

- Ask whether there is any history of rheumatic fever or heart problems as a child.
- General: note any other operations or illnesses, especially history of myocardial infarction, hyperlipidaemia, hypertension, stroke, diabetes.

Family history

Ask about hypertension, coronary heart disease, stroke, diabetes, hyperlipidaemia, congenital heart disease and any early deaths (before the age of 60) in the family.

Personal History

Smoking history:

Smoker: Yes/No

If yes:

Duration:

No. of cigarettes per day:

Stopped smoking: _____years back

Reason for quitting smoking:

Observation

- Build (obesity or wasting);
- Sign of respiratory distress: shortness of breath; difficulty in talking, use of accessory muscles of respiration
- Pallor
- Jaundice
- sweatiness and clamminess
- xanthelasma around the eyes..
- Cyanosis

- ✓ This is seen below the fingernails and toenails but also in the lips, cheeks, ears and nose.
- ✓ It may increase in the cold and on exertion.
- ✓ Cyanosis may be a very late sign in an anaemic patient, due to their low haemoglobin (because cyanosis depends on a finite amount of deoxygenated haemoglobin not the ratio of deoxygenated haemoglobin).
- ✓ In patients with dark skin, cyanosis is best seen on the inner lining of the eyelids or the inner surface of the lips.

- **Face**

- ✓ Malar flush - redness around the cheeks (mitral stenosis).
- ✓ Xanthomata - yellowish deposits of lipid around the eyes, palms, or tendons (hyperlipidaemia).
- ✓ Corneal arcus - a ring around the cornea (normal ageing or hyperlipidaemia).
- ✓ Proptosis - forward projection or displacement of the eyeball (Graves' disease).

Hands

- ✓ Finger clubbing.
- ✓ Splinter haemorrhages (infective endocarditis).
- ✓ Janeway lesions - macules on the back of the hands (infective endocarditis).
- ✓ Sweaty palms, tremor (thyrotoxicosis).
- ✓ Visible capillary pulsations in the nail bed (Quincke's sign - often seen in aortic regurgitation but can occur in normal individuals if the skin is warm, and in hyperthyroidism; can also be seen by pressing a glass slide on an everted lip).

- Lines/tubes

- Drains

- Respiratory support
- Swelling

On Palpation

- Chest Pain:
- Tenderness:
- Warmth:
- Oedema:
- Chest wall Excursion
- Symmetry of chest and trunk
- Mediastinal Shift:
 - also be deviated by a mass - eg, enlarged lymph nodes.
- Tactile Fremitus

On Auscultation

- Heart sounds:

First heart sound S₁

"LUB" is produced by the reverberation of ventricular blood caused by the closure of the AV (mitral and tricuspid) valves at the beginning of systole.

Although it is seldom audibly obvious, mitral valve closure comes before tricuspid valve closure (higher pressure on the left side).

- Occurs shortly after the the QRS and indicates the beginning of ventricular contraction.
- Precedes carotid pulse .
- Best heard at the apex.
- Is a high frequency sound.
- Hard to hear a split (mitral preceding tricuspid closure).

B. Second heart sound S₂

- "DUB" is Produced by reverberations of the pulmonary artery and aorta caused by closure of aortic and pulmonic valves.
- Occurs after S₁.
- Aortic valve closure comes before pulmonic valve closure.
- It occurs just after the T wave of the EKG.
- Normally splits during inspiration as the blood is sucked into the right heart (not only is air sucked into the chest during inspiration but also blood) delays closure of PV, so PV separates from AV and occurs later in time.
- Best heard at the base of the heart.
- Shorter and sharper and of higher frequency than S₁.

C. Third heart sound S₃

Unlike S₁ and S₂, the third heart sound is not related to valve closure but instead to the rapid inflow of blood into the ventricles during the rapid filling phase of diastole.

