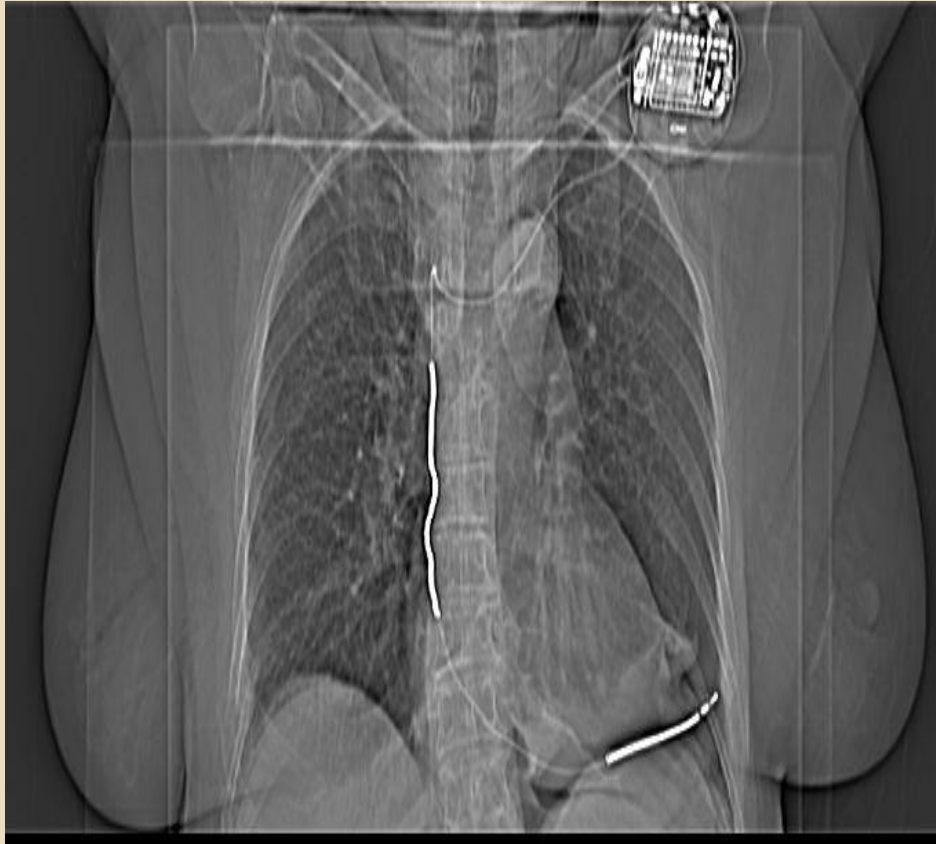
Cardiac tamponade



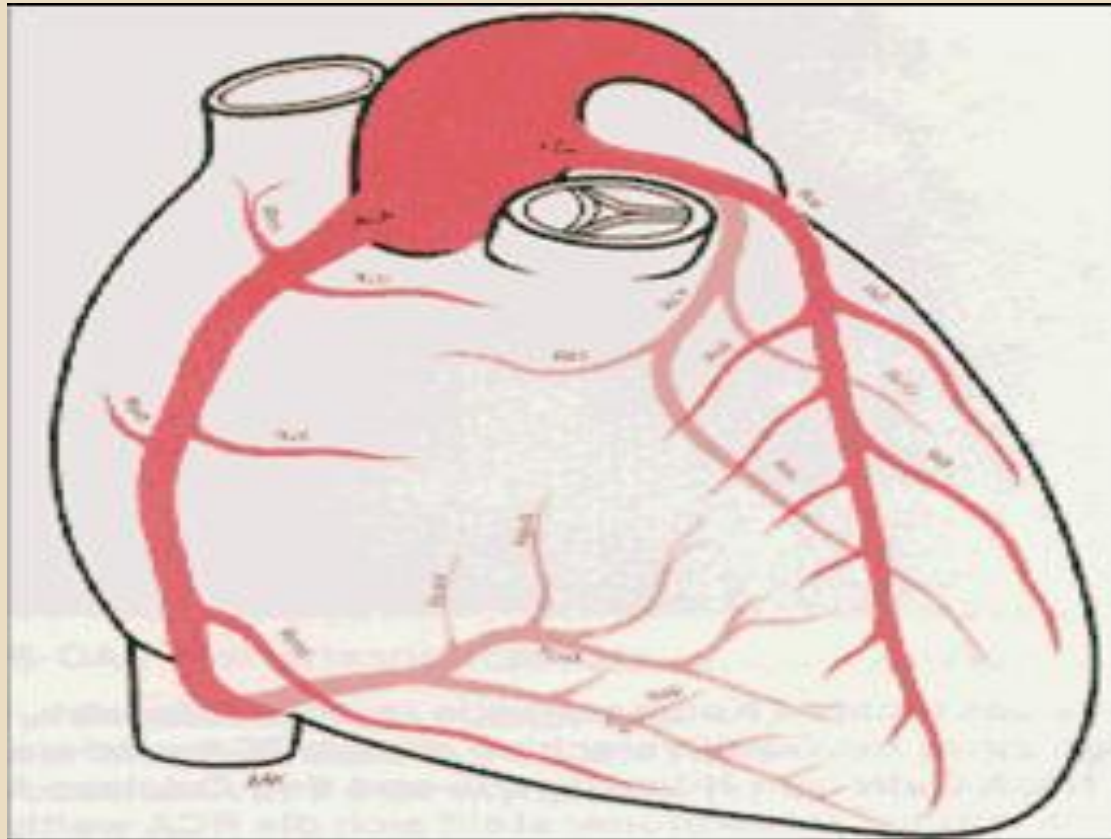
After pericardial puncture



CT , MRI



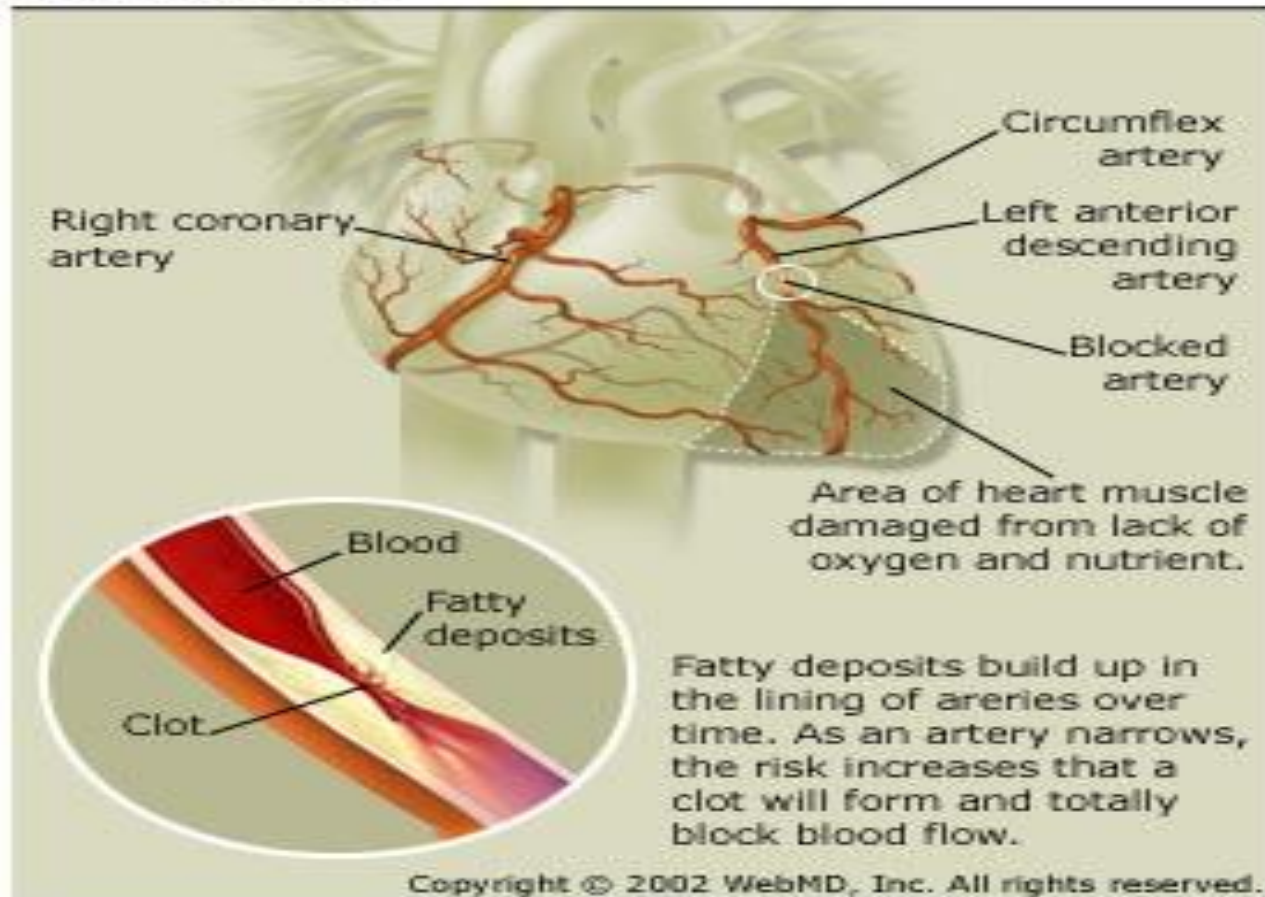
