

Valvular Disorders Presenting in the ER

Presentation of Valve Disease in the ER

- Asymptomatic disease
 - Noted on routine cardiac exam
- May mimic MI or CHF
- Severe pump failure and shock

New Murmurs

- Systolic murmur with normal cardiac anatomy is due to increased cardiac output.
 - Seen in anemia, AV fistula, thyrotoxicosis, sepsis, fever, renal failure with volume overload, pregnancy
- Diastolic murmurs or a new murmur associated with symptoms at rest is considered pathologic and warrants an echocardiogram
- Suspected aortic stenosis and syncope who appear well at rest
 - Risk for catastrophic CV event

Why is it important to know what valve is an issue?

- Certain medications can make symptoms worse with valve disease
 - i.e afterload reduction significantly improves cardiac output in pts with regurgitant lesions
 - Vasodilators in patients with aortic stenosis may lead to hypotension, a reduction in coronary perfusion and the development of acute ischemia

Why Does a Cardiac Murmur Occur?

- Increased blood flow across a normal valve
- Turbulent flow across a narrow or irregular orifice
- Regurgitant flow across a diseased valve or cardiac defect

Physical Exam

- Pt's with dyspnea, chest pain or syncope
 - Consider valve disorders
 - Auscultate heart sounds

End point of Valve Disease

- Heart fails and dilates
- Valves become regurgitant
- EKG show LVH as ventricles expand
- LBBB develops as the heart expands and the conduction system stretches this is a poor prognostic sign

Mr ASS and MS AID

- Mirtal
Regurgitation

- Aortic
Stenosis

- SYSTOLIC

- Mitral
Stenosis

- Aortic
Insufficiency

- DIASTOLIC

4 Major Valve Disorders

Aortic Stenosis

- Harsh systolic ejection murmur
- Radiates to neck

Aortic Regurgitation

- Diastolic murmur
- Left lower sternal border

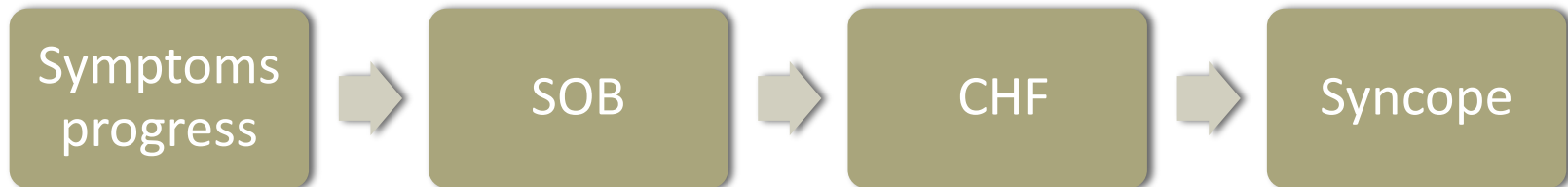
Mitral Stenosis

- Diastolic murmur
- Opening snap, crescendo in s1

Mitral Regurgitation

- Harsh apical systolic murmur

Aortic Stenosis



Aortic Stenosis

- Vasodilators make it worse
- Diagnosed with echocardiogram
- CXR is usually normal unless patient has progressed to heart failure
- EKG may show LVH or RBBB
- Syncope in the setting of exertion or a systolic murmur should raise the possibility of aortic stenosis as the cause
- Surgical repair is the treatment



