

Valvular Heart Disease

Introduction

Dae-Won Sohn, M.D., Ph.D., FACC, FASE
Department of Internal Medicine,
Seoul National University College of Medicine

Structure: AV

Opening

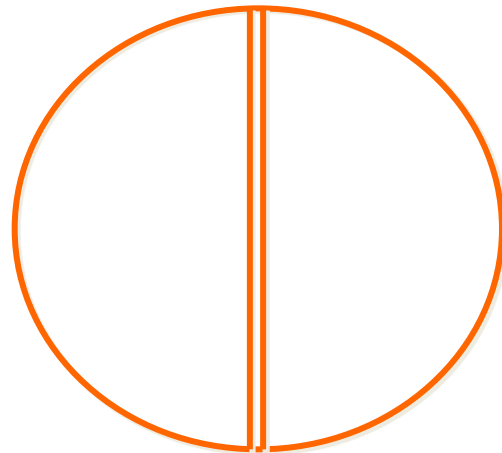
Closure

High pressure

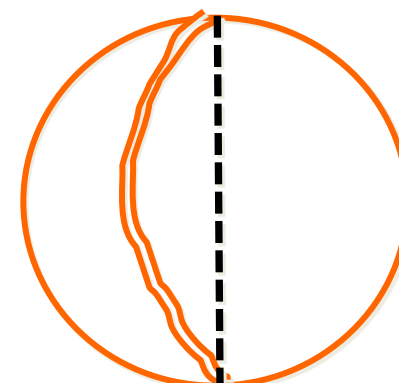
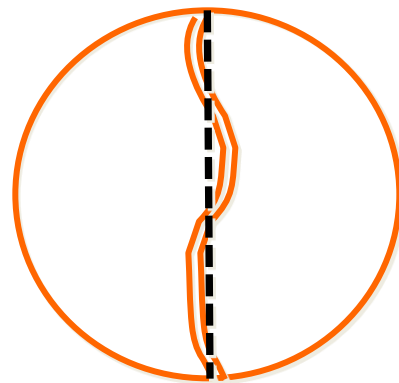
High pressure

