

**Department of Anatomy
College of Medicine
King Saud University
1429—1430 2008-2009
COURSE 121**

PRACTICAL SECTIONS – SEMESTER I

A) General Anatomy

Week 1: Saturday & Sunday.

Topics: Terminology of Anatomy & The skeleton.

Objectives: TO STUDY:

- 1- The constituents of human skeleton:
 - a) Axial skeleton: skull, vertebral column, sternum, ribs & hyoid bone.
 - b) Appendicular skeleton: bones of limbs.
- 2- Classification of bones according to shape: long, short, flat, irregular, pneumatic & sesamoid bones.
- 3- Features of bones: elevations (tubercle, tuberosity, condyle, spine), depressions (fossa, groove, notch) & holes (foramen, canal).
- 4- Functions of bones (support of body, attachment to muscles, protection, storehouse for calcium & phosphorus, bone marrow forms blood cells).

Week 1: Tuesday & Wednesday.

Topics: Muscles & blood vessels:

Objectives: TO STUDY & UNDERSTAND

- 1- Attachments of skeletal muscles: origin & insertion & Innervation of muscles.
- 2- Classification of skeletal muscles according to fiber arrangement.
- 3- Difference between arteries & veins.

B) Anatomy of Upper Limb

Week 2: Saturday & Sunday.

Topic 1: Osteology of Upper Limb

Objectives: TO STUDY

The clavicle, the scapula & the humerus, regarding:

- a) General features.
- b) Articulations.

Topic 2: The pectoral region

Objectives: DISSECTION, DEMONSTRATION & STUDY

- 1) Superficial fascia:
 - Cutaneous nerves & vessels.
 - Breast (in a female specimen): shape & position, nipple & areola, mammary gland.
- 2) Pectoralis major muscle: origin (clavicular & sternocostal head), insertion, nerve supply, relations.
- 3) Clavipectoral fascia.
- 4) Pectoralis minor muscle: origin, insertion, nerve supply.
- 5) Subclavius muscle: origin, insertion.

Week 2: Tuesday & Wednesday.

Topic: The Axilla I

Objectives: DISSECTION, DEMONSTRATION & STUDY

- 1) Boundaries of axilla: apex, base, walls (anterior, posterior, medial & lateral)
- 2) Contents of axilla.
- 3) Axillary artery: beginning, course, subdivisions into 3 parts according to its relations to pectoralis minor muscle, branches of each part, termination
- 4) Axillary vein: beginning, relations to parts of axillary artery, tributaries, termination.

Week 3:

Topic: The Axilla II: The brachial plexus

Objectives: DISSECTION, DEMONSTRATION & STUDY

- 1) Stages of brachial plexus: roots, trunks, divisions & cords. Relation of its stage to the clavicle.
- 2) Branches of roots.
- 3) Branches of upper trunk.
- 4) Branches of lateral, medial & posterior cords.

- 5) Relations of cords & their branches to axillary artery.

Week 3:

Topic: The first & second layers of back

Objectives: DISSECTION, DEMONSTRATION & STUDY

- 1) First layer of muscles of back: Trapezius & latissimus dorsi (origin, insertion & nerve supply).
- 2) Second layer of muscles of back: Levator scapulae, rhomboideus minor & rhomboideus major (origin, insertion & nerve supply).
- 3) Triangle of auscultation.

Week 4: Saturday & Sunday.

Topic: The scapular & deltoid region

Objectives: DISSECTION, DEMONSTRATION & STUDY

- 1) Muscles of shoulder region: deltoid, supraspinatus, infraspinatus, subscapularis, teres minor & teres major (origin, insertion & nerve supply).
- 2) Superficial & deep relations to deltoid.
- 3) Intermuscular spaces: quadrangular, upper triangular & lower triangular spaces (boundaries, structures passing through each space).

Week 4: Tuesday & Wednesday.

