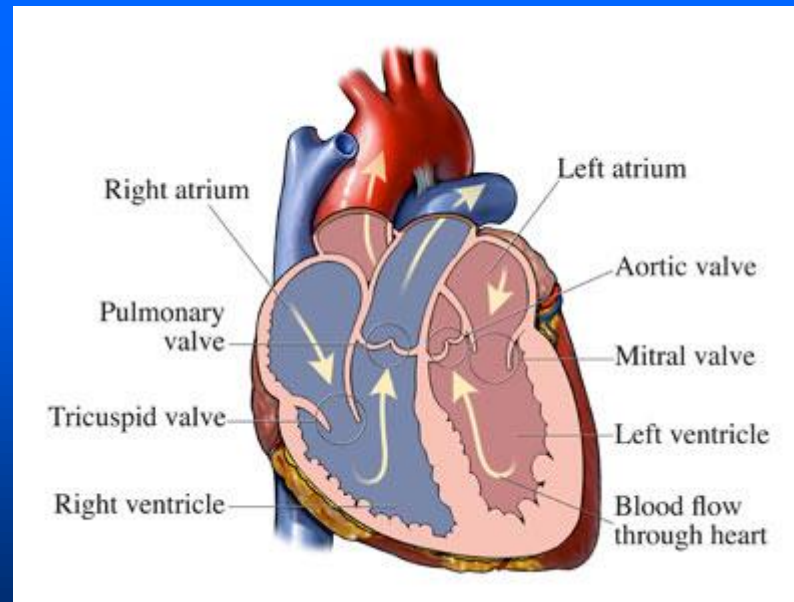
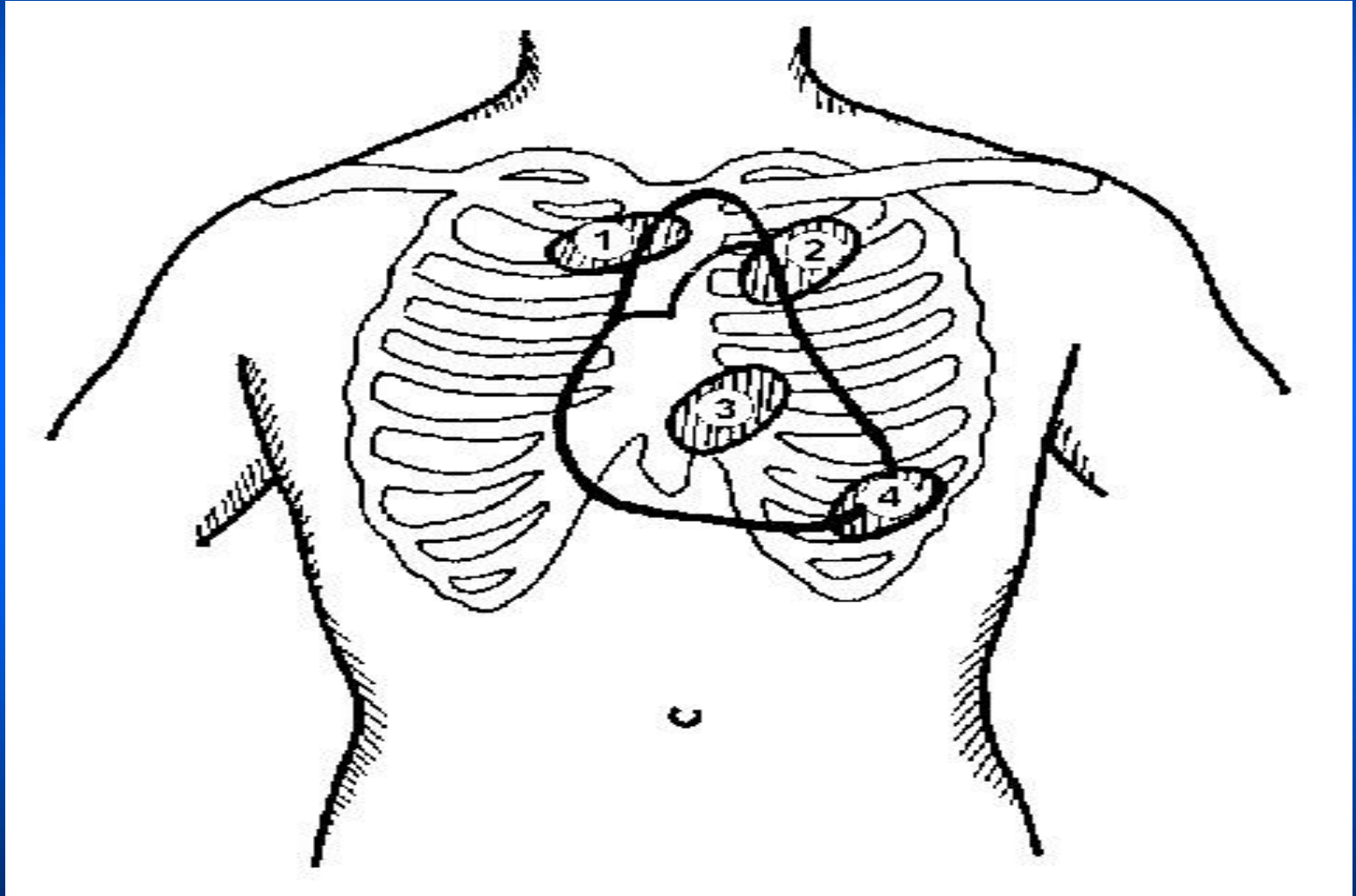


Valvular diseases

Lubomír Křivan M.D.

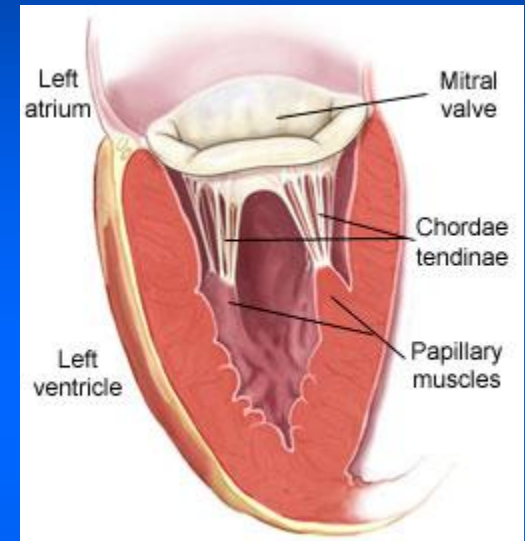


Auscultation to the valves



CZ - 300 operations / 1.000.000

- **Primary valvular disease**
 - Rheumatic fever – sterile inflammation
 - Infectious endocarditis
 - SLE
 - CAD (dysfunction, rupture pap. muscle)
 - Degenerative valvular dysfunction
- **Secondary valvular diseases**
 - Remodelation of the heart (CAD, DCMP...)



Endocarditis in SLE (Liebmann – Sacks)

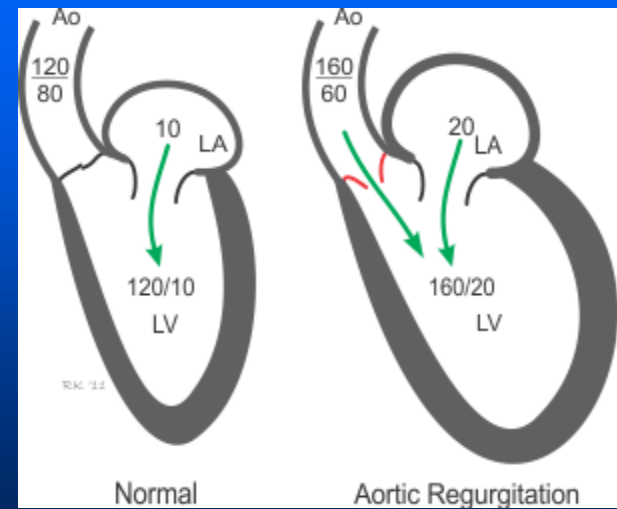
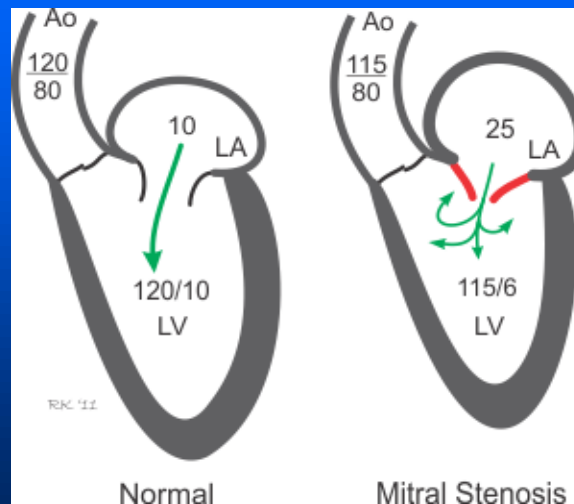


Type of valvular damage

1. STENOSIS

2. REGURGITATION

3. COMBINATION



Diagnosis

- History + physical exam.
- ECHO (TTE + TEE)
- Heart invasive cathetrisation

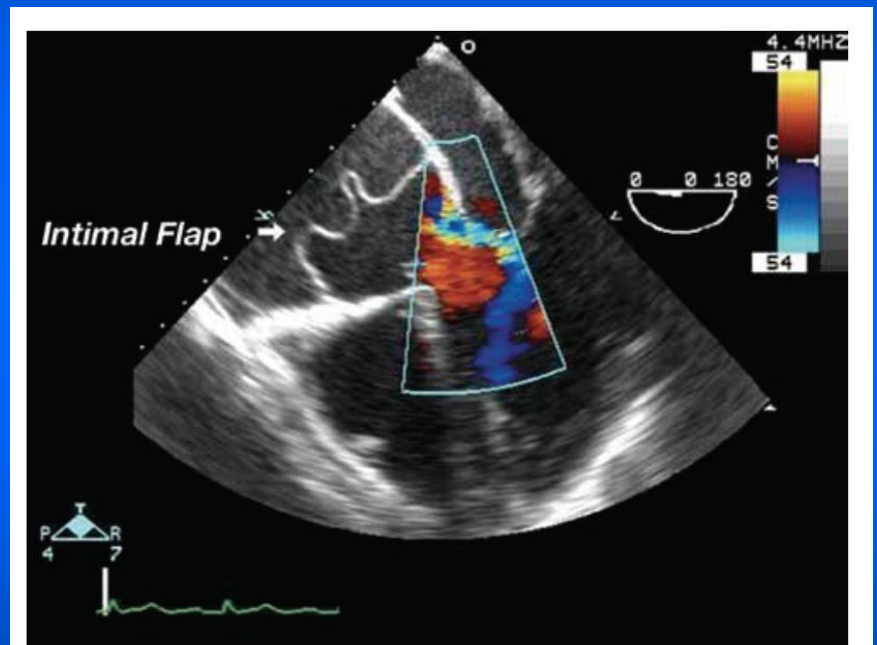


FIGURE 3: Transesophageal echocardiography mid-esophageal four-chamber view (zooming on the aortic valve), showing acute aortic dissection with an intimal flap (arrow). Color Doppler shows severe aortic regurgitation.

