



The Weekly Probe

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Volume 14 Issue 17

Long Acting Olanzapine (Zyprexa Relprevv) – After the non-recognition of the syndrome leading to the death of a patient, there has been a recent notification regarding adverse effects related to the use of long acting olanzapine. It is a drug we do not regularly use in the ED yet something that may be prescribed by the psych team when a patient breaches a Community Treatment Order.

This effect results from inadvertent intravascular injection of olanzapine, causing a range of olanzapine overdose-type symptoms. Post injection syndrome is not dose, frequency or time point specific, and the risk of occurrence exists following every administration. In most cases the initial signs and symptoms occur within the first hour after injection, but onset after 3 hours has been reported. Full recovery usually occurs within 24-72 hours.

The signs and symptoms include sedation (ranging from mild sedation to deep sleep and unconsciousness), and/or delirium (including confusion/confused state, disorientation, anxiety and agitation). Other symptoms include dizziness, weakness, altered speech/dysarthria, altered gait, muscle spasms, possible seizures and hypertension. Management is supportive.

Pathology Labelling - Please be aware that pathology services have been instructed to no longer return specimens to the ED for relabelling. If a specimen is received with no label, incorrect label or incorrect form, **you will be required to recollect the sample from the patient and explain the error.**

THIS WEEK

Last week's Case – Dislocated elbow
Next Week's Case
Joke / Quote of the Week
The Week Ahead

DISLOCATED ELBOW

A 58yo man presented with severe left elbow pain after an altercation at a Bulldogs match – say no more! His Xray is shown below

The elbow dislocation is the 2nd most common upper limb dislocation and reduction of this dislocation is often a procedure satisfying to both the clinician and the patient.

Anatomical reminder



Normally the coronoid adjacent to /within the trochlea and the radial head sits on the capitellum . As shown in the Xray below the radius and the ulna are both shifted towards the ulna ie medially



On the lateral film the trochlea of the humerus should sit within the trochlea notch of the proximal ulna. However on the film on the right there is overlap as these 2 bones are not articulating normally c/w the medial dislocation seen on the AP film.

Most commonly (~80%) the ulna dislocates posteriorly in relation to the distal humerus (posterior dislocation) yet can be posterolateral posteromedial, lateral, medial, or divergent (greater force with disruption of the annular lig and interosseous membrane leading to dislocation of the radius – ulna & ulna-humerus (thus is unstable++).



Figure 1a: A complete elbow dislocation.

- There may be associated fractures of the coronoid process (the humerus is sitting on the coronoid process in the diagram), the radial head or humerus. There is also a sequence of ligamentous injuries with the lateral collateral ligament (LCL) then the medial collateral ligament (MCL) (affecting stability to valgus stress). The MCL is the main stabiliser of the elbow joint. There is one complex of injuries called the "Terrible Triad" which involves a disruption of the LCL, a radial head fracture, a coronoid tip fracture and a dislocation of the elbow. There also may be soft tissue injuries including rupture of capsule, rupture of flexor pronator mass and less commonly, injury to brachialis muscle

Less common is the anterior dislocation when the humerus dislocates to lie posterior to the olecranon fossa. Divergent dislocations are associated with

Assessment

- **Treat life and limb threats**- Typically the mechanism is a fall onto an outstretched hand (axial load esp with supination +/- valgus force) and is subsequently an isolated injury. However consider other injuries especially in the context of mechanisms with greater force such as MBAs.
 - o Include the shoulder (esp proximal humerus, AC j and clavicle) and rest of forearm (distal radioulnar joint injury) in the assessment. Repeat assessment post reduction as this is a significant distractor.
- **Neurovasc** - look for open injury and assess neurologically esp median and ulnar nerves assess & brachial artery.
- Look at shoulder and wrist (esp radioulnar jt and interosseous membrane)
- Normally when you run your hand down the posterior humerus towards the elbow it will run smoothly down to the tip of the olecranon. With a posterior dislocation, there will be a concavity proximal to the olecranon which will be abnormally prominent. There is also a fullness in the cubital fossa, coupled with pain ++ on movement. There may also be varus (distal end towards the patient) or valgus (distal end away or Lateral to the pts midline) deviation of the forearm in relation to the humerus.
- Anterior dislocations are rarer – similar mechanism with an addition anteriorly directed force and hyperextension allowing the olecranon to slip over the trochlea of the humerus – usually the olecranon is also fractured.
- Imaging – Xray may not be required initially if clear clinical diagnosis / Ct if complex fracture or osteochondral injury
- **Treatment**
 - o Analgesia – IV titratable morphine or fentanyl
 - o Sedation
 - o Reduction