Coronary arteries



CAD - AIM



Heart Attack

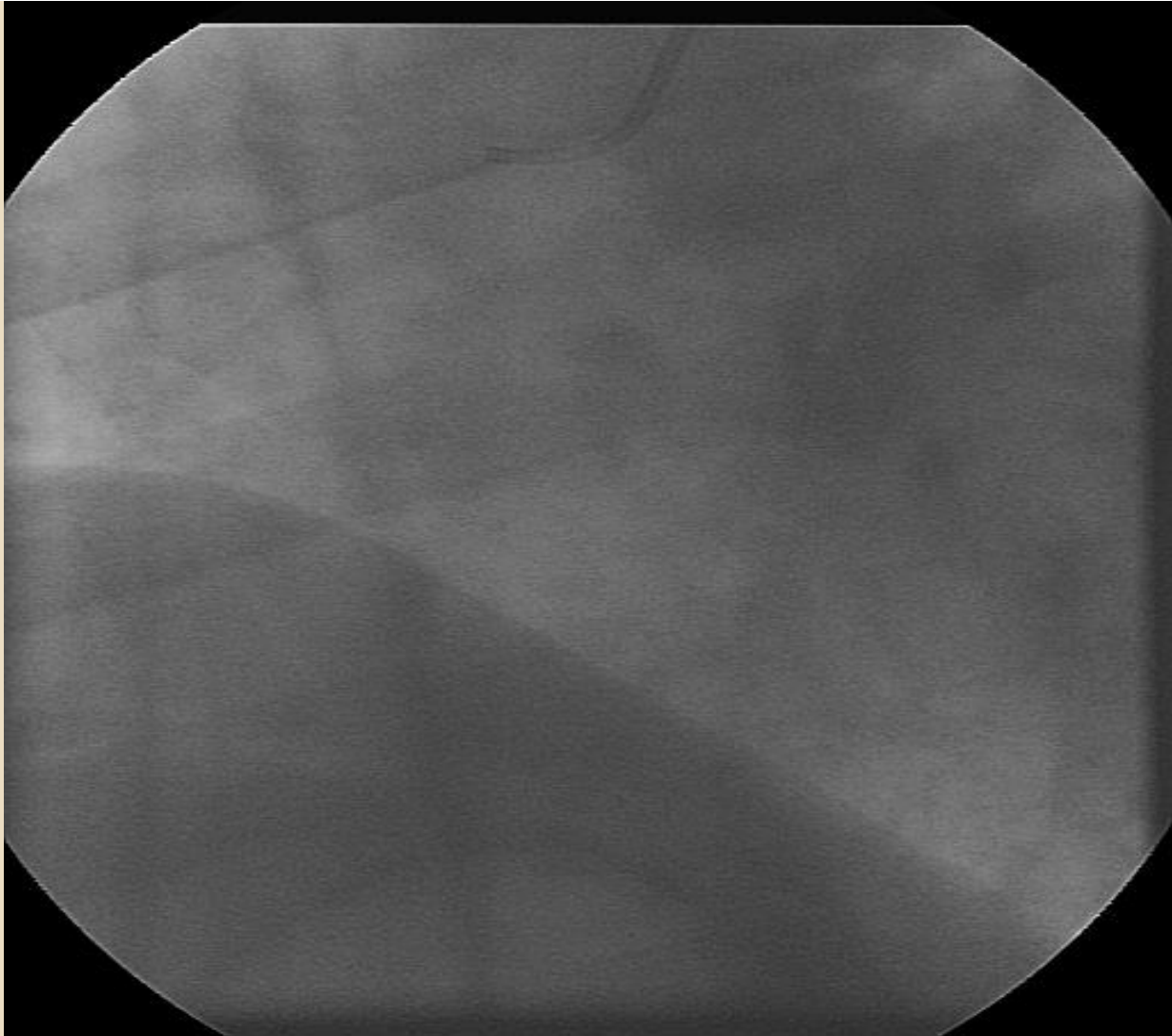


Noninvasive treadmill tests





RCA angiography





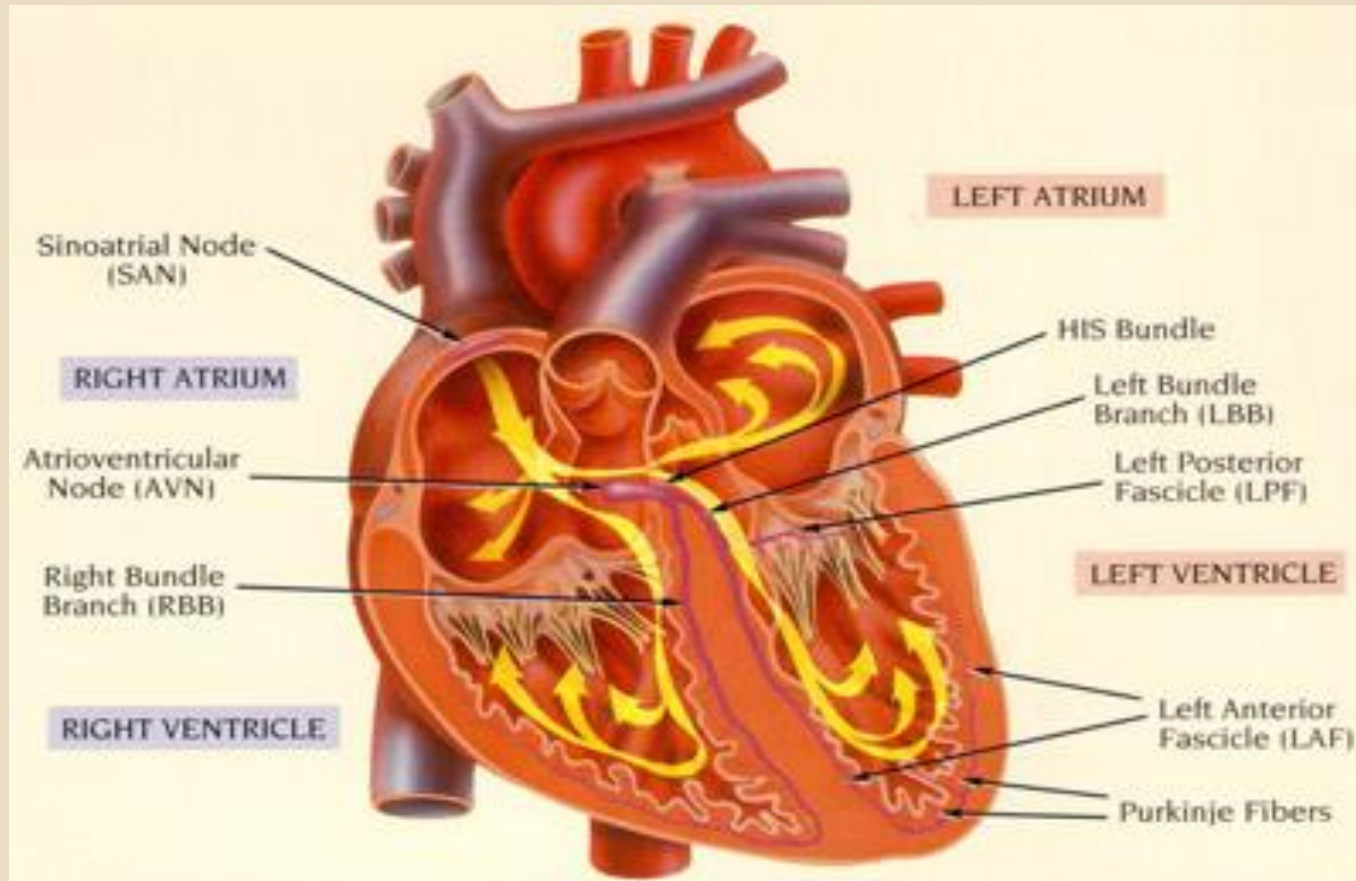
LCA angiography



Invasive assessment of arrhythmias



- **Electrophysiology** – capacity of the conduction system, induction and precise classification of arrhythmias – followed by RFA

