The Doctors' Handbook

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You've Been **Bleeped:**

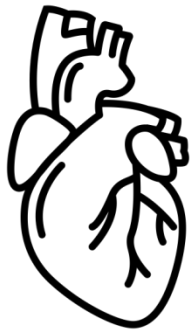
Chest pain

Most **common** differentials?

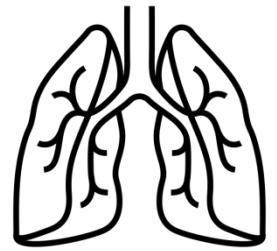
Most **important** differentials?

Differentials

- Musculoskeletal
- Aortic dissection
- Gastrointestinal
  - Perforated PUD
  - GORD
  - Gastritis
  - Oesophagitis
- Breast mass



- Acute Coronary Syndrome
- Congestive Cardiac Failure
- Pericarditis
- Pneumothorax
- Pneumonia
- Pulmonary Embolism



NB: Anxiety is a diagnosis of **exclusion**

Chest pain **rarely** presents neatly/clearly as just **one** differential

Err on the side of **caution**

You've been **bleeped:** Scenario 1

32F with 2/7 hx chest pain. Located at upper R anterior chest wall

Sudden onset, intermittent. 6/10 severity, sharp in nature

Pleuritic – has had a dry cough for the last week whilst recovering from a chest infection. Was prescribed Abx from the GP, feels much better, no fevers

Pain does not radiate

No SOB, no palpitations, no dizziness

History

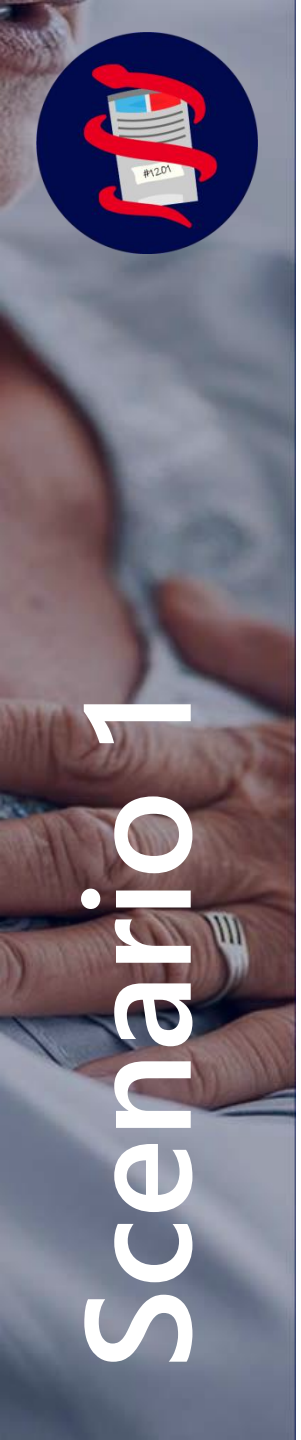
VTE Risk Factor Hx

Never smoked
No recent long haul flights
No haemoptysis
No TLOC

No calf pain
No extended periods of inactivity
No PMHx cancer/VTE
Not hormone based meds

