The Cardiovascular Examination

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Introduction

- **WIPEE**
  - **W** – wash hands
  - **I** – Introduce yourself
  - **P** – patient details (Name, DOB)
  - **E** – explain and gain consent
  - **E** – expose appropriately and position at 45˚

General Inspection

- **Bedside – 3 Ms**
  - **M**edications
  - **M**onitors
  - **M**obility Aids
- **Patient – BBC**
  - **B**ody Habitus
  - **B**reathing
  - **C**omfort levels

Peripheral Examination

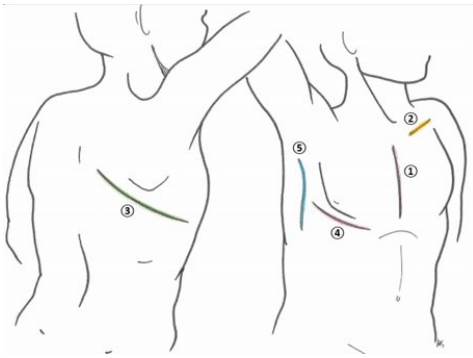
- **Hands**
  - **3 Infective Endocarditis signs –** Splinter haemorrhages, Osler nodes, Janeway lesions
  - **3 Cs –** clubbing (chronic IE, cyanotic congenital heart disease), capillary refill (perfusion), cyanosis (poor oxygenation)
  - **3 others –** temperature(perfusion), diabetic prick marks, tar staining
  - **Slick way to do this –**
    - "May I see your hands?" – take patients hands in yours (*temperature*)
    - Look at hands nail side up (*splinter haem, cyanosis*)
    - Look at sides of fingers (*diabetic prick marks, tar stains*)
    - Look at palmar side of hands (*Janeway lesions, Osler's nodes*)
    - Pinch distal finger (*cap refill*)
    - "Can you put your fingers like this?" – Schamroth's window (*clubbing*)
  - **Other possible hand signs –** koilonychia (Fe defic. anaemia), tendon xanthomata (hyperlipidemia)
- **Pulses**
  - **3 Wrist pulses**
    - **Radial –** Assess rate and rhythm
    - **Radio-Radial (Radio-Femoral) Delay –** Aortic coarctation, aortic arch aneurysm, aortic dissection

        - **Collapsing Pulse –**
            - **CHECK FOR SHOULDER PAIN**
            - palpate radial pulse with right hand
            - rest fingers lightly over pulse
            - with left hand support elbow and raise arm upwards (pro-tip – try to palpate brachial pulse with left hand for double detection of water hammer pulse)
            - **+ve sign –** transient increase in pulse volume (aortic regurgitation)
    - **2 Arm pulses**
        - **ASK FOR BLOOD PRESSURE –** (narrowed pulse pressure – AS, widened pulse pressure – AR)
        - **Brachial pulse –** larger vessel – assess character (slow rising – AS, bounding – CO_2 retention, thread/weak – HF)
    - **1 neck pulse**
        - **Carotid pulse –** larger vessel – also assess character

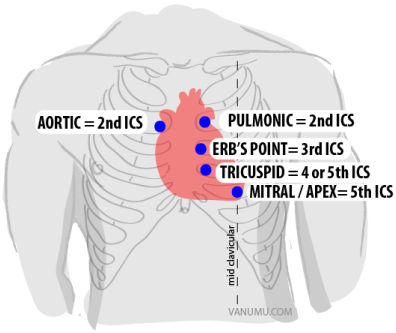
- **Face**
    - **Malar flush** (mitral stenosis)
    - **Pallor** (anaemia)

- **Eyes**
    - **Conjunctival Palor** (anaemia)
    - **Corneal Arcus** (hyperlipidemia)
    - **Xanthelasma** (hyperlipidemia)
- **Mouth**
    - **Central cyanosis** (poor oxygenation)
    - **Angular stomatitis** (anaemia)
    - **High-Arched Palate** (marfans)
    - **Dental hygiene –** only mention if extremely poor and thus risk factor for IE
- **JVP**
    - Patient at 45˚, neck completely relaxed looking out to the side, look for JVP at the between the heads of SCM
    - normal is <4cm above the sternal angle
    - beware the carotid – look for the double pulsation of the JVP
    - you can offer to perform hepatojugular reflux – deeply palpate liver -> JVP should rise (ask about abdo pain first)

