# RESPIRATORY SYSTEM

The Possible **Short Cases** in **Clinic Exam** are:

1- **COPD** & **Asthma**.
2- **Bronchiectesis**.
3- **Pleural Effusion**.
4- **Pneumothorax**.
5- **Pneumonia**.
6- **Interstitial Lung Disease (ILD)**.

**Chest Examination** Means → Examination On Chest From Front OR From the Back.
**Respiratory Examination** Means → Chest Examination & General Examination Related to Respiratory System.

## ❖ CHEST EXAMINATION FROM THE BACK:

**IN CHEST EXAMINATION FROM THE BACK PATIENT HAS TO BE IN SETTING POSITION.**

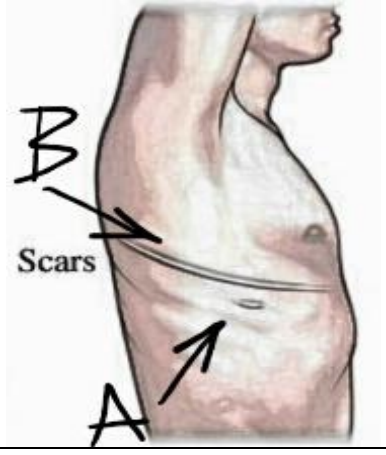
**INTRODUCE YOUR SELF,, STAND ON THE RIGHT SIDE OF THE PATIENT & TAKE PERMISSION FROM THE PATIENT FOR EXAMINATION & EXPOSURE.**

السلام عليكم .. صباح الخير يا حاج .. أني (فلان فلان) طالب سنة خامسة في كلية الطب البشري ..
من بعد إذنك يا حاج نبي اندير كشف على صدرك .. لو سمحت يا حاج ومن بعد إذنك لو تقدر تفتح السورية
وسامحني كثرت عليك ...

### 1❖ INSPECTION

#### 1- Scars:

Look at the Chest From the **Both Axilla** For Any **Scar** Such as:
**A**- **Small Axillary Scar** → Indicate **Chest Tube Insertion**.
**B**- **Large Axillary Scar** (**Lateral Thoracotomy Scar**) → indicates **Lobectomy** or **Pneumonectomy**.



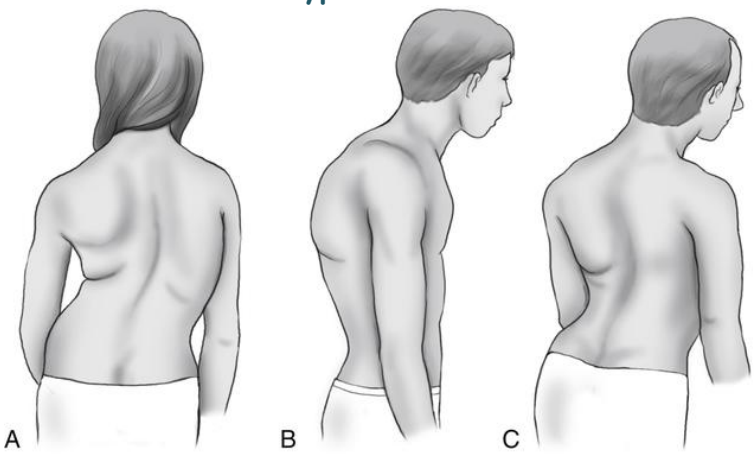
## 2- Chest Deformity:

Check the Chest From the Back and Observe If There is Any **Deformity** Like:

**A-** Scoliosis.

**B-** Kyphosis.

**C-** Kypho-Scoliosis.




**Other Chest Deformity From Front are**:

- Pectus Carinatum (**Pigeon Chest**)
- Pectus Excavatum (**Funnel Chest**)
- Barrel Chest (Increase **Antero-Posterior** Diameter Of Chest).

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## 3- Chest Movement:

Ask the Patient to Breath From **His Mouth** and Observe the Chest From the Back to Check Chest Movement During Inspiration & Expiration.

| Differential Diagnosis of Bilateral Decrease Chest Movement | Differential Diagnosis of Unilateral Decrease Chest Movement |
|---|---|
| -Asthma.<br>-COPD.<br>-Bronchiectesis.<br>-Interstitial Lung Disease (ILD).<br>-Broncho-Pneumonia. | -Pleural Effusion (Lower Zone).<br>-Pneumothorax (Upper Zone).<br>-Lung Collapse.<br>-Lobar-Pneumonia.<br>-Pneumonectomy or Lobectomy. |

