ID NUMBER: ☐ ☐ ☐ ☐ ☐

University Hospital, Geelong

Emergency Medicine

Trial Fellowship Exam

Short Answer Questions (SAQ)

Week 16

DIRECTIONS TO CANDIDATE

1. Answer each question in the space provided in this question paper.
2. Do not write your name on this question paper.
3. Enter your examination number in the space below.
4. Cross out any errors completely.
5. Do not begin the exam until instructed to do so.
6. Do not take examination paper or materials from this room.
7. The booklet binder may be removed during the exam.

QUESTION & ANSWER

BOOKLET

Question 1 (20 marks)

With respect to the cervical spine:

a. List the two (2) components of the anterior column. (2 marks)

1. _____

2. _____

b. List the two (2) components of the middle column. (2 marks)

1. _____

2. _____

c. List the six (6) components of the posterior column. (6 marks)

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

Question 1 (continued)

d. What is the role of flexion/ extension xrays in the initial Emergency Department investigation of traumatic cervical spine injury? State four (4) points to your answer. (4 marks)

1. _____

2. _____

3. _____

4. _____

A 47 year old man is brought into your emergency department with fever, throat pain and difficulty swallowing.

A lateral C spine X-ray is taken - refer to the props booklet page 2.

e. State two (2) abnormalities shown in this xray. (2 marks)

1. _____

2. _____

Question 1 (continued)

f. List two (2) key management steps that you would institute for this patient in the next 20 minutes. (2 marks)

1. _____

2. _____

Question 2 (12 marks)

A 65 year old male presents following a house fire.

a. Other than decreased conscious state, list two (2) indications for immediate intubation in this patient. (2 marks)

1. _____

2. _____

A photograph of the man is taken- refer to the props booklet page 3.

ii) List three (3) features shown in this image that predict the probability of significant airway burns. (3 marks)

1. _____

2. _____

3. _____

Question 2 (continued)

The patient deteriorates and requires intubation. Your 1st attempt at direct laryngoscopy fails.

b. List three (3) steps that you would institute to improve your likelihood of success for your next attempt. (3 marks)

1. _____

2. _____

3. _____

c. What is the Brooke-Parkland formula? (1 mark)

_____

d. How is Brooke-Parkland formula applied? State three (3) points of explanation. (3 marks)

1. _____

2. _____

3. _____

Question 3 (12 marks)

Complete the following two (2) tables.

	Non specific vulvovaginitis	Trichomonas	Bacterial vaginosis	Candidiasis
Sexually transmitted Yes/No (2 marks)				
Discharge quality (2 marks)				
Other symptoms (2 marks)				
Examination findings (2 marks				

Question 3 (continued)

	Non specific vulvovaginitis	Trichomonas	Bacterial vaginosis	Candidiasis
Laboratory Diagnosis Method (2 marks)				
Male partner treatment Yes/ No (2 marks)				

Question 4 (12 marks)

a. State the three (3) cardinal clinical features of serotonin syndrome. (3 marks)

1. _____

2. _____

3. _____

b. List three (3) different agents that may lead to serotonin syndrome (each to be from a different class of medication). (3 marks)

1. _____

2. _____

3. _____

Question 4 (continued)

c. List three (3) key steps in the management of a patient with suspected serotonin syndrome. State one (1) justification for your choice of each step. (6 marks)

	Management step (3 marks)	**Justification (3 marks)**
1.		
2.		
3.		

Question 5 (12 marks)

A 54 year man with no prior medical history presents to your tertiary centre emergency department with one hour of chest pain.

His observations are:

BP	100/60	mmHg
RR	28	bpm
O2 saturation	100%	10 L/min O_2 via Hudson mask
GCS	15	

An ECG Is performed - refer to the props booklet page 4.

a. State three (3) key abnormal findings shown in this ECG. (3 marks)

1. _____

2. _____

3. _____

b. State three (3) significant implications of these findings. (3 marks)

1. _____

2. _____

3. _____

Question 5 (continued)

c. List three (3) medications that you may use over the next 20 minutes. Provide dose and route for each. (6 marks)

	Medication (3 marks)	**Dose/route (3 marks)**
1		
2		
3		

Question 6 (12 marks)

A 70 year old woman presents with two days of increasing abdominal pain and vomiting.

An abdominal xray is taken - refer to the props booklet page 5.

a. List three (3) abnormal findings shown in her xray. (3 marks)

1. _____

2. _____

3. _____

b. List six (6) pathological causes for this X-ray appearance. (6 marks)

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

Question 6 (continued)

c. List three (3) key treatment tasks in the first 1 hour of your care. (3 marks)

1. _____

2. _____

3. _____

Question 7 (13 marks)

A 2 year old girl presents with abdominal pain.

a. List five (5) features on assessment that would support the diagnosis of intussusception. (5 marks)

1. _____

2. _____

3. _____

4. _____

5. _____

b. List the two (2) management options used to treat confirmed intussusception. (2 marks)

1. _____

2. _____

Question 7 (continued)

c. List six (6) other common causes of abdominal pain for this patient. (6 marks)

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

Question 8 (12 marks)

A 25 year old male presents to the emergency department after a motorcycle collision. His only complaint is severe left arm pain.

A left forearm X-ray is taken - refer to the props booklet page 6.

a. State three (3) abnormal findings shown in this Xray. (3 marks)

1. _____

2. _____

3. _____

b. List five (5) early complications that would require urgent intervention. (5 marks)

1. _____

2. _____

3. _____

4. _____

5. _____

Question 8 (continued)

c. List four (4) late complications associated with this injury. (4 marks)

1. _____

2. _____

3. _____

4. _____

Question 9 (17 marks)

a. Complete the table to distinguish between the clinical features of peripheral and central vertigo. (9 marks)

	Clinical feature	Peripheral	Central
1. **(1.5 marks)**			
2. **(1.5 marks)**			
3. **(1.5 marks)**			
4. **(1.5 marks)**			
5. **(1.5 marks)**			
6. **(1.5 marks)**			

Question 9 (continued)

b. Assuming the diagnosis of benign positional vertigo , list eight (8) steps in repositioning therapy. (8 marks)

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

8. _____

ID NUMBER: ☐ ☐ ☐ ☐ ☐

University Hospital, Geelong

Emergency Medicine

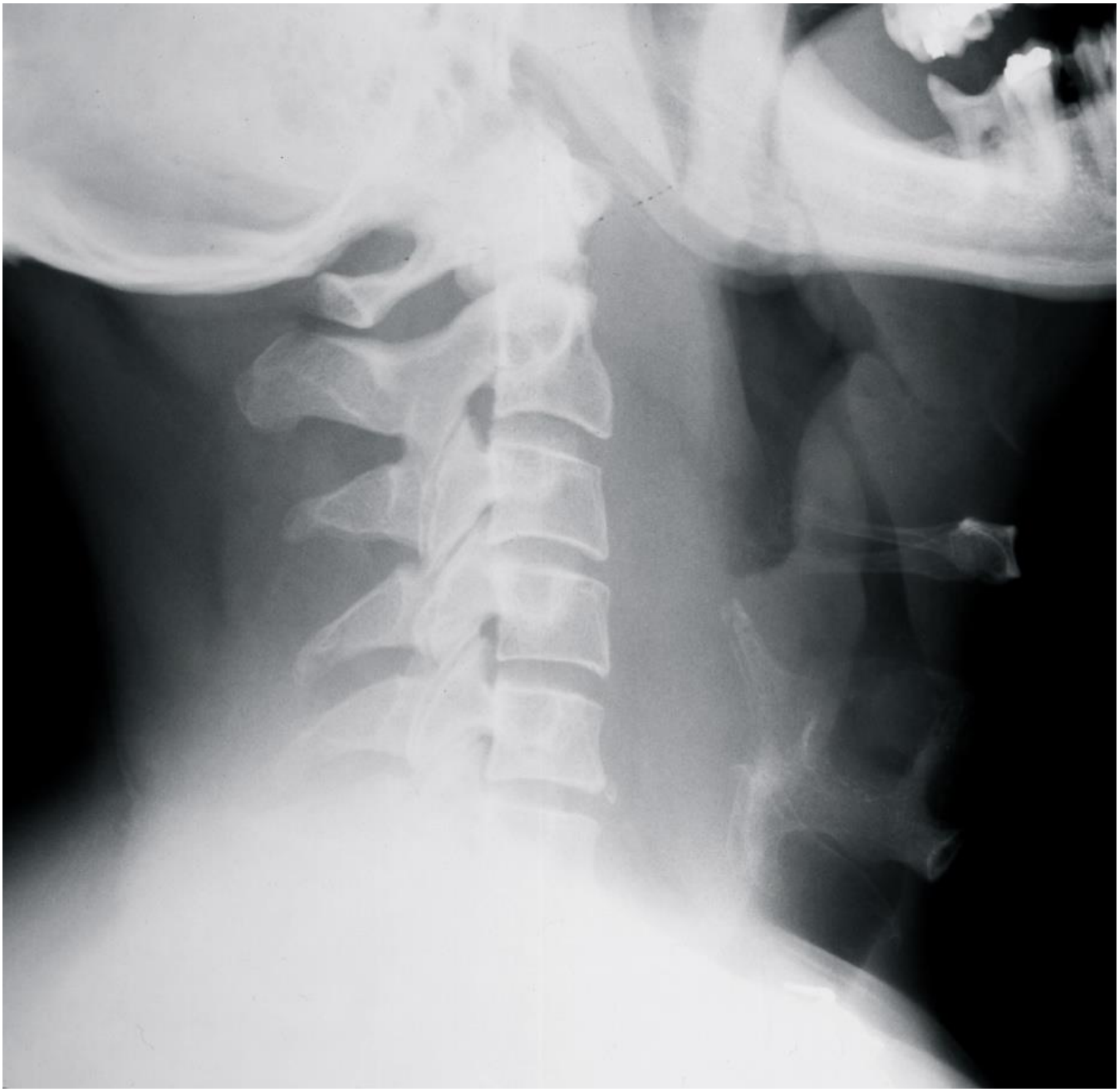
Trial Fellowship Exam

Short Answer Questions (SAQ)