Therapy

- symptomatic regimen treatment
- pharmacotherapy
- surgery

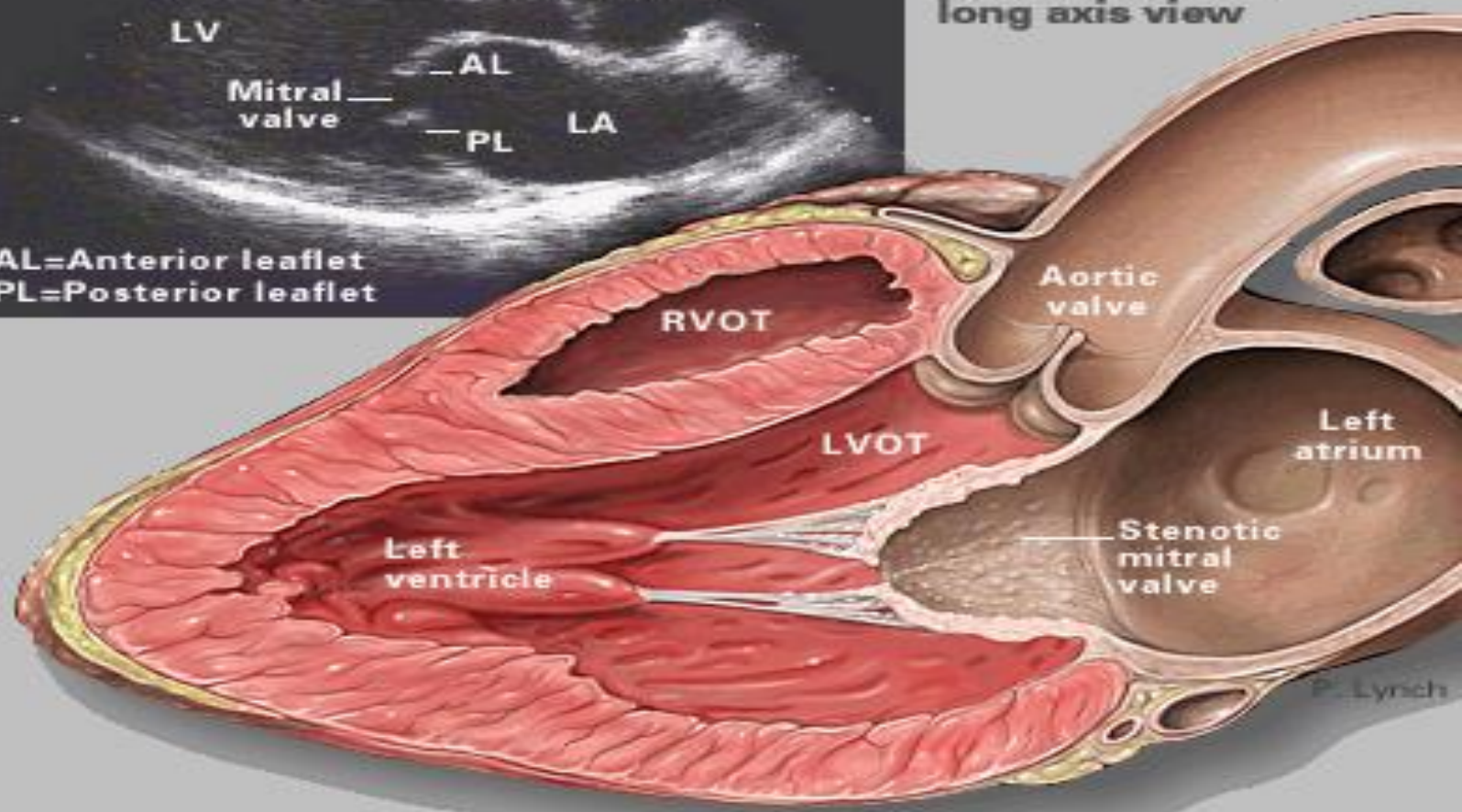
Mitral stenosis

- **dyspnea NYHA I.-IV. (cough)**
- **facies mitralis + lip cyanosis**
- **opening snap + diastolic murmur**
- **HF of right ventricle**
- **X ray**
- **ECHO – dilatation of LA**





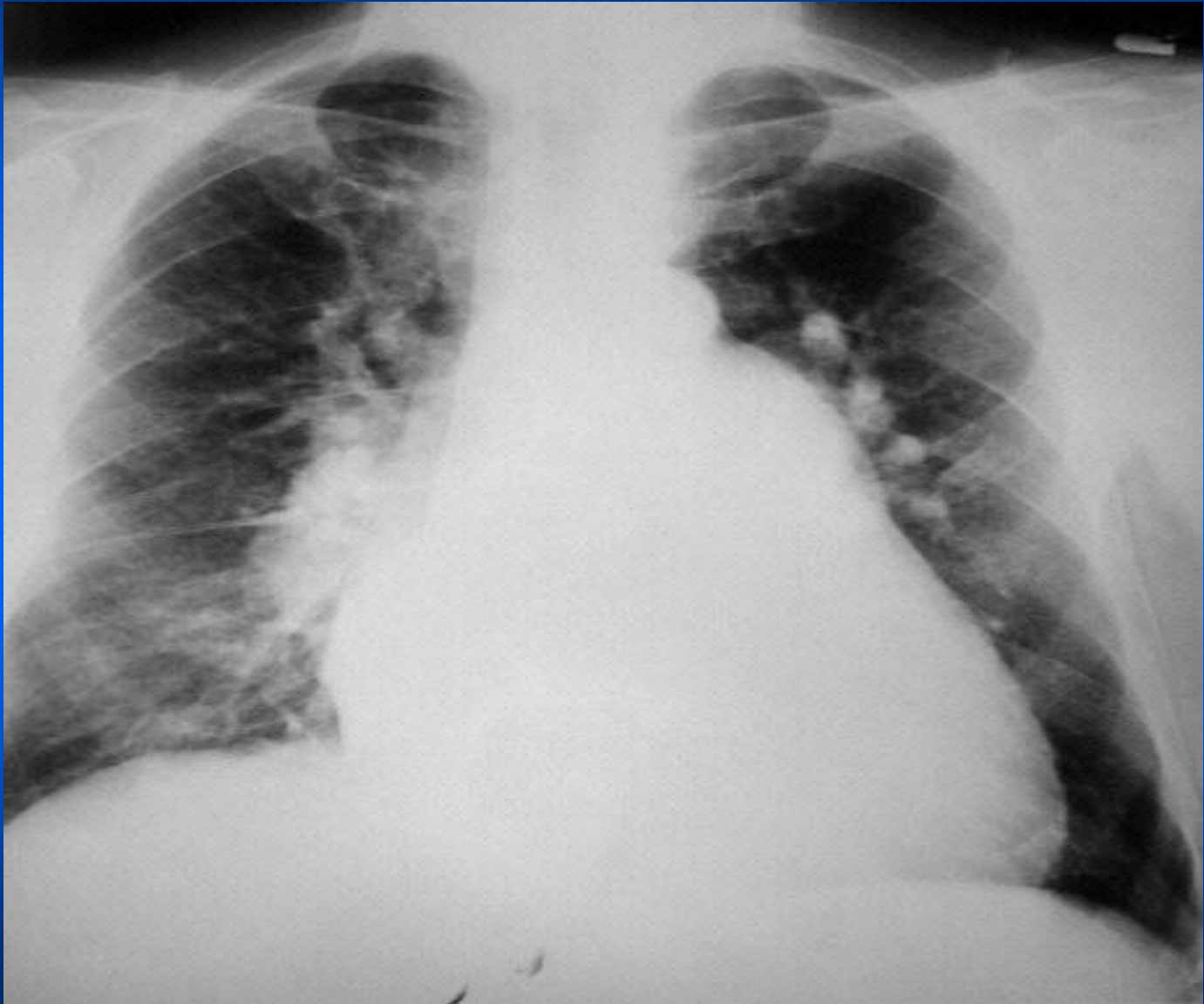
Left parasternal long axis view



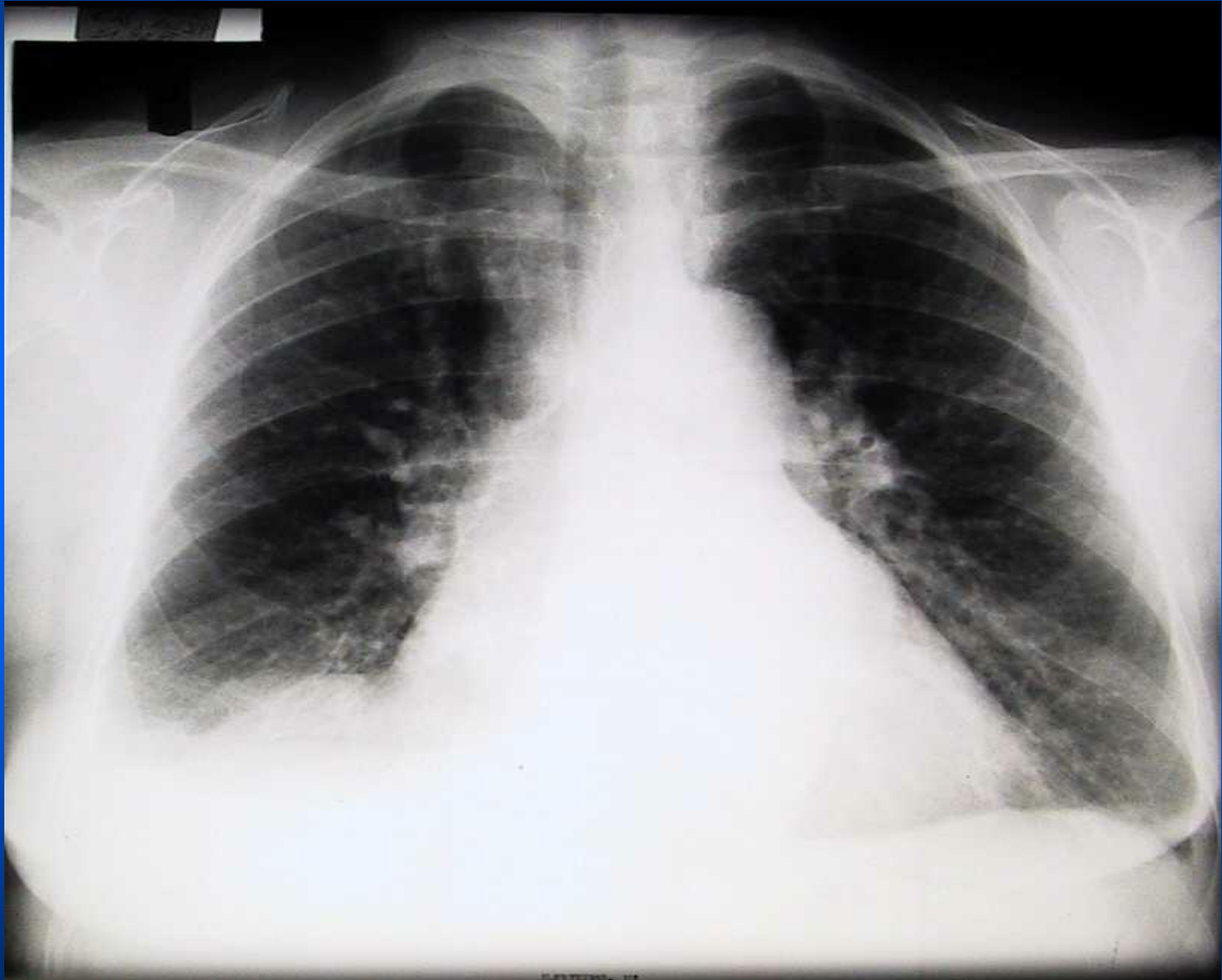
Mi stenosis



Mi stenosis



Mi stenosis

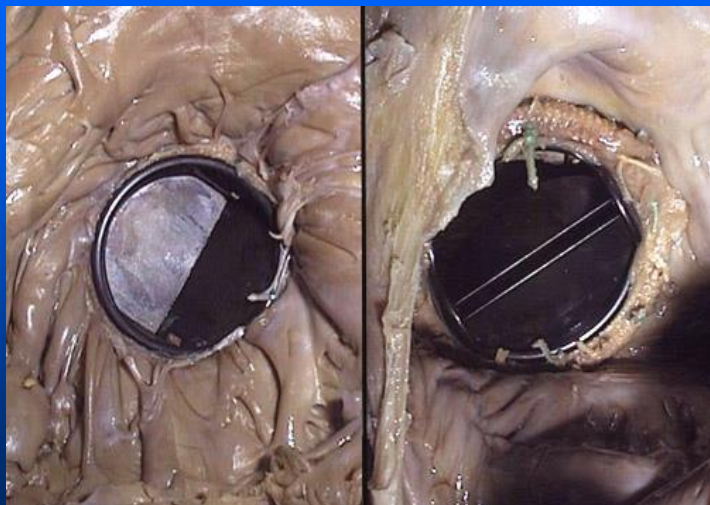


Mitral stenosis

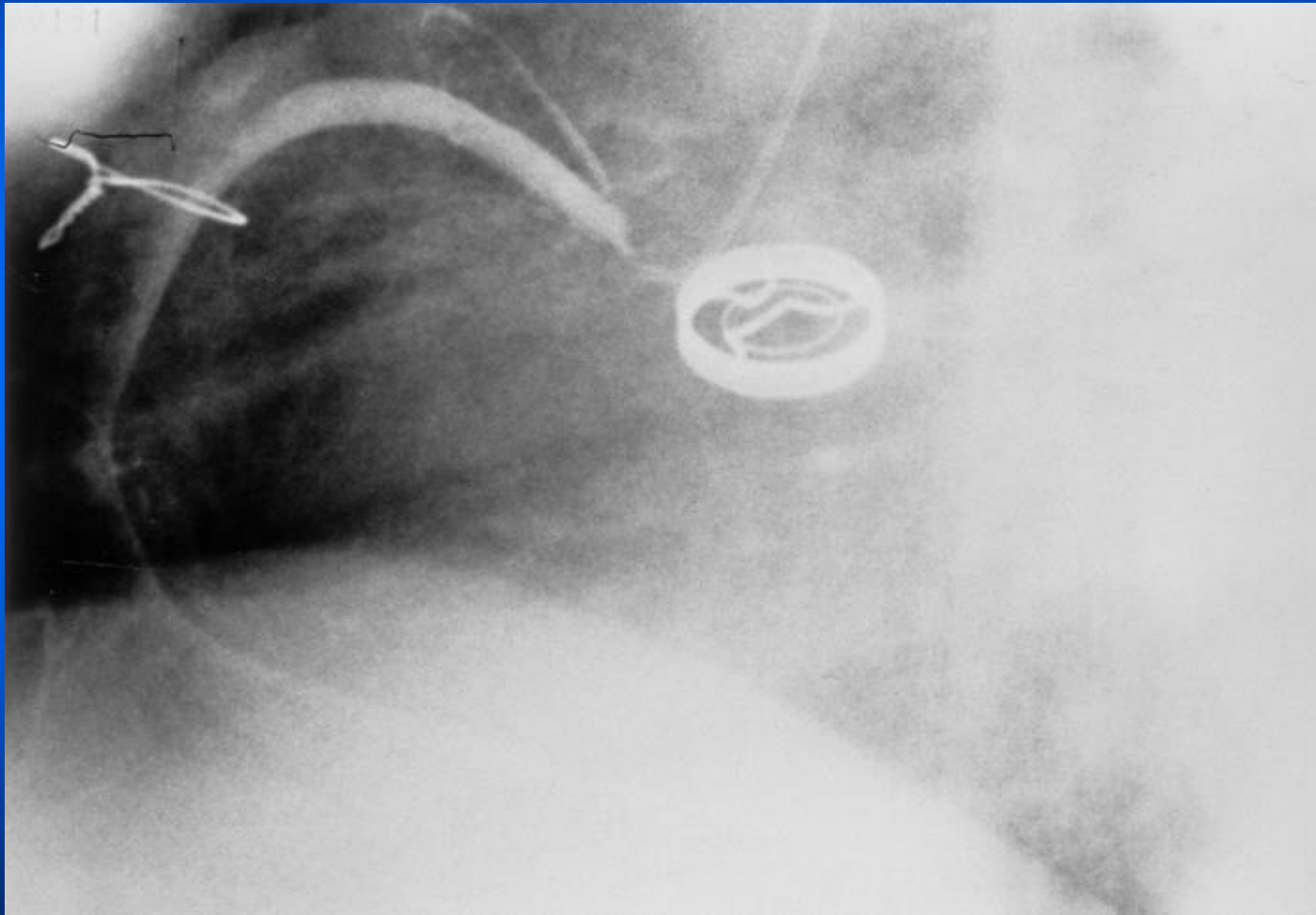
- MV area $< 0,5- 1,0/m^2$ (normal 4-6)
- Med. pressure gradient > 8 mmHg.
- NYHA II - III
- recurrent systemic embolisations
- pulmonary hypertension