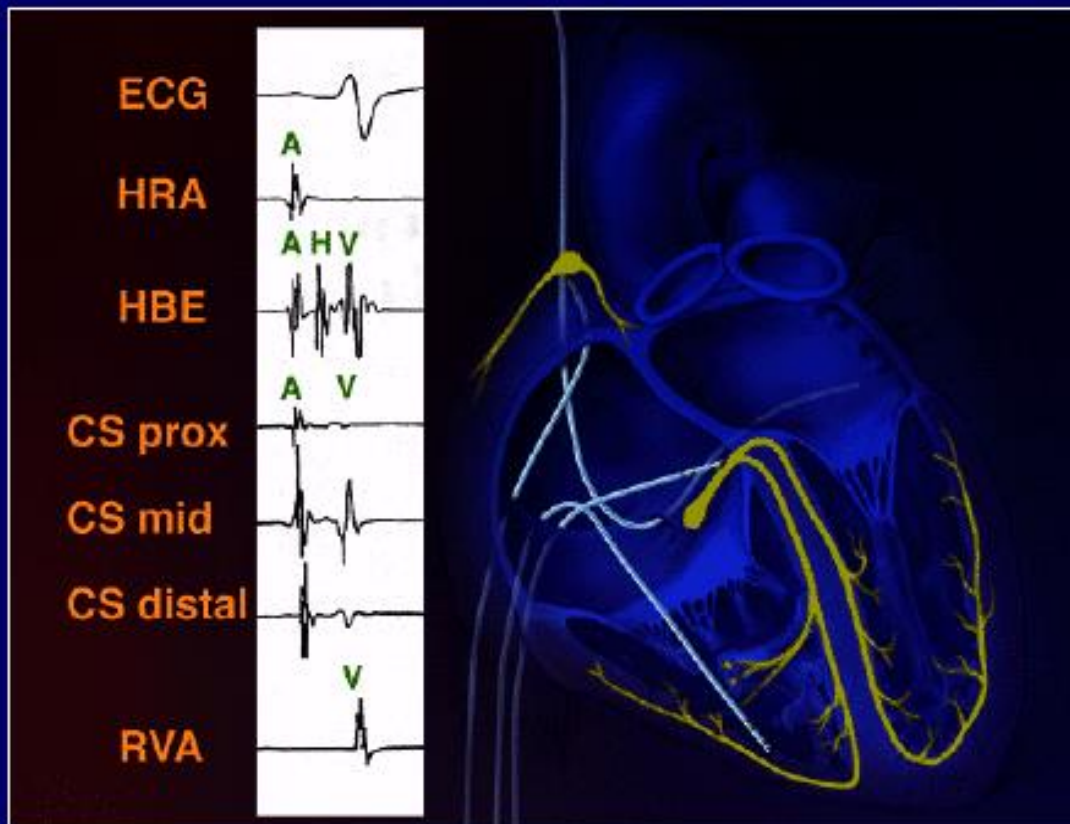


EP Lab





Catheter Placement

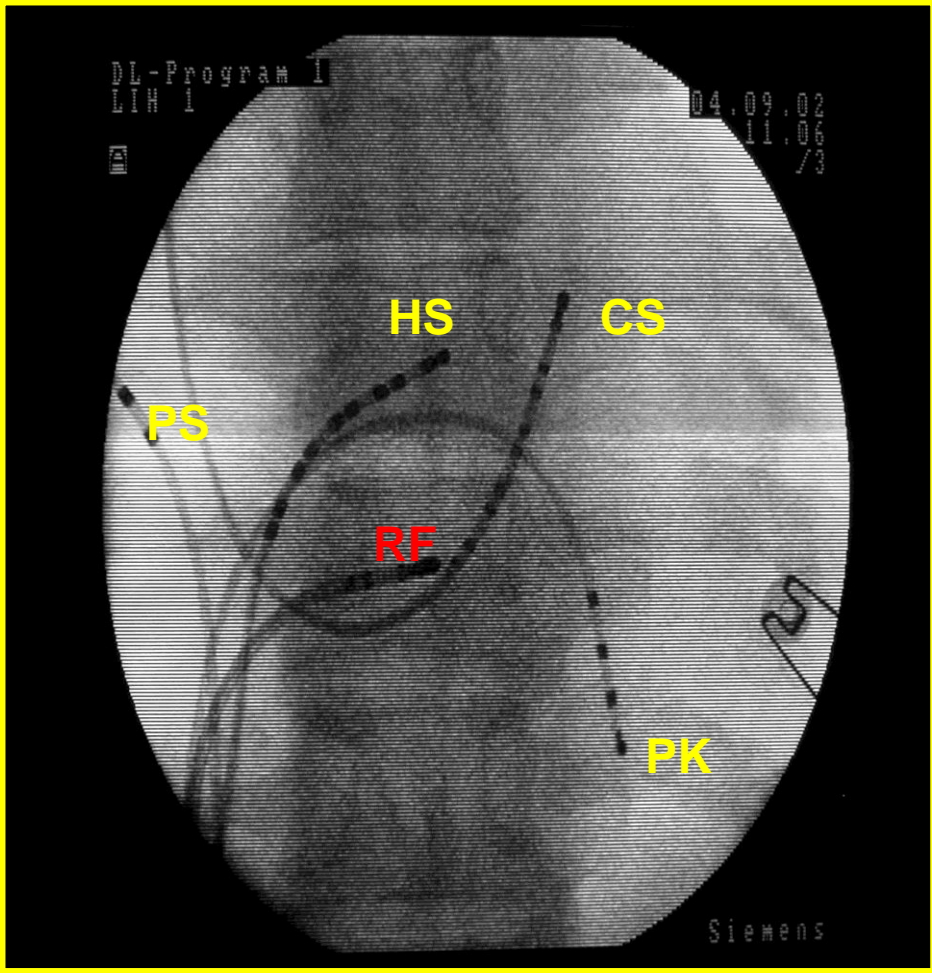


