

Aortic sclerosis

I examined this gentleman's cardiovascular system. He had a regular, normal pulse. His apex beat was not displaced and of normal character. Heart sounds were normal and he has an ejection systolic murmur, intensity 3/6, loudest in the 2nd intercostal space on the right, which does not radiate. There were no features of cardiac failure. These signs are consistent with a diagnosis of aortic sclerosis, with a differential diagnosis of pulmonary stenosis or an atrial septal defect. I would like to take a history to assess for cardiac symptoms of aortic stenosis and request a

Aortic sclerosis

Presentation	Relevance
Regular, normal pulse	Differentiates from stenosis
Undisplaced apex, with normal character	No left ventricular hypertrophy
Ejection systolic murmur loudest on right 2 nd IC-space	Aortic flow murmur
Intensity 3/6	Loud but no thrill
No radiation	Differentiates from stenosis
No signs of heart failure	Important negative
History for cardiac symptoms	Differentiates from stenosis
Chest X-ray	Initial investigation

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Viva questions

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1. What is the difference between aortic stenosis and sclerosis?
2. What are the causes of aortic stenosis?
3. How does aortic stenosis present?
4. What are the signs of severe aortic stenosis?
5. What are the indications for surgery in aortic stenosis?
6. How do you grade intensity of murmurs?

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Aortic stenosis

- Causes

- Calcific degeneration
- Bicuspid (calcific but 10 years earlier)

- Symptoms

- Syncope
- Angina
- Left-ventricular failure
- Sudden death



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Aortic stenosis

- Signs of severity

- Narrow pulse pressure / slow-rising pulse
- Delayed closure of A2 or reversed splitting of 2nd HS
- Heaving apex beat
- Features of congestive cardiac failure
- Symptomatic

