Local chest examination

Important points

Before any local examination after history we should know the system that will be examined .

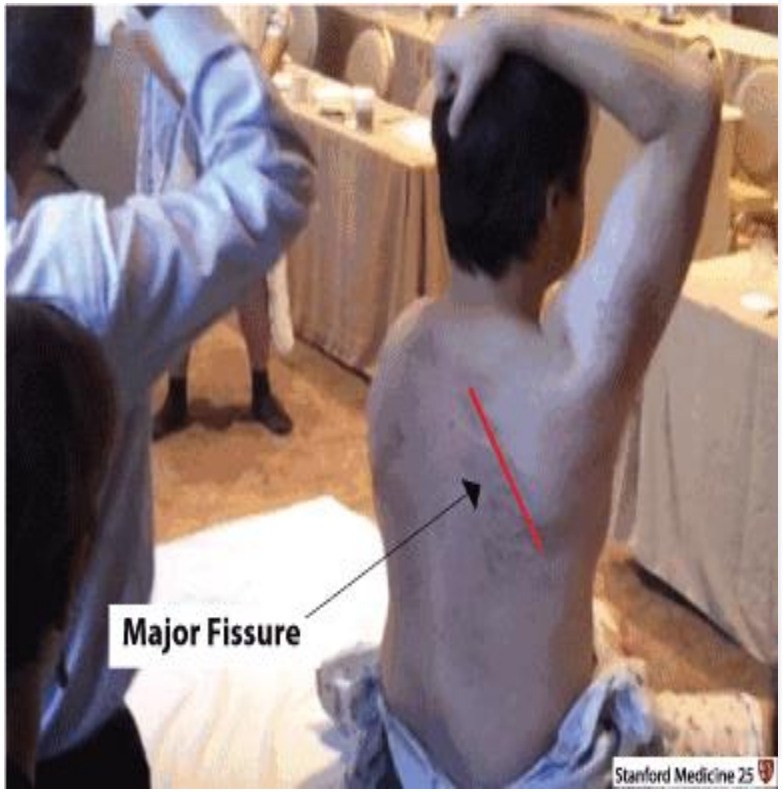
This can be done through surface anatomy of parts of system

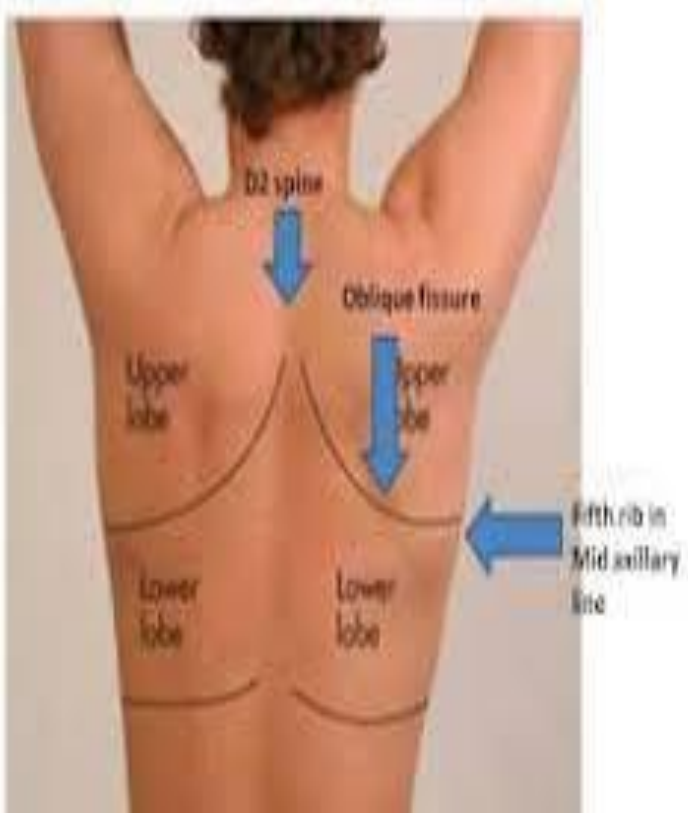
In local chest examination there is landmark **points ,lines and areas** it's mandatory to know it will to facilitate examination of patients

