# ED QUICK QUIZ
# WHAT IS THE DIAGNOSIS?

**BACKGROUND**

Chest pain- a patient journey with an unhappy ending!

Joe was a 69yrs old fit and well gentleman with a PMH of hypertension. He was away with work when he developed sudden, severe chest, back and abdominal pain. He called an ambulance and went to ED at 5pm. Here he required 12mg of morphine to get his pain under control.

He had investigations for MI- ECG and bloods which were normal. The only abnormal result was a raised lactate. The pain resolved, observations were normal and lactate fell, so he was discharged home at 2am with a diagnosis of gastritis.

On arrival back at his digs 10/10 pain suddenly returned and his friend brought him back to the hospital where he had further investigations including an US which clearly showed a 'double lumen sign'. The team were keen to confirm this and requested a CT which took 5 hours to arrange. Joe arrested in the CT scanner, despite maximal efforts there was no return of spontaneous output.

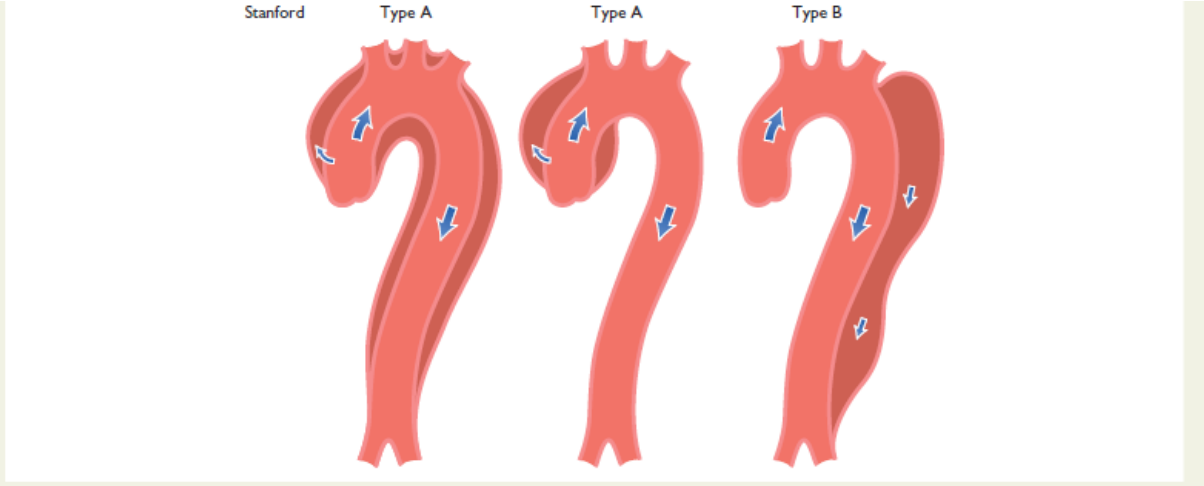
**QUESTIONS**

1. What do you think was wrong with Joe?
2. What is aortic dissection (AD) and how is it classified?
3. What are the signs and symptoms of AD?
4. What is the investigation of choice for diagnosis of AD?
5. What are the risk factors for AD?
6. What is the management of AD?

## ANSWERS & DISCUSSION

1. Joe had an aortic dissection Type A.

2. AD occurs when blood leaves the aortic lumen via an intimal tear, separating the inner from the outer layers of the media creating a false lumen.
   AD is acute if the diagnosis is made within 2 weeks of the initial onset of symptoms and chronic if present for more than 2 weeks. Using Stanford Classification-




Type A includes the ascending aorta but may extend into the arch and descending aorta. Type B involved the descending aorta only.

3. The pain of AD has been described as 'thunderclap'- **sudden and severe** and classically it presents with **chest pain** 80%, **back pain** 40% and **abdominal pain** 25%. Patients may present with tearing chest pain radiating to the back, but it can present as neck pain radiating to the epigastrium and abdominal pain. The **pain may migrate** following the dissection path. The diagnosis is often missed as the **pain can resolve and the patient appears well**. Any story of sudden severe chest/back pain should include AD in differential diagnosis particularly if the patient collapsed or there were neurological signs such as paraesthesia, limb weakness or altered sensation. Patients may have **aortic regurgitation**. **Myocardial ischaemia or infarction** is present in 10-15%, **troponin is elevated in 25%**. **Syncope** in an initial symptom in 15% and **neurological findings** in 15-40%

4. If AD is suspected the patient should have a CT scan with minimal delay and as soon as the diagnosis is made contact should be made with the cardiothoracic team. D dimer is often positive in AD, whereas troponin is only elevated in 25%.
   The signs on CXR of widened mediastinum and BP discrepancies between arms are not often seen.

5. Poorly controlled hypertension 65-75%, pre-existing aortic disease or aortic valve disease, FHx of aortic diseases, history of cardiac surgery, cigarette smoking, direct blunt chest trauma, IV drug use- e.g. amphetamine and cocaine are all risk factors for AD as are connective tissue disorders eg Marfans.
6. Acute Type A AD is managed by surgery. Time is of the essence, transfer to a cardiothoracic centre ASAP. Surgery reduces 1 month mortality from 90% to 30%. A labetolol infusion keeping systolic BP between 100-110mmHg and an arterial line are helpful but should not delay transfer.
   Type B AD is often uncomplicated- medical management to control pain and blood pressure with close monitoring for signs of disease progression and malperfusion.

**References**

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