Shoulder Girdle ,Sternoclavicular Joint

Shoulder Girdle – Sternoclavicular Joint

Introduction

- The **shoulder girdle** consists of the **clavicle and scapula**, articulating with the **sternum** and the **upper limb**.
- The **sternoclavicular (SC) joint** is the **only true bony articulation** between the upper limb and the axial skeleton.
- It is a **saddle-type synovial joint**, functioning almost like a **ball-and-socket joint** because of its wide range of movement.

Sternoclavicular Joint

Type

- **Saddle-type synovial joint** with an **articular disc** dividing it into two separate cavities.
- Functionally behaves like a **ball-and-socket** joint.

Articular Surfaces

- **Medial end of clavicle:** Large and convex vertically.

- **Clavicular notch of manubrium sterni:** Concave vertically.
- **Cartilage of 1st costal cartilage:** Completes the articular cavity below.

Articular Disc

- **Fibrocartilaginous**, attached:
  - **Above:** Superior aspect of clavicle.
  - **Below:** 1st costal cartilage.
  - **Periphery:** To fibrous capsule.
- **Function:**
  - Acts as **shock absorber** between upper limb and axial skeleton.
  - Divides joint into **two synovial cavities**, allowing independent movement.

Ligaments

LIGAMENT	ATTACHMENTS	FUNCTION
Anterior & Posterior Sternoclavicular	From manubrium to clavicle anteriorly and posteriorly	Strengthen capsule
Interclavicular	Between sternal ends of both clavicles across jugular notch	Prevents excessive depression of clavicle

LIGAMENT	ATTACHMENTS	FUNCTION
Costoclavicular (Rhomboid) Ligament	From upper surface of 1st costal cartilage to inferior surface of clavicle	Limits elevation of clavicle; strongest ligament of joint

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Capsule

- Encloses the joint completely.
- **Loose**, permitting free mobility.
- Lined by **synovial membrane** on both compartments (above and below the articular disc).

Relations

- **Anterior:** Sternomastoid, sternohyoid, sternothyroid muscles.
- **Posterior:** Large veins — internal jugular and brachiocephalic.
- **Inferior:** First rib and pleura.

Blood Supply

- Branches from:
    - **Internal thoracic artery**
    - **Suprascapular artery**

- **Inferior thyroid artery**

Nerve Supply

- **Medial supraclavicular nerve** (C3, C4).
- **Nerve to subclavius** (C5, C6).

Movements

Although small, the SC joint allows movement of the **clavicle**, which transmits motion to the entire upper limb.

MOVEMENT	AXIS / PLANE	MUSCLES PRODUCING MOVEMENT
Elevation	Coronal axis	Trapezius, sternocleidomastoid
Depression	Coronal axis	Subclavius, pectoralis minor
Protraction (forward)	Vertical axis	Serratus anterior
Retraction (backward)	Vertical axis	Trapezius, rhomboids
Rotation (axial twist)	Long axis of clavicle	Full shoulder elevation and rotation of scapula

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Stability Factors

- **Strong ligaments**, particularly the **costoclavicular ligament**.
- **Articular disc** resists displacement.

- **Subclavius muscle** acts as dynamic stabilizer.

Clinical Anatomy

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1. Sternoclavicular Dislocation

- Rare due to strong ligaments.
- **Anterior dislocation** more common than posterior.
- **Posterior dislocation** can compress **trachea or great vessels** — medical emergency.

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2. Sprain or Subluxation

- May occur in contact sports or falls.
- Presents with pain, swelling, and limited shoulder motion.
- Treated conservatively with immobilization.

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3. Degenerative Arthritis

- Seen in elderly and heavy manual workers.
- Pain at upper sternum aggravated by shoulder elevation.

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4. Movement Transmission

- All shoulder movements are transmitted through this joint ? restriction here limits **full abduction** of limb.

? Dissection – Sternoclavicular Joint

Steps

1. Place the body supine with the upper limb by the side.
2. Make a **transverse incision** across the upper chest at the level of the **sternal ends of clavicles**.
3. Reflect the skin and superficial fascia to expose:
    - **Sternocleidomastoid** (attached to clavicle and manubrium).
    - **Pectoralis major** (arising from clavicle).
4. Carefully clean the **capsule** and surrounding ligaments:
    - Identify **anterior & posterior sternoclavicular ligaments.**
    - Trace **interclavicular ligament** across jugular notch.
    - Expose **costoclavicular ligament** below.
5. Open the capsule ? note **articular disc** dividing the joint cavity into **upper and lower compartments**.
6. Demonstrate articular surfaces on **medial clavicle**, **manubrium**, and **1st costal cartilage**.