

Syllabus	
Topic	Cardiac Tamponade

You are asked to review a 65-year-old woman on the cardiac intensive care unit who has undergone coronary artery bypass grafting surgery earlier that day. They are concerned the patient may be developing cardiac tamponade.

**a)**

List the 3 components of Beck's Triad (3 marks)

1. ....
2. ....
3. ....

**b)**

List 4 other clinical features of cardiac tamponade (4 marks)

1. ....
2. ....
3. ....
4. ....

**c)**

Give 2 investigations along with findings which would suggest tamponade (2 marks)

- Investigation 1: .....
- Findings: .....
- Investigation 2: .....
- Findings: .....

**d)**

Give 2 potential causes of tamponade in this patients (2 marks)

1. ....
2. ....

**e)**

Describe the mechanism of haemodynamic compromise in cardiac tamponade (4 marks)

.....

.....

.....

**f)**

Describe the steps in the management of this patient (5 marks)

.....

.....

.....

.....

.....

.....

Syllabus	
Topic	Cardiac Tamponade

Q	Answer	Mark	Guidance
a)	<ol style="list-style-type: none"> <li>1. Distended neck veins/high CVP/JVP</li> <li>2. Hypotension</li> <li>3. Muffled heart sounds</li> </ol>	3	
b)	<ul style="list-style-type: none"> <li>• Tachycardia</li> <li>• Kussmaul's sign – lack of rise in JVP with inspiration</li> <li>• Pericardial rub</li> <li>• Oliguria</li> <li>• Pulsus paradoxus if spont breathing, reverse pulsus paradoxus if ventilated</li> <li>• Dyspnoea</li> <li>• Syncope/presyncope</li> <li>• Chest pain</li> </ul>	4	
c)	<ul style="list-style-type: none"> <li>• <u>Echocardiography</u> – fluid in the pericardium</li> <li>• <u>Chest x-ray</u> – boot/globular heart</li> <li>• <u>ECG</u> – small complexes with electrical alternans (alternating QRS amplitude and axis)</li> </ul>	2	
d)	<ul style="list-style-type: none"> <li>• Coagulopathy</li> <li>• Surgical bleeding ie. from graft site</li> </ul>	2	
e)	<ul style="list-style-type: none"> <li>• Fluid fills pericardial reserve volume and pericardial pressure rises</li> <li>• Initially compresses low pressure RA and RV with impaired diastolic filling due to reduced gradient between CVP and right heart</li> <li>• Reduction in stroke volume due to low position on frank-starling curve</li> <li>• Increase in CVP occurs which serves to aid RA/RV filling</li> <li>• Compensation initially through tachycardia and increased sympathetic/RAS tone</li> <li>• As fluid continues to collect and pressure in pericardium rises, LA and LV filling pressures are overcome with a dramatic decrease in CO with shock and circulatory collapse</li> </ul>	4	

f)	<ul style="list-style-type: none"><li>• Fast-bleep team (surgeon, scrub, anaesthetic, perfusion)</li><li>• Plan for emergency decompressive sternotomy</li><li>• CALS if arrests</li><li>• 100% oxygen/ABCDE approach</li><li>• If not already intubated only induce and intubate once surgeons ready to perform sternotomy immediately</li><li>• Minimum ventilation/PIP as this exacerbates right heart failure</li><li>• Large bore IV access and IV filling to improve Right heart filling pressure</li><li>• Careful use of vasopressors/inotropes</li><li>• Monitor and correct coagulopathy with use of rotem/PoC tests</li><li>• Activate major haemorrhage protocol and transfuse based on Hb/blood results</li></ul>	5	
----	--	---	--

References: