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القسم او الفرع : الباطنية

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اسم المحاضرة الأولى باللغة الإنكليزية : chest pain

PRESENTING PROBLEMS IN INTERNAL MEDICINE

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If someone ask you , why are the leaves of my plant turning yellow ? What are the possible causes ? What is the most likely diagnosis ?

- To make a clinical diagnosis, we need to follow these steps :
- **History taking:** even with major advances in medical technology, the history remains the most important part of the clinical diagnosis. Studies show that physicians make a diagnosis in 70%–90% of cases from the history alone.
- **Physical examination:** to look for the associated clinical signs
- **Investigations:** to confirm the possible diagnosis and exclude other differential diagnoses

Presenting problems in cardiovascular disease

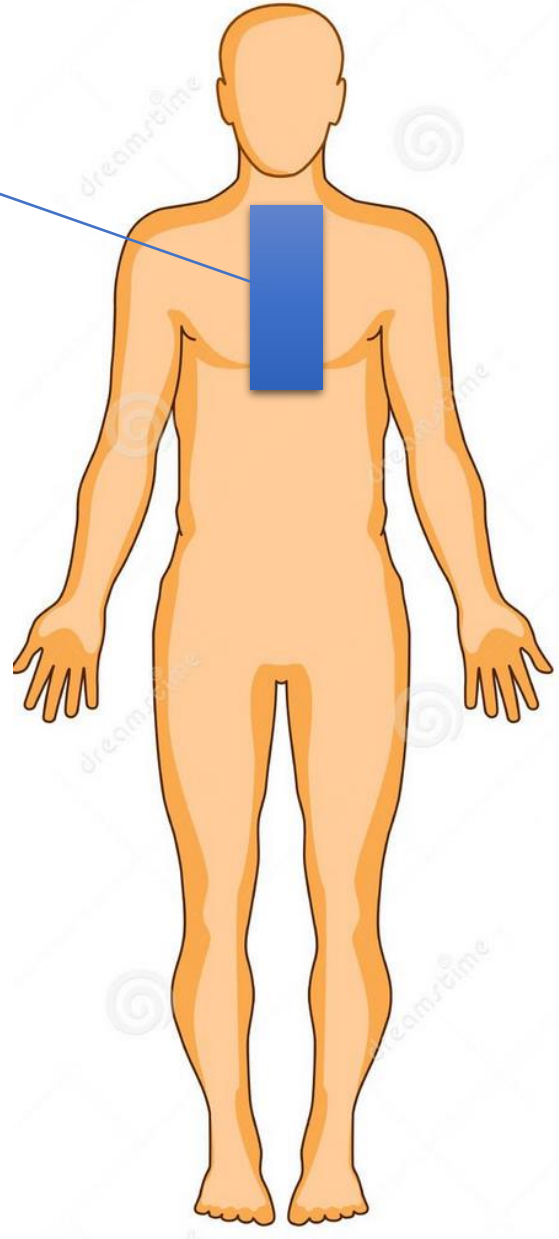
- Chest pain
- Dyspnea
- Palpitation
- Syncope
- Cardiac arrest
- Abnormal heart sounds
- Leg swelling

