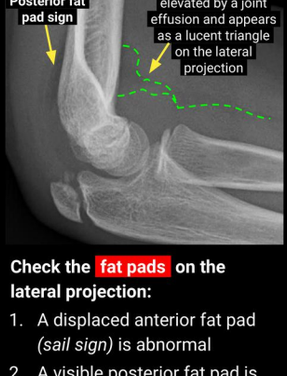
PAEDIATRIC ELBOWS (v.1)

#EM3
East Midlands Emergency Medicine Educational Media

by Dr. Sarah Edwards
@drsarahedwards

REVIEWING THE PAEDIATRIC ELBOW X-RAY

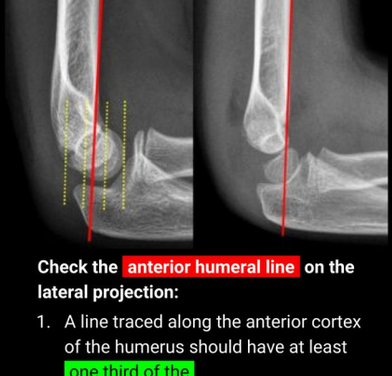
ARE THE FAT PADS NORMAL?



Check the fat pads on the lateral projection:

1. A displaced anterior fat pad *(sail sign)* is abnormal
2. A visible posterior fat pad is always abnormal
3. Not all joint effusions are associated with fractures.
4. An effusion often suggests that a significant injury has occured. This is irrespective of if a fracture can be seen or not.

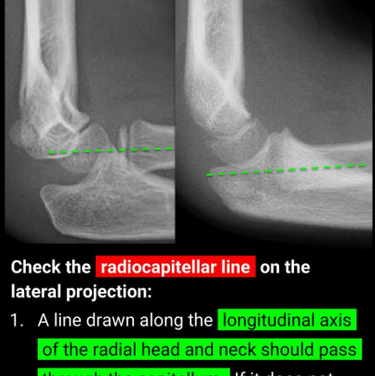
IS THE ANTERIOR HUMERAL LINE NORMAL?



Check the anterior humeral line on the lateral projection:

1. A line traced along the anterior cortex of the humerus should have at least one third of the capitellum anterior to it.
2. If less than one third of the capitellum lies anterior to this line, there is a strong probability of a supracondylar fracture with the distal fragment *(including the capitellum)* displaced posteriorly.

IS THE RADIOCAPITELLAR LINE NORMAL?

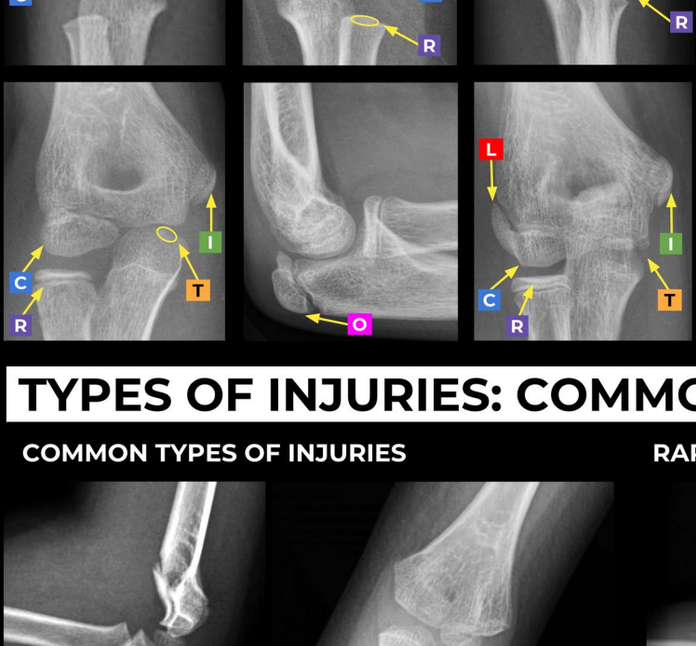


Check the radiocapitellar line on the lateral projection:

1. A line drawn along the longitudinal axis of the radial head and neck should pass through the capitellum. If it does not pass through the capitellum: a radial head dislocation is likely.
2. The normal radius frequently shows a bend or slight angulation in the region of its tuberosity. Draw the RC line along the long axis of the proximal 2–3 cm of the radius. Not along the long central axis of the shaft of the radius.

OSSIFICATION CENTRES

ARE THE OSSIFICATION CENTRES NORMAL?



AP Lateral: CRITOL Sequence

The order in which the ossification centres appear…

From birth – 12 years old

- C = Capitellum *(1 year*)*
- R = Radial Head *(3 years*)*
- I = Internal epicondyle *(5 years*)*
- T = Trochlea *(7 years*)*
- O = Olecranon *(9 years*)*
- L = Lateral Epicondyle *(11 years*)*

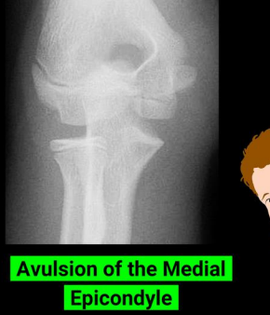
**Approx. age you'd expect them to appear*

KEY POINTS TO REMEMBER:

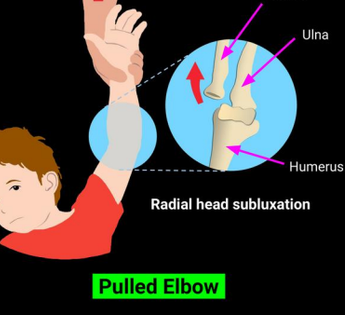
The order is more important than the ages. I always comes before T. If you see the ossified T before the I then I has more than likely been avulsed.

TYPES OF INJURIES: COMMON & RARE

COMMON TYPES OF INJURIES



Supracondylar Fracture



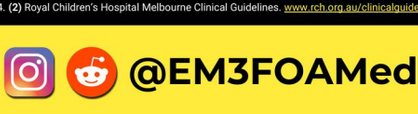
Fracture of Lateral Humeral Condyle

Avulsion of the Medial Epicondyle

Pulled Elbow

RARE, BUT IMPORTANT!!

Isolated Dislocation of the Radial Head



Monteggia Injury

(fracture of middle 1/3rd of ulna with slight angulation and dislocated radial head)

References: **(1)** Nigel Raby, Laurence Breman, Simon Morley, Gerald de Lacey. Accident and Emergency Radiology: A Survival Guide 3e. 2014. **(2)** Royal Children's Hospital Melbourne Clinical Guidelines. www.rch.org.au/clinicalguide