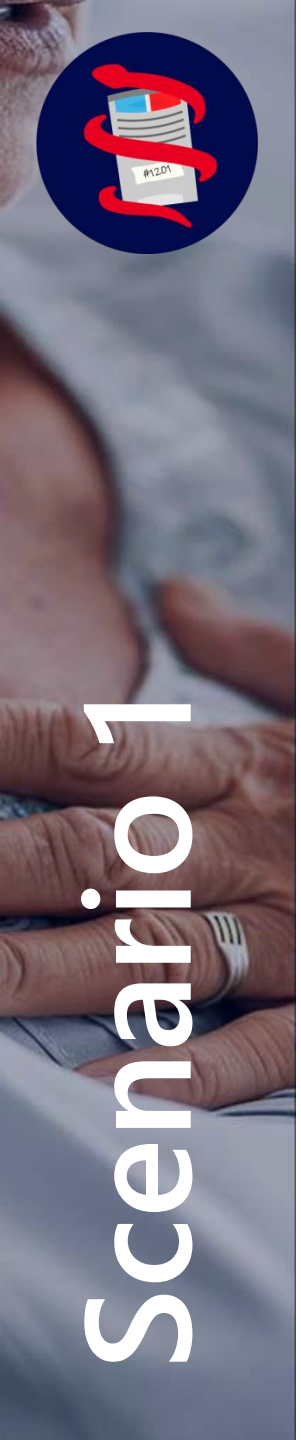
PMHx Nil

DHx Nil – **NKDA**



Scenario 1

	HR 65	**120** 80
	RR 22	98% RA
	T° 37	



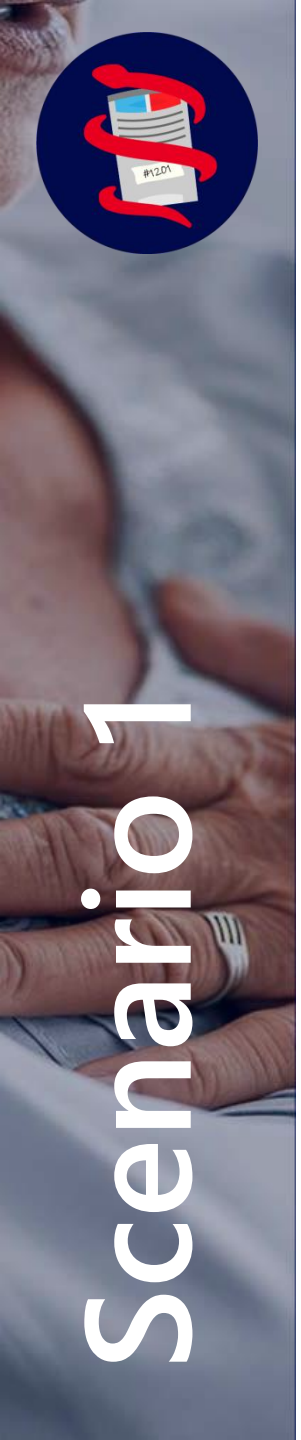
Scenario 1

HR 65 | 120 80 | RR 22 | 98% RA | T° 37

General appearance: patient appears generally well. Healthy BMI

A Patent

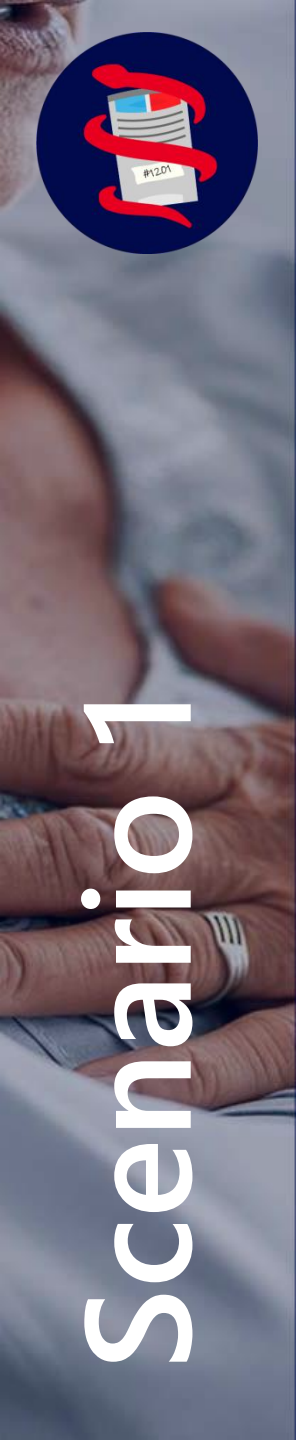
B Chest clear on auscultation. Pain reproducible on chest wall palpation



Palpating for chest wall tenderness

1. Ask them to point with **one** finger to where the pain is focused
2. Explain that you are going to press on it **firmly** with the heel of your hand
3. Ask if it produces the **same** type of pain that they've been experiencing, a **different** type of pain or if they're 'not sure'

NB: If you press hard enough on anyone's chest it'll cause some type of discomfort. It's important not to confuse the two.



