

PBL

☒ Sheet

☐ Slide

☐ Handout

Number

1

Subject

Clinical Overview

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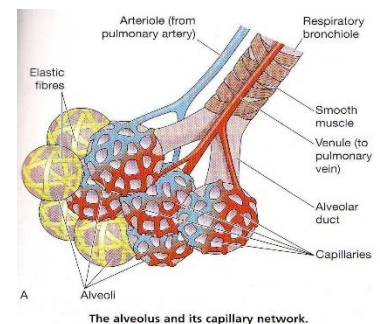
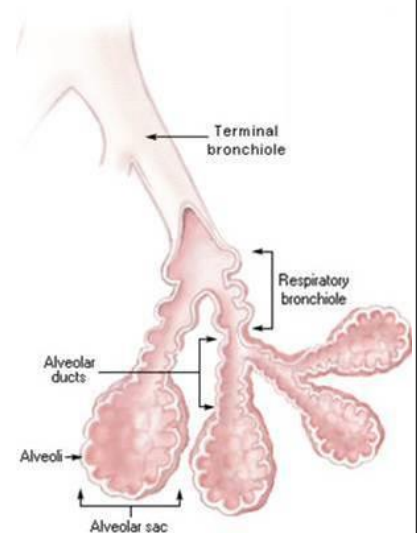
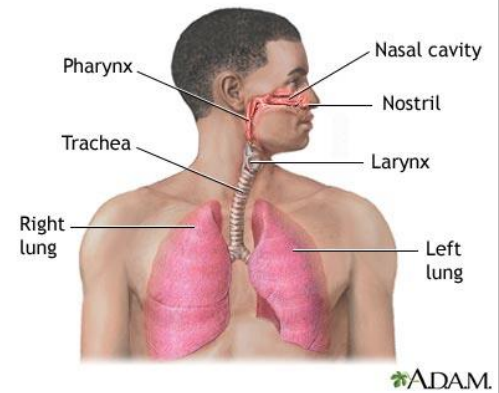
Price:

الربيع

- ❖ This sheet was written according to section 2 recording
- ❖ Anything written in *italic* wasn't mentioned by the doctor and only taken from the slides "not important"
- ❖ There's no need to refer to the slides, this sheet is more than enough

Anatomy of the RS:

- *The respiratory system starts from the nose, mouth, larynx, trachea, and the two lungs.*
- Within the lungs, the bronchi transport air with **oxygen** to the **alveoli** on inspiration and carry **waste gases** (e.g. carbon dioxide) away on expiration.
- The **Acinus** is the **gas exchange unit** of the lung and consists of branching respiratory bronchioles leading to **clusters of alveoli**.
- Alveoli are tiny air sacs lined by flattened epithelial cells and covered in capillaries **where gas exchanges occur**
- The alveoli and capillaries have extremely **thin** walls and come into very close contact (the alveolar capillary membrane) so gases can rapidly diffuse between them. *There are approximately 300 million alveoli in each lung for gas exchange with a total surface area of 40-80 meter square.*



- *The lungs has two blood supplies:*

- 1) The bronchial arteries which arise from the aorta and supply oxygenated blood to the bronchial walls.*
 - 2) The pulmonary arteries which deliver deoxygenated blood to the capillaries surrounding the alveoli*
-

Symptoms

Of RS Diseases

- 1) Cough**
 - 2) Sputum production**
 - 3) Hemoptysis**
 - 4) Chest pain**
 - 5) Breathlessness**
-

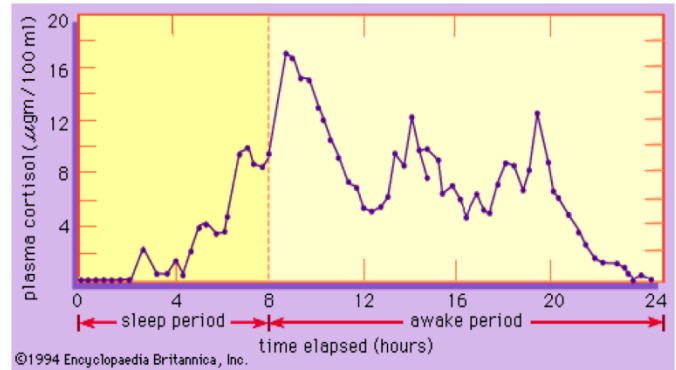
1)Cough:

Is a forced expulsive maneuver against an initially closed glottis.
Causing characteristic sound.