- Often referred to as a ventricular gallop because of the cadence the addition of a third sound makes.
- Occurs shortly after S₂, during the early passive, rapid diastolic filling.
- Abnormal in patients > 40 year-old and indicates:
 - can be associated with CHF (congestive heart failure)
 - can be caused by constrictive pericarditis.
 - can be caused by anemia.
- It is created by sudden tensing of the ventricular wall as blood rushes in.

. Fourth heart sound S4

Like the third heart sound the fourth sound is the consequence of rapid inflow of blood into the ventricles during the last part of diastole. It is caused by atrial contraction.

- Sometimes referred to as an atrial gallop, presystolic gallop or atrial sound.
- Heard just before S₁.
- Coincides with late active diastolic filling.
- It is created when the atrial contraction rapidly distends the ventricle. When a stiff, non-compliant ventricular wall reaches its physical limits it tenses, and the S₄ is created.
- Only patients with atrial contraction can have an S₄ (atrial fibrillation and junctional rhythms should not have it).
- Low in amplitude and frequency.
- Heard in trained athletes and elderly without cardiac disease.
- Is abnormal and can indicate several pathologies
 - Breath sounds:
 - Mediate Percussion. **On Examination**

Chest pain

- Chest pain is very important as a symptom of heart disease but is sometimes difficult to evaluate.
- Location: usually in the front of the chest (retrosternal) but can also be in the upper abdomen, neck, jaw, left arm or left shoulder.
- Radiation: may spread to the neck, jaw, back and left or right arm.
- Nature: chest pain due to cardiac ischaemia is typically tight and crushing in quality:

- Patients tend to describe the angina pains with the flat of their hand horizontally across the middle of their chest; they tend to describe oesophageal spasms with a clenched fist at the upper xiphisternum edge, moving in a vertical manner.
- Patients may refer to anginal pain as indigestion.
- Other features include duration, aggravating and relieving factors and associated symptoms - eg, nausea and/or vomiting, sweating, dizziness and palpitations.

Breathlessness

- Cardiac causes include severe pulmonary oedema, acute myocardial infarction, cardiac arrhythmia, pericarditis and pericardial effusion.
- Dyspnoea on exertion is the most common type of dyspnoea and may precede other evidence of heart failure.
- Orthopnoea: ask whether the patient has to sleep propped up at night and if so with how many pillows.
- Establish whether there is any paroxysmal nocturnal dyspnoea or breathlessness at rest. These may last from minutes to hours and be accompanied by wheezing, sweating, distress and cough with frothy or bloodstained sputum. This is commonly termed 'cardiac asthma', although uraemia may cause similar symptoms.
- Cheyne-Stokes or periodic breathing: this often occurs during sleep, with a long cycle time; it may be found in chronic pulmonary oedema or poor cardiac output.

Palpitations

- Palpitations do not necessarily indicate any underlying cardiac pathology but may be presentation of a cardiac arrhythmia.
- Description may be bumping, throbbing, or thumping.

- Rhythm: ask the patient to tap out the rate and regularity; a missed beat or an extra large bump suggests extrasystoles.
- Duration: sudden short episodes suggest paroxysmal tachycardia; longer duration with irregularities suggests atrial dysrhythmia.
- Associated symptoms: pain, dyspnoea, feeling faint or syncope.

Other things to explore

- Drugs/medication: prescribed, over-the-counter, or illegal drug abuse.
- Associated cough:
 - Duration, paroxysms or constant, dry or productive?
 - Associations: is it related to chest pains; any fever or shivering fits?
 - Sputum: colour, quantity and any haemoptysis?
- Limb ischaemia, intermittent claudication.
- Gastrointestinal symptoms: chronic heart failure may cause abdominal discomfort due to liver enlargement and abdominal distension.
- May present with failure to thrive in children or weight loss in adults (although fluid retention caused by heart failure will cause an increase in body weight).
- Urinary symptoms: oliguria can be an important symptom of heart failure.
- Cerebral symptoms:
 - Syncope of cardiac origin may closely resemble benign vasovagal attacks and can be caused by aortic stenosis or regurgitation (or even pulmonary stenosis), or excessively fast or slow ventricular rate (heart block, atrial dysrhythmia, paroxysmal tachycardia).
 - Dizziness, headache, and mental changes are not uncommon symptoms of severe hypertension, arterial degeneration and cardiac failure.

