Chest Pain

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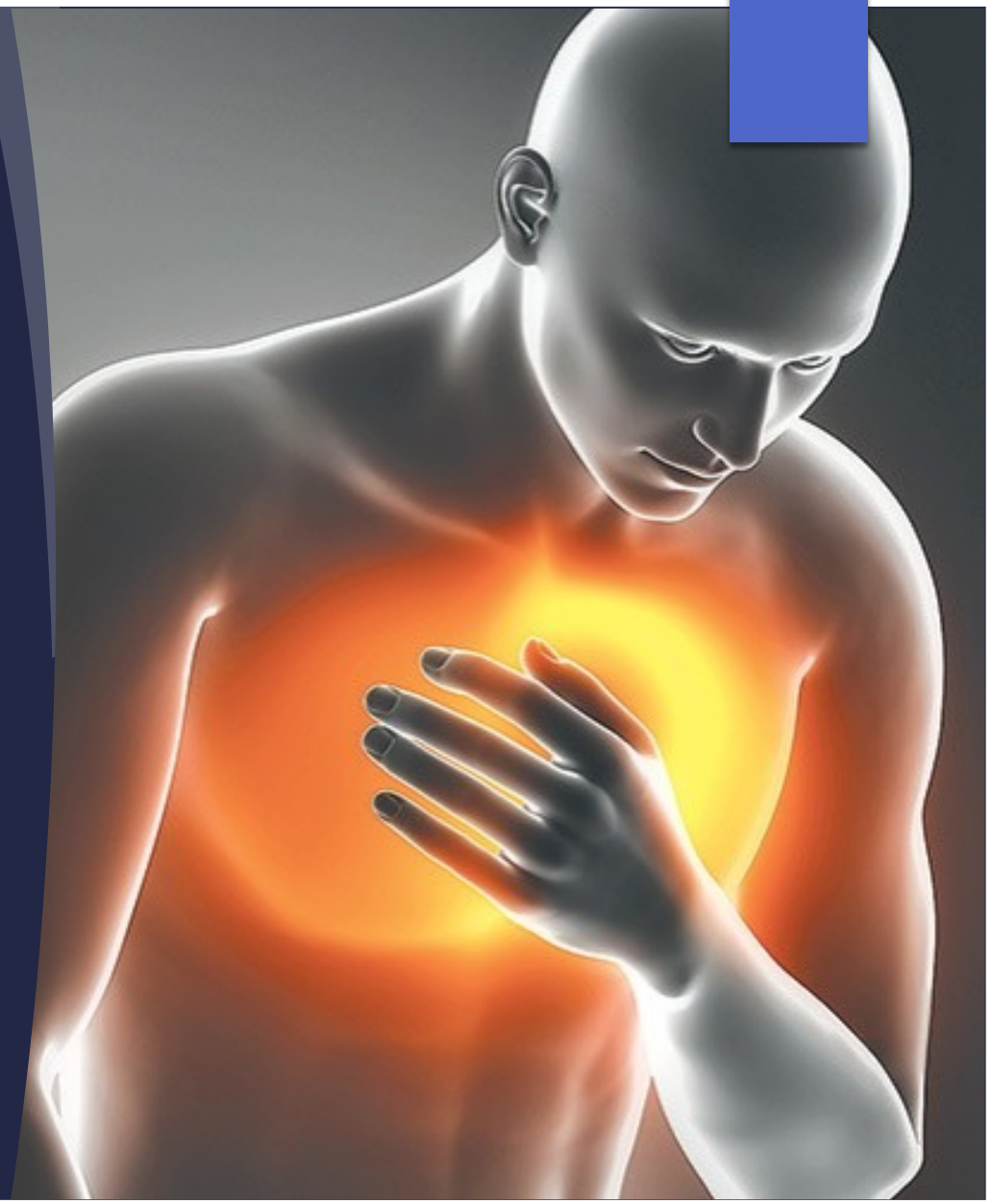
History:

Presentation of Pain:

S: central?, localised?, radiating?
Q: dull?, sharp?, ripping?, burning?
I: Rank 1-10
T: onset?, intermittent?, progressive?
A: triggers?, positional?
R: analgesia?, rest?
S: sweating?, SOB?, dizziness?, cough?

Risk factors:

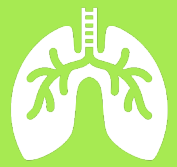
Lifestyle – smoking, alcohol, high cholesterol
Medical – history of CVD, diabetes, HTN
Family history of CVD



Examination:

Looking at haemodynamics:

BP – low suggests cardiogenic shock
HR – tachycardia or bradycardia?
JVP
Heart sounds – any murmurs?
Cool peripheries



Looking at lungs:

SOB
Auscultation – reduced breath sounds?
Percussion – hyper-resonant?, dull?

