

## Ulnar nerve block

**General difficulty rating:** Easy-moderate

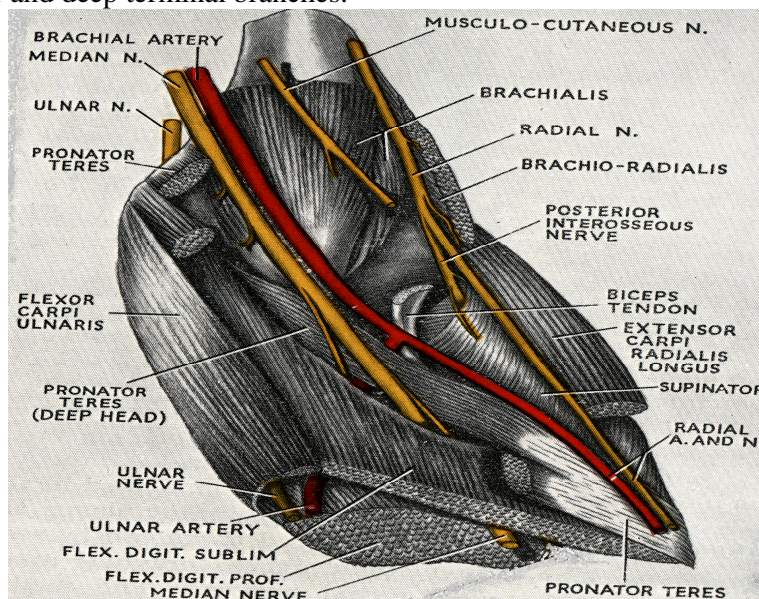
**Equipment:**

- High to medium frequency probe (10-7.5MHz) as the nerve is usually 0.5-1cm deep to the skin.
- 2-5mls of 1% lignocaine should be sufficient for 1-2 hours anaesthesia with a 5 minute onset.
- The use of a 19G or 20G needle with a blunt tip.

**Ulnar nerve block**

**Anatomy**

The ulnar nerve is a terminal branch of the medial cord of the brachial plexus (C7 / T1). It descends behind the medial epicondyle in the ulnar groove, before entering the forearm where it lies deep to the flexor carpi ulnaris muscle on the medial aspect and distally medial to that muscles tendon. It lies medial to the ulnar artery in the lower 2/3<sup>rd</sup>s of the forearm (see figures 1, 2 and 3). Approximately 5cm proximal to the wrist crease it has a dorsal cutaneous branch (supplying the ulnar 1 ½ fingers and dorsal palmar branch. At the wrist it becomes superficial to lie with the ulnar artery laterally between the tendons of flexor carpi ulnaris medially and flexor digitorum superficialis laterally. It passes over the flexor retinaculum at the wrist joint and end in a palmar and deep terminal branches.