NOT the intensity of the murmur

Aortic stenosis

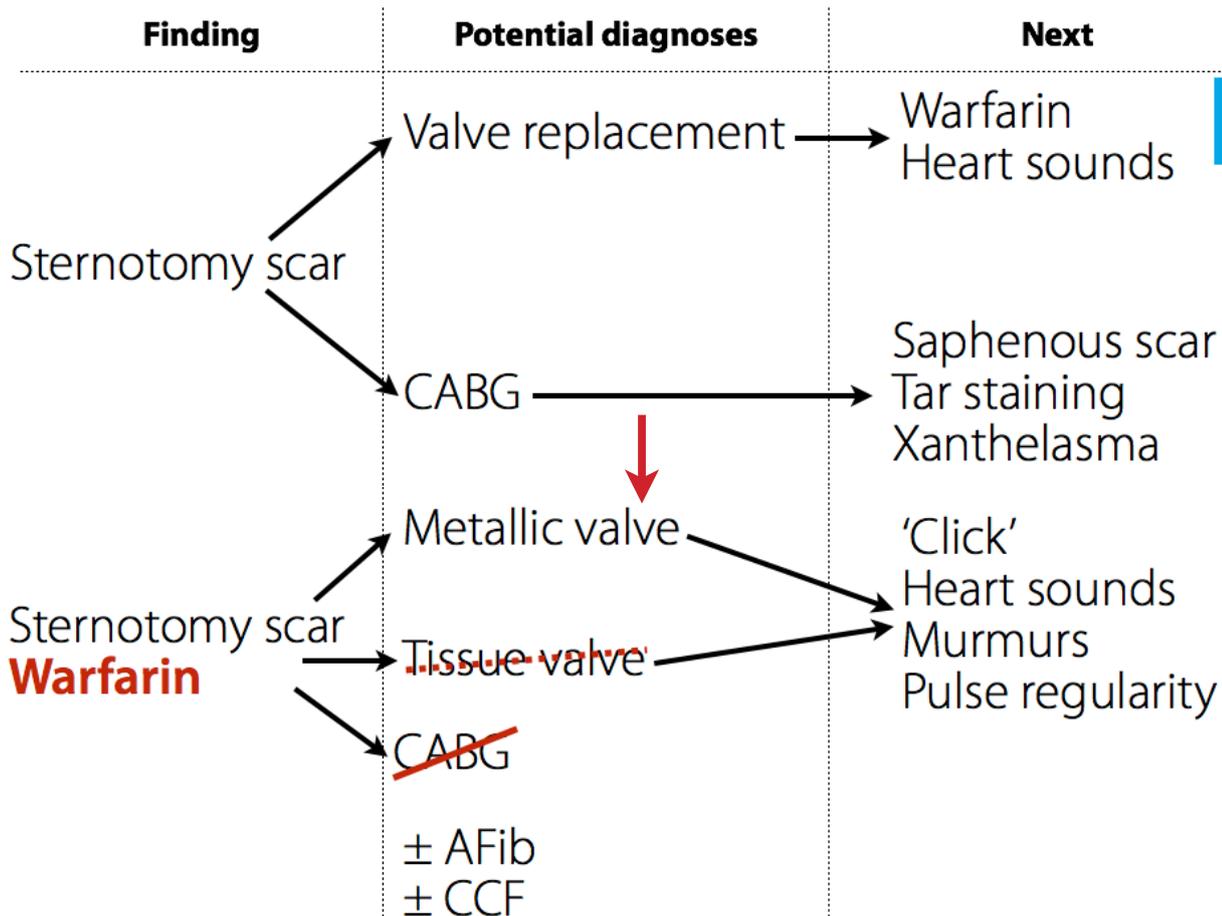
- Indications for surgery

- Symptomatic
- CCF
- Mean transvalvular pressure gradient >40mmHg; valve area <1cm²; or jet velocity >4m/s
- Concomitant CABG

Grading of murmurs

1. Just audible to expert
2. Just audible to non-expert
3. Clearly audible
4. Clearly audible with palpable thrill
5. Audible with stethoscope only lightly applied
6. Audible without stethoscope applied to chest

Case 2: valve replacement



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Metallic valve

I examined this gentleman's cardiovascular system. He had a midline sternotomy scar and there was warfarin at the bedside. He had an irregularly, irregular pulse. There was a metallic click with the first heart sound and the second heart sound was normal. There were no additional sounds and no features of cardiac failure. These signs are consistent with atrial fibrillation and a metallic mitral valve replacement that is functioning well.

Metallic valve

Presentation	Relevance
Midline sternotomy scar	Cardiac surgery
Warfarin at the bedside	Therapeutically anticoagulated
Irregularly, irregular pulse	Atrial fibrillation present
Metallic click 1 st heart sound	Metallic mitral valve
No murmurs	Valve not failing
No signs of heart failure	Important negative
AFib with metallic mitral valve	Diagnosis
Functioning well	Valve not failing

Tissue valve

I examined this gentleman's cardiovascular system. He had a midline sternotomy scar and a normal pulse. Heart sounds were normal, with no additional sounds, and there were no features of cardiac failure. There are no scars on the legs. The differential diagnosis includes: a tissue valve replacement, or previous coronary artery bypass graft using internal thoracic vein, or repair of congenital cardiac disease.

Tissue valve

Presentation	Relevance
Midline sternotomy scar	Cardiac surgery
Normal pulse	Not in AFib
Normal heart sounds or murmurs	Not metallic valve
No scars on legs	No saphenous vein salvage
No signs of heart failure	Important negative

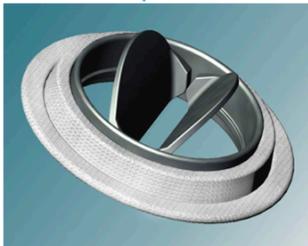
Differential diagnosis: tissue valve, CABG (with internal thoracic vein), congenital cardiac disease repair

Viva questions

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1. What types of valve replacements are there?
2. How long to valve replacement last?
3. How can you tell if a valve replacement has failed?
4. What anticoagulation is needed following a valve replacement?

Valve replacements



+ TAVI

Transcatheter aortic valve implantation



Metallic valve

- Clicks
- Warfarin
- 20 years
- Flow-murmur = OK
 - Aortic → systolic
- Regurgitant = failure
 - Mitral → systolic

Tissue valve

- Regurgitant murmur only (no click)
- 10 years
- Small amount regurgitant = OK

Warfarin targets (examples)

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Valve	Warfarin target (INR)	Duration
Aortic bioprosthetic	Nil (aspirin)	
Mitral bioprosthetic	2.5 (2 - 3)	3 months (then aspirin)
Aortic mechanical	3 (2.5 - 3.5)	Life-long
Mitral mechanical	3.5 (3 - 4)	Life-long

Case 3: post-CABG

