

CLAVICLE — ATTACHMENTS, RELATIONS & APPLIED ANATOMY

The clavicle is an S-shaped bone acting as a strut that keeps the upper limb away from the trunk and transmits forces from the limb to the axial skeleton.

ATTACHMENTS ON CLAVICLE (SYSTEMATIC)

We divide it into:

- Lateral end
 - Lateral 1/3rd shaft
 - Medial 2/3rd shaft
 - Medial (sternal) end
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◆ A. LATERAL END (Acromial End)

1. Acromioclavicular Joint Capsule

- Surrounds AC joint
- Reinforced superiorly by AC ligament
- Inferior capsule weaker

2. Acromioclavicular Ligament

- Strengthens AC joint
- Prevents horizontal displacement
- Provides stability)

◆ B. LATERAL 1/3RD OF SHAFT

Muscles

Anterior border → Deltoid (origin)

Posterior border → Trapezius (insertion)

These balance each other and stabilize the shoulder.

Ligaments

Coracoclavicular Ligament (Main stabilizer of AC joint)

- It prevents vertical displacement of clavicle.
- Coracoid process coracoid process is the attachment site for the coracoclavicular ligament.
- It has two parts:
 - i) Conoid ligament (posteromedial) → Attaches to conoid tubercle
 - ii) Trapezoid ligament (anterolateral) → Attaches to trapezoid ridge

If torn → Shoulder droop + "step deformity"

◆ C. MEDIAL 2/3RD OF SHAFT

Surface-wise Attachments

Anterior Surface

- Pectoralis major (clavicular head)
- Function: Flexion & medial rotation of arm

Superior Surface

- Sternocleidomastoid (SCM)
- Function: Head rotation & flexion

Posterior Surface

- Sternohyoid
- Depresses hyoid bone

Inferior Surface

- Subclavius muscle
- Clavipectoral fascia

Flowchart:

Medial 2/3rd

→ Anterior → Pectoralis major

→ Superior → SCM

→ Posterior → Sternohyoid

→ Inferior → Subclavius + Clavipectoral fascia

◆ D. MEDIAL (STERNAL) END

Forms sternoclavicular joint (only bony connection of upper limb with axial skeleton)

Attachments:

Sternal end

- Capsule of sternoclavicular joint
 - Interclavicular ligament (connects both clavicles)
 - Articular disc (shock absorber)
 - Costoclavicular ligament (to 1st rib)
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ARTICULAR SURFACES

Lateral end

- Articular facet for acromion

Medial end

- Articular surface for sternum
- Articular surface for first costal cartilage

RELATIONS OF CLAVICLE

Superior Surface

- Subcutaneous
- Easily palpable
- Supraclavicular nerves cross superficially

Inferior Surface

From anterior to posterior:

- Subclavian vein
- Subclavian artery
- Brachial plexus

Clinical importance: Risk in fracture

OSSIFICATION

Clavicle

- First bone to start ossifying (5th-6th week IUL)
 - Intramembranous ossification (major part)
 - Only long bone that ossifies this way
 - Medial epiphysis appears at puberty
 - Last epiphysis to fuse (~25 years)
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APPLIED ANATOMY

Fracture of Clavicle

Most commonly fractured bone.

Common site

- Junction of medial 2/3rd and lateral 1/3rd

Mechanism

- Fall on outstretched hand
- Direct blow

Displacement pattern:

Fracture

- Medial fragment pulled upward (SCM)
- Lateral fragment pulled downward (weight of limb + pectoralis major)
- Shoulder droops

Complications:

- Injury to brachial plexus
 - Injury to subclavian vessels
 - Injury to supraclavicular nerves
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Compression Syndrome (Thoracic Outlet Type)

Narrow space between clavicle and 1st rib

- Compression of neurovascular bundle

Lower trunk compression

- Pain along medial forearm
- Weakness of intrinsic hand muscles
- Wasting

Vascular compression

- Reduced pulse
 - Cold limb
 - Cyanosis
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Acromioclavicular Dislocation

AC ligament torn

- Coracoclavicular ligament torn
 - Clavicle displaced upward
 - "Step deformity"
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Cleidocranial Dysostosis

Genetic disorder with:

Absent or hypoplastic clavicles

- Hypermobile shoulders
- Can approximate shoulders anteriorly

- Delayed closure of fontanelles
 - Supernumerary teeth
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VIVA POINTS

- Only long bone lying horizontally
 - No medullary cavity
 - First to ossify
 - Last epiphysis to fuse
 - Subcutaneous throughout
 - Protects neurovascular bundle
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Resources:

i) Snell's Clinical Anatomy by Regions (Book by Lawrence E. Wineski)

ii) BD Chaurasia's Human Anatomy: Regional and Applied Dissection and Clinical

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