Venous anatomy of the upper limb

Venous anatomy can vary considerably and some veins may be absent in certain individuals. From the point of view of intravenous cannulation, most palpable veins are suitable to be used, though some may be easier to use, and some more appropriate depending on the reason for performing the cannulation.

The diagrams below show the main superficial veins of the upper limb.

Median cubital vein - often prominent and superficial making it highly suitable for cannulation. However, proximity to a point of flexion means you should ensure flow through an indwelling device is not compromised when elbow flexed.

Links to basilic vein which becomes axillary vein – most direct route to systemic venous circulation

Preferable to cephalic vein which passes through clavipectoral fascia and may slow down passage of contrast for dynamic imaging
Cephalic vein

Begins on the lateral side of the dorsal venous network in the anatomical snuff box and runs superficially up the lateral border of the forearm. It crosses the elbow on its anterolateral aspect and ascends the arm lateral to the biceps and medial to the deltoid in the deltopectoral groove. It pierces the clavipectoral fascia to drain into the axillary vein.

Basilic vein

Commences medially on the dorsum of the hand and runs up the medial aspect of the forearm becoming antero-medial at the elbow. It continues proximally medial to biceps passing deep to the deep fascia at the middle of the humerus. It becomes the axillary vein at the lower border of teres major.
Learning tip

In the anatomical position with the arm abducted, the CEPHalic vein runs along the top of the arm NEAREST THE HEAD, and the BASilic vein runs along the bottom of the arm NEAREST THE BASE.

Median cubital vein (vena mediana cubiti)

The median cubital vein runs from its most distal point, where it connects to the cephalic vein, supero-medially across the antecubital fossa to merge with the basilic vein at the level of the elbow joint. It is separated from the brachial artery by the bicipital aponeurosis, which is a thickened portion of deep fascia.

In addition to the named veins of the forearm, a number of unnamed antebrachial veins and tributaries lie subcutaneously in the superficial fascia.

Palmar venous plexus

The superficial palmar venous plexus lies superficial to the palmar aponeurosis. It drains the digits and flows into the median vein of the forearm.

Dorsal venous plexus

This plexus of veins lies over the metacarpals superficial to the extensor tendons. Laterally (radially) it drains into the cephalic vein and medially (ulnarly) into the basilic.

Thinking point
What factors made veins more suitable than arteries for injections into the systemic circulation?