As 2lungs divided into lobes 3 on rt and 2 on lt through exact fissures

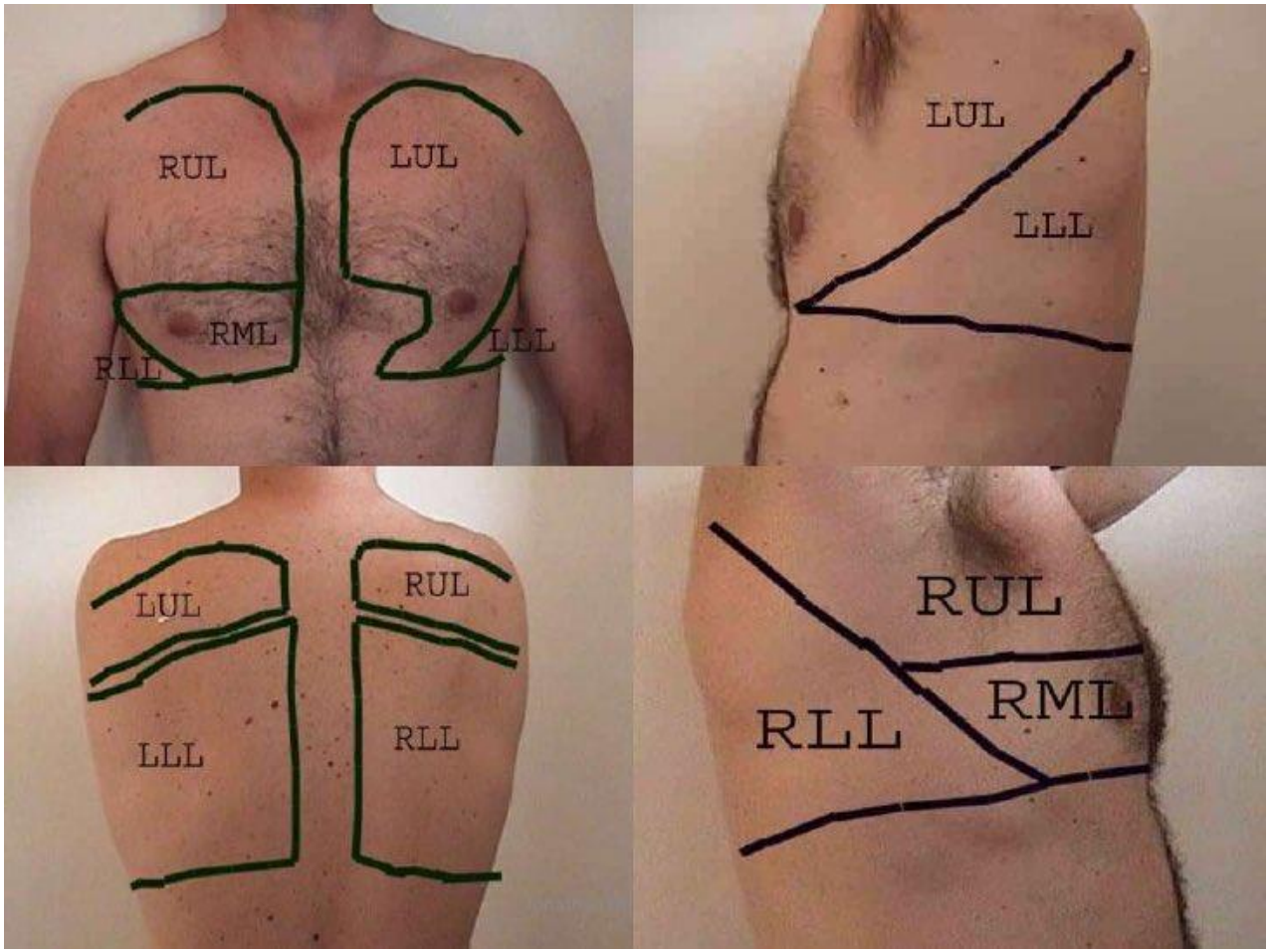
- Oblique fissure from 2d thoracic spine (4^{th} thoracic vertebra)posteriorly to 6^{th} costochondral junction anterior separate upper lobe from lower lobe
- Transverse fissure on rt side with 4^{th} rib until meet oblique fissure in midaxillary it separate upper lobe from middle lobe on rt lung only
- Then lines as in pictures that it will judge our manouver