Topic: The arm

Objectives: DISSECTION, DEMONSTRATION & STUDY

- 1) Muscles of anterior compartment of arm: coracobrachialis, biceps brachii, & brachialis (origin, insertion, important relations of each muscle).
- 2) Nerve of anterior compartment: *musculocutaneous nerve* (formation & root value, course & relations, branches, termination).
- 3) Muscles of posterior compartment of arm: triceps (origin, insertion, & relations).
- 4) Nerve of posterior compartment: *radial nerve* (formation & root value, course & relations, branches, termination).
- 5) Artery of arm: *brachial artery* (beginning, course & relations, branches, termination).

Week 5: Saturday & Sunday.

Topics: The cubital fossa

The flexor compartment of the forearm

Objectives: DISSECTION, DEMONSTRATION & STUDY

- 1) **Cubital fossa:** boundaries, roof, floor & contents.
- 2) **Front of forearm:**
 - **Muscles:** (origin, insertion & nerve supply)
 - a) **Superficial group:** 5 muscles (Pronator teres, flexor carpi radialis, palmaris longus, flexor digitorum superficialis & flexor carpi ulnaris).
 - b) **Deep group:** 3 muscles (flexor pollicis longus, flexor digitorum profundus & pronator quadratus).
 - **Nerves:** (course, relations & branches in the forearm).
 - a) **Median nerve.**
 - b) **Ulnar nerve.**
 - **Arteries:** (beginning, course, relations & branches in the forearm).
 - a) **Radial artery.**
 - b) **Ulnar artery.**

Week 5: Tuesday & Wednesday.

Topic: The palm of hand

Objectives: DISSECTION, DEMONSTRATION & STUDY

- 1) **Deep fascia:** flexor retinaculum, palmar aponeurosis & fibrous flexor sheaths).
- 2) **Muscles:** palmaris brevis, thenar, hypothenar, lumbricals & interossei (palmar & dorsal).
- 3) **Nerves:** median & ulnar nerves (course, relations & branches in the palm).
- 4) **Arteries:** radial & ulnar arteries (course, relations & branches in the palm).

Week 6: Saturday & Sunday.

Topic: The extensor compartment of forearm

Muscles: (origin, insertion & nerve supply)

***Superficial group:** brachioradialis, extensor carpi radialis longus, extensor carpi radialis brevis, extensor digitorum, extensor digiti minimi, extensor carpi ulnaris & anconeus.

Week 6: Tuesday & Wednesday.

Topic 1: The extensor compartment of forearm

- 1) **Muscles: (origin, insertion & nerve supply)**
**Deep group*: supinator, abductor pollicis longus, extensor pollicis brevis, extensor pollicis longus & extensor indicis.
- 2) **Nerve**: Posterior interosseous nerve: origin, course & relation, branches.

Topic 2: The dorsum of hand

- 1) **Dorsal venous arch**: formation, beginning of cephalic & basilic veins.
- 2) **Extensor retinaculum**: attachments, structures passing superficial & deep to it, functions.
- 3) **Extensor tendons**: termination.
- 4) **Radial artery**: course, relations & branches in the dorsum of hand.

Week 7: Saturday & Sunday.

Topic: Radiological anatomy of Upper Limb

Week 7: Tuesday & Wednesday.

REVISION OF UPPER LIMB

Week 8: Saturday & Sunday.

Topic: Osteology of Thorax

Objectives: TO STUDY:

- 1) **Ribs**: features of typical & atypical ribs & articulations.
- 2) **Thoracic vertebrae**: features of typical & atypical thoracic vertebrae & articulations.
- 3) **Sternum**: parts, articulations.

Week 8: Tuesday & Wednesday.

Topic: **The Thoracic Wall**
“It is formed by the thoracic cage in addition to the soft tissues occupying the intercostal spaces”.

Objectives: DISSECTION, DEMONSTRATION & STUDY
The anatomy of intercostal space:
1) Intercostal muscles: Vertical & horizontal extent, action.
2) Intercostal nerves: typical (course & branches) & atypical.
3) Anterior & posterior intercostal arteries: origin & course.
4) Anterior & posterior intercostal veins: course & termination.

Week 9: Saturday & Sunday.

