

# BLOCK GuRU - Upper Limb

## INTERSCALENE



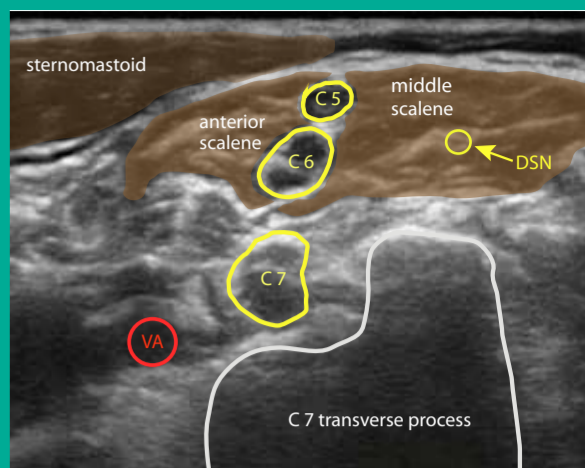
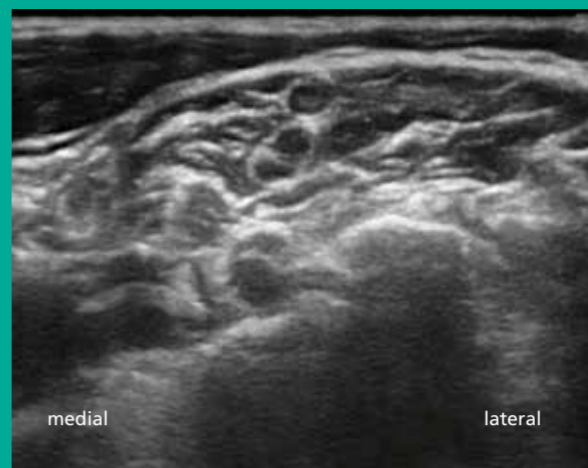
**Interscalene** - shoulder, proximal humerus surgery

**Identify:** 2-3 roots in vertical alignment between anterior and middle scalene muscles; identify C5 & C6 roots; use doppler to check for vascular structures

**Target:** The interscalene groove deep to the C5 root to reduce spread to the phrenic n; there is no advantage in multiple injections if you observe adequate spread of injectate

**Tips:** Scan up from the supraclavicular region if necessary; the distinctive morphology of the transverse processes helps to identify the correct level

**Avoid:** The dorsal scapular nerve (DSN) lies in the middle scalene muscle - avoid direct needle trauma; the vertebral artery lies deeper but within needle range; large volume injections increase the risk of phrenic nerve or sympathetic blockade (Horner's syndrome) or epidural spread



## SUPRACLAVICULAR



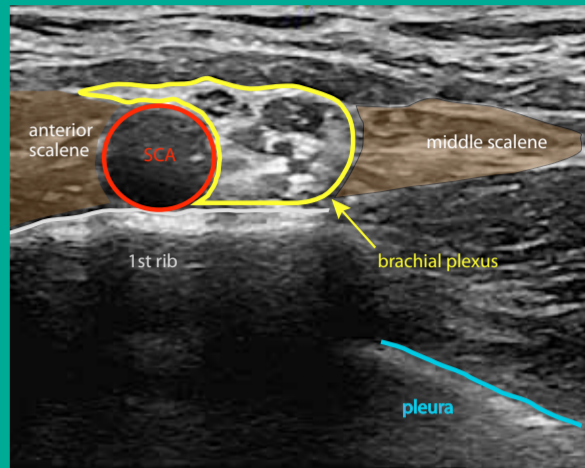
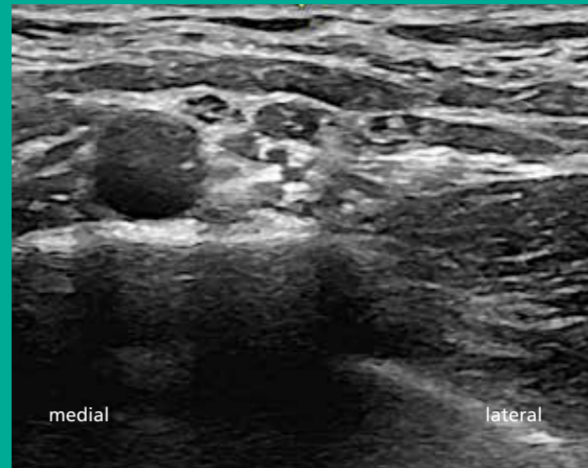
**Supraclavicular** - humerus, elbow, hand surgery

**Identify:** Subclavian artery lying on the first rib with underlying pleura. Brachial plexus appears as a honeycombed structure lateral and superficial to the artery

**Target:** 2-3 injections in the brachial plexus sheath, ensuring LA spread to the "corner pocket" between the artery and rib and any superficial components

**Tips:** Rotate the lateral end of the probe a little posteriorly to optimise image; keep the 1st rib in view beyond the needle tip to protect against pneumothorax

**Avoid:** Pneumothorax; avoid needle tip beyond the 1st rib - keep tip in view throughout



## INFRACLAVICULAR



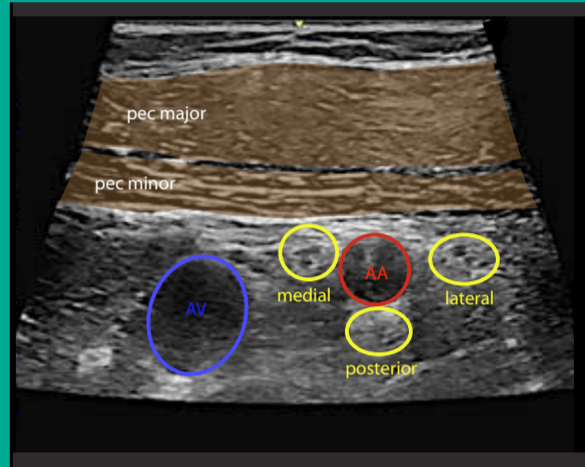
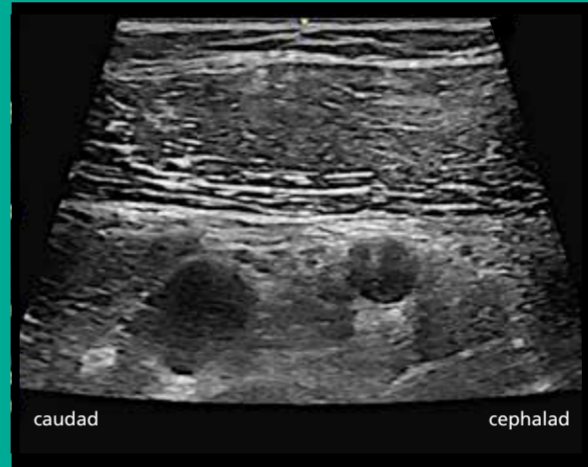
**Infraclavicular** - humerus, elbow, hand surgery

**Identify:** Pectoralis major & minor, axillary artery and vein, 3 cords arranged around the artery

**Target:** Posterior cord deep to the artery and check spread, add lateral cord injection on needle withdrawal, redirect to medial cord if necessary

**Tips:** Full arm abduction improves view and needle access beneath the clavicle but is not essential; pectoral muscles help anchor nerve catheters

**Avoid:** Pneumothorax, blood vessels (including cephalic vein joining the axillary vein)



## AXILLARY



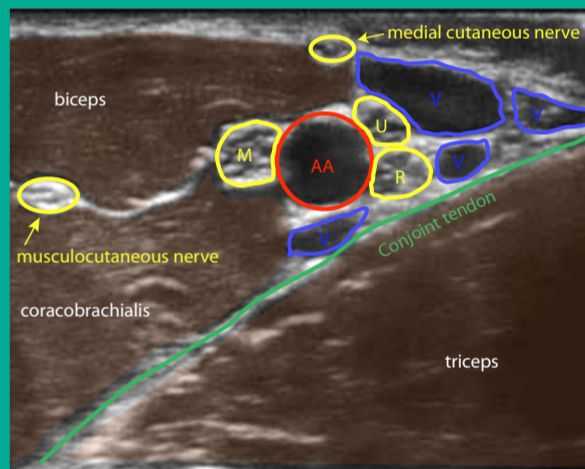
**Axillary** - elbow, forearm, hand surgery

**Identify:** Axillary artery (sometimes multiple), veins (often multiple), conjoint tendon of teres major and latissimus dorsi, 4 nerves (musculocutaneous, median, ulnar, radial) lie above that tendon

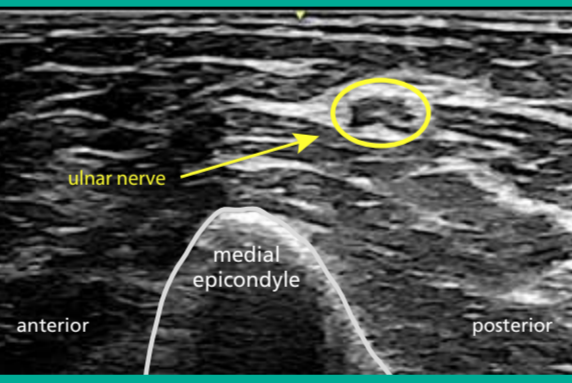
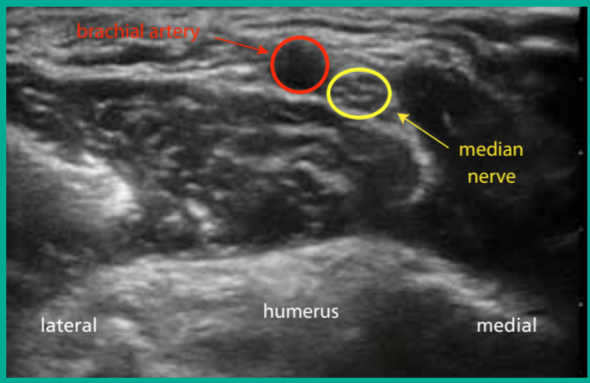
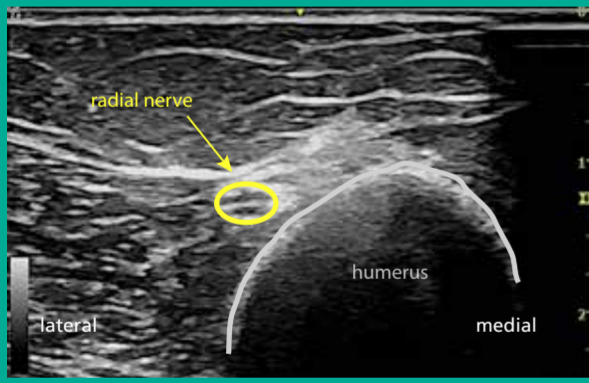
**Target:** Each nerve in turn, plus subcutaneous infiltration for intercostobrachial n and the medial cutaneous nerve of arm

**Tips:** Scan distally to confirm nerve identity (median n stays with brachial artery, ulnar n moves medially and superficially to the cubital tunnel, radial n dives deep towards the triceps border of humerus with the profunda brachii artery); nerve stimulator can be used to confirm; considerable variation in position of nerves; block radial before more superficial nerves to preserve ultrasound image

**Avoid:** Intravascular injection (multiple vessels) - watch ultrasound for injectate spread on each injection, avoid intrafascicular nerve trauma



## PERIPHERAL NERVES



**Proximal** Flex the elbow, look for the rounded appearance of the nerve looping around the distal humerus

**RADIAL**

**Distal** Radial nerve here has a characteristic ovoid appearance (2 components + artery), elbow joint surface is visible