Treatment of mitral stenosis

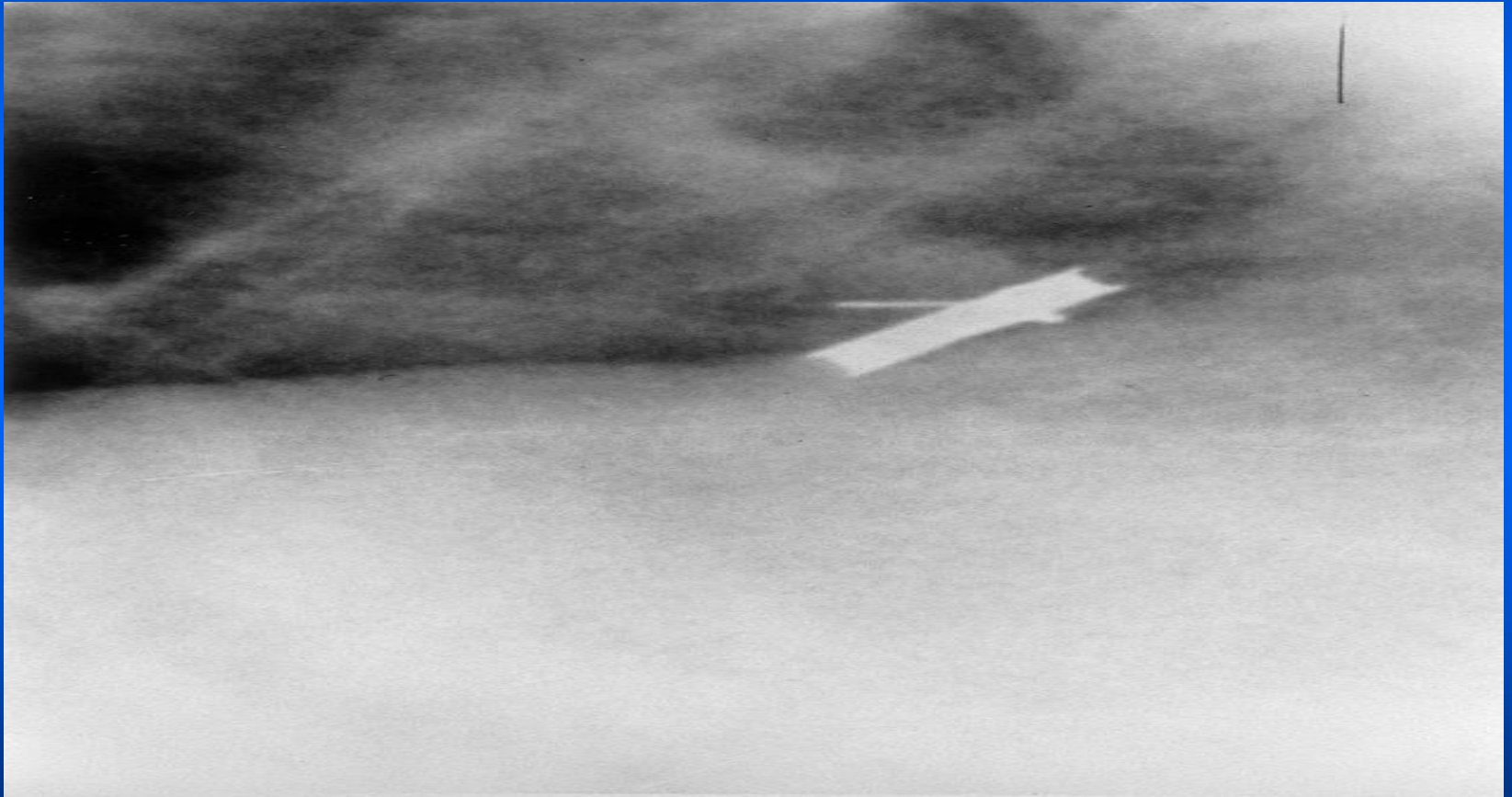
- balloon valvuloplasty
- mitral comisurotomy
- MVR – mitral valve replacement

