

FEx Net 2022 Collated SAQs- Head, Face + Neck Trauma Questions

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|--------------------------------|-------------------------------|
| 1. <u>Blast Injuries</u> | 26. <u>Neck Injury</u> |
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Question 1 (12 Marks)

You have received a call from the ambulance control that an explosion has occurred near your urban ED. You expect that a number of blast victims will present to ED.

(i) In the following table state how the four (4) types of blast injury are caused (4 marks)

	Description
Primary	
Secondary	
Tertiary	
Quaternary	

(ii) List four (4) important actions you would take prior to arrival of the victims (4 marks)

i)

ii)

iii)

iv)

(iii) List the MOST likely injuries expected for each category of blast injury (4 marks)

	Most Likely Injuries
Primary	
Secondary	
Tertiary	
Quaternary	

Question 2 (9 Marks)

You are a consultant working in a regional ED without speciality services or advanced imaging.

An elderly man is brought to your ED after a fall the day prior. His daughter reports he tripped over whilst walking, and landed chin-first on the ground. She reports he has had difficulty mobilising since the fall.

Your RMO has initially assessed the patient and X-rays of the C-spine is reported as showing 'degenerative changes'.

You are concerned about central cord syndrome.

- a. List the three (3) MOST COMMON findings on physical examination in this condition (3 marks)

- b. State your plan for safe disposition of this patient (3 marks)

- c. The daughter asks you what the prognosis for this condition is what will you tell her? (1 mark)

- d. List two (2) other causes of central cord syndrome besides trauma? (2 marks)

Question 3(13 marks)

This 23 year old man sustained isolated dental trauma in a fall.

Image below:



- i. Briefly describe two methods of anaesthetising the affected teeth (4 marks)

- ii. Describe the injury to the upper left lateral incisor (tooth 22) (2 marks)

- iii. Assuming a 12 hour delay to see a dentist, outline the Emergency Department treatment of this tooth injury (4 marks)

- iv. List 3 possible adverse dental sequelae of this tooth injury (3 marks)

Question 4 (14 Marks)

A 12 year old male presents after being kicked in the mouth whilst playing rugby at school.



- i. Describe the injuries in the photo (3 marks)

- ii. Outline your stepwise approach to systemic analgesia in this child (3 marks)

- iii. What are the goals of treatment for this dental injury (3 marks)

- iv. You decide to use IV ketamine for procedural sedation. What are the significant adverse effects of ketamine (3 marks)

- v. The parents are not keen on ketamine. Describe your choice of regional anesthesia for this child (2 marks)

Question 5 (9 marks)

A 15 year old male presented to your Regional Emergency Department with dental injuries following a cricket accident.

He has sustained no other injuries

His vital signs are all within the normal limits

A photo of his mouth is attached:



Questions:

1- List 2 abnormalities in the clinical photograph: (2 marks)

2- List three (3) analgesic choices for this patient (3 marks)

3- List the immediate management steps of this dental injury. (4 marks)

Question 6 (12 marks)

A 53 year old female had a syncopal episode and collapsed onto an electric heater. She sustained a facial burn. She is now haemodynamically stable and GCS 15.

You are in a rural ED.

Image Below:



- i. List 4 issues to consider in your assessment of this patient (4 marks)

- ii. How would you describe this burn to the burns registrar on call at the tertiary hospital (2 marks)

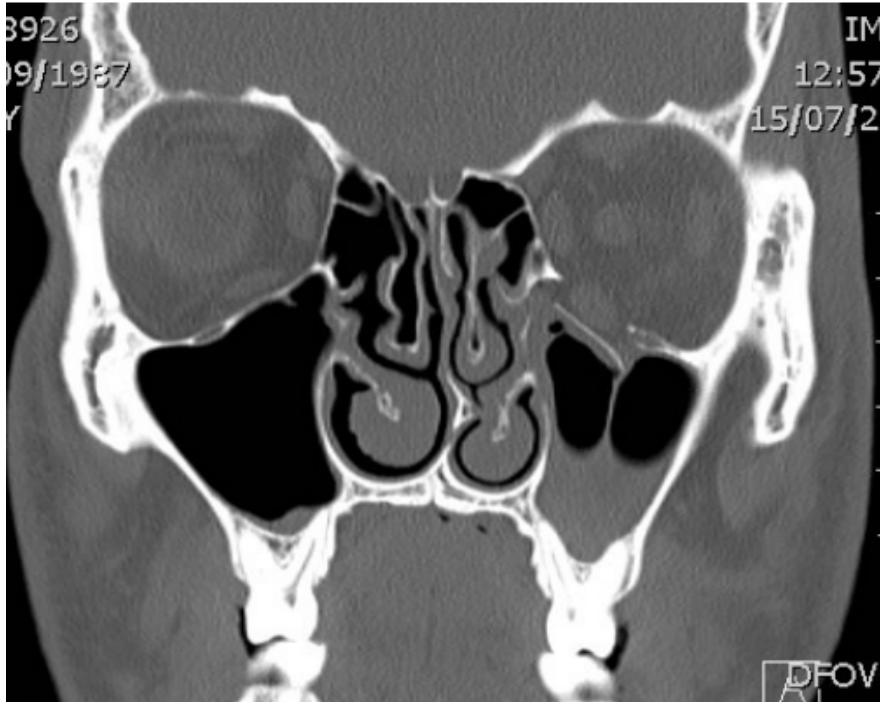
iii. Outline 4 issues in the management of this burn (4 marks)

iv. List 2 possible adverse sequelae from this burn (2 marks)

Question 7 (13 Marks)

A 20 year old man has been punched to the face during an altercation at a bar. He is complaining of a painful, swollen face.

