

Cutaneous Nerves, Superficial Veins & Lymphatic Drainage

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Introduction

- **Cutaneous nerves** ? supply skin of upper limb (carry sensory + sympathetic fibers).
 - **Superficial veins** ? important for venous return and venipuncture.
 - **Lymphatic drainage** ? clinically important for spread of infection and carcinoma.
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Cutaneous Nerves of Upper Limb

Arm

- **Medial side** ? medial cutaneous nerve of arm (C8, T1).
- **Posterior side** ? posterior cutaneous nerve of arm (radial nerve).
- **Upper lateral side** ? upper lateral cutaneous nerve of arm (axillary nerve).
- **Lower lateral side** ? lower lateral cutaneous nerve of arm (radial nerve).

Forearm

- **Medial side** ? medial cutaneous nerve of forearm (C8, T1).
- **Lateral side** ? lateral cutaneous nerve of forearm (continuation of musculocutaneous nerve).
- **Posterior side** ? posterior cutaneous nerve of forearm (radial nerve).

Hand

- **Palmar aspect:**
 - Lateral 3½ digits + palm ? median nerve.
 - Medial 1½ digits + palm ? ulnar nerve.
- **Dorsal aspect:**
 - Lateral 3½ fingers (proximal phalanges) ? radial nerve.
 - Medial 1½ fingers ? ulnar nerve.
 - Tips of lateral 3½ fingers ? median nerve.

Superficial Veins of Upper Limb

- **Dorsal venous arch** ? source of major superficial veins.
- **Cephalic vein**
 - Origin: lateral side of dorsal venous arch.

- Course: ascends along lateral forearm and arm, passes in deltopectoral groove.
- Drainage: into axillary vein.
- Clinical: used for cardiac catheterization.

- **Basilic vein**

- Origin: medial side of dorsal venous arch.
- Course: ascends medial forearm and arm, joins brachial veins to form axillary vein.

- **Median cubital vein**

- Communication between cephalic and basilic veins in cubital fossa.
- Clinical: common site for venipuncture.

Lymphatic Drainage of Upper Limb

- **Superficial lymphatics** ? follow superficial veins.
 - Lateral group (along cephalic vein) ? apical axillary nodes.
 - Medial group (along basilic vein) ? lateral (humeral) axillary nodes.
- **Deep lymphatics** ? accompany deep veins, drain into humeral axillary nodes.
- **Final drainage** ? all axillary nodes ? apical group ? subclavian lymph trunk ? thoracic duct (left) or right lymphatic duct (right).

Dissection

1. Make midline incisions along arm and forearm.
 2. Reflect skin and superficial fascia.
 3. Identify **superficial veins** (cephalic, basilic, median cubital).
 4. Trace accompanying **cutaneous nerves**.
 5. Follow superficial lymphatic vessels along veins towards axilla.
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Clinical Anatomy

- **Venipuncture** ? median cubital vein most commonly used.
- **Thrombophlebitis** ? inflammation of superficial veins (seen in IV drug users, infections).
- **Cephalic vein** ? used for cardiac catheterization (entry into right atrium).
- **Basilic vein** ? preferred for long-term IV cannulation.
- **Infections of hand** ? spread along lymphatics ? axillary lymphadenitis.
- **Lymphedema** ? swelling of limb after axillary node dissection (breast carcinoma surgery).
- **Nerve lesions with sensory loss:**
 - Axillary nerve ? regimental badge anesthesia.

- Radial nerve ? dorsum of hand.
- Median nerve ? lateral 3½ fingers (palmar).
- Ulnar nerve ? medial 1½ fingers.