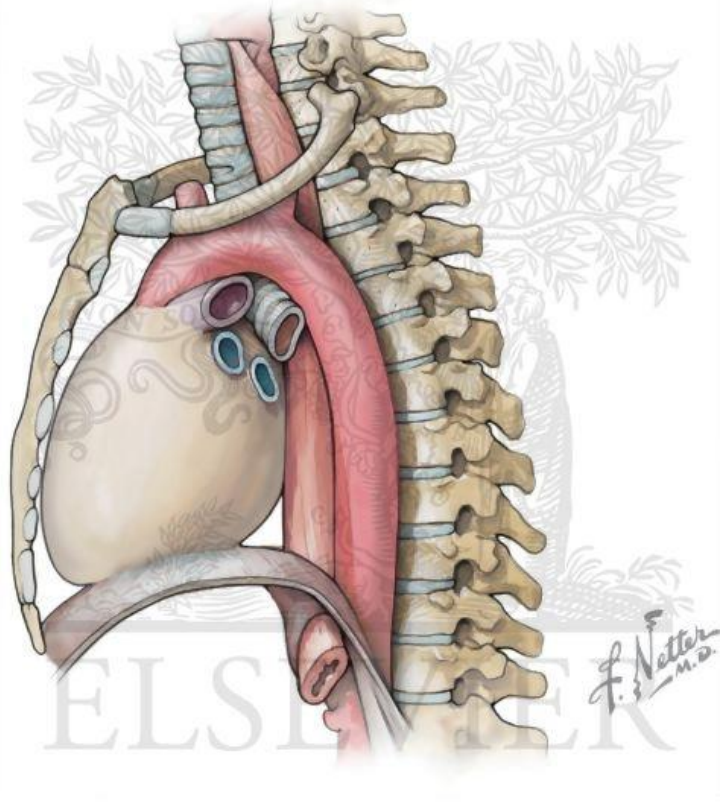
CHEST PAIN

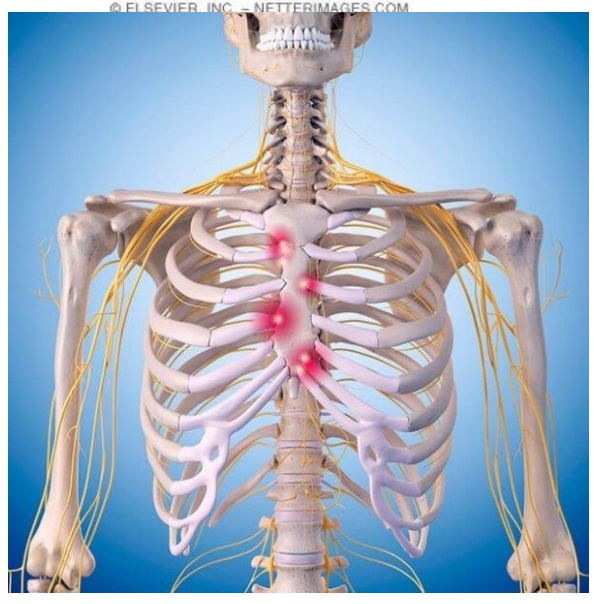
Central chest pain

Causes :

Cardiac
Myocardial ischaemia (angina)
Myocardial infarction
Myocarditis
Pericarditis
Mitral valve prolapse syndrome
Aortic
Aortic dissection
Aortic aneurysm
Oesophageal
Oesophageal reflux (GERD)
Oesophagitis
Oesophageal spasm
Mallory–Weiss syndrome
Oesophageal perforation (Boerhaave syndrome)
Pulmonary embolus (if massive)
Mediastinal
Malignancy
Musculoskeletal / Costochondritis
Anxiety/emotion







Peripheral (lateral) chest pain

Causes

Lungs/pleura

Pulmonary embolism (if small)

Pneumonia

Pneumothorax

Malignancy

Tuberculosis

Connective tissue disorders

Musculoskeletal

Osteoarthritis

Rib fracture/injury

Acute vertebral fracture

Costochondritis (Tietze syndrome)

Intercostal muscle injury

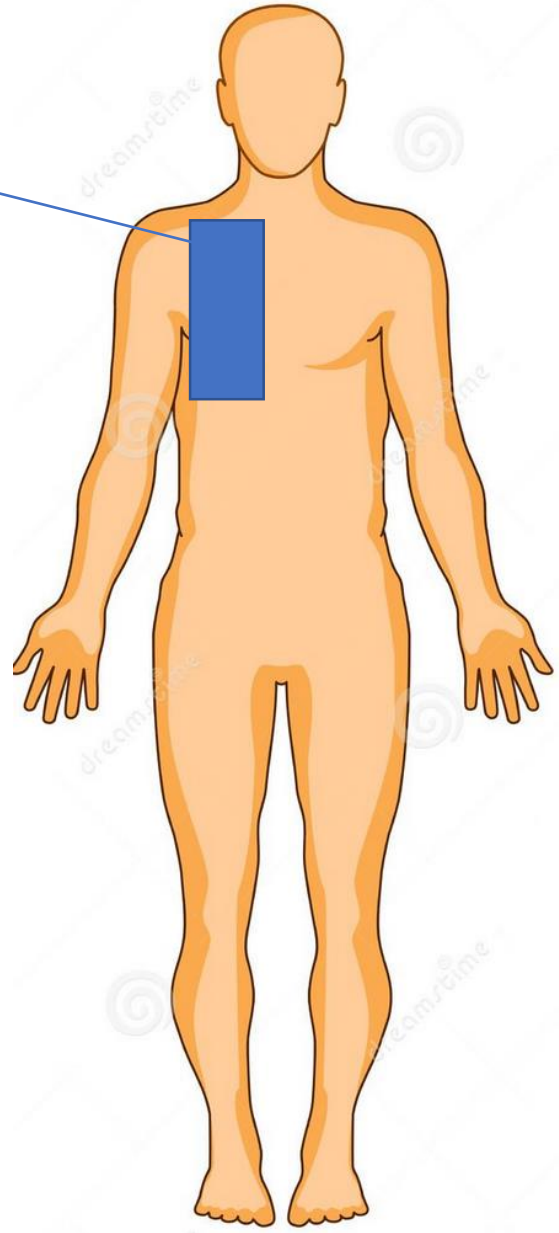
Epidemic myalgia (Bornholm disease)