Scenario 1

HR 65 | 120 80 | RR 22 | 98% RA | T° 37

A Patent

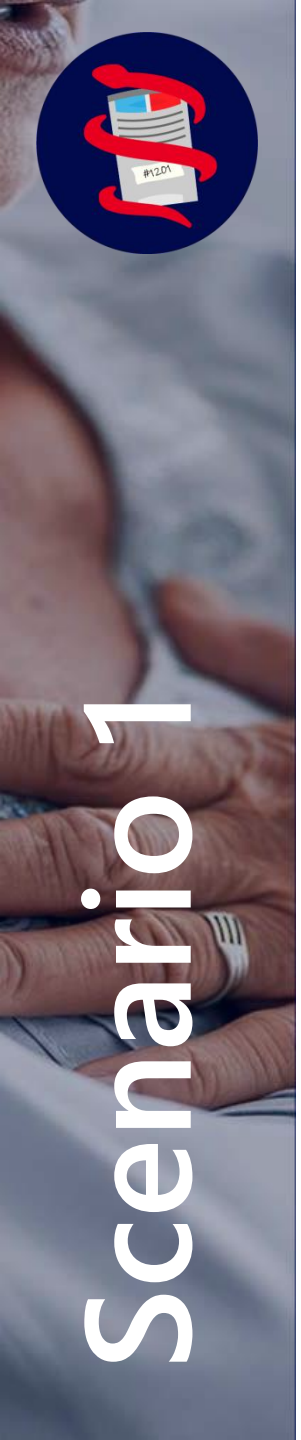
General appearance: patient appears generally well. Healthy BMI

B Chest clear on auscultation. Pain reproducible on chest wall palpation

C HS normal, CRT <2s, JVP not raised, HR regular, calves SNT, no pedal oedema, PWWP

D GCS 15, PEARL

E Abdomen SNT



Investigations

ECG — Normal sinus rhythm

Trop — <6

Bloods — Nil concern. Inflammatory markers normal

CXR — No collapse/consolidation. No widened mediastinum

Wells score — zero

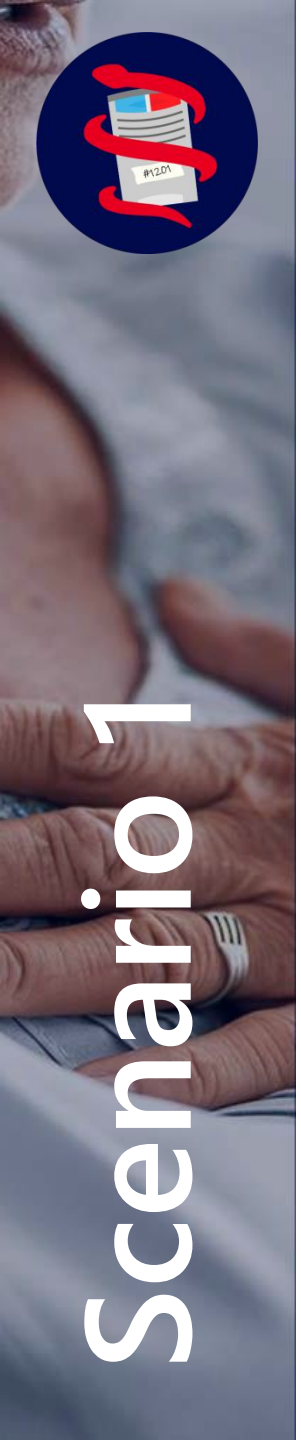
PERC — zero

PERC – Pulmonary Embolism Rule-out Criteria. Can be found on the MDCalc app

Scenario 1

Impression?

Management plan?



