

# Chest Pain

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# S.O.C.R.A.T.E.S

- S = Site
- O = Onset
- C = Character
- R = Radiation
- A = Association
- T = Timing
- E = Exacerbating / Relieving factors
- S = Severity



# Differentials

- Retrosternal:
  - Angina Pectoris: Crushing pain on exercise, relieved by rest, radiating to jaw or arms
  - Myocardial infarction: more severe, occurs at rest, lasts longer
  - Pericarditis: Sharp pain aggravated by movement, respiration and change in posture
  - Aortic dissection: Severe tearing chest pain radiating to the back
  - Reflux Oesophagitis: Occurs at night and when bending/lying down, may radiate to the neck



# Differentials

- Other sites: Usually Lateral
  - Pulmonary infarct, Pneumonia, Pneumothorax
  - -> pleuritic pain, sharp well-localized, aggravated by coughing, inspiration and movement
  - Fractured rib, costochondritis
  - -> musculoskeletal pain is usually sharp, well-localized pain with a tender area on palpation



# Myocardial Infarction

- Most common cause of death in developed countries
- Secondary to rupture of an atherosclerotic plaque -> development of thrombosis and total occlusion of the artery



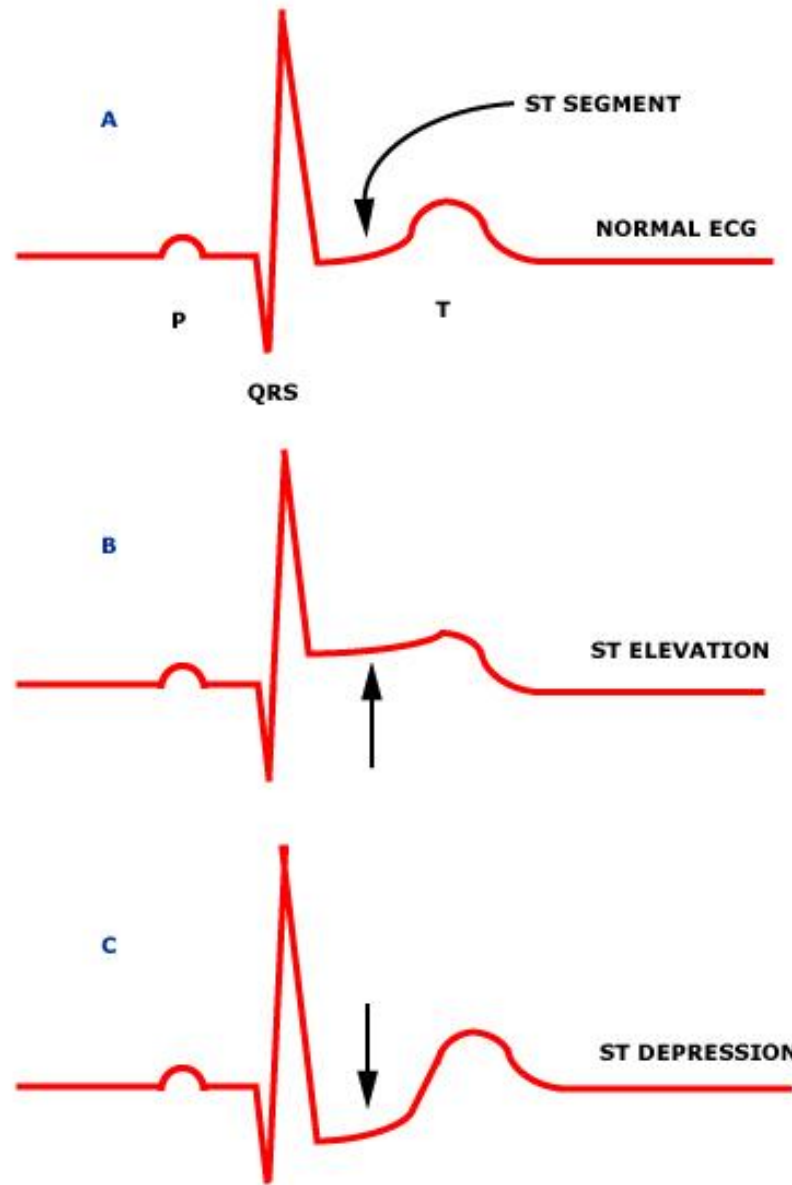
# MI – clinical features

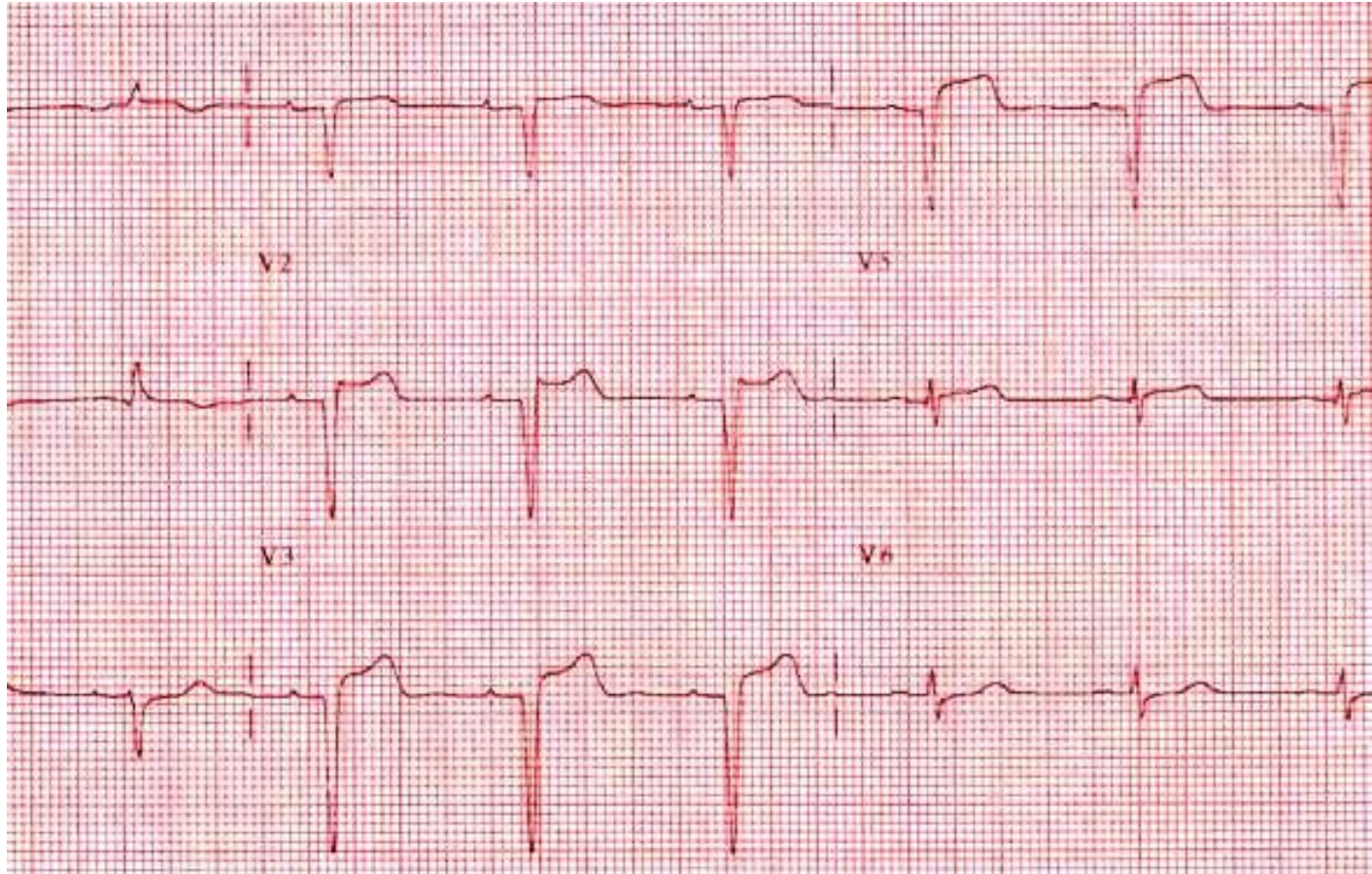
- Chest pain at rest, severe and lasts for hours
- Associated with sweating, nausea, vomiting, breathlessness and restlessness
- Patient appears pale, sweaty and grey