## 4- OTHERS (S S):

**Superficial Dilated Vein** → Indicate **Superior Vena Cava Obstruction** in Case of **Apical Lung Tumor**.

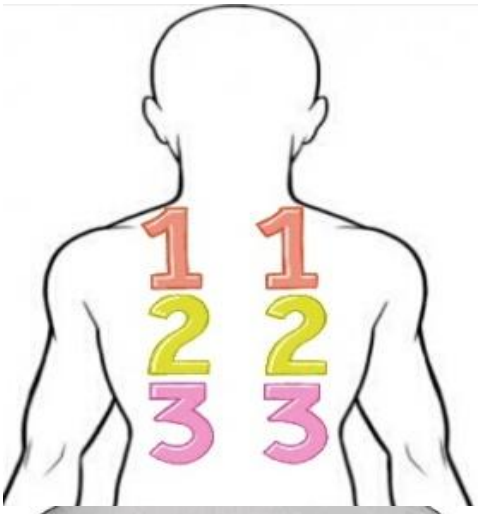
**Symmetry of The Chest** → Bulging Or Retraction

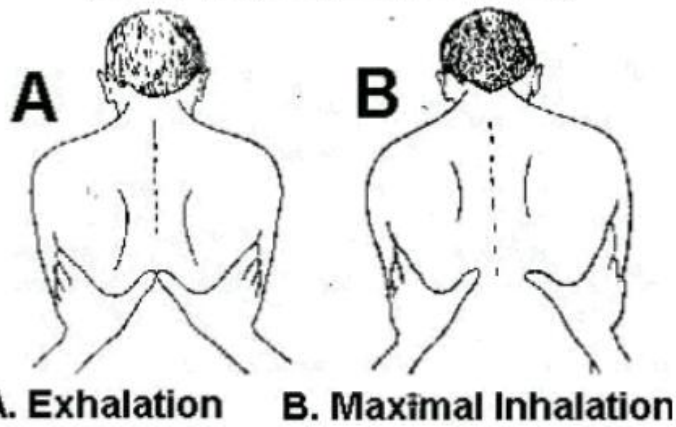
- **Bulging** Indicate → **Pleural Effusion** & **Pneumothorax**.
- **Retraction** Indicate → **Lung Collapse** & **Lung Fibrosis**.

## 2❖ PALPATION

### 1- Chest Expansion:

Put The **Palms** of Your Both Hands On the Chest From the Back in **Three Areas** (**1**, **2**, **3**) as in the Picture, Start From Area **(1)** , Then Ask the Patient to Breath From **His Mouth** and Check the **Expansion of the Chest in Both Sides** in Area **(1)** ,, Do the Same Thing in Area **(2)** , Then Area **(3)**:

