
Station Number SIX: Standardised Case Based Discussion

Candidate instructions

This is a 7-minute standardised case base discussion. You will be interacting directly with an examiner. You will be asked to outline your assessment and management to the following clinical situation. Further information will be provided as the case evolves. The examiner will be assessing your medical knowledge, as well as the reasoning and rationale to your approach and decisions. Please be as specific as possible when answering. For example, when discussing drugs describe doses, when discussing investigation or management provide reasons why you chose that approach.

Case information:

You are an ED consultant working in a tertiary centre on a morning shift. You receive the following ambulance pre-notification:

23 year old female collapsed while walking to her car. Complained of chest pain and dizziness prior to collapse. On AV arrival she was conscious but found to be pale with weak peripheral pulses and an unrecordable blood pressure. She reports no past medical history.

Vital signs called through are as follows:

- HR 88
- BP unrecordable
- Sats 90% on 6L

Your tasks are to:

- List your differential diagnoses and how you will assess for them
 - Answer any questions from the examiner as the case evolves
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This OSCE will assess the following domains:

Medical Expertise 60%

- Assessment and management 30%
- Investigations 30%

Prioritisation and Decision Making 40%

Lead Examiner script

The questions are to be delivered in the same manner to all candidates. If a candidate's response lacks clarity– then the lead examiner may probe further or ask the candidate to justify their decision-making process.

Section 1 (minute 0-3): “What are your differential diagnoses and how will you assess for these?”

1. Pulmonary embolism

- Vital signs- tachycardia/hypotension/hypoxia
- History- symptoms/character of pain, risk factors for DVT/PE - for age must say OCP
- Examination- evidence of DVT
- ECG- R heart strain pattern in precordial leads, RBBB etc
- POCUS- Dilated RV with reduced systolic function, flattened IV septum, McConnell's sign, clot in pulmonary artery, dilated IVC with no respiratory collapsibility

2. Ruptured ectopic pregnancy

- Vitals- consistent with hemorrhagic shock
- History- missed period/trying to conceive, irregular PV bleeding, risk factors for ectopic pregnancy
- Examination; Abdominal pain, focal peritonism, PV bleeding
- POCUS: FF on abdominal US/adnexal mass
- Positive urinary BHCG/iSTAT

3. Aortic dissection

- Vital signs: hypotension, tachycardia
 - History: character of chest pain, history or family hx of CTD/Marfans
 - Examination: radio-radial/femoral delay, murmurs
 - POCUS: dilated aortic root, dissection flap. Complications- pericardial effusion
 - ECG: ST elevation consistent with occlusion of coronary arteries
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4. Tension Pneumothorax

- History: previous pneumothorax/diving/connective tissue disorders/smoking
- Examination: reduced air entry, tracheal deviation, asymmetrical chest wall movement
- POCUS: barcode sign, no lung slide

Any others reasonable if justified - eg HOCM/congenital heart disease, severe sepsis

Prompts: How can you use POCUS to determine the underlying diagnosis

Section 2 (minutes 3-5): “The patient arrives and her vital signs are as you see on the handout (give prop).

She is still complaining of chest pain. She has no IV access as yet and has received no treatment so far. A bedside ultrasound reveals a dilated aortic root of approximately 5cm with a dissection flap.

Please outline your approach to resuscitating this patient”

Assessment

Initial Resuscitation

- Needs a robust escalating plan for establishing IV access.
 - **Supplemental O2**- 15L via NRB aiming sats >94%
 - **IV access**- give escalating plan
 - large bore cannula
 - IO if unsuccessful while attempting US guided IV access
 - Central IV access if unable to peripherally cannulate
 - **Circulation**: Fluid bolus- minimum 1L crystalloid, aiming SBP 90mmHg or similar
Repeating and escalating to vasopressors if no response
Noradrenaline/Metaraminol with doses and endpoints
 - **Analgesia**- fentanyl/morphine- reasonable dose
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Notifications:

- ICU/Cardiothoracics team- needs urgent OT

Specific management/investigations:

- Bedside ultrasound to assess for pericardial effusion/tamponade - Assess descending aorta- determine type of dissection/type A vs B
- ECG to determine coronary artery involvement
- Negative Chronotropy- esmolol 500mcg/kg loading
1-3mg IV propranolol every 5 mins
Aiming HR 60-80bpm
- Vasodilation not needed as already hypotensive.

Section 3 (minutes 5-7): “You manage to stabilise and intubate the patient in preparation for theatre. Together with the cardiothoracic team you decide to take the patient to theatre via CT.

What are the principles of safe transfer of a critical patient and what are some of the potential complications?”

General

- Stability - ensuring patient is stable enough to move

Patient:

- Secure all lines/tubes
Ensure adequate analgesia and sedation
 - Ensure adequate monitoring- ideally invasive with arterial line
 - Extra IV access for contrast/in case of hampering
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Equipment:

- Drugs- extra sedation, pressors, paralysis
- Resuscitation drugs
- Airway- BVM, ventilator, intubation kit
- IV access equipment, fluids
- Resuscitative equipment - potentially pericardiocentesis kit

Anticipated complications:

- Loss of airway/lines
- Loss of monitoring/malfunctioning of equipment
- Change in clinical status- rupture of aneurysm with decompensation
- Cardiac arrest- Secondary to myocardial ischaemia or pericardial tamponade

Communication:

- With CT and OT re timing/transport
- Handover of patient

Departmental factors:

- Ensuring rest of department managed adequately while transport clinician off the floor
 - ddx?cardiac eg complications if congenital cardiac
 - Ensure stability
 - Specific complications for this case - pain, BP management, HR control
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Vital signs:

- ***HR 120***
 - **BP 70/40**
 - **Sats 88% on air**
 - **Temp 36.0**
 - **GCS 14**
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Examiner Marking Sheet

Examiner name(s):

Candidate Name:

OSCE Station:

DOMAIN	ASSESSMENT CRITERIA	MET/NOT MET
Medical Expertise	- Differential diagnoses including at least PE, Dissection and ruptured Ectopic with appropriate assessment for each - Management including O2, escalating IV access plan and appropriate BP/HR management. Must also include analgesia and urgent definitive surgical plan - Safe transfer principles - ensuring stability, monitoring, equipment and drugs for possible complications and appropriate communication	
Prioritisation and decision making	- Recognising lack of IV access as urgent priority and giving appropriate plan for this - Assessment includes ECG and POCUS - Prioritise BP/HR management - Urgent appropriate notifications including cardiothoracics	

COMMENTS AND CONSTRUCTIVE FEEDBACK

GLOBAL ASSESSMENT RATING

Please rate this candidate's OVERALL performance in this OSCE:

In terms of a **safely practising junior emergency physician** please select the ONE option which best reflects this candidate's performance in this station

**Well
Below
Standard**

☐

**Below
Standard**

☐

**Just at
Standard**

☐

**Above
Standard**

☐

**Well
Above
Standard**

☐