

CARDIAC EXAMINATION



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INTRODUCTION



Hand washing

- Essential to prevent cross infection
- Clean stethoscope

Don appropriate PPE

Introduce yourself

- Use your full name and explain who you are

Confirm you have the correct patient

- Their name and date of birth
- Also how do they like to be addressed

Explain

- Explain that because of their condition that you would like to examine their heart
- Explain in plain English what that will involve

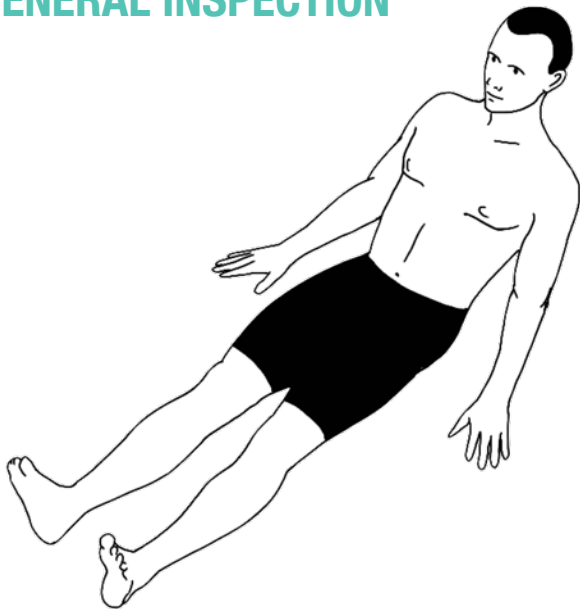
Consent

- Gain their consent to do this

Chaperone

- Consider whether you need a chaperone for this examination

GENERAL INSPECTION



Position

- 45 degrees on couch

Exposure

- can leave top on initially
- undressed completely from the waist upwards prior to inspection of the chest

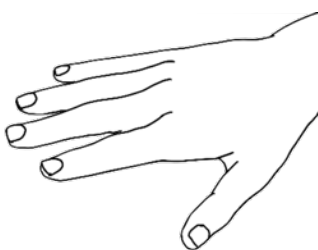
Surrounding area

- drips, oxygen, medication, monitor

Patient

- body habitus
- well/unwell
- signs of pain/distress
- scars
- breathless
- cyanosed
- obvious syndromes (Marfans, Downes, Noonans) , audible click of prosthetic valve

NAILS & HANDS



Splinter haemorrhages

- small streak like bleeds under nail beds - one or two are normal
- infective endocarditis, trauma, sepsis, RA, vasculitis

Clubbing

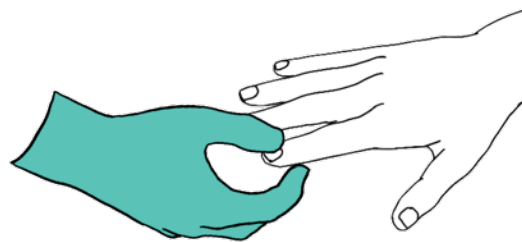
- infective endocarditis, cyanotic heart disease

Koilonychia

- spooning of the nails
- iron deficiency anaemia

Quincke's sign

- rare - pulsating nail beds
- severe aortic regurgitation



Temperature & capillary refill time

- press for 5 sec not 0.5 sec! - return of colour in <2sec
- poor perfusion

Peripheral cyanosis

- peripheral vascular disease
- low cardiac output



Tar staining

- also smell of tobacco

Xanthomata (tendon xanthoma)

- raised yellow lesions on tendons
- hyperlipidaemia

Janeway lesions - rare

- rare! - non tender lesions on palm or finger pulps
- infective endocarditis

Osler's nodes - super rare

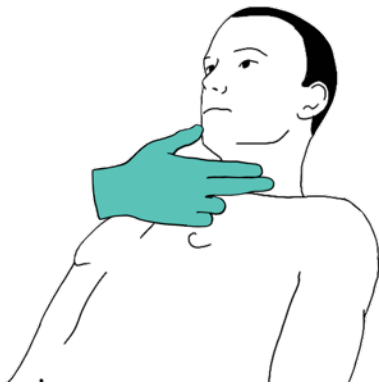
- red tender nodules on fingers, hands and feet)
- infective endocarditis

PULSES



Radial (rate & rhythm)