Oblique fissure and lobes

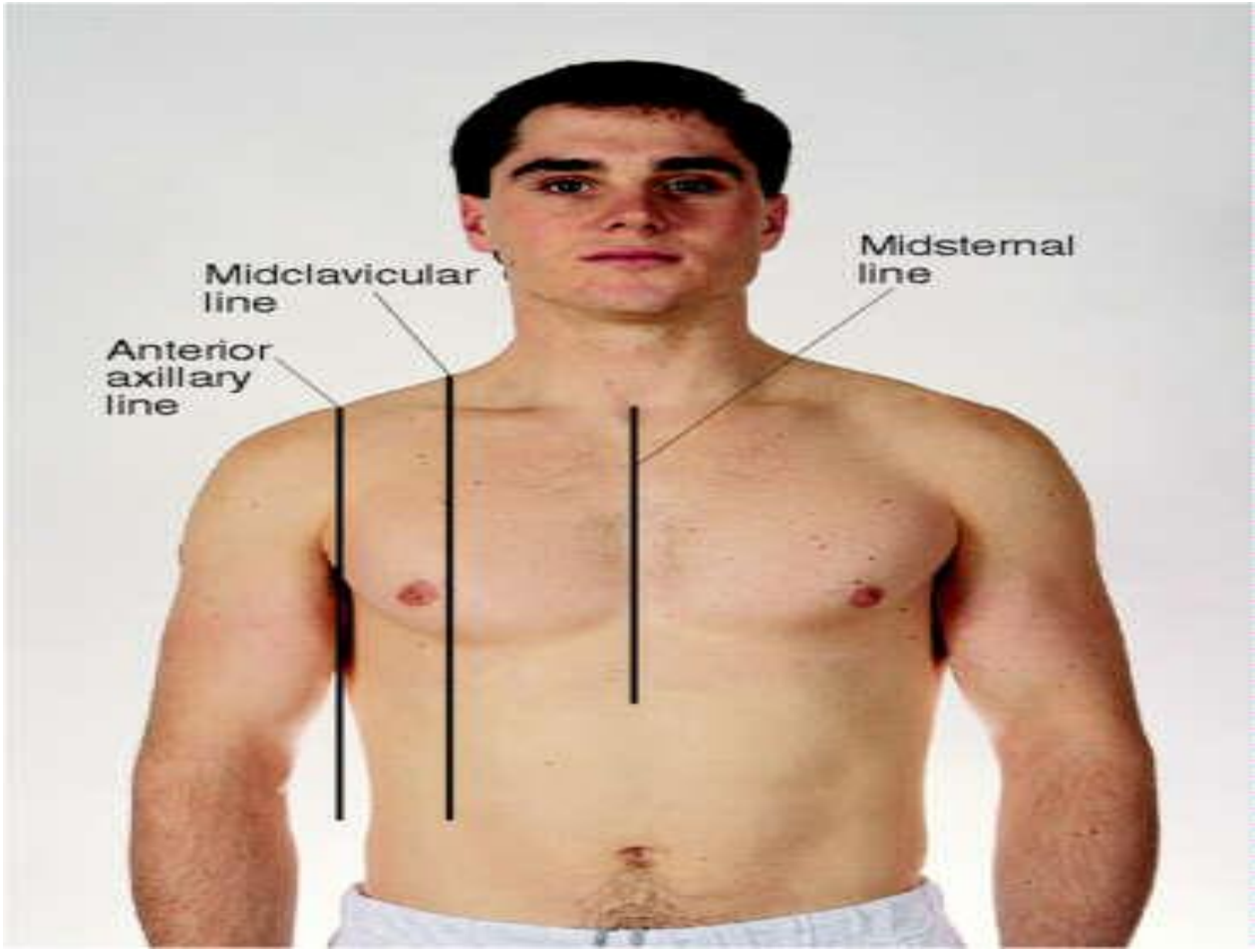




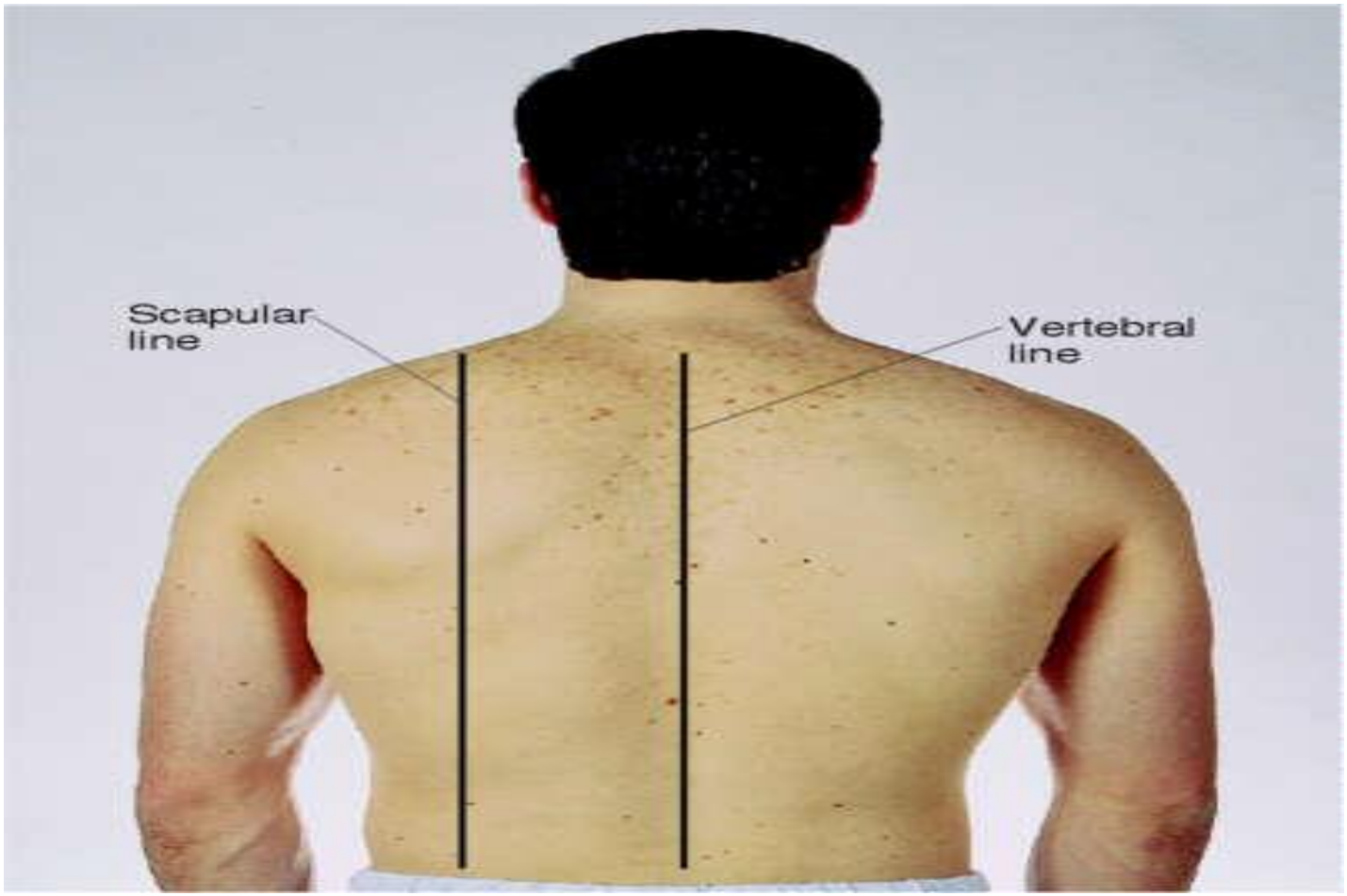
Sites of lung lobes



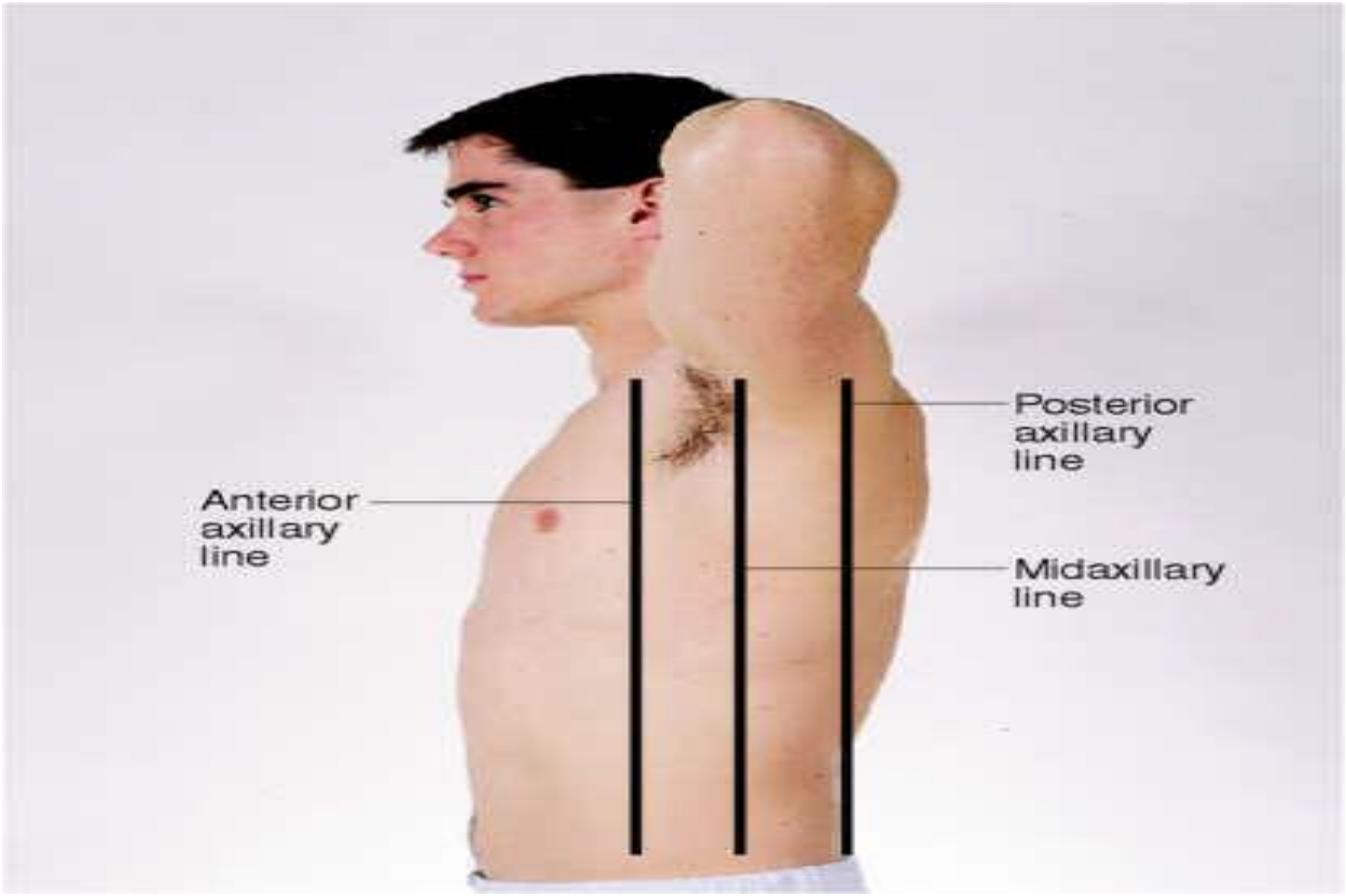
Anterior lines



Posterior lines



Lateral lines



Rules of inspection

a. examination should be in good light

b. the chest should be naked completely until umbilicus

c. patient in supine position

d. inspection should be in tangential position either from side to side or from the heel

Items we should see and comment

1-chest movement (rate ,rythem ,depth)

2-Shape of chest :normal or abnormal

Abnormal shape either symmetrical(barrel ,pigeon chest,funnel chest or flat)

Asymmetrical (either bulge or retraction)

3-Skin abnormalities (scar ,pigmentation, dilated veins ,swelling,sinus)

4-Pulsation (apex of heart ,epigastric ,any visible pulsation)

5-Trachea (centrality ,movement ,thyroid

Chest movement

Normal chest expansion is about 4-6 cm. Generalized decrease of movement means expansion less than 2cm.

Compare movement of the two sides while the patient is breathing quietly.

Note abnormal inspiratory movements produced by contraction of the accessory muscles of inspiration (sternomastoids, scaleni and trapezii).

Paradoxical movement of the chest wall (indrawing of chest wall during inspiration) is seen in patients with double fractures of a series of ribs (flail chest).

