An Illustrated Guide For Respiratory System Examination

Bedside Teaching for 2\textsuperscript{nd} year medical Students

Prepared by:

Dr. Farid Ghalli
Clinical Teacher (Hon)
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Respiratory System Examination

Inspection

1. Shape of the chest
2. Symmetry
4. Movements with respiration a. Rate b. Rhythm c. Type
5. Scars
6. Pulsations
7. Prominent blood vessels

Palpation

2. Movements: Compare and measure both sides
3. Vocal fremitus
4. Intercostal space tenderness

Percussion

1. Superficial cardiac dullness
2. Upper border of the liver
3. All over the chest on both sides over the lung and pleural area
4. Shifting dullness especially in hydro-pneumothorax

Auscultation

1. Type of breath sounds
2. Adventitious sounds
3. Vocal resonance
4. Aeogophony/bronchophony
Before Examination:

- Wash hands
- Introduce yourself
- Confirm patient details – name / DOB
- Explain the examination
- Gain consent
- Expose the patient’s chest
- Position patient at 45°
- Ask patient if they have pain anywhere before you begin!

General Examination

**GENERAL INSPECTION**
(take a physical step back and ask patient to take a deep breath and cough)

- Well/unwell
- Bedside clues (sputum pot, inhalers)
- Hydration/nutritional state
- Dyspnoea
- Cachexia
- Accessory muscle use
- General appearance
- Mental state
- Cyanosis
- Pallor
- Signs of respiratory distress
- Signs of specific diseases

Examination of the Hand
1. **Temperature** – coldness may indicate peripheral vasoconstriction / poor perfusion

2. **Tar staining** – history of smoking – *increased risk of COPD / lung cancer*

3. **Tremors**

   **Flapping tremor** – CO2 retention – *often seen in patients with type 2 respiratory failure – e.g. COPD*

   **Fine tremor** – can be a side effect of beta 2 agonist use (e.g. salbutamol)

2. **Clubbing and peripheral cyanosis**

   **Peripheral cyanosis** – bluish discolouration of nails – *indicates oxygen saturations of <85%*

   **Clubbing** – ask patient to place fingernails back to back – *diamond shape is lost – lung ca etc*
HANDS
- Clubbing
- Muscle wasting
- Tar staining
- Peripheral cyanosis
- Palpate wrist for tenderness
- Check for flap/tremor

Normal

Clubbed
Examination of Head and Neck

1- Tongue : central cyanosis

Central cyanosis – bluish discolouration of the lips / mucous membranes (inferior aspect of tongue)

2- Cervical lymph nodes
3- Conjunctival pallor – ask patient to lower an eyelid to allow inspection – *anaemia*

4- Horner's syndrome – ptosis / constricted pupil (*miosis*) / anhidrosis on affected side / *enophthalmos*
5. Neck veins and carotid arterial pulsations

A. www.ottawaheart.ca
B. sопередi.wordpress.com
C. www.zen104556.zen.co.uk
Lower Limb

Local Respiratory System Examination:

Inspection:

1. Shape of the chest

Shape of chest
2. **Symmetry**: localised bulge or retraction

3. **Position of mediastinum**
   a. Trachea
   b. Apex beat.

4. **Movements with respiration**
   a. Respiratory Rate
   b. Rhythm
   c. Type

![Patterns of abnormal breathing](image)

5. **Scars**

6. **Pulsations**

7. **Prominent blood vessels**
Palpation:

1. Position of mediastinum
   
a. Trachea

   b. Apex

   **Apex beat** – *normal position is 5th intercostal space – mid-clavicular line*
2. Movements: Compare and measure both sides

Front: Upper Chest

Front: Lower Chest

Technique for palpating chest expansion. A, Exhalation. B, Maximal inhalation. (From Wilkins RL, Sheldon RL, Kother SJ. Clinical Assessment in Respiratory Care. 4th ed. St. Louis: Mosby; 2002 [p. 79, Figure 4-14].)
Back: Upper Chest

3. Vocal fremitus

Back: Lower chest
4. Intercostal space tenderness.

**Percussion:**

1. Superficial cardiac dullness
2. Upper border of the liver
3. All over the chest on both sides over the lung and pleural area

   A. Percuss the front of the chest: supra-mammary, mammary and inframammary areas

   Compare space by space and rib by rib in both sides

   B. Percuss Axilla

   C. Percuss lung apex
D. Percuss the back of the chest: Supra-scapular, scapular and infrascapular areas

4. Shifting dullness especially in hydro-pneumothorax
Auscultation:

1. Sites of auscultation:

   Put the diaphragm of the stethoscope on the same sites of percussion and auscultate
2. Type of breath sounds

<table>
<thead>
<tr>
<th>Normal Breath Sounds</th>
<th>Duration</th>
<th>Relative Intensity</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vesicular</td>
<td>Inspiration &gt; exp</td>
<td>Soft</td>
<td>Over most of both lungs</td>
</tr>
<tr>
<td>Bronchovesicular</td>
<td>Inspiration = exp</td>
<td>Intermediate</td>
<td>First and second ICSs anteriorly and between the scapulae</td>
</tr>
<tr>
<td>Bronchial</td>
<td>Inspiration &lt; exp</td>
<td>Loud</td>
<td>Over the manubrium, if heard at all</td>
</tr>
</tbody>
</table>

ICS, Intercostal space.
3. Adventitious sounds

3. Vocal resonance

4. Aeogophony/bronchophony

To Listen to different lung auscultatory findings follow this link:


**Additional Informations**

1- Surface Anatomy of the lungs:
2- Signs in different chest diseases

References :

2- OSCEs at a glance ,first edition 2013
3- Macleod`s clinical examination ,thirteenth ed. 2013
4- Step by Step Clinical examination Skills:Iqbal F , first edition 2009