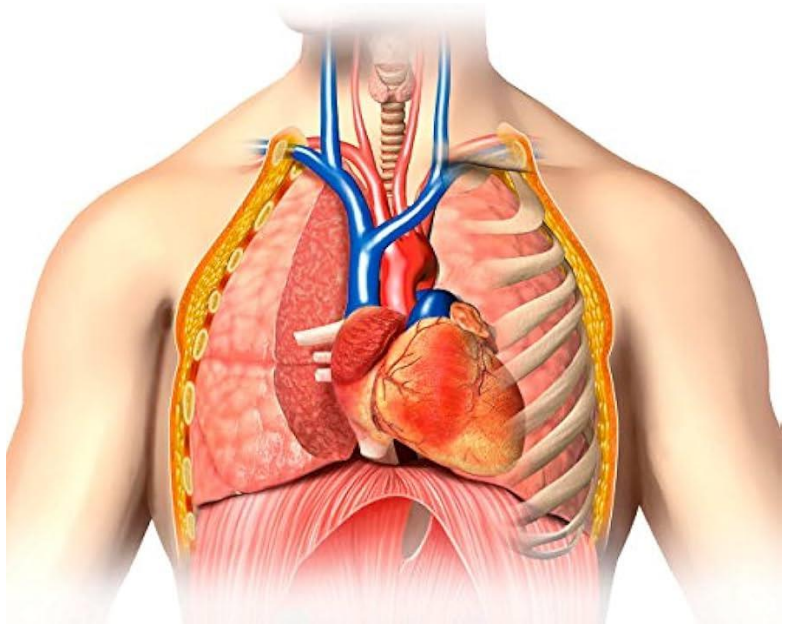
Neurological

Prolapsed intervertebral disc

Herpes zoster

Anxiety/emotion

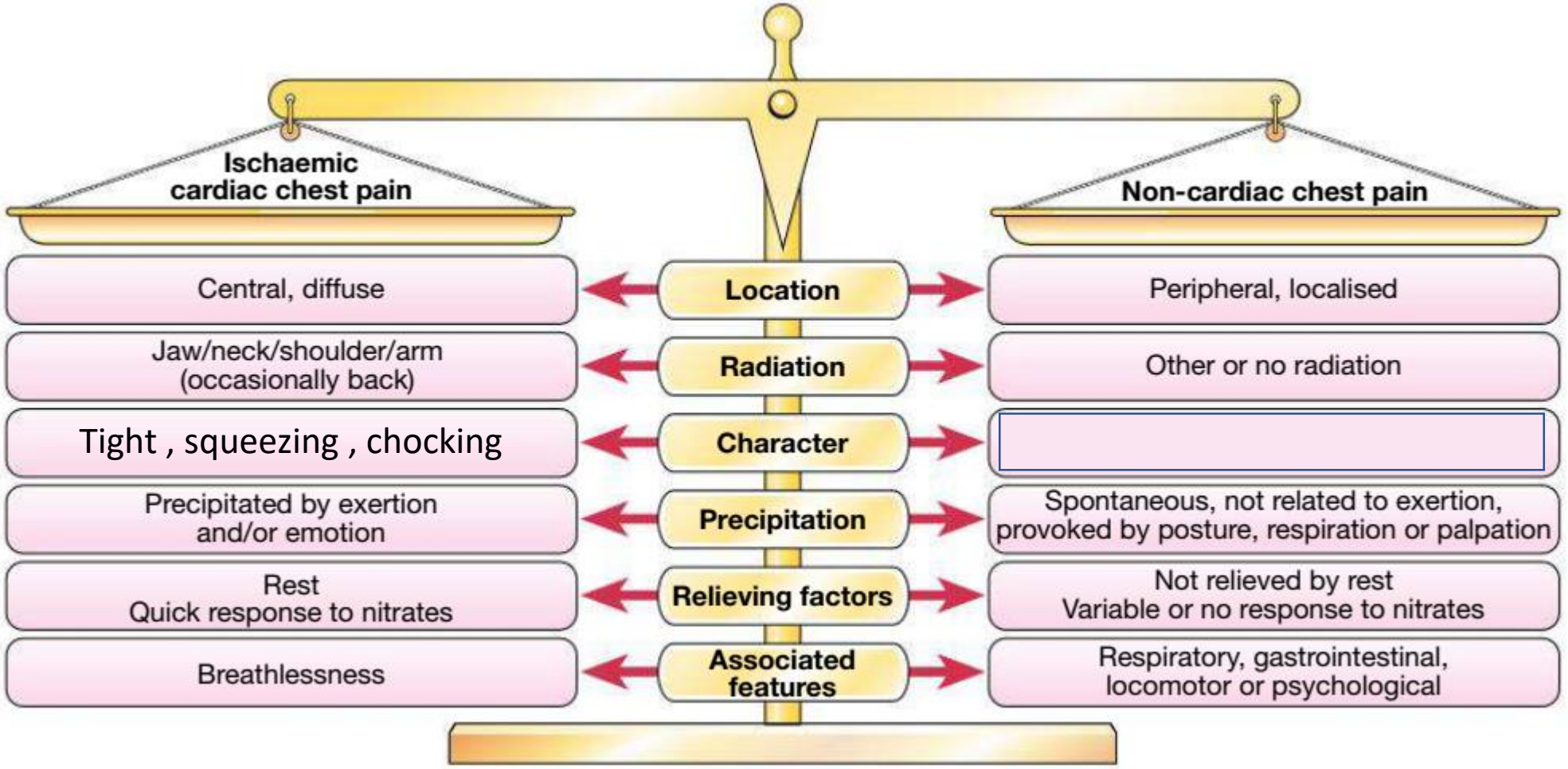




Chest pain could be due to a life threatening cause !