ICEG



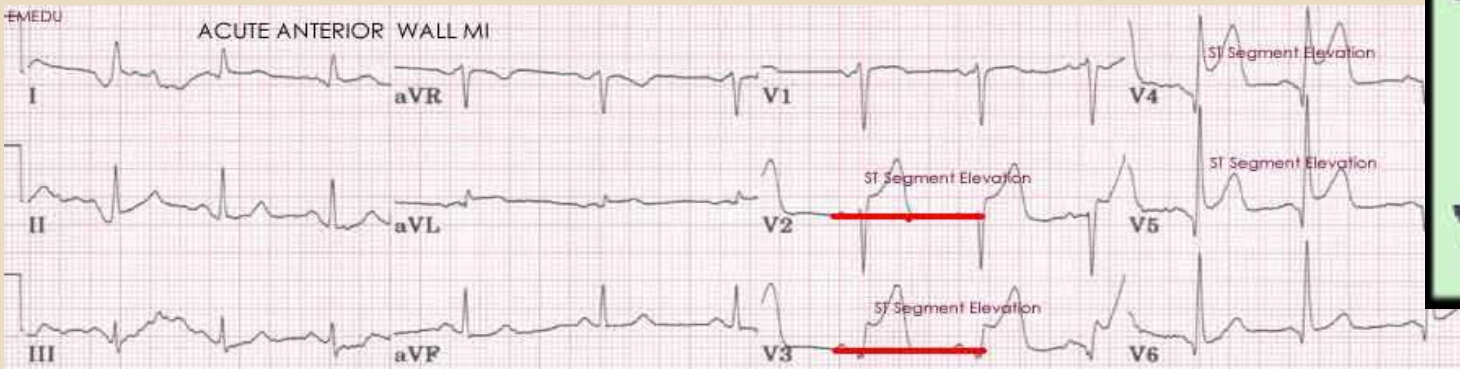
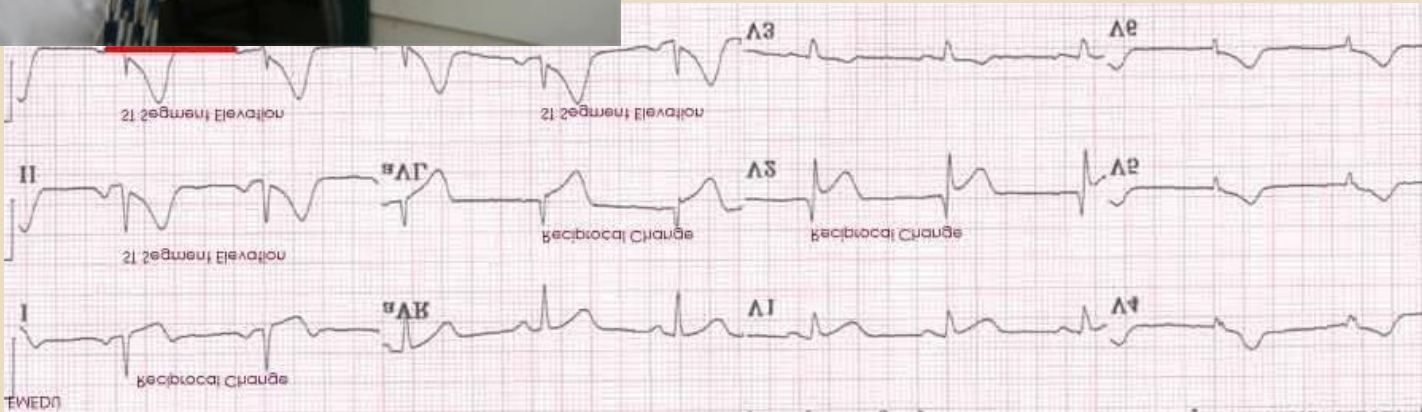