Can be **acute** (less than **3 weeks**) or **chronic** (more than **8 weeks**)

The most common cause of coughing is **acute viral infections** of the upper airway system

- **Cough features:**
 - ❖ **Prolonged wheezy coughing:** asthma, COPD.
 - ❖ **Feeble “weak” non-explosive (bovine):** lung cancer (paralysis of vocal cords), neuromuscular disease causing respiratory muscle weakness
 - ❖ **Moist cough:** secretions from infection, bronchiectasis, chronic bronchitis.
 - ❖
 - ❖ **Nocturnal cough:** asthma “because cortisol secretion is at its lowest during the night”



Cough (causes)

Acute:

➤ Respiratory:

Viral respiratory tract infection

Bronchitis

Inhalation of irritant dusts or fumes

Pneumonia

➤ Non-respiratory:

Post-nasal drip “blockage in the nose”

Chronic:

➤ Respiratory:

Asthma

Irritant dusts/fumes

➤ Non-respiratory:

Drugs, ACE inhibitors “due to bradykinin”

Gastro-esophageal reflux disease (GERD)
“very common cause of dry cough >20%”

Rhinitis/sinusitis → post-nasal drip

2) Sputum production

↳ “comes from the lower airways while mucous from upper airways”

- Amount
- Color
- Taste or smell

Examples:

- **COPD and chronic bronchitis:** clear mucoid sputum if there is no infection “characterized by producing sputum in the morning which is abnormal and indicates for a serious problem”
- **Lower respiratory tract infection:** yellowish sputum (presence of live neutrophils)
- **Asthma:** yellowish sputum (eosinophils)
- **Bronchiectasis:** large volumes of purulent sputum varying with posture
- **Pulmonary edema:** watery sputum with a pink tinge



3) Hemoptysis (coughing of blood)

- **Amount and appearance**
- **Duration and frequency**

Hemoptysis is dangerous because bleeding of 0.5L in the lungs may suffocate the patient so it's an emergency condition and should be treated ASAP

Intermittent with recurrent infections over years: bronchiectasis

Daily for a short periods (weeks) lung cancer, TB, abscess

Single episodes with chest pain: pulmonary infarction.

***Question:**

75 yo male patient complaining of shortness of breath weight loss , hemoptysis heavy smoker what's the most likely diagnosis of his hemoptysis?

- Lung cancer due to his age and smoking



Hemoptysis causes:

Infection: (most common in all ages)

Bronchiectasis, Tuberculosis, lung abscess, cystic fibrosis

Tumors:

Lung cancer, endo-bronchial metastasis, bronchial carcinoid.

Vascular:

Pulmonary infarction, arteriovenous malformation

Vasculitis.

Trauma

Foreign body, iatrogenic

Cardiac:

Mitral Valve disease, acute left ventricular failure

Hematological:

Bleeding tendencies, anticoagulation

4) Chest pain:

- 1. Pleural chest pain**
- 2. Chest wall pain**
- 3. Mediastinal chest pain**

& Pleural chest pain

- Is a sharp, stabbing pain and is intensified by inspiration or **coughing** caused by irritation of the parietal pleura.

- **Causes:**

- ❖ **Infection:** pneumonia “infection of lung parenchyma” , bronchiectasis
- ❖ **Pneumothorax**
- ❖ **Pulmonary infarction**
- ❖ **Connective tissue disease**

& Chest wall pain (musculoskeletal)

- **Causes:**

- ❖ Chronic cough/breathlessness
- ❖ Muscular pain
- ❖ Rib fractures
- ❖ Bony metastasis
- ❖ Thoracic shingles (herpes zoster)

Notice:

*Chest wall pain gets worse during movement and changing position while pleural pain gets worse by breathing and coughing!!