Cardiac vs Pleuritic Pain

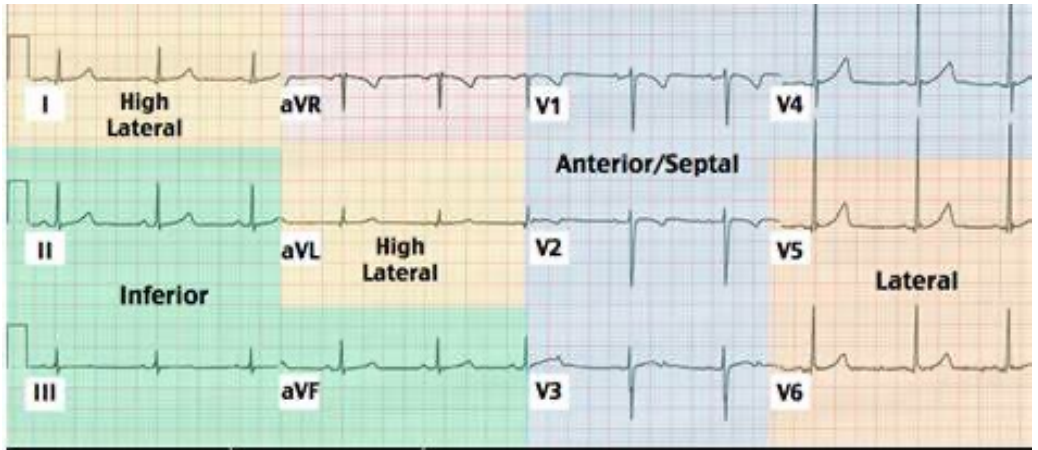
Cardiac:
- visceral afferent nerves (run with sympathetic nerves)

Characteristics:
- dull, central pain – brain less able to localise
- referred pain (normally shoulder or jaw)
- made worse by exercise

Pleuritic:
- superficial somatic afferent nerves

Characteristics:
- sharp, well localised pain
- made worse by chest movement (breathing, coughing)

Cardiac Investigations



Location	Leads	Artery
Anterior and Septal	V1 - V4	Left anterior descending (LAD)
Inferior	II, III, aVF	Right coronary artery (RCA) (70%+) or Left circumflex (LCx)
Lateral	I, aVL, V5 - V6	Left circumflex (LCx), Diagonal of Left anterior descending

12 Lead ECG:
ST elevation – implies sudden occlusion (STEMI)
ST depression – usually implies non-sudden occlusion (N-STEMI/unstable angina)
T wave inversion – often implies under-supply of blood to myocardium (ACS)

Troponin I/T:
+ indicates necrosis of myocardium (STEMI/NSTEMI)
- indicates lack of myocardial necrosis (unstable angina)

Echocardiogram

STEMI Management - NICE

300-mg aspirin dose as soon as possible

Offer coronary angiography with follow up PCI if:
- within 12 hours of onset AND
- PCI can be given within 120 minutes of when fibrinolysis could be given

Medication prior to PCI:
- prasugrel or clopidogrel if another anticoagulant is being taken
- unfractionated heparin

Otherwise fibrinolysis with unfractionated heparin
- offer ECG 60 mins after – if failed reperfusion suggested, offer angiography and PCI

NSTEMI/Unstable Angina Management - NICE

300mg aspirin as soon as possible
Fondaparinux

Offer coronary angiography and PCI if:
- unstable clinical condition
- high risk of cardiovascular event

Medication prior to PCI:
- prasugrel or clopidogrel if another anticoagulant is being taken
- unfractionated heparin

Otherwise offer:
- prasugrel/clopidogrel dual therapy with aspirin

Somatic Pain - Investigations

Unlikely to be caused by ACS

Source of pain may be from:
- lungs and pleura
- pericardium
- GI tract
- bone
- cartilage
- soft tissue

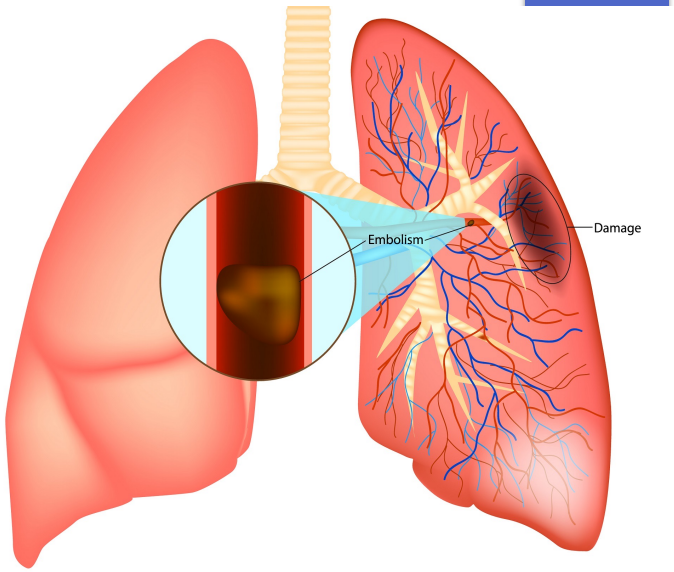
Investigations are based off the clinical context:
- bloods
- CXR
- CT

