MEDICAL EDUCATION RESOURCE

Dissection & Clinical Anatomy of Muscles and Nerves of the Arm

Dissection of the Arm

Aim of Dissection

To study the **muscles, nerves, and vessels of the arm**, identifying structures in both **anterior and posterior compartments**.

Step 1 – Surface Marking and Incisions

1. Make a **midline incision** along the **anterior aspect** of the arm from shoulder to cubital fossa.
2. Make **transverse incisions** near shoulder and elbow to reflect the skin.
3. Reflect **superficial fascia** ? expose **cutaneous nerves and superficial veins**:
    - **Cephalic vein** (lateral side).
    - **Basilic vein** (medial side).
    - **Medial and lateral cutaneous nerves of forearm**.

Step 2 – Exposure of Anterior Compartment

1. Reflect **deep fascia** carefully to reveal:
    - **Biceps brachii** – superficial.
    - **Coracobrachialis** – high in arm, deep to biceps.
    - **Brachialis** – deep, covers lower humerus.
2. Clean and identify:
    - **Biceps tendon** ? inserts into radial tuberosity.
    - **Bicipital aponeurosis** ? blends with forearm fascia.

Step 3 – Identify Nerves and Arteries

1. **Musculocutaneous nerve** ? piercing **coracobrachialis**, then between biceps and brachialis.
2. **Median nerve** ? lateral to **brachial artery** in upper arm, crossing to medial side mid-arm.
3. **Ulnar nerve** ? medial to brachial artery, then pierces **medial intermuscular septum** to reach posterior compartment.
4. **Brachial artery** ? runs with median nerve; note branches:
    - **Profunda brachii**, **superior**, and **inferior ulnar collateral arteries**.

Step 4 – Posterior Compartment Dissection

1. Make a **midline posterior incision**; reflect skin and fascia.
2. Identify:
    - **Triceps brachii** – with its long, lateral, and medial heads.
    - **Anconeus** – small triangular muscle near olecranon.
3. Note **radial nerve** and **profunda brachii artery** in the **spiral groove** between long and lateral heads.
4. Follow **radial nerve** to lateral side where it pierces intermuscular septum to enter anterior compartment.

Step 5 – Clean Up and Observe Relations

- Confirm the **course of each major nerve**:
    - **Musculocutaneous nerve** ? pierces coracobrachialis.
    - **Median nerve** ? no branches in arm.
    - **Ulnar nerve** ? behind medial epicondyle.
    - **Radial nerve** ? in spiral groove with profunda brachii artery.

Clinical Anatomy of Muscles and Nerves of the Arm

Muscles

Biceps Brachii

- **Reflex test:** C5–C6 segment integrity.
- **Rupture of tendon:** “Popeye deformity.”
- **Bicipital tendinitis:** inflammation of long head tendon ? shoulder pain.

Coracobrachialis

- Pierced by **musculocutaneous nerve** (landmark).
- Hypertrophy ? compresses musculocutaneous nerve.

Brachialis

- Chief flexor of elbow.
- Involved in lower humeral fractures ? causes restricted flexion.

Triceps Brachii

- **Triceps reflex:** tests C7–C8 spinal segments.
- **Radial nerve injury** ? paralysis ? loss of extension (wrist drop).

Anconeus

- Assists in extension and stabilizes elbow capsule.

- Landmark during posterior elbow exposure.

Nerves

Musculocutaneous Nerve

- Lesion ? weakness of elbow flexion and loss of sensation over lateral forearm.

Median Nerve

- No branches in arm; injury ? loss of pronation and finger flexion, “ape hand” deformity.

Ulnar Nerve

- Superficial behind medial epicondyle ? easily injured (“funny bone”).
- Injury ? “claw hand,” sensory loss in medial 1½ fingers.

Radial Nerve

- Vulnerable in **mid-shaft humeral fractures (spiral groove)**.
- Injury ? wrist and finger drop.
- **Crutch palsy** ? complete paralysis of extensors.

Important Reflexes

REFLEX	NERVE TESTED	SPINAL SEGMENTS
Biceps jerk	Musculocutaneous	C5–C6
Triceps jerk	Radial	C7–C8

Common Sites of Nerve Injury

SITE	NERVE	EFFECT
Surgical neck of humerus	Axillary	Deltoid paralysis
Spiral groove	Radial	Wrist drop
Medial epicondyle	Ulnar	Claw hand
Coracobrachialis	Musculocutaneous	Weak flexion, sensory loss on lateral forearm