≈120mmHg

≈80mmHg

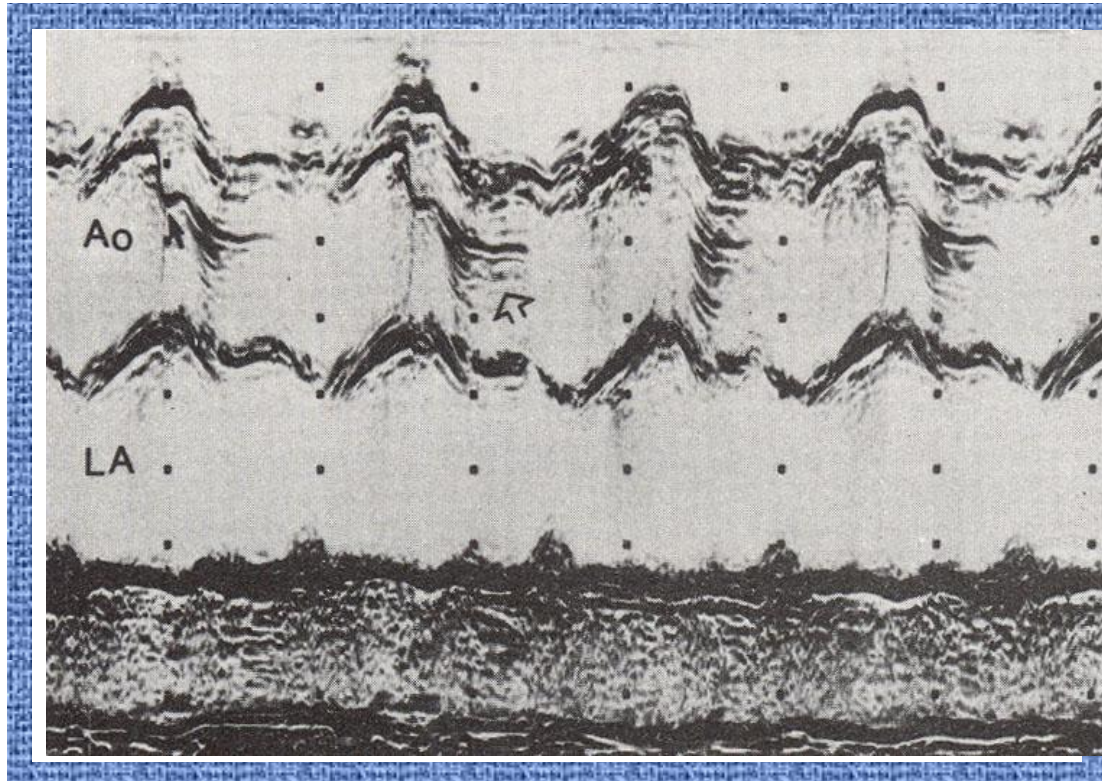


Structure: AV



Structure: AV

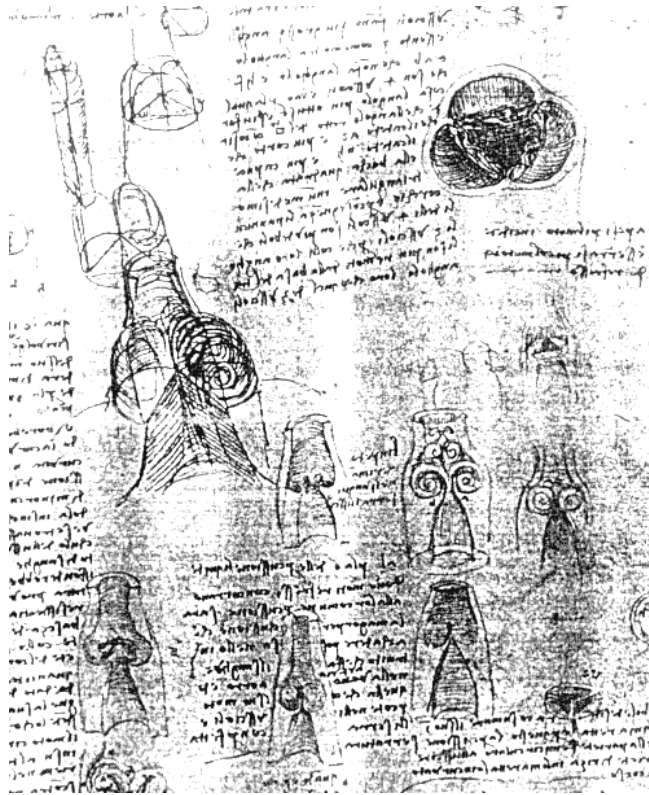
**Diagnosis of bicuspid AV by M-Mode:
Cuspal inequality**



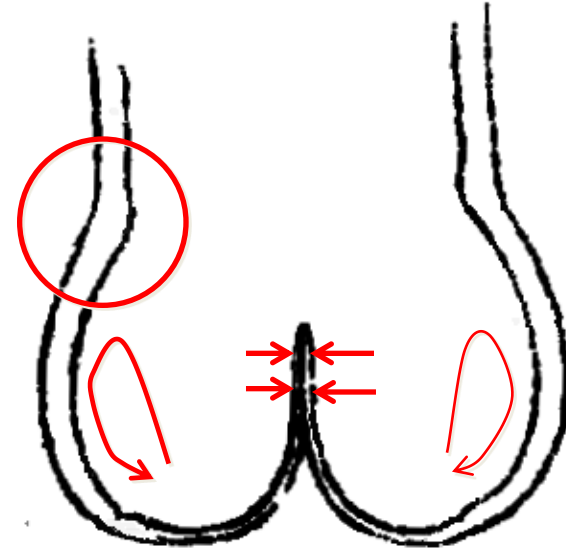
Etiology: AS

- Aortic valve:
1. Rheumatic
 2. Degenerative–calcific
 3. Congenital

Structure: AV



Leonardo da Vinci



- Facilitate valve opening
- Reduce leaflet stress and facilitate valve closure
- Coronary flow during systole