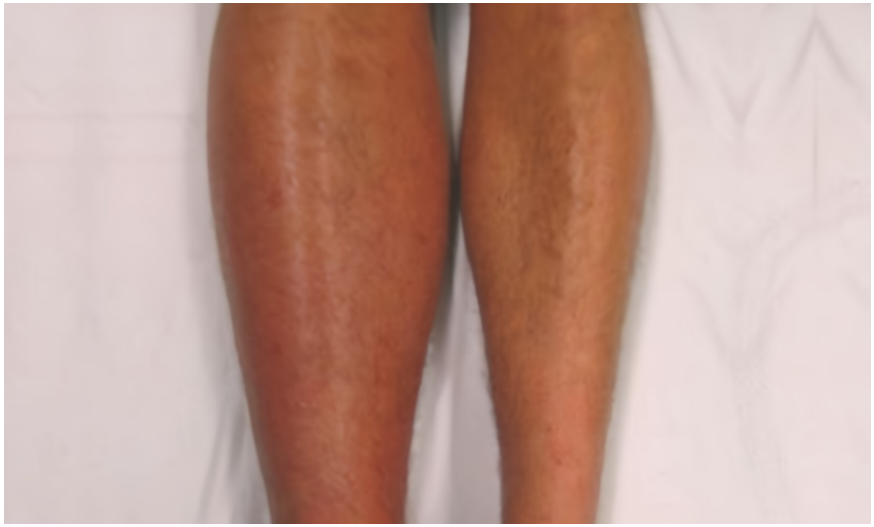
Pulmonary Embolism - Presentation

Symptoms:
- pleuritic chest pain
- SOB
- cough (may have haemoptysis)

History of:
- pregnancy
- surgery
- COCP
- long haul travel
- malignancy

Important to examine calf for evidence of DVT!





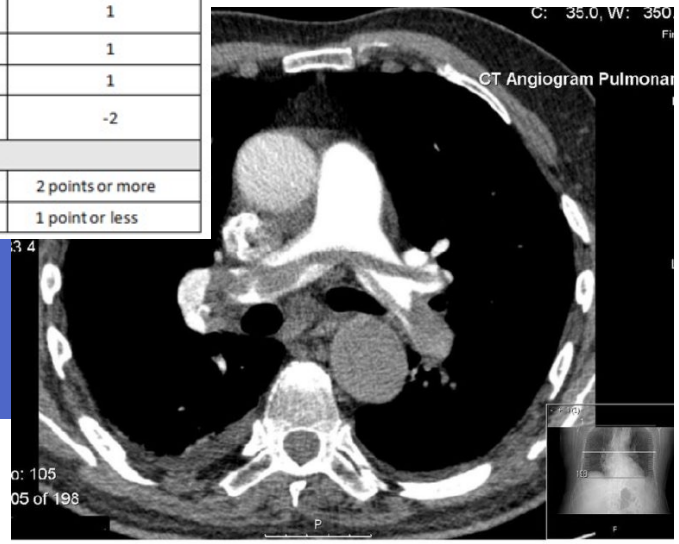
Suspected PE Management - NICE

PE Wells Score – estimates clinical possibility of PE
- if >4 – arrange hospital admission
- if ≤4 – offer a D-dimer test – hospital admission if positive

Upon admission:
- CT Pulmonary Angiography – investigation of choice
- ABG – may show hypoxaemia and hypocapnia
- ECG – (SI, QIII, TIII) – not always evident
- CXR – excludes other diagnoses

Treatment:
- supportive – haemodynamic stability
- offer anticoagulants – apixaban, LMWH
- fibrinolytics if required

Clinical feature	Points
Active cancer (treatment ongoing, within 6 months, or palliative)	1
Paralysis, paresis or recent plaster immobilisation of the lower extremities	1
Recently bedridden for more than 3 days or major surgery within 12 weeks requiring general or regional anaesthesia	1
Localised tenderness along the distribution of the deep venous system	1
Entire leg swollen	1
Calf swelling 3 cm larger than asymptomatic side	1
Pitting oedema confined to the symptomatic leg	1
Collateral superficial veins (non-varicose)	1
Previously documented DVT	1
An alternative diagnosis is at least as likely as DVT	-2
Clinical probability simplified score	
DVT "likely"	2 points or more
DVT "unlikely"	1 point or less