Chest Examination



- **Inspection** – look for scars, obvious chest deformity
  - 1. Midline Sternotomy (CABG, Valve surgery)
  - 2. Infra-clavicular (Pacemaker)
  - 3. Posterlateral thoracotomy (Pneumonectomy, lobe resection)
  - 4. Anterolateral thoracotomy (lung surgery as above, mitral valve surgery)
  - 5. Axillary thoracotomy (lung surgery – less painful)
- **Palpation**
  - Apex Beat
    - 5th ICS mid-axillary line
    - when found, count spaces and measure up to clavicle to check for displacement
  - Thrills (palpable murmurs – > grade 4)
    - palpate over the valve areas
    - top tip – palpate with closed fist to differentiate feeling for thrills from feeling apex/heaves
  - Heaves (right ventricular hypertrophy)
    - place hand vertically over the left parasternal area – look for lifting of the heel of your palm



- **Auscultation**
  - 4 heart valve sounds (listen while palpating pulse – time murmurs)
    - AV – 2nd ICS, RPS
    - PV – 2nd ICS, LPS
    - TV – 4th/5th ICS, LPS
    - MV – 5th ICS, mid-clavicular line
  - 2 accentuation manoeuvres – low freq murmurs
    - LEFT heart murmurs accentuated on Expiration
    - **Mitral stenosis** – end-expiration, pt rolled to left, mitral area
    - **Aortic regurg** – end-expiration, pt sitting forward, 4th IC LPS
  - 2 Radiations
    - Mitral regurg – radiates to axilla
    - aortic stenosis – radiates to carotids
- **Back**
  - Inspect for scars

    - Percuss and auscultate the lung bases (pleural effusion, bibasal crackles – HF)
    - Sacral oedema
- **Legs**
    - Check for scars – vein harvesting scars – CABG
    - DVT – hot, swollen leg
    - Pitting oedema
        - check for pain
        - press over bony prominence – indents indicate pitting oedema
        - if present map how far up leg it extends
- **Slick way to do this**
    - Inspect and palpate
    - Ausc valves (A->P->T->M) -> MR radiation -> roll to left -> MS accentuation -> sit up -> AR accentuation -> already sitting up -> Back -> lie back down -> ausc carotid -> legs

Concluding

- Offer to help the patient dress
- Any questions?
- Thank the patient (and wash hands)

To complete my exam

- What would you like to do to complete your exam?
    - examine the peripheral vascular and respiratory system
    - obtain a full set of obs
    - ECG
    - perform fundoscopy – roth spots, hypertensive retinopathy
    - dip urine – hypertensive nephropathy
    - review medication list/drug chart
- What would your next steps be?
    - HEBIM – history, exams, bedside tests, investigations, managements

Presenting findings

- "I examined a X-year old…"
- "on general inspection he/she appeared…"
- "my key positive findings were…"
- "my key negative findings were…"
- "as such my top differential is … but I would also like to rule out … and …"
- For murmurs " I heard a 'systolic/diastolic' murmur loudest in the 'x' region with/without radiation and accentuation" eg. I heard an ejection systolic murmur loudest in the aortic region/ right 2nd ICS radiating to the carotids

Common OSCE scenarios and signs to familiarize yourself with

- Aortic stenosis – ejection systolic murmur radiating to carotids is a common sign in OSCEs
- Scars – midline sternotomy +/- leg scars (IHD, valve disease), infraclavicular (pacemaker)
- Metallic heart valve – clicking sound
- Heart Failure - displaced apex beat, raised JVP, pitting oedema

Example Cases

- **Case 1**
    - - 67 y/o male, Looks SOB, Walking stick, large body habitus, Tar stains, midline sternotomy scar, Pedal oedma up to shin, Bibasal crackles, HS I + II + 0
- **Case 2**
    - 70 y/o M, Well at rest, irregularly irregular pulse, midline sternotomy, Clicking on auscultation loudest over apex, Lungs clear, No pedal oedema, Unelevated JVP
- **Case 3**
    - 90 y/o M, Well at rest, No scars, Pinprick marks on fingers, Hx of syncope, Forceful apex beat, undisplaced, crescendo-decrescendo murmur loudest at upper R sternal edge