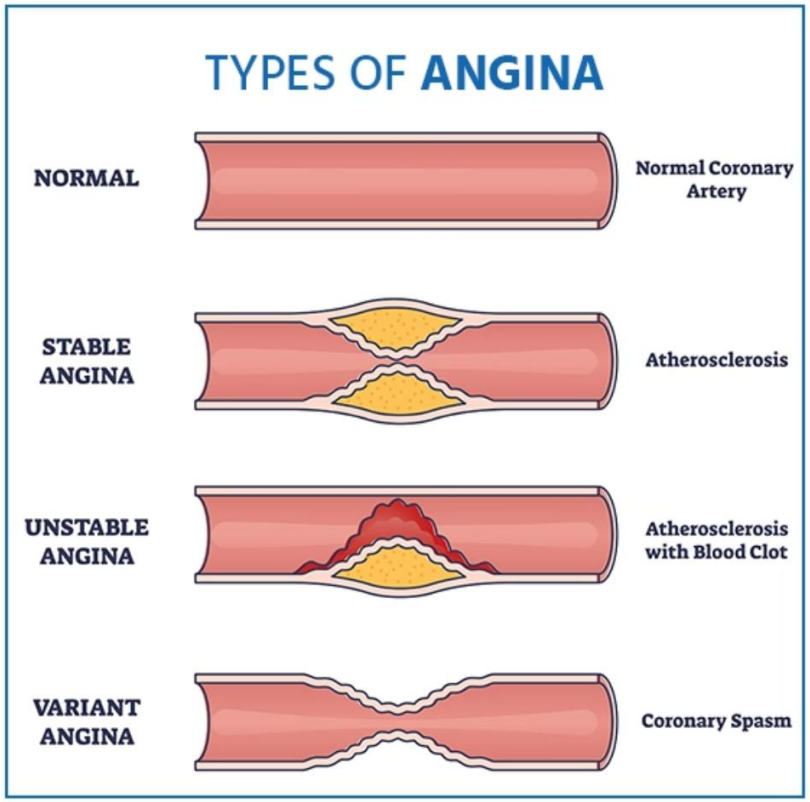
- Myocardial infarction (MI)
- Aortic dissection
- pulmonary embolism
- Pneumothorax
- Mediastinitis due to : esophageal rupture

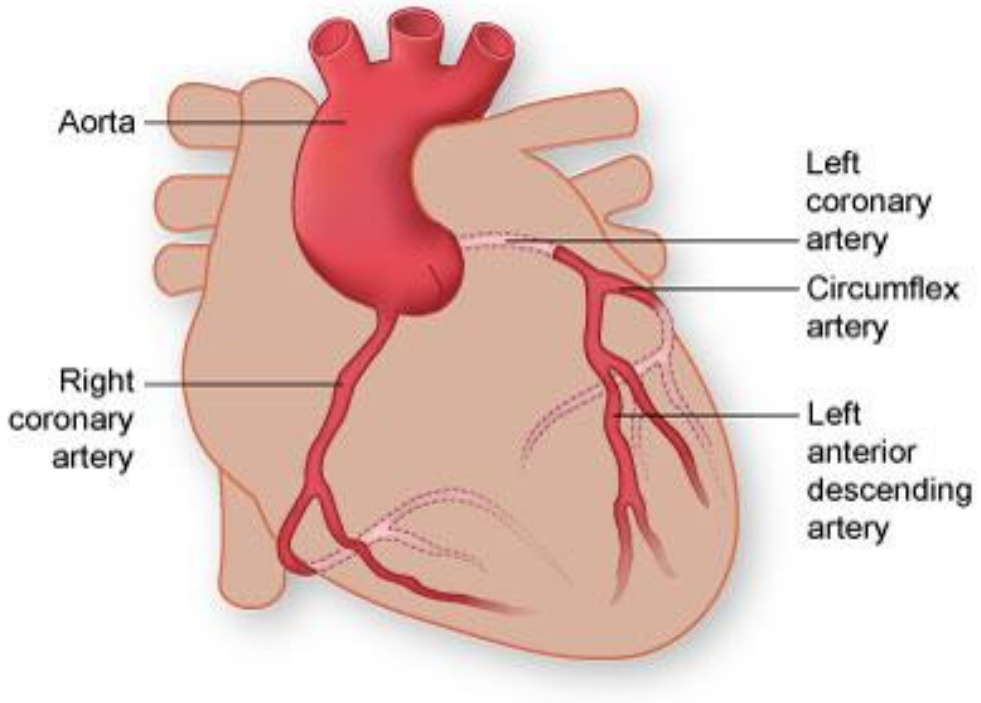
Identifying ischaemic cardiac pain: the ‘balance’ of evidence



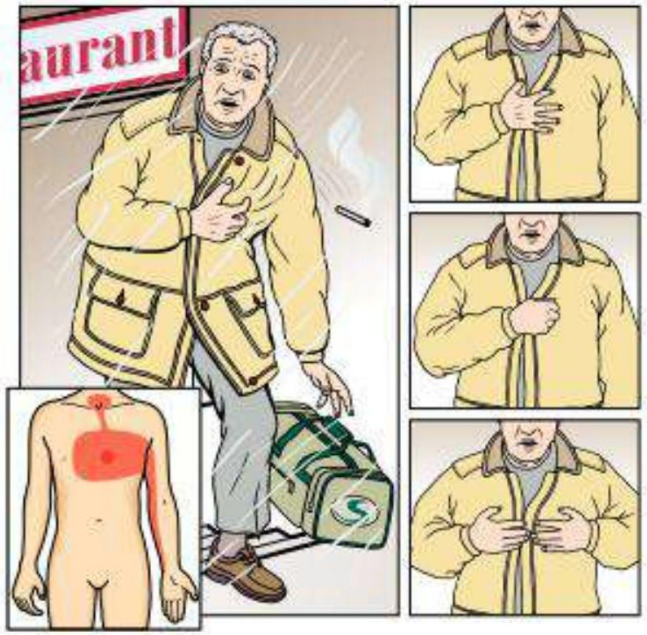
Angina pectoris

- It is chest pain or discomfort caused by myocardial ischemia , this occurs when <u>myocardial oxygen demand exceeds oxygen supply</u> .





Angina pectoris – characteristics of chest pain



- Onset : gradual over minutes
- Duration : typically < 10 min
- Location : diffuse central (retrosternal)
- Radiation : shoulders , arms , neck , lower jaw and sometimes epigastric .
- Character : tightness , heaviness , squeezing , pressure , burning .
- Severity : mild to moderate
- Pain is not related to position or respiration or palpation of the chest wall
- pain is precipitated by exertion , cold , emotion or heavy meal
- Pain is relieved by rest or sublingual nitrates within (< 5 min)
- Pain may be associated with dyspnea , nausea and sweating ..

Typical angina vs atypical angina

Three characteristic features of angina

1. Constricting discomfort in the centre of the chest, or in the neck, shoulders, jaw or arms
2. Precipitated by physical exertion
3. Relieved by rest (or GTN) within 5 minutes

Classification

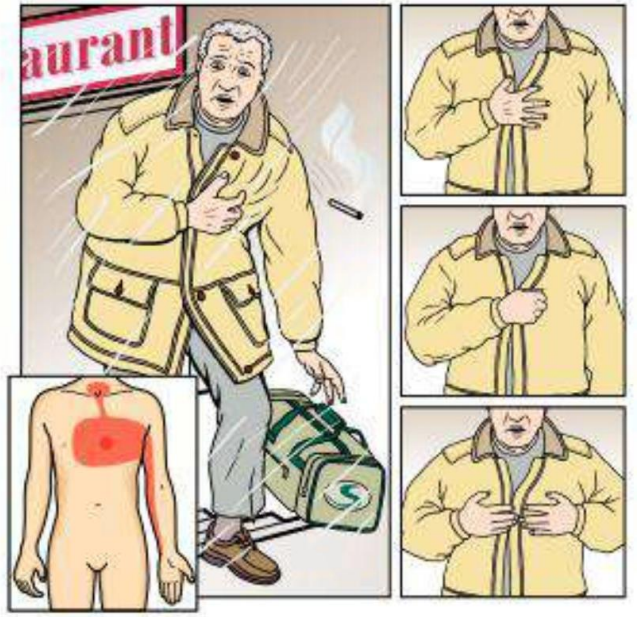
- **Typical angina**: All three features
- **Atypical angina**: Two features
- **Non-anginal chest pain**: One or no features

Features suggesting that the patient may have **unstable angina**

- 1- new-onset angina or
- 2- rapidly worsening angina (crescendo angina),
- 3- angina on minimal exertion or
- 3- angina at rest in the absence of myocardial injury.

- Myocardial infarction (MI) is distinguished from unstable angina by the occurrence of **myocardial necrosis** and is diagnosed when myocardial injury occurs in the presence of clinical evidence of acute myocardial ischaemia
- Both unstable angina and myocardial infarction are called (acute coronary syndrome ACS)

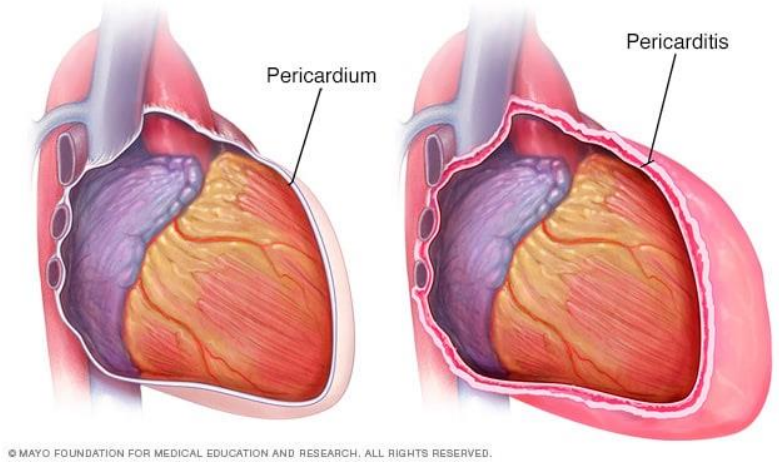
Myocardial infarction- characteristics of chest pain



- Onset : gradual over minutes
- Duration : **typically >30 min**
- Location : diffuse central (retrosternal)
- Radiation : shoulders , arms , neck , lower jaw and sometimes epigastric .
- Character : tightness , heaviness , squeezing , pressure , burning .
- Severity : more severe than angina
- Pain is not related to position or respiration or palpation of the chest wall
- pain may be precipitated by exertion , cold , emotion or heavy meal (but may occur at rest or minimal exertion)
- **Pain is NOT relieved** by rest or sublingual nitrates
- Pain may be associated with dyspnea , nausea ,vomiting , sweating , anxiety and fear of impending death (referred to as ‘angor animi) and collapse / syncope .

Pericarditis- characteristics of chest pain

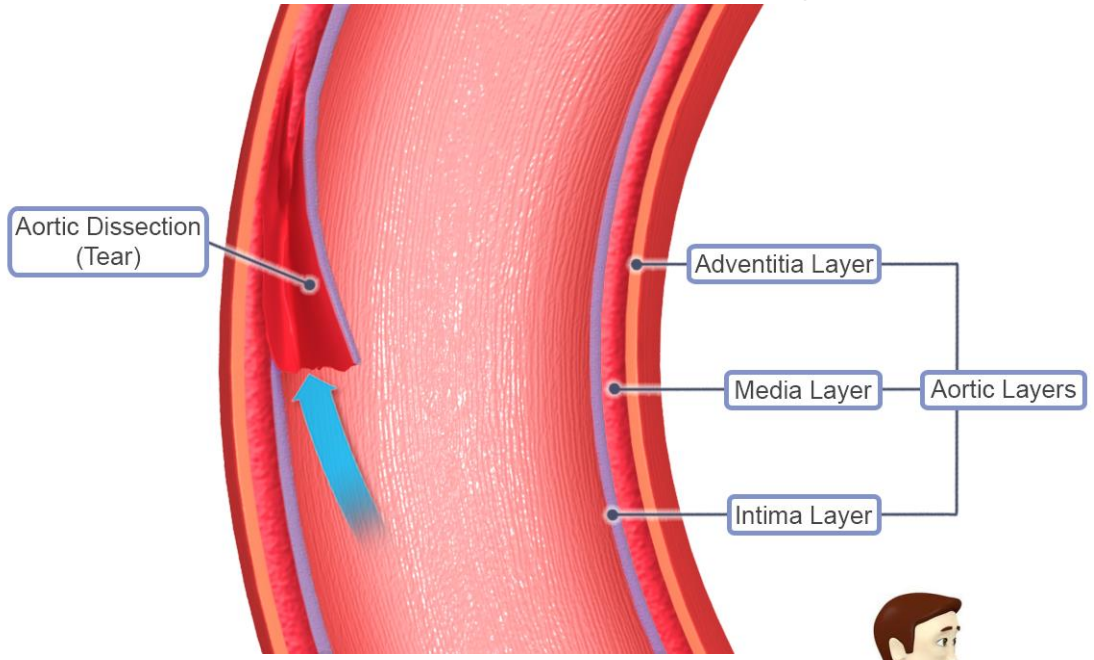
- Onset : gradual
- Duration : **variable , hours to days , may be episodic**
- Location : central (retrosternal) or toward cardiac apex
- Radiation : may radiate to the left shoulder
- Character : **sharp , pleuritic**
- **Pain may be related to position or respiration** (may be increased in supine position and relived by sitting up and leaning forward) (may be elicited by inspiration or coughing)
- Pain may be associated with fever , myalgia , malaise
- Patients with myocarditis or pericarditis may describe a prodromal viral illness



- Note : The visceral surface and most of the parietal surface of the pericardium are insensitive to pain. Therefore, the pain of pericarditis is thought to arise principally from associated pleural inflammation. Because of this pleural association, the discomfort of pericarditis is usually pleuritic pain that is exacerbated by breathing, coughing, or changes in position

Aortic dissection- characteristics of chest pain

- Onset : **Sudden**
- Duration : unrelenting
- Location : central (retrosternal)
- Radiation : **to the back** between shoulder blades
- Character : **tearing** or ripping knife like
- Severity : very severe
- Pain is not related to position or respiration or palpation of the chest wall
- pain may be precipitated by uncontrolled Hypertension
- **Pain is NOT relieved** by rest or sublingual nitrates
- Pain may be associated with dyspnea , nausea ,vomiting , sweating , anxiety and fear of impending death (referred to as ‘angor animi) and collapse / syncope .

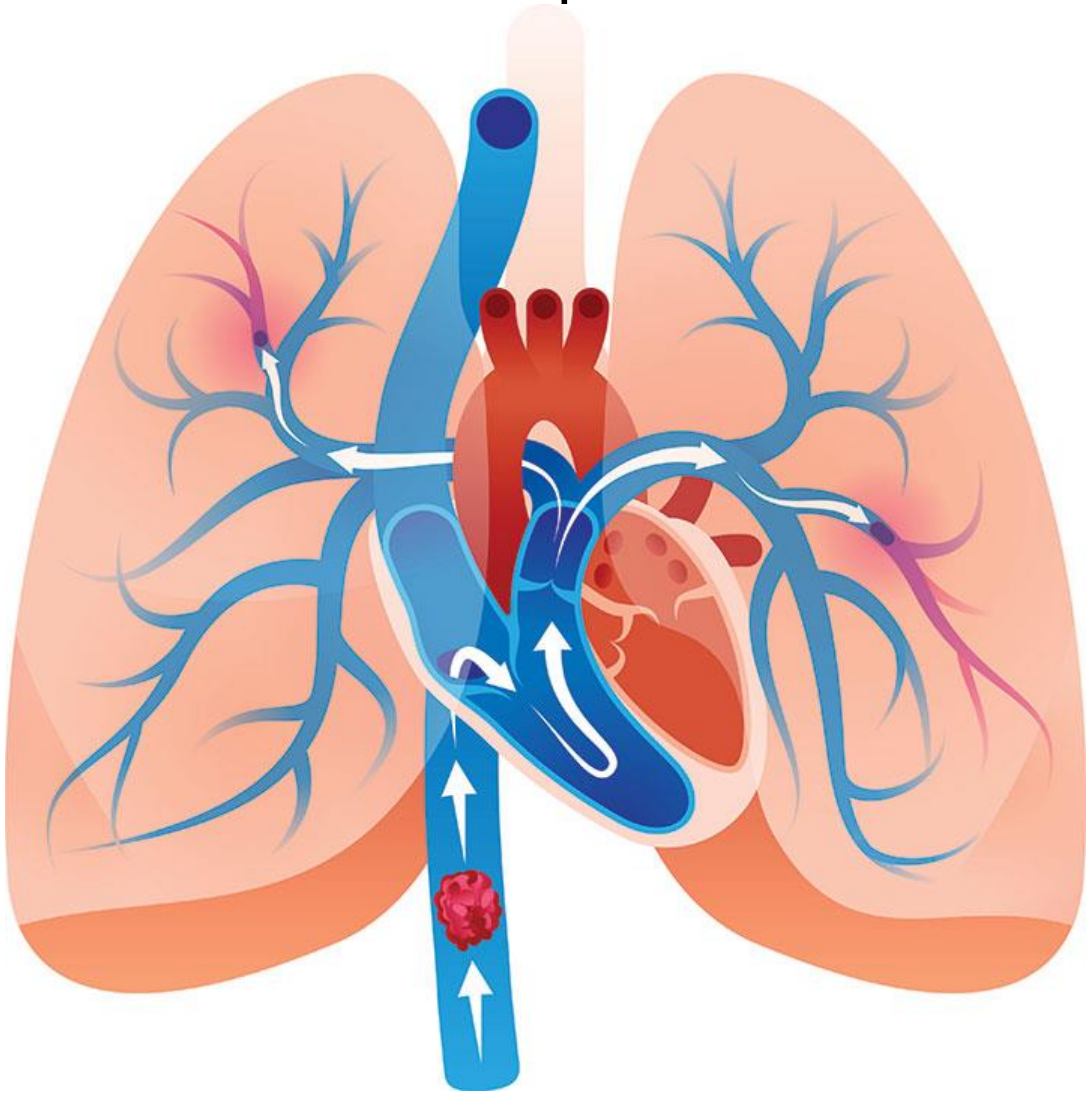


Pulmonary embolism : characteristics of chest pain

- Onset : **Sudden**
- Location : central (retrosternal) if massive or lateral if not massive
- Character : **heaviness of massive , pleuritic**
- Severity : severe
- pain may be exaggerated by inspiration
- **Pain is NOT relieved** by rest or sublingual nitrates
- Pain may be associated with dyspnea , hemoptysis ..

