

Al-Nahrain University
College of Medicine

Course Title & Code: Human Anatomy (ANTAnt-22)

Grade: second year

Semester: first.

Total Hours: Theory (45) Practical (90) Clinical

Hours/week: Theory (3) Practical (6) Clinical

Credits: 6 hours/week

Course coordinator: Prof. Dr. Hayder J. Kadhim

1. Learning objectives

The course designed to clarify the following applied anatomical aspects:

The thorax:

1. Describe the structures of the chest wall for understanding the following:

1. the normal appearance of the chest wall in plain radiograph and in sectional imaging. abnormalities of thoracic cage skeleton.
2. clinical significance of knowing the surface anatomical land marks of chest walls including the counting of the intercostal spaces for clinical examination.
3. articulations between the bony parts of the chest wall in consideration to traumatic chest pain and the normal and abnormal shape of thoracic walls.
4. anatomical bases for mechanics of breathing.
5. proper site in the chest wall for aspiration of fluid from the pleural cavity.
6. distribution of the thoracic nerves supplying the chest wall in association with upper limbs and abdominal wall.
7. surface anatomy of the thoracic visceral.

2. Realize the anatomy of pleural membrane in consideration to:

1. identification of normal pleural cavity in plain chest X-ray.
2. surgical significance of the pleural reflections located outside the thoracic cage.
3. physiological role of pleural fold forming the pulmonary ligament on the hilum of lung.
4. anatomical bases of pleural chest pain.

3. Describe the anatomy of the right and left lungs with elaboration of:

1. radioanatomical shadowing of normal and pathological lung.
2. the clinical significance of the pulmonary lobes and bronchopulmonary segments.
3. vascular and nerve supply of the lungs in relation to metastases of lung cancer.

4. Understand the structure of the heart, its conductive system, and the nature of its critical blood supply correlated to:

1. radioanatomical appearance of the heart in plain X-ray and other imaging facilities.
2. the clinical and surgical significance of knowing the normal appearance of the interior of the heart.
3. the pathway of electrical pulsation transmitted via the conductive system of the heart among the parts of the cardiac skeleton with a consideration to anatomical bases of arrhythmia.
4. arterial supply and venous drainage of the heart with an introduction to the anatomical appearance of normal morphological pattern seen during cardiac catheterization.

5. Emphasize radioanatomical and imaging pattern of the normal thoracic mediastinal structures.

6. Emphasize the applied anatomical aspects of the breast.

The abdomen:

1. Describe the structures of the anterior abdominal wall for understanding the following:

1. the anatomy of abdominal wall and its musculofascial layers to interpret how the surgical incision are selected according to the type of surgeries, and to know the pathophysiology of incisional hernia.
2. to know how the abdominal wall function in many physiologic functions like respiration, cough micturition, etc.
3. learn how the hernias of anterior abdominal wall are formed and role of anatomy in hernia repair.

2. Understanding of the arrangement of the peritoneum and peritoneal cavity regarding the following:

1. clinical implication of the peritoneum like amniocentesis, peritoneal dialysis
2. the functional aspect of peritoneum in surgical disease and injuries like intestinal perforation, appendicitis
3. the anatomical concepts of visceral abdominal pain and peritonitis.

3. Describe the topographic anatomy of the upper abdominal viscera correlated to:

1. clinical implication of gastroesophageal junction in correlation with esophageal diseases like esophageal varices causing sever fatal bleeding, Gastric ulceration, Gastric outlet syndrome.
2. study the anatomical bases for congenital malformation of stomach duodenum.
3. learn the clinical correlation of spleen, including splenomegaly, splenectomy, and congenital variation and anomalies of spleen.
4. learn the anatomy of pancreas and its relation with bile duct obstruction and pancreatic tumors.
5. learn the surgical anatomy of liver for understanding the concept of hepatic resection or lobectomy.
6. imaging anatomy of biliary and extra biliary duct system.
7. applied anatomy of cholecystectomy with the anatomical complication of congenital biliary anomalies.

4. Understanding the clinical anatomy of intestine correlated to:

1. Imaging anatomy of small and large intestine.
2. the congenital anomalies of small and large intestine.
3. anatomical bases of appendectomy and the complication of appendicitis, the appendicular mass.