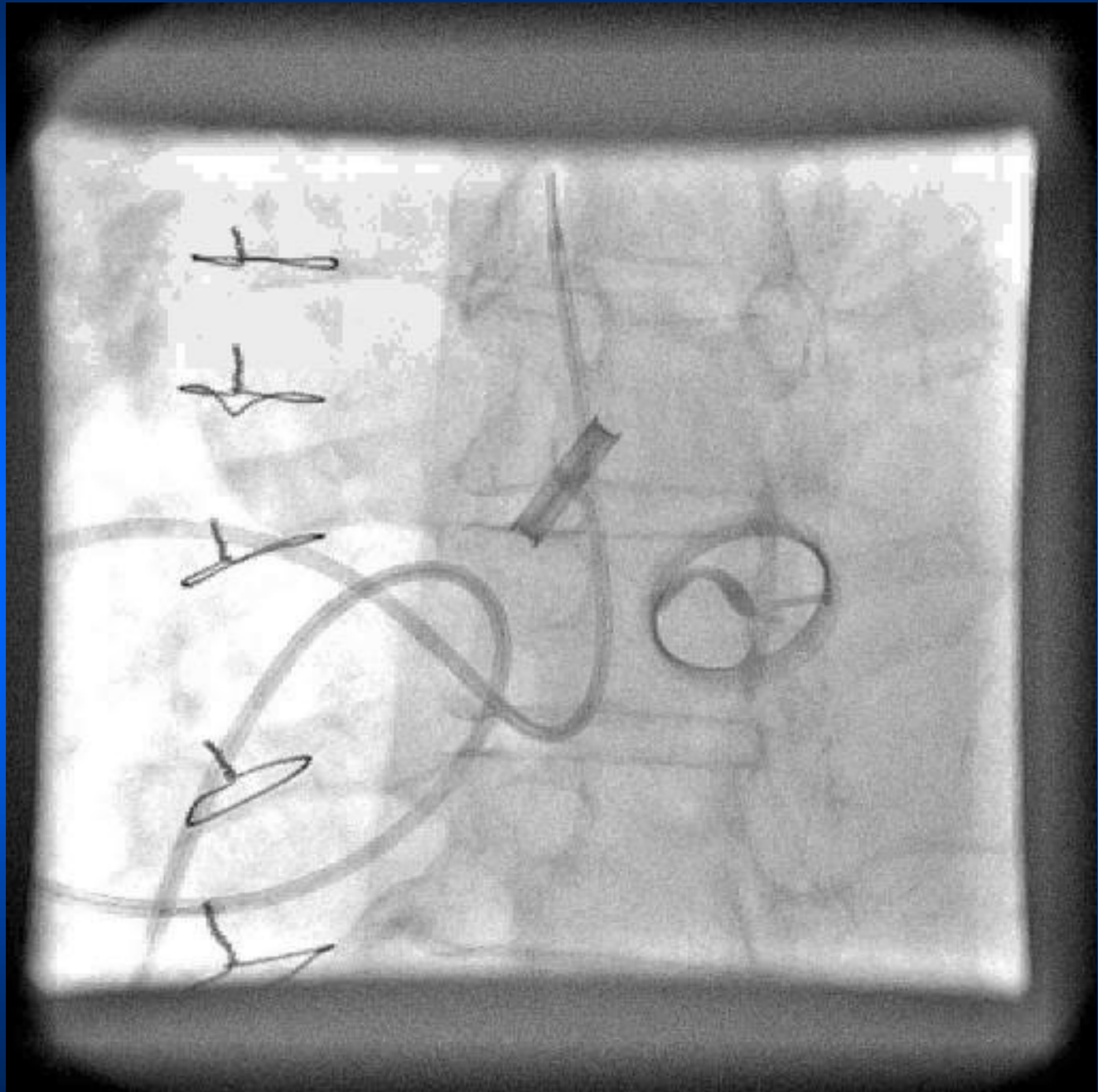


X ray of the valve

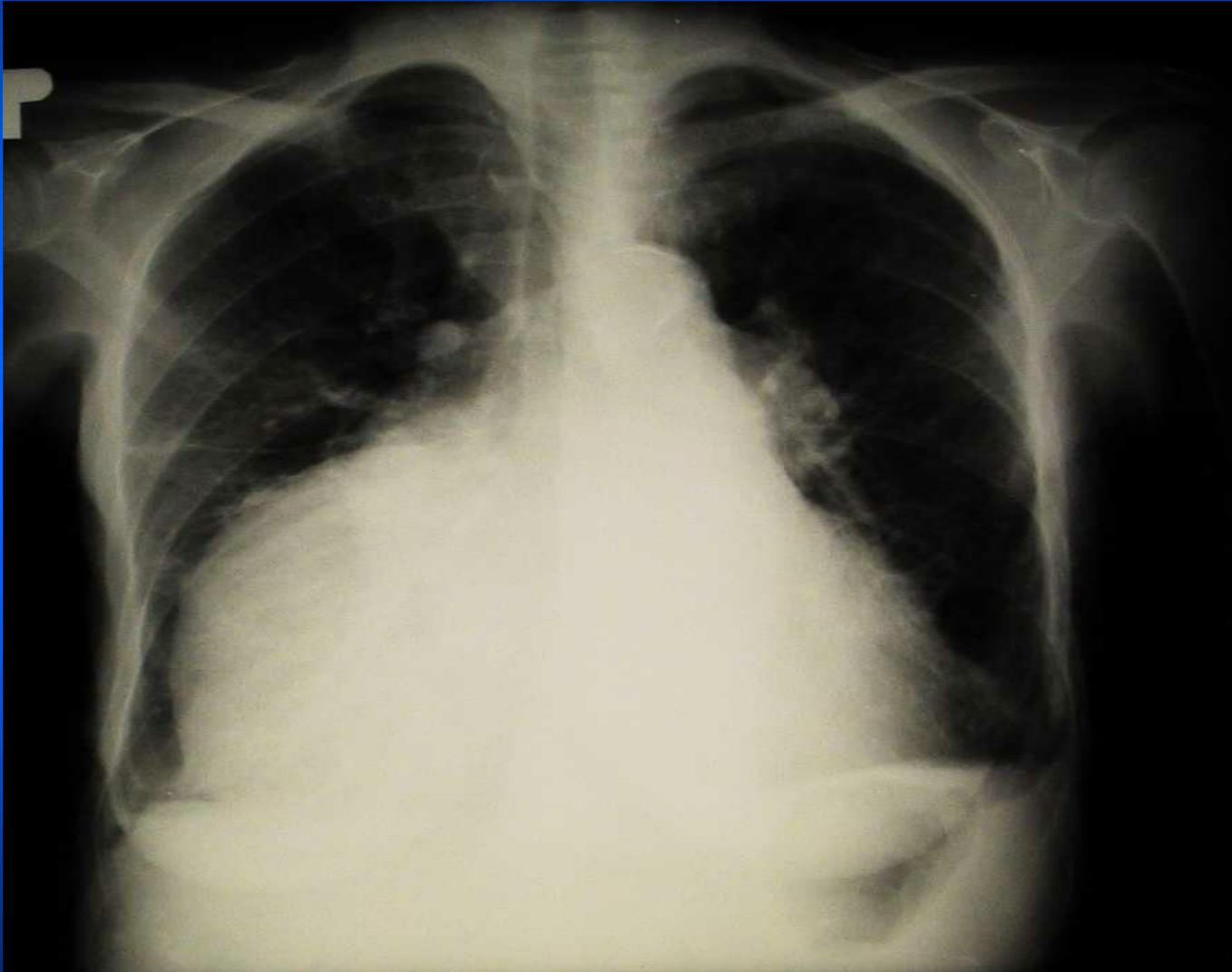


X ray of the valve



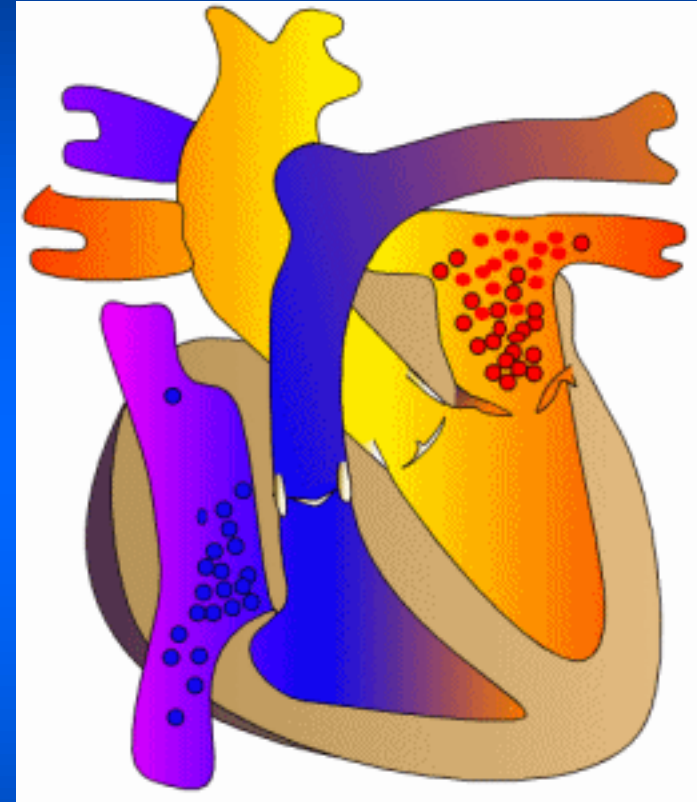


Mi stenosis – bad timing



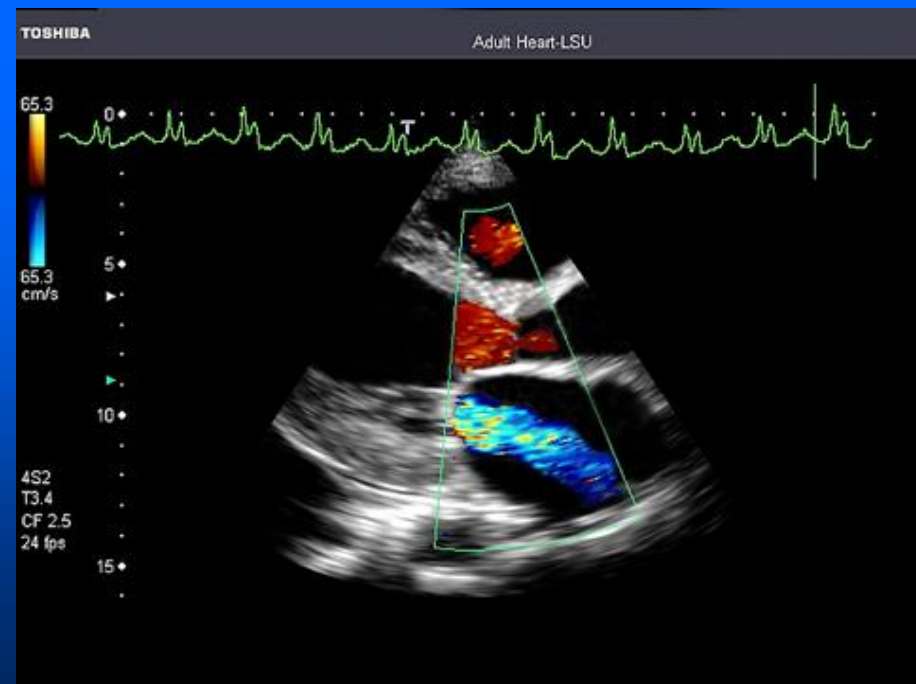
Mitral regurgitation

- 2nd most common valv. disease
- Acute – papillary muscle / tendon rupture
- Chronic
 - Primary - degeneration
 - Secondary – dilatation of LV
- Dyspnea, systolic murmur
- ECG - Atrial fibrillation
- ECHO + X ray – dilatation of the LA, LV



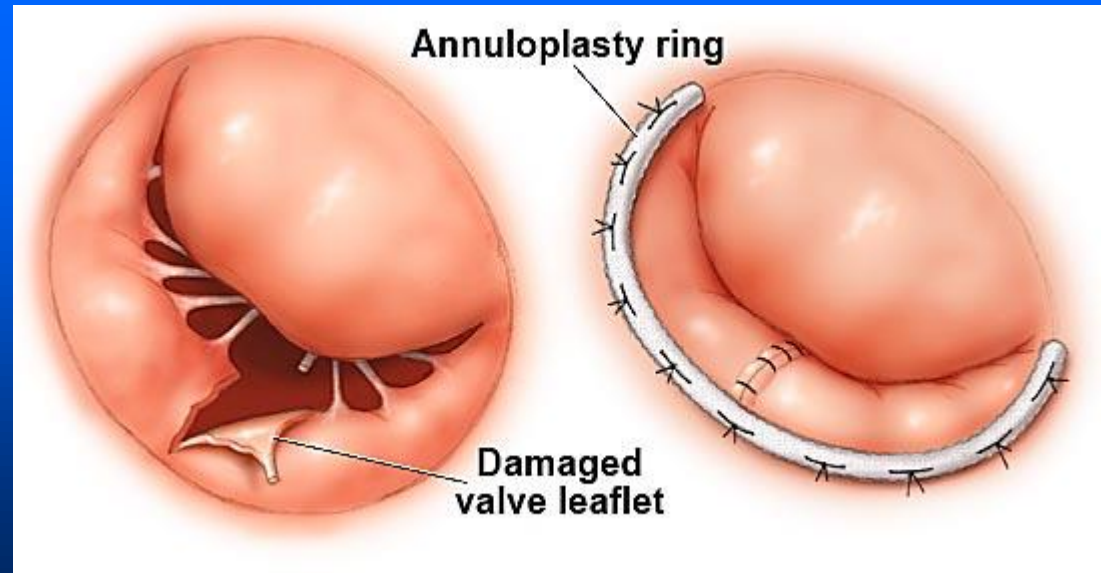
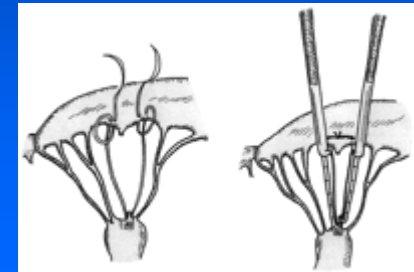
Mitral regurgitation

- endsystolic diameter of LV $> 45\text{mm}$
- enlargement of LA $> 50\text{mm}$
- regurgitation fraction $> 50\% \text{ SV}$
- LVEF $\leq 60\%$



Treatment of mitral regurgitation

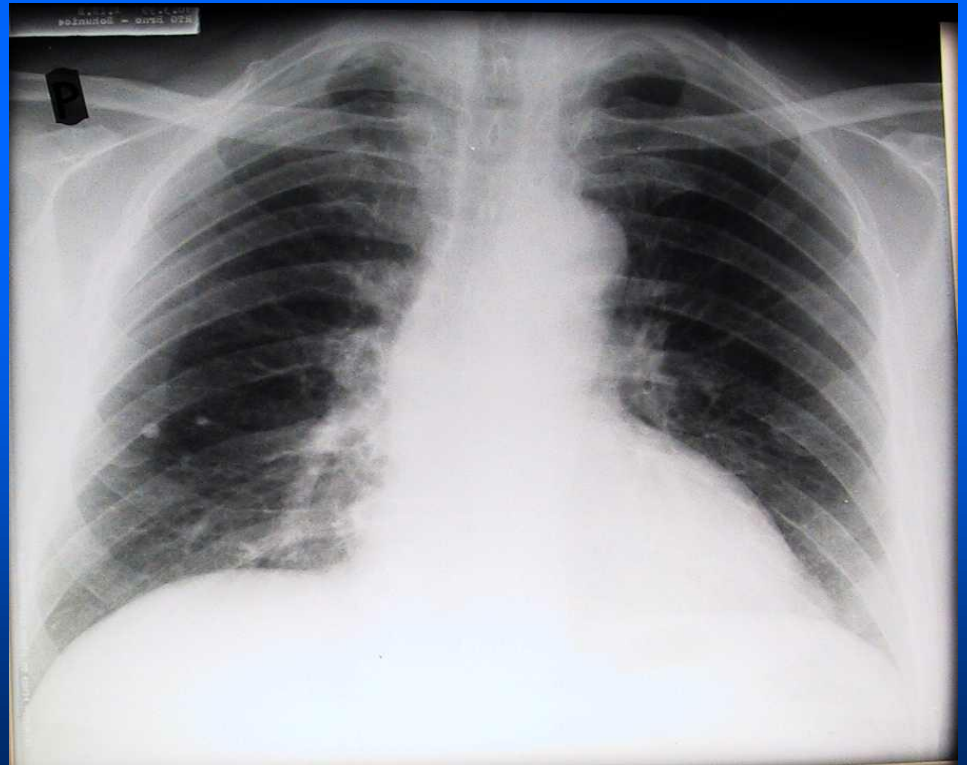
- Vasodilatation, diuretics, ACEI
- MVP
- Edge to edge percutaneous (Mitraclip)
- **MVR**



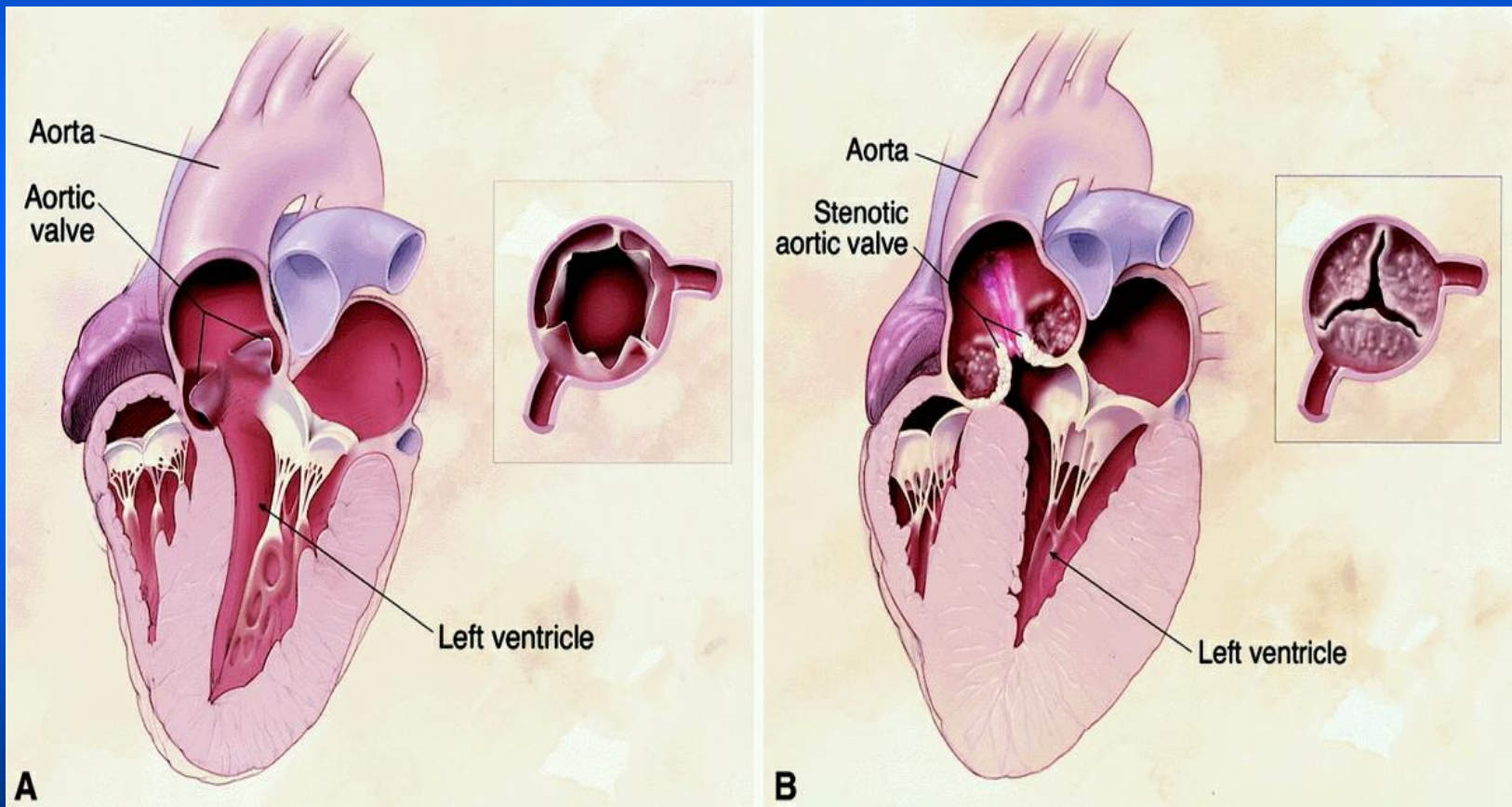
Aortic stenosis

Most common valvular disease

- Chest pain
- Dyspnea
- Syncope (after exercise)
- systolic murmur
- ECG hypertrophy
- X ray „aortic shape“