Topic: **The Heart I:**
Objectives: DISSECTION, DEMONSTRATION & STUDY
1) Pericardium: a) **Fibrous**: relations & nerve supply.
b) **Serous**: layers, sinuses.
2) Heart:
a) External features: apex, base, surfaces & borders.
b) Arterial supply: right & left coronary arteries (branches of each artery).
c) Venous drainage: tributaries of coronary sinus, anterior cardiac vein & venae cordis minimi.

Week 9: Tuesday & Wednesday.

Topic: **The interior of the heart**
Objectives: DISSECTION, DEMONSTRATION & STUDY
• Cavity of right atrium:
1) Posterior smooth part “sinus venarum”: receives the openings of *superior vena cava*, *inferior vena cava* & *coronary sinus*.
2) Anterior rough part: marked by parallel muscular ridges “*musculi pectinati*” & separated from the posterior part by a muscular ridge “*crista terminalis*”.
• Cavity of right ventricle:

- 1) Inferior part “inflow tract”: formed of muscular projections “*trabeculae carnae*”; some of those are developed forming *anterior, posterior & septal papillary muscles* attached to the cusps of tricuspid valve.
 - 2) Superior part “outflow tract or infundibulum”: conical, has smooth walls & leads to pulmonary orifice.
- Cavity of left atrium: smooth wall except some muscoli pectinati in left auricle, receives opening of pulmonary veins.
 - Cavity of left ventricle:
 - 1) Inferior part “inflow tract”: compared to that of right ventricle; has thicker wall, denser trabeculae carnae & larger papillary muscles (anterior & posterior only).
 - 2) Superior part “outflow tract or aortic vestibule”: leads to aortic orifice.
 - Atrioventricular valves: structure.
 - 1) Tricuspid valve: between right atrium & ventricle, has 3 triangular cusps.
 - 2) Mitral valve: between left atrium & ventricle, has 2 triangular cusps.
 - Semilunar valves: Structure.
 - 1) Pulmonary valve: between right ventricle & pulmonary orifice, has 3 semilunar cusps.
 - 2) Aortic valve: between left ventricle & aortic orifice, has 3 semilunar cusps.

Week 11: Saturday & Sunday.

***Topic:* The Mediastinum:**

“It is the partition between the two pleural cavities & lungs”.

***Objectives:* DISSECTION, DEMONSTRATION & STUDY**

- Divisions of mediastinum:
It is divided by a horizontal plane from the sternal angle to lower border of T4 into:
 - 1) Superior mediastinum.
 - 2) Inferior mediastinum: subdivided into:
 - a- Middle mediastinum: includes heart & pericardium.
 - b- Anterior mediastinum: anterior to heart & pericardium.

c- Posterior mediastinum: posterior to heart & pericardium.

- Boundaries & contents of each mediastinum.
- Relations between the contents of each mediastinum.

Week 11: Tuesday & Wednesday.

Topic 1: The Lungs

Objectives: DEMONSTRATION & STUDY

- 1) Apex of lung (directed upward): relations.
- 2) Base of lung (directed downward): relations, difference between right & left lung.
- 3) Costal surface: related to thoracic wall & costal pleura; presents *the fissures of lungs*: (oblique fissure in both lungs & horizontal (transverse) fissure in right lung only). Accordingly, the right lung has 3 lobes & the left lung has 2 lobes.
- 4) Medial surface: divided into:
 - a) *Larger anterior mediastinal surface*: related to mediastinum & contains the hilum of lung.
 - b) *Smaller posterior vertebral surface*: related to sides of vertebral bodies, intervertebral discs & sympathetic trunk.
- 5) Borders:

Anterior: thin & sharp; presents *the cardiac notch & the lingula* in the left lung; separates the costal surface from the mediastinal part of medial surface.

Posterior: rounded & thick; separates the costal surface from the vertebral part of medial surface.