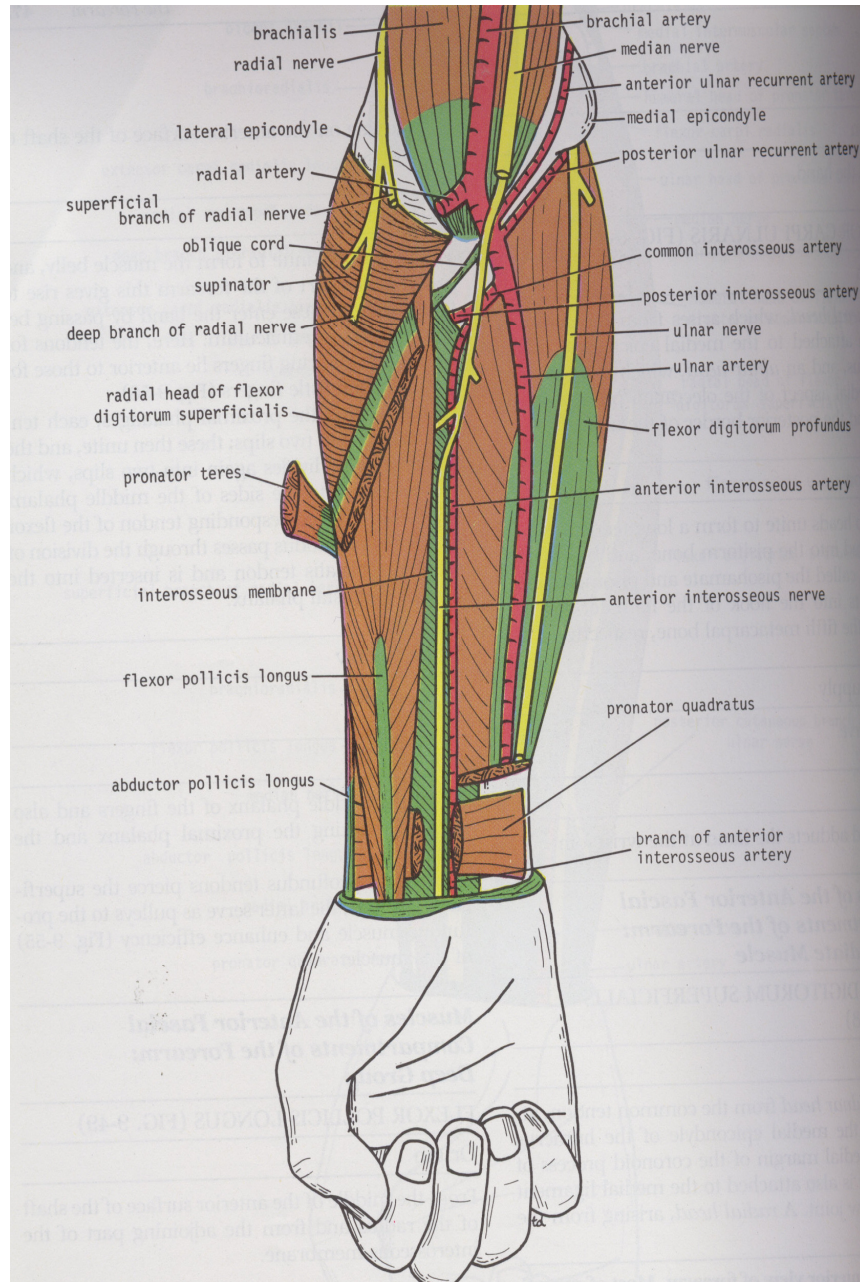
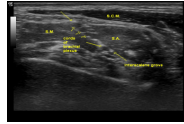


**Figure1:** Flexor compartment at elbow dissected to show the relationships of the ulnar, radial, median and musculocutaneous nerves.

Adapted from 'Lasts anatomy 4<sup>th</sup> edition' page 116

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## Emergency Medicine Ultrasound for Regional Anaesthesia

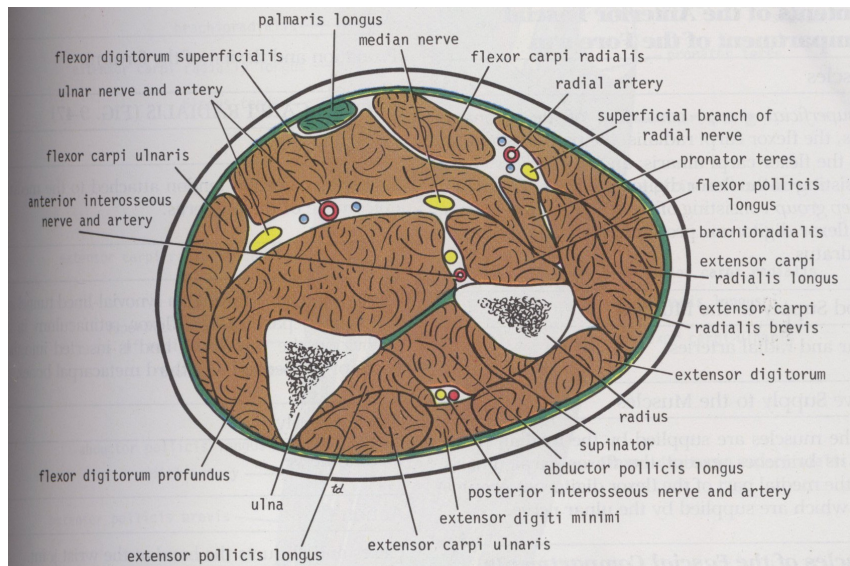
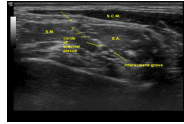


**Figure 2 :** Flexor digitorum superficialis and median nerve from flexor compartment of forearm

Adapted from Snell 'Clinical anatomy for medical students' 3<sup>rd</sup> edition page 474 figure 9-49