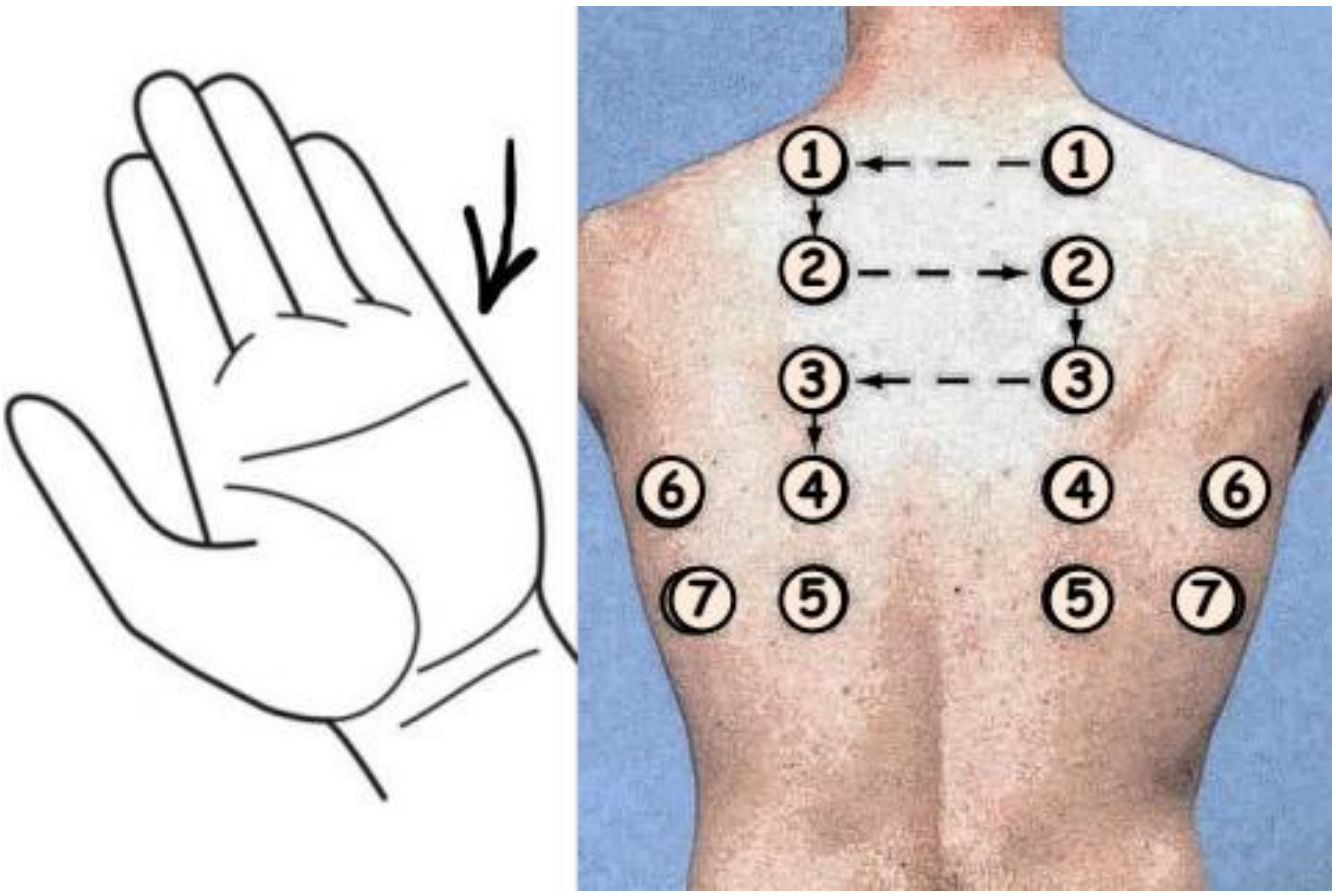


## 2- Tactile Vocal Fremitus (TVF):

Use **Ulnar Border** of Your Hand and Put it On the Chest From the Back On **Intercostal Space** in Order According to the **Numbers in The Picture** ,, and Ask the Patient to Say **44** In Each Area (in English Say **Ninety Nine**) You are Going to Feel Simple Vibration (**Transmitted Sound**),

*Don't Forget To Follow the Numbers in the Picture and **Compare** Between Both Lungs:

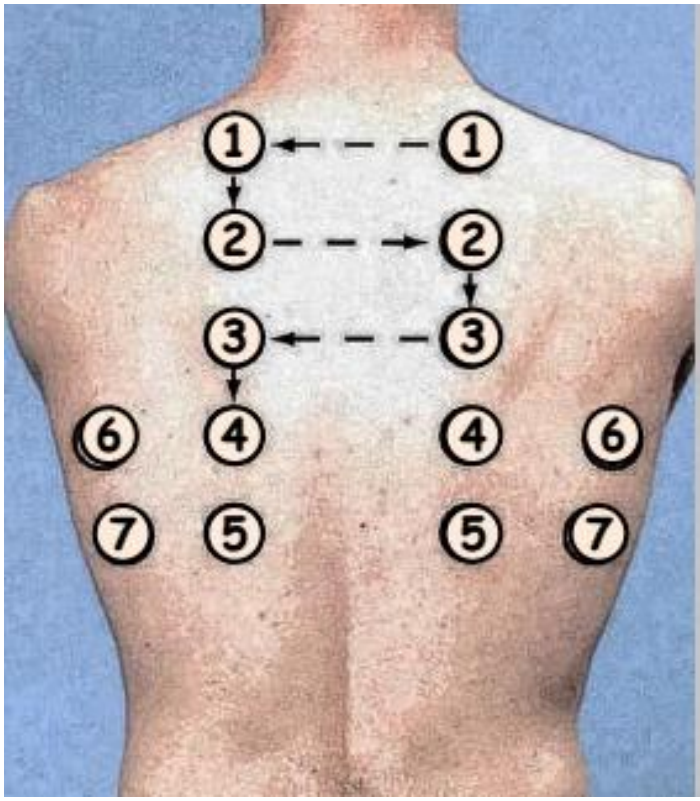



| Differential Diagnosis of Decrease Tactile Vocal Fremitus | Differential Diagnosis of Increase Tactile Vocal Fremitus |
|---|---|
| - Asthma.<br>- COPD.<br>- Lung Fibrosis.<br>- Pleural Effusion.<br>- Pneumothorax. | - Consolidation in Pneumonia. |

**Note**:

Ask Permission From the Doctor to Palpate **Tracheal Position**, Because It is Useful In Case of **Shifted Mediastinum** as in → **Massive Pleural Effusion**, **Tension Pneumothorax**, **Lung Collapse**, **Pneumonectomy**.

## 3❖ PERCUSSION




Put the **Palm** of Your **Left** Hand on **Intercostal Space** of the Chest From the Back in Order According to the **Numbers in The Picture** ,, and Use The **Middle Finger** of Your **Right** Hand and **Tap** it On **Distal Interphalangeal Joint** of Your **Left** Hand.

Listen to the Sound that Will Occur Due to Percussion Which May Be:

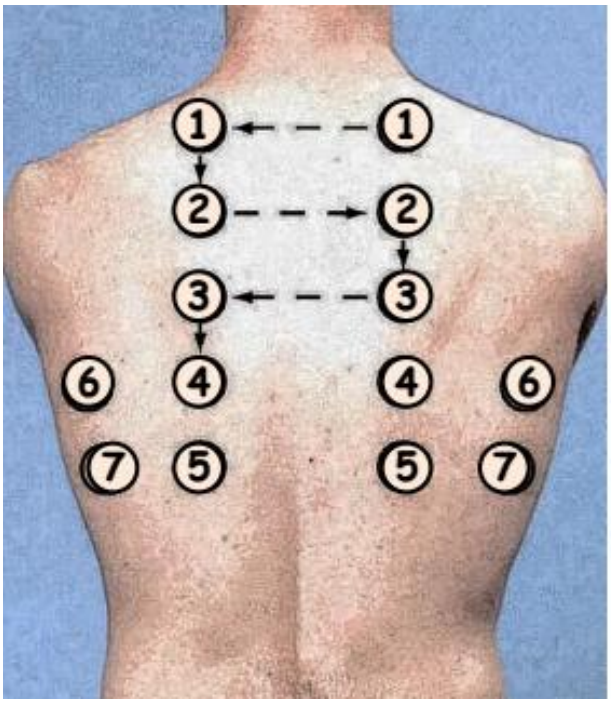
→ **Resonant** → Means → **Normal**.

→ **Hyper-Resonant (Tympanic)** → Means → **Pneumothorax OR Obstructive Lung Diseases (Asthma, COPD, Broncheictesis)**.

→ **Dull** → Means → **Consolidation** (Pneumonia).

→ **Stony Dull** → Means → **Pleural Effusion**.

## 4❖ AUSCULTATION




### 1- Air Entery:

Put Your **Stethoscope** On the Chest From the Back On **Intercostal Space** in Order According to the **Numbers in The Picture** ,, and Ask the Patient to Breath From **His Mouth** ,, Then **Auscultate**;; and Check If the Air Entry **Equal** in Both Lungs **OR** If there is Any **Decrease** of Air Entry:

| Differential Diagnosis of Bilateral Air Entry Decrease | Differential Diagnosis of Unilateral Air Entry Decrease |
|---|---|
| - Asthma.<br>- COPD.<br>- Bronchiectesis.<br>- Interstitial Lung Disease. | - Pleural Effusion.<br>- Pneumothorax.<br>- Lung Collapse.<br>- Pneumonectomy or Lobectomy. |

### 2- Type of Breathing:

***Harsh Vesicular Breathing** → Means → **Normal** (Inspiration **More Than** Expiration).

***Broncho-Vesicular Breathing** → Means → **Obstructive Lung Diseases**
(Expiration **More Than** Inspiration) as in **Asthma**, **COPD**, **Bronchiectesis**.

***Bronchial Breathing** → Means → **Consolidation of Pneumonia** (**Gap** Between Inspiration & Expiration).

## 3- Added Sound:

| Rhonchi: | Crepitation or Crackles: |
|---|---|
| It is a **Musical Sound** Caused by **Air Way Obstruction** Heard Mainly During **Expiration**.<br><br>***If** Rhonchi Heard **Locally** or **Unilaterally** & **Low Pitched**, it is Called → **Monophonic** Which Occurs Due to **Local Obstruction** to Major Air Way.<br><br>***If** Rhonchi Heard **Bilaterally** & **High Pitched**, it is Called → **Polyphonic** Which Occurs in **Asthma** & **COPD**.<br><br>**Note**:<br>**Wheeze** is → **Audible Rhonchi**. | It is a **Non Musical Sound** Heard Mainly During **Inspiration**.<br><br>There are **Two Types** of Crepitation:<br><br>**Fine Crackles**: **Not** Disappear By Cough. Occurs in:<br>* **Interstitial Lung Disease (ILD).**<br>* **Pulmonary Edema.**<br>* **Early Pneumonia.**<br><br>**Coarse Crackles**: Disappear By Cough. Occurs in:<br>* **Bronchiectesis.**<br>* **Chronic Bronchitis.**<br>* **Late Pneumonia.** |

## 4- Vocal Resonance:

Similar to **Tactile Vocal Fremitus** But By Using **Stethoscope**, Put It in Same Areas of **Intercostal Space** in Order According to **Numbers in The Picture** ,, and Ask Patient to Say **(44)** in Each Area.

**Note:**

In Case of **Consolidation**; You Have to Add **Two Steps**:

* **Whispered Pecterloquy** → Similar to **Vocal Resonance** But Ask the Patient to Whispered **(44)** in Each Area;; It Will Be Heard **Loud** in Area with Consolidation.

* **Ego phony** → Put Your **Stethoscope** On the Chest From the Back On **Intercostal Space** in Order According to the **Numbers in The Picture** ,, and Ask the Patient to Say **(E)** ;; It Will Be Heard **(AA)** in Area with Consolidation.

***Finally: Cover the Patient and Thank The Patient and Say → .. شكرا يا حاج ، سامحني وان شاء الله لاباس عليك**

## ❖ CHEST EXAMINATION FROM THE FRONT:

IN CHEST EXAMINATION FROM THE FRONT PATIENT HAS TO BE LAYING IN SUPINE POSITION (FLAT OR 45 DEGREE).

INTRODUCE YOUR SELF,, STAND ON THE RIGHT SIDE OF THE PATIENT & TAKE PERMISSION FROM THE PATIENT FOR EXAMINATION & EXPOSURE.

السلام عليكم .. صباح الخير يا حاج .. أني (فلان فلان) طالب سنة خامسة في كلية الطب البشري .. من بعد إذنك يا حاج نبي اندير كشف على صدرك من القدام .. لو سمحت يا حاج ومن بعد إذنك لو تقدر تفتح السورية وسامحني كثرت عليك ...

### 1❖ INSPECTION

*First Stand at the End of the Bed and Check the Symmetry of Chest From Both Sides;

- Bulging Indicate → Pleural Effusion & Pneumothorax.
- Retraction Indicate → Lung Collapse & Lung Fibrosis.

*Now Do Inspection For:

**1- Scars:**

*Look at the Chest From the Both Axilla For Any Scar Such as:

A- Small Axillary Scar → Indicate Chest Tube Insertion.

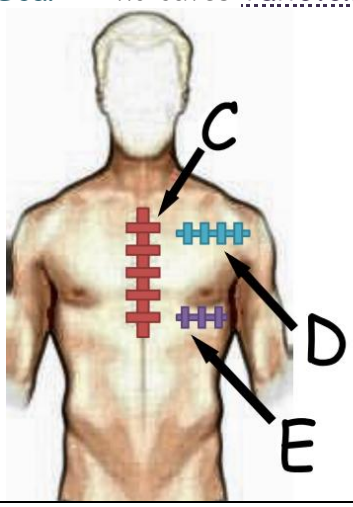
B- Large Axillary Scar (Lateral Thoracotomy Scar) → indicates Lobectomy or Pneumonectomy.

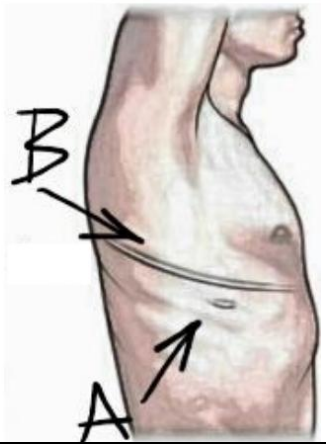
*Then Look at the Chest From Front For Any Scar Such as:

C- Mid-Line Sternotomy Scar → Indicate Open Heart Surgery, (Valve Replacement OR Coronary Artery Bypass Graft "CABG").

D- Left Infra-Clavicular Scar → indicates Pacemaker or Implantable Cardiac Defibrillator (ICD).

E- Left Infra-Mammary Scar → indicates Valvotomy of Mitral Stenosis.



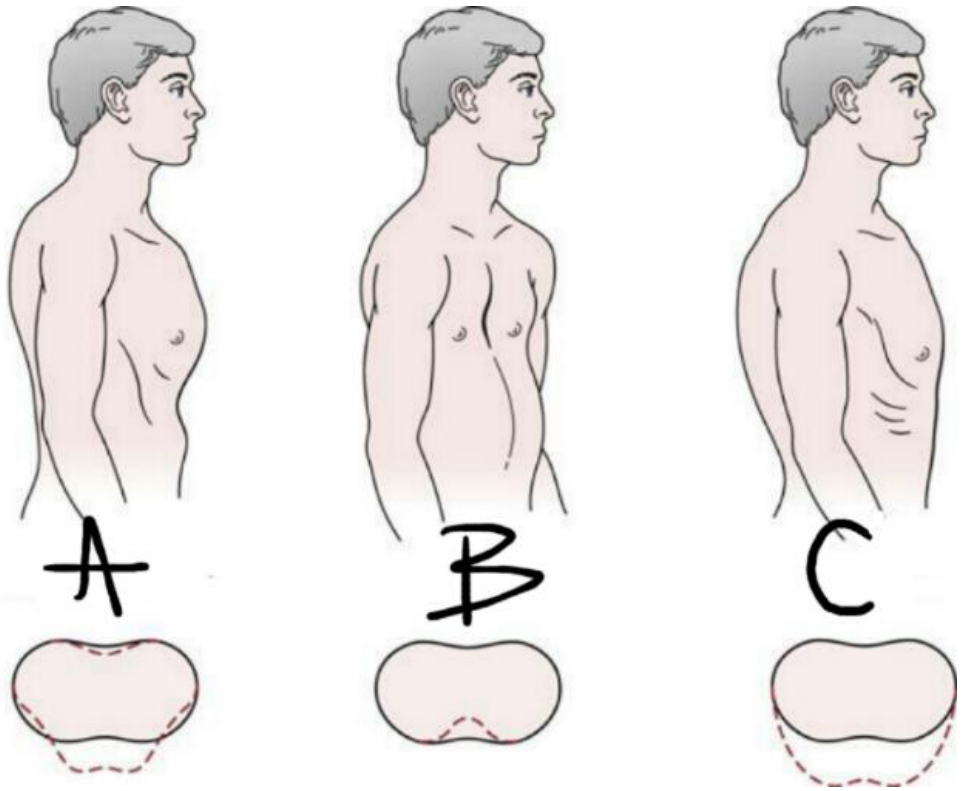
## 2- Chest Deformity:

Check the Chest From Front and Observe if There is Any **Deformity** Like:

**A-** **Pectus Carinatum (Pigeon Chest)** → Bulging of Sternum (Due to Childhood **Asthma** OR **Rickets**).

**B-** **Pectus Excavatum (Funnel Chest)** → Depression of Sternum.

**C-** **Barrel Chest** (Increase **Antero-Posterior** Diameter Of Chest) in **COPD**.

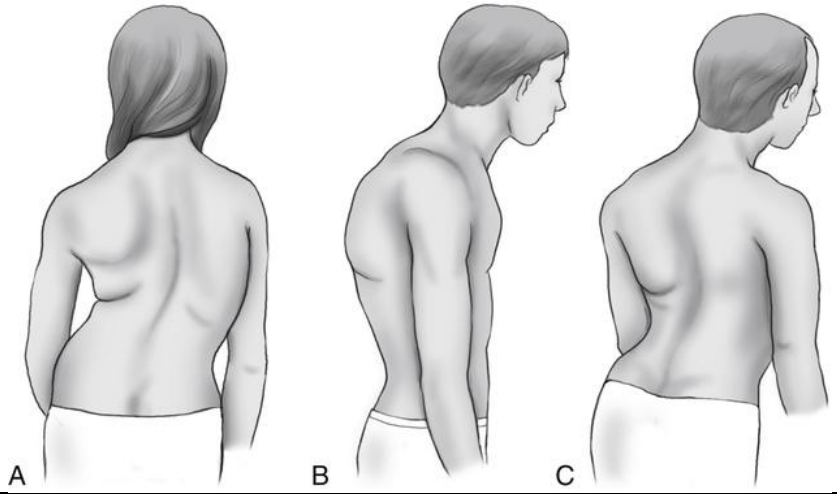



Then Check the Chest From the Back and Observe If There is Any **Deformity** Like:

**A-** **Scoliosis**.

**B-** **Kyphosis**.

**C-** **Kypho-Scoliosis**.



### 3- Chest Movement:

Ask the Patient to Breath From His Mouth and Observe the Chest From the Front to Check Chest Movement During Inspiration & Expiration.

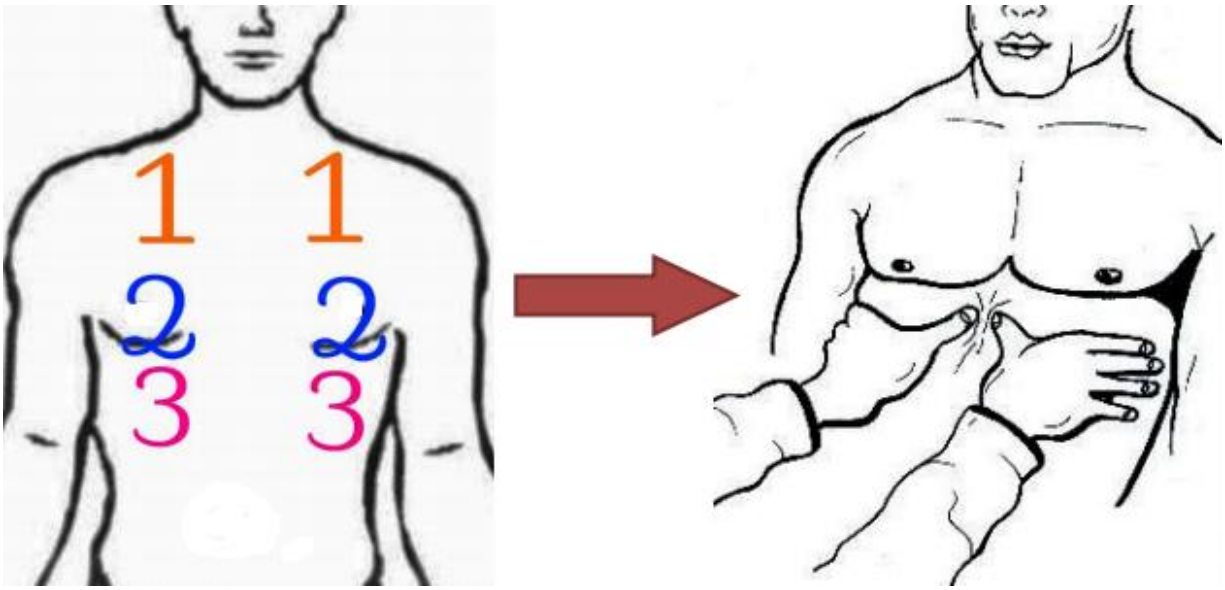
### 4- OTHERS:

**Superficial Dilated Vein** → Indicate **Superior Vena Cava Obstructon** in Case of **Apical Lung Tumor**.
**Gyneacomastia, Cauthery Mark**.