Catheter placement during AVNRT ablation





Chest pain

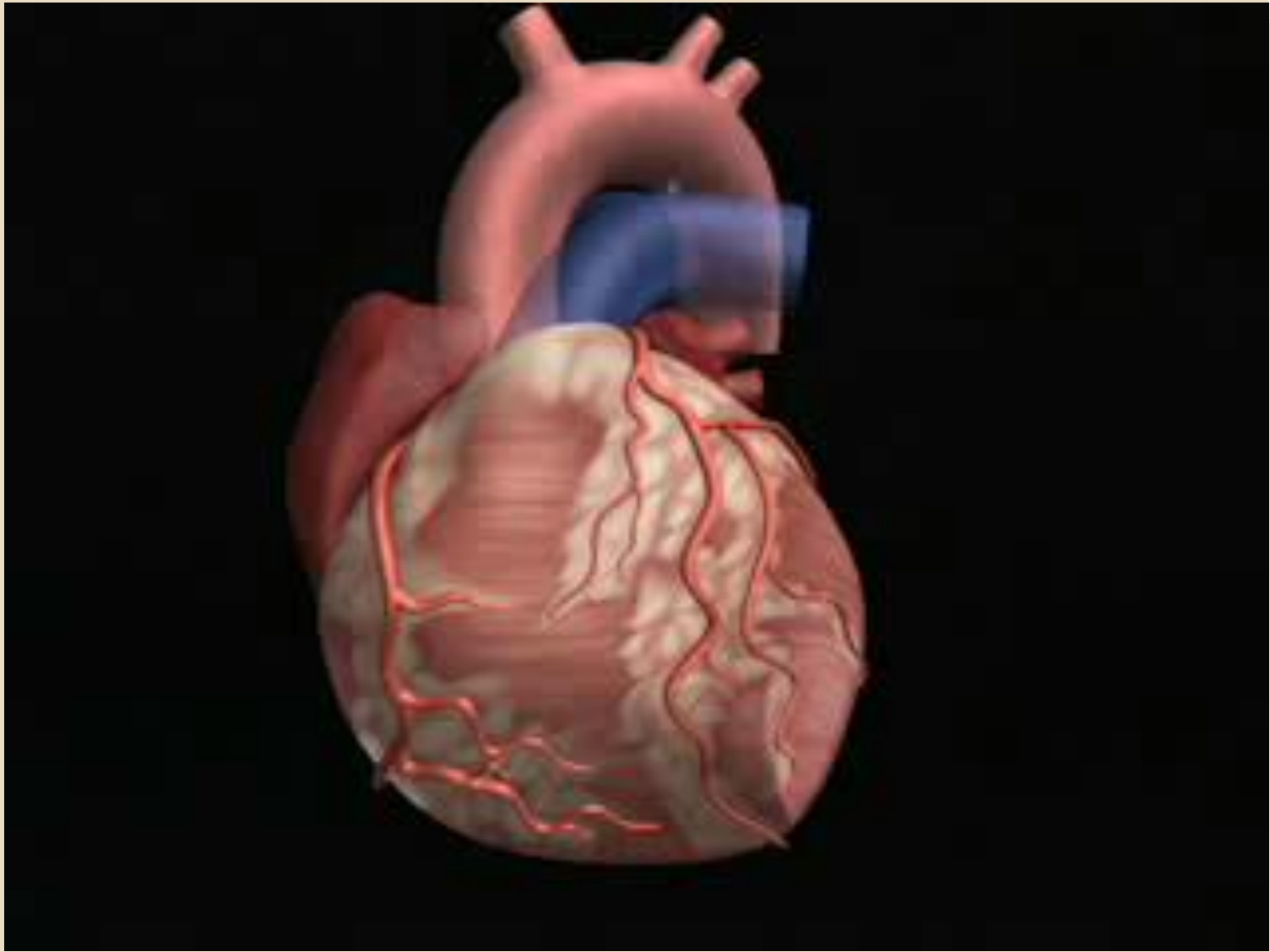


Types of chest pain

Vise-like pain

Crushing pain

Radiating pain