Aortic Regurgitation

Think AORTIC DISSECTION

- If they present with sudden onset of ripping or tearing intrascapular pain

Think ENDOCARDITIS

- If they present with fever and chills

Presents with dyspnea accompanied by pulmonary edema

- From increased left atrial and pulmonary pressures

Tachycardia and hypotension progress to shock and arrest

PE: rales, tachycardia, tachypnea

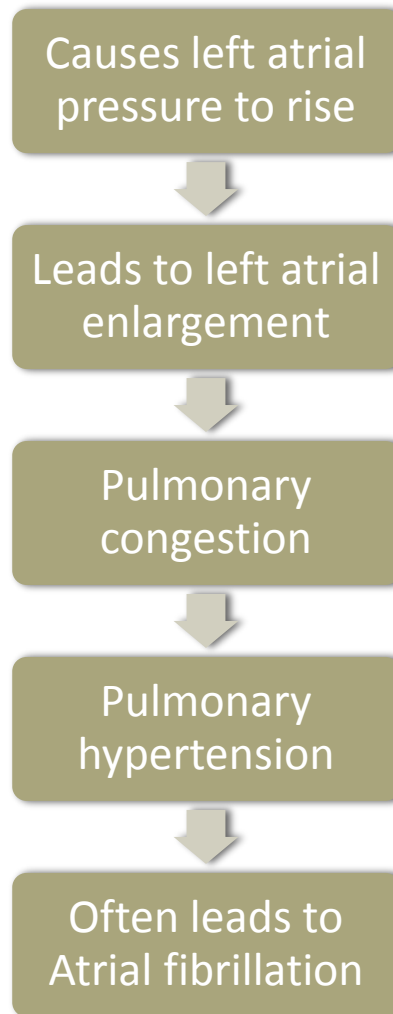
Water hammer pulse, Austin Flint murmur, Duroziez sign, Quincke sign, de Musset sign

Echocardiogram confirms the diagnosis

Treatment

- Reduce afterload- Nitroprusside in combo with dobutamine/dopamine
- Reduce left ventricular end diastolic pressure
- Treat pulmonary edema with oxygen and intubation
- Surgical

Mitral Stenosis



Mitral Stenosis

- Exertional dyspnea is the most frequent presenting complaint
 - May be precipitated by anemia, pregnancy, infection, emotional upset, tachycardia, Afib
- EKG shows biphasic p waves, rt axis deviation
- CXR
 - Loss of the pulmonary window (straightening of the left heart border)
- Transesophageal Echo
 - More complete analysis of the mitral valve dysfunction
- Treatment
 - Diuretics for pulmonary congestion
 - Treatment of Afib
 - Anticoagulants for patients at risk for arterial embolic event
 - Surgical repair, valve replacement

Mitral Regurgitation

- Atrium stretches and produces Afib
- First symptoms may be exertional dyspnea leading
 - Prompted by Afib
- Mitral valve prolapse can worsen and lead to Mitral Regurg
- Most common causes of chronic MR
 - Myocardial ischemia or infarction
 - Rheumatic heart disease
 - MVP
 - Left ventricular dilatation
 - Collagen vascular disease
- Presents with dyspnea, tachycardia and pulmonary edema
 - Progresses to cardiogenic shock and arrest

Mitral Regurgitation

- Echocardiogram
 - Essential to make diagnosis
 - Emergent bedside in the ER for acutely ill pts
- EKG
 - May show ST segment elevation if there has been papillary muscle rupture secondary to MI
 - Most common in inferior leads, but also possible in anterior leads
- Treatment
 - Emergent surgery in severe acute MR

Diff Dx of valve disorders when murmur is present

Chest pain

- EKG to evaluate for MI
- May result in papillary dysfunction/rupture
- CXR to consider Thoracic dissection and murmur of AR

Dyspnea

- Consider valvular problem in all pt with decompensated CHF
- Consider pericarditis or myocarditis in pt with signs of CHF
- Consider PE

Syncope

- EKG and consider sever aortic stenosis

Trauma

- Consider traumatic aortic injury
- Consider valvular injury if unexplained hypotension or CHF

Hypotension or shock

- Consider valvular decompensation in all pt with cardiogenic shock

Fever

- Endocarditis with fever and either a murmur or hx of IV drug use

Abdominal pain/back pain

- Ultrasound to evaluate for hypovolemia, abd hemorrhage and ruptured AAA

Valvular Disease in Pregnancy

- Uncommon complication
- Generally manifest in the first trimester
 - Total blood volume increases and heart rate increase
- Signs and symptoms include dyspnea, fatigue and palpitations
- Systolic flow murmur
 - Usually quite loud
- Cardiac Echo is necessary to diagnosis

References

- Adams 589-596
- Tintanilli 415-422