## 2❖ PALPATION

### 1- Chest Expansion:

Put The **Palms** of Your Both Hands On the Chest From the Front in **Three Areas** (**1**, **2**, **3**) as in the Picture, Start From Area **(1)** , Then Ask the Patient to Breath From **His Mouth** and Check the **Expansion of the Chest in Both Sides** in Area **(1)** ,, Do the Same Thing in Area **(2)** , Then Area **(3)**:

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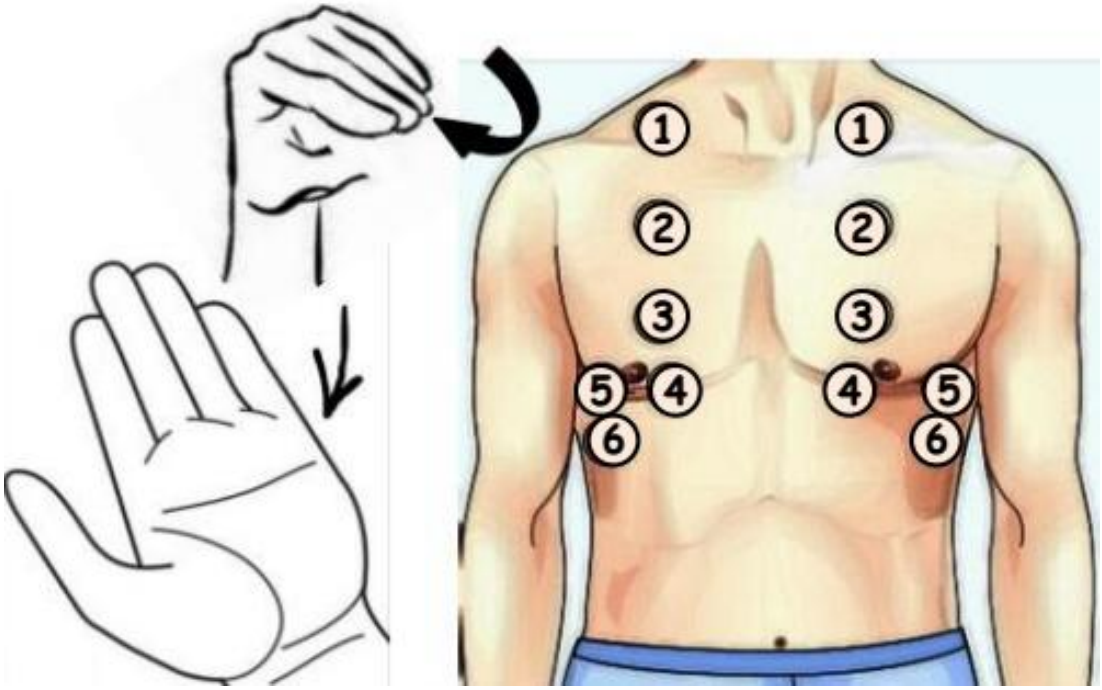
### 2- Tactile Vocal Fremitus (TVF):

First Use the **Tip of Your Fingers** and Put Them in **Supra-Clavicular Area** [**Number 1** as in the **Picture**], Then Ask the Patient to Say **44**, and Feel the Vibration,
After That Use **Ulnar Border** of Your Hand and Put it On the Chest From the Front On **Intercostal Space** in Order According to the **Numbers in The Picture** Starting From **Number 2** Until **Number 6**, and Ask the Patient to Say **44** In Each Area (in English Say **Ninety Nine**) You are Going to Feel Simple Vibration (**Transmitted Sound**),

*Don't Forget To Follow the Numbers in the Picture and **Compare** Between Both Lungs:

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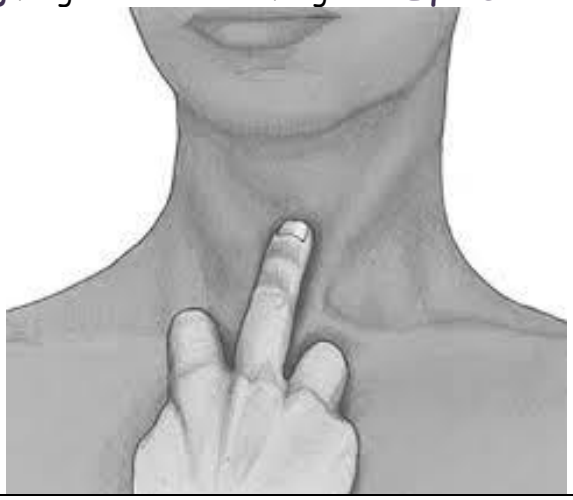
## 3- Tracheal Position:

First Say to the Examiner; (**I Would Like to Examine Mediastinal Structures By Examining Tracheal Position**) and Ask the Patient to **Sit**,