Impression

MSK chest pain secondary to dry cough

Management

Discharge with simple analgesia and strict safety netting advice. Document safety netting advice

Spend time explaining the diagnosis and reassuring them that you've ruled out other causes such as MI, PE etc. This can help reduce anxiety and chances of unnecessary re-attendance

You've been **bleeped:** Scenario 2

32F with 2/7 hx of chest pain. Located at the upper right anterior chest wall

Sudden onset, intermittent. 6/10 severity, sharp in nature

Pleuritic – has had a cough for the last week whilst recovering from a chest infection. Still feels slightly feverish. Cough productive of clear sputum

Feels mildly SOBOE. No dizziness

History

Some palpitations, but these are intermittent and longstanding – often gets them when she feels anxious

VTE Risk Factor Hx

Smoker - 15 pack years
No recent long haul flights
No haemoptysis/No TLOC

No calf pain
No extended periods of inactivity
No PMHx cancer/VTE

PMHx

Anxiety
Depression

DHx

COCP
Sertaline
NKDA

SHx

Smoked 15 per day for the last 20 years

Scenario 2

HR	101	120 / 80
RR	24	98% RA
T°	37.5	

Scenario 2

HR	101
120	80
RR	24
98%	RA
T°	37.5

A Patent

General appearance: patient appears generally well, calm at rest. Speaking in complete sentences. Healthy BMI.

B Chest clear, chest wall tenderness on palpation

C HS normal, CRT <2s, JVP not raised, HR regular, calves SNT, no pedal oedema, PWWP

D GCS 15, PEARL

E Abdomen SNT

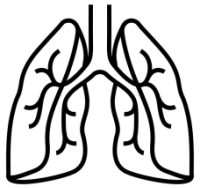
Investigations

ECG	Sinus tachycardia
CXR	No collapse/consolidation. No widened mediastinum

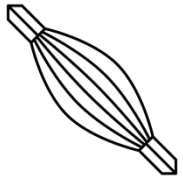
Wells score	1.5
PERC	2

Differentials?

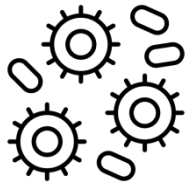
Differentials



Pulmonary Embolism



MSK chest pain



Latent LRTI

Anxiety

Investigations

Sent 1 hour ago but not back yet

Bloods

- FBC
- LFT, U+E, CRP
- clotting

What are you going to do at **this stage** with regards to blood investigations?

Investigations

Sent 1 hour ago but not back yet

Bloods

- FBC
- LFT, U+E, CRP
- clotting

Ring lab to add on D-dimer

D-dimer 2,352

Can be added onto a **blue** bottle that was sent for coagulation

Scenario 2

Management plan?

Management

Urgent discussion with senior

Discuss with A&E NIC – patient should be transferred to Majors/Resus if any signs of right heart strain, DVT, hypoxia or haemodynamic instability

CTPA

What if the CTPA gets **delayed**?

When to give **treatment dose** enoxaparin?

What **colour** cannula does the patient need for a CTPA?

Discuss with a senior

They'll likely advise stat **treatment dose enoxaparin 1.5mg/kg** whilst awaiting the CTPA balanced against bleeding risk (e.g. if a PMHx of ruptured peptic ulcer)

The patient needs a **green cannula** for a CTPA However the radiographer may or may not accept a pink if it's at least as high as the antecubital fossa (policies differ between trusts)

You've been **bleeped:** Scenario 3a

You're a 5th year medical student on GP placement

You've been **bleeped:** Scenario 3a

56M c/o sudden onset tight, squeezing chest pain whilst carrying shopping bags up the hill at approx. 1300 today

Central, radiated to the left shoulder and to the neck - 6/10 severity

Sat down to rest and the pain relieved itself after 5 minutes

Associated with SOBOE, sweating and nausea but no vomiting

You've been **bleeped:** Scenario 3a

He's had this on 2 previous occasions over the last 3 months, both on exertion but hasn't done anything about it before. Only booked a GP appointment on this occasion because his wife insisted

The pain is not present currently

30 pack year smoking history

History

PMHx

T2DM
HTN
Hypercholesterolaemia
Obesity

DHx

Metformin
Atorvastatin
Amlodipine
NKDA

FHx

Father had an MI aged 52

SHx

Works as a bus driver, so is sitting down for most of the day. Heavy smoker. Minimal drinker

Scenario 3a

HR	82	140 95
RR	20	98% RA
T°	37	

Scenario 3a

	HR 82	**140** 95		**RR** 20	98% RA		**T°** 37

A Patent

General appearance: patient appears generally well, calm at rest. Speaking in complete sentences. High BMI >30.