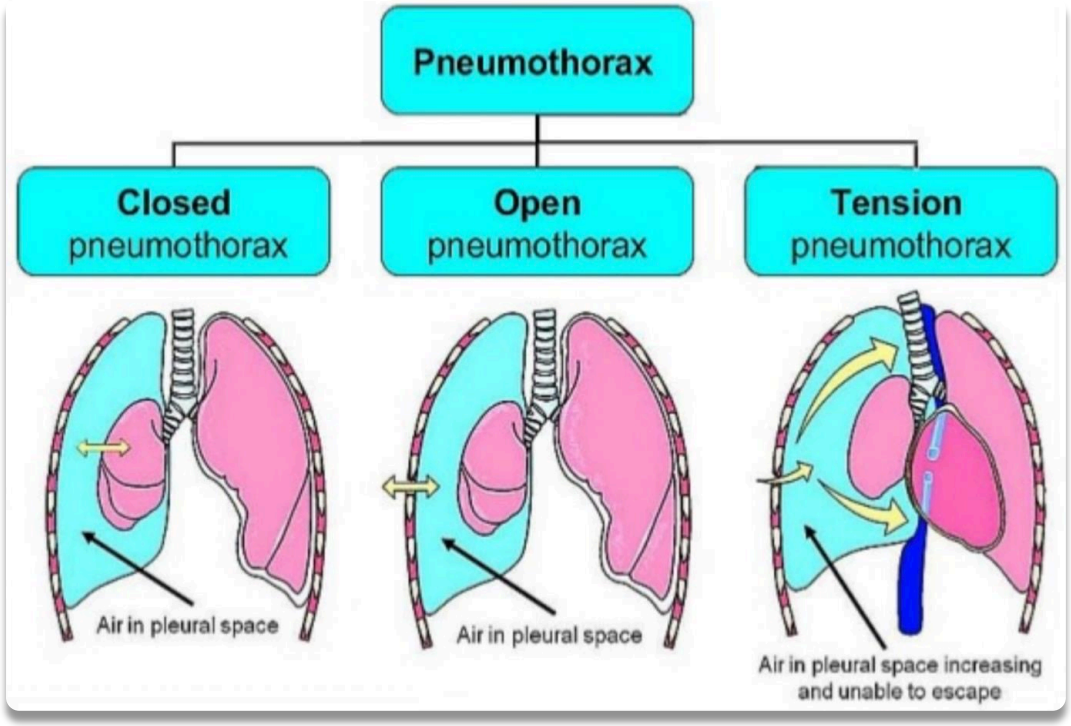


Pneumothorax – Presentation

Symptoms:
- sudden onset pleuritic chest pain
- SOB

History of:
- chest injury
- surgery
- lung disease
- may be spontaneous

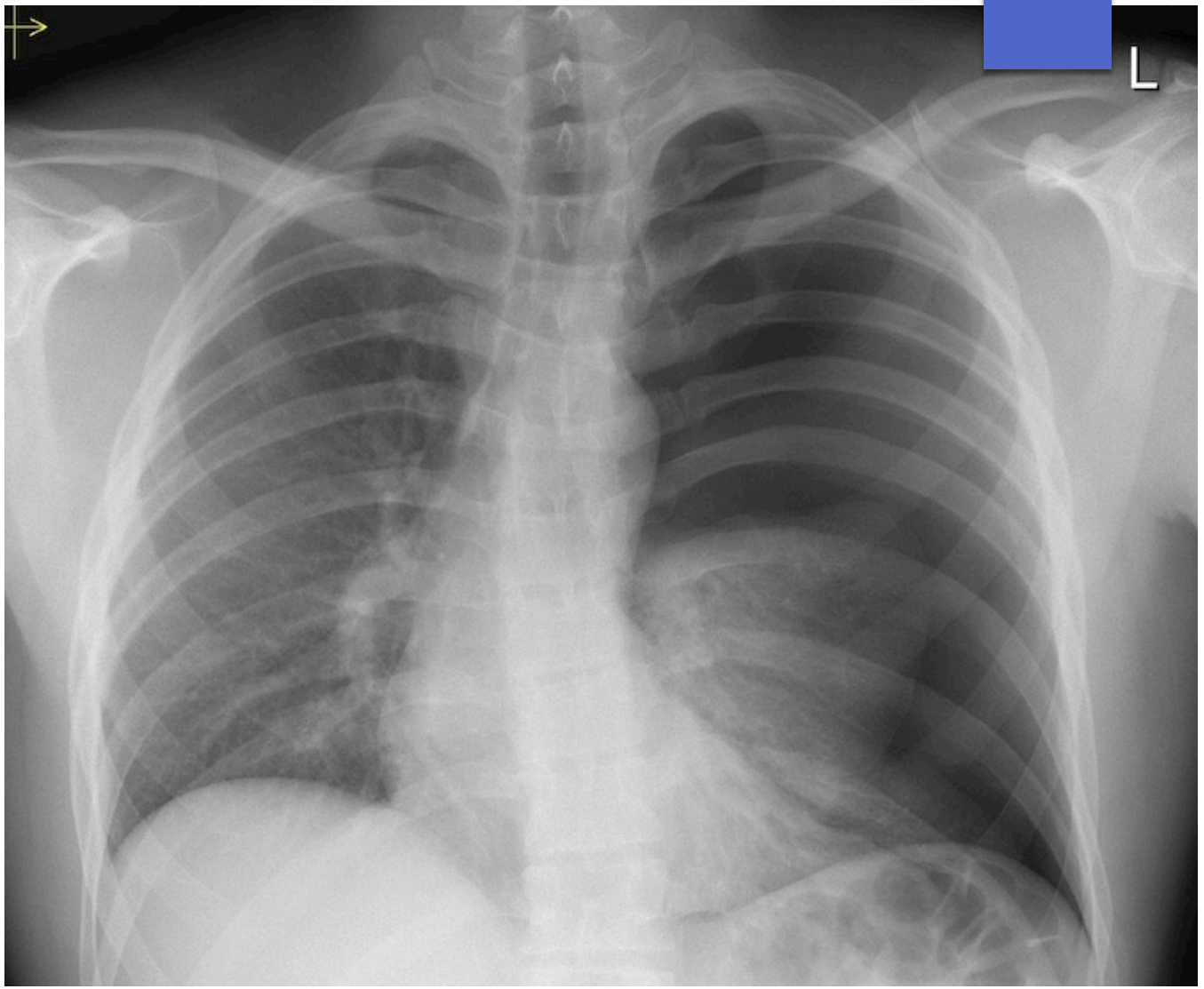
Examination:
- reduced breath sounds
- hyper-resonance on percussion
- may have signs of cyanosis if severe



