



OSCE 17

Candidate Instructions

This is a **7 minute** station.

You are an emergency consultant in a tertiary emergency department.

One of your junior doctors has asked for help interpreting an ECG and managing a 73 year old male with chest pain. He had one hour of central chest pain that radiated to his left shoulder, relieved by GTN.

Observations:

Temp	36.7 °C
RR	21 /min
SpO ₂	97 % in room air
HR	65 bpm
BP	170/90 mmHg

The patient is currently pain free.

The ECG is provided.

Your tasks are to:

- Interpret the ECG and provide relevant teaching
- Advise on initial management
- Answer any further questions

This OSCE will assess the following domains:

- Medical Expertise – 70%
 - Investigation Interpretation (50%)
 - Management (20%)
- Scholarship and Teaching – 30%



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Examiner Instructions

This is a **7 minute** station.

The candidate will be required to discuss a case that is being managed by a first year junior doctor.

The case is of a 73 year old male with resolved chest pain.

The case is anchored to an ECG which is provided to the candidate during reading time. The ECG shows left bundle branch block, negative for Sgarbossa criteria.

The junior doctor is unsure about the overall appearance of the ECG and the significance of the ST changes in V1-3. The candidate is expected to address these concerns and teach the ECG findings.

The candidate is expected to:

- Describe the features of LBBB and Sgarbossa criteria
- Provide a differential diagnosis
- Provide the initial management of the patient
- Explore the junior doctor's pre-existing knowledge
- Teach a focused emergency department approach to reading ECGs in chest pain.
- Provide an initial management plan

See **Candidate Instructions for tasks/domains and full details provided to candidates.*



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Role-player Instructions

Role-player requirements

- Gender: Any
- Age range: 25-35
- Role to be played by: FACEM

This is a **7 minute** station.

You are a first year (PGY1) junior doctor.

You have just seen a 73 year old male with an hour-long episode of central chest pain. He is now pain free after being given GTN. He is being looked after by one of the registrars.

You are unsure about the overall appearance of the ECG and how much you need to worry about the ST elevation in V1-3. You want to discuss the ECG with the emergency consultant (the candidate), as you know this is a serious diagnosis.

During the 7 minutes the candidate should:

- Correct your misinterpretation and teach you (the junior doctor) how to interpret this ECG
- Address management priorities, and explain why they are important
- Ensure you understand how to read future ECGs like this.



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Role-player Script

Part 1 (0 – 4 mins)

Opening statement:

“Hi. I’ve started seeing this 73 year old male who presented with chest pain. He is pain free. This is his ECG. I’m concerned about the ST elevation. What do you think?”

You can expect the candidate to ask questions on:

Patient stability:

- Vital signs are normal

Further history and examination details:

- You only know the patient is a 73 year old male
- 1 hour of central chest pain that radiated to his left shoulder
- Has been relieved following 2 sublingual sprays of GTN
- There is no history of syncope but do not volunteer this point unless they ask

Any previous ECGs:

- You do not have any previous ECGs for this patient

- If the candidate asks you about your level of knowledge, say:

“I’m a PGY1 trainee and this is the first week of my ED rotation. I understand the basics.”

- If asked if you are worried about anything specific, say:

“The ST elevation in V1 -3”

You should **NOT** mention Left Bundle Branch Block (LBBB) unless the candidate does.

- If the candidate mentions LBBB but does not explain or describe its features (at least 2 features), ask:

“What features of this ECG make it a LBBB?”

- If the candidate does not start to explain within 1-1.5 minutes what the ECG demonstrates, ask:

“So, what does the ECG show?”

- If they ask you anything else, say:

“I don’t know” or “I’m not sure”

You are not resistant in any way to being corrected.



The candidate is expected to describe and interpret the ECG:

- Identify Left bundle branch block with reference to any of:
 - QRS duration > 120ms
 - Dominant S wave in V1
 - Broad monophasic R wave in lateral leads (I, aVL, V5-V6)
 - Absence of Q waves in lateral leads
 - Prolonged R wave peak time > 60ms in leads V5-6
- Candidate may volunteer causes of LBBB include: NSTEMI/ACS/Ischaemic Heart Disease, Hypertension, Hyperkalaemia, Aortic Stenosis, Digoxin, cardiomyopathy
- Description of Sgarbossa criteria and relevance as STEMI equivalent
 - e.g. Smith-Modified Sgarbossa Criteria (standard Sgarbossa criteria also acceptable):
 - Concordant ST elevation ≥ 1 mm in ≥ 1 lead
 - Concordant ST depression ≥ 1 mm in ≥ 1 lead of V1-V3
 - Proportionally excessive discordant STE in ≥ 1 lead anywhere with ≥ 1 mm STE, as defined by $\geq 25\%$ of the depth of the preceding S-wave (Excessively discordant ST elevation > 5 mm in leads with a -ve QRS complex)
- Overall interpretation of ECG:
 - Left bundle branch block
 - Negative for Sgarbossa criteria and therefore not a STEMI equivalent
 - Need to explore other causes of chest pain

By the **3 minute mark**:

- If Sgarbossa criteria not already addressed, ask:
"I heard something about there being a way of telling if there is a STEMI with LBBB. Can you explain this to me?"