Etiology: AR

Aortic root disease

Marfan's syndrome

Cystic medial necrosis

Syphilitic aortitis

Ankylosing spondylitis

Behcets syndrome

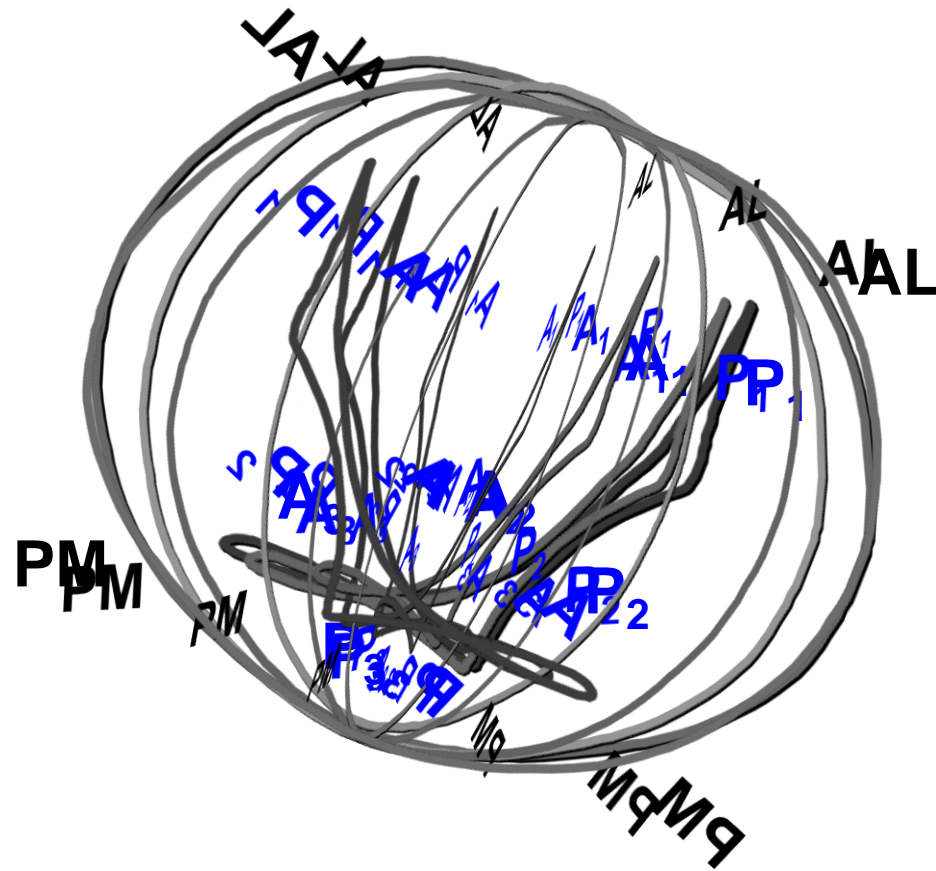
Reiter's syndrome

Systemic Hypertension

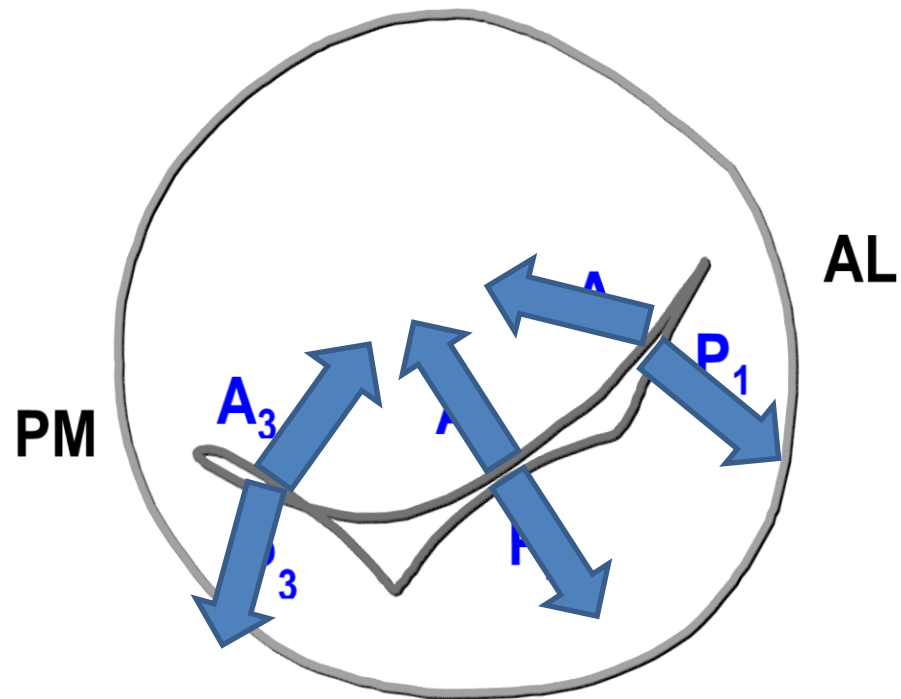
Aortoannular ectasia,
Aortic dissection,
Diverse aortic root disease



