CARDIOVASCULAR SYSTEM HISTORY TAKING

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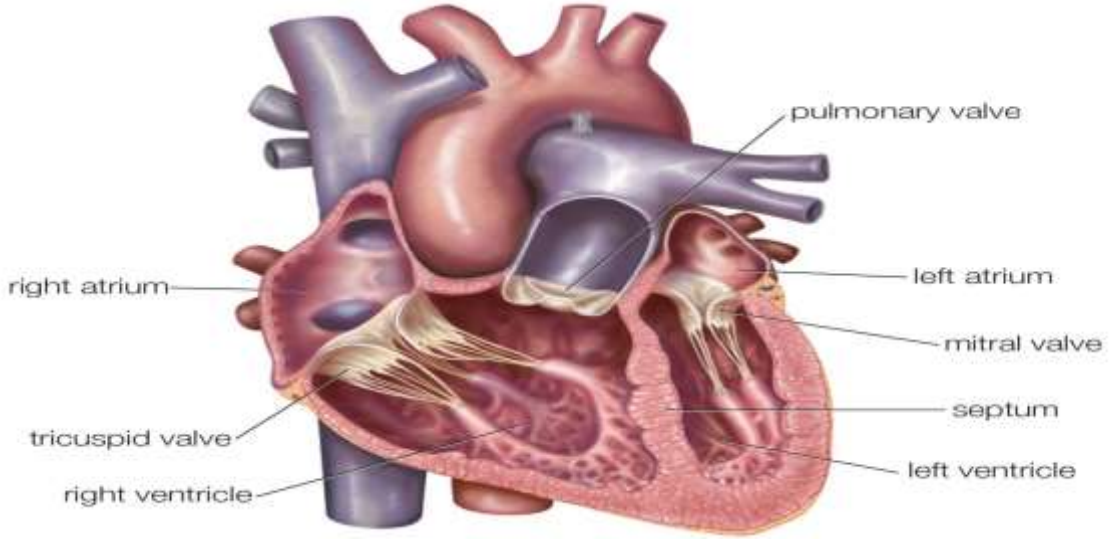
- **ANATOMY**
- The heart weighs between 200 to 425 grams and is a little larger than the size of your fist.
- each day, the average heart beats 100,000 times .
- Heart is located between lungs in the middle of the chest, behind and slightly to the left of breastbone (sternum). A double-layered membrane called the pericardium surrounds the heart like a sac.
- Heart has 4 chambers. The upper chambers are called the left and right atria, and the lower chambers are called the left and right ventricles. A wall of muscle called the septum separates the left and right atria and the left and right ventricles. The left ventricle is the largest and strongest chamber in the heart. The left ventricle chamber wall is only from 0.6 to 1.1 cm thick, but it has enough force to push blood through the aortic valve and into body .



- **Heart valves**
- Atrioventricular valves (tricuspid on the right side, mitral on the left) separate the atria from the ventricles.
- They are attached to papillary muscles in the ventricular myocardium by chordae tendineae which prevent them from prolapsing into the atria when the ventricle contracts.
- The pulmonary valve on the right side of the heart and the aortic valve on the left separate the ventricles from the pulmonary and systemic arterial systems respectively.
- The cells in the sinoatrial node normally act as the cardiac pacemaker
- Subsequent spread of impulses through the heart ensures that atrial contraction is complete before ventricular contraction (systole) begins. At the end of systole the atrioventricular valves open, allowing blood to flow from the atria to refill the ventricles (diastole).

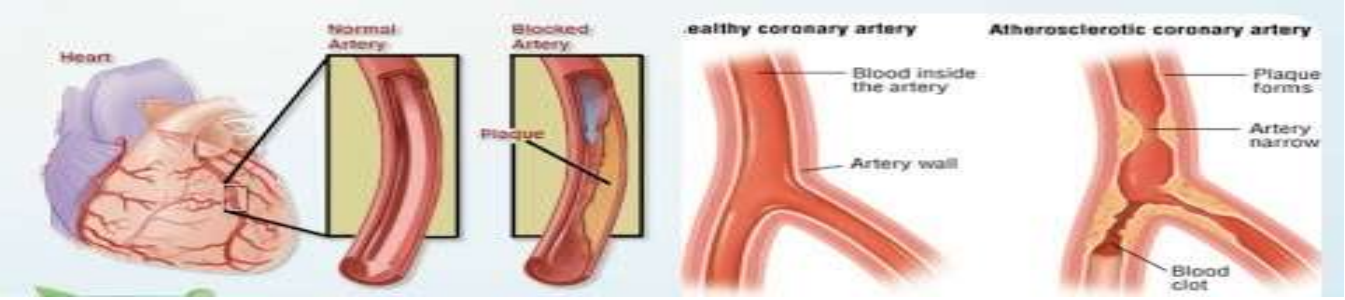
• SYMPTOMS AND DEFINITIONS

Symptom	Cardiovascular causes
Chest discomfort	Myocardial infarction Angina Pericarditis Aortic dissection
Breathlessness	Heart failure Angina Pulmonary embolism Pulmonary hypertension
Palpitation	Tachyarrhythmias Ectopic beats
Syncope/ dizziness	Arrhythmias Postural hypotensi Aortic stenosis Hypertrophic cardiomyopathy Atrial myxoma
Oedema	Heart failure Constrictive pericarditis Venous stasis Lymphoedema

- **Chest pain and discomfort**

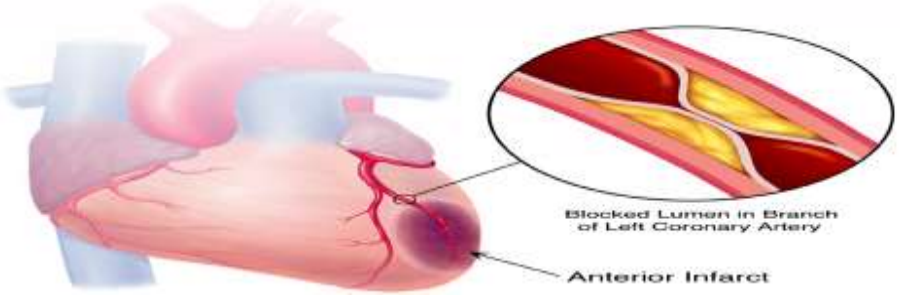
1) Angina:

- The most common cardiac pain. Usually due to myocardial ischaemia from obstructed flow in coronary vessel



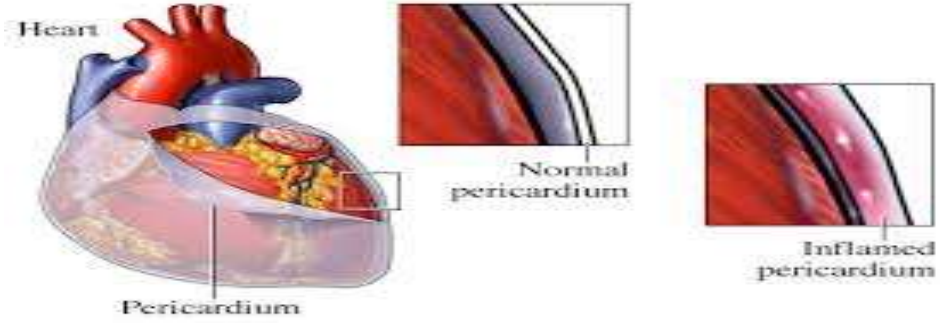
- Characteristically: ache or dull discomfort, felt diffusely in the center of the anterior chest, lasting <10 minutes. Patients describe a tight or pressing 'band-like' sensation, similar to a heavy weight. It may radiate down one or both arms and into the throat, jaw and teeth. Not affected by inspiration, twisting or turning. Precipitated by anything that increases the force of cardiac contraction, heart rate or blood pressure (BP) and increases myocardial oxygen demand; eg: exercise, walking uphill or carrying a heavy load. Angina is relieved by rest and glyceryl trinitrate (GTN).

2) Myocardial infarction:



- Causes symptoms that are similar to, but more severe and prolonged than those of angina. Other features include: restlessness, breathlessness, sweating, pallor, nausea, vomiting and a feeling of impending death.

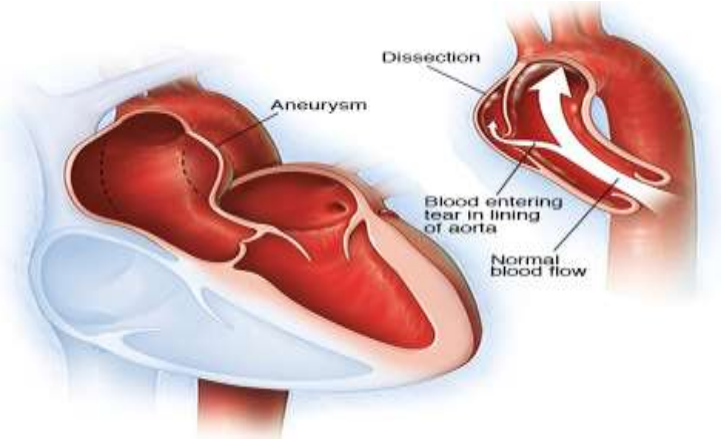
- 3) Pericardial pain (Pericarditis): Sharp anterior central chest pain exacerbated by lying down or breathing deep. Caused by inflammation of the pericardium secondary to myocardial infarction, viral infection, or after heart surgery.



- 4) Aortic dissection: A tear in the intima of the aorta that allows blood to penetrate the media under high pressure, cleaving the aortic wall .

abrupt onset of very severe, tearing chest pain which can radiate to the back (typically interscapular) .

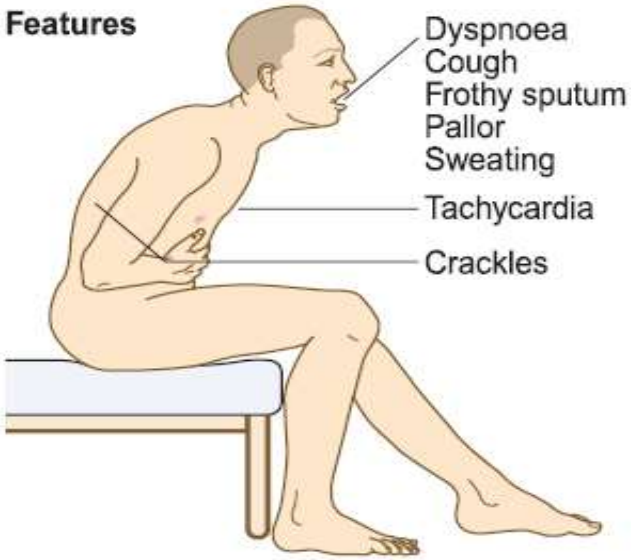
Predisposing factors include smoking and hypertension.



	Angina	Myocardial infarction	Aortic dissection	Pericardial pain
Site	Retrosternal	Retrosternal	Interscapular/ retrosternal	Retrosternal or left-sided
Onset	Over 1–2 minutes	Rapid over a few minutes	Very sudden	Gradual, postural change may suddenly aggravate
Character	Constricting, heavy	Constricting, heavy	Tearing or ripping	Sharp, 'stabbing', pleuritic
Radiation	Sometimes arm(s), neck, epigastrium	Often to arm(s), neck, jaw, sometimes epigastrium	Back, between shoulders	Left shoulder or back
Associated features	Breathlessness	Sweating, nausea, vomiting, breathlessness, feeling of impending death (angor animi)	Sweating, syncope, focal neurological signs, signs of limb ischaemia, mesenteric ischaemia	Flu-like prodrome, breathlessness, fever
Timing	2–10 minutes	Prolonged	Prolonged	Gradual onset, variable duration
Exacerbating/ relieving factors	Triggered by emotion, exertion, especially if cold, windy. Relieved by rest, nitrates	'Stress' and exercise rare triggers, usually spontaneous. Not relieved by rest or nitrates	Spontaneous No manoeuvres relieve pain	Pleuritic Sitting up/lying down may affect intensity Non-steroidal anti-inflammatory drugs (NSAIDs) help
Severity	Mild to moderate	Usually severe	Very severe	Can be severe
Cause	Coronary artery disease, aortic stenosis, hypertrophic cardiomyopathy	Plaque rupture and coronary artery occlusion	Thoracic aortic dissection rupture	Pericarditis (usually viral, also post myocardial infarction)

• Dyspnoea (breathlessness) :

- An awareness of increased drive to breathe.
- May be caused by myocardial ischaemia, left heart failure and arrhythmias.
- Orthopnoea is dyspnoea on lying flat and is a sign of advanced heart failure, The severity can be graded by the number of pillows used at night .
- Paroxysmal nocturnal dyspnoea is sudden breathlessness waking the patient from sleep.



- **Palpitation:**

- An unexpected awareness of the heart beating in the chest.
- May be rapid, forceful or irregular, and described as pounding, fluttering, jumping, racing or skipping.
- The patient may be able to mimic the rhythm by tapping it out.

• Syncope

- Loss of consciousness due to cerebral hypoperfusion.

- The main causes are:

1) Postural hypotension (a fall of >20 mmHg in systolic BP on standing)

2) Neurocardiogenic syncope (caused by abnormal autonomic reflexes)

3) Arrhythmias (The most common cause is bradyarrhythmia)

4) Mechanical obstruction to cardiac output. (including severe aortic stenosis and hypertrophic cardiomyopathy)

• Oedema

- Excess fluid in the interstitial space causes oedema (tissue swelling).
- Usually gravity-dependent and so especially seen around the ankles, or over the sacrum in patients lying in bed.
- Causes are chronic venous disease, lymphedema and heart failure.
- If the jugular venous pressure (JVP) is not elevated, then oedema is **not** cardiogenic.

• THE HISTORY

1) Presenting complaint

- **It's important to use open questioning to elicit the patient's presenting complaint** *"So what's brought you in today?"* or *"Tell me about your symptoms?".*

2) History of presenting complaint

- **Onset** – *When did the symptom start? / Was the onset acute or gradual?*
- **Duration –** *minutes / hours / days / weeks / months / years*
- **Severity –** *on a scale of 1 to 10?*
- **Course** – *is the symptom worsening, improving, or the same?*
- **Intermittent or continuous? –** *is the symptom always present or does it come and go?*
- **Precipitating factors –** *are there any obvious triggers for the symptom?*
- **Relieving factors –** *does anything appear to improve the symptoms*
- **Associated features –***are there other symptoms that appear associated*
- **Previous episodes –** *has the patient experienced this symptom previously?*

3) Key cardiovascular symptoms:

- **Chest pain.**
- **Dyspnoea –** *exertional / orthopnea / paroxysmal nocturnal dyspnoea*
- **Palpitations.**
- **Syncope –** *postural / exertional / random*
- **Oedema –** *peripheral oedema (e.g. lower limbs) / sacral oedema*
- **Systemic symptoms –** *fatigue / fever / weight loss / weight gain*

- **Past medical / surgical history**
- **Drug history**
- **Family history**
- **Social history**

- PATIENT'S PERSPECTIVE (FIFE):
- **F = FEELINGS** related to the illness, especially fears

  Â· What are you most concerned about?
  Â· Do you have any specific fears or worries right now?

- **I = IDEAS** of the cause

  Â· What do you think might be going on?

- **F = FUNCTIONING**, the illness impact on daily life

  Â· How has your illness affected you day to day?

- **E = EXPECTATIONS** of the doctor & the illness

  Â· What do you expect or hope I can do for you today?

History taking is not science, but rather, art!