❧ Mediastinal chest pain

- **Mediastinal chest pain is central, retrosternal and unrelated to respiration or cough.**
- **Causes:**

Massive pulmonary embolism

Acute myocardial infarction

Aortic dissection

Infection, irritant dusts

Esophagitis

Mediastinitis

Lymphadenopathy

5) Breathlessness

- Shortness of breath, difficulty getting enough air, or it's even known as awareness of breathing
- **Mode of onset**
- ❑ **Minutes:** pulmonary thromboembolism, pneumothorax, asthma, inhaled foreign body
- ❑ **Hours to days:** pneumonia, asthma.
- ❑ **Weeks to months:** Anemia, Pleural effusion, neuromuscular disease.
- ❑ **Months to years:** COPD, pulmonary fibrosis, TB, Heart failure.

Breathlessness in anemia patients occurs due low content of hemoglobin in the blood,

And it mainly happen during exercise to compensate the need of oxygen

❖ Causes:

Non cardio-respiratory:

Anemia, Obesity, Psychogenic, Metabolic acidosis.

Cardiac:

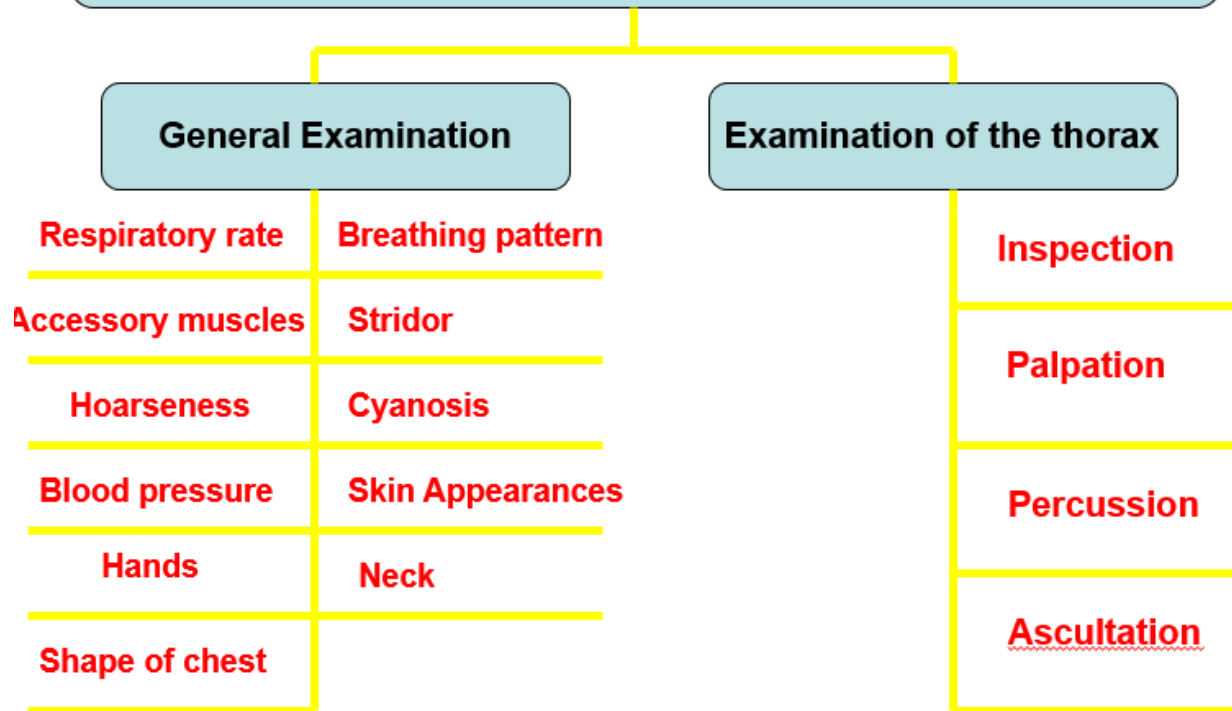
Heart failure, mitral valve disease, pericarditis, pericardial effusion

Respiratory:

Foreign body, Asthma, COPD, Bronchiectasis, Lung cancer, pulmonary fibrosis, Pneumonia, Tuberculosis, pulmonary thromboembolism, pulmonary hypertension, pneumothorax, kyphoscoliosis.

Neuromuscular disease.