Pneumothorax Investigations

ABG – hypoxaemia and hypocapnia

CXR – lung borders, flattened diaphragm, displaced trachea if tension



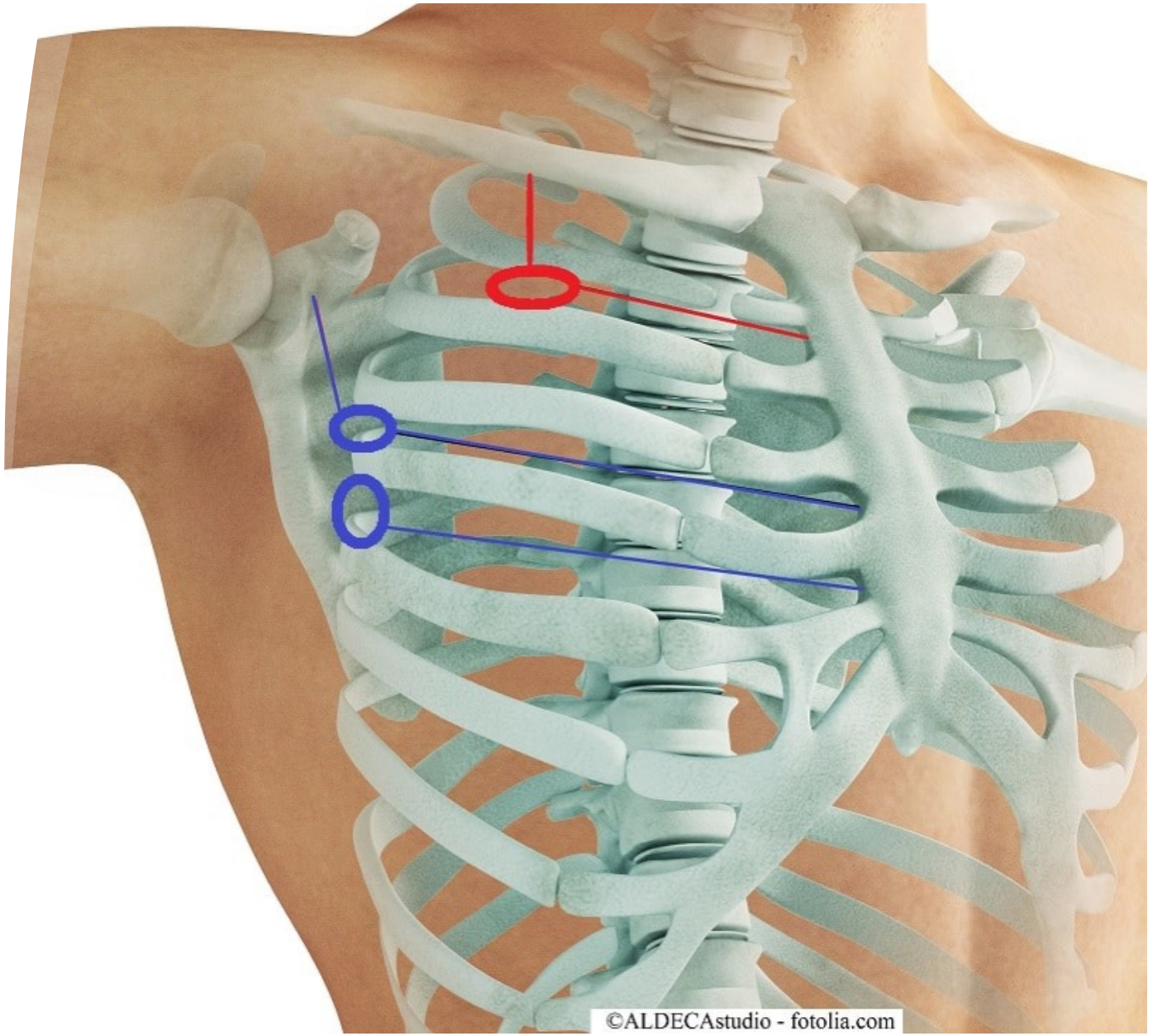
Pneumothorax Management

Oxygen initially given if critically unwell

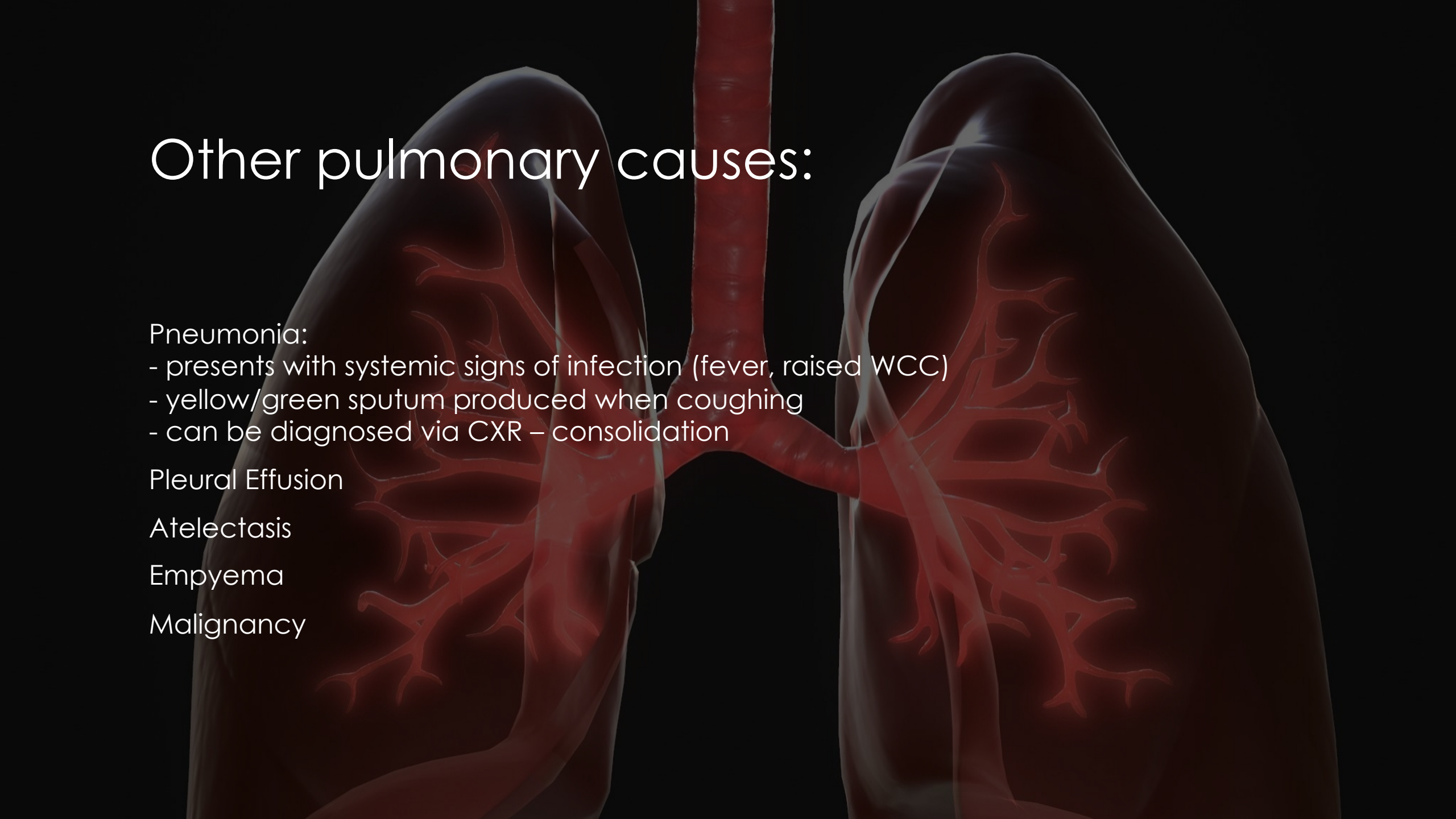
Aspiration of pneumothorax with cannula if patient is symptomatic

Chest drain (4^{th}/5^{th} intercostal space, midaxillary line) if no improvement after aspiration

Emergency needle decompression (2^{nd} intercostal space, midclavicular line) and peri-arrest call if tension pneumothorax is suspected