A coronal slice from his CT scan is provided below



1. List 3 radiological abnormalities. (3 marks)

- 1) _____

- 2) _____

- 3) _____

2. You are about to examine the patient.

Complete the table. Give 5 important components of your examination. Justify each component by listing a pathology you are aiming to identify/exclude. (10 marks)

Examination component	Pathology

Question 8 (12 marks)

A 52 year old male is brought into your Emergency Department after being involved in an altercation at a pub on Friday night.

He sustained a single punch to his face, witnessed to not lose consciousness and complains of facial pain.

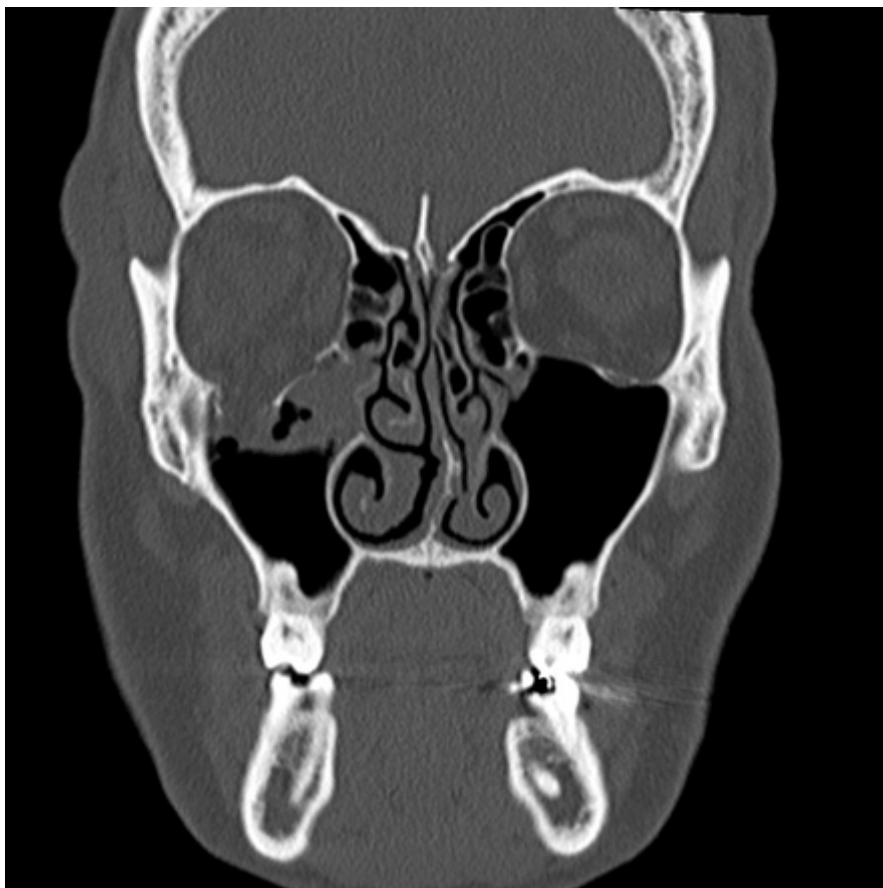
On your review he is GCS 15 with normal vitals.



1. What historical and examination features are important to elicit during assessment?
(3 Marks)

2. What three features on plain ray suggest an inferior orbital wall fracture?
(3 Marks)

3. He undergoes a CT of his facial bones. Describe the major findings shown on the coronal slice below. (3 Marks)



4. List three (3) traumatic causes of optic neuropathy. (3 Marks)

Question 9 (16 marks)

A 25yo male is brought to ED following assault with a cricket bat one hour ago. He had a witnessed loss of consciousness for 5mins at the scene, with current GCS 14 (E4V4M6).

- i. Aside from intracranial haematoma, list three possible early complications of head trauma, and give two signs that would suggest the presence of each complication: (6 marks)

Complication	Sign

- ii. List the five high risk and the two medium risk features of the Canadian CT Head Rule (5 marks)

- iii. If a significant traumatic brain injury is detected in this patient, what measures should be taken to prevent secondary brain injury? (5 marks)

