II– Skin I. Pulsation: (Clockwise distribution) – Apical pulsation – Epigastric pulsation – Right parasternal pulsation – Suprasternal pulsation – Pulsation in 2nd left intercostal space. – Left parasternal pulsation. II. Pigmentation III. Scars: – Scar of wounds – Scar of burn – Scar of irradiations – Scars of operations: ● Mid line sternal incision (Sternotomy) ● Axillary scar for inter costal tube insertion & thoracoscopy IV . Swellings: Subcutaneous lipomas, Chest wall tumor, Breast lumps, Chest wall abscess III– Movement What is the movement normally Bucket Handle movement ● Upper thoracic cage moves upward and outward anteriorly by the action of scalenes and sternomastoid muscles ● Lower thoracic cage: moves outward and upward by the action of diaphragm Pump handle movement ● Clavicle normally moves upward by 0.5cm exaggerated in obstructive airway diseases as COPD and asthma) i.e it moves > 0.5 cm in inspiration (So in COPD the pump handle ⚿ and bucket handle ⚿). Respiratory movement: I. Respiratory rate, Rhythm, depth and technique (see general exam). II. Respiration: normally Mainly abdominal in males Mainly thoracic in females a. Causes of abnormal abdominal predominance – Pleurisy – Myositis – Fracture ribs b. Causes of abnormal thoracic predominance: – Peritonitis – Tense ascites – Distension and flatuanece III– Movement III. Abnormal thoraco–abdominal movements: Abdominal paradox * Defined as: paradoxically inspiratory indrawing of abdominal wall while the rib cage inflates outwards in inspiration. * Caused by: Diaphragmatic dysfunction (weakness, fatigue or paralysis). * Mechanism: absence of positive abdominal pressure during inspiration due to weak diaphragmatic contraction. ● Detected by: Rocking movement when one hand is putted on the thorax while the other on the abdomen. Intercostal Retractions Intercostal retractions suggest an imbalance between the negative pressure generated and the ability of the lung to expand. Generalized retractions are a sign of significant inspiratory obstruction. Hoover sign Paradoxical inward movement of costal margin [formed of 7,8,9,10 ribs] during inspiration * Causes: COPD Upper airway obstruction. ● Its a sure sign of emphysema Diaphragm movement can sometimes be seen with inspiration as a flickering along the lateral chest. A loss of this movement on one side indicates a paralyzed hemidiaphragm (Litten's sign). Diaphragmatic movement is usually not visible in overweight people I. Superficial palpation For hotness, tenderness, swellings or fluctuations. Causes of chest tenderness: 1– Rib lesion: Pathological or traumatic fracture – Periostitis. Rib tumor as Ewing sarcoma. 2– Sternum: Tender sternum in leukemia called Leibman sign. 3– Costo chonodoral junction: [Costochonritis]: Teitze syndrome. Defined as: swelling and tenderness in the upper 6 costochondral junctions. 4– Muscles lesions: Myalgia, Myositis, –Muscular strain e.g.: local tenderness on pectoralis major after lifting heavy objects. 5– Subcutaneous fat: Tender fat lobule in obese patients. 6– Intercostal neuralgia: – Herpes zoster. – Neurofibromatosis distributed along the course of affected nerve. 7– Amaebic abscess: Give local inframmary and infrascapular tenderness 8– Breast causes: Fissured nipple, Abscess Fibroadenosis Malign. Lump – Gynecomastia: caused by: *Drugs: Ketokonazol *Disease Choriocarcinoma II. Evaluating the Mediastinum a– Tracheal deviation (upper mediastinum) But remember that It is either pulled to or pushed away one side. Tracheal Examination: * Inspection: Inspecting trachea is not so valuable because deviation, movement or other finding needed to be documented by palpation. Trill's sign (sternomastoid sign): bulging of one sternomastoid tendon on one side over the trachea caused by marked tracheal deviation to that side. Tracheal tugging or Tracheal

descent: > 2.5 inch descent in inspiration indicates airway obstruction, whether upper or lowers airways obstruction. Palpation: I–Side to side deviation 1. One index finger of the same hand: Put it in the angle at crossing of sternomastoid to the border of trachea on each side and observe to what degree your finger proceeds backward. The trachea is deviated to the side of high resistance. 2. The index finger of both hands simultaneously are used: 3. The index finger and middle finger of one hand used simultaneously: 4. Use one index finger in supra sternal notch and palpate for the fossa on each side of trachea between it and sternomastoid the trachea deviated to the side of shallow fossa. II. Evaluating the Mediastinum * Causes of deviated trachea: * Right tracheal shift: 1– Right sided lesions: A– Collapse. Pneumenctomy Hypoplastic Rt lung B– Fibrosis Right upper lobe fibrosis Early fibrosis– just deviation long standing fibrosis ––– kinking the trachea Destroyed right lung most commonly post TB. 2– Left sided lesions: A– Pleural: Pleural effusion Pneumothorax Pleural tumour B– Mass: Left pancost tumour . Mediastinal mass with left sided predilection (as thymoma– teratoma– LN) * Left tracheal shift ● as before Collapse or fibrosis on left side . Effusion or mass on the right side . II– Short extra thoracic trachea ● Normally the distance between cricoid cartilage (below thyroid) and suprasternal notch is three finger breadth. ● Reduced in: COPD due to low flat diaphragm that pull on the trachea lead to shorten of trachea. ● Technique: Using patient hand breath to calculate this distance between his suprasternal notch and cricoid cartilage. III– Suprasternal depth ● Supra sternal notch only adopt the tip of the index finger. ● Reduced (Less than one finger tip) Caused by: anterior displacement of trachea by posterior mediastinal mass. ● Increased (More than one finger tip) Caused by – Senility – Cachexia – anterior mediastinal mass II. Evaluating the Mediastinum IV– Tracheal tug Defined as tracheal descent with either systole. or inspiration Campbell sign Def: downward tracheal descent with inspiration ≥ 2.5 inch Cause: COPD due to excessive pulling on trachea during inspiration as diaphragm strongly contract to overcome the air way resistance. Technique: Apply the tip of index finger over the thyroid cartilage and observe to what extent does it descent with inspiration (the cartilage well be almost at the level of suprasternal notch in end of inspiration) b– Apex position (lower mediastinum) The apex is normally at the left 5th intercostal space inside the midclavicular line. Causes of Apex shift: 1– Congenital: Dextrocardia i.e. the apex present on the right side as in kartagner syndrome. 2– Acquired: * Heart diseases:– Left ventricular enlargement shifting the apex downward and outward lateral to mid clavicular line. – Right ventricular enlargement shifts the apex outward * Chest causes:– Fibrosis as in post TB destroyed lung. – Collapse (whatever the cause) in both fibrosis and collapse apex pulled towards the same side of the lesion – Pleural effusion or pneumothorax push the apex to the opposite side. – Pectus exacavatum shift the apex lateraly on the left side * Abdominal cause: Organomegaly Ascites pushing apex upward.

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