

Illawarra Shoalhaven Local Health District Emergency Medicine Fellowship Program



Topic-Based Quiz: Qs and As Orthopaedics – Upper Limb

Candidate Instructions

- Duration = 30min
- Props are included within the examination booklets
- Allocated marks for each question are shown
- Each mark is of equal weight
- There is no negative marking
- Write answers CLEARLY, and cross out any errors
- Answer within space provided
- Do not begin until instructed
- You may take examination book home with you

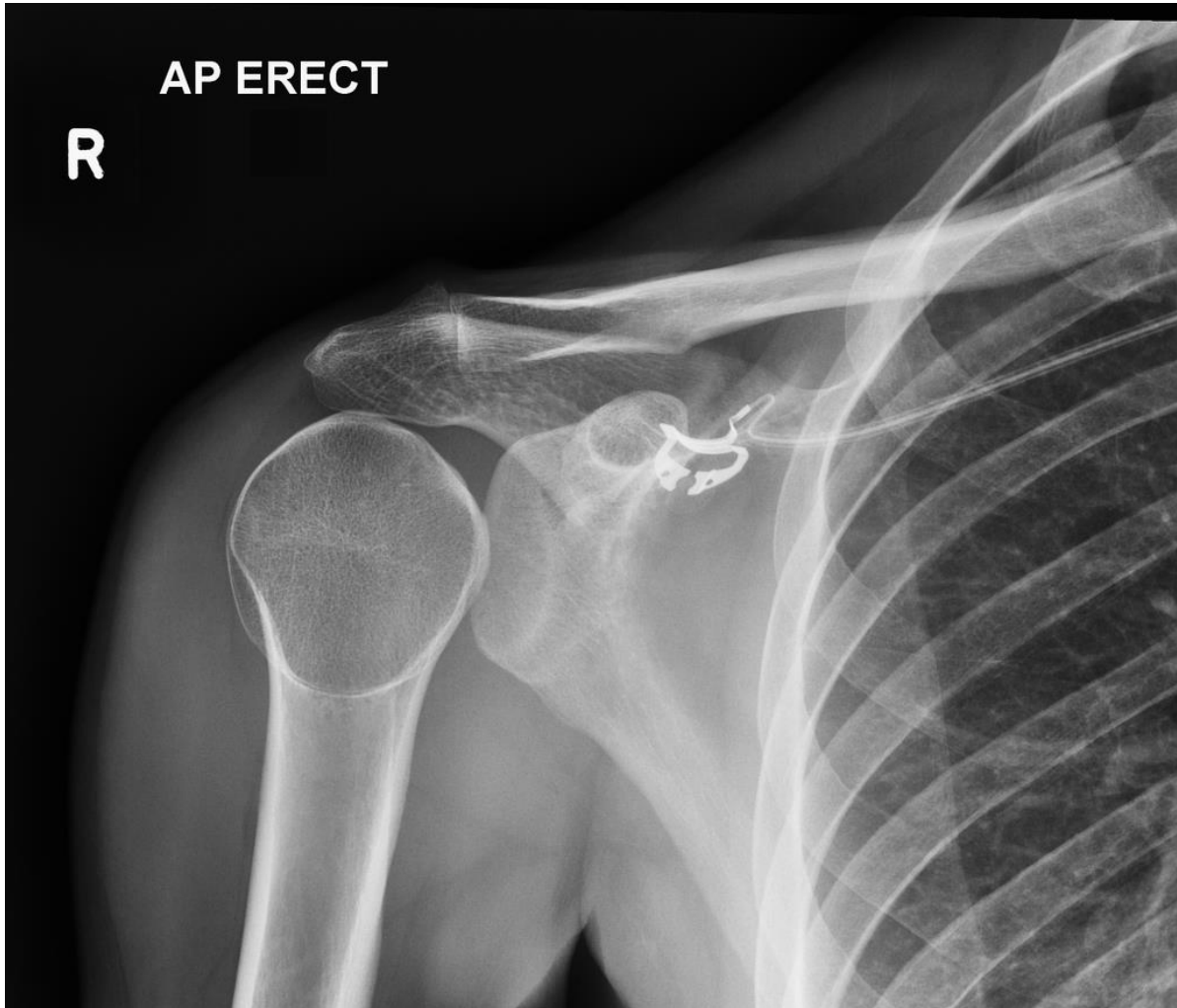


Good Luck!

Acknowledgement: Thank you to the trainees who have written these SAQs with the hope of making their colleagues sweat, but ultimately gain more exposure to exam practice. Good job.

Question 1

A 38 year old man presents to ED. He has a history of heavy alcohol intake but has been unwell and hasn't had a drink for 48 hours. He woke on the bathroom floor this morning with a sore shoulder. He cannot recall the events of the last 3 hours.





List the two (2) most abnormal features present on this series of X-rays (2 marks)

2. What is the diagnosis (1 mark)

List three (3) underlying causes/mechanisms for this type of injury (3 marks)

List the steps in correcting this injury, assuming the patient already has adequate analgesia and sedation (3 marks)

List the three (3) MOST likely associated fractures you might find with this injury (3 marks)

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You suspect a fracture. What are your management priorities for the patient? Include doses and routes where applicable. (6 marks).

Question 3

A 22 year old man presents with a hand injury after coming off a motorbike. He is complaining of pain in his left wrist and has no other injuries.

An Xray is taken and is shown below.