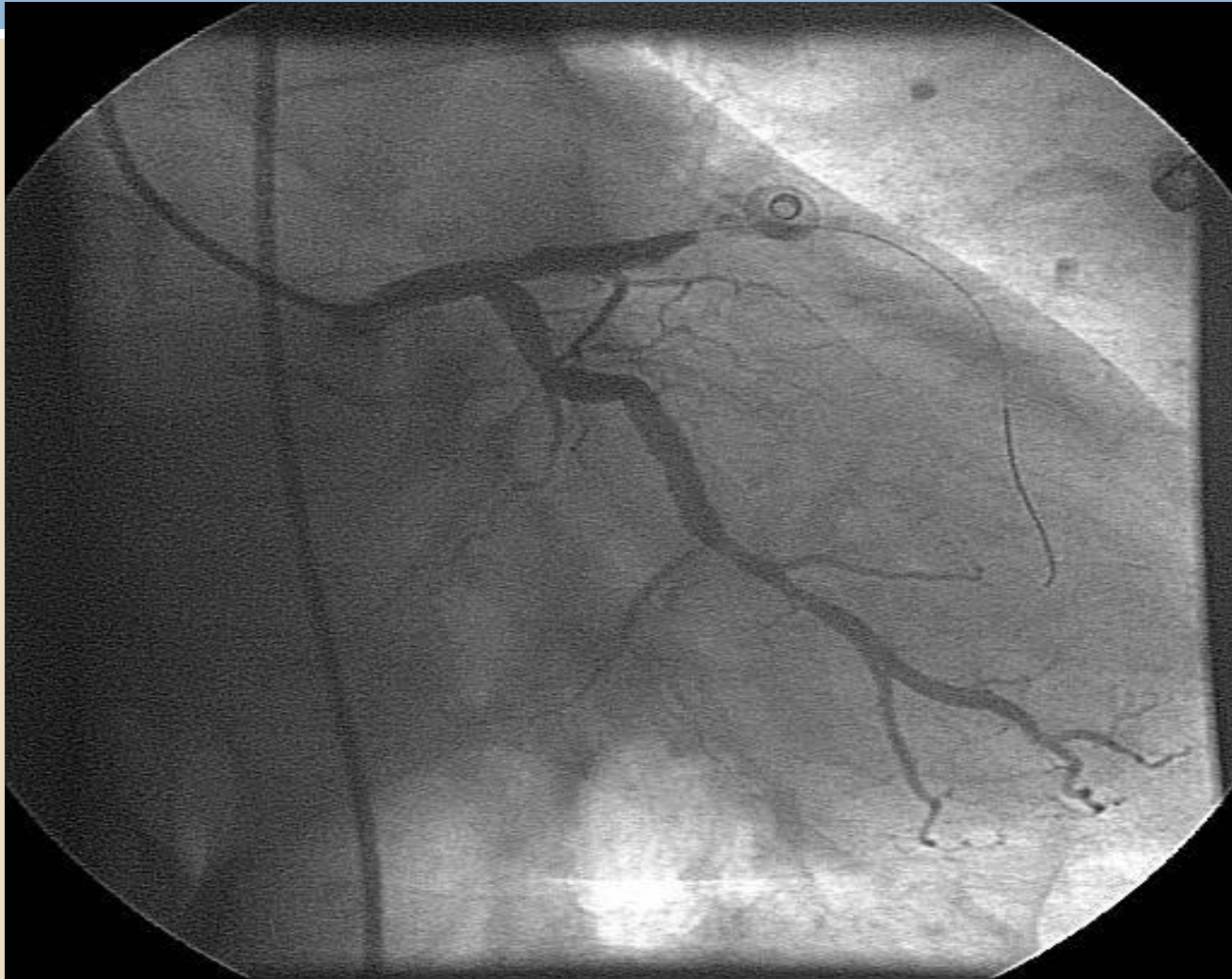




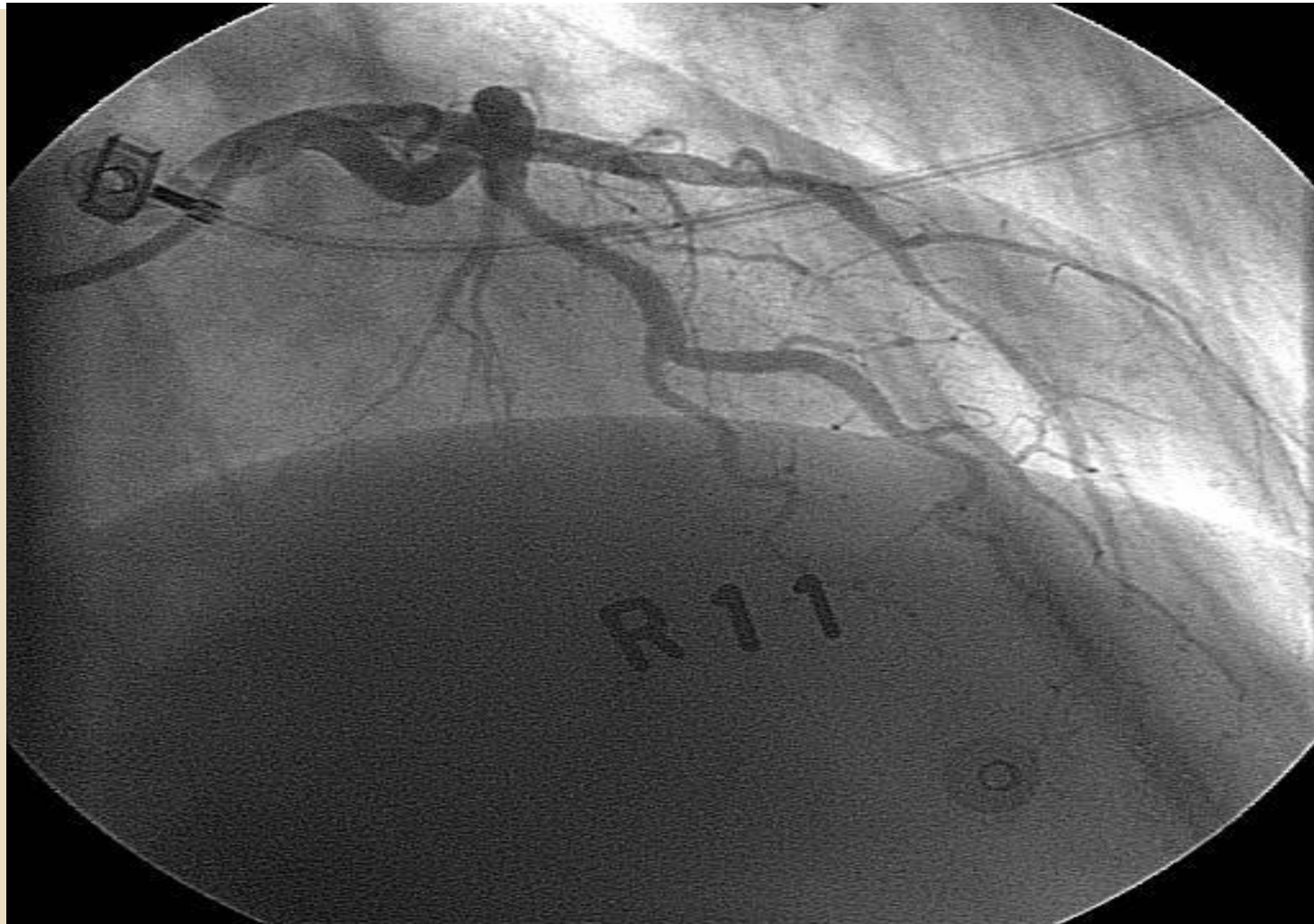
Closed RIA



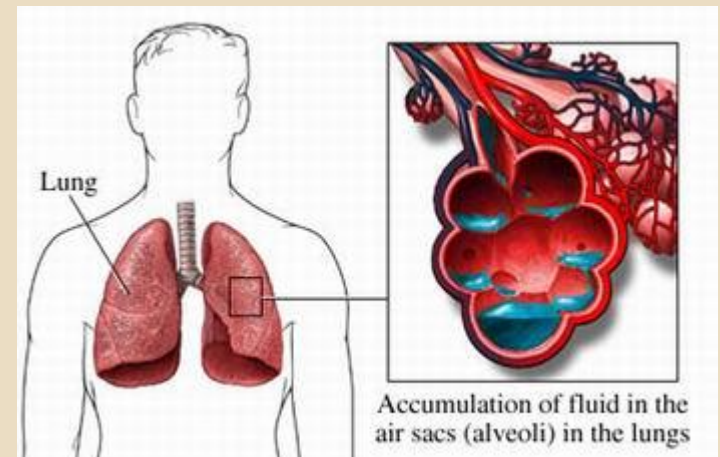
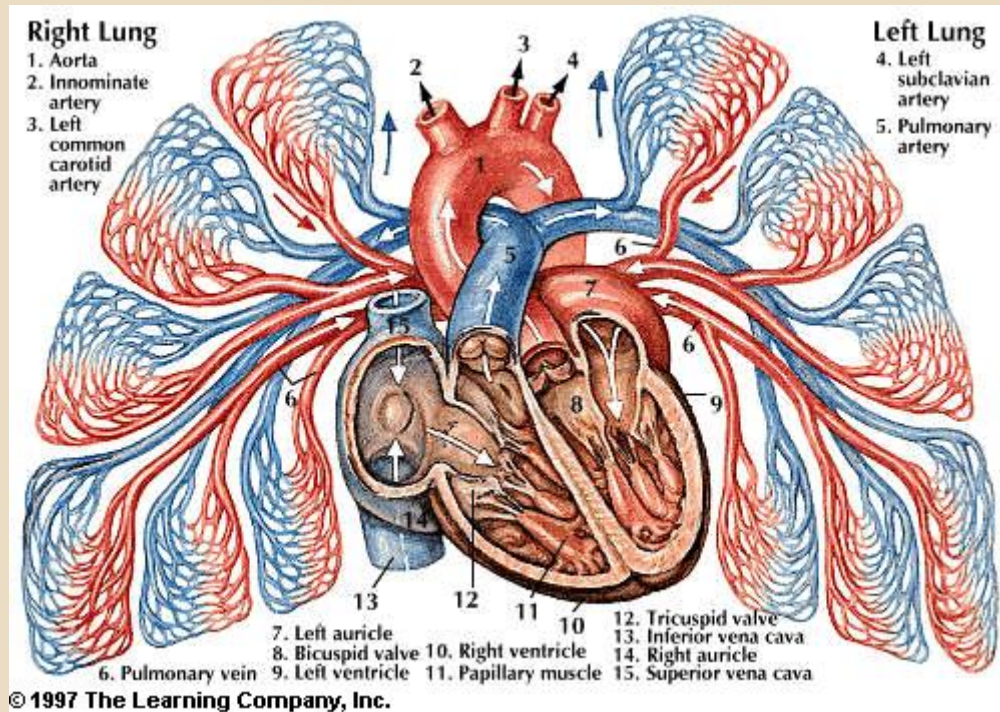
