

## Valvular Heart Disease

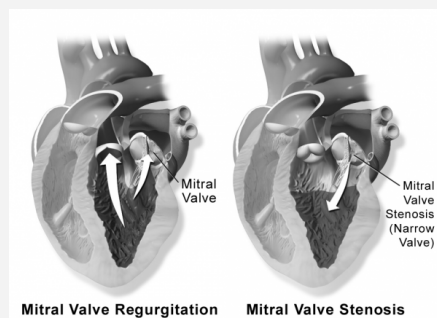
Mitral Stenosis	Aortic Stenosis
Mitral Regurgitation	Aortic Regurgitation
Mitral Prolapse	

\* Hear murmurs!

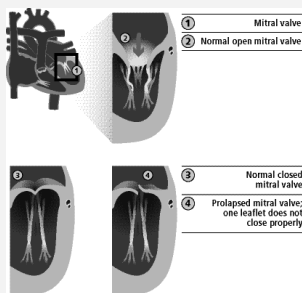
**Stenosis:** valve doesn't open all the way, not enough blood passes through

**Regurgitation:** valve doesn't close all the way so blood leaks backward

## Mitral Valve Disease

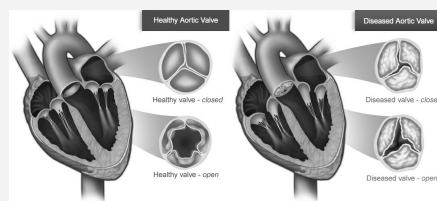


## Mitral Valve Prolapse

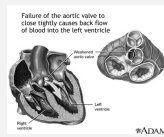


**First Symptom:** pts often SOB

## Aortic Stenosis



## Aortic Regurgitation



## Pharmacological Interventions

Cardiac Glycosides

Beta-Blockers

Calcium Channel Blockers

Anti-Coagulants

Antibiotics

## Surgical Management

**Balloon Valvuloplasty:** repair of cardiac valve; open heart; no long-term anti-coagulation therapy

**Direct or Open Commissurotomy:** cut leaflets apart if fused together

**Mitral Annuloplasty:** fix valve (e.g. regurgitation) so blood moving in the right direction

## Replacement Procedures

## Valve Types



Pt must be aware of the type!

**Ball valve:** more durable than tissue valve

**Mechanical valve:** inc. clot risk → lifelong Coumadin; used w/ younger pts b/c it lasts longer

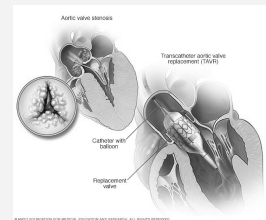
**Tissue valve:** inc. infection risk → prophylactic antibiotics for invasive procedures  
Porcine = pig / Bovine = cow  
Homographs = cadaver/organ donor

## Analysis

Activity Intolerance (original intent is r/t cardiac issues (CV))

Dec. CO

## Transaortic Valve Replacement (TAVR)



## Layers of the Heart Wall



## Inflammatory Diseases

Myocarditis      Rheumatic Carditis

Endocarditis      Pericarditis

Cardiomyopathy

## Myocarditis

**Myocarditis:** inflammation of the heart muscle

Usually also have pericarditis

**Symptoms:** fever, tachycardic (out of proportion for fever), c/o HA, fatigue, flu-like symptoms

HF w/ severe myocarditis

**Treatment:** largely supportive, treat symptoms

## Rheumatic Carditis

Endocarditis, myocarditis, pericarditis, pancarditis

Associated w/ upper resp. Strep. infection  
- 40% of people w/ Strep = rheumatic carditis

Most of damage done to endocardium - damages valves

**Assessment:** tachypnea, cardiomegaly (CXR), murmurs, pericardial friction rub, prolonged PR interval

**Treatment:** + Strep. = rheumatic heart disease → treat infection & control symptoms

## Endocarditis

**Infective Endocarditis:** *microbial infection of endocardium*

Common in IV drug abusers, valve replacement, DM, immunosuppressed, burns

Vegetative lesions form

**Assessment:** *sunconjunctival hemorrhages, varying murmurs, conduction disorders, hematuria, Osler's nodes, petechial rash, cerebral emboli, Roth's spots in fundi, petechial hemorrhages on mucus membranes & fundi, poor dentition, splenomegaly, systemic emboli, digital clubbing, splinter hemorrhages, loss of (distal) pulses*

## Treatment

## Pericarditis

Usually caused by viruses (also bacteria, MI, radiation)

**Acute:** *fever, leukocytosis, ST segment change*

**Chronic:** *signs & symptoms of R-sided HF*

**Assessment:** *leaning on table (taking pressure off sac removes pain)*

**Treatment:** *NSAIDs (dec. inflammation), steroids (if NSAIDs don't work), antibiotics (if caused by bacteria)*

## Cardiomyopathy

Heart muscle disease (usually unknown cause)

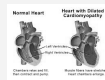
Classified in **3 Categories:**

- *Dilated*
- *Restrictive*
- *Hypertrophic*

**Treatment:**

- *Medical:* diuresis, digoxin
- *Surgical:* ventricular septal myomectomy (remove septum = 1 ventricle), heart transplant (palliative treatment until then)

## Dilated Cardiomyopathy



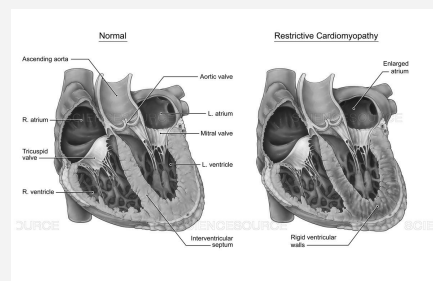
**Symptoms:** *dyspnea, fatigues, signs & symptoms of HF*

Expanded damage to fibers

Expanded ventricles

EF < 49%

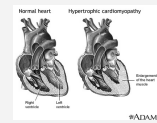
## Restrictive Cardiomyopathy



Less common

Something restricts filling of ventricles, walls become stiff but not necessarily thickened

## Hypertrophic Cardiomyopathy



**Symptoms:** *palpitations, dyspnea on exertion*

Massive hypertrophy of ventricle

## Heart Transplantation

1967 in South Africa by Dr. Christiaan Barnard

Completed heart transplants

Survival rates

Cause of death

Criteria

Procedure

Ventricular assist devices

→ L. VAD?