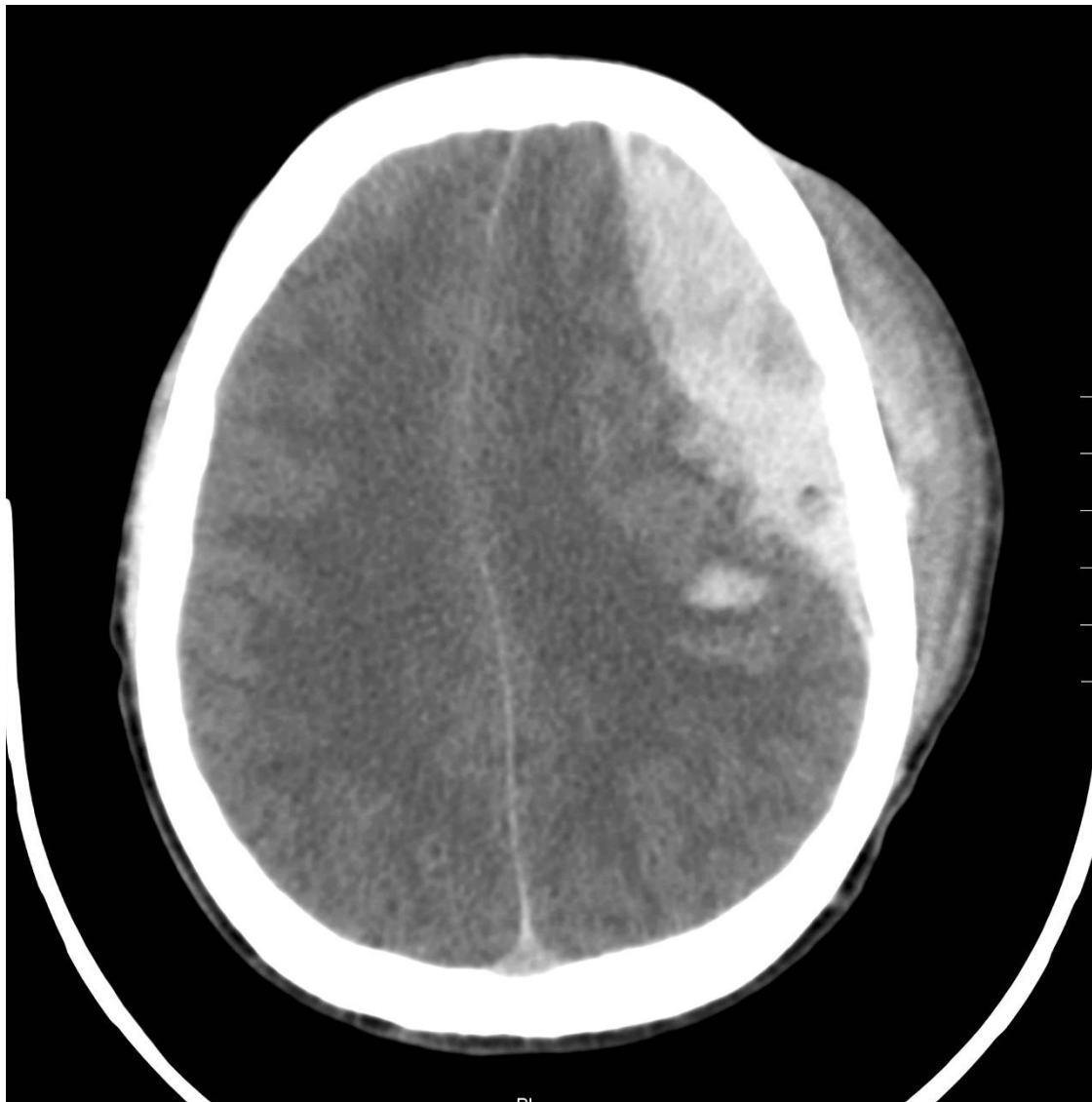
Question 10 (11 Marks)

A 29 year old man has been brought to your hospital after being hit to the head by a baseball bat. He has no prior medical history.

His vital signs on arrival to the ED are:

GCS	11	E2 V2 M5
Pulse	110	/min
BP	110/65	mmHg
O2 sats	99%	6L O2 via mask

A CT scan of his head has been performed.



1. List 5 abnormalities on the CT slice.

(5 marks)

2. List your treatment priorities in the ED. Where appropriate, give end-points. (6 marks)

—

Question 11 (10 Marks)

Your registrar has come to see you for help with a patient. They are seeing a 2 year old boy, who was brought to ED by their parent after they fell off the playground equipment at the park, hitting their head.

1. List five indications for CT Brain imaging for this child.(5 marks)

(1) _____

(2) _____

(3) _____

(4) _____

(5) _____

The child appears well and interactive, with a forehead abrasion but no other injuries. You are told the child had one vomit after the fall, but is now tolerating fluids without intervention.

Despite your registrar's reassurances, the child's parent is demanding a CT scan.

2. Outline the key components of your response to this parent. (5 marks)

Question 12 (11 Marks)

A 3 year old boy has been brought to the ED after falling from the top bunk bed at home. He sustained a brief loss of consciousness after the fall.

His mother is worried about a potential brain injury and is questioning the need for a CT scan.

1. Give the name of a decision instrument for performing CT in head injury which has been validated in the paediatric population. (1 mark)

2. List 6 indications for CT head as per the instrument you have named above. (6 marks)

You feel that CT imaging is indicated.

3. State 4 key components of your preparation for safely performing the CT scan. (4 marks)

- 1) _____

- 2) _____

- 3) _____

- 4) _____

Question 13 (18 Marks)

A 65 year old woman has been brought to the ED after striking her head when falling down some stairs at her home.

A CT scan of her head is provided **BELOW**.



- 1. List 6 findings on your history or examination that would indicate a need for neuroimaging in this patient. (6 marks)**

- 1) _____
- 2) _____
- 3) _____
- 4) _____
- 5) _____
- 6) _____

- 2. List 4 abnormalities on the image provided. (4 marks)**

- 1) _____

- 2) _____

- 3) _____

- 4) _____

There are no other injuries evident on assessment.