5. Describing the anatomy of blood supply of the gastrointestinal tract in consideration to:

1. clinical implication of vascular complication like bleeding, thrombosis and ischemia.
2. tumor spread via vascular system (metastasis of cancer).
3. Clinical implication of portal hypertension.
4. clinical anatomy of anal hemorrhoid.

6. Describe the anatomy of posterior abdominal wall and kidneys to clarify:

1. radioanatomical configuration of posterior abdominal wall and kidneys.
2. anatomical bases of diagnoses and management of renal colic.

7. Emphasize radioanatomical and imaging pattern of the normal abdominal viscera.

The pelvis:

1. Describe the anatomy of the parts of pelvic walls with elaboration of:

1. mechanism of labour and normal vaginal delivery, including the description of pelvic walls in order to understand mechanics of labour.
2. localization of pelvic abscess (Culdocentesis), drainage of Pelvic abscess in the deep dependent rectouterine pouch (of Douglas).
3. study the differences between male and female for anatomical and forensic medical point of view.

2. Considering the clinically applied anatomy of the male and female internal genital organs, with an emphasis on the anatomy of the urinary bladder in relation to:

1. anatomical bases of suprapubic puncture that must be done without entering into the pelvic peritoneal cavity.
2. clinical pathology of benign prostatic hypertrophy and cancer of prostate, and the topographic significant anatomical point regarding the prostatic venous plexus and Prostatectomy.
3. radioanatomical appearance of the uterus and uterine tube during the procedure of hysterosalpingogram, with description for the normal position of the uterus.
4. anatomical bases of structures felt during pelvic examination, per-rectal examination (PR), and digital vaginal examination (PV).

3. The anatomy of the interior of anal canal and rectum will be described, and the clinical significance of topographic anatomical relation of these organs. These anatomical facts will be discussed exemplified by:

- 1.anatomical pathology of piles (Haemorrhoids).
- 2.structures that could be felt during digital per rectum (PR).
- 3.anatomical facts that need to be elaborated during management of anal fissure and anal fistula.
- 4.clinical aspects for the anatomy of porto-caval anastomoses.

4.The description of the topographic distribution of the vessels and nerves of the pelvis with an emphasis on:

- 1.anatomical variations of blood pelvic vessels (eg aberrant obturator artery).
- 2.applied anatomy of umbilical artery used for exchange blood transfusion in cases of Kernicterus..
- 3.surgical aspects of the anatomical course of uterine artery during hysterectomy.

5.Surgical significance of the anatomy of perineum including:

- 1.anatomical bases of episiotomy.
- 2.anatomical bases of the pudendal nerve block at the pudendal canal (Alcock's canal) during obstetric surgical procedures.
- 3.anatomical bases of management of infection in ischiorectal fossa.

2. Instructional and Learning methods and tools

The syllabus is given to students in 45 hours of theoretical lectures (as power point presentation), and 90 hours of practical sessions. The practical sessions include practical demonstration of the structures of thoracic region, abdomen and pelvis using real embalmed human cadavers, separated embalmed organs of internal viscera, plastic models of different structures. In addition, movies describing the anatomy of different regions in fresh non fixed cadavers are viewed. Demonstration of radiographs of normal anatomy and of clinical problems are also used in practical sessions. Problem based learning applied in form of Small group teaching; the students were divided into 2 main groups (A & B about 70 students / group) then each group were subdivided into 7 groups (about 10 students / subgroup). Web – based learning is also included depending on the youtube channel (<https://www.youtube.com/user/akramjfr>.)

3. Syllabus

3.1 Theory:

No.	Topics	Hours
1	Osteology of the thoracic cage	1
2	Anatomy of the intercostal spaces	1
3	The pleura	1
4	The lungs	1
5	The heart: The pericardium. External features.	1
6	The heart: Internal features	2
7	The heart: Blood supply & conductive system. Clinical correlates	1
8	The anterior mediastinum	1
9	The superior mediastinum	1