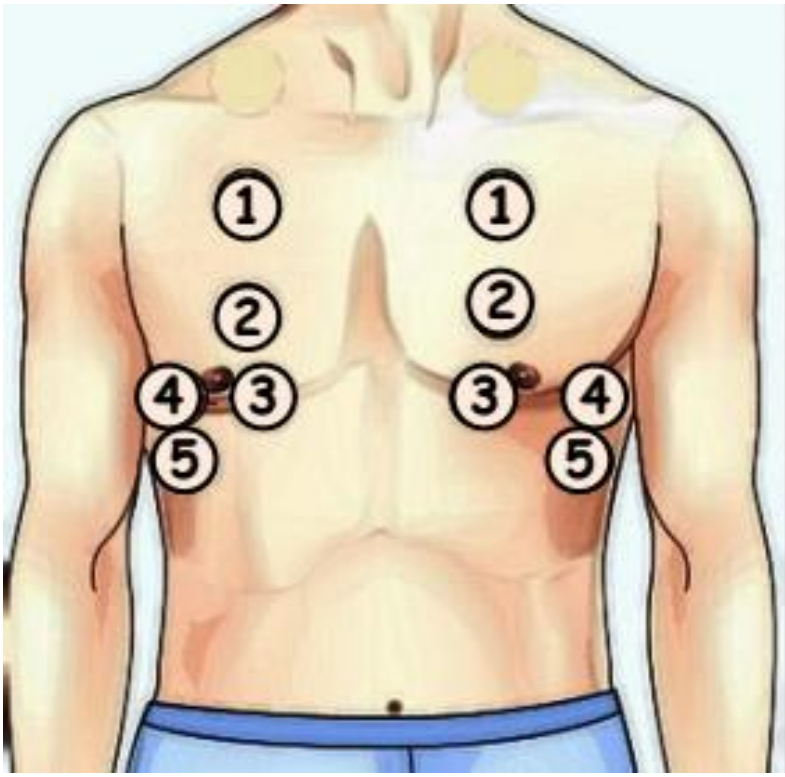
Then Put Your **Index Finger** On the **Medial End** of the **Right Clavicle** and Put Your **Ring Finger** On the **Medial End** of the **Left Clavicle** as in the **Picture**,

Then Use Your **Middle Finger** and Try to Palpate the Trachea as in the **Picture** and Check If It **Centralized** OR **Not**,

(**Normally** the Distance Between the **Index** Finger and **Middle** Finger is **Equal** to the Distance Between **Ring** Finger and **Middle** Finger → **Equi-Distance**).



## 3❖ PERCUSSION

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Listen to the Sound that Will Occur Due to Percussion Which May Be:

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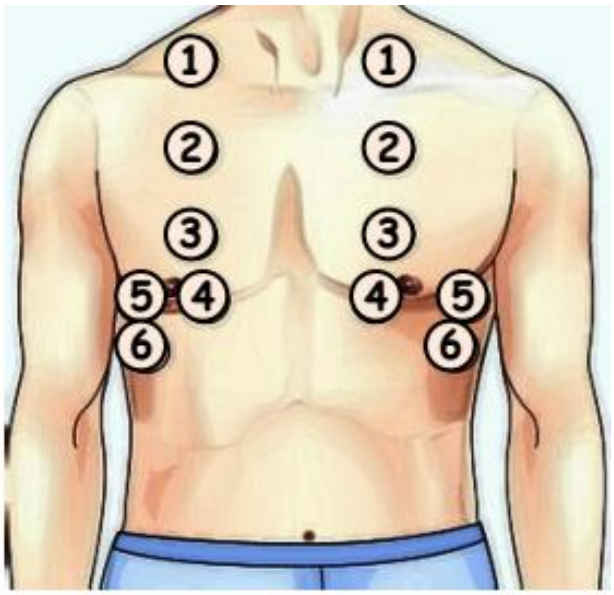
→ **Stony Dull** → Means → **Pleural Effusion**.

## 4❖ AUSCULTATION




### 1- Air Entery:

Put Your **Stethoscope** On the Chest From the Front On **Intercostal Space** in Order According to the **Numbers in The Picture** ,, and Ask the Patient to Breath From **His Mouth** ,, Then **Auscultate**;; and Check If the Air Entry **Equal** in Both Lungs **OR** If there is Any **Decrease** of Air Entry:

### 2- Type of Breathing:

**Harsh Vesicular Breathing, Broncho-Vesicular Breathing & Bronchial Breathing.**
*as Mentioned Before.

### 3- Added Sound:

**Rhonchi & Crackles.**
*as Mentioned Before.

### 4- Vocal Resonance:

Similar to **Tactile Vocal Fremitus** But By Using **Stethoscope**, Put it in Same Areas of **Intercostal Space** in Order According to **Numbers in The Picture** ,, and Ask Patient to Say **(44)** in Each Area.

***Finally: Cover the Patient and Thank The Patient and Say → .. شكرا يا حاج ، سامحني وان شاء الله لاباس عليك**