3. List and justify 4 other investigations you would perform on this patient. (8 marks)

Investigation	Justification

Question 14 (12 marks)

Your registrar asks for your advice about the clinical decision rules for imaging in paediatric head injury management. They have just seen an 18-month old girl who has been brought in by her mother after she fell off a couch and hit her head on the coffee table one hour ago. The mother is concerned because she seems quieter than normal and has vomited once on the way in to hospital. On assessment, the child is alert, and is happily playing with her Mum's phone. She has a small frontal haematoma, equal reactive pupils and no focal neurology.

a). Detail the main differences between research evidence behind the PECARN , CHALICE and CATCH clinical decision rules. (4 marks)

After taking a detailed history and completing your assessment, you decide that the child does NOT require a CT brain.

b). The mother is asking for a CT scan of her daughter's head as she is worried about concussion. List the important facts that should be mentioned in this conversation (4 marks)

d. State your management plan for this patient (4 marks)

Question 15 (12 Marks)

A 60 year old man is brought by ambulance to your tertiary ED following a 'one punch' attack, where he was punched and fell, hitting his head. There was a brief (<5 minutes) loss of consciousness.

He has no prior medical history and is on no medications.

On arrival his vital signs are:

GCS	14/15 (E3, V5, M6)
Pupils equal and reactive	
P	85
BP RR	125/85
O2 sats	18
	98% room air

He has no injuries other than bruising and a large haematoma to the right parietal region of his head. He has a collar in place.



- I. A single slice from a CT of his head is shown below (4 Marks)**
List four (4) key findings?

On return from CT he is poorly responsive. His GCS is now 7 (E1 V2 M4). His other vital signs do not change. He has an endotracheal tube placed for airway protection and commenced on ventilation without incident. The neurosurgical service is called to attend.

- II. List six (6) priorities in his care while waiting for neurosurgery, (6 Marks)**

- III. His pupils are noted to be different sizes left 3mm, right 7mm. (2 Marks)**
List (2) additional interventions that you will perform?

Question 16 (12Marks)

A 25 year old male patient is to be retrieved from a remote property by your helicopter service. The nearest tertiary hospital is 1 hour flight time. He has fallen from his horse 30 minutes ago and has sustained a closed head injury and is now unresponsive. He also has a deformed L lower leg with an open wound. Local ambulance staff are on the scene and have obtained IV access and applied 15L O2 via NRB mask.

On your arrival he is GCS 5 (E1V1M3).

His vital signs are:

T 36
HR 55
BP 160/65
RR 8
O2 sats 96% 15L mask

1. What drugs would you use for RSI in this patient?

(2 marks)

2. Describe the measures you would take to minimise secondary brain injury in this patient enroute to the nearest neurosurgical centre

(6 marks)

3. List 4 other management priorities for this patient other than those listed above.

(4 marks)

Question 17 **(18 marks)**

You are the consultant in charge of an urban district emergency department. You have just assessed a 42-year-old male who has sustained an isolated head injury from a bicycle accident.

a). List five (5) acute complications of head injuries (5 marks)

You decide to electively intubate him.

b). List four (4) indications for intubation in the emergency department, for any patient. (4 marks)

You successfully intubate this patient.

While securing the tube, you notice he has become hypotensive to 80/50mmHg.

c). Complete the following table for potential causes for post-intubation hypotension in ANY patient and state your immediate management for each cause listed. (5 marks)

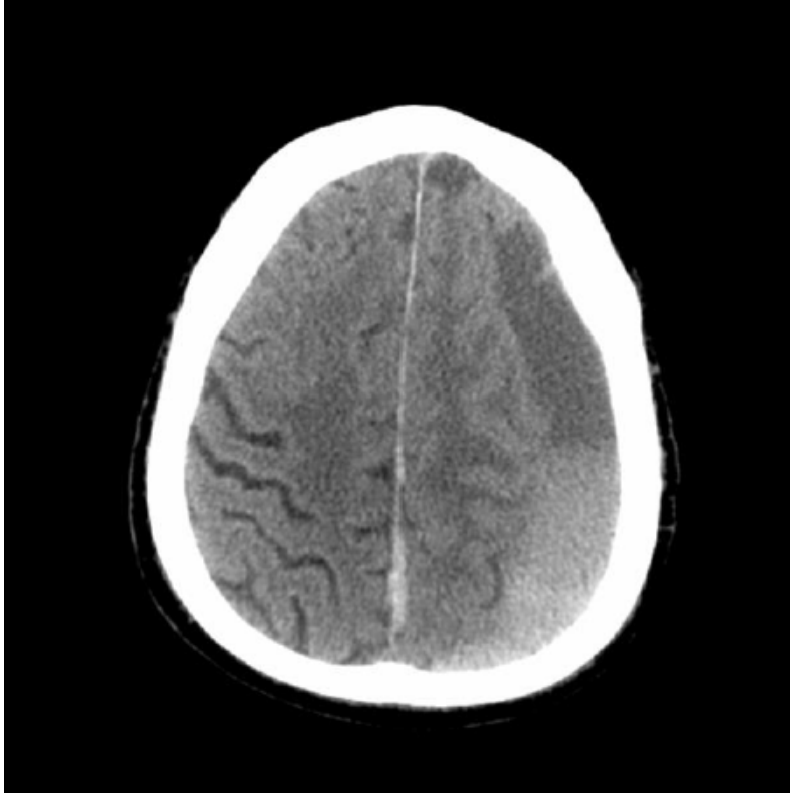
Cause	Immediate Management

Post-intubation, he is taken to CT for trauma imaging. CT brain shows an acute subdural haematoma.

d). List the indications for surgery in patients with acute subdural haematomas (4 marks)

Question 18 (15 Marks)

A 74 year old man presents after a fall the night before. He is now complaining of reduced mobility. Past medical history includes atrial fibrillation and hypertension. His medications are dabigatran, metoprolol and aspirin. GCS is 15.



- i. Outline the findings on the CT image (4 marks)

A CT BRAIN IS SHOWN ABOVE

- ii. List 4 possible treatments you would consider using and your rationale for each (8marks)

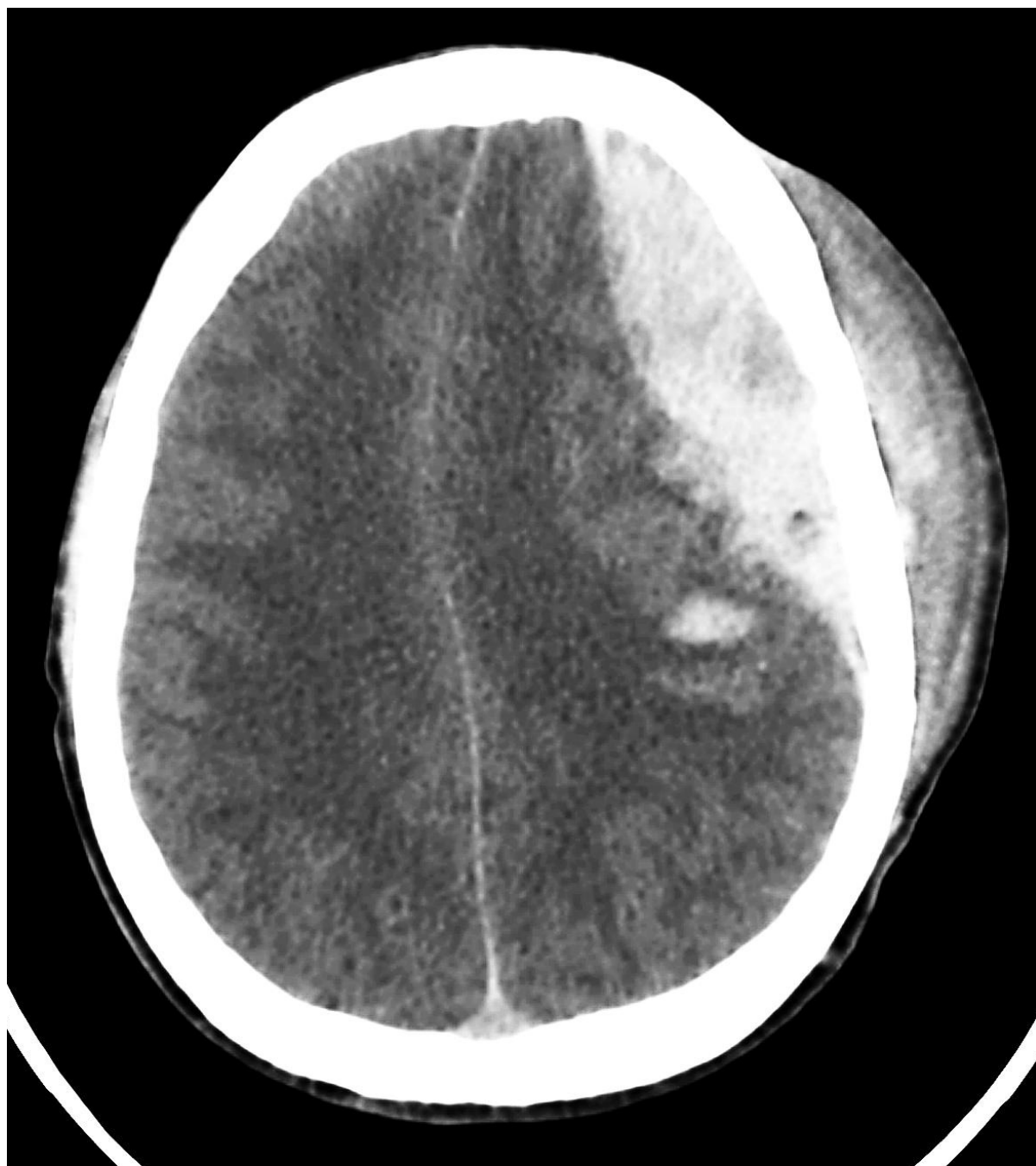
- iii. List 2 important additional features on assessment that are required to assist your treatment decision (2 marks)

- iv. List one other option for the management of NOAC associated bleeding (1 mark)

Question 19 (15 Marks)

A 25 year old man had been brought to the ED after being assaulted with a baseball bat. Assessment reveals isolated head injuries.

An image from his CT head scan is given.