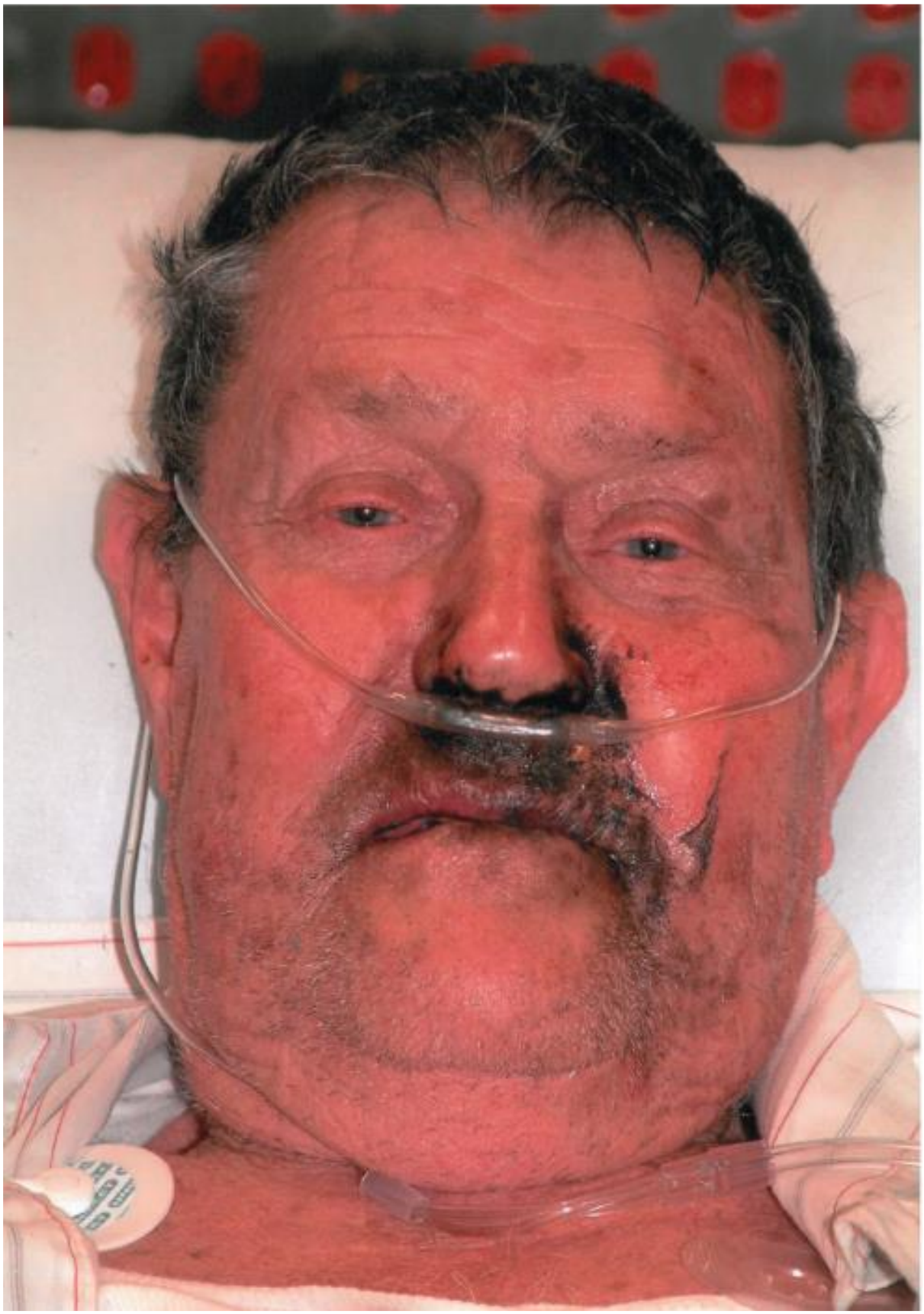
Week 16

PROP BOOKLET

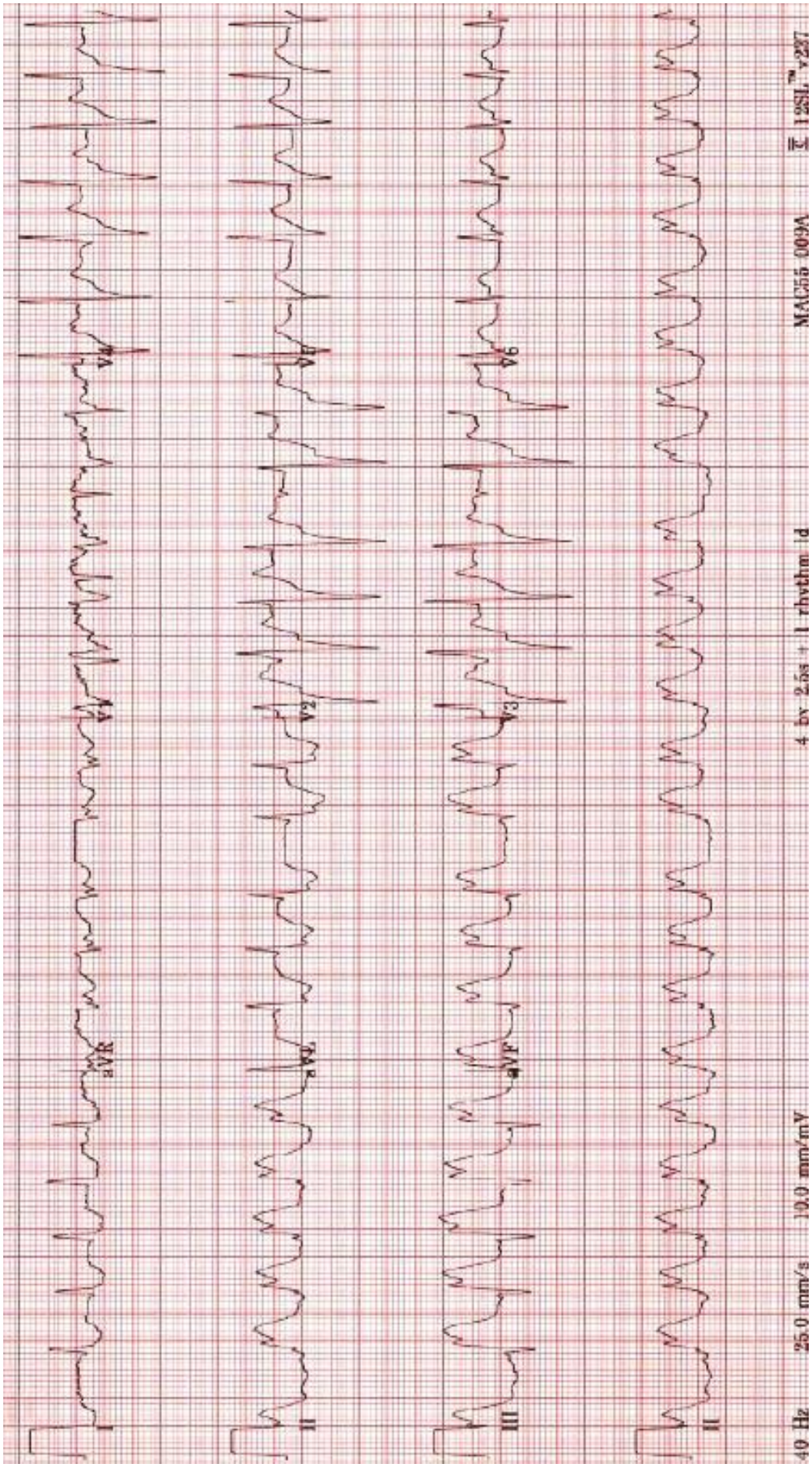
Question 1



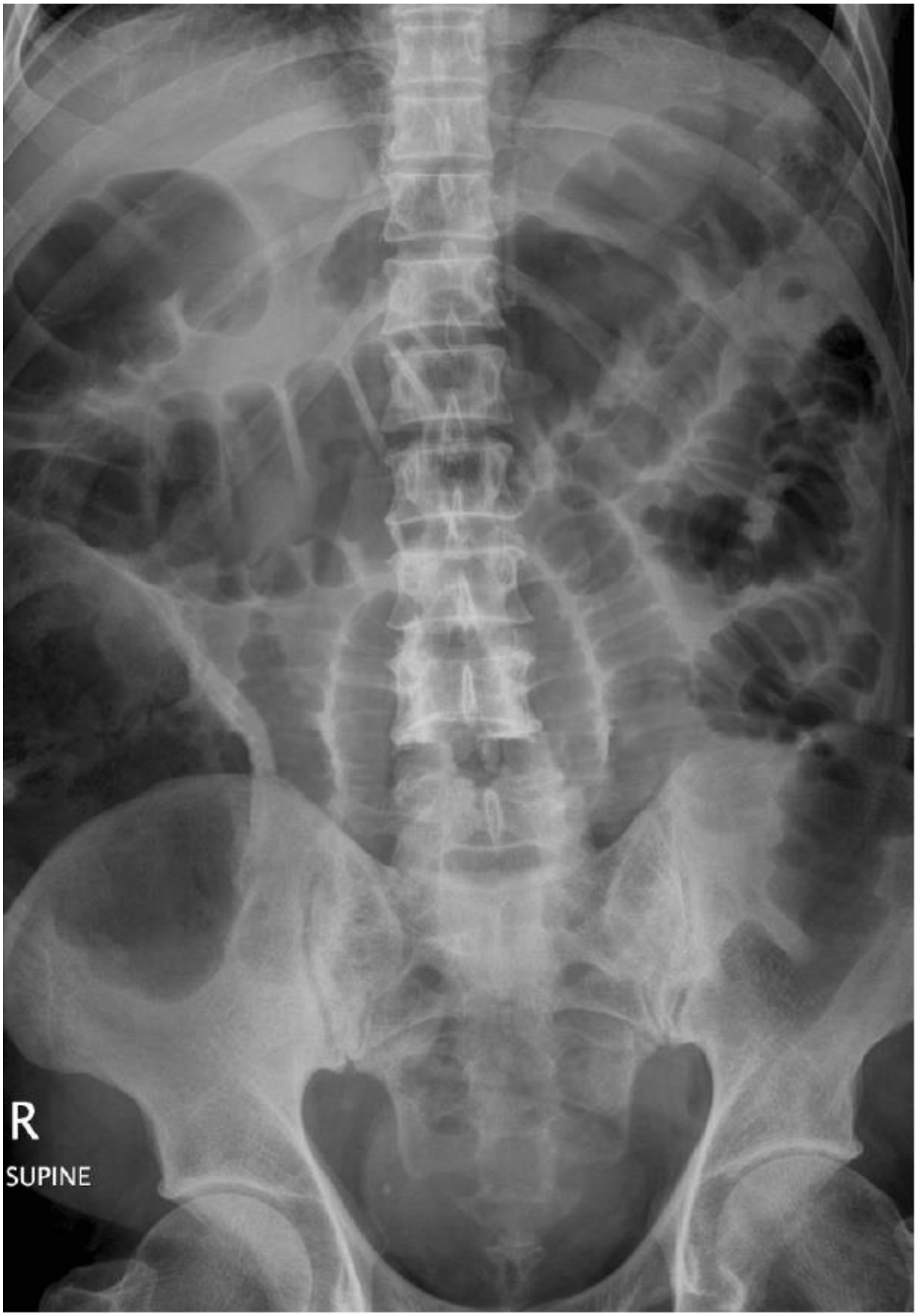
Question 2



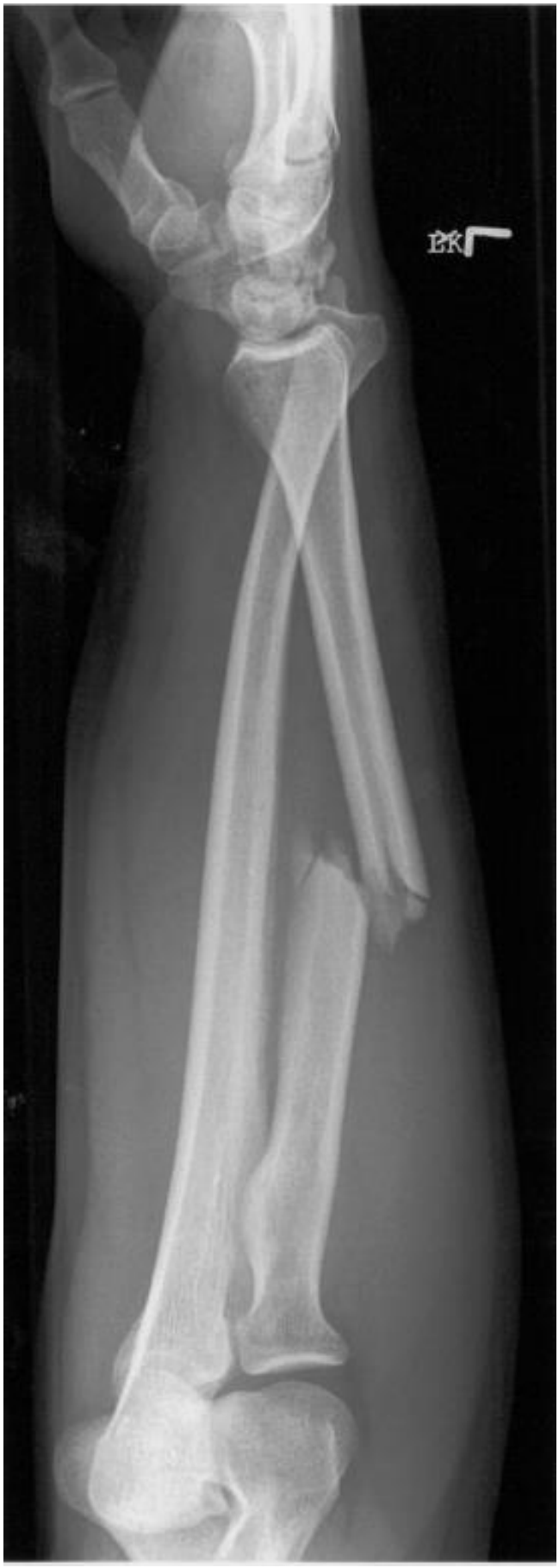
Question 5



Question 6



Question 8



"List" = 1-3 words
"State"= short statement/ phrase/ clause

UNIVERSITY HOSPITAL, GEELONG
FELLOWSHIP WRITTEN EXAMINATION
WEEK 16– TRIAL SHORT ANSWER QUESTIONS Suggested answers

PLEASE LET TOM KNOW OF ANY ERRORS/ OTHER OPTIONS FOR ANSWERS
Please do not simply change this document - it is not the master copy !

Question 1 (20 marks)

With respect to the cervical spine:

a. List the two (2) components of the anterior column. (2 marks)
- **Anterior longitudinal ligament**
- **Anterior ½ of vertebral bodies & disks**

b. List the two (2) components of the middle column. (2 marks)
- **Posterior longitudinal ligament**
- **Posterior ½ of the vertebral bodies & disks**

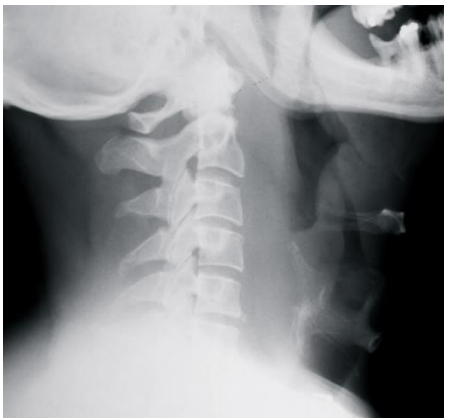
c. List the six (6) components of the posterior column. (6 marks)
- **Facet joints**
- **Pedicles**
- **Laminae**
- **Ligamentum flavum**
- **Spinous process**
- **Interspinous ligament**

d. What is the role of flexion/ extension xrays in the initial Emergency Department investigation of traumatic cervical spine injury? (4 marks)