Physical Examination of the respiratory system



Respiratory rate

- Average: 14 breath per minute
- Normal 12-20 breath per minute
- Tachypnea (increased respiratory rate):
 - Increased ventilatory drive:
Fever, Acute asthma, COPD exacerbation
 - Reduced ventilatory capacity:
Pneumonia, Pulmonary edema, interstitial lung disease.
- Bradypnea (Decreased respiratory rate):
Due to narcotic drugs like morphine

Breathing

- Periodic breathing (Cheyne-Stokes respiration “irregular breathing”)
- Hyperventilation:
Anxiety/emotional stress (Hysteric)
“treated by letting the patient breathe through a bag to limit the loss of CO₂”
- *Metabolic acidosis (Kussmaul respiration)*

Stridor

A **harsh, rasping or croaking inspiratory noise** resulting from **turbulent** airflow in the **upper airway "at the level of the vocal cords"**, aggravated by coughing.

Should always be investigated, can be an emergency

Causes

foreign body or tumor partially occluding larynx, trachea or main bronchus

epiglottitis

Air way edema

Cyanosis

Is a bluish discoloration of the skin and mucous membranes

Can be Central or Peripheral

Caused by hypoxemia

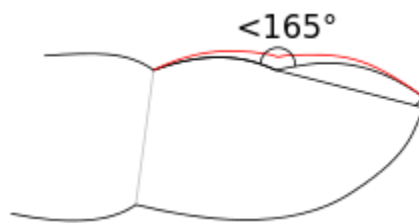
Hands

❖ Clubbing

(mild , moderate , gross)

Causes

- **Familial**
- **Thoracic**
- **Non-Thoracic**



Thoracic

Lung cancer
IPF
Bronchiectasis, lung abscess
Empyema

Non Thoracic

Liver cirrhosis
Celiac disease
Ulcerative colitis
Crohn's disease

You should memorize these!

❖ *Hypertrophic Pulmonary
Osteoarthropathy*

*(combination of clubbing and thickening of
periosteum (connective tissue lining of
the bones) and synovium)*

❖ *Discoloration of the finger and nails*

❖ *Tremor*

Fine tremor

Coarse flapping tremor (asterixis)

Causes of flapping tremor

Respiratory failure/ CO2 retention

Liver failure

Renal failure

Electrolyte disturbance

Hypoglycemia

Hypokalemia

Hypomagnesemia

Wilson's disease

CNS

Intracerebral hemorrhage

subdural hematoma

subarachnoid hemorrhage

cerebral ischemia

cerebral lymphoma

Drugs

barbiturates

alcohol

sodium valproate

phenytoin

carbamazepine

metoclopramide

gabapentin

ceftazidime

opioids

Not Mentioned!

& Neck

JVP

Neck Nodes



قصة الدبوس وسندس:

في يوم من الايام، سندس وهيه دتسوي حجابها، بلغظ تبلع الدبوس الي مخليته في فمها من داعي الكسل لربما، وحتى يمكن سندس ماتوعى لهالشى "سقط سهواً"،

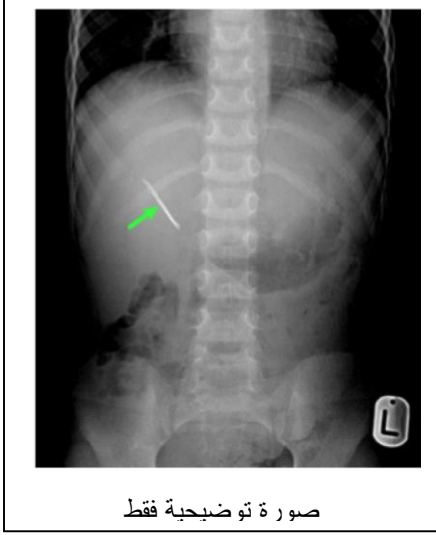
هسه من هيه بلعته يجوز ميروح للمعدة وانما يروح للرئة مباشرة! كما في قصتنا عن سندس 😊

وبعدين تمر الايام وسندس تشتكي من الم في الصدر ف تروح وتسوي فحوصات واشعة والدكتور يشوف بالاشعة انو اكو دبوس بالرئة ولازم يشيلوه واذا ما كدروا يضطرون يستصلون ذاك الجزء من الرئة!

ف يا سندس ديرى بالك من الدبوس لا يوكع فدوة 😊

ملاحظة: الشخصيات في هذه القصة من نسج الخيال ولا نقصد بها الاساءة الى اي احد، وشكراً

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صورة توضيحية فقط

Le Fin.

"A person who never made a mistake never tried anything new." Albert Einstein

Omar Saffar