B Chest clear, no chest wall tenderness on palpation

C HS normal, CRT <2s, JVP not raised, HR regular, calves SNT, no pedal oedema, PWWP

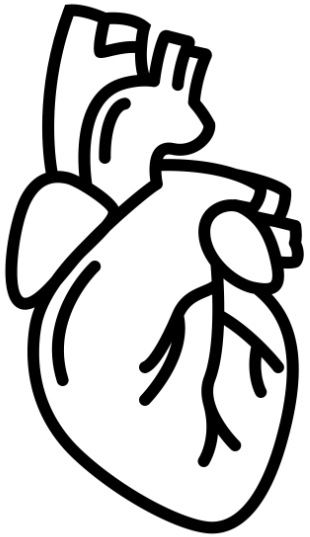
D GCS 15, PEARL

E Abdomen SNT

Scenario 3a

Differentials?

Differentials



Stable angina

Scenario 3a

Management plan?

Scenario 3a

Management

Discuss with your **senior,** they will likely advise:

- 2 week wait urgent referral to the Rapid Access Chest Pain Clinic
- Prescribe GTN spray PRN and aspirin 75mg OD for the patient now to pick up from the pharmacy immediately after leaving the GP clinic
- Full set of bloods including: HbA1c, cholesterol/lipid profile, plus FBC, U&Es, LFTs.
- Referral for an ECG at the GP clinic/within a primary care setting
- Very clear safety netting advice and documentation of it. Explain that if the chest pain returns they should rest and spray the GTN twice under the tongue. If the pain doesn't go within 5 minutes then phone 999 for an ambulance

You've been **bleeped:** Scenario 3b

POV: 5th year medical student on GP placement

Similar situation as before, however…

The patient says that they **still** have chest 'tightness'.

He insists that the pain has eased off greatly and it's not nearly as bad as it was. In fact he 'wouldn't describe it as a pain at all'.

However 2 hours after onset there is still a tight, 'uncomfortable' feeling on the chest. He thinks it's possibly just related to feeling a bit anxious.

Scenario 3b

Impression?

Management plan?

Scenario 3b

Impression

Unstable angina/MI

Management

Discuss **urgently** with your senior. They will likely advise:

- Phone 999 for an ambulance
- Go to the emergency drugs cupboard, administer the patient with GTN x2 sublingual and aspirin 300mg
- Whilst the ambulance is on its way, write up a referral letter for the patient/paramedics to take to A&E

Scenario 3b

Patients will sometimes **downplay** their symptoms intentionally as an avoidant coping mechanism.

There is often an attitude of not wanting to ‘cause a fuss’, so ‘chest pain’ is sometimes instead described ‘chest **tightness**’ or ‘**discomfort**’.

The **take-home** message is to ask: ‘Is there chest pain?’ If the answer is no, then ask ‘Is there any chest tightness or discomfort?’

You've been **bleeped:** Scenario 4

You're an FY1 on evening ward-cover during the week

You receive a bleep from a nurse telling you that there is a medical patient with acute chest pain and SOB

You've been **bleeped:** Scenario 4

S 65F admitted yesterday with urosepsis. 2 minutes ago started c/o chest pain. Also feeling very SOB

B Recurrent UTI's, CCF with an EF-35%, AF (on apixaban) and an MI from 2 years ago. On admission - lactate 4.5 and pH 7.29 so she's been given 4L of fluid since

A EWS – 5

HR 95

107 62

RR 24

89% RA

99% 15L NRB

T° 37

R You ask them to do an ECG and double check that she has cannula access. If she currently has any IV fluids running then stop them. You'll be right there

