

Question 1 (12 marks)

A 16 year old male is referred by his GP to your emergency department with 1 month of non-productive cough and dysphagia.

A chest X-ray performed in the community is provided. **See Prop Booklet pages X and X.**

- a) Describe the major abnormality evident on this chest X-ray. (2 marks)

- Anterior mediastinal mass

Examiner Note: One mark for mediastinal mass.

One mark for anterior (ddx changes significantly for middle or posterior masses)

0.5 marks awarded for other reasonable description of the Xray that implies mediastinal mass but doesn't state mediastinal

- b) List three (3) differential diagnoses for this chest X-ray finding. (3 marks)

1. _____

2. _____

3. _____

- **Malignant lymphoma (Hodgkin's or non-Hodgkin's) – most common**
- Teratoma – common
- Thymoma (benign enlargement) – common thyroid (retro - or substernal extension)
- Thymic cyst
- Angioma
- Langerhans cell histiocytosis
- Mesenchymal tumours
- Lymphangioma/cystic hygroma
- Lymphadenopathy

Examiner Note: Must have bold to score full marks

- c) Describe how you would elicit Pemberton's sign and list two (2) clinical findings it would demonstrate if positive. (3 marks)

Pemberton's Sign
Clinical Findings
1.
2.

Pemberton's Sign
Pemberton's sign: ask the patient to lift their arms over their head and wait for one minute
Clinical Findings
• Facial plethora • Cyanosis • Inspiratory stridor/dyspnoea • Non-pulsatile elevation of the JVP • Inability to swallow

Examiner Note: Examiner group decided for part A re: Pemberton's sign – must have both description (arms above head) and duration (at least 30 secs) for full mark
No need to state 'non-pulsatile' for full mark re: JVP

d) Apart from Pemberton's sign, list four (4) non-respiratory signs you would examine to assess for superior vena cava syndrome in this child. (4 marks)

1. _____

2. _____

3. _____

4. _____

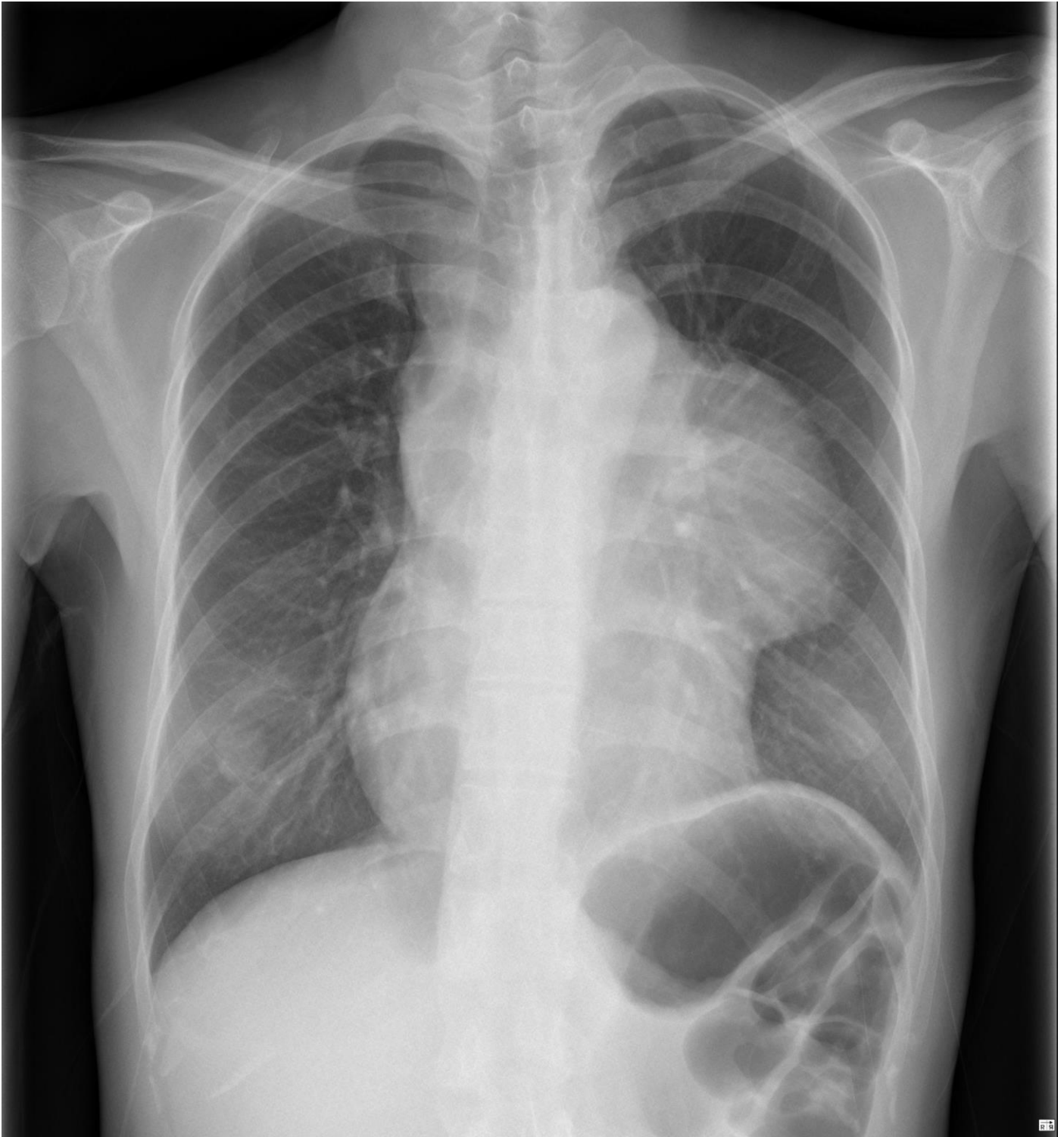
- Neck/chest vein dilatation
- Presence of collateral veins in the neck/chest
- Visual disturbance
- Confusion/altered mental status
- Hypotension
- Inability to lie flat