- **No role**
- **Risk neurological injury if not performed correctly**
- **No validated criteria for evaluating F/E studies**
- **False -ves due to cervical muscle spasm**
- **CT or MRI more appropriate**

A 47 year old man is brought into your emergency department with fever, throat pain and difficulty swallowing.

e. State two abnormalities shown in this xray. (2 marks)
- **Enlarged epiglottitis- thumbprint sign**
- **Enlarged retropharyngeal/ prespinal soft tissue shadow**

f. List two (2) management steps that you would institute for this patient in the next 20 minutes. (2 marks)
- **Antibiotics- IV Ceftriaxone- REQUIRED**
- **Position- sit upright**
- **Advanced airway:**
  - **Prepare for RSI with direct video laryngoscopy/ senior anaesthetic support**
  - **Gaseous induction in OT best if situation permits**
- **Adrenaline neb- Temporising measure if airway compromised**
- **Analgesia- IV fentanyl/ morphine**
- **Steroids- IV dexa**



Question 2 (12 marks)

A 65 year old man presents following a house fire.

a. Other than decreased conscious state, list two (2) indications for immediate intubation in this patient. (2 marks)
    - **Impending complete airway obstruction**
    - **Hypoxia on maximal O_2**
    - **Significant hypovolaemia**

b. List three (3) features shown in this image that predict the probability of significant airway burns. (3 marks)

    - **Singed nasal hairs/ moustache**
    - **Soot on lips**
    - **Facial/ check burns**
    - **Oxygen requirement**

c. The patient deteriorates and requires intubation. Your 1st attempt at direct laryngoscopy fails. List three (3) steps that you would institute to improve your likelihood of success for your next attempt. (3 marks)

    Any 3 of:
    - **Ensure adequate sedation**
    - **Ensure adequate paralysis**
    - **Reposition head/neck**
    - **Cricoid manipulation- BURP**
    - **Introducer**
    - **Bougie**
    - **Different shaped blade**
    - **Smaller ETT size**
    - **Use of video laryngoscopy**

d. What is the Brooke-Parkland formula? (1 mark)
    - **2-4 ml/kg/% burn area** *(lower mortality with 2%)* **added to maintenance**

e. How is it applied? State 3 points of explanation. (3 marks)
    - **Represents the addition fluid required over maintenance**
    - **½ in 1st 8/24** *(colloid)*
    - **½ in following 16/24** *(1/2 colloid ½ Hartmanns)*
    - **Gives starting guide for fluid maintenance- rate should be adjusted with aim of UO > 0.5ml/kg/hr**

Question 3 (12 marks)

	Non specific vulvovaginitis	Trichomonas	Bacterial vaginosis	Candidiasis
Extra info for you only	*Mixed vaginal / enteric flora*	*Trichomonas vaginitis* *Commonest cause of vaginal discharge*	*Gardnarella vaginalis* *(& mixed anaerobes)*	*Candida albicans* *RF → DM, OCP, Abs, pregnancy* *Uncommon b4 puberty* *(non oestrogenised epith resist)*
Sexually transmitted Yes/No	**No** (Poor hygiene Chemical irritants)	**Yes** Nearly always	**+/-** Normal commensal May be STI	**No** (Normal flora in 50% Growth ltd by other orgs)
Discharge quality	**Uncommon**	**Frothy, fishy smell** **Yellow- green or Grey white**	**Malodorous (fishy)** **White grey**	**White**
Other symptoms	**Itch, dysuria**	5**0 % with are asympt.** Pruritis, dysuria, dysparunia, post coital spotting	**Usu no redness/ soreness**	**Itch, pain**
Examination findings	Little d/c, **erythematous swollen vulva, distal vagina +/- inflamed**	**Vaginal mucosa diffusely erythematous** **Strawberry cervix** (punctate haem)	**Mild** (if any redness)	**White adherent plaques** **Occas. red vaginal wall**
Laboratory Diagnosis Method	-	**Micro- motile, pear shaped flagellated trichomonads**	**Clue cells** **→ bacteria attached to epithelial cells on micro**	**Micro spores, pseudohyphae**
Male partner treatment Yes/ No	No	Yes (90% symptomatic)	No	Only symptomatic
Possible additional Q: Treatment	*Attention to hygiene*	*Metronidazole/ tinidazole* *2g o single dose* *Preg clotrimazole 2% 7/7*	*Metronidazole 400mg bd 7/7* *Or tinidazole 500 mg 7/7* *Single dose cure rate lower* *Preg - Clindamycin 300mg bd 7/7*	*Clotrimazole 2% cream PV 3/7* *500mg pessary only* *Nystatin cream bd 7/7* *Not responding (+not pregnant)* *→ fluconazole 150 mg single* *→ may be glabrata (resistant)* *∴ → Boric acid 600mg 14/7*

Question 4 (12 marks)

a. State the three (3) cardinal clinical features of serotonin syndrome. (3 marks)
- **Alteration in behaviour/cognitive ability**
- **Autonomic nervous system overactivity** *(sweating, rigors, diarrhoea, CVS instability*
- **Neuromuscular activity** *(rigidity, hyperreflexia, jerks, myoclonus, hyperthermia)*

a. List three (3) different agents that may lead to serotonin syndrome (each to be from a different class of medication). (3 marks)
- **Analgesics- fentanyl, pethidine, tramadol**
- **Antidepressants- TCA**
- **Lithium**
- **MAOIs- Moclobemide, phenelzine**
- **SSRI- citalopram, escitalopram, fluoxetine, fluvoxamine, paroxetine, sertraline**
- **SNRIs- venlafaxine, buropion**
- **DOA- Amphetamines, Ecstacy, MDMA**
- **Herbal- St John's wort**

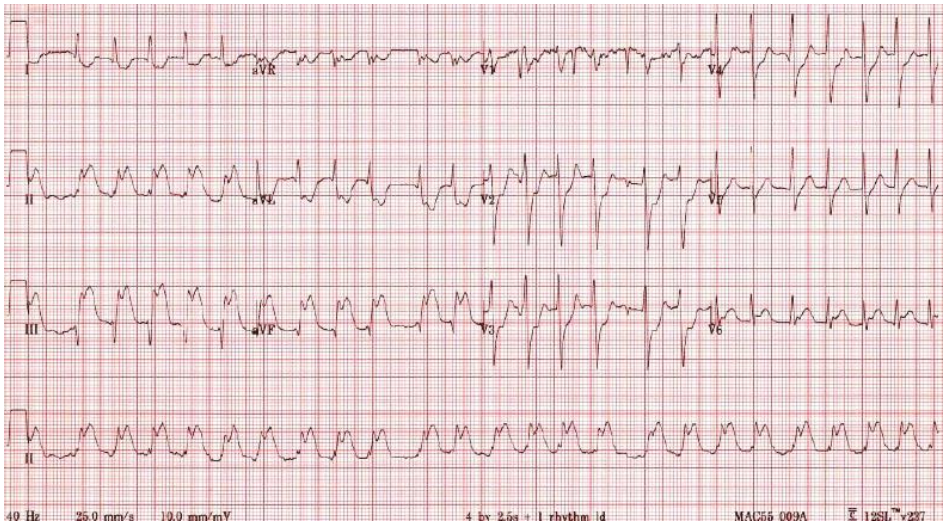
b. List three (3) key steps in the management of a patient with suspected serotonin syndrome. State one (1) justification for your choice of each step. (6 marks)

Management step	Justification
Withdraw inciting agent	**Reduce ongoing morbidity**
IV fluids	**Fluid balance monitoring**
Benzodiazepines	**Oral/ IV** **↓ muscle activity/ rigidity and ∴ ↓ temperature** **(?non-specifically inhibit serotonin neurotransmission)** **↓ anxiety/ agitation** **For seizures**
NM paralysis	**If hyperthermia severe**
Non specific serotonin (5HT1 , 5HT2) antagonists	**For significantly altered mental state or Haemodynamic instability** **Cyproheptidine, propranolol, methysergide and Chlorpromazine tried → No RCT trials** **Cyproheptidine → H_1 receptor antagonist with antimuscarinic, $5HT_{1A}$ + $5HT_2$ receptor antagonist** **anecdotally effective fewer SFx that others. Only available orally.** **4-8mg 8/24efficacy ↓ if charcoal given** **Chlorpromazine → Blocks D2, α- adrenergic, $5HT_2$ receptors and has anti muscarinic effects, advantage can be given IV.**

Disposition	**Ward if mild** **Mod- severe- HDU/ ICU- needs close physiological observation**

Question 5 (12 marks)

A 54 year man with no prior medical history presents to your tertiary centre emergency department with one hour of chest pain. His observations are:
BP 100/60 mmHg RR 28/min O2 saturation 100% 10 L/min O_2 via Hudson mask



a. State three (3) key abnormal findings shown in this ECG. (3 marks)
   - **STE II, III, AVF > 10 mm, V6 2 mm c/w Inf STEMI**
   - **STD I, aVr, aVl, V2- V5 anterior changes c/w reciprocal change**
   - **Rate 150 bpm**
   - **Rhythm NCT, irreg, irreg c/w AF**

b. What is the significance of these findings? (3 marks)
   - **Inf STEMI clear given reciprocal change meeting criteria for urgent reperfusion therapy** *(required to pass this section)*