Very brief, focused history

- Patient describes a heavy, central chest pain
- Came on over approx. 20 minutes
- Feels very SOB
- No cough

Scenario 4

HR	107
95	62

RR	89% RA	99% 15L NRB
24		

T°
37

General appearance: patient appears generally unwell and distressed. SOB. Unable to speak in full sentences

A Patent

B Bibasal inspiratory creps

C HS normal, JVP raised, CRT 3s, peripheries cool and clammy, calves SNT, pitting oedema +++ up to mid thigh

D GCS 15, PEARL

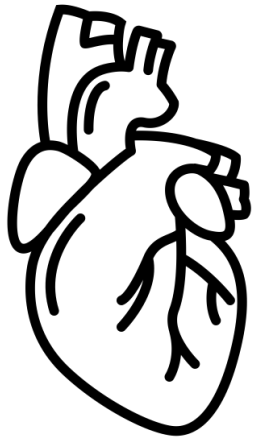
E Abdomen SNT

ECG — LVH, atrial fibrillation (patient has known AF)

Scenario 4

Impression?

Differentials



Acutely decompensated CCF secondary to fluid overload +/- MI

Hospital acquired pneumonia

Scenario 4

Management plan?

NB: If you feel the situation is stable enough, do your A-E assessment and get the ABG result **before** calling the SpR

However, if you think the patient is about to **crash**, then put out a 2222 call for a peri-arrest

Management

Oxygen and monitor O_2 sats

Prescribe 5-10mg oramorph stat – chest pain → anxiety → tachycardia → exacerbates the situation

Arterial blood gas

Discuss with your senior

Send off bloods including troponin – **NB**: troponin is often chronically raised in CCF. Look at trends from previous results**. Will need a 2nd troponin after 6hrs**

Management

ECG

Discuss with SpR re: furosemide, GTN infusion, possible CPAP etc.

Bedside CXR

You've been **bleeped:** Scenario 5

You're an FY2 in A&E

You've been **bleeped:** Scenario 5

67M with a 2 hour Hx of sudden onset central sharp chest pain

8/10 severity. Radiates through to the back. Left arm feels numb

Associated with SOB

Has had a chronic cough for the last few years, productive of clear sputum. Denies fevers

Has been given 5mg oramorph whilst waiting in the queue for A&E but hasn't relieved the pain much

No cough. No palpitations. No dizziness. No nausea/vomiting

History

PMHx

COPD
HTN
T2DM
Obesity
MI five years ago, IHD

DHx

Salbutamol
Tiotropium
Amlodipine
Metformin
Aspirin 75mg OD
NKDA

FHx

Brother had an MI aged 55

SHx

Smoked 20 per day for 40 years, minimal alcohol content. Retired engineer

Scenario 5

HR	97	110 / 72
RR	22	93% RA
T°	37	

Known COPD

Scenario 5

HR	110
97	72

RR	93% RA
22	

Known COPD

T°
37

A Patent

B Mild bilateral basal inspiratory crackles. Appears to have equal air entry bilaterally but clear auscultation is made difficult due to large body habitus

C HS – diastolic murmur loudest at 3rd ICS R sternal edge
JVP normal, CRT 3-4s
Peripheries cool and clammy
Calves SNT, no pitting oedema

D GCS 15, PEARL

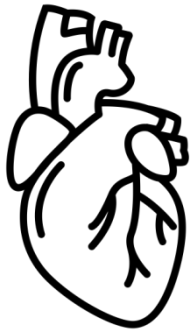
E Abdomen SNT

NB: This patients' BP is technically normal at 110/72, but he has a background of HTN – **so this is actually hypotensive for him**. He is also tachycardic at HR 97

Scenario 5

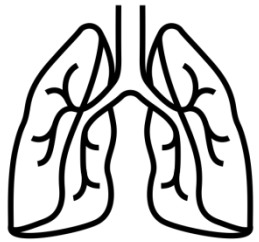
Differentials?

Differentials



Aortic dissection

Myocardial Infarction



Pneumothorax

Scenario 5

If you suspect aortic dissection, what else would you **add** to your examination?