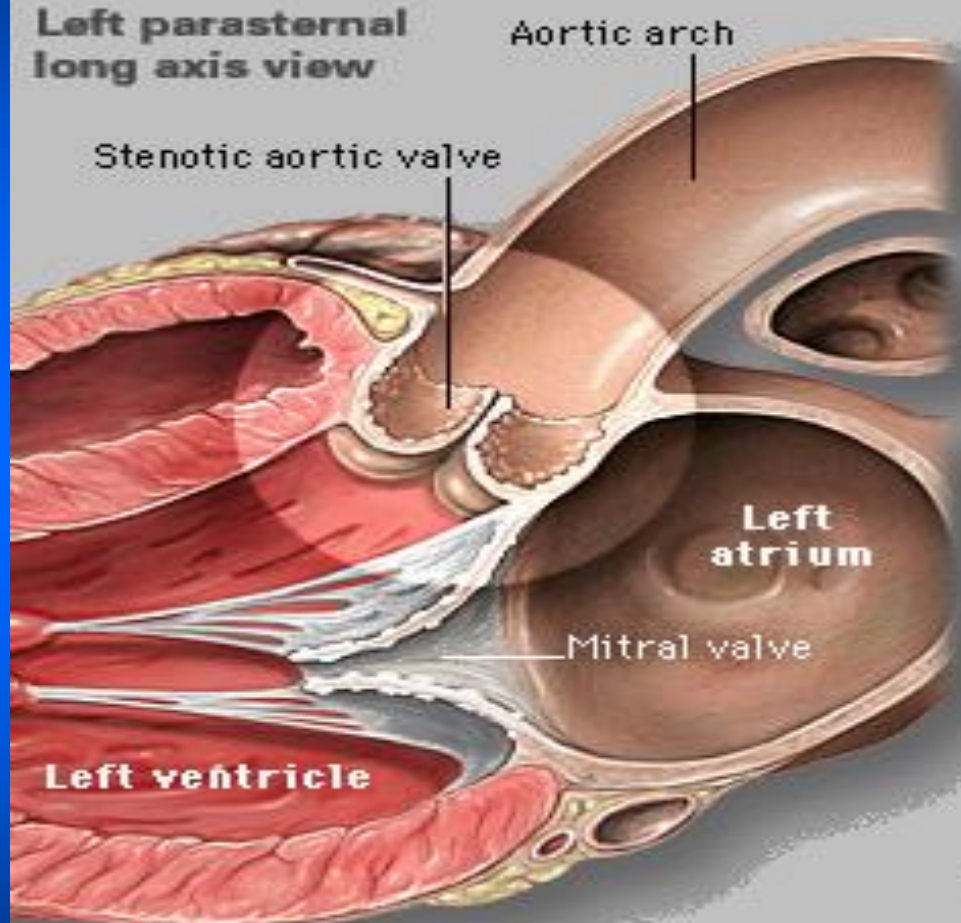


Aortic stenosis



Short axis views from above aortic valves

Left parasternal long axis view



Aortic arch

Stenotic aortic valve

Left atrium

Mitral valve

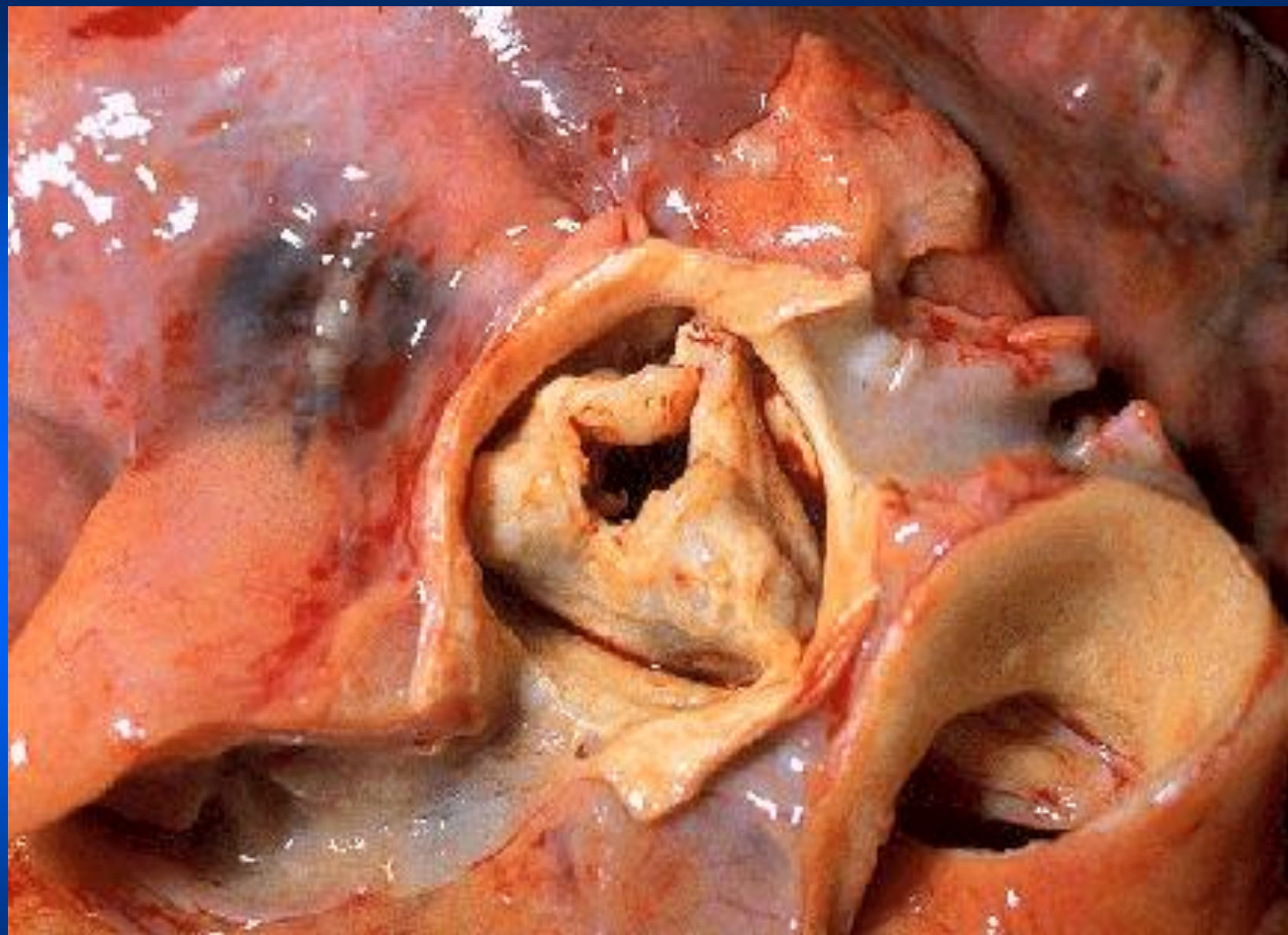
Left ventricle

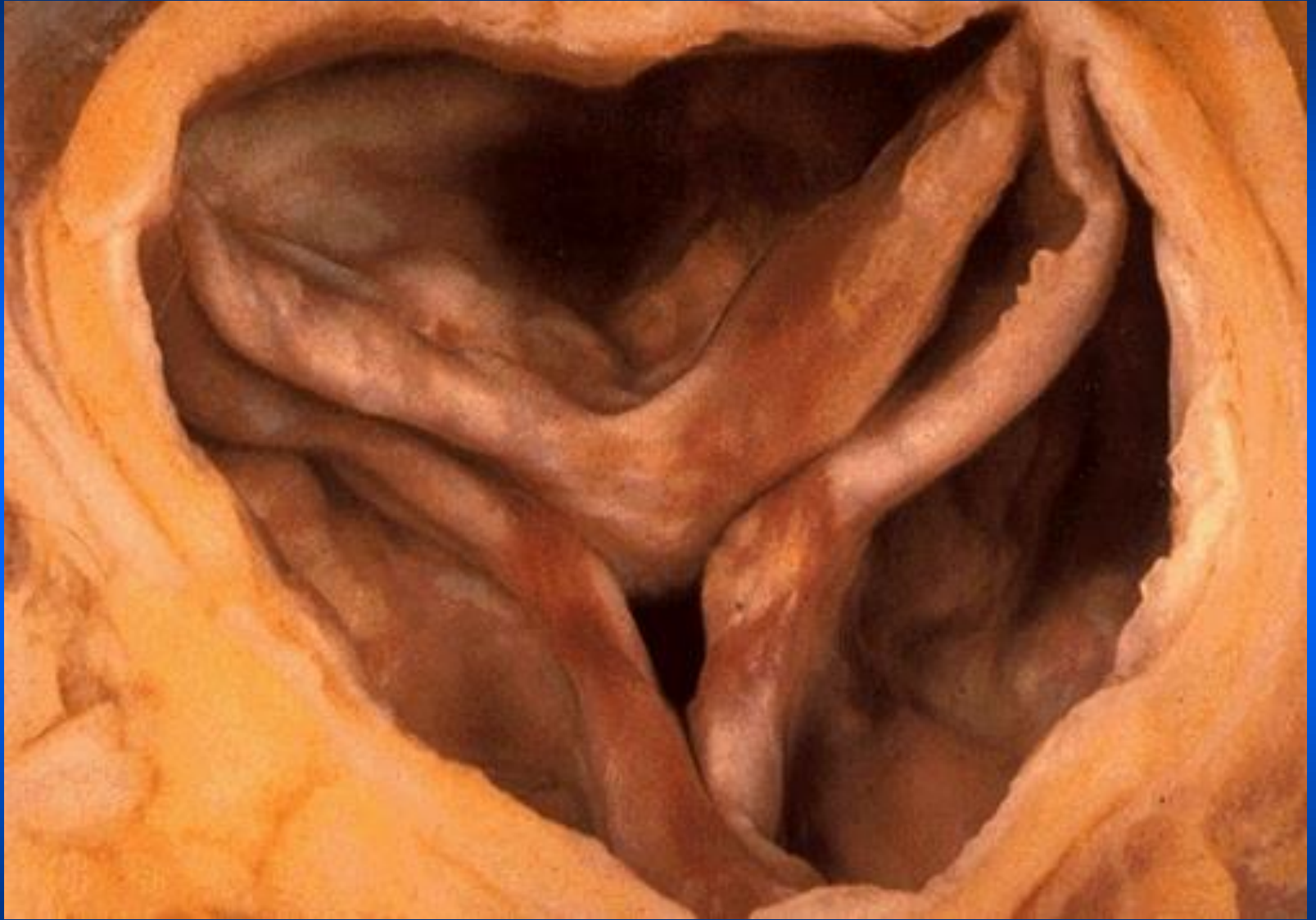
Senile aortic stenosis

