

Monash Health Practice Exam

Questions 20

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Repetitive but Important to remember :

- YOU ARE A CONSULTANT NOW → Think as a CONSULTANT
- ANSWER as a CONSULTANT → Big picture first then add details (knowledge)
- Be precise → Description/anatomical locations /significance and practice changing/System issues etc
- Write something that doesn't need explanation and NO ONE can argue
- Spend 15-20 seconds scanning and understand the question first
- **READ** the question and ANSWER the question

Question 20

A 65 year old male with past medical history of **AF** and **HTN** is brought to your **tertiary** Emergency department by ambulance after a collapse. His vital signs on arrival :

HR 130 bpm

BP 70/40 mmHg

RR 32 bpm

Sat 95% 2L NP

Temp 37.9 °C

GCS 13 (E4V4M5)

Summary = Shock

Bedside ultrasound steps in assessment of shock

Emerg Med Clin N Am 28 (2010) 29–56

The RUSH Exam: Rapid Ultrasound in SHock in the Evaluation of the Critically Ill

Phillips Perera, MD, RDMS, FACEP^{a,*}, Thomas Mailhot, MD, RDMS^b,
David Riley, MD, MS, RDMS^a, Diku Mandavia, MD, FACEP, FRCPC^{b,c}

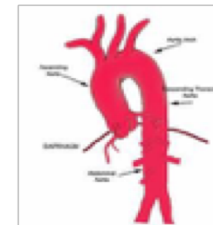
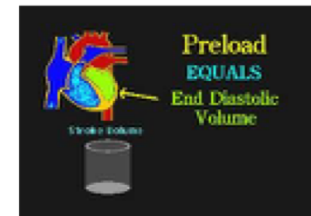
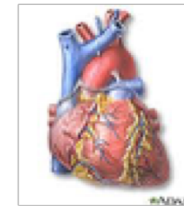
3-part assessment (by ultrasound, of physiology !!)



Pump

Tank

Pipes



RUSH

1. The Pump

Pericardium

- ?tamponade

Global
contractility

- ? LV pump failure

LV:RV
ratio

- ? PE

2. The Tank

Determine the effective
intravascular volume status

IVC / Lung / Pleura / eFAST

3. The Pipes

Are the pipes ruptured
or obstructed?

Integration of Findings:

Table 1
Rapid Ultrasound in SHock (RUSH) protocol: ultrasonographic findings seen with classic shock states

RUSH Evaluation	Hypovolemic Shock	Cardiogenic Shock	Obstructive Shock	Distributive Shock
Pump	Hypercontractile heart Small chamber size	Hypocontractile heart Dilated heart	Hypercontractile heart Pericardial effusion Cardiac tamponade RV strain Cardiac thrombus	Hypercontractile heart (early sepsis) Hypocontractile heart (late sepsis)
Tank	Flat IVC Flat jugular veins Peritoneal fluid (fluid loss) Pleural fluid (fluid loss)	Distended IVC Distended jugular veins Lung rockets (pulmonary edema) Pleural fluid Peritoneal fluid (ascites)	Distended IVC Distended jugular veins Absent lung sliding (pneumothorax)	Normal or small IVC (early sepsis) Peritoneal fluid (sepsis source) Pleural fluid (sepsis source)
Pipes	Abdominal aneurysm Aortic dissection	Normal	DVT	Normal

Abbreviations: DVT, deep venous thrombosis; IVC, inferior vena cava; RV, right ventricle.

Your assessment reveals the cause of his shock is **obstructive**.

3 possible differential diagnosis / 1 **major** abnormality you expect to see in his bedside **thoracic** ultrasound / 1 immediate intervention is required for each

Within the circulatory system:

- Massive pulmonary embolus
- Atrial thrombus or myxoma
- Occlusive valvular lesion
- Other emboli (e.g. air, amniotic fluid)

External to the circulatory system:

- Cardiac tamponade
- Abdominal compartment syndrome
- Tension pneumothorax
- Dynamic hyperinflation (e.g. severe asthma)
- Tension pneumomediastinum
- Caval compression (e.g. supine hypotension syndrome in the pregnant female)