1. List the abnormalities on the CT scan.

(6 marks)

After a short period in the ED, his vital signs are:

GSC	10	E 2 V 3 M 5
Pulse	100	/min
BP	140/70	mmHg
RR	20	/min
O2 sats	99%	6L O2 via mask

2. List your management priorities. Include details of your drugs, doses and end-points. (9 marks)

Question 20 (12 Marks)

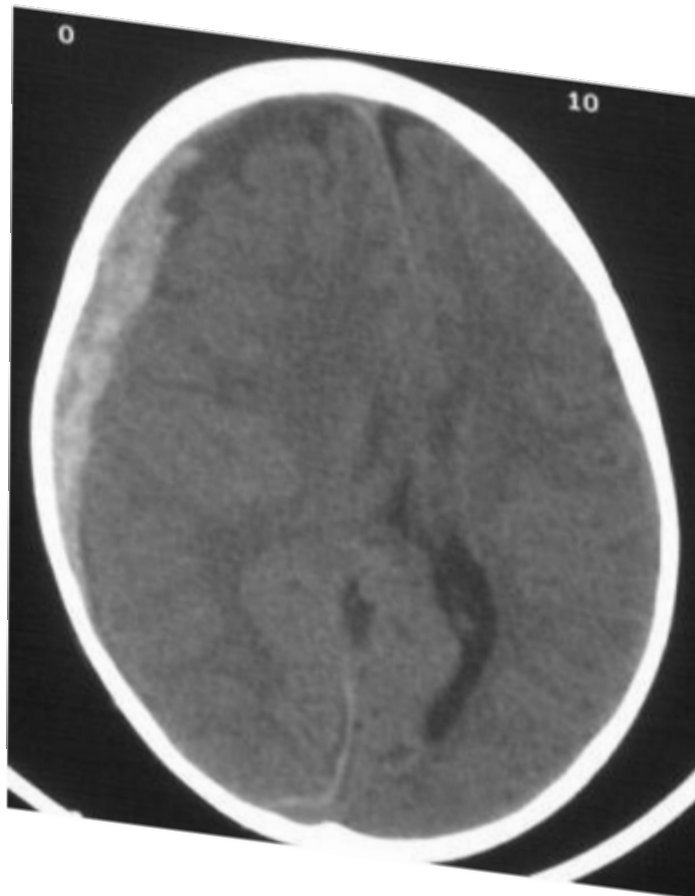
A 33-year-old man presents following a single punch knocking him to the ground. He had a GCS of 7 on arrival and has been intubated prior to CT scan.

He has returned to the ED following CT of his brain and cervical spine.

CT of the cervical spine is normal and he has no other injuries.

His current observations are pulse 60/min and BP 155/85 mmHg. His pupils are equal and reactive.

A single image from his brain CT is attached:



1. Describe **3** abnormalities on the CT image. (2 marks)

(1) _____

(2) _____

(3) _____

The neurosurgical team is en route to hospital and the patient will be going to the operating theatre in approximately 1 hour.

2. Assuming his clinical status remain unchanged, describe **8** treatments and their therapeutic target which should be performed in the ED prior to transferring this patient to theatre (8 marks)

	Treatment	Therapeutic Target
1		
2		
3		
4		
5		
6		
7		
8		

30 minutes later his left pupil becomes fixed and dilated. His pulse rate is 50/min and his BP 160/100

3. Describe **two** additional treatments, with dosage where relevant, that you would immediately institute. (2 marks)

(1) _____

(2) _____



Question 21 (12 Marks)

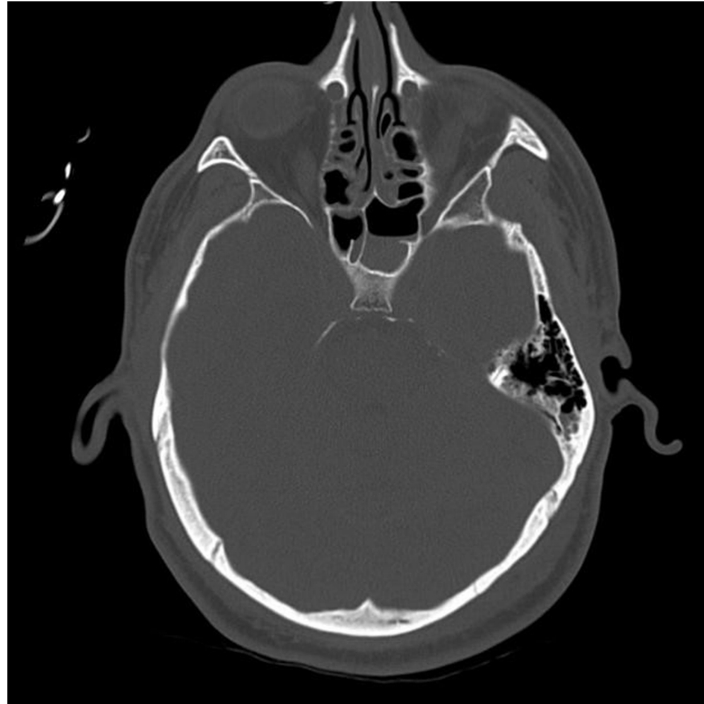
A 5 year old male presents to your regional Emergency Department 1 hour following a minor trauma. He has a history of severe Haemophilia A.

1. List four features on examination you would try to identify for this patient? (4 marks)

The patient has evidence of an isolated small haematoma to his occiput. He complains of a headache and has had two vomits. You decide to undertake neuroimaging.

A non-contrast CT Brain was performed. There are two (2) axial slices below.





2. From the imaging above, please state the diagnosis, with three (3) supporting CT findings. (4 marks)

Diagnosis:

Outline your key management priorities for this patient. (4 marks)

Question 22 (10 Marks)

A 17 year old man presents after an assault. He has jaw pain.