Describe his x-ray giving three (3) relevant findings. (3 marks)

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List 3 short term and 3 long term complications of this injury. (6 marks)

Short Term	Long Term

Describe four (4) steps in your management. (4 marks)

Question 4

You're in a sub-urban emergency department where the nursing staff asks you to come and review a hand injury at triage.

You see a person with an amputated finger.



The nurse tells you that she has given him oral analgesia.

You decide to discuss the case with the regional hand hospital and take further history from the patient.

What historical features would you ask the patient with regards to his injury. (3 marks).

Write down four indications for reimplantation. (4 marks)

Write down four contra-indications for reimplantation. (4 marks)

What are acceptable ischemia times for finger amputations ? (2 marks)

Question 5

A 34 year old man is brought to your emergency department following a work place injury. He was using a pressurised paint injector with a high-pressure hose that snapped, striking him in his hand. He washed his hand immediately and presented to the department.

He is complaining of pain and has been given oral analgesics with some relief to his pain.

His vitals are

BP – 138/76

HR – 96/min

Spo2 – 99% on RA. RR – 14/min.

A picture of his hand post injury is attached.



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What is your choice of initial investigation and your rationale for it ? (2marks)

What are your immediate management priorities? (5 marks)

You have difficulty managing this man's pain and your resident suggests a peripheral nerve block. What is your response and what are the additional options (3 marks)

ANSWERS

Question 1

List the two (2) most abnormal features present on this series of XRays (2 marks)

Lightbulb sign

Humeral head sitting posterior to the glenoid on scapular Y view

What is the diagnosis (1 mark)

Posterior Shoulder Dislocation

List three (3) underlying causes/mechanisms for this type of injury (in general) (3 marks)

Seizures

Electrocutions

High energy trauma to anterior shoulder e.g MBA

List the steps in correcting this injury (assuming the patient already has adequate analgesia and sedation) (3 marks)

Lie supine

- Adduct

- Internally rotate

- Traction

- Medial Upper arm pushed laterally

- Arm Extended

OR

- Adduct

- Internally rotate

- Traction

- Assistant pushes humeral head anteriorly into the glenoid

List the three (3) MOST likely associated fractures (3 marks)

Post glenoid rim

Reversed Hill-Sachs

Humeral Head Fracture

Lesser Tuberosity Fracture

Question 2

What is the best estimate of her age? (1 mark)

At least 3 years of age

At what ages do the different ossification centre appear? (6 marks)

Ossification centre	Median age of appearance.
Capitellum	1 yr
Radial head	3yr
Internal epicondyle	5yr
Trochlea	7 yr
Olecranon	9yr
External epicondyle	11yr

What are your management priorities for the patient? Include doses and routes where applicable. (6 marks).

Analgesia

PO Analgesia – Nurofen / Paracetamol (appropriate dose ranges)

IN Fentanyl – 1.5mcg / kg

IV Morphine – appropriate dose range.

Backslab immobilisation – long arm b.slab.

Elevation

Referral to orthopaedic team for follow-up.

Question 3

Describe his xray giving two (2) relevant findings. (2 marks)

- Perilunate dislocation
- Scaphoid fracture

List 3 short term and 3 long term complications of this injury.

- Short term: median nerve injury, pressure necrosis of skin, compartment syndrome, pain, loss of function.
- Long term: carpal instability, avascular necrosis of proximal fragment of scaphoid, chronic pain, complex regional pain syndrome, osteoarthritis

Describe four (4) steps in your management.

- Analgesia (IV narcotic)
- Keep fasted until definitive procedure
- Splint and orthopaedic referral
- Urgent reduction (in OT, or ED (closed reduction may not be successful without ORIF).
- *Careful and repeated neuro assessment for median nn.*

Question 4

What historical features would you ask the patient with regards to his injury. (3 marks).

- What was the mechanism of injury?
- Ischaemic time in fingertip amputations
- Patients hand dominance
- Current occupation and hobbies
- Length of time since injury occurred
- Tetanus immunisation status
- Conditions affecting peripheral circulation, (Smoking, diabetes, Raynauds, atherosclerosis)

Write down four indications for reimplantation. (4 marks)

- Thumb amputation
- Amputation of multiple digits
- Amputation level between MCP and distal forearm
- Amputations in children

Write down four contra-indications for reimplantation. (4 marks)

- Severely crushed or mangled parts
- Prolonged ischemia time
- Single digit (except thumb)
- Severe contamination

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- Age >60, poor health, atherosclerotic disease
- Avulsion injury

What are acceptable ischemia times for finger amputations ? (2 marks)

- Acceptable warm ischemia times
 - 12 hours for digit; 6 hours for muscle bearing extremity
- Acceptable cold ischemia times (i.e. time amputated part is on ice)
 - 24 hours for digit; 12 hours for a muscle bearing extremity

Question 5

What is your choice of initial investigation and your rationale for it ? (2marks)

- Hand X-ray.
- May show extent of injection of radiopaque substances.

What are your immediate management priorities? List 5. (5 marks)

- Splint and Elevate
- Emergent ortho/hand surgeon consult
 - Early surgical decompression and debridement
 - Increased rate of amputation if >10 hours to OR
- Tetanus
- Antibiotics
- Analgesia

You have difficulty managing this man's pain and your resident suggests a peripheral nerve block. What is your response and what are the additional options (3 marks)

- Digital blocks are contraindicated as wound already under high pressure. May mask developing compartment syndrome.
- IV Morphine 5-10mg q30 mins
- Low dose ketamine 10-20mg / or infusion
- IV Fentanyl PCA – titrated to pain.