Part 2 (4 mins – 5 mins 30 secs):

By the **4 minute mark**, ask:

"In general, what differential diagnoses should I consider when I see ST elevation?"

Candidate is expected to indicate **at least three** (other than LBBB and Sgarbossa): **ischaemia/MI**, pericarditis, BER, ventricular aneurysm, Prinzmetal, LVH, hyperK, paced, Takotsubo, Brugada, Massive PE, Intracranial Event

The three must include ischaemia/MI.

- If the candidate has not mentioned three by the **5 minute mark**, or not included ischaemia/MI, ask:
"What other causes of ST elevation should I consider?"



Part 3 (5 mins 30 secs – 7 mins)

By the **5 minute 30 second mark**, irrespective of how much they have covered, ask:

“How should we manage this patient?”

- If asked for history, state:

“1 hour of central chest pain that radiated to his left shoulder. Relieved by GTN, pain free now.”

- If candidate fails to mention treatment for recurrence of pain, ask:

“What if the patient gets pain again?”

- If candidate does not mention a disposition plan, ask:

“What should I do after the investigations return?”

The candidate is expected to explain the management of the patient who is high risk for ACS:

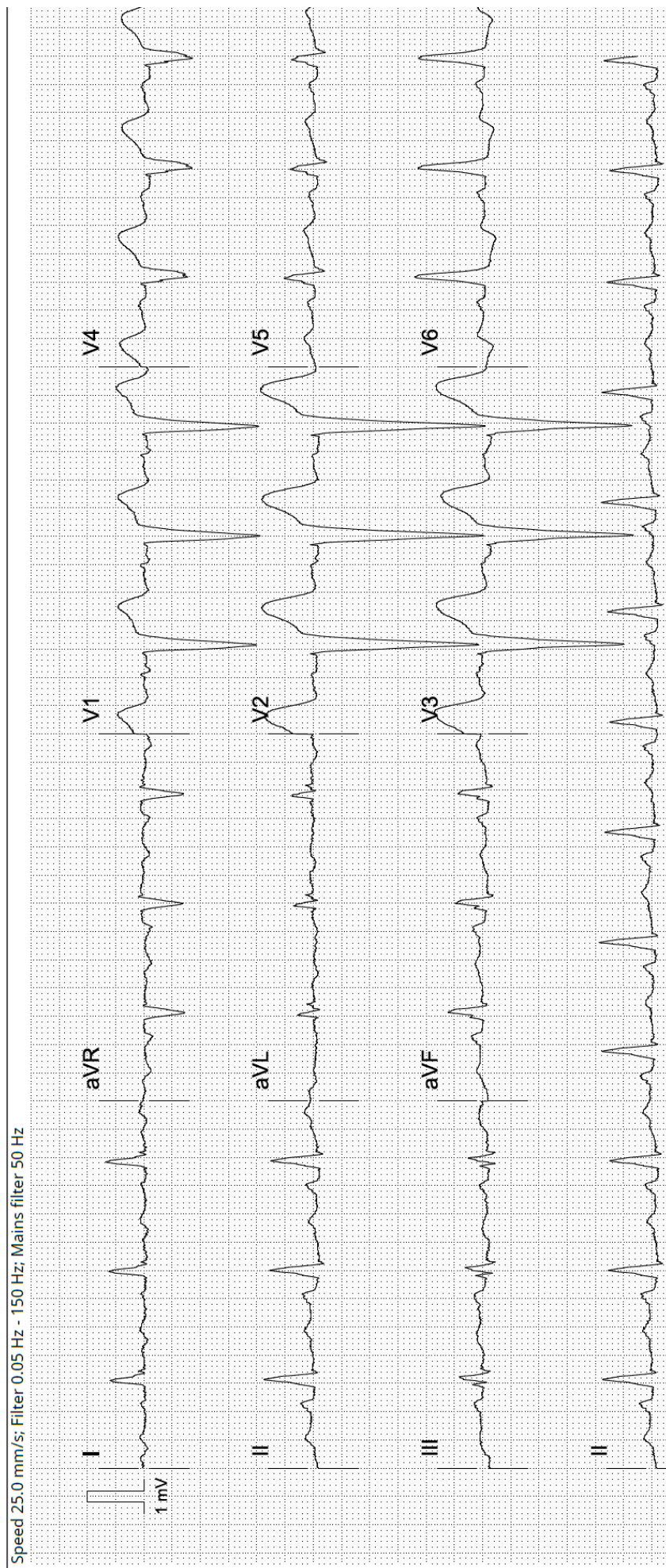
- Chest pain management:
 - Aspirin 300mg PO STAT
 - GTN if further pain, may suggest opiates if refractory pain i.e. IV morphine
 - Some concept that interpretation of ECG in isolation difficult/non-diagnostic:
 - Will likely need serial ECGs/troponin and inpatient review/provocative testing dependent on risk assessment.
- Seek other precipitants/complications for presentation:
 - Volume status and heart failure optimisation i.e. fluid intake, diuretic therapy/compliance
 - Check renal function and electrolytes (potassium specifically)
 - Check for differentials