Obstructive Shock / Thoracic USS

	DDx	Thoracic USS finding	Intervention
1			
2			
3			

Cardiac Tamponade

Tension PTX (not just PTX)

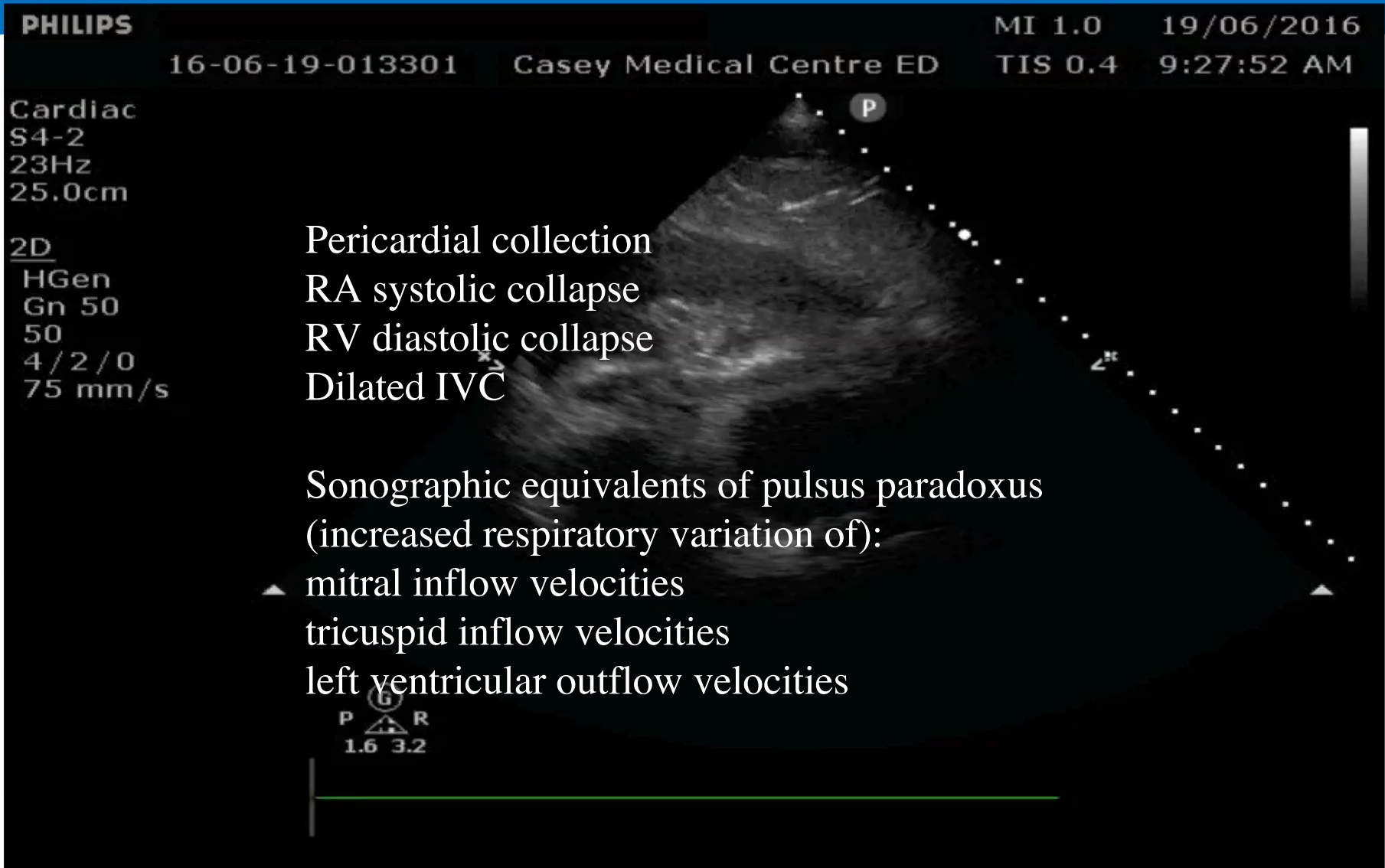
Massive PE (not just PE)

Pericardiocentesis (needle/drain/thoracotomy)

Finger thoracostomy / ICC

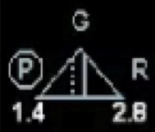
Thrombolysis with a thrombolytic / Thrombectomy

Tamponade

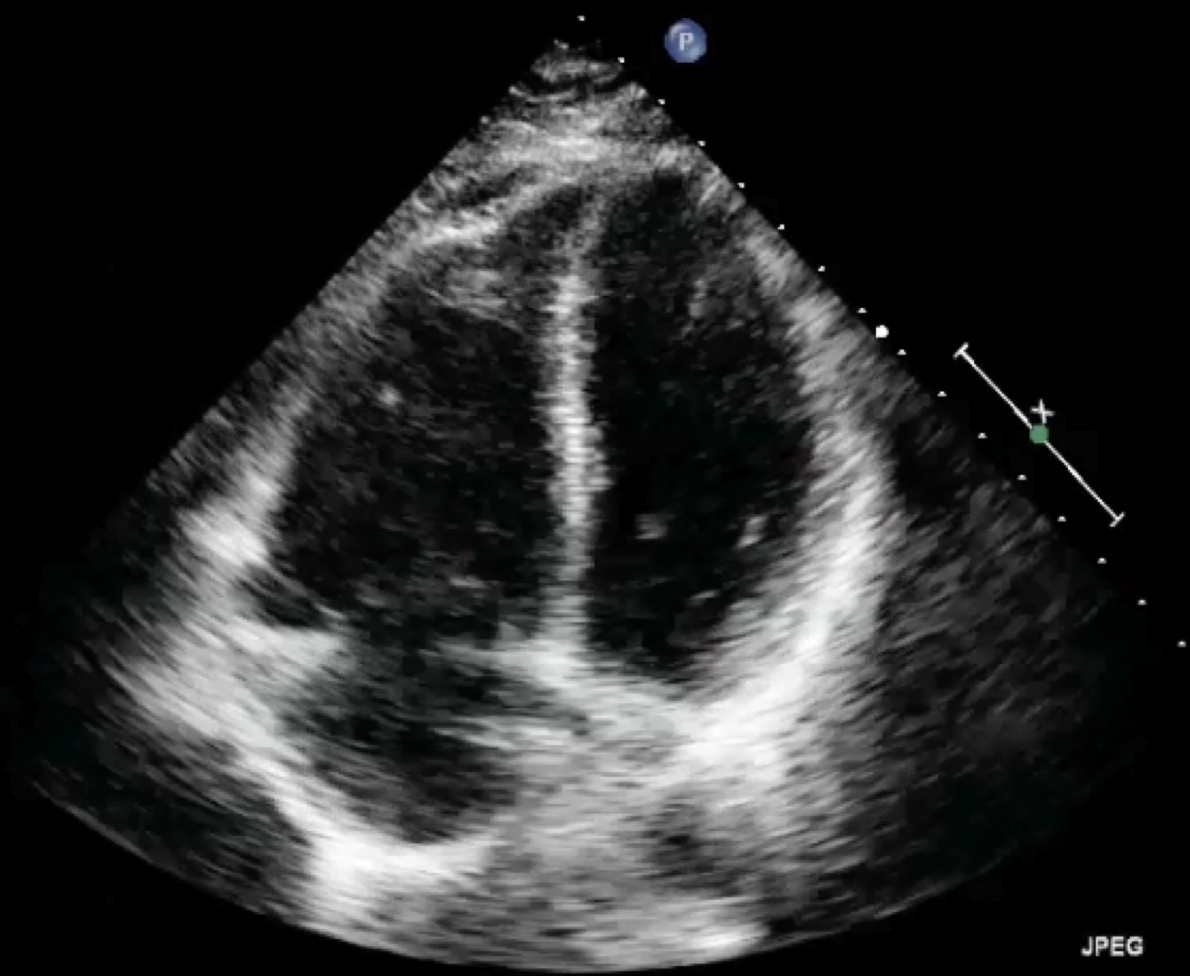


1.15 40116
16cm

2D
58%
C 50
P Low
HPen



V

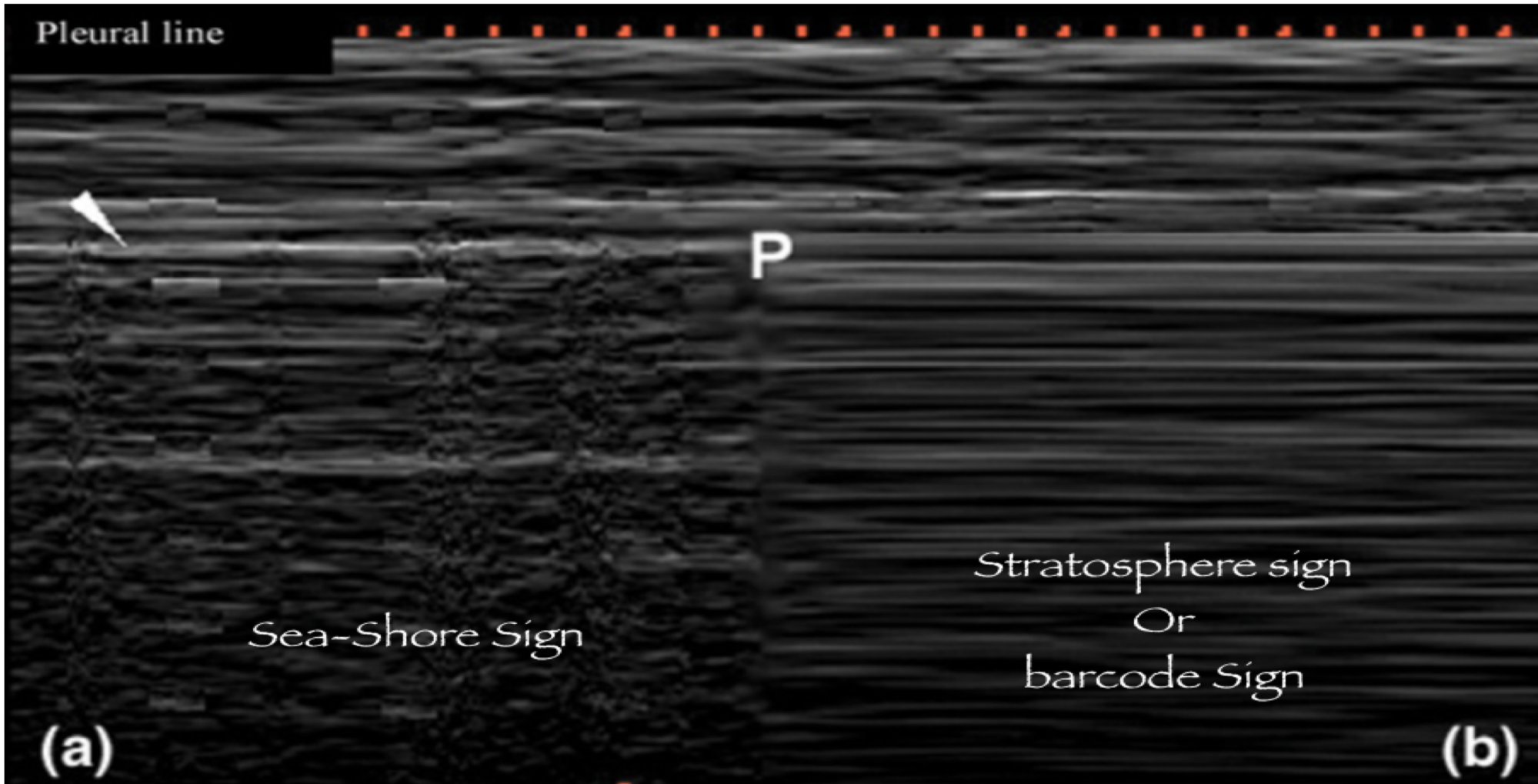


JPEG

74 bpm

Pneumothorax

Lung M-Mode



Some hopefully **stress** related answers

Pericardial tamponade

Other types of shock (PLEASE PLEASE read the question)

Lower Limb DVT / Ruptured AAA (Thoracic USS)

PTX → B line → Needle in the affected side

PE → RH strain → Anticoagulation

Mark out of 12

- **Min 0**
 - **Max 11**
 - **Mean 7.4**
-
- **45% pass rate for pass mark : 8**