Examiner note: No 'double marking' here – i.e., if had stated neck vein dilatation in description of clinical findings in Pemberton's in Q3, this not given as a mark if repeated in Q4.

Prop 1



Prop 2



Question 2 (12 marks)

A 3 year old male is brought to your emergency department with 5 days of fever and a sore throat, with a new erythematous macular rash on his abdomen.

You suspect he has Kawasaki disease.

- a) Other than the fever and rash, list three (3) major diagnostic criteria on examination that must be met for a diagnosis of Kawasaki disease. (3 marks)

1. _____

2. _____

3. _____

- Cervical lymphadenopathy
- Conjunctival injection / non exudative conjunctivitis
- Oral mucosal changes – strawberry tongue / pharyngeal erythema / fissured dry lips
- Peripheral extremity changes – erythema / oedema / desquamation / induration
- BCG site reactivation (erythema around BCG scar)

Examiner Note: Will not accept: Common findings that are not part of the diagnostic criteria:

- Neurological: irritability, aseptic meningitis
- GIT symptoms: abdominal pain, vomiting, diarrhoea, gallbladder hydrops
- Arthralgia / arthritis
- Dysuria
- Inflammation at recent (within 6 months) BCG vaccination site

- b) List two (2) infective and one (1) non-infective differential diagnoses you would also consider in this child. (3 marks)

Infective (2 marks)	Non-Infective (1 mark)
1.	1.
2.	

Infective (2 marks)	Non-Infective (1 mark)
• Measles • Group A Streptococcus / Acute rheumatic fever/scarlet fever • COVID/ or Multisystem Inflammatory Syndrome in children • EBV/CMV/Adenovirus/HHV-6/Enterovirus/Echovirus • Toxic shock syndrome • Staphylococcal scalded skin • Leptospirosis	• Steven-Johnson Syndrome / TENS • Drug eruption • Idiopathic Juvenile Arthritis • Malignancy • Mercury hypersensitivity • Multisystem inflammatory syndrome • Polyarteritis nodosa

Examiner Note: viral xanthem alone does not get mark

- c) For the following investigations, outline the reason for performing this test in a case of suspected Kawasaki disease. (4 marks)

Investigation	Justification (4 marks)
Echocardiogram	
Troponin	
ECG	
ESR/CRP	

Investigation	Justification (4 marks)
Echocardiogram	Rule out coronary artery aneurysm ½ marks for important other complications, such as pericardial fluid, hypokinesis in carditis, mitral regurgitation.
Troponin	May be elevated in myocarditis
ECG	Changes consistent with myo/pericarditis- prolonged PR, non-specific ST changes, T wave changes, arrhythmia. 2 to 3 rd degree heart block
ESR/CRP	If raised, (CRP>30, ESR >40) indication to commence treatment. If normal, serial observation may be ok (Rosen) in incomplete Kawasaki disease. To monitor disease progression / severity.

- d) List two (2) medications you would give this child once Kawasaki disease is confirmed. (2 marks)

1. _____

2. _____

- Aspirin
- IVIG
- Steroids
- Cyclosporin

Question 3 (12 marks)

A 25 year old male presents to your regional emergency department (ED) with fever, sore throat and difficulty swallowing for 1 week. You consider acute tonsillitis as one of your differential diagnoses.