Pulse

- Rate:
- Rhythm:
 - Respiratory variations are common in healthy individuals (if there is noticeable quickening in inspiration and slowing in expiration, this is termed sinus arrhythmia).
 - The most common irregularities are atrial arrhythmias and extrasystoles (which may disappear on exertion).
- Character:
 - Thready, strong, bounding, collapsing ('water hammer' and its 2-stroke, dicrotic/hyperdicrotic variant) or slow-rising (plateau) or anacrotic (variant of slow-rising, with an extra wave on the upstroke).
 - A pulse that weakens in inspiration is called 'pulsus paradoxus' (as opposed to the normal increase in volume) and is found in constrictive pericarditis, pericardial effusion, restrictive cardiomyopathy and severe asthma.
 - 'Pulsus alternans' (an alternate variation in size of pulse wave) is an important sign of left ventricular failure but may be normal in the presence of a fast ventricular rate.
 - 'Pulsus bigeminus': groups of two heartbeats close together followed by a longer pause. The second pulse is weaker than the first. Pulsus bigeminus is caused by premature ventricular contractions after every other beat. It can be a sign of heart disease, particularly hypertrophic obstructive cardiomyopathy, or may be an innocent and temporary phenomenon.
- Inequality of pulses:
 - Radials: congenital abnormality, aortic arch aneurysm, a few cases of coarctation of the aorta, supraaortic stenosis (rare), Takayasu's disease and occlusion of the subclavian artery by external pressure.

- Lower limb arteries: atherosclerosis of the larger arteries is the most common cause. Arterial embolism is an important cause in both the upper and lower limbs.
- Dissecting aortic aneurysm may cause progressive occlusion, and even reappearance if re-entry occurs.
- Arteritis and other inflammatory diseases occasionally cause occlusion.
- Peripheral pulses:
 - Femoral pulses (radial femoral delay in coarctation) and foot and ankle pulses.
 - Listen over the renal and femoral artery for murmurs.

Blood pressure

- This should be measured in the brachial artery, using a cuff around the upper arm.
- A large cuff must be used in obese people, because a small cuff will result in the blood pressure being overestimated.
- Systolic pressure is at the level when first heard (Korotkoff I) and the diastolic pressure is when silence begins (Korotkoff V).
- In patients with chest pain, or if ever the radial pulses appear asymmetrical, the pressure should be measured in both arms because a difference between the two may indicate aortic dissection.

Examination of other areas

- Palpate the abdomen for hepatomegaly and splenomegaly (congestive cardiac failure), or spleen alone (infective endocarditis).
- Feel for enlargement of the aorta (aneurysm); feel with the hands flat either side of the aorta - feel for pulsation and tenderness.
- Peripheral oedema:

- Assess ankle swelling by pressing the thumb firmly (not hard) above the medial malleolus and see if it leaves an impression.
- In a bed-bound patient the swelling is likely to be in the sacral area, genitalia and back of the thighs, rather than the ankles.
- Oedema may also cause pleural effusion, pericardial effusion or ascites.
- Fundoscopy:
 - Look for the silver wiring effect in hypertension, swollen disc in malignant hypertension, microaneurysms and fluffy deposits.
 - Also, look for Roth's spots in infective endocarditis.

Investigations

- These may include:
 - Blood tests (for fasting glucose and/or glycosylated haemoglobin, renal function, LFTs, TFTs, lipid profile, cardiac enzymes, ESR or CRP).
 - 12-lead ECG and ambulatory ECG monitoring, exercise ECG testing.
 - Ambulatory blood pressure monitoring
 - CXR.
 - Spirometry
 - Echocardiogram.
 - Cardiac catheterisation.
 - Angiography

Provisional Diagnosis:

Final Diagnosis:

Problem List:

Aims of PT Management:

Short Term Goal

Long Term Goal

Physiotherapy Management:

Follow Up: