



UNIT 4

Respiratory System

Pathological Conditions

ABNORMAL BREATH SOUNDS

- Abnormal breathing sounds heard during inhalation or expiration, with or without a stethoscope.

CRACKLES

- ❑ Fine crackling or bubbling sounds, commonly heard during inspiration when there is fluid in the alveoli; also called *rales*.
 - *Crackles are commonly associated with bronchitis, pneumonia, and heart failure (HF). Crackles that do not clear after a cough may indicate pulmonary edema or fluid in the alveoli due to HF or acute respiratory distress syndrome (ARDS).*

FRICTION RUB

- ❑ Dry, grating sound heard with a stethoscope during auscultation (listening for sounds within the body).
 - *A friction rub over the pleural cavity may be a sign of lung disease; however, when heard over the liver and splenic areas, it is normal.*

RONCHI

- ❑ Loud, coarse or snoring sounds heard during an inspiration or expiration that is caused by obstructed airways.

STRIDOR

- ❑ High-pitched, musical sound made on inspiration that is caused by an obstruction in the trachea or larynx.
 - *Stridor is characteristic of the upper respiratory disorder called croup.*

WHEEZES

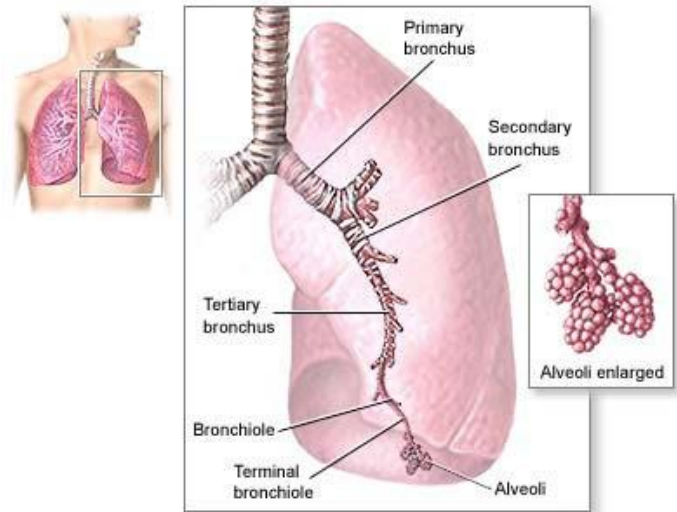
- ❑ Continuous high-pitched whistling sounds, usually during expiration, that are caused by narrowing of an airway.
 - *Wheezes occur in such conditions as asthma, croup, hay fever, and emphysema.*

ACIDOSIS

- ❑ Excessive acidity of blood due to an accumulation of acids or an excessive loss of bicarbonate.
 - *Respiratory acidosis is caused by unusually high levels of carbon dioxide (CO₂) in the body.*

ACUTE RESPIRATORY DISTRESS SYNDROME (ARDS)

- ❑ Respiratory insufficiency marked by progressive hypoxia.
 - *ARDS is due to severe inflammatory damage that causes abnormal permeability of the alveolar-capillary membrane. As a result, the alveoli fill with fluid, which interferes with gas exchange.*

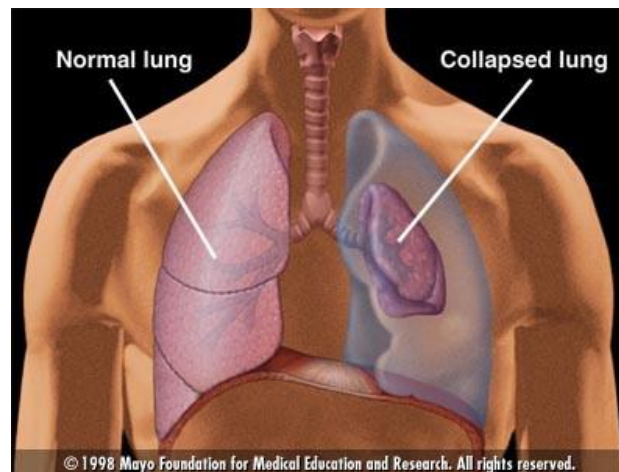


ANOXIA

- Total absence of oxygen in body tissues.
 - *Anoxia is caused by a lack of O_2 in inhaled air or by obstruction that prevents O_2 from reaching the lungs.*

ATELECTASIS

- ❑ Collapse of lung tissue, preventing respiratory exchange of oxygen (O_2) and carbon dioxide (CO_2)
 - *Atelectasis can be caused by obstruction of foreign bodies, excessive secretions, or pressure on the lung from a tumor. In fetal atelectasis, the lungs fail to expand normally at birth.*