- Posterior dislocation - correct lateral or medial displacement first / apply in-line traction to forearm and counter-traction to the upper arm / then with pressure applied to the tip of the olecranon, the elbow is flexed / the ulna moves distally and anteriorly with reduction of the elbow – best done with the forearm supinated (palm UP) to reduce trauma to the coranoid.
 - Anterior dislocation reduction – more difficult to reduce (thus some suggest to do in OT) – correct lat or medial displacement – traction applied to the forearm – with the elbow slightly flexed and supinated, the forearm is displaced posteriorly and olecranon is brought around the trochlea of the humerus to reduce the joint.
 - Divergent dislocation – best in OT – reduced radius / ulna to each other then the forearm to the humerus
- Check stability – if possible (dependent on analgesia) stability should be checked throughout range of motion – test for valgus and varus instability in full extension & 15-30 degrees flexion) to unlock the olecranon from the olecranon fossa (+/- pronation / supination). Persistent instability as the elbow is extended may indicate interposition of soft tissue or an osteochondral fragment.
- Splint the arm at 90 degrees.
 - if LCL is disrupted then usually more stable in pronation
 - if MCL is disrupted (to maximize the stress on the medial collateral ligament, the forearm should be placed in full pronation) then usually more stable in supination
- Xray – to check reduction – widening of the jt space may indicate the presence of osteochondral fragment or persistent instability.
- Surgical treatment – acutely for irreducible dislocations (secondary to entrapped osteochondral fragments or entrapped soft tissues) or if unstable at less than 60 degrees flexion
- Post-reduction – examination for stability helps guide the management and rehabilitation.
 - If the elbow is stable through a range of motion and reduction OK on the films, the patient may be **removed from the splint after 5-7** days and instructed on gradual mobilisation (with physio and orthopaedic guidance) and measures to reduce swelling as better outcomes are seen when motion is started early – rehab should be tailored to the patients symptoms and progress - avoid vigorous movements. A sling may be considered if the joint is stable and the patient has minimal pain.
 - For unstable elbows the aim is also to begin active movement as soon as possible. They should be initially be immobilised then referred for orthopaedic review with consideration of a hinged brace (allowing active ROM without compromising the reduction) for 2-3 weeks
- Look for complications
 - Neural injuries – ulnar injuries are most common – most resolve yet chronic symptoms may require decompression of anterior transposition of the nerve // Median nerve injuries can occur from stretch, from entrapment in the joint (esp if occurs after reduction, if widening of jt space or if sensation of incomplete reduction) or secondary to raised compartment pressures. Especially anterior interosseous nerve (AIN), a branch of the median nv



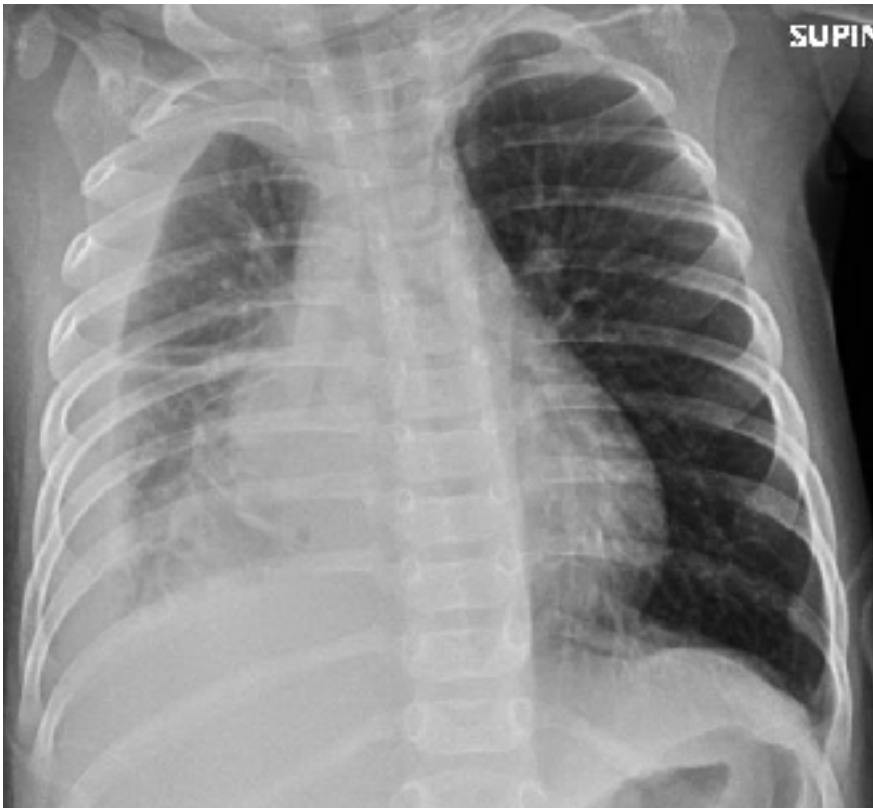
Get the patient to do "OK" sign- if injured, the terminal joints of thumb and index are extended, not flexed

- Vascular injuries – spasm, thrombosis, rupture or intimal injury to brachial artery – may not have distal insufficiency due to collaterals
- Compartment Syn- remember 5Ps (pain, paralysis, parasthaesia, pallor, pulselessness) – esp pain – pain on passive extension of fingers or wrist, and pain out of proportion to what is expected with the injury (ongoing despite reduction). Remember to think about consider this complication when considering nerve injury.
- Articular injury – osteochondral fragments are often much larger than suspected due to the cartilaginous component. Surgical Mn of entrapped fragments.

Refs- http://www.wheelsonline.com/ortho/dislocations_of_the_elbow <http://www.orthobullets.com/trauma/1018/elbow-dislocation>

NEXT WEEK'S CASE

A 6 month old girl presents with 1 day history of fevers and respirator grunting. On exam T 37.9C sats 95% RA RR 55 – decreased AE right side – CXR below – WCC 15.5 Na 132 lactate 2.6



What is going on?



"Other than your choice of ring tone, I can't find anything wrong with you."

Please forward any funny and litigious quotes you may hear on the floor (happy to publish names if you want)

THE WEEK AHEAD

Tuesdays – 08:15-09:30

Thursday – 25th May – 12:00-13:30

Medical Grand Rounds, Auditorium, level 2

Dr Barbara Withers, Haematology for Interns. Staff Education Centre, Level 2