Shape of chest

Normal healthy chest the antroposterior diameter to transverse diameter is 5to 7 symmetrical deformity

Pigon chest, pectus carniatum cross section traingolar

Pectus excavatum sternum is endowed inside chest

Barrel shaped nearly equal both diameters 1:1 ,ribs are more horizontal ,wide intercostal space

Asymmetrical abnormalities

- 1-Bulge :
- Pneumothorax
- Pleural effusion
- 2-Retraction
- Fibrosis
- Collapse
- Inspection of the Back.
- Kyphosis
- Scoliosis-lateral curvature
- Kyphoscoliosis

Trachea (Trail's sign)

- Trachea if displaced we suspect that if prominence of sternomastiod tendon was inspected
- Shift of trachea either due to pulling to same side (fibrosis,collapse) or pushing to contralateral side (effusion .pnumothorax)

Skin examination

Scar (open heart operation Medline scar ,lobectomy oblique scar,scars of intercostal tube insertion)

Sinus :tuberculosis empyema

Pigmentation(

Visible engorged veins (SVC obstruction)

pulsation

Check any pulsation in chest

Hold breathing and inspect pulsation in

Epigastric area

Apex of heart fifth midclavicular line

Parasternal line

palpation

It's confirmation of inspection

Items should be fulfilled

1- Chest movement (expansion)

2- TVF

3- Pulsation

4- Tracheal position

5- Tender points

6-palpable sounds

Chest movement to be assessed in 2regions anteriorely ,supramammery area(upper chest)
Two hands gently putted on chest and observe their rise upward either symmetrical equal or not
Lower chest (inframmamry)put both hands with fanning of fingers and both thumbs touching each other in midline an observe outward movement and distance of thumb from midline ,less movement means that diseased side
Back of chest ,like lower chest examination we can take fold of skin in between both thumbs invertebral line

Estimation of chest movement anteriorly

(1) *Infraclavicular* (2) (3) *Mammary* (4) *Inframammary*

Palpation : Chest Excursion

TVF

This sign detects vibrations transmitted to the hand on the chest wall from the larynx

It should be done with Palme of one hand , bases of fingers is more acceptable part to detect it ,and should be in comparative manner ,area by area(rt and lt)

Causes of increased TVF

- Consolidation (pnumonia)
- Cavitation(cavitary lesions ,TB)
- Collapse with patent bronchus

Causes of decreased TVF

- Pleural effusion
- Pneumothorax
- Emphysema
- Thick chest wall(obesity)

Pulsations

- Apex of heart(5^{th} space in midclavicular line on lt side
- Pulmonary area (lt 2d intercostal space by tips of finger)
- Epigastric area(3 fingers used to detect direction of pulsation rt side of heart or aorta)
- Lt parasternal (3rd and 4^{th} lt intercostal spaces)
- Any obvious pulsation in other site if palpable

Tracheal examination

- Centrality by index finger sliding on suprasternal notch then passing it between trachea and sternomastoid tendon
- Tracheal length(3fingerof the patient)
- Tracheal tug (sudden downward movement of the trachea , if with inspiration :campbell sign but if with pulse oliver sign

Tender points

- Gently touch parts of chest to detect rib fracture ,costochondritis or muscular pain use tip of finger don’t press hard

Palpable sounds

- Palpable sounds
- 1- Palpable rhonchi (rhonchus fremitus) put your hands on chest and ask patient to breath fast and deep
- 2- Palpable crepitus :in case of surgical emphysems

Types of percussion according to power

- Types of percussion according to power
- 1-light percussion chest prober and bare area of heart give note of 1-2cm from surface
- 2-Heavy or deep percussion back of chest ,upper border of liver give note from 5-7cm

Then rest of chest to detect deep lesions

Types of percussion

- Types of percussion according to maneuver
- 1-direct percussion. On sternum, clavical and scapula using plexor which hit bone directly by same power
- 2-Indirect percussion via Plexor and Pleximeter all chest areas like picture

Types of percussion notes

- Resonance ……normal lung note
- Hyperresonance …….emphysema
- Tympannitic sound …..tension pneumothorax, troub's area
- Dullness….consolidation ,fibrosis ,collapse
- Stony dullness…..pleural effusion

