Mitral Stenosis

1. Give an overview of the disease, it’s diagnosis, and management

Mitral Stenosis

Disease state associated with increased resistance across the mitral valve.

# Incidence, Age, Sex, & Geography

It is a rare condition, and increasingly so. Most patients are female.

As the condition is typically rheumatic in origin, the onset is younger than is typical for the more common valvular lesions: patients are usually in their 20s and 30s.

The condition is more common in countries where Rheumatic fever remains endemic.

# Aetiology, Pathology, & Pathophysiology

Mitral Stenosis is almost always due to Rheumatic fever. In this case Aschoff bodies (a form of granuloma) are the characteristic histological finding.

Other causes are rarer:

1. Congenital calcification (?*probably of the perivalvular structures rather than true valvular stenosis*)
2. Congenital abnormality
3. Carcinoid syndrome
4. Systemic inflammatory disease: RA + SLE

Whatever the cause, the pathophysiological process is similar:

1. As valvular resistance increases, the trans-valvular pressure must increase to maintain flow. As ventricular pressure is largely fixed, this must occur by a rise in left atrial pressure
2. The left atrium dilates in response to this pressure; eventually this dilation is gross. This dilation associates with a severely increased risk of AF, further impairing flow across the mitral valve
3. Pulmonary venous pressure rises. In the acute setting (*i.e. at the onset of AF*) this may result in pulmonary oedema. In the chronic setting, this leads to pulmonary hypertension.

Note: a small subset of patients develop a fibrotic, shrunken LA instead. These patients tend to remain in sinus rhythm but instead develop severe pulmonary hypertension.

# Symptoms & Signs

The key symptom is exhertional dyspnoea. Cardiac failure may be abrupt at the onset of AF. AF is nearly universal as the disease progresses. (Less than 20% remain in sinus rhythm) Patients may present with acute stroke.

* The cardiac symptoms are likely to unmasked any requirement for increased cardiac output; pregnancy is the classic example

The classic examination findings are as follows:

1. AF
2. A mid-diastolic murmur (*loudest when flow highest, at the beginning of atrial systole*)  
   *This may associate with:*
   1. Load S1 + opening snap (*heard after S2*) as the forces than both **open** and **close** the MV are increased
3. Cardiac congestion
4. Pulmonary hypertension

# Tests

1. ECG: *likely AF; if not bifid P-waves may be seen as the left atrial contraction is prolonged and peaks late*
2. Echo: definitive diagnosis

# Management & Prognosis

Mitral stenosis progresses fairly slowly – 80% of patients will be alive 10 years after the onset of symptoms. However, as these patients are typically young this still represents a significant reduction in life.

Limiting symptoms and severe pulmonary hypertension a poor prognostic signs however – patients typically die within a few years of their onset.

Surgical management if felt to improve outcomes but overall life expectancy remains shortened compared to the unaffected population.

Treatment can be medical or surgical:

1. **Medical**Anticoagulation (*for all patients – 20% of emboli occur in patients in sinus rhythm!*), symptomatic control of pulmonary congestion, rate-limitation of AF
2. **Surgical**  
   Balloon valvuloplasty or valve replacement. (*cannot have valvuloplasty if MR present or heavily calcified valve*)

The point at which surgical treatment should be performed is less clear cut that for AS.

# References

1. Davidson’s Principles and Practice of Medicine; 22nd Edition; pp616-617
2. Mitral stenosis. Medscape. (<https://emedicine.medscape.com/article/155724-overview>; accessed 1/6/18)