Structure: MV

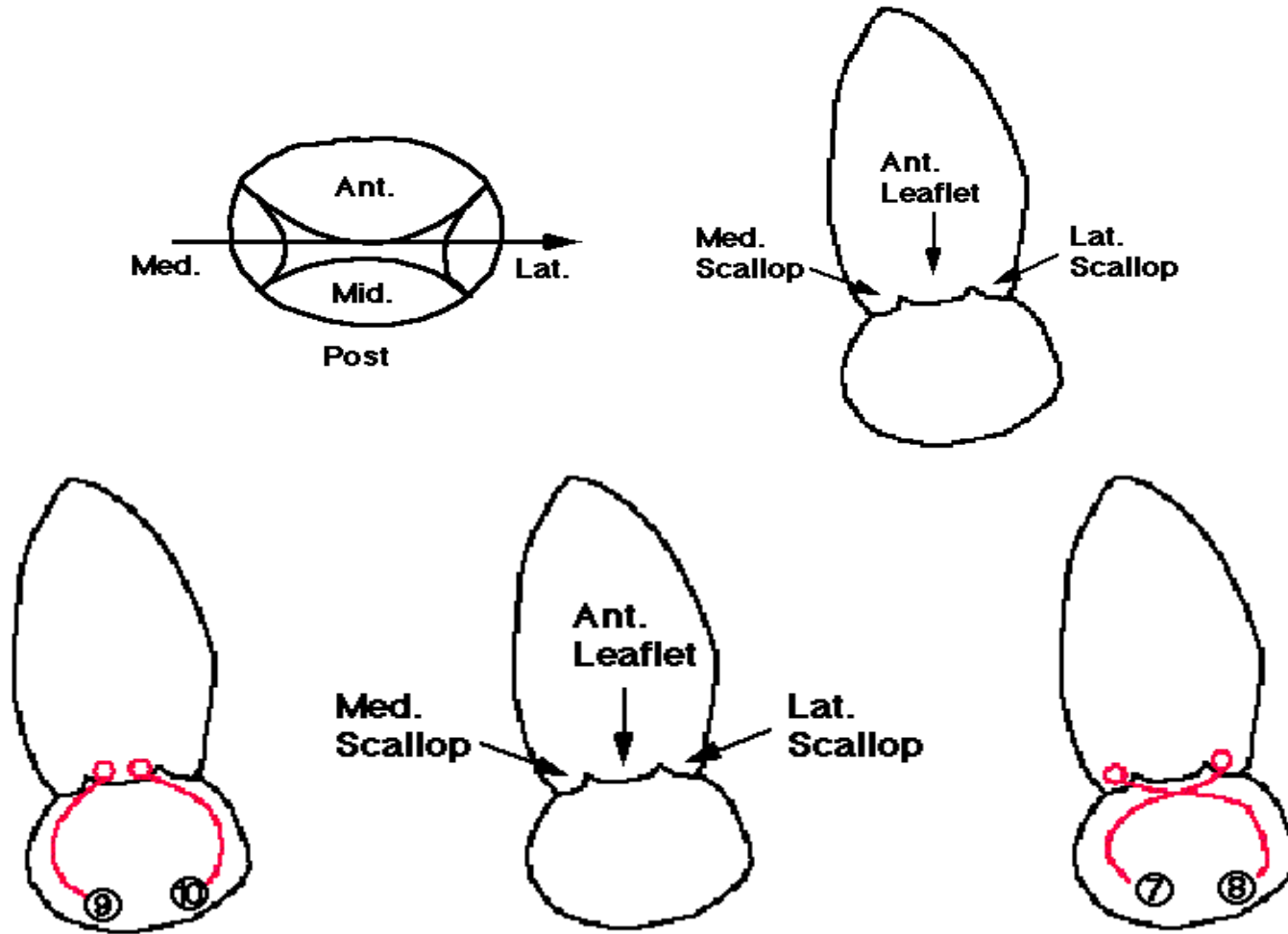


Structure: MV



Structure: MV

MVP Localization



Etiology: MS

- Rheumatic > >
- Mitral annular calcification, Congenital (dysplastic, parachute)