1. List **3** abnormalities seen on the OPG (3 marks).

- i. _____
- ii. _____
- iii. _____

2. List **6** important physical findings that you should document (3 marks).

- i. _____
- ii. _____
- iii. _____
- iv. _____
- v. _____
- vi. _____

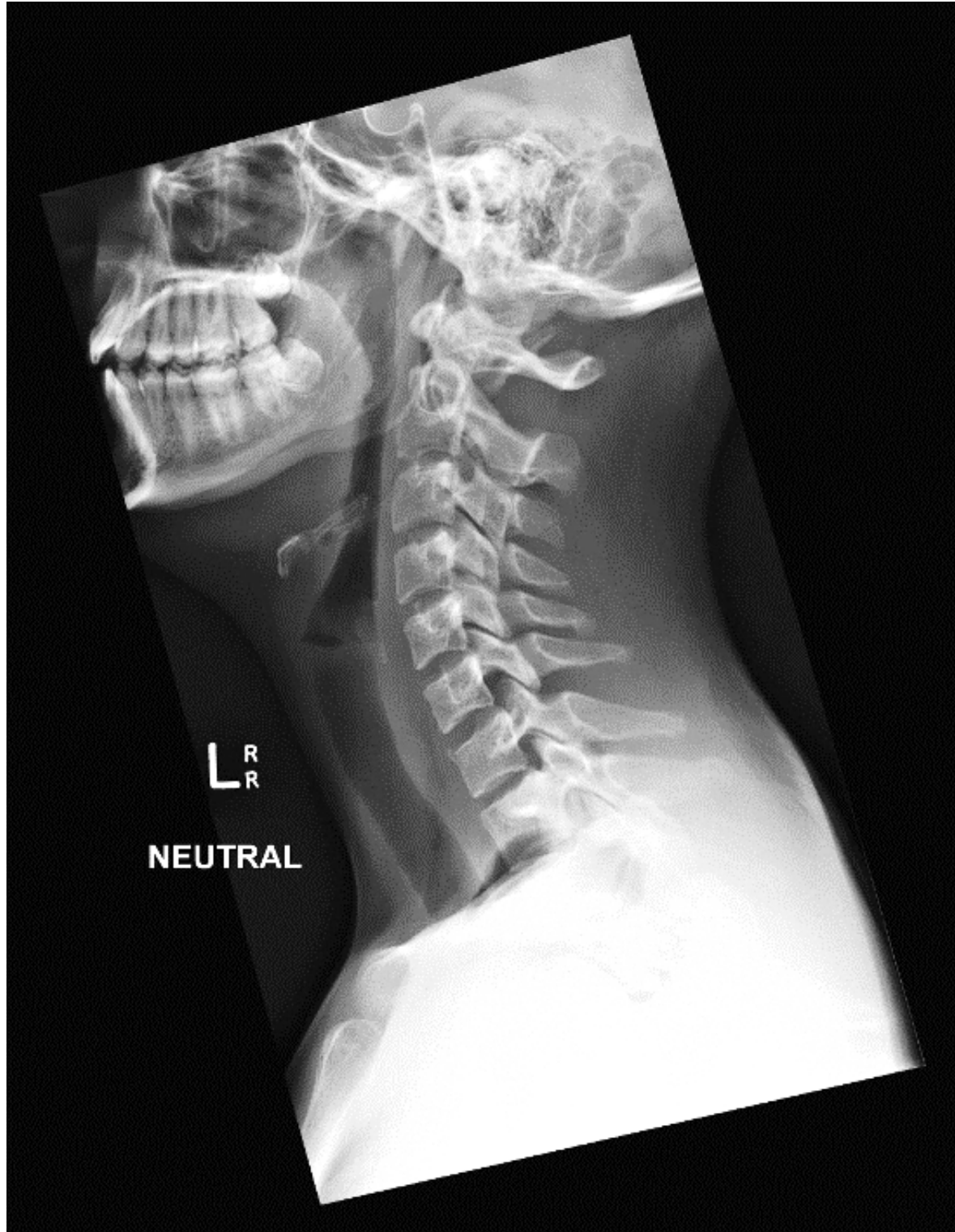
3. List **4** aspects of your initial ED management with specifics (4 marks).

- i. _____
- ii. _____
- iii. _____
- iv. _____

Question 23 (14 Marks)

A 25 year old woman has been brought to the ED with neck pain after falling off a trampoline.

Her cervical spine x-ray is given below.



1. List the NEXUS low-risk criteria for the clinical exclusion of cervical spine fracture. (5 marks)

2. List 4 important radiological abnormalities on this x-ray. (4 marks)

Her cervical spine x-ray is provided in the **PROPS BOOKLET**.

(1) _____

(2) _____

(3) _____

(4) _____

3. What is the clinical relevance of this injury? (1 mark)

On examination, the patient has some upper limb weakness.

4. Complete the table, listing the nerve root supply for the following upper limb actions.
(4 marks)

Upper limb action	Nerve root supply
Elbow flexion	
Elbow extension	
Wrist extension	
Finger abduction	

Question 24 (18 Marks)

A 28 year old man has presented to the ED after falling 2 metres from a ladder landing on to his head.

As part of his assessment, a CT scan of his cervical spine was performed. One image from this scan is provided below.



1. State the diagnosis, supported by 3 abnormalities on the CT scan. (4 marks)**Diagnosis**

Radiological abnormalities

There are no other injuries.