10	The posterior mediastinum	1
11	The breast	1
12	Topographic anatomy of the anterior abdominal wall	1
13	Applied anatomy of the anterior abdominal wall & surgical incisions	1
14	The inguinal region & testis. Clinical correlates	1
15	General organization of the peritoneum & peritoneal spaces	2
16	The oesophagus, stomach, and spleen	1
17	The duodenum and pancreas	1
18	The liver and biliary system. Clinical correlates	1
19	The small intestine	1
20	The large intestine	1
21	The posterior abdominal wall: Muscles, vessels, nerves	2
22	Arterial blood supply of GIT	1
23	Venous drainage of the GIT. The portal system	1
24	The diaphragm. kidney & ureter	1
25	Pain pathways of abdominal viscera	1
26	The back	2
27	Imaging and cross sectional anatomy of the abdomen	1
28	Pelvic walls: Bones, muscles, ligaments, & joints	1
29	Pelvic walls: Sex differences, measurements & variations	1
30	Pelvic fascia, & peritoneum	1
31	Urinary bladder & male internal genital organs	2
32	Female internal genital organs	2
33	The rectum and the anal canal	1
34	The perineum: The anal triangle & ischiorectal fossa	2
35	The perineum: The urogenital triangle	1
36	Vessels of the pelvis	1
37	Nerves of the pelvis	1
38	Imaging and cross sectional anatomy of the pelvic region	1
Total		45

3.2 Practical:

No.	Topics	Hours
1	Osteology of ribs, sternum, and thoracic vertebrae	3
2	Surface and imaging anatomy of the thoracic cage	3
3	The intercostal space	3
4	The pleura and lungs	3
5	The pericardium. The heart: external features, surface & radiographic anatomy	3
6	Internal features & blood supply of the heart	3
7	General topography of the thoracic cavity: anterior, superior and superior mediastina	3
8	Clinical problems related to thorax	3
9	Surface anatomy & topography of the anterior abdominal wall	3
10	Inguinal region & testis	3

11	The peritoneum	3
12	Topography of abdominal viscera: Esophagus & stomach	3
13	The duodenum, pancreas & spleen	3
14	Mid – Term Practical Exam	3
15	The liver and biliary passages	3
16	The small and large intestines	3
17	Blood supply of the GIT	3
18	Posterior abdominal wall. Kidney and ureter. The diaphragm	3
19	Clinical problems related to abdomen	3
20	The back	6
21	Pelvic Osteology	3
22	Pelvic walls: muscles, fascia, & peritoneum of the pelvis	3
23	The urinary bladder & male internal genital organs	3
24	Female internal genital organs	3
25	The rectum & anal canal	3
26	Perineum: urogenital & anal triangles & ischiorectal fossa	3
27	Vessels & nerves of the pelvis	3
28	Sectional and imaging anatomy of the pelvic region	3
29	Final First Semester Practical Exam	3
Total		90

4. Student assessment:

The minimum requirement of a student to pass is to achieve at least 50% of total 100 marks assigned for the course.

The marks are distributed as follows:

Mid-term Theory	Mid-term Practical	Final Practical	Final Theory
20%	10%	20%	50%

Mid – term exam include 40 MCQ (0.5 mark for each). Mid – term practical exam include 20 time limited spot identification questions (in form of 10 stations each with 2 spots A & B, one minute for each station). The quizzes done in practical lab sessions in 2 forms; summative and formative tests. The quizzes applied as follow: Two Quizzes using power point presentation with a weight of 2 marks each (4 marks total) and 3 OSPE quizzes given a weight of 2 marks for each (6 marks total). Formative tests are performed as 1 test for each subject (thorax, abdomen and pelvis).

Students who fail to attain the 50% cut off mark are required to re-sit for a second trial examination similar to the final one. Failing in the second trial entails the student to repeat the academic year.

5. Books and references:

Textbooks:

Moore KL & Dalley AF (2006): Clinically Oriented Anatomy. 5th Ed. Lippincott Williams & Wilkins. Philadelphia

References:

Moffat DB (1987): Lecture notes on anatomy. Blackwell publications. Oxford

Snell RS (2000): Clinical anatomy for medical students. 6th Ed. Williams & Wilkins. Philadelphia

Grant's atlas of anatomy (CD)

McMinn's color atlas of human anatomy (CD)

McMinn & Abrahams's clinical atlas of human anatomy (CD)

Netter's interactive anatomy (CD). Ciba publications

Weir J & Abrahams P: Imaging atlas of the human body (CD)