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1 Shoulder Anatomy

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Summary

The chapter is intended to be a high-level overview of shoulder anatomy and a quick reference for trainees and surgeons.

Keywords: Shoulder, anatomy, muscles, nerves, tendons

I. General introduction

A. Complex joint

B. Helps position the arm in space

C. Essential in allowing us to interact with the environment

D. Connects the axial skeleton to the upper extremity.

II. Bones and joints

A. Shoulder girdle is composed of four bones:
   1. Sternum
   2. Clavicle
   3. Scapula
   4. Humerus.

B. Three major articulations:
   1. Sternoclavicular (SC) joint
   2. Acromioclavicular (AC) joint
   3. Glenohumeral (GH) joint.

C. Other articulations and spaces:
   1. Subacromial space
   2. Scapulothoracic bursa.

III. Sternum

A. Connection point of the appendicular skeleton to the axial skeleton

B. Bone is composed of three parts:
   1. Manubrium
   2. Body
   3. Xiphoid process.

C. Sternal notch is a depression between the two SC joints

D. SC joints are shallow notches at the superolateral corners of the manubrium (▶ **Fig. 1.1**)

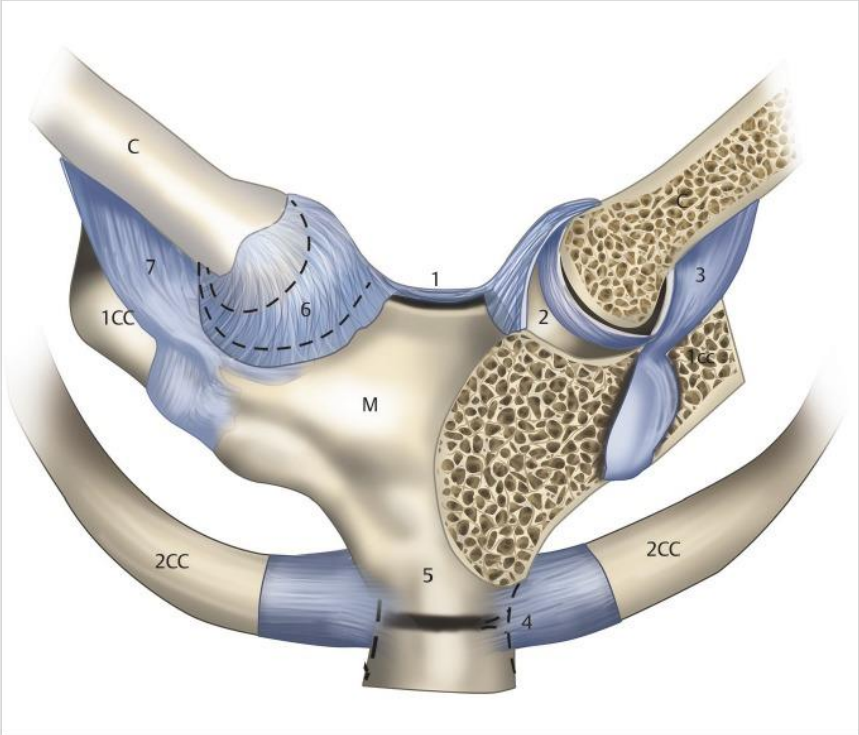

Fig. 1.1 Diagram of the sternoclavicular (SC) joint. 1CC, first costal cartilage (ossified); 2CC, second costal cartilage; M, manubrium; 1, interclavicular ligament; 2, articular disc; 3, costoclavicular ligament (posterior lamina); 4, sternocostal joint; 5, manubriosternal joint; 6, anterior sternoclavicular ligament; 7, costoclavicular ligament (anterior lamina).

E. The body and manubrium serve as insertion points for the costal cartilages of ribs 1–7

F. Important to understand role of SC articulation in shoulder biomechanics.

IV. Clavicle

A. Bone that spans from the sternum to the acromion

B. Flat near the lateral third but becomes more convex medially

C. Begins ossifying at 5 weeks in utero

D. The medial epiphysis of the clavicle is the last to fuse at approximately 23–25 years of life

E. The size of the bone changes in cross section at different points:

1. 23 mm × 22 mm at the sternal end
2. 12 mm × 12 mm at the diaphysis
3. 21 mm × 11 mm at the lateral end.