



Valvular Heart Disease

Sept 2014

Commonest cause of chronic valve disease = Rheumatic heart disease

Commonest cause of acute valve dysfunction = Endocarditis

Commonest congenital cause of AR = Bicuspid aortic valve

Diastolic Murmurs

AR

Pulse: Collapsing (Water-hammer), Bisferiens (double impulse carotid)

BP: Wide pulse pressure (SBP 80mmHg or more > DBP)

Apex: Sustained/displaced apex, hyperkinetic, diastolic thrill at LLSE

Murmur:

Long decrescendo diastolic murmur > @ LLSE

+/- Austin Flint murmur (low pitched rumbling mid diastolic/presystolic murmur heard at apex)

Incr by exp, decr by insp

HS: S3, Soft S2 (Soft A2)

Other signs: LVF, pistol shot femoral pulses

ECG: LVH, strain

CXR: LVH, valve calcification

Causes:

Chronic:

Valvular (Rh, congenital - bicuspid, Ank Spond); Aortic root dilation (Marfans, RA, syphilis, dissection)

Acute:

Endocarditis, Marfans, Dissection

MS

Pulse: Reduced volume in CCF

BP: Small pulse pressure

JVP: prominent a wave if pulm HTN; loss of a wave if AF

Apex: Tapping Apex (palpable S1), RC Heave & Palpable P2 (if pulm HT), Diastolic thrill (lying on left)

Murmur:

Diastolic, low pitched rumble

Incr by left lateral, expiration, exercise

HS: Loud snapping S1

Other signs: Signs of Pulm HTN, emboli (systemic, brain), restrictive lung disease, AF, Mitral facies

ECG: LA enlargement, Pulm HTN - RA & RV enlargement- RAD; incomplete RBBB, tall R V1, Large S I

CXR: LA enlargement

Causes: Rheumatic heart disease

Systolic Murmurs

AS

Pulse: Plateau, delayed upstroke, late peaking, small volume

BP: Narrow pulse pressure

Apex: Pressure loaded (sustained apical impulse/thrill)

Murmur:

Harsh ESM @ aortic area to right carotid

Incr by sitting up, expiration

Decr by inspiration

HS: absent A2, paradoxical splitting S2; S4 gallop = not significant

Other signs: LVF = late sign, syncope

ECG: LVH, R or L BBB in 10%



CXR: normal early, later LVH, CCF

Prognosis: sudden death in 25%, 3 year mortality 75% without surgery

Severe: Valve area < 1cm²; Gradient > 50mmHg

APO - caution with nitrates (decr preload). Avoid nitroprusside and negative inotropes

AF - may cause sudden deterioration

Causes: Degenerative calcific (older). Calcific (younger) +/- congenital bicuspid valve, Rheumatic

MR

Pulse: Small pulse volume, sharp upstroke. AF common

Apex: displaced, apical thrill, parasternal impulse (LA enlargement)

Murmur:

Pansystolic, max at apex, radiates to axilla

Incr by exp, decr by insp

HS: Soft S1, Loud S3; Early A2 (rapid LV decompression into LA causes early closure of AV)

Other signs: LVF, Signs of Pulm HT

ECG: LA enlargement, LVH; AF common

CXR: LA enlargement, LVH

Causes:

Rheum heart disease = commonest

Myxomatous degeneration, MVP, Rheumatic, Cardiomyopathy, CTD (Marfan's, RA, AnkSpond), Congenital

Acute MR

Causes: AMI (dysfunction/pap muscle rupture), endocarditis, trauma, surgery, spont rupture of myxomatous cord (exercise)

Clinical: APO, Hypotensive, New Systolic murmur, 1st week post AMI (often Inferior)

Treatment = COMPLEX

Inotropes to support BP 1st

Then Afterload reduction to unload the heart & empty the lungs eg nitroprusside

But this further drops BP

IABP; Surgery

Mitral Valve Prolapse

Young, thin female, 1-3% incidence

Murmur: Late high-pitched systolic, Can sound like MR

HS: Early-mid systolic click

Causes:

Myxomatous degeneration

Assoc with: ASD, HOCM, Marfan's

HOCM

Pulse: sharp rising, jerky. Similar to AS

Murmur: Systolic

LLSE & apex (obstruction)

& pansystolic @ apex (MR) MV displaced into outflow tract in systole

JVP: Prominent a-wave (atrial contraction against stiff ventricle)

Apex: double or triple apical impulse

Incr by: valsalva, standing

Decr by: squatting

Causes: Autosomal dominant; Idiopathic; Friedrich's ataxia



TR

JVP: Elevated (if RVF), Large v-waves

Apex: RV heave

Murmur:

Soft, blowing pansystolic murmur at lower LSE

Incr by: Inspiration, Sitting up/forward

Other signs: Pulsatile, tender liver; pleural effusions, ascites, peripheral oedema

Causes: RV failure, infective endocarditis (esp IVU), RhHD, Ebstein's anomaly, COAD with pulm HTN
Mainly asymptomatic

PS

Pulse: Normal or decr if CCF/low output

JVP: Giant a-waves (RAH)

Apex: RV Heave, Thrill over pulmonary area, Pre-systolic pulsations of liver

Murmur:

Loud ESM, Max @ Pulm area

Doesn't radiate to carotids

Incr by insp, decr by exp

HS: Ejection click

ECG: RBBB exc in Noonan's LBBB

Causes:

Usually congenital up to 10% live births

Associated congenital defects: Noonan's/tetralogy/congenital rubella

Acquired : carcinoid syndrome, acquired sub/supravalvular stenosis(rheumatoid, bioprosthetic valves)

No murmur heard DDx

1. Mitral stenosis
2. Fixed splitting of HS: ASD
3. Pulm HTN - RV heave, palpable P2, loud P2
4. Pericarditis - often oedematous, check JVP
5. TR - may not be audible, check JVP and liver
6. Dextrocardia