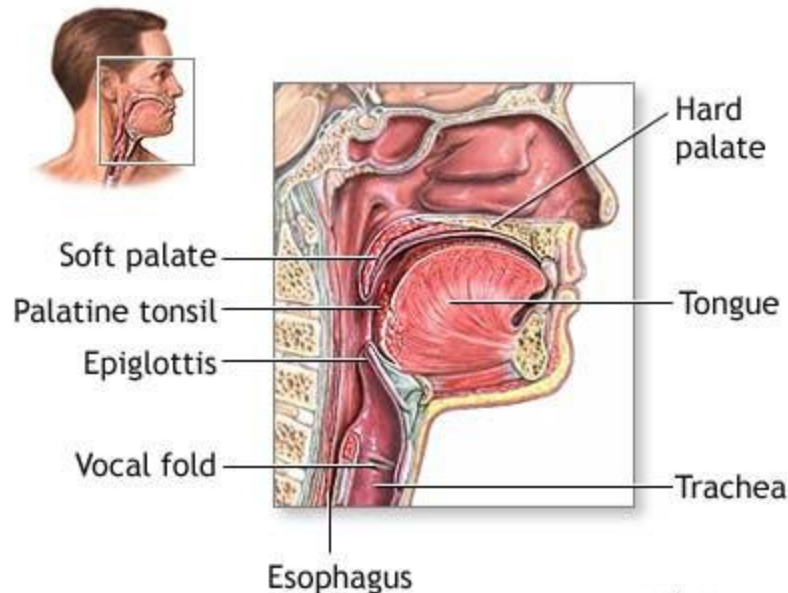


CONSOLIDATION

- ❑ Process of becoming solid, especially in connection with the lungs.
 - *Solidification of the lungs is caused by a pathological engorgement of lung tissues that occurs in acute pneumonia.*

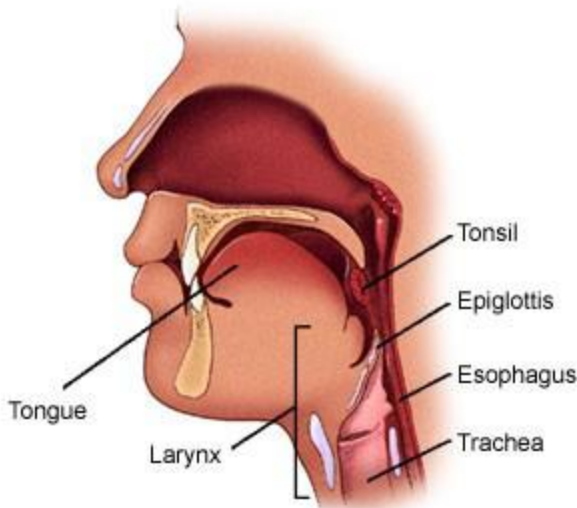
CORYZA

- ❑ Acute inflammation of nasal passages accompanied by profuse nasal discharge; also called a *cold*.



CROUP

- ❑ Acute respiratory syndrome that occurs primarily in children and infants and is characterized by laryngeal obstruction and spasm, barking cough, and stridor.

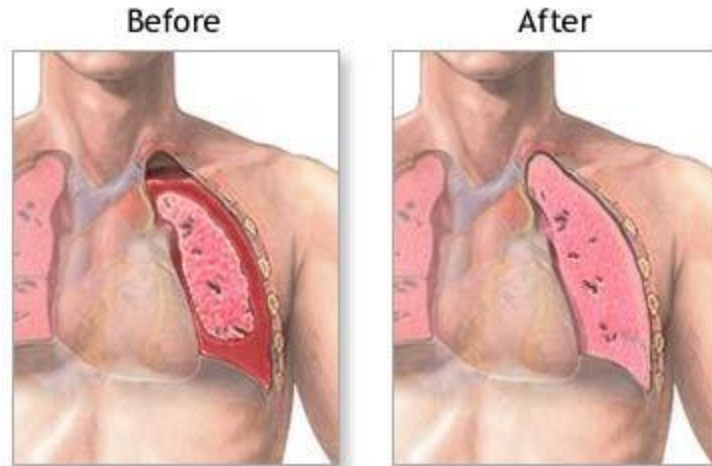


CYSTIC FIBROSIS (CF)

- ❑ Genetic disease of exocrine glands characterized by excessive secretions of thick mucus that do not drain normally, causing obstruction of passageways (including pancreatic and bile ducts and bronchi).
 - *CF leads to chronic airway obstruction, recurrent respiratory infection, bronchiectasis and, eventually, respiratory failure.*

EMPHYEMA

- ❑ Pus in a body cavity, especially in the pleural cavity (pyothorax).
 - *Empyema is usually the result of a primary infection in the lungs.*