Percussion

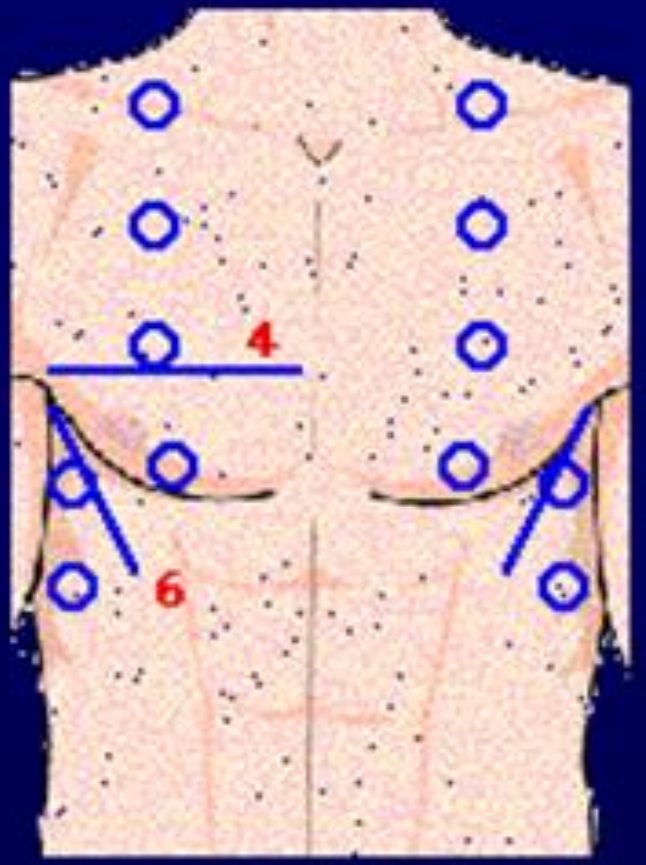
- There is rules of percussion:
- 1- Should be done from resonant to dullness
- 2- Plexor finger must be perpendicular to pleximeter and its movement should arise from wrist joint and hitting quickly
- 3- Pleximeter should be parallel to percussed border
- 4- Percussion in intercostal spaces should be in lines (midclavicular ,midaxillary and infrascapular)

Steps of percussion

- 1-start with healthy side that you detect from inspection and palpation
- 2-lung proper with light percussion
- 3-upper border of liver deep percussion in 2 lines
- 3- Whole lung space by space in comparative manner as in pictures

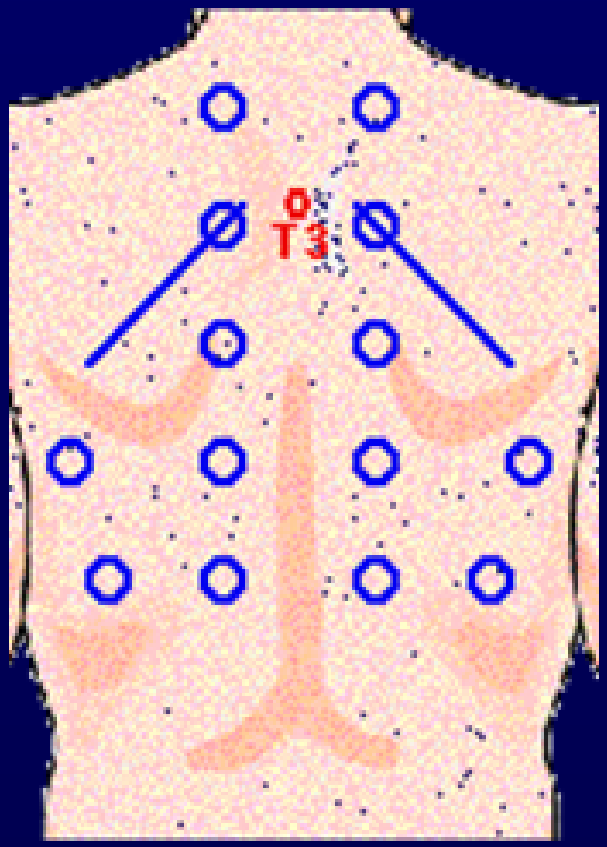
Percussion:Anterior Chest

1. Percuss from side to side and top to bottom using the pattern shown in the illustration.
2. Compare one side to the other looking for asymmetry.
3. Note the location and quality of the percussion sounds you hear.



Percussion:Posterior Chest

1. Percuss from side to side and top to bottom using this pattern. Omit the areas covered by the scapulae.
2. Compare one side to the other looking for asymmetry.
3. Note the location and quality of the percussion sounds you hear.
4. Find the level of the diaphragmatic dullness on both sides.




THANK YOU