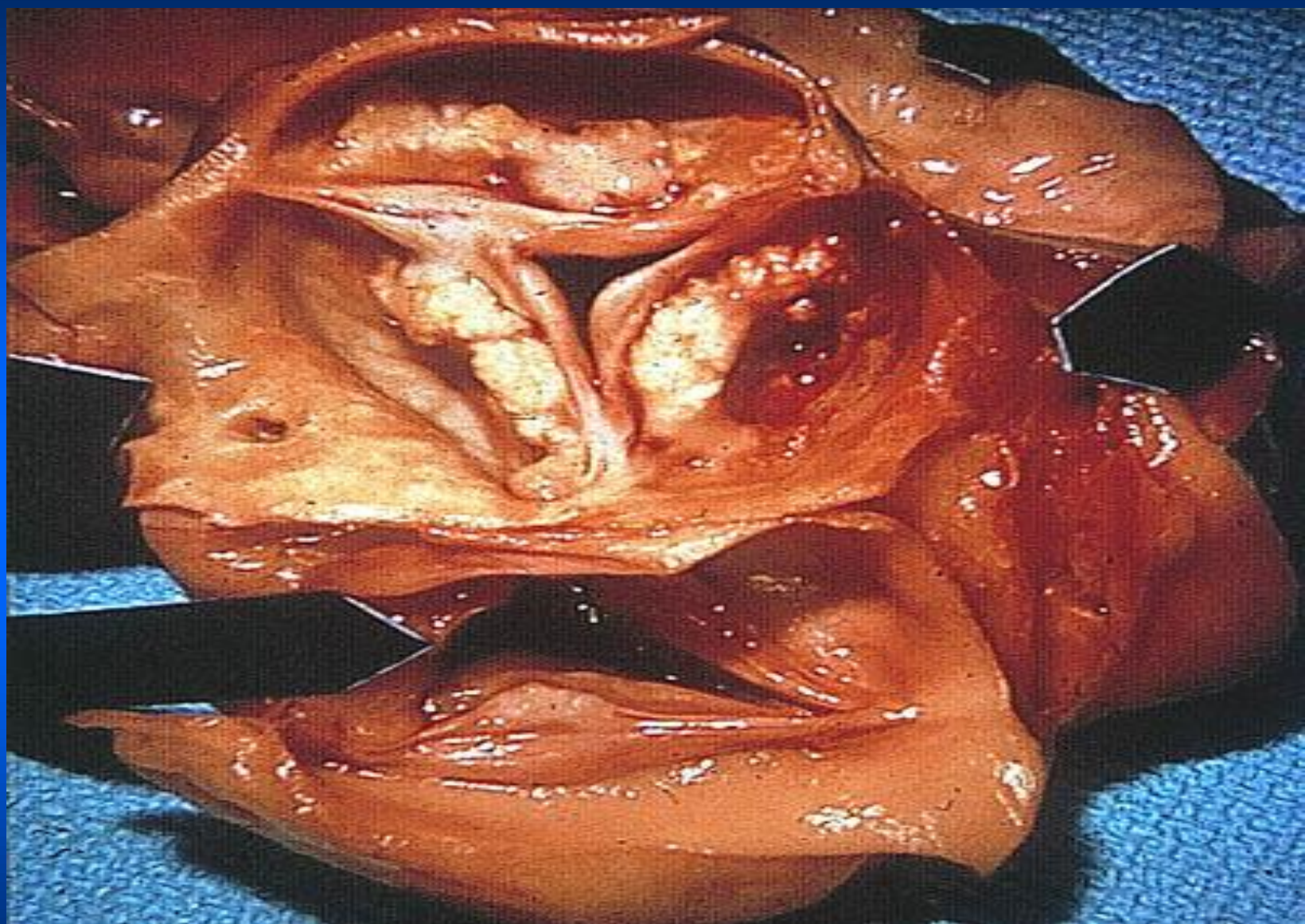


Bicuspid aortic stenosis









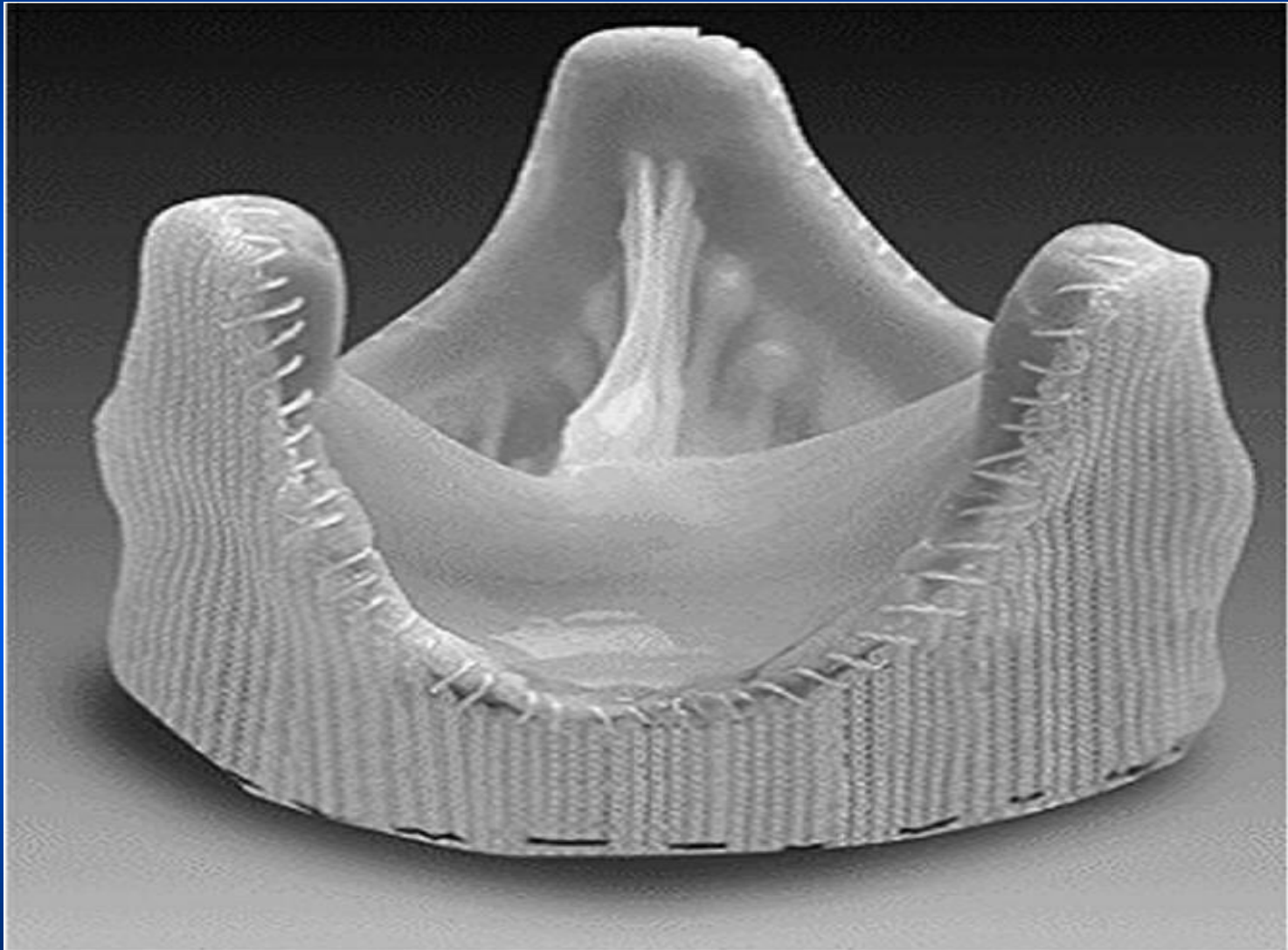
Aortic stenosis

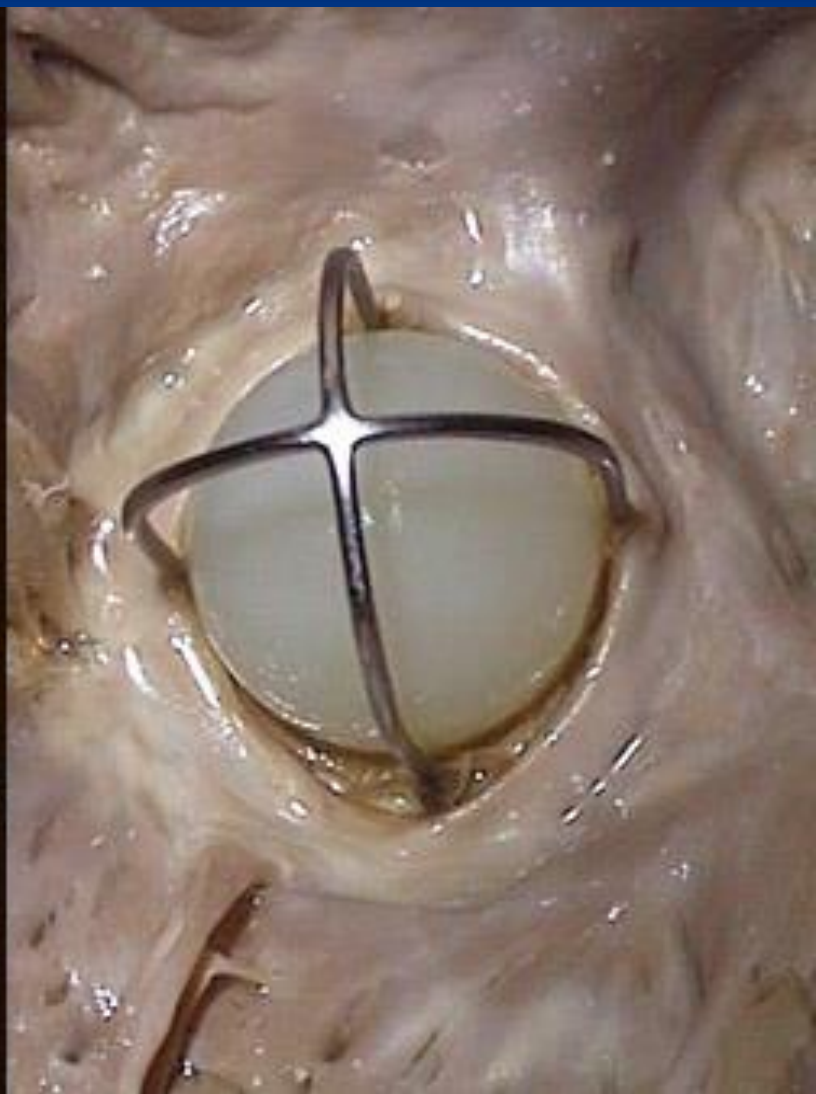
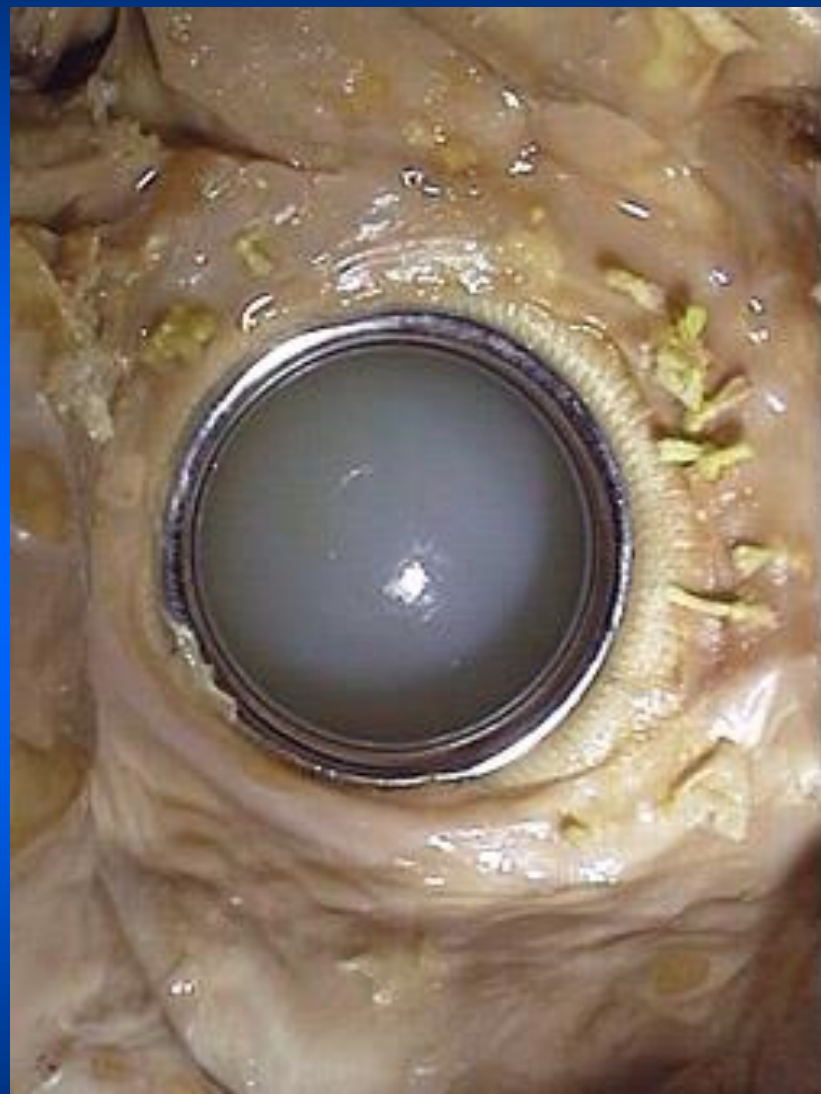
- symptoms
- $AVA < 0,5\text{cm}^2/\text{m}^2$
- Mean systolic gradient > 40 mmHg
- worsening of LV function

