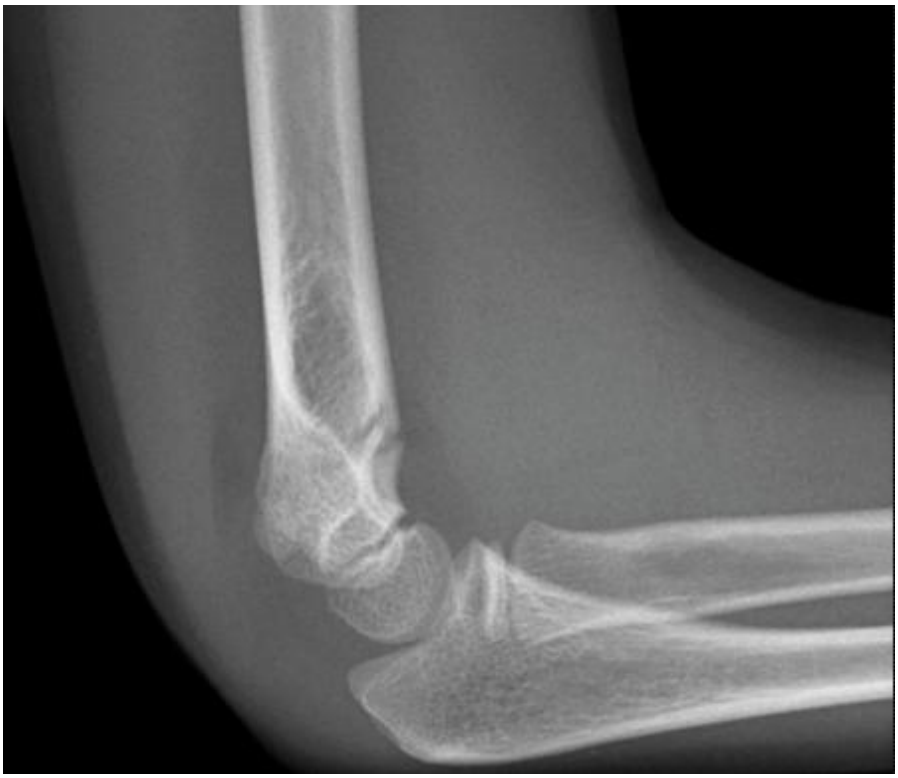
SAQ 1 (15 Marks)

A 5 year old girl presents to the Emergency after falling from the monkey bars at school and injuring her right elbow. She has sustained no other injuries.

Below is a Right Lateral Elbow Xray:



A. Describe 3 **Pathological** findings on the Xray (3 Marks)

1. _____

2. _____

3. _____

*-**fracture line** on the **anterior supracondylar** region of the **humerus***
-Anterior humeral line transects the anterior 1/3 of the capitellum = posterior displacement of distal humerus
-Displaced posterior and anterior fat bad and surrounding soft tissue swelling.
-Gartland type 2

Don't accept soft tissue swelling or negative eg, No dislocations, No air in tissues

B. List three (3) important ACUTE neurovascular complications associated with this injury and for each state what examination finding you would look for to confirm the complication.

(Marked out of 6.0)

	Complication	Examination findings to confirm
1	***Brachial artery injury/compression*** *(risk of isch. contracture)*	*pulseless / white hand*
2	*Radial nerve*	*sensory dorsal 1st web space, motor - wrist/digit extension*
3	*Median nerve - most often entrapped in the fracture*	*sensory - palmar aspect lateral 3.5 fingers ie palmar index finger,* *- motor – LOAF muscles **L**ateral 2 lumbricals(fklex PIP index + middle fingers)* ***O**pponens pollicus(thumb to little finger)* ***A**bductor pollicus brevis(lift thumb off palm)* ***F**lexor pollicus brevis(thumb ascross palm) -*
	Ant interosseous nerve (branch median)	*highest risk in extension-type fractures- inability to flex thumb IPJ and DIP of fingers (OK sign) pincer movement of the thumb and index finger, no sensory branch*
	Ulnar nerve	*most often compromised in flexion-type fractures* *- sensory medial 1.5 fingers (little and medial half ring),* *- motor – intrinsic muscles of hand – interossei – spread/cross fingers against resistance, Froments sign- paper held between thumb and index finger, hypothenar muscles, medial 2 lumbricals*
	Compartment syndrome	*Tight/swollen/woody on palpation, pain out of proportion to injury or increasing, paraesthesia*

C. Complete the table below DESCRIBING the three (3) types (grades) of this injury and for each type state the management. (6 marks)

(Marked out of 6.0)

	Type	Management
1	*Undisplaced*	*Above elbow backslab + sling 3/52 in 90 degrees elbow flexion*
2	*Slightly Angulated fracture with intact posterior cortex*	*Reduction to anatomical alignment under procedural sedation and immobilisation in elbow backslap as above*
3	*Displaced distal fragment posteriorly interruption of both anterior and*	*Urgent reduction in ED if vascular compromise, otherwise:*

	posterior cortices ie no cortical contact. *'Off ended'*	*Percutaneous pins/K wires CRIF (closed reduction internal fixation) or ORIF*

References:

https://www.rch.org.au/clinicalguide/guideline_index/fractures/Supracondylar_fracture_of_the_humerus_Emergency_Department/
Xray image - https://www.juniorbones.com/cases-blog/supracondylar-fractures
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5883211/

Feedback

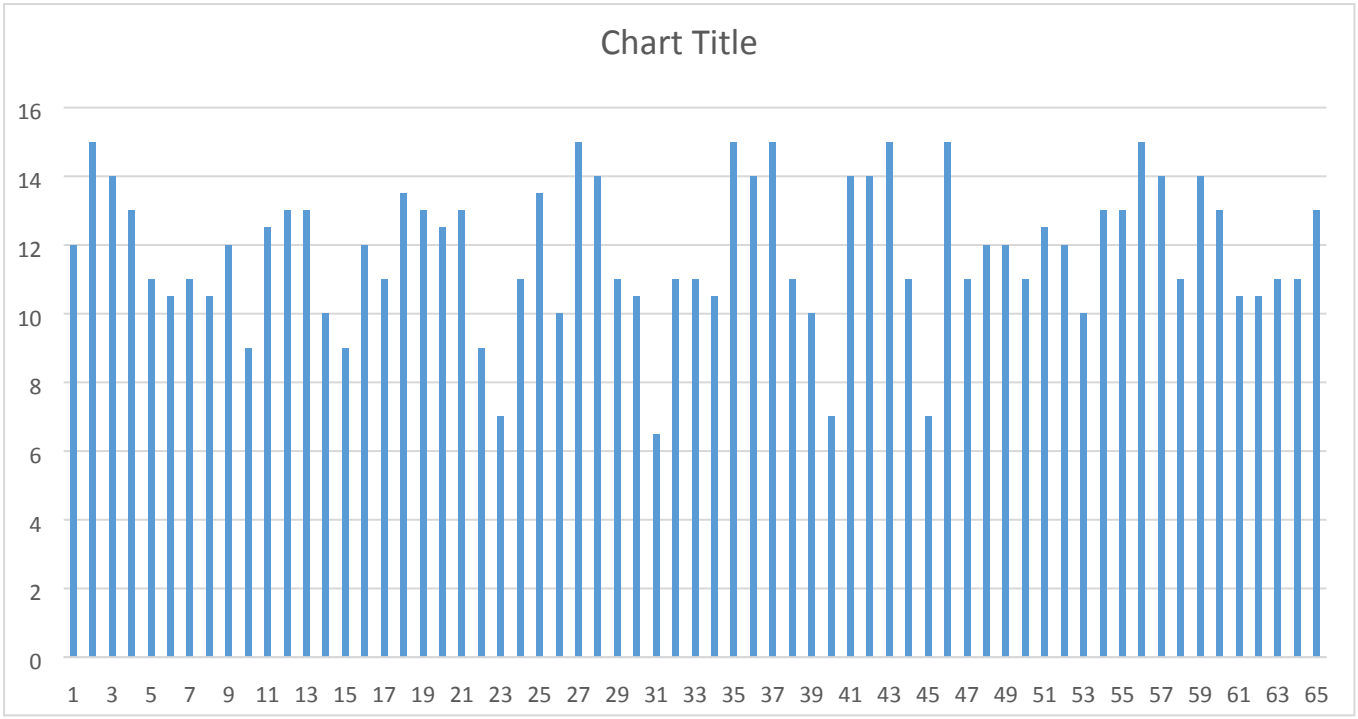
- Part A - anatomic issues- incorrect bone/blood vessel
- Part A – Lipo-haemarthrosis reported by some - but can't see fat in joint

- Part B don't list most important – brachial artery occlusion
- Part B vague examination findings- eg 'Paraesthesia along median nerve distribution, palms of the hands and reduced digit movement'

- Part C misinterpreted by many - list either description or Mx but sometimes not both – column should have been labelled 'description' rather than 'type'
- Part C – 'plaster' or 'POP' is that backslab or circumferential?
-Part C- seems to be fear of using terms like 'off ended'- I think that is a good and acceptable description of a grade 3 #

Results:

Out of 15 Marks
Pass mark >=12
Passes 34/65 = 52%
Failed 31/65 = 48%
Range 6.5-15
7 candidates scored 15 Marks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