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**Figure 3: Cross section of forearm at mid forearm**  
Adapted from Snell 'clinical anatomy for medical students' 3<sup>rd</sup> edition page 469 figure 9-46

### The ulnar nerve supplies:

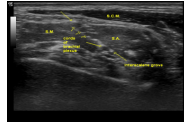
- Sensation to skin of ulnar half of the palm and extensor 2 ½ fingers
- Sensation to the ulnar half of the palm and palmer 1 ½ fingers
- Elbow joint
- Flexor carpi ulnaris muscle
- All hypothenar muscles
- All palmar(adduction) and dorsal(abduction) interossei muscles
- Medial 3<sup>rd</sup> and 4<sup>th</sup> lumbricals
- Adductor pollicis

### Indications for ulnar nerve block

Minor procedures involving the little finger and ulnar aspect of the hand (e.g treatment of soft tissue injuries, reduction of finger / hand fractures such as boxer's fracture).

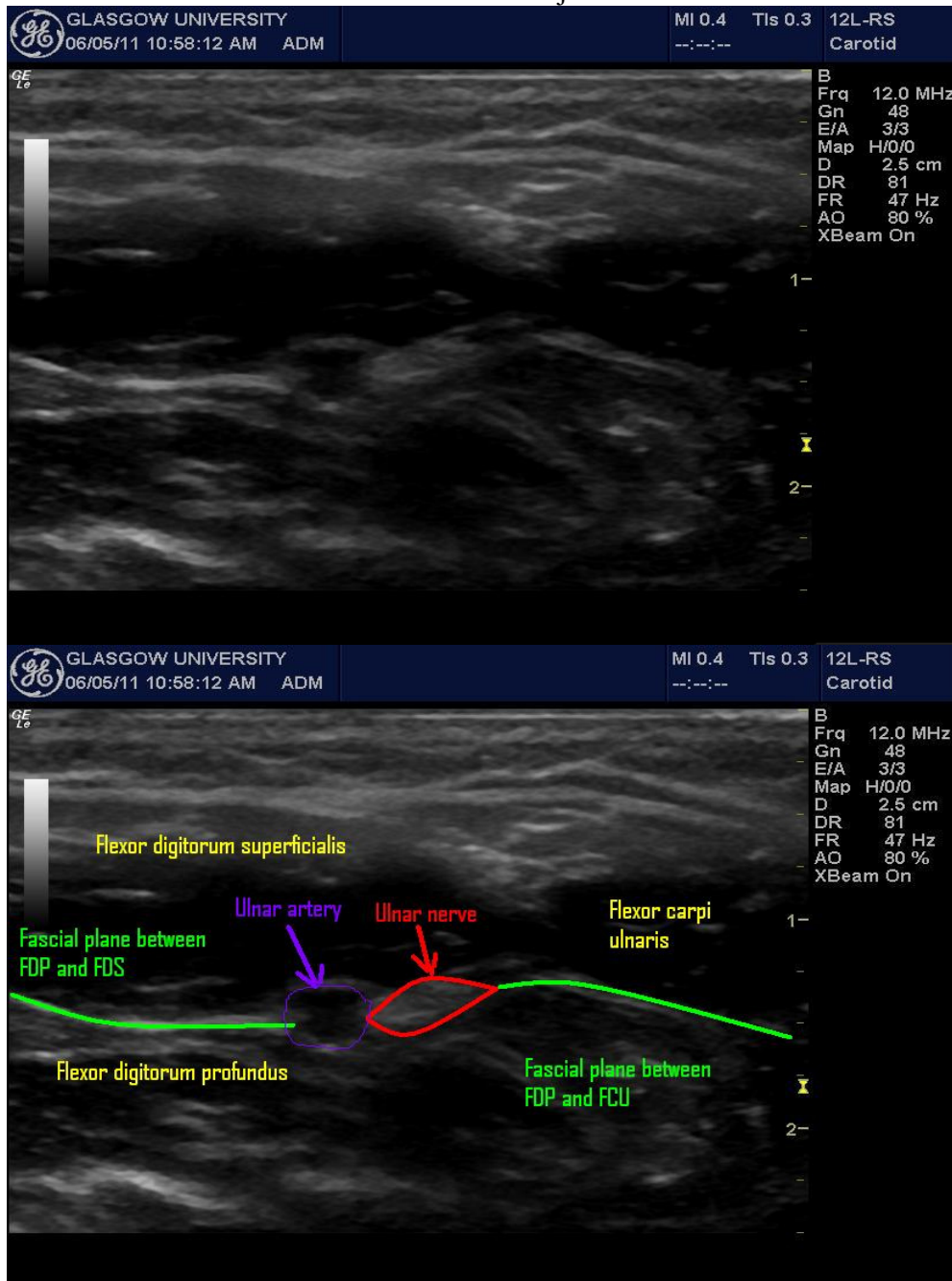
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## Emergency Medicine Ultrasound for Regional Anaesthesia



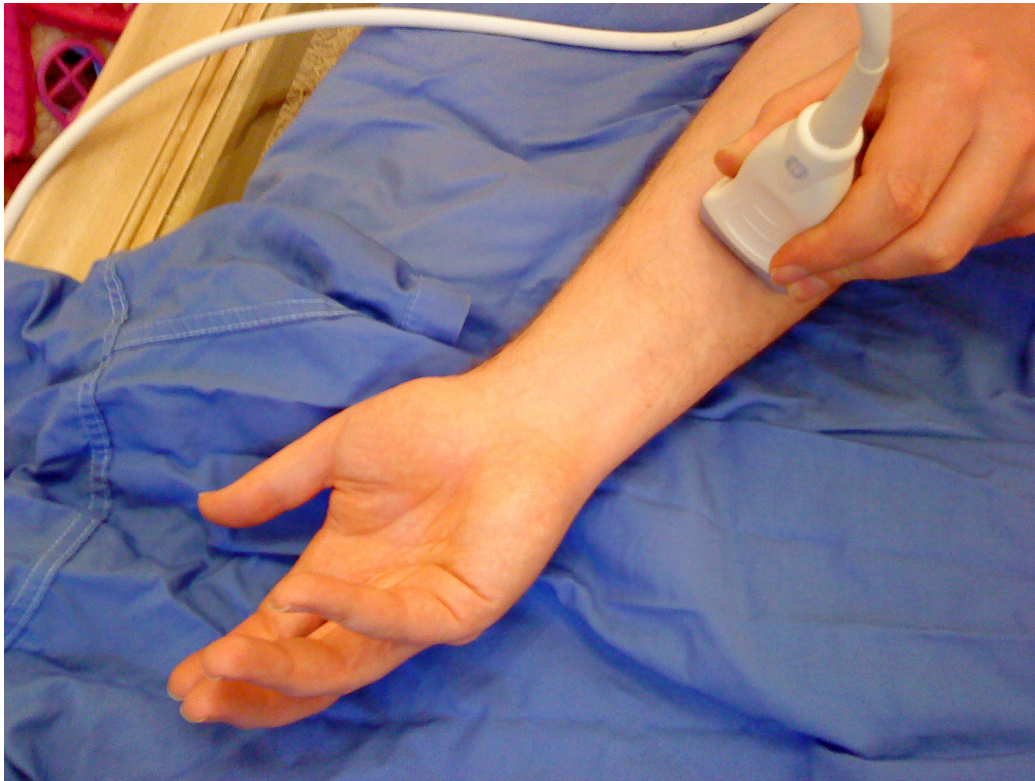
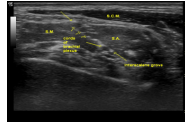
### Ultrasound guided technique

- Place the probe on the anterior ulnar surface of the mid-forearm
- Identify the ulnar artery at the wrist and identify the ulnar nerve lying medially
- Use an in-plane approach so that the position of the needle tip can be seen at all times.
  - Inject 3–5ml of local anaesthetic to surround the nerve while aspirating to detect intravascular injection.



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## Emergency Medicine Ultrasound for Regional Anaesthesia



### Clinical pearls:

- Use a large syringe (10ml) to prevent the generation of high pressures during inadvertent intra-neuronal or intramuscular injection.
- On local anaesthetic injection you should observe the ulnar nerve 'floating' surrounded by local anaesthetic
- Look for the ulnar artery first and deduce the anatomical relations
- Block the nerve in the middle of the forearm (proximal to the dorsal branch and where it lies in close relation to the ulnar artery)
- Aim for the fascial plane that the nerve lies in (not the nerve) i.e. between FCU and FDS
- Aim to 'open up' the fascial plane and advance the needle tip into the space you have created to surround the nerve with local anaesthetic.
- If the patient complains of pain of injection 'stop' and check your image  
Have you injected intraneuronally?