Therapy: AVR

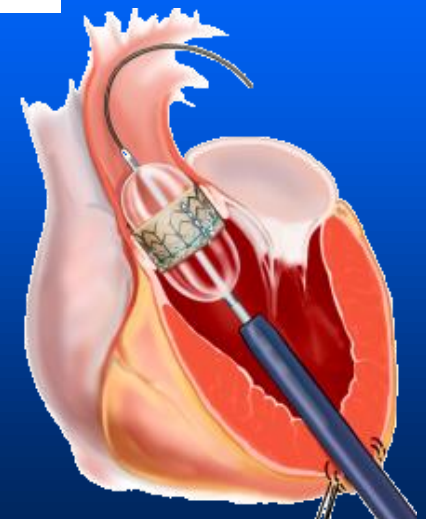
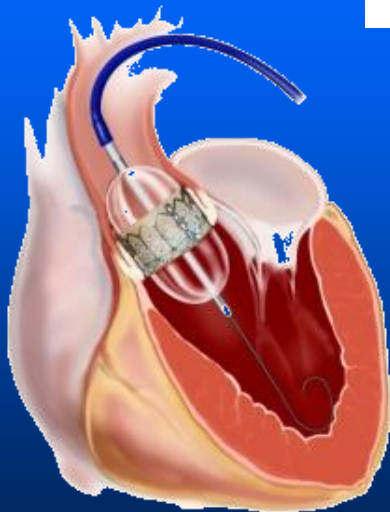
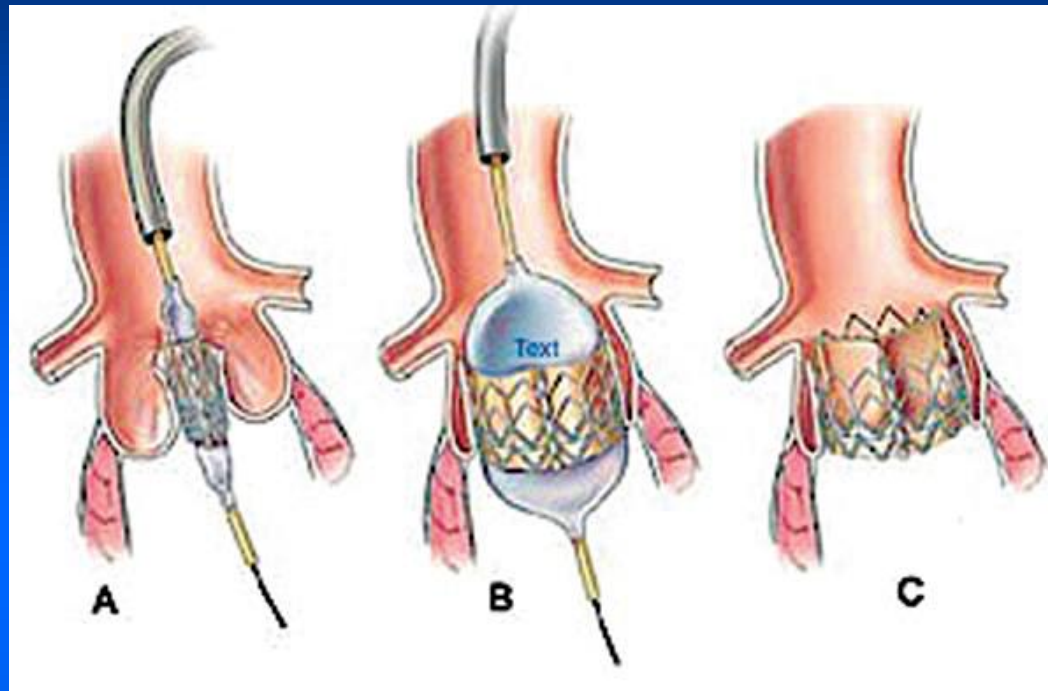


Bioprosthesis of Ao valve

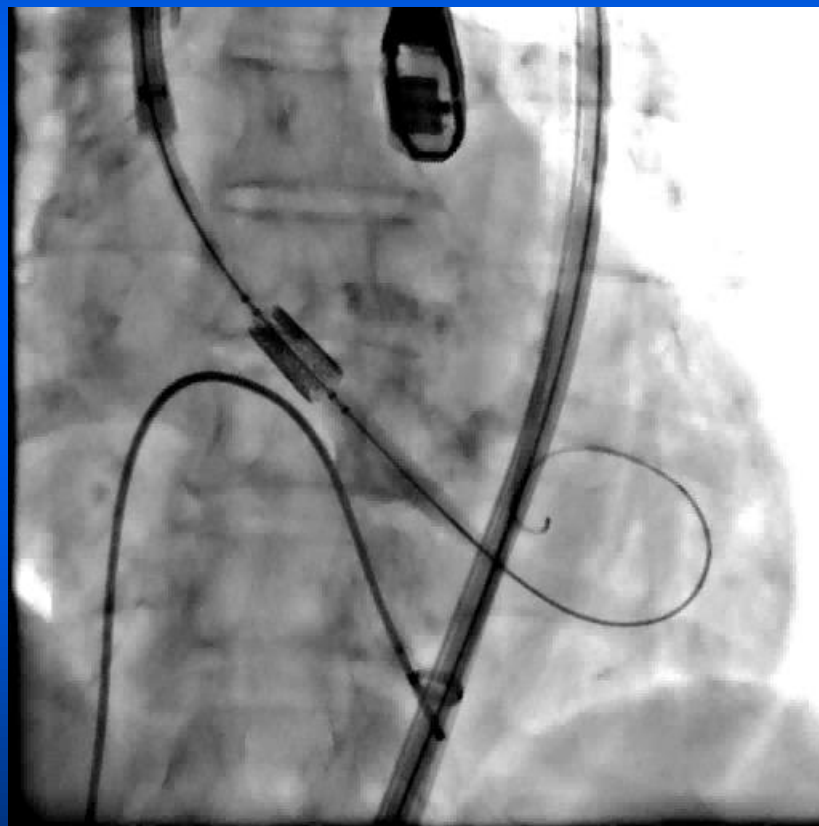
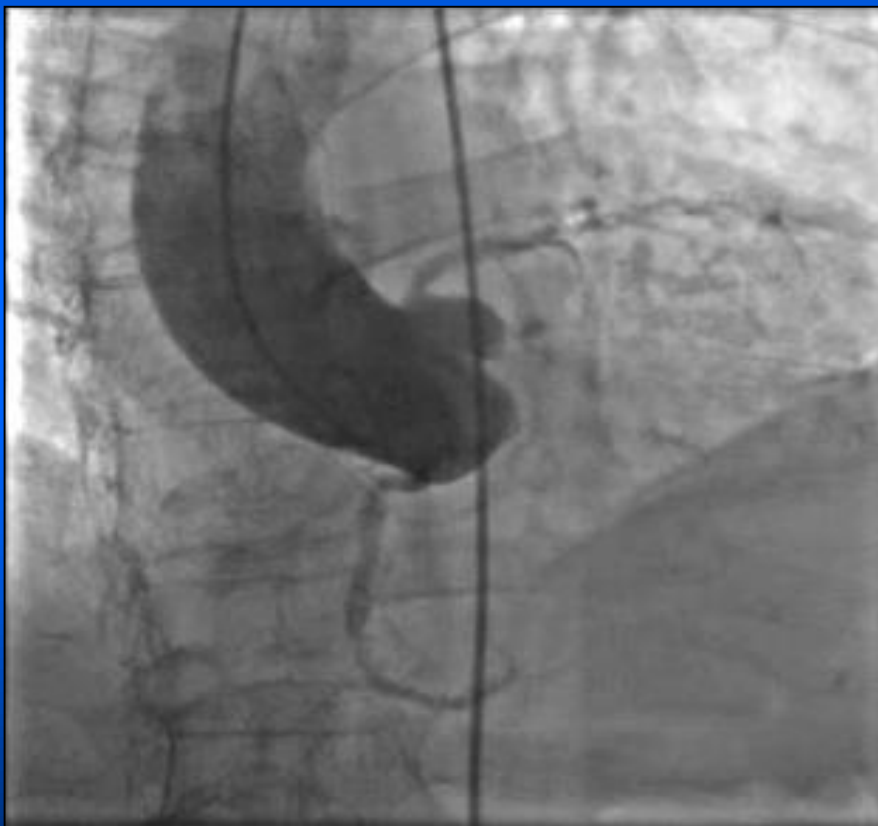




TAVI

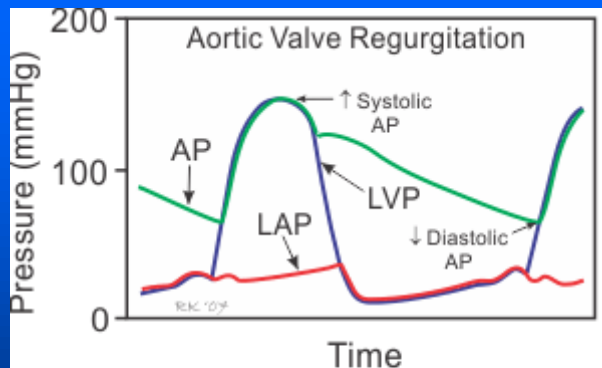
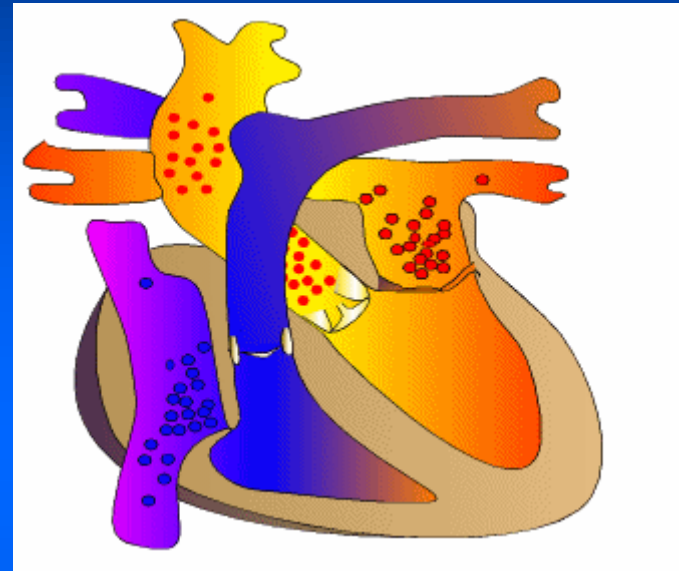


Aortic valve



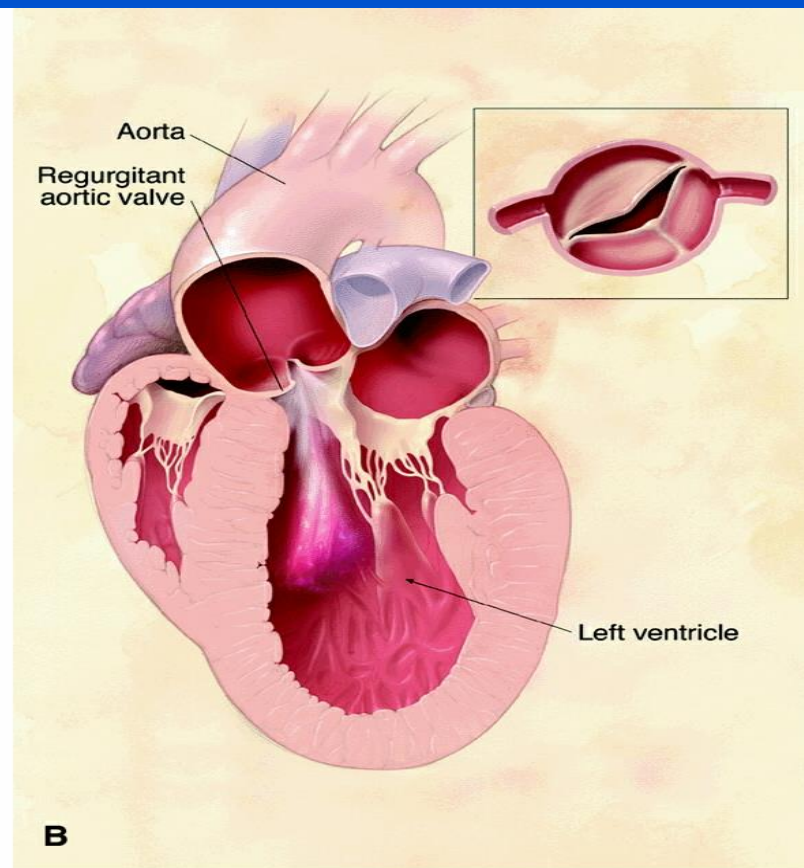
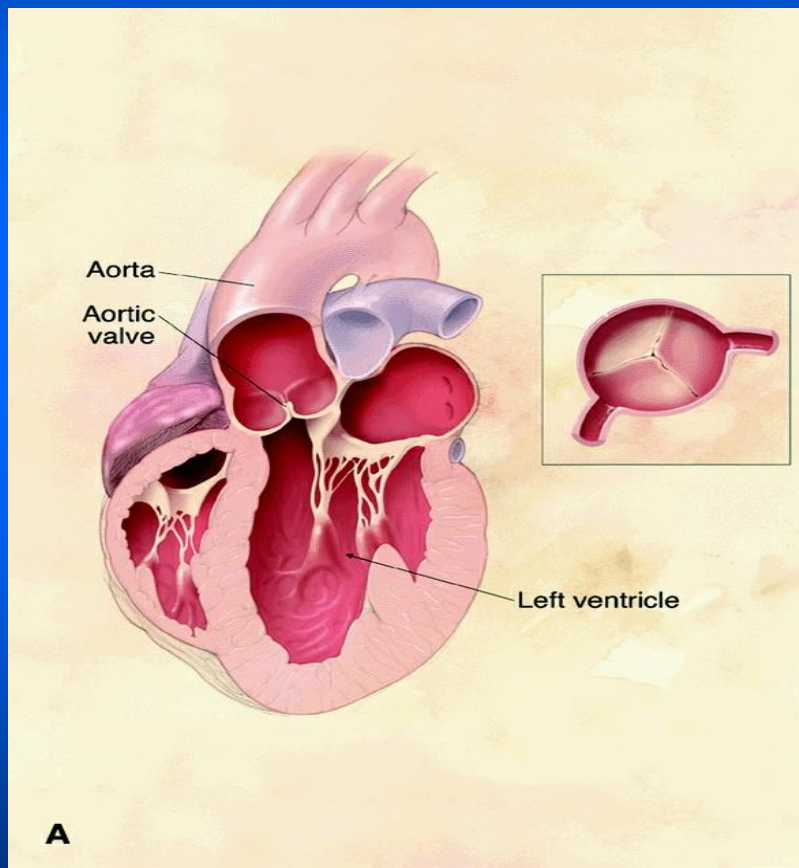
Aortal regurgitation

- Dyspnea + chest pain
- diastolic murmur
- systolic-diastolic difference
- ECG LV overload
- X ray + ECHO - dilatation, LVH



During ventricular relaxation, blood flows backwards from aorta into the ventricle. Aortic systolic pressure increases, aortic diastolic pressure decreases, and pulse pressure increases; LAP increase.
Abbreviations: LAP, left atrial pressure; LVP, left ventricular pressure; AP, aortic pressure.