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Props list

- ECG showing LBBB with negative Sgarbossa Criteria – (OUTSIDE/INSIDE) – next page





Domain	Criteria	Marking rules to be 'at a minimum level of competence'/other comment	Criteria met / not met
Medical Expertise: Investigation & Interpretation (50%)	• Features of ECG: ○ Sinus rhythm (p waves present) ○ rate 70-80/min ○ axis- within normal range ○ normal to borderline QT • Features of Left bundle branch block: ○ QRS duration > 120ms ○ Dominant S wave in V1 ○ Broad monophasic R wave in lateral leads (I, aVL, V5-V6) ○ Absence of Q waves in lateral leads ○ Prolonged R wave peak time > 60ms in leads V5-6 • Indicates desire to compare to other ECGs (previous on file, repeat given pain) • Description of Sgarbossa criteria and relevance as STEMI equivalent (negative in this case) e.g. Smith-Modified Sgarbossa Criteria (standard Sgarbossa criteria also acceptable) ○ Concordant ST elevation ≥ 1 mm in ≥ 1 lead ○ Concordant ST depression ≥ 1 mm in ≥ 1 lead of V1-V3 ○ Proportionally excessive discordant STE in ≥ 1 lead anywhere with ≥ 1 mm STE, as defined by $\geq 25\%$ of the depth of the preceding S-wave (Excessively discordant ST elevation > 5 mm in leads with a -ve QRS complex) • Interpretation of ECG: ○ Left bundle branch block ○ Negative for Sgarbossa criteria and therefore not a STEMI equivalent ○ Need to explore other causes of chest pain ○ Causes of LBBB include: NSTEMI/ACS/Ischaemic Heart Disease, Hypertension, Hyperkalaemia, Aortic Stenosis, Digoxin, cardiomyopathy • Causes of STE: (LBBB), MI/ischaemia, Brugada, pericarditis, BER, ventricular aneurysm, Prinzmetal, LVH, hyperK, paced, Takotsubo, massive PE, Intracranial event	• Features of Left bundle branch block: ○ QRS duration > 120ms or widened QRS + one other feature of LBBB • Interpretation of ECG: ○ Left bundle branch block ○ Describes Sgarbossa criteria (2 of 3 criteria) ○ Indicates negative for Sgarbossa criteria and therefore not a STEMI equivalent • Causes for ST Elevation: ○ Ischemia + two others (excluding LBBB/Sgarbossa)	
		Feedback Statements – Did the candidate adequately:	
		• Identify features of the ECG • Use ECG criteria to determine clinical diagnosis • Provide a differential diagnosis for the ECG findings	

Domain	Criteria	Marking rules to be 'at a minimum level of competence'/other comment	Criteria met / not met
Medical Expertise: Management (20%)	• Chest pain management: ○ Aspirin 300mg PO STAT ○ GTN if further pain, may suggest opiates if refractory pain i.e. IV morphine ○ Some concept that interpretation of ECG in isolation is difficult/non-diagnostic and will likely need serial ECGs/troponin ○ Possible inpatient cardiology review/provocative testing dependent on risk assessment. • Seek and manage other causes/precipitants for presentation: ○ Check renal function and electrolytes (potassium specifically) ○ Check for evidence of cardiac dysfunction (e.g. heart failure) ○ Check for alternative causes of chest pain	• Chest pain management (all 3 needed): ○ Aspirin 300mg PO STAT ○ GTN/opiate analgesia if ongoing pain ○ Refer to any of the following: ▪ serial ECGs/troponin ▪ provocative testing ▪ risk stratification ▪ Disposition: SSU or cardiology admission.	
		Feedback Statements – Did the candidate adequately:	
		• Provide appropriate initial medication • Address further pain as required • Create a coherent ongoing management plan	
Scholarship & Teaching (30%)	• Creates good teacher/learner relationship: ○ Establishes level of understanding/knowledge/experience ○ Establishes rapport, makes learner feel safe and supported ○ Allows and encourages questions • Teaching technique: ○ Clear communication at an appropriate speed ○ Teaches an ECG approach that is focused and contextualised ○ Teaches at an appropriate level to interpret this ECG: ▪ e.g. teaches interpretation of LBBB in context of chest pain • Ensure learner has received and understood material: ○ Emphasises important points: ▪ e.g. interpretation of the ECG within the clinical context, highlights relevant positive/negative findings on the ECG ○ Confirms and/or summarises understanding of key points ○ Suggests further reading or follow up	Minimally Competent Criteria:	
		Feedback Statements – Did the candidate adequately:	
		• Identify learner's needs and knowledge deficiency • Relate learning to clinical case • Check for understanding in the learner	