What bedside **investigations** could you order?

Bilateral radial pulses: for a quick indication, but would still need bilateral BP (present in only 15-20% of cases).

Bilateral blood pressures: >15mmHg difference in each arm suggestive of dissection, however it's a late sign.

VBG — Low Hb, high lactate

Look for **trend** in Hb if available

Be aware that VBGs can be inaccurate in demonstrating an acute Hb drop, there is often a **delay**

Bedside USS by A&E SpR

CT aortagram is the gold standard

A helpful diagnostic tool is the **ADD-RS** scoring system on MDCalc

For lower risk patients, you can send off a **D-dimer**. If D-dimer is negative then this means a dissection is unlikely

For higher risk patients, progress straight to CT aortogram without waiting for a D-dimer result

Investigations

ECG

Sinus tachycardia with ST elevation in inferior leads

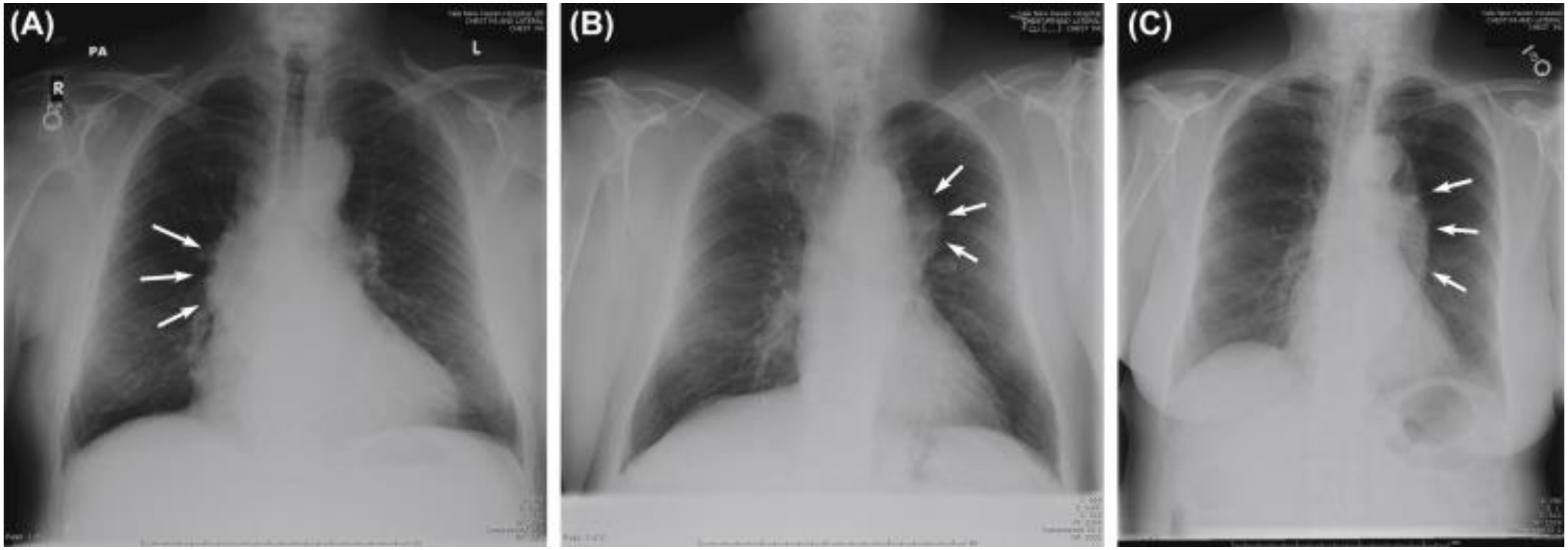
VBG

Hb 90, lactate 3

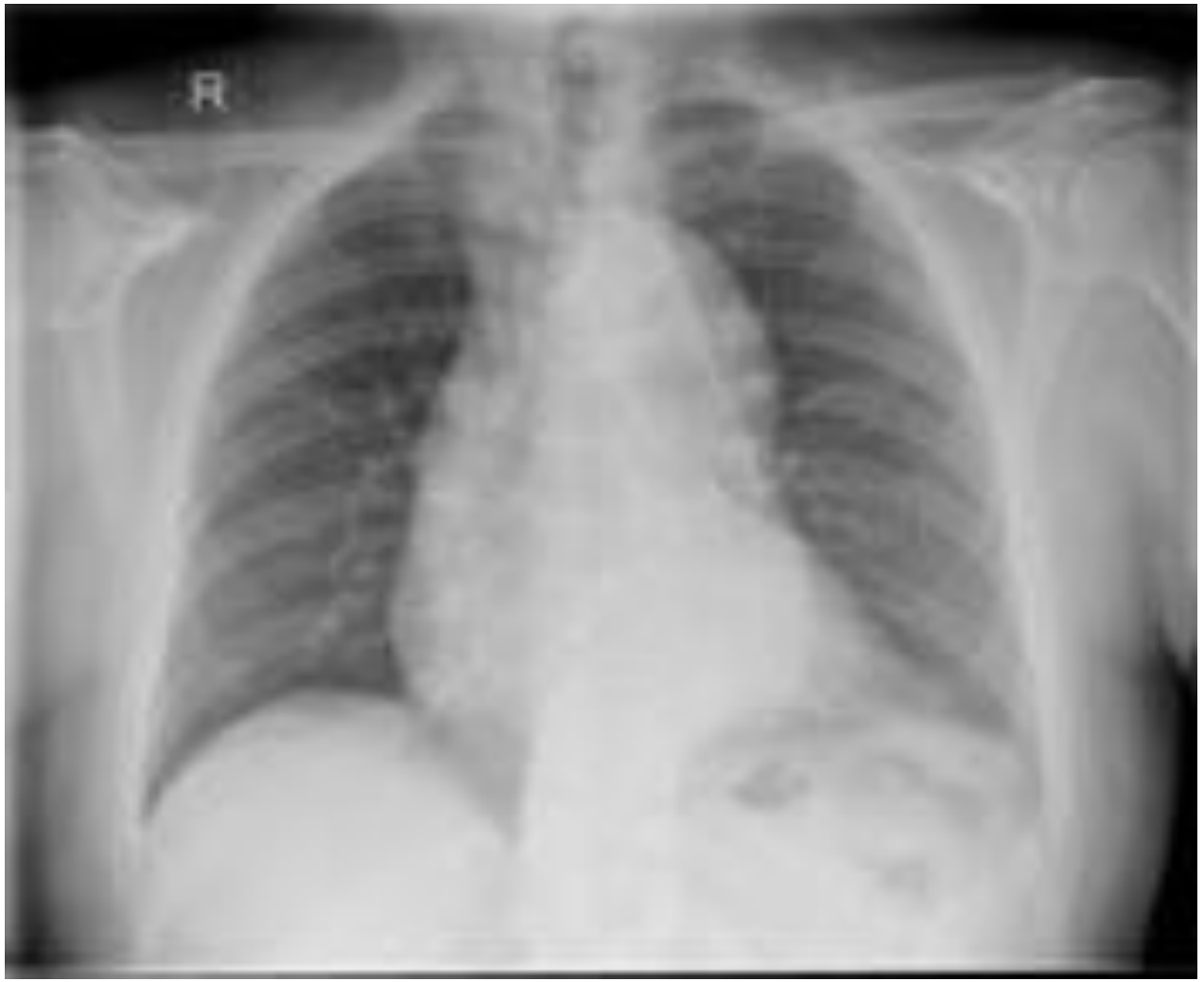
CXR

Widened mediastinum, double aortic knuckle, small pleural effusion

Scenario 5



Scenario 5



Scenario 5

Impression?

Management plan?

Impression

Aortic dissection

Management

Oxygen

Escalate immediately to your senior and to cardiothoracics

Move the patient to resus

2x large bore cannulae

Blood transfusion, IV morphine plus antiemetic

Feedback

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