PCI wire in the artery



After treatment with PTCA

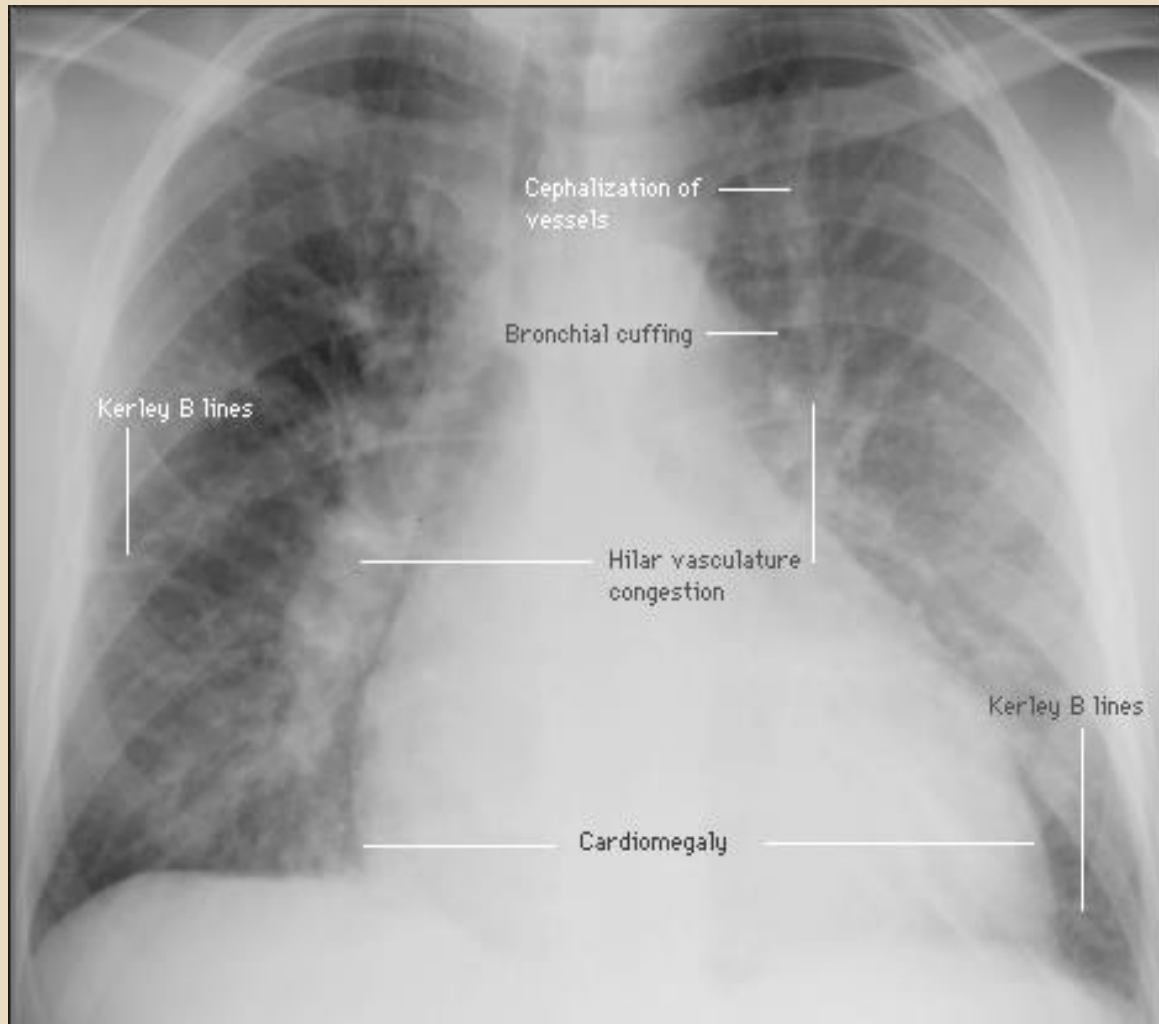


Pulmonary oedema





Pulmonary oedema



RLVG



Right ventricular failure



Thank you

