

Clinicoanatomical Problem

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Case:

A 24-year-old boxer presents with swelling and pain over the dorsum of his hand after a fight. X-ray shows a fracture at the neck of the 5th metacarpal bone.

Questions & Explanations:

- **Q1. What is the name of this fracture?**
? **Boxer's fracture.**
- **Q2. Why is the 5th metacarpal particularly prone to this fracture?**
? Because of its relative mobility and exposure during clenched fist blows.
- **Q3. What functional deficit may result?**
? Weakness of grip and loss of prominence of the little finger knuckle.
- **Q4. How is it different from Bennett's fracture?**
? Bennett's fracture involves the **base of the 1st metacarpal** with dislocation at the carpometacarpal joint of thumb.
- **Q5. Why are fractures of the scaphoid clinically important?**
? Because of risk of **avascular necrosis** of the proximal fragment.

Clinicoanatomical Problems (Bones of Upper Limb)

1. Clavicle fracture

- **Case:** A 10-year-old boy falls on his shoulder; X-ray shows fracture at the junction of medial 2/3 and lateral 1/3 of clavicle.

- **Q:** Which muscle displaces the medial fragment upwards?
 - **A:** Sternocleidomastoid.
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2. Congenital absence of clavicle

- **Case:** A child can approximate both shoulders in front of the chest.
 - **Q:** What condition is this?
 - **A:** Cleidocranial dysostosis.
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3. Scapular winging

- **Case:** A young patient after trauma shows protrusion of medial border of scapula when pushing against a wall.
 - **Q:** Which nerve is injured?
 - **A:** Long thoracic nerve (serratus anterior paralysis).
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4. Acromioclavicular dislocation

- **Case:** Following a rugby injury, a player has step deformity at the shoulder.
 - **Q:** Which joint is injured?
 - **A:** Acromioclavicular joint.
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5. Surgical neck fracture of humerus

- **Case:** Middle-aged woman with fall presents with inability to abduct the arm beyond 15°.

- **Q:** Which nerve is injured?
 - **A:** Axillary nerve.
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6. Midshaft fracture of humerus

- **Case:** A patient presents with wrist drop after road traffic accident.
 - **Q:** Which structure is injured in spiral groove?
 - **A:** Radial nerve (with profunda brachii artery).
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7. Supracondylar fracture (child)

- **Case:** 8-year-old child with swollen elbow after fall on outstretched hand. Fingers appear pale and pulseless.
 - **Q:** Which artery is at risk?
 - **A:** Brachial artery ? may lead to Volkmann's ischemic contracture.
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8. Medial epicondyle fracture

- **Case:** A boy sustains elbow injury; later he cannot adduct his fingers.
 - **Q:** Which nerve is injured?
 - **A:** Ulnar nerve.
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9. Colles' fracture

- **Case:** Elderly woman falls on outstretched hand. X-ray shows fracture 2 cm above wrist joint with dorsal displacement of distal radius.

- **Q:** What deformity results?
 - **A:** Dinner fork deformity.
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10. Smith's fracture

- **Case:** A man falls on the back of his hand; distal fragment of radius displaced anteriorly.
 - **Q:** What is the name of this fracture?
 - **A:** Reverse Colles' fracture (Smith's fracture).
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11. Monteggia fracture-dislocation

- **Case:** Fracture of proximal ulna with dislocation of radial head.
 - **Q:** Which movement is most affected?
 - **A:** Supination and pronation of forearm.
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12. Boxer's fracture

- **Case:** Young man with pain and swelling after punching wall; X-ray shows fracture at neck of 5th metacarpal.
 - **Q:** Name this fracture.
 - **A:** Boxer's fracture.
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13. Bennett's fracture

- **Case:** Motorcyclist with fracture at base of 1st metacarpal involving carpometacarpal joint.

- **Q:** Which movement of thumb will be impaired?
 - **A:** Opposition.
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14. Scaphoid fracture

- **Case:** 22-year-old student falls on outstretched hand; pain in anatomical snuffbox.
 - **Q:** What is the complication of this fracture?
 - **A:** Avascular necrosis of proximal fragment.
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15. Lunate dislocation

- **Case:** Wrist injury; X-ray shows forward displacement of lunate.
 - **Q:** Which nerve may be compressed?
 - **A:** Median nerve.
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16. Mallet finger

- **Case:** A cricket player presents with drooping of distal phalanx after ball impact.
 - **Q:** What structure is injured?
 - **A:** Extensor tendon avulsion with distal phalanx fracture.
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17. Jersey finger

- **Case:** A rugby player unable to flex distal phalanx of ring finger after sudden pull.
 - **Q:** What structure is injured?
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- **A:** Flexor digitorum profundus tendon from distal phalanx.
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18. Sesamoid fracture (thumb)

- **Case:** Pain at metacarpophalangeal joint of thumb, X-ray shows fracture of sesamoid.
 - **Q:** What function will be affected?
 - **A:** Opposition and pinch grip.
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Further Reading

For deeper understanding and correlation, students can refer to:

- **BD Chaurasia's Human Anatomy, Vol. 1 (Upper Limb & Thorax)** ? Osteology section (Clavicle to Sesamoid bones).
- **Gray's Anatomy: The Anatomical Basis of Clinical Practice** ? detailed osteology of upper limb.
- **Last's Anatomy: Regional and Applied** ? applied and surgical anatomy of upper limb bones.
- **Clinical Orthopaedics textbooks** for fracture patterns, mechanisms, and management.
- **Radiology references** (CT/MRI atlases) for bone surface markings and fracture imaging.