**Proximal** The nerve lies immediately medial to the brachial artery just above the elbow skin crease

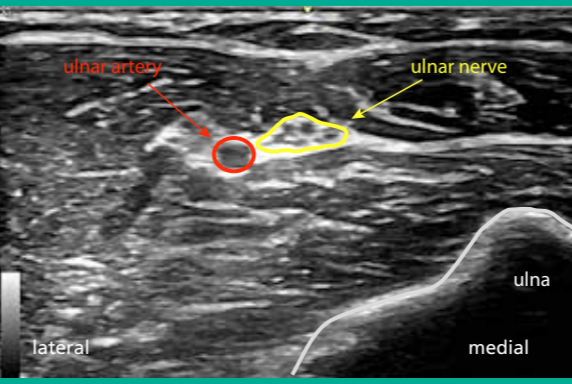
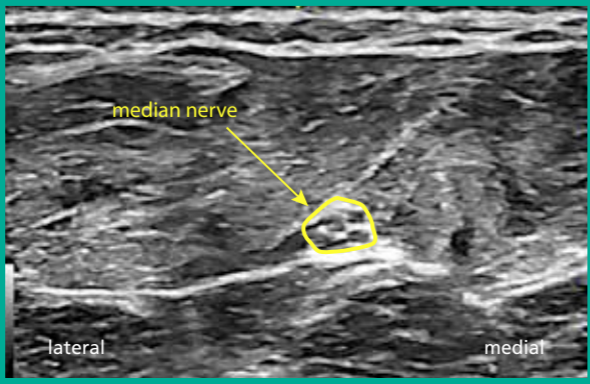
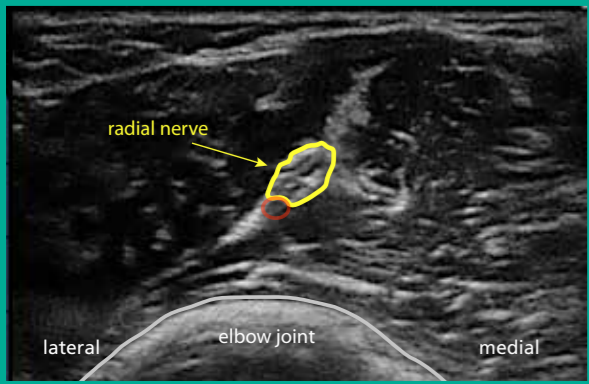
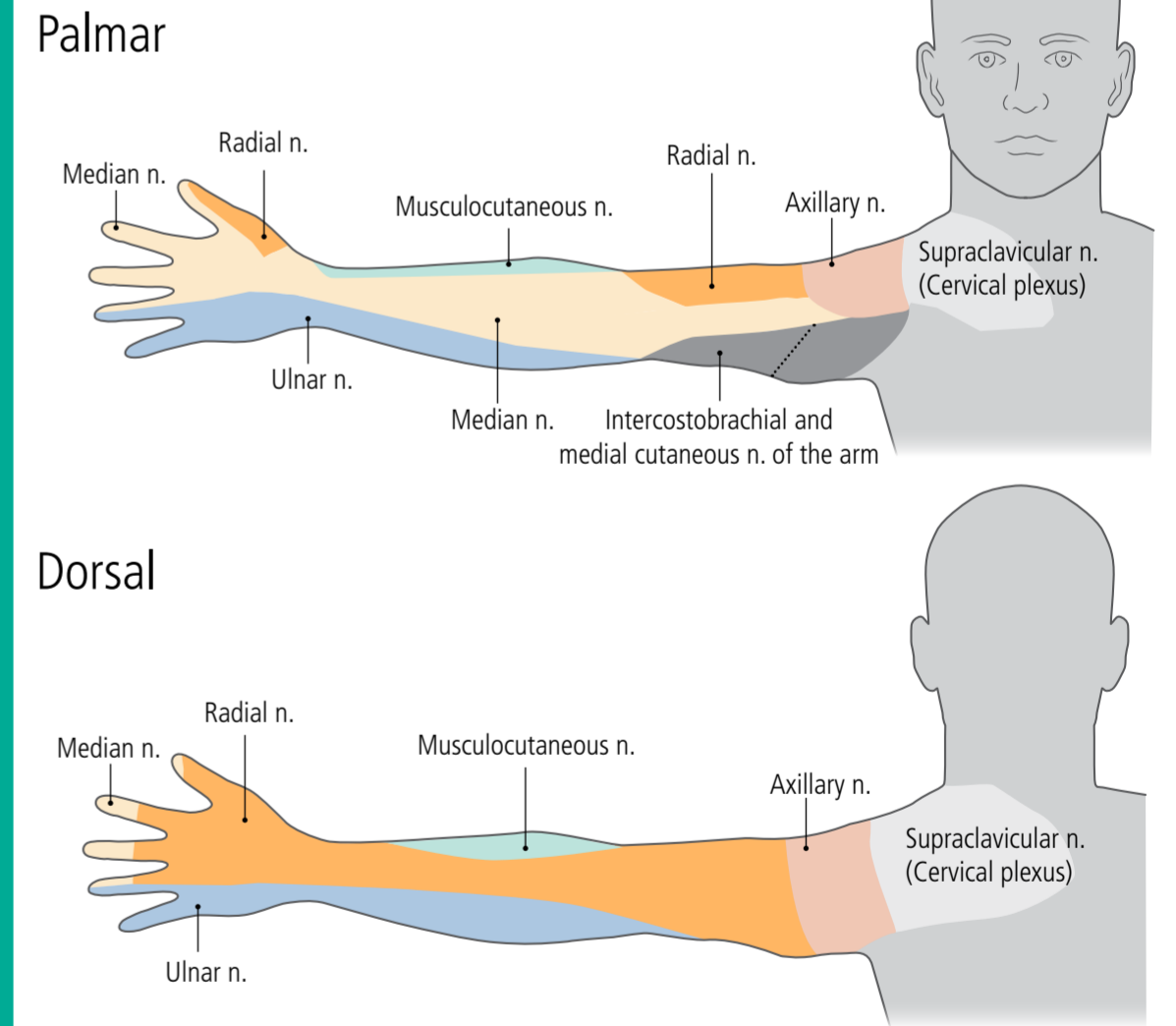
**MEDIAN**

**Distal** Hyperechoic honeycombed structure in the centre of 3 fascial planes, scan down to the wrist to confirm

**Proximal** Above the medial epicondyle before the nerve enters the cubital tunnel

**ULNAR**

**Distal** Nerve lies on the medial side of the ulnar artery, scan proximally until they separate



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