Other pulmonary causes:



Pneumonia:
- presents with systemic signs of infection (fever, raised WCC)
- yellow/green sputum produced when coughing
- can be diagnosed via CXR – consolidation

Pleural Effusion

Atelectasis

Empyema

Malignancy

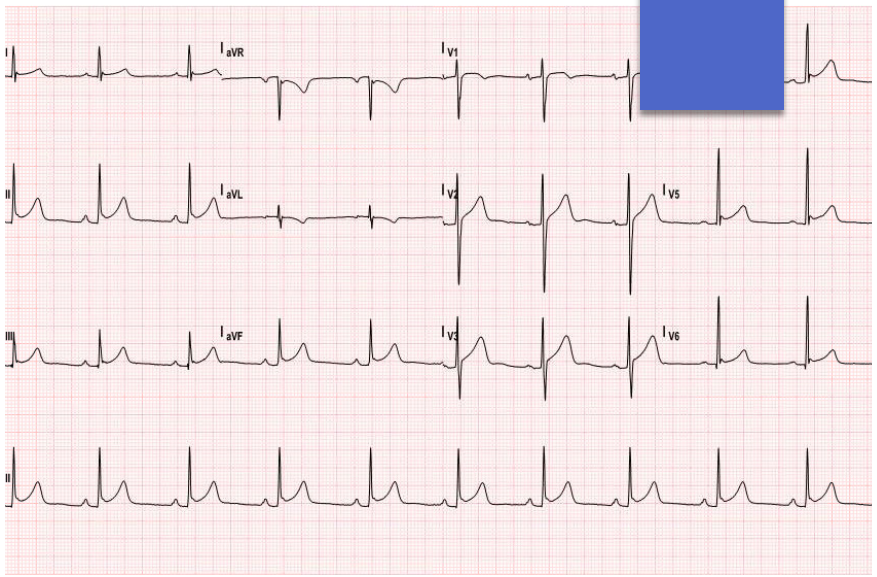
Pericarditis

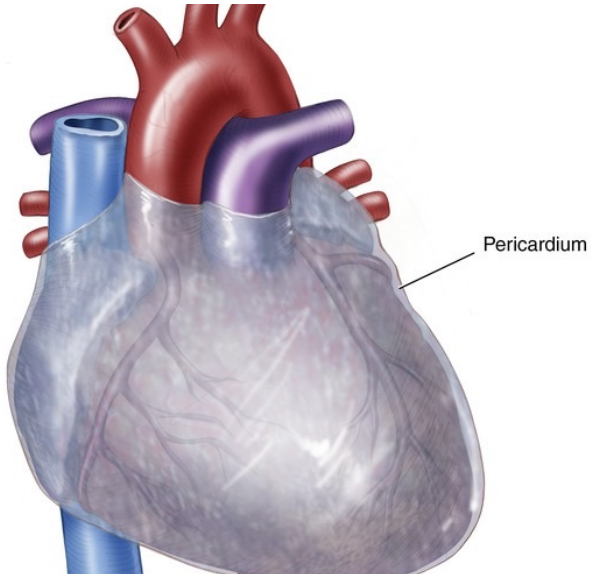
Symptoms:
- sharp, retrosternal pain – worse on inspiration and in supine position

Examination:
- low fever
- pericardial rub on auscultation

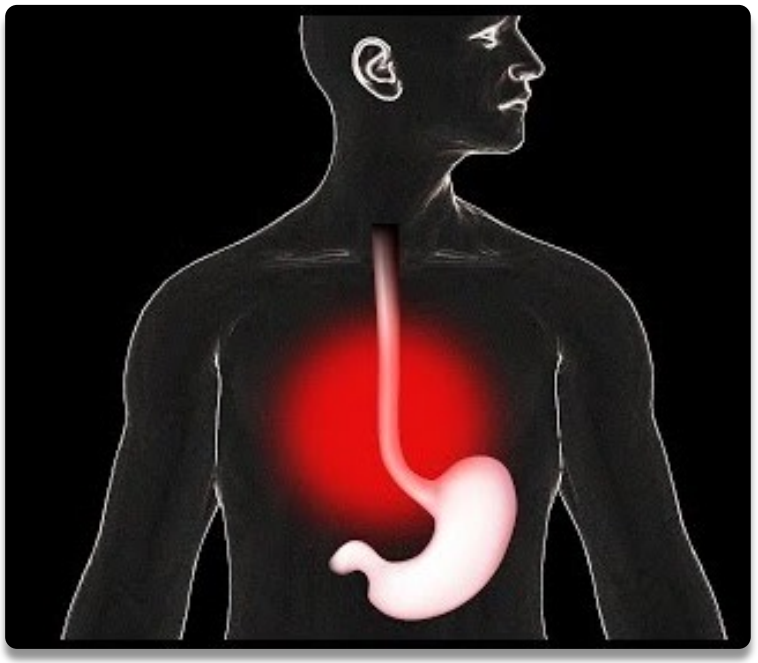
Investigations:
- CRP – indicates inflammation
- ECG – widespread, saddle-shaped (sloping) ST elevation
- troponin I/T – rule out ACS

Management:
- first line is NSAIDs to reduce inflammation
- may have to escalate if complications e.g. cardiac tamponade





Other Differentials



GORD:
- burning sensation in chest
- worse after eating

Oesophageal spasms:
- difficulty swallowing and regurgitation

Oesophageal rupture (rare):
- haemoptysis

Aortic dissection:
- ‘tearing’ pain that spreads down the back

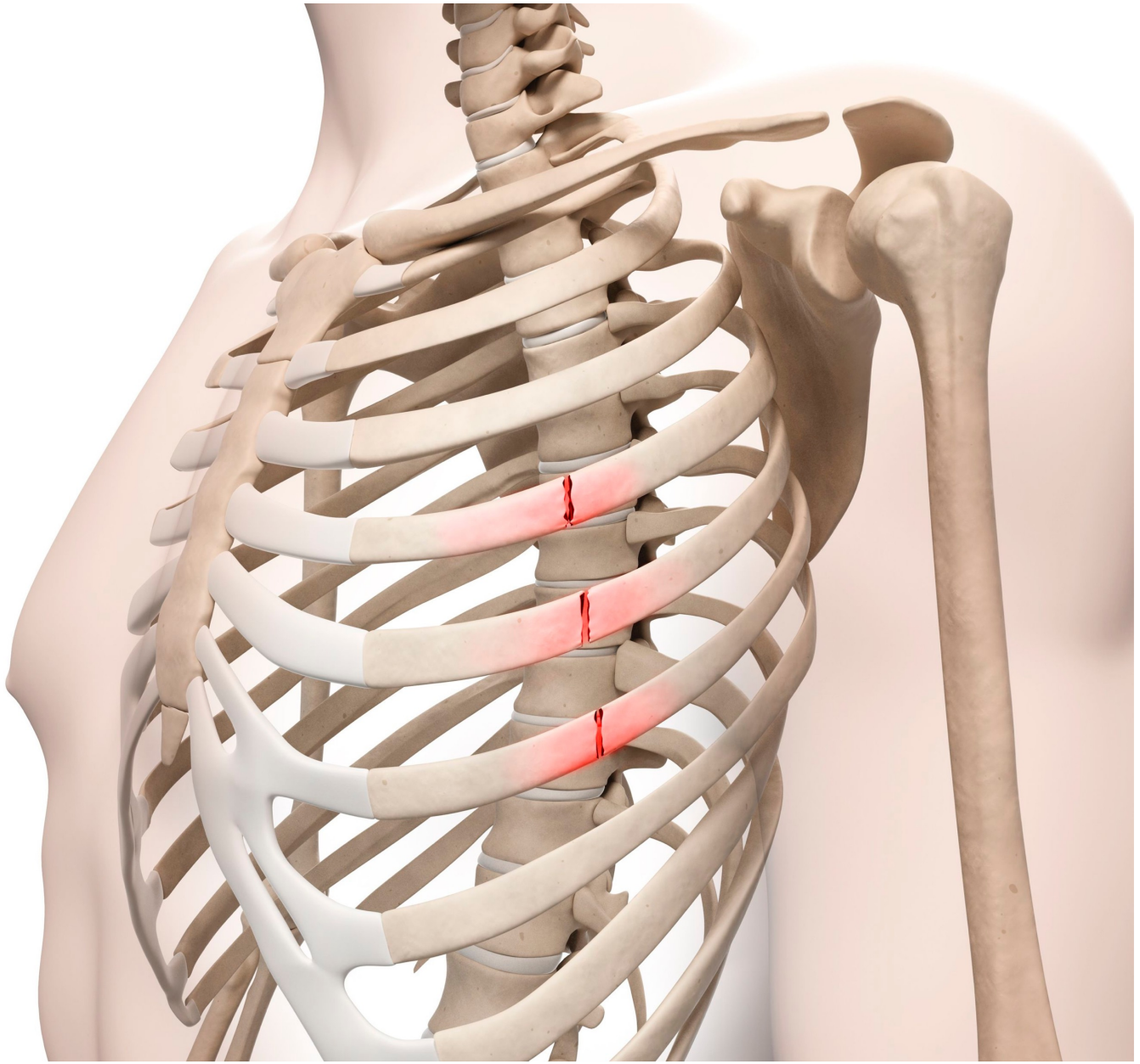
Other Differentials Cont.

Costochondritis:
- sharp, stabbing pain in front of chest
- made worse by any movement

Fractured/bruised rib:
- strong, sharp pain when breathing
- history of trauma

Pulled intercostal muscle:
- sharp pain on chest movement

Shingles:
- a painful, maculopapular rash on one side



Thank You!

Any Questions?