2. List 5 key features of your examination. For each, state the clinical relevance. (10 marks)

Examination feature	Clinical relevance

3. Complete the table by listing the appropriate spinal cord levels as per the ASIA classification standard. (4 marks)

Key muscle group	Spinal level
Elbow flexors	
Elbow extensors	
Knee extensors	
Ankle plantar flexors	

Question 25 (16 Marks)

A 62 year-old man is brought to your ED after an assault during a home invasion. He has been stabbed in the anterior right side of neck and was pushed down a steep flight of stairs with possible head and neck injuries due to the fall.

Initial assessment:

GCS	10 combative
HR	125 per minute
BP	105/65 mmHg
Head:	Right parietal large boggy swelling
Neck:	Wound at right side of anterior neck, extends from medial aspect of clavicle to level of cricoid, extensive haemorrhage

- i. List 5 immediate management priorities? (5 marks)

- ii. List 3 potential harmful effects of hard collar use in this patient (3 marks)

- iii. List 4 clinical features which would suggest this patient has a critical vascular injury (4 marks)

- iv. Given his mechanism of injury you are concerned he may have sustained an acute cord injury. List 2 possible acute spinal cord syndromes in this case and identify 2 associated clinical findings (4 marks)

Acute Cord Syndrome	Clinical Finding

Question 26 (20 Marks)

An 18 year old man has been brought to the ED following a motorbike accident. He rode in to fencing wire at approximately 60km/hr. He has sustained a closed injury to the anterior of his neck where he struck the wire. There are no other injuries on assessment.

His vital signs are:

GCS 15

Pulse 100 /min

BP 120/75 mmHg

1. List 4 features on examination that would suggest a significant laryngeal injury.

(4 marks)

2. List 4 features on examination that would suggest a significant vascular injury.

(4 marks)

—

- 3. List 2 investigations you could arrange to assess this injury. (2 marks)**

Based on your assessment, you have decided that the patient needs definitive airway management.

- 4. State 2 major concerns you would have in securing this patient's airway via a standard rapid sequence induction (RSI) with direct laryngoscopy in the ED. (2 marks)**

1)

2)

- 5. List 4 indications for immediate airway management in the ED. (4 marks)**

The patient requires immediate airway management in the ED.

6. State 4 modifications to a standard RSI you would use in this patient. (4 marks)

- 1) _____

- 2) _____

- 3) _____

- 4) _____

Question 27 (18 Marks)

A young man has been involved in a motor vehicle accident. He was driving his car unrestrained when he drove head---on into a wall. He was found by the emergency services unconscious at the wheel, with his neck hyper---extended.

On arrival, he is GCS 13 (E3 V4 M6) with a soft inspiratory stridor and a hoarse quality to his voice.

The rest of his vitals are:

BP 85/60
HR 60
RR 14
SpO2 95% RA
Temp 36.5

Below is a photograph of his neck.



1. Describe the key features on the photo.

(2 marks)

2. List 5 major injuries you would be concerned about in this patient.

(5 marks)

3. List 5 indications for intubation in this patient.

(5 marks)

4. List 3 possible difficulties you would anticipate may occur during intubation of this patient and your planned solution to each.

(6 marks)

Anticipated Difficulties	Planned solution

Question 28(20 Marks)

A 42 year old male is brought to your Emergency Department following a motor vehicle accident in which he has sustained a suspected spinal cord injury.

1. Compare the clinical features of neurogenic vs. spinal shock?

(6 marks)

Neurogenic shock	Spinal shock

2. He is GCS 15 with no motor function below C5. Outline your management priorities:

(5 marks)

3. The patient is found to have an isolated 3 column injury on CT at the C4/5 level with a burst fracture and suggestion of cord injury. He has no other injuries on extensive and complete imaging.

List 3 options for cervical spine immobilisation in the Emergency Department and the pros and cons for each:

(9 marks)

1.	Pros
	Cons
2.	Pros
	Cons
3.	Pros
	Cons

Question 29 (12 Marks)

A 28 year old male patient is brought to your ED following an injury in a tackle during a rugby match. There is concern for a C spine injury as he been unable to move his upper or lower limbs after the injury.

On arrival he is being managed in appropriate spinal immobilisation.

His vitals signs are:

GCS 15/15
 Temp 36.0
 HR 60 regular
 BP 90/60
 SpO2 93% RA

Questions:

- I. Complete the following table with 4 indications for intubation that may occur in a patient with a spinal injury and state the supporting features you would look for on assessment.
 (8 Marks)

Indication for intubation	Supporting Features on Assessment

II. List 4 modifications would you make to your standard RSI in this patient if you were to proceed with intubation in the ED? (4 marks)

Question 30(14 Marks)

An 87-year-old lady from home presents after slipping and falling down her stairs. She has neck pain, and no other injuries.

You are concerned about possible spinal cord injury.

1. Complete the following table detailing signs and mechanism of various spinal cord syndromes (8 marks)

Syndrome	Signs	Mechanism
Central Cord Syndrome		
Anterior Cord Syndrome		
Brown Sequard Syndrome		
Posterior Cord Syndrome		





She has a CT scan performed of her cervical spine. (see above)

2. Describe the CT findings (2 marks).

On examination you find an incomplete cord injury.

3. List 4 things you can do (apart from spinal immobilisation) as secondary prevention of further injury. (4 marks)