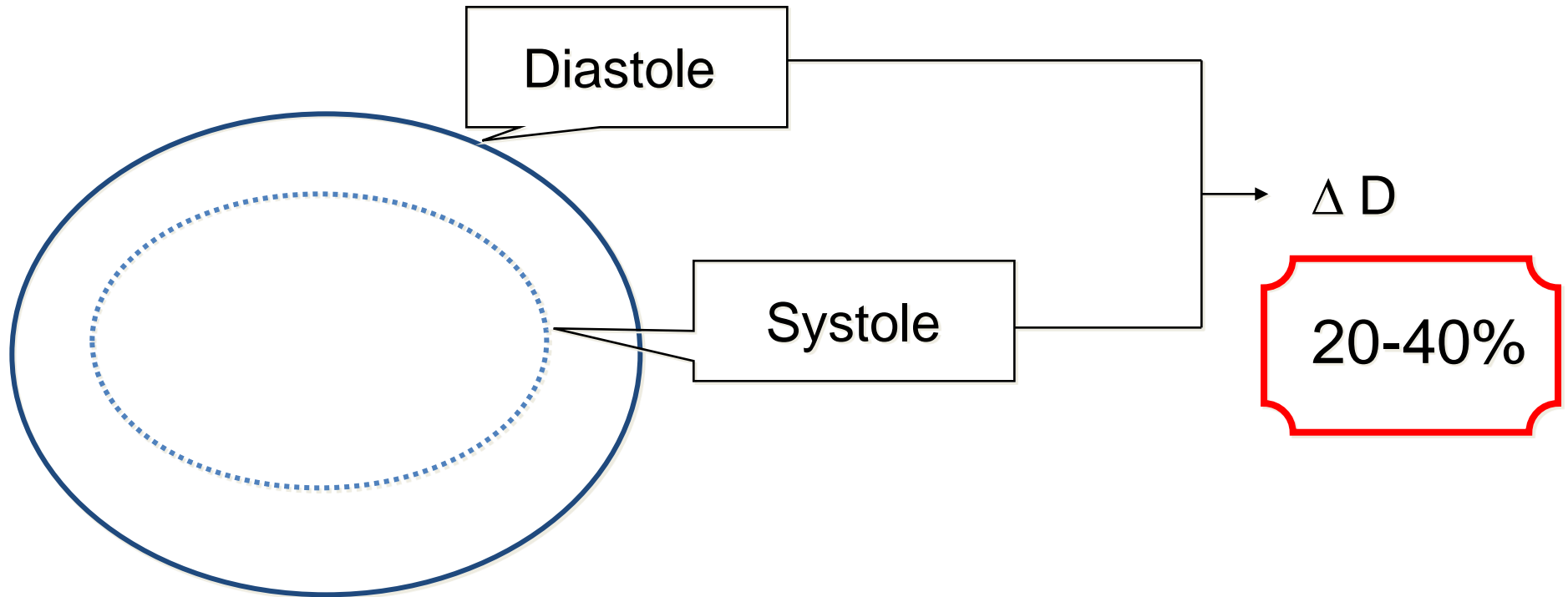
Structure: MV

Opening	Closure
Low pressure ≈15mmHg	High pressure ≈120mmHg
	↓ Chordae, Papillary muscle, Bicuspid

“창문” vs “커튼”

Structure: MV

Annulus



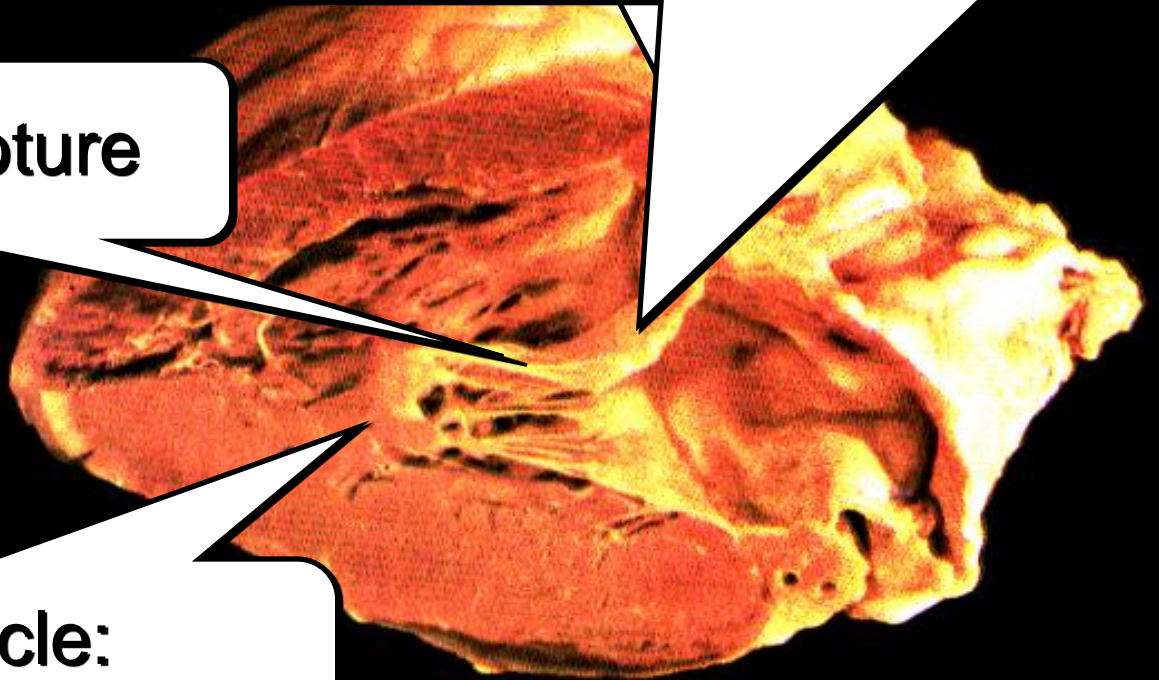
Etiology: MR

Annulus: annular calcification

Leaflet: Rheumatic, MVP, Infective endocarditis, "SAM" ...