Inferior: separates costal & medial surface from base of lung.
- 5) Hilum of lung: a part of mediastinal surface of lung that gives passage to the structures forming *the root of lung*:
 - a) Bronchus: the left divides after entering the lung (one opening); the right divides before entering (two openings).
 - b) Pulmonary artery: the left is above & in front of left bronchus; the right is between the 2 bronchi.
 - c) Pulmonary veins: the superior is the most anterior structure in the hilum; the inferior is the most inferior structure in the hilum.
 - d) Bronchial vessels: supply bronchi & lungs:

- *On the right side:* there is one artery & 2 veins.
- *On the left side:* there are 2 arteries & 2 veins.
- e) Anterior & posterior pulmonary plexuses of autonomic fibers: supply bronchi, lungs & visceral pleura.

Week 12: Saturday & Sunday.

Topic: **ANTERIOR ABDOMINAL WALL**

Objectives: DISSECTION, DEMONSTRATION & STUDY

- * Osteology: Hip bone.
- * Abdominal incisions: median, paramedian, transrectal, grid-iron, subcostal, transverse, lumbar & ureteric.
- * Layers of anterior abdominal wall: Skin, superficial fascia, external oblique, internal oblique, transversus abdominis, fascia transversalis & extraperitoneal fatty tissue.
- Rectus sheath: anterior & posterior walls, contents.

Week 12: Tuesday & Wednesday.

Topics: 1) **INGUINAL CANAL**

Objectives: DISSECTION, DEMONSTRATION & STUDY

- Roof, floor, anterior & posterior wall of inguinal canal.
- Contents of inguinal canal.

2) **MALE EXTERNAL GENITALIA**

Objectives: DISSECTION, DEMONSTRATION & STUDY

- Scrotum: layers.
- Testis & epididymis: side, coverings.
- Spermatic cord: structures forming it, coverings.

Week 13: Saturday & Sunday.

Topics: * **TOPOGRAPHY OF ABDOMINAL VISCERA**
 * **PERITONEUM**

Objectives:

- 1) Study the subdivision of abdominal cavity: Demonstrate the planes used for subdivision & look to the nine abdominal regions.
- 2) Study the arrangement of abdominal viscera in the different abdominal regions.

- 3) Study the division of peritoneum into greater & lesser sac. Demonstrate the opening between the 2 sacs “*epiploic foramen*” & identify its boundaries.
- 4) Identify the different peritoneal folds: *falciform ligament, lesser omentum, greater omentum, gastrophrenic ligament, gastrosplenic ligament, lienorenal ligament, phrenicocolic ligament, mesentery of small intestine, transverse mesocolon, mesoappendix & sigmoid mesocolon*. Study the attachments & contents of the folds (in general).
- 5) Identify the special regions of peritoneal cavity: *supracolic, infracolic, paracolic*.
- 6) Identify the extraperitoneal subphrenic regions: *right & left subphrenic space*.
- 7) Identify the different recesses of peritoneum.

Week13: Tuesday & Wednesday.

Topic: STOMACH & SPLEEN

Objectives:

DISSECTION, DEMONSTRATION & STUDY

- 1) **The stomach:** surface anatomy, division, relations to its anterior & its posterior surface (stomach bed), peritoneal covering & peritoneal folds attached to it and specify the contents of each fold.
- 2) **The spleen:** surface anatomy, borders, surfaces, relations, peritoneal covering & peritoneal folds attached to it and specify the contents of each fold.

Week 14: Saturday & Sunday.

Topic: ARTERIAL SUPPLY OF FOREGUT

Objectives: DISSECTION, DEMONSTRATION & STUDY

The celiac trunk: origin, course & relations, branches: *left gastric, common hepatic & splenic arteries*.

Week14: Tuesday & Wednesday.

Topic 1: * SMALL INTESTINE

- 1) The jejunum & ileum: differences between them.
- 2) The mesentery of small intestine.

Topic 2: * LARGE INTESTINE

- 1) Parts of large intestine in the abdomen: cecum, vermiform appendix (study the positions of appendix & its surface anatomy “McBurney’s point”), ascending colon, right colic flexure, transverse colon, left colic flexure, descending colon & sigmoid colon.
- 2) The characteristics of large intestine & the differences between large & small intestine.
- 3) The relations of each part & its peritoneal coverings.
- 4) The peritoneal folds of large intestine: mesoappendix, transverse mesocolon & sigmoid mesocolon.