- NOTE: 20% silent MI!!!!!!!!!!!!!!!!!!!!!!



# MI - Investigations

- Diagnosis from clinical history
- ECG :
  - ST elevation ( $>1\text{mm}$  in two or more contiguous leads) followed by t-wave flattening/inversion
  - Pathological Q-waves are broad ( $>1\text{mm}$ ) and deep ( $>2\text{mm}$ ), in full thickness MI
  - Infarcted muscle is electrically silent so that the recording leads 'look through' the infarcted area







# MI - investigations

- Cardiac markers

- Troponin T & I are regulatory proteins, highly specific, peak at 12 hours
- Creatine Kinase (CK) also produced by damaged skeletal muscle and brain. MB isoenzyme is specific for heart muscle damage, size of rise is proportional to infarct size
- Aspartate aminotransferase (AST) and lactic dehydrogenase (LDH), rarely used remains elevated for 10 days



# MI - management

1. PCI door to needle time 30mins!
2. Thrombolytic therapy if ST-elevation MI, reperfusion in 50-70% -> Streptokinase or recomb. TPa
3. M.O.N.A
4. GTN infusion 2-10mg/h titrated to response, maintain SBP >90mmHg
5. If blood glucose >11mmol/L, aim for BM 7-10mm
6. ol/L



# M.O.N.A

- M = Morphine
- O = Oxygen
- N = Nitrates
- A = Asprin



# MI - Complications

- Cardiac failure
- Thromboembolism
- Pericarditis



# MI - Prognosis

- Depends on age, size of infarct, previous MI
- 50% of patients die in the acute event
- 10% die in hospital during acute admission
- 10% die in the next two years