Chordae: rupture

Papillary muscle: ischemia, LV dilatation



Assessment of severity

Quantitative assessment

Stenosis

Regurgitation

⇒ *Affected by the hemodynamic status*
~~Actual burden~~

- Pr gradient

- Regurgitant vol

- Orifice area

- Regurgitant orifice area (ERO)

⇒ *Less affected by the hemodynamic status*
~~Actual burden~~

Assessment of severity

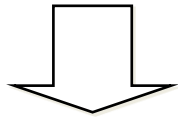
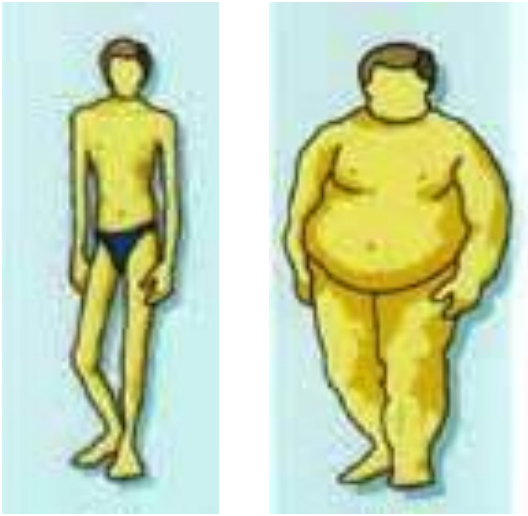
Conventional, Reproducibility

Stenosis

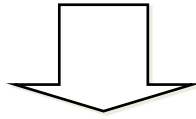
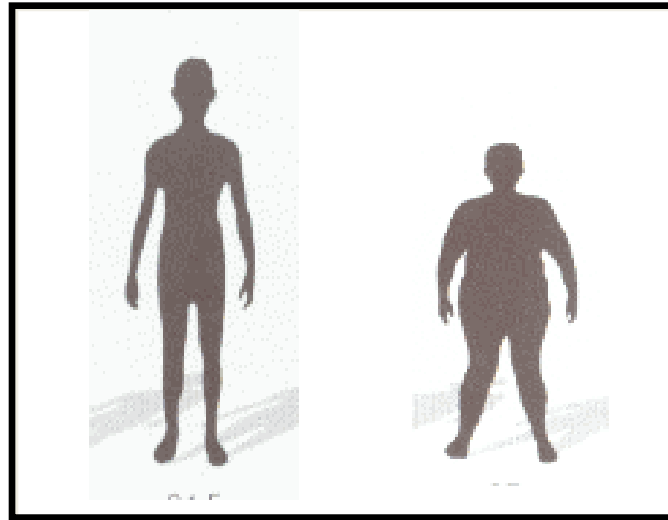
- **Pr gradient**
- **Orifice area**

Regurgitation

- **Regurgitant vol**
- **Regurgitant orifice area (ERO)**
“Semi-quantitative”

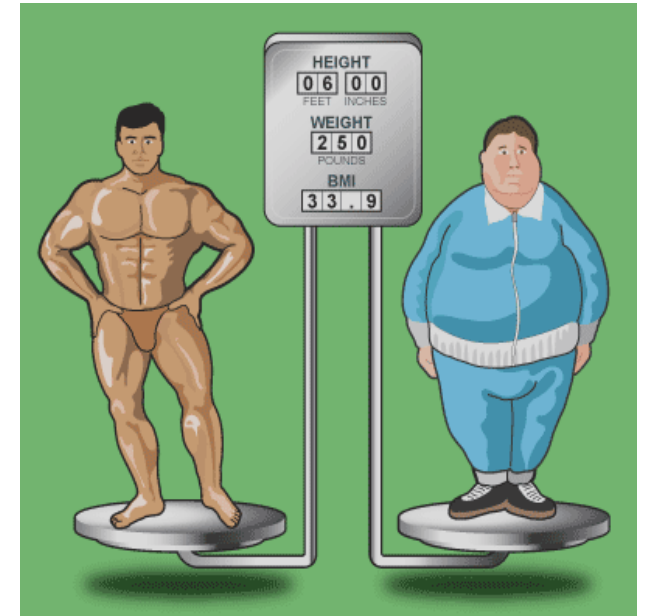


Pr gradient



“ Height ”