- regular, regularly irregular, irregularly irregular
- tachycardia, bradycardia, AF, block, respiratory sinus arrhythmia



Carotid pulses (volume & character)

- Weak (reduced cardiac output) - hypotension, cardiac failure
- Bounding (increased cardiac output) - sepsis, aortic regurgitation
- Corrigan's sign (visibly exaggerated) - aortic regurgitation
- Pulsus paradoxus (weaker on inspiration) - cardiac tamponade, constrictive pericarditis

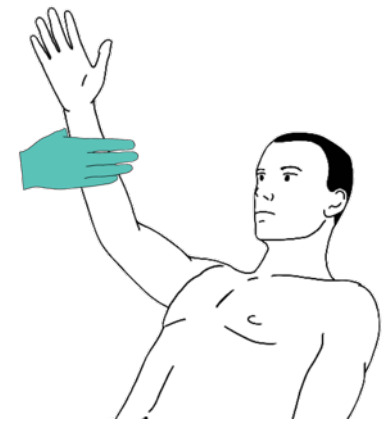


Radio-radial delay

- absence actually far more likely than delay
- aortic dissection & coarctation at the aortic arch

Radio-femoral delay

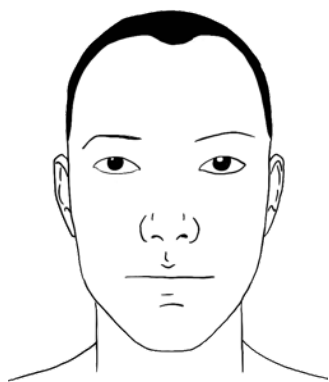
- offer in OSCE
- coarctation of the aorta (narrowing)



Collapsing pulse

- lift patients arm (no need to do it quickly) and use your palm to feel for a tapping through the muscle bulk of the forearm or palpate brachial pulse, lift patients arm and feel for an INCREASE in the strength of the character of the pulse
- Very severe aortic regurgitation

HEAD

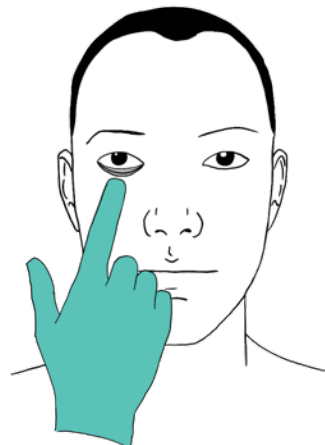


Mallar flush

- rosy cheeks
- mitral stenosis (poor indication as many other causes of flush)

De Musset's sign

- head nodding with pulse (rare)
- very severe aortic regurgitation



Xanthelasma

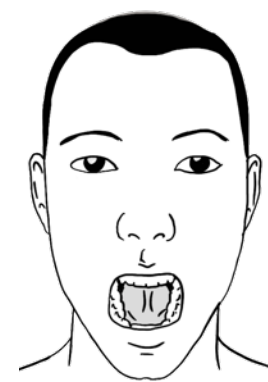
- yellow raised lesions around the eyes
- hypercholesterolaemia

Corneal arcus

- yellow ring overlying the iris - only significant if under 50
- hypercholesterolaemia

Conjunctival pallor

- anaemia



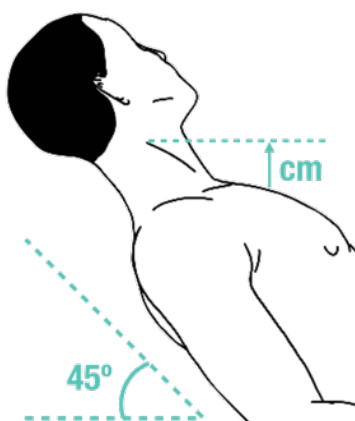
Poor dentition

- infective endocarditis risk

Central cyanosis

- bluish tinge especially noticeable around lips and under tongue
- reduced cardiac output, cyanotic congenital heart disease

JVP



Adequate exposure of neck & lighting

Patient at 45 degrees

Neck relaxed and head turned slightly to the left

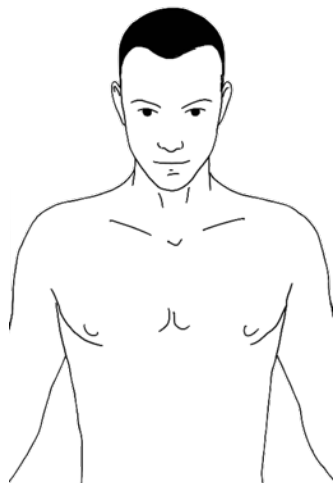
Look for pulsation

Decide whether arterial or venous

Estimate height above sternal angle

- Raised if JVP >4cm visible vertically above the sternal angle
- RHF, overload, massive PE, tension pneumothorax, cardiac tamponade, SVC obstruction

INSPECTION



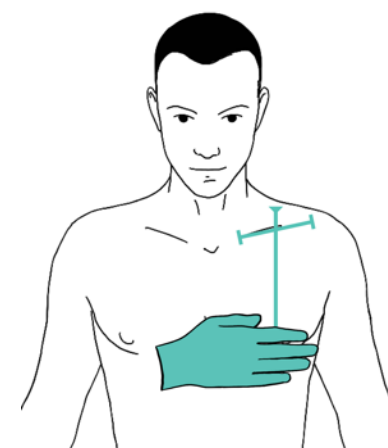
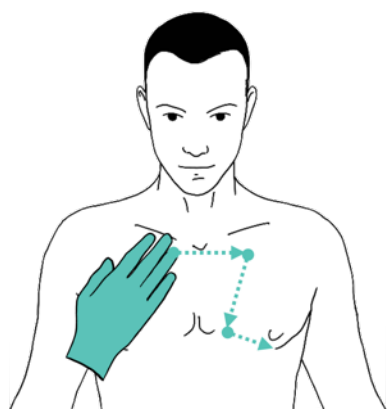
Exposure

- From this point the patient should be undressed from the waist upwards
- ideally this includes removing bra but be pragmatic about this - "normally at this point I would ask you to remove your bra... are you comfortable with doing this?"

Look for

- Visible pulsations & deformities
- Scars: get to know your cardiac surgery scars – check back and legs
- Listen for prosthetic valve click

PALPATION



Thrills

- Palpable murmur - (grade 4)
- Feel over all 4 valve areas of the precordium
- Feels like a cat purring under your hand

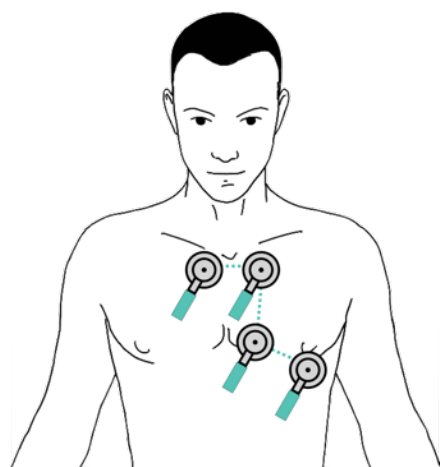
Heave

- ? Right ventricular hypertrophy
- Place the heel of your hand over the left sternal edge
- Feels as if your hand is being lifted off the chest wall with each systole

Apex Beat

- Locate
 - normally 5th intercostal space, mid-clavicular line
- Displaced beat
 - cardiomegaly
 - some pulmonary disorders
- Tapping beat
 - severe mitral stenosis
- Hyper-dynamic
 - volume overload
 - aortic regurgitation
- Sustained
 - hypertension
 - aortic stenosis
- Absent – try tipping patient on to left side before declaring absent
 - obesity
 - shock
 - pericardial effusion
 - behind the rib (i.e. normal),
 - dextrocardia (rare - ?check the right side!)

AUSCULTATION



Whilst palpating a central pulse listen with the diaphragm over the precordium for:
S1 - S2 - added sounds (S3/S4) - murmurs

Listen at the:

Apex beat

- Best for mitral regurgitation

Lower left sternal edge

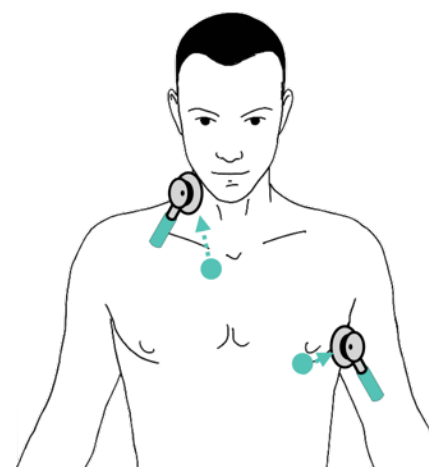
- Best site for aortic regurgitation, tricuspid regurgitation & pan systolic murmur of VSD

2nd intercostal space, left sternal edge

- Best site for pulmonary stenosis

2nd intercostal space, right sternal edge

- Best site for aortic stenosis (often heard over all precordium)



RADIATION

If a murmur is audible listen for radiation at the:

Axilla

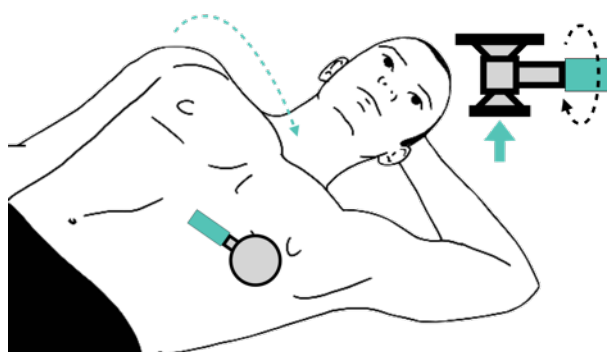
- Suggesting the murmur is MITRAL REGURGITATION

Carotids

- Suggesting the murmur is AORTIC STENOSIS

MANOEUVRES

To make a murmur you couldn't hear into one loud enough you can hear



Mitral stenosis

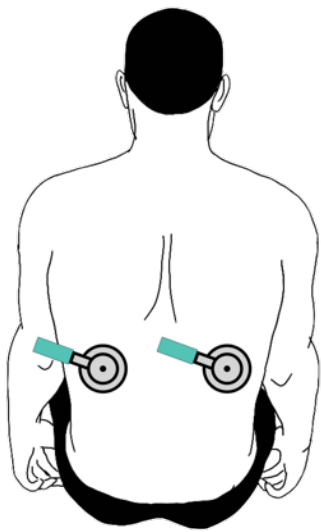
- Rolled on to left side, breath held in EXPIRATION
- listen at APEX with lightly pressed BELL



Aortic regurgitation

- Sat forward, breath held in EXPIRATION
- listen at lower LEFT sternal edge with DIAPHRAGM

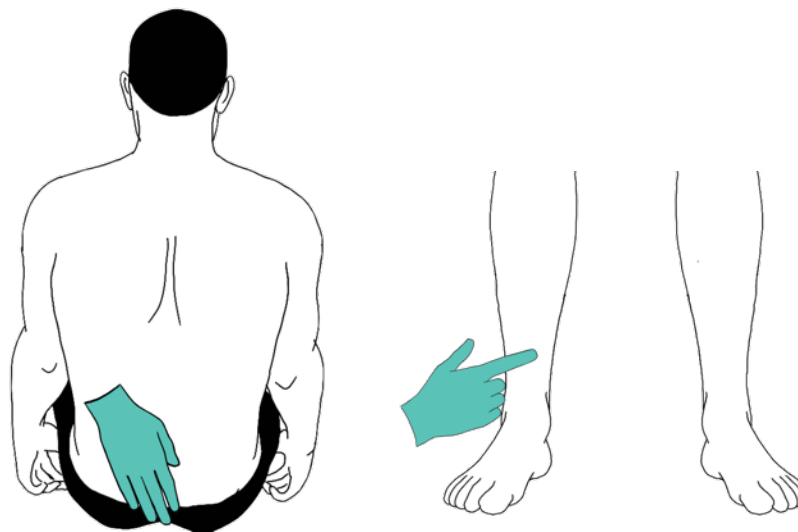
HEART FAILURE



LEFT HEART FAILURE

Lung bases

- With the patient sat forward auscultate the lung bases for crepitations



RIGHT SIDED HEAR FAILURE

Sacral oedema

- Feel at the base of the spine for oedema
- It's called sacral oedema for a reason (not lumbar oedema)

Pedal oedema

- Press in to shin for 5 seconds and look for indentation
- not always visible so run fingers over it too
- numerous other causes

FINISH



FINISH

- Thank the patient
- Tell them you have finished
- Invite the patient to dress (do they need help?)
- Do they have any questions?
- Doff PPE in the appropriate area
- Wash your hands



- What else should you examine?
- What are your differentials?
- What investigations should you order?
- What medications should you start (or stop/adjust)?
- Who should you call?

...AND WHY?

