THORAX

COURSE CONTENT

COMPETENCIES

The first year medical student should be able to understand and describe the gross anatomy of thoracic wall, mediastinum and the contents of thoracic cavity, correlate the anatomical basis of clinical manifestations /clinical procedures pertaining to thorax and describe the radiological anatomy of thorax.

REGIONS AND ORGANS

THORACIC WALL

THORACIC INLET

Boundaries and contents
Level 2: Details
Level 3: Thoracic outlet syndrome

THORACIC OUTLET

Boundaries, diaphragm,attachments, major openings and their vertebral levels
Level 2: Functional correlation; Minor openings
Level 3: Development and congenital anomalies

RIB CAGE

Typical intercostal space – Boundaries and contents; Atypical intercostal space; Movements of respiration
Level 2: Accessory muscles of respiration
Level 3: Applied aspects: Barrel chest, pectus excavatum, rickety rosary

MEDIASTINUM

Divisions and major contents
Level 2: Details
Level 3: Applied aspects: Mediastinitis, mediastinoscopy

SUPERIOR AND POSTERIOR MEDIASTINA

Boundaries and contents: Trachea, Oesophagus, Aorta, Azygos system, Thoracic duct
Level 2: Superior mediastinal Syndrome, Course, relation and branches / area of drainage
Level 3: Applied aspects: Coarctation of aorta, aneurysm, developmental anomalies

PLEURA

Pleural reflections, recesses, innervation
Level 2: Functional importance of recesses
Level 3: Pleuritis, pleural effusion, pleural tap, posterior approach to kidney (importance of pleural reflection)

LUNGS
Gross description including lobes, fissures and bronchopulmonary segments
Level 2: Relations, blood supply, nerve supply
Level 3: Lung abscess, postural drainage, surgical importance of bronchopulmonary segments, foreign body inhalation

PERICARDIUM
Divisions of pericardium and sinuses of pericardial cavity
Level 2: Functional significance and referred pain
Level 3: Pericardial effusion, cardiac tamponade and pericardial tap

HEART
Anatomical position, location, surfaces and borders, interior of all chambers, conducting system of heart; Origin, course and distribution / area of drainage of vessels of heart
Level 2: Relations, nerve supply - functional correlation, Embryological basis of patent foramen ovale, ventricular septal defect, over-riding aorta; Referred pain – angina pectoris, myocardial infarction; Functional end arteries - coronaries
Level 3: Applied aspects: Other congenital anomalies e.g. Patent Ductus Arteriosus, Fallot's tetralogy, etc.

OSTEOLOGY

Identification and parts of VERTEBRAE - typical and atypical**; RIBS** - typical and atypical; **STERNUM**
Level 2: Identification of T1, T9, T10, T11, T12, vertebrae and atypical ribs - 1, 2, 10, 11, 12. Details, relations, attachments, ossification
Level 3: Applied aspects: Fracture ribs, flail chest; Compression fracture of vertebra**;** Functional importance of obliquity of rib in respiratory movements; Importance of subperiosteal resection of rib in surgery; Sternal puncture

ARTHROLOGY

Costovertebral, sternocostal, interchondral, costochondral and sternal joints
Level 2: Details
Level 3: Applied aspects

ANATOMY PRACTICALS

SURFACE LIVING ANATOMY

(BONY) LANDMARKS(PALPATION OF): Sternal angle, Counting of rib spaces, locating thoracic spines

JOINTS (DEMONSTRATION OF MOVEMENTS): Intervertebral

MUSCLES (DEMONSTRATION OF ACTION): Respiratory movements

NERVES: Dermatomes
ORGANS: Heart borders and valves, Apex beat, Lungs – fissures and hilum, Pleural reflection,Apices of lung,Trachea, triangle of auscultation

RADIOLOGICAL ANATOMY:
LIST OF RADIOGRAMS

Region	View	Identify
Plain X-ray	AP/PA Lateral	Trachea, cardiac borders, aortic knuckle, pulmonary conus, costophrenic & cardiophrenic angles, bronchovascular markings, hilar lymph nodes, breast shadows in females, domes of diaphragm, counting of ribs,inferior angle of scapula, angle of sternum
Ba swallow	PA/ Oblique	Lateral curves, constrictions
Bronchogram	PA/ Oblique	Upto tertiary bronchi
CT mediastinum, High resolution CT lung		

SECTIONAL ANATOMY

Drawing of cross-sectional diagrams and identification of major anatomical structures at the following vertebral levels: T3, T4 & T6

CLINICAL, SURGICAL AND FUNCTIONAL ANATOMY
(Anatomical basis only)

THORACIC WALL: Intercostal spaces, Intercostal puncture / drainage
Level 2: Fracture ribs, pain, abnormal chest wall movements

MEDIASTINUM: Superior mediastinal syndrome
Level 2: Coarctation of aorta
Level 3: Collateral circulation-in case of SVC block and in coarctation of aorta

HEART: Valvular disease: Normal size of mitral opening, Mitral stenosis,
Level 2: Coronary artery disease

LUNGS: Bronchopulmonary segments, Foreign bodies in the respiratory tract
Level 2: Lobes / segments commonly affected in, Tuberculosis, other lung diseases

OESOPHAGUS: Common sites of narrowing, oesophageal varices

RESPIRATORY DIAPHRAGM: Normal / abnormal respiratory movements
Level 2: Common diaphragmatic herniae

DIAGNOSTIC PROCEDURES: Oesophagoscopy, bronchoscopy, cardiac catheterization, thoracocentesis

THERAPEUTIC PROCEDURES: Intercostal nerve block; Heart transplant; Internal jugular vein/ superior vena cava cannulation; Central venous puncture / line; Sympathectomy; Thymectomy