Orifice area



Cavity size & others

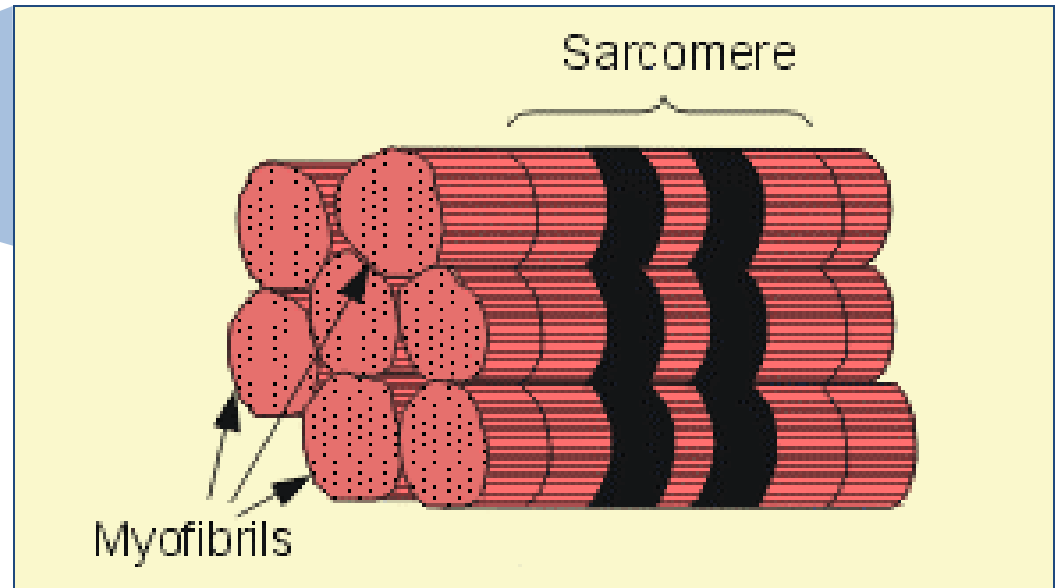
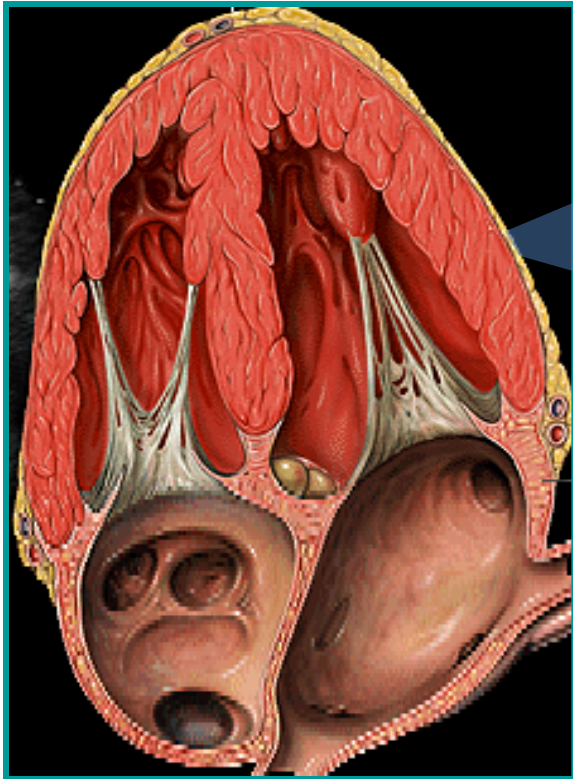
Assessment of severity