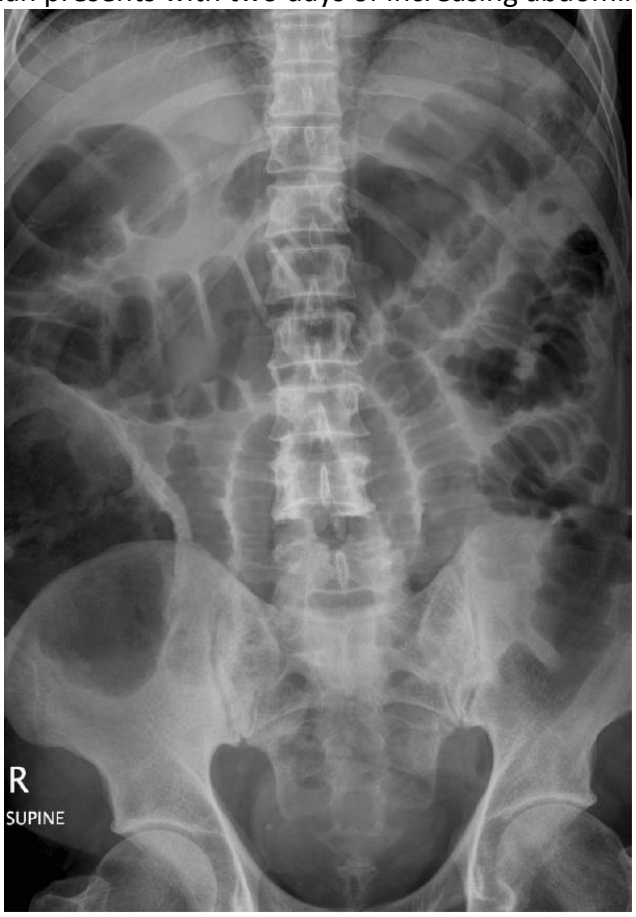
   Any of the following for the next 2 marks:
   - **Possibly RV/ posterior involvement**
   - **Care with hypotension- avoid GTN/ morphine- needs filling if ↓ BP**
   - **Anticipate bradycardia**

c. List three (3) immediate specific treatment tasks. . Provide details for each step. Specify doses and routes of administration for any drugs used. (6 marks)
   - **Aspirin 300mg**
   - **Clopidogrl300mg if followed by thrombolysis 600mg if followed by PCI**
   - **Ticagrelor 180mg**
   - **Heparin**
   - Oxygen Sat < 95%
   - Isoprenaline
   - Atropine

   (not thrombolysis at a tertiary centre would expect PCI)

Question 6 (12 marks)

A 70 year old woman presents with two days of increasing abdominal pain and vomiting.



a. List three (3) abnormal findings shown in her xray. (3 marks).
   - **Small bowel loop dilatation- SBO**
   - **Large bowel loop distension- LBO**
   - **No gas in sigmoid colon/ rectum**

   NB: no free gas

b. List six (6) pathological causes for this X-ray appearance. (6 mark)
   - **Stenosing malignancy**
   - **Adhesions**
   - **Ischaemic bowel**
   - **Faecal impaction**
   - **Hernia- internal/ external**
   - **Omental metastases**
   - **Diverticulitis**
   - **IBD- Crohn's disease**

c. List three (3) key management tasks in the first 1 hour of your care. (3 marks)
   - **IV fluids**
   - **Analgesia**
   - **NGT**

Question 7 (13 marks) 6 minutes

A 2 year old girl presents with abdominal pain.

a. List five (5) features on assessment that would support the diagnosis of intussusception. (5 marks)
   - **Paroxysms of pain**
   - **Red currant jelly stool (late sign)**
   - **Pallor/ unwell looking**
   - **Sausage shaped loop in RIF on erect AXR**
   - **US- visualisation of the intersusseptum**

b. List the 2 management options used to treat confirmed intussusception. (2 marks)
   - **Gas insufflation via rectum**
   - **Surgical decompression via laparotomy**

c. List six (6) other common causes of abdominal pain for this patient. (6 marks)
   - **UTI**
   - **Constipation**
   - **Gastroenteritis**
   - **Appx**
   - **Mesenteric adenitis**
   - **Pneumonia**
   - **Trauma- solid organ contusion/ bleeding**
   - **DKA**
   - **Toxic ingestion**

NB: Stress the word COMMON and don't accept uncommon causes
"Functional" is not very common in 2 year olds- there are better examples to choose = no marks
With all of the appropriate choices above, why choose "non specific" abdominal pain?

Click on the image below to view the entire PDF (& print/save if necessary)

doi: 10.1111/j.1742-6723.2007.00923.x *Emergency Medicine Australasia* (2007) **19**, 45–50

EMA

PAEDIATRIC EMERGENCY MEDICINE

Paediatric intussusception: Epidemiology and outcome

Andrew JM Blanch,[1] Suzan B Perel[2] and Jason P Acworth[1]
[1]Department of Emergency Medicine, Royal Children's Hospital, Brisbane, and [2]Nambour General Hospital, Nambour, Queensland, Australia

Abstract

Objectives: (i) To describe the clinical presentation of intussusception and determine features associated with earlier diagnosis; (ii) to describe outcomes of children diagnosed with intussusception; and (iii) to determine whether time to diagnosis is associated with poorer prognosis.

Methods: A retrospective review was performed of all patients presenting to a tertiary paediatric hospital with a diagnosis of intussusception during a 10 year study period.

Results: One hundred and forty-one confirmed cases met the inclusion criteria, giving an incidence of one case per 1400 ED presentations. The median age of presentation was 9 months, with a ratio of male to female of 2:1. Three or more of the four 'classic' features of intussusception (vomiting, abdominal pain, bloody/red currant jelly stool, or abdominal mass) were reported in only 46% of presentations. Median time to confirmation of diagnosis was 19 h from onset of symptoms. Ultrasound was the most commonly employed method used to confirm the diagnosis. Air enema had a success rate of 80%, with a reduced success rate beyond the first attempt. Early diagnosis was associated with decreased frequency of surgical intervention and need for bowel resection.