- a) Apart from quinsy, list two (2) local and two (2) systemic complications of acute bacterial tonsillitis in the table below. (4 marks)

Local (2 marks)	Systemic (2 marks)
1.	1.
2.	2.

Local (2 marks)	Systemic (2 marks)
• Retropharyngeal abscess • Lemierre syndrome • Intra-tonsillar abscess • Parapharyngeal abscess • Otitis Media • Mastoiditis • Sinusitis	• Mediastinitis – local/systemic • Rheumatic fever – endocarditis 0.5 • Glomerulonephritis • Bacteraemia/ sepsis • Strep toxic shock syndrome • Scarlet fever • Post strep arthritis • Meningitis / cerebral abscess

- b) List three (3) examination features to differentiate quinsy (peritonsillar abscess) from acute tonsillitis. (3 marks)

1. _____

2. _____

3. _____

- Fluctuance
- Trismus
- Deviated uvula (away from affected side)
- Displacement of tonsils (inferomedially)
- Bulge on the unilateral soft palate (and loss of anterior tonsillar pillar)
- Unilateral erythema of mucosa and palate

- c) You diagnose peritonsillar abscess and consider surgical drainage in the ED. Name two (2) patient-specific contraindications. (2 marks)

1. _____

2. _____

- Severe trismus limiting visibility and access
- Patients on oral anticoagulants, or with a known bleeding disorder
- Patients who refuses/ are uncooperative – *only one mark for either*

- d) List three (3) complications associated with incision and drainage of a peritonsillar abscess.
(3 marks)

1. _____

2. _____

3. _____

- **Haemorrhage from carotid artery injury**
- Aspiration pneumonitis/ lung abscess / aspiration
- Airway obstruction / laryngospasm
- Extension of infection into deep tissue of the neck.
- Failure of adequate drainage

Question 4 (12 marks)

A 37 year old female presents to your emergency department with progressively worsening abdominal pain. She had gastric bypass surgery (at your facility) for morbid obesity 4 months ago and has lost 40 kg.

Her VBG is reproduced below.

		Reference Range
pH	7.48	7.35-7.45
pCO ₂	45	35-45 mmHg
pO ₂	69	60-85 mmHg
HCO ₃	33	22-28 mmol/L
NA ⁺	126	135-145 mmol/L
K ⁺	1.8	3.5-4.5 mmol/L
Cl ⁻	84	95-110 mmol/L
Glu	5.9	3.0-7.8 mmol/L

a) State your interpretation of this VBG. (2 marks)

- Compensated (0.5) Metabolic Alkalosis (0.5)
- Marked/Profound/Severe (0.5) Hypokalaemia (0.5)
- (Expected CO₂ formula: $0.7 \times \text{HCO}_3 + 21$ or $0.9 \times \text{HCO}_3 + 9$ both (+/- 5))
- Normal AG

b) List two (2) potential causes for this patient's VBG results. (2 marks)

1.

2.

- Prolonged vomiting
- Bowel obstruction
- Anastomotic leak/perforation
- Diuretics

Not accepting: Diarrhoea/laxative abuse, gastric band, malabsorption, fistula

- c) You elect to perform an abdominal CT scan with IV contrast. The radiologist suggests giving the patient a small amount of water 15 minutes prior to the scan. What is their reasoning? (2 marks)

1. _____

2. _____

- Small amount because of small stomach
- Water as contrast define the anatomy (evaluating the gastric pouch and gastrojejunostomy anastomosis)
- Water is safe in the setting of an anastomotic leak
- Assesses transit time

Her CT scan is reported as normal, and despite the use of multi-modal analgesia her pain is increasing, and she appears increasingly unwell.

- d) List your next step in management and state your rationale. (2 marks)

Management (1 mark)	Rationale (1 mark)

Management (1 mark)	Rationale (1 mark)
Referral for surgical opinion	Consider DDx with normal CT (e.g. internal hernia) - may need explorative laparotomy
K replacement	Dangerously low K requiring urgent replacement

Examiner Note: No marks for analgesia
Don't accept: NGT insertion

e) List four (4) late complications of gastric bypass bariatric surgery. (4 marks)

1. _____

2. _____

3. _____

4. _____

- Dumping syndrome/diarrhoea
- Cholelithiasis
- Small bowel obstruction e.g., adhesions, strictures, gastric outlet obstruction
- Internal hernia
- Nutritional/Vitamin/Electrolytes deficiencies-allow only 1 from this group
- Upper GI ulcers (0.5 for GORD)
- Bowel perf/anast leak/Collection/abscess -accept only 1 from this group
- Small intestine bacterial overgrowth syndrome
- Gastric fistula
- Gastric necrosis
- Hiatus hernia
- Pancreatitis

Not acceptable: Infection, Dilated oesophagus, post op bleed, surgical wound infection