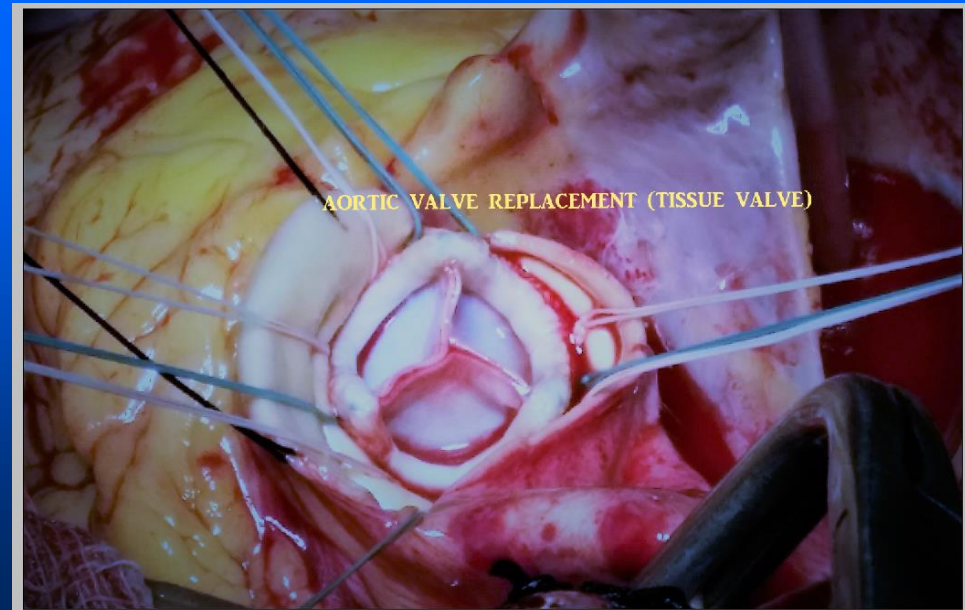
Aortic regurgitation



Aortic regurgitation

- Endsystolic diameter $> 50\text{mm}$
- regurgitation fraction $> 50\%$ SV
- S-D amplitude $> 100\text{ mmHg}$
- Increased enddiast. P. in LV
- symptoms (dyspnea, syncope, chest pain)

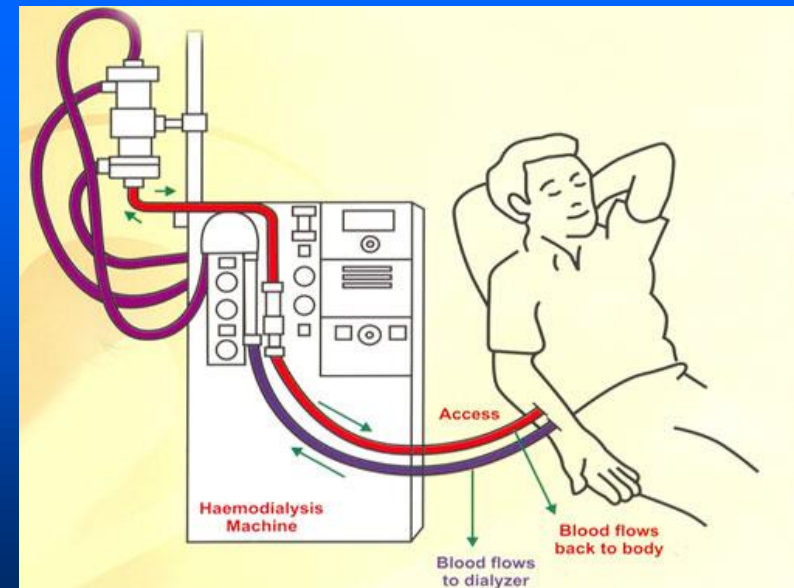
Therapy - AVR



Rare inquired valv. diseases

- Tricuspidal and pulmonary stenosis
- Tricuspidal and pulmonary regurgitation

(mostly secondary)



After valve replacement !

- **Anticoagulation:** Vitamin K inhibitors
- INR Mi valve **3,0**
- INR Ao valve **2,5**

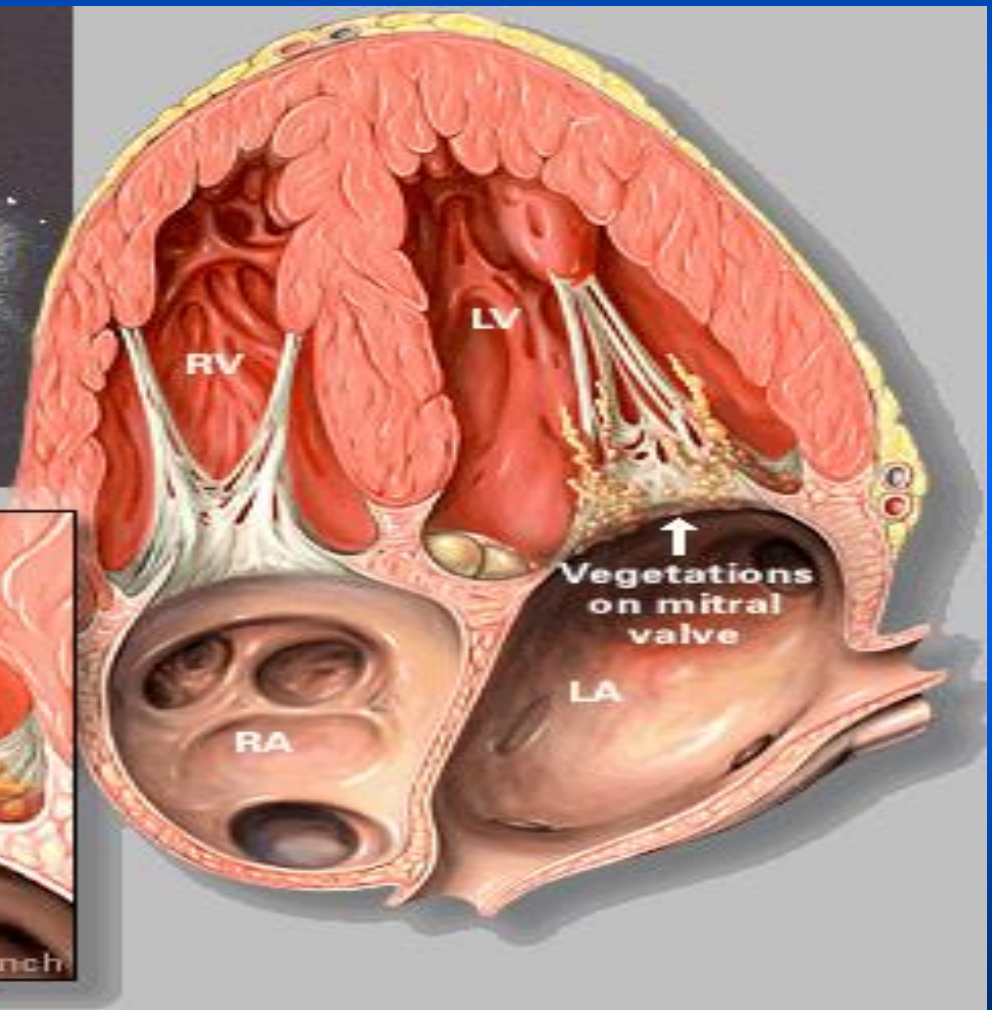
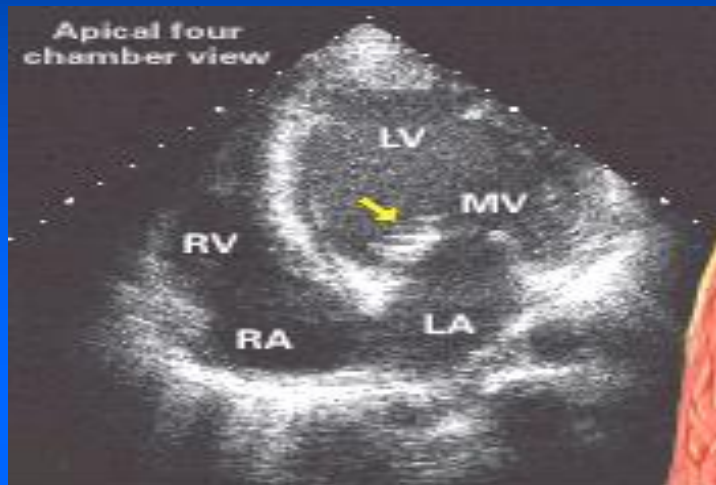


- **Direct thrombin inhibitors** - Rivaroxaban, Dabigatran ...**not recommended !!**

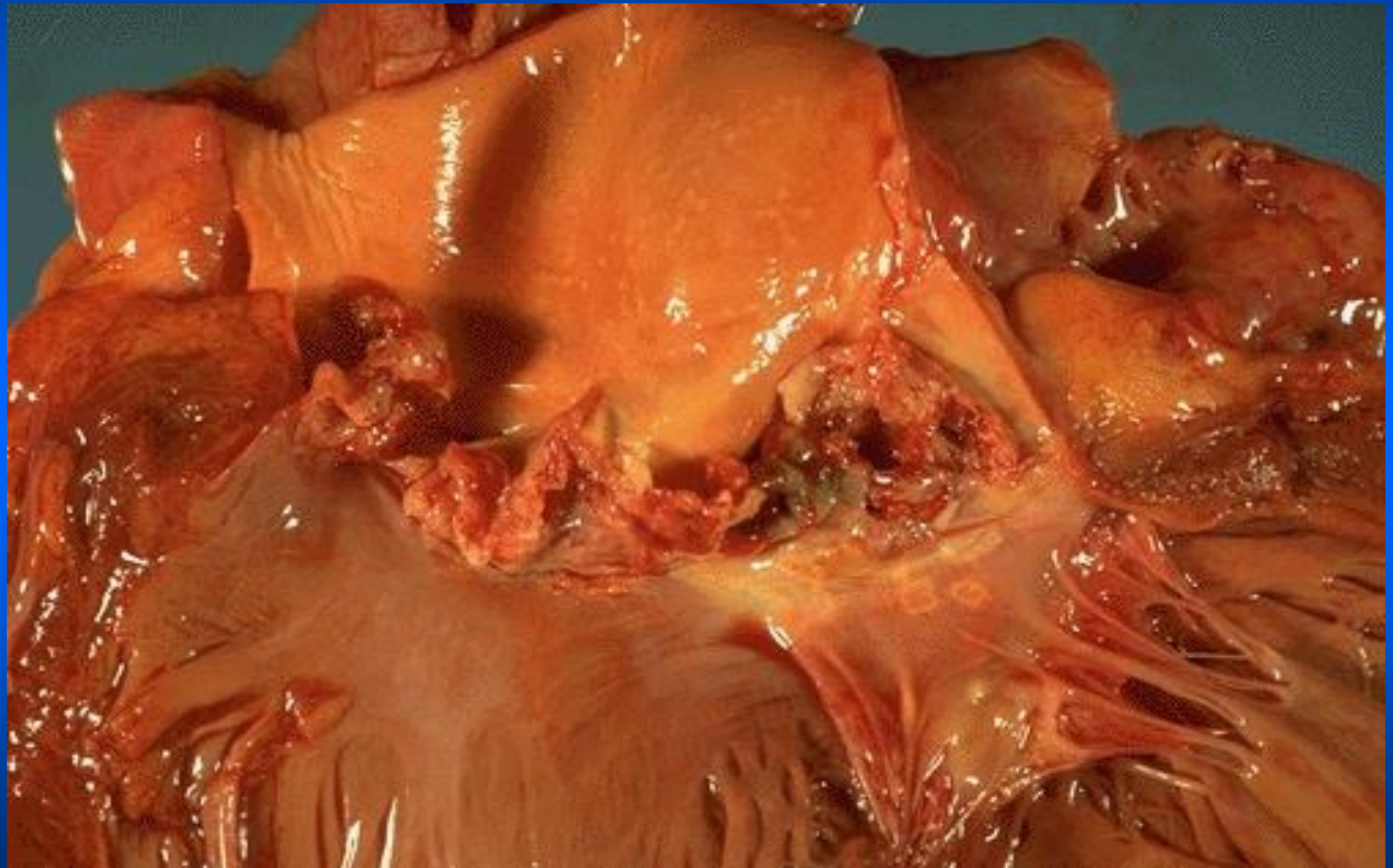
Prophylaxis of infective endocarditis

- **ATB prophylaxis:** Respiratory tract + oral cavity
 - Mechanical prosthetic valve
 - Prior infective endocarditis
 - Congenital heart disease (cyanotic shunts, defects, art. materials)
- **AMOXICILIN** 2g p.o. 30min before procedure (Clindamycin, Vancomycin)

IE of Mi valve



IE of Aortic valve



Septic hematomas in IE





**IE with emboli and
gangraena**