Host response

• MS	LAE
• MR	LVE → LV dysfunction
• AS	LVH
• AR	LVE → LV dysfunction

Assessment LV function

LVEF



LV performance \neq Myocardial contractility

Assessment LV function

LVEF



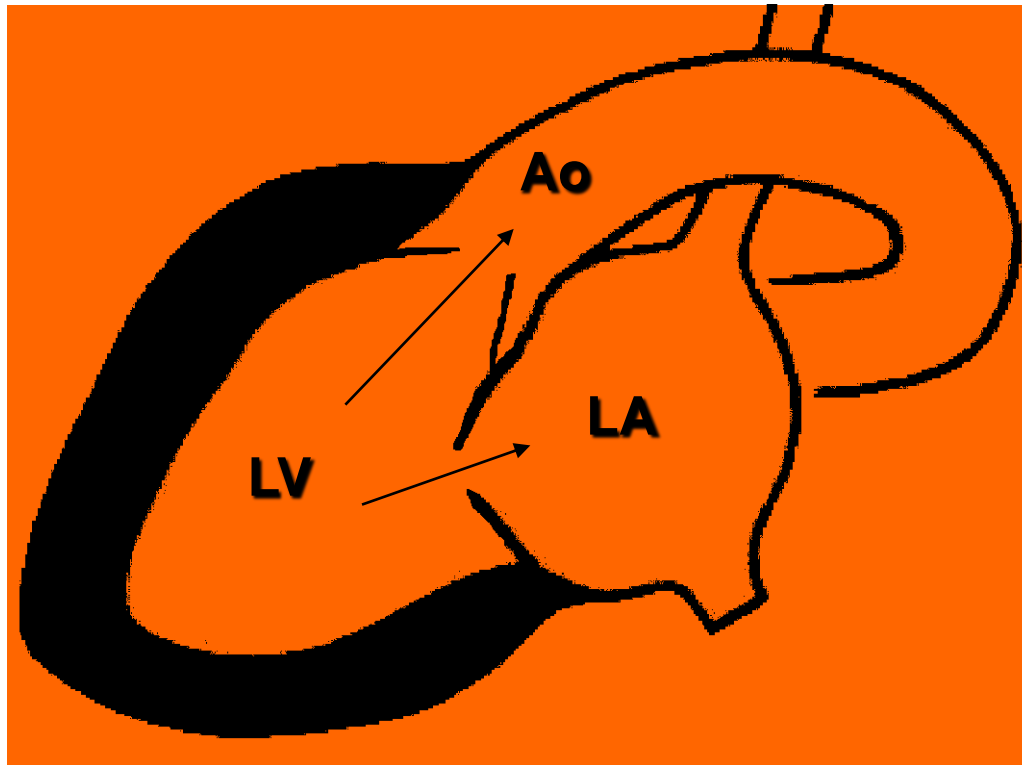
Assessment LV function

LVEF



Assessment LV function

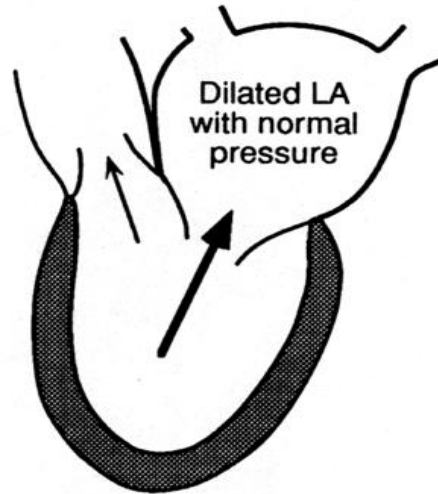
MR : afterload reduced state



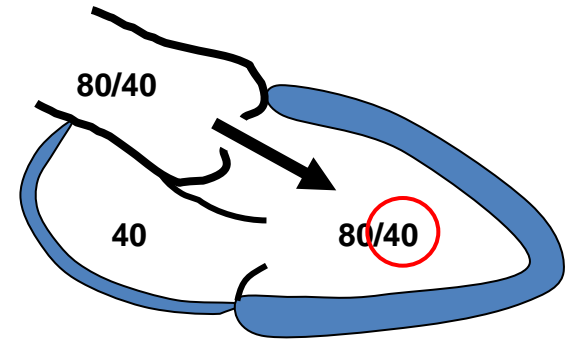
Acute vs Chronic



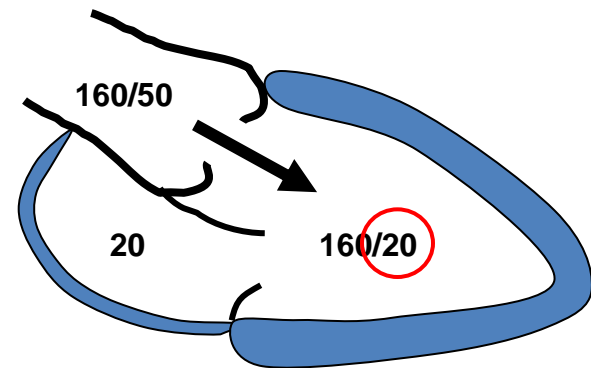
ACUTE
MITRAL
REGURGITATION



CHRONIC
MITRAL
REGURGITATION



Acute AR



Chronic AR

**Consider: Em Surgery → Afterload reduction
by nitroprusside, balloon pump**

THANK YOU FOR YOUR ATTENTION