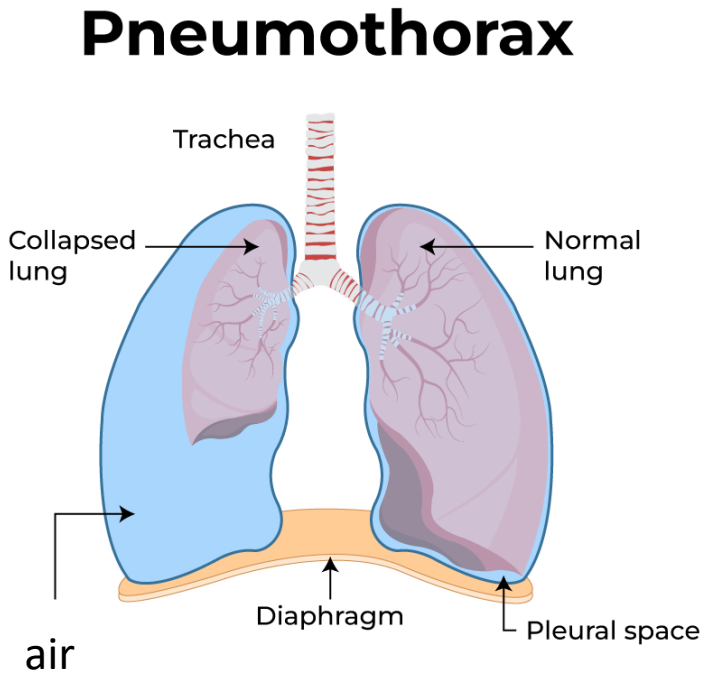
- Note : the chest discomfort associated with pulmonary embolism may result from (1) involvement of the pleural surface of the lung adjacent to a resultant pulmonary infarction; (2) distention of the pulmonary artery; or (3) possibly, right ventricular wall stress and/or subendocardial ischemia related to acute pulmonary hypertension.

  The pain associated with **small** pulmonary emboli is often lateral and pleuritic and is believed to be related to the first of these three possible mechanisms. In contrast, **massive** pulmonary emboli may cause severe substernal pain that may mimic an MI and that is plausibly attributed to the second and third of these potential mechanisms



Pneumothorax : characteristics of chest pain

- Onset : **Sudden**
- Location : **lateral**
- Character : **Sharp (pleuritic)**
- pain is exaggerated by **inspiration or coughing (pleuritic)**
- Pain is relieved by rest or sublingual nitrates
- Pain may be associated with dyspnea



Other causes of chest pain : important characteristics

- **Pneumonia or pleurisy** : gradual onset with variable duration , lateral location , pleuritic character , increased with inspiration , associated with fever , cough sputum and dyspnea
- **Esophageal spasm** : **can closely mimic angina** ! , pain is retrosternal , may last for 2-30 minutes , character is : pressure , tightness or burning ,may be precipitated by eating or drinking , may be relived by sublingual nitrates
- **Gastroesophageal reflux disease (GERD)** : pain is retrosternal , epigastric , burning in nature , may last for 10-60 min , may be exaggerated by postprandial recumbency and relieved by antacids
- **oesophageal perforation** : Severe central chest pain arising after retching or vomiting, or following oesophageal instrumentation, should raise the possibility of oesophageal perforation
- **Musculoskeletal** : may be exaggerated by pressure on the chest or movement of the arm

Physical Examination in chest pain

- Cardiorespiratory examination may detect clinical signs that help guide ongoing investigation.
- Vital signs (pulse rate , blood pressure , respiratory rate and temperature) should be assessed
- **raised jugular venous pressure** increases the likelihood of myocardial ischaemia or massive PE.
- legs should be examined for clinical evidence of **deep vein thrombosis**
- A large pneumothorax should be evident on clinical examination, with **absent breath sounds** and a **hyper-resonant percussion** note on the affected side. Other unilateral chest signs, such as **bronchial breathing** or crackles, are most likely to indicate a respiratory tract infection.
- Pericarditis may be accompanied by a **pericardial friction rub.**
- In aortic dissection, syncope or neurological deficit may occur. Examination may reveal asymmetrical pulses, features of undiagnosed Marfan syndrome or a new early diastolic murmur representing aortic regurgitation.
- Any disease process involving the pleura may restrict rib movement and a pleural rub may be audible on the affected side.
- Local tenderness of the chest wall is likely to indicate musculoskeletal pain but can also be found in pulmonary infarction

Basic Investigations in chest pain

- Chest X-ray
- ECG and
- biomarkers (e.g. troponin, D-dimer)