Conclusion: The 'classic' picture of intussusception might frequently not be present in children with intussusception. Reliance on 'classic' features alone might delay diagnosis. Delayed diagnosis is associated with poorer patient outcomes. Air enema has a high success rate for reduction of intussusception.

Key words: *abdominal pain, child, enema, infant, intussusception.*

Introduction

Intussusception is a common cause of intestinal obstruction in the paediatric population. Diagnosis of this condition is often difficult and might be hampered by variability in clinical presentation.[1,2] The widely taught 'classic' symptoms of abdominal pain, red currant jelly stool, vomiting and palpable abdominal mass might not be present at the time of presentation,[1-3] hence their usefulness has been questioned. Delay in

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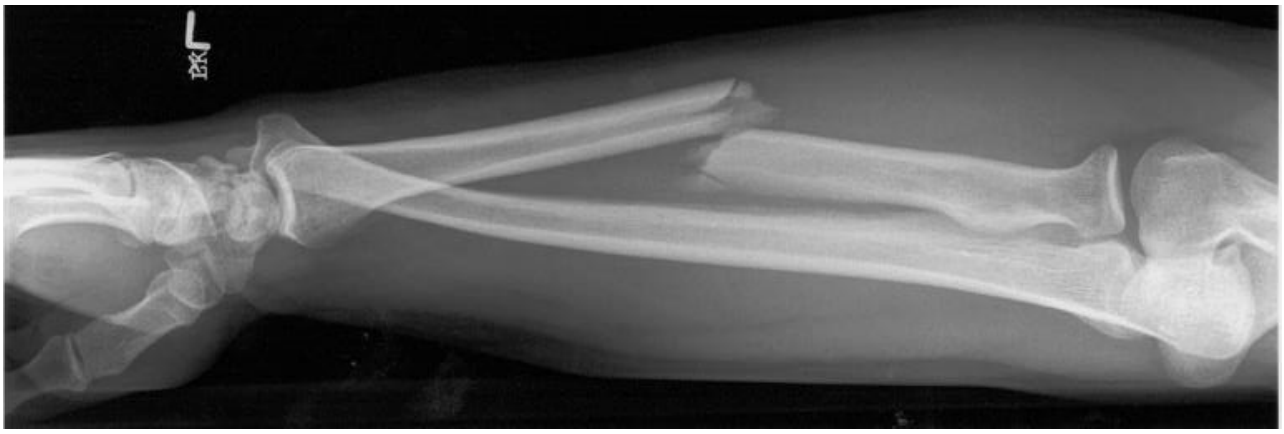
Andrew JM Blanch, MB BS, BSc., Registrar; Suzan B Perel, MB BS, BSc., Registrar; Jason P Acworth, MB BS, FRACP, Deputy Director.

Question 8 (12 marks)

A 25 year old male presents to the emergency department after a motorcycle collision. His only complaint is severe left arm pain.



a. State three (3) abnormal findings shown in this Xray. (3 mark)
   - **# midshaft radius comminuted, 100% displaced dorsally with volar angulation ~ 25°**
   - **Distal radioulnar jt dislocation, dorsal displacement of distal ulnar (Galeazzi)**
   - **Marked ST swelling**

b. List five (5) early complications that would require urgent intervention. (5 marks)
   - **Severe pain**
   - **Ischaemic digit- absent distal pulses/poor perfusion**
   - **Neurological compromise**
   - **gross wound contamination**
   - **open joint or fracture/bone on view**
   - **compartment syndrome**
   - **evidence of infection**
   - **nerve damage (median/ulnar nerve)**
   - **fat embolism**

c. List four (4) late complications associated with this injury. (4 marks)
   - **nerve palsy- interosseous branch of the radial nerve**
   - **chronic pain reflex sympathetic dystrophy**
   - **osteomyelitis**
   - **ischaemic contractures**
   - **malunion/delayed union/non-union**
   - **skin loss requiring repair/chronic wound**
   - **arthritis**
   - **Infection - post OT or open wound**

Dr Tom Reade (Staff Specialist, University Hospital, Geelong Emergency Department)
Email: **tomre@barwonhealth.org.au**

Question 9 (17 marks)

a. Complete the table to distinguish between the clinical features (Clinical features = Hx & Ex) of peripheral and central vertigo. (9 marks)
   - *Any 6 of the following worth 1.5 mark (Q with ½ marks will not be asked)*
   - *Specific symptoms or signs may be split ie ear pain and tinnitus can be 1 mark each*
   - *NB: onset cannot be used to differentiate- both may be abrupt onset depending on subtype of peripheral or central*

Clinical feature	Peripheral	Central
Hearing loss symptom	**Often present**	**Rare**
Other ear symptoms	**Pain, tinnitus, discharge**	**Rare**
Other neurological symptoms	**Rare**	**Common- eg diplopia, paraesthesia, limb weakness, dysarthria, dysphagia**
Nystagmus	**Unidirectional/Horizontal Constant direction Delayed onset from stimulus Fatigable**	**Usually absent Bidirectional/ rotatory No latency from stimulus onset Does not fatigue**
Hallpike	**Nystagmus- unidirectional, fatigable**	**Nystagmus- instantaneous, multidirectional, non fatiguing**
Hearing loss sign	**Often**	**Rare**
Other neurological signs	**Absent (VIII only)**	**Usually present**
Course	**Self resolving**	**Persistent relapsing**

b. Assuming the diagnosis of benign positional vertigo , list eight (8) steps in repositioning therapy. (8 marks)
   - **Sit upright head central**
   - **Rapid head down 30° below flat facing to affected side noted on Hallpike's**
   - **Hold in position for ~ 1 min until symptoms resolve**
   - **Rotate head to other side in same 30 ° down position**
   - **Hold in position for ~ 1 min until symptoms resolve**
   - **Continue rotation to face facing floor**
   - **Hold in position for ~ 1 min until symptoms resolve**
   - **Sit upright, head central for > 20 min**

Click on the image below to view the entire PDF (& print/save if necessary)

Benign Paroxysmal Positional Vertigo

Can emergency physicians accurately and reliably assess acute vertigo in the emergency department?