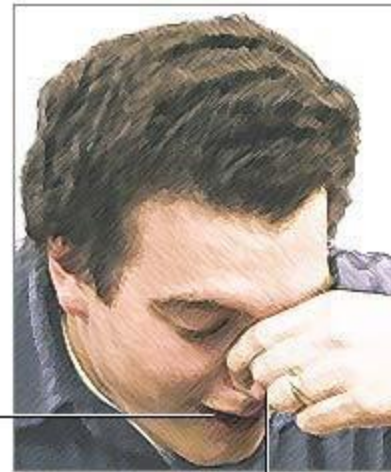
EPIGLOTTITIS

- ❑ In acute form, a severe, life-threatening infection of the epiglottis and surrounding area that occurs most commonly in children between ages 2 and 12.
 - *In the classic form, epiglottitis involves a sudden onset of fever, dysphagia, inspiratory stridor, and severe respiratory distress that commonly requires intubation or tracheotomy to open the obstructed airway.*

EPISTAXIS

- ❑ Hemorrhage from the nose; also called *nosebleed*.

Sit and lean forward slightly



Breathe through mouth

Pinch nostrils

HYPOXEMIA

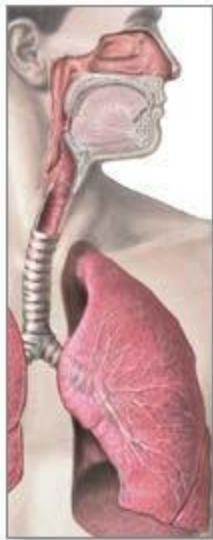
- ❑ Deficiency of oxygen in the blood, usually a sign of respiratory impairment.

HYPOXIA

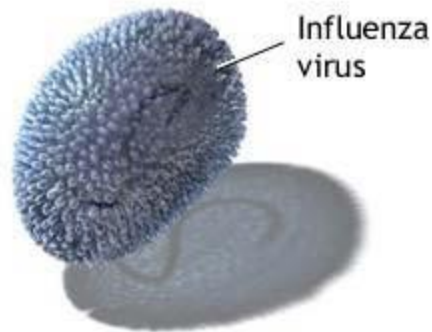
- ❑ Deficiency of oxygen in body tissues, usually a sign of respiratory impairment.
 - *In hypoxia, body tissues have a decreased amount of oxygen, which results in cyanosis.*

INFLUENZA

- ❑ Acute, contagious respiratory infection characterized by sudden onset of fever, chills, headache, and muscle pain.



Influenza is a viral infection of the respiratory tract



LUNG CANCER

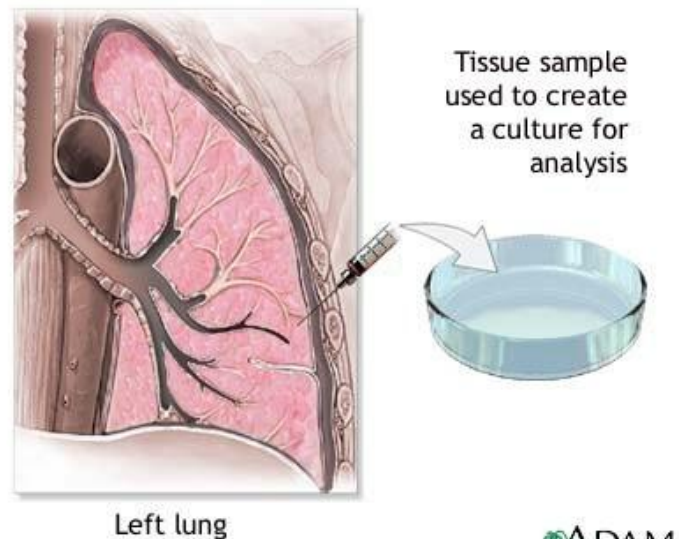
- ❑ Pulmonary malignancy commonly attributable to cigarette smoking.
 - *Lung cancer comprises various malignant neoplasms that may appear in the trachea, bronchi, or air sacs of the lungs. Survival rates are low in lung cancer, due to rapid metastasis and late detection.*

PERTUSSIS

- ❑ Acute infectious disease characterized by a “whoop”-sounding cough; also called *whooping cough*.
 - *Immunization of infants as part of the diphtheria, pertussis, tetanus (DPT) vaccine prevents the spread of pertussis.*

PLEURAL EFFUSION

- ❑ Abnormal presence of fluid in the pleural cavity.
 - *The fluid may contain blood (hemothorax), serum (hydrothorax), or pus (pyothorax). Treatment includes a surgical puncture of the chest using a hollow-bore needle (thoracentesis, thoracocentesis) to remove excess fluid.*



PNEUMOTHORAX

- ❑ Collection of air in the pleural cavity, causing the complete or partial collapse of a lung.
 - *Pneumothorax can occur with pulmonary disease (emphysema, lung cancer, or tuberculosis) when pulmonary lesions rupture near the pleural surface, allowing communication between an alveolus or bronchus and the pleural cavity. It may also be the result of an open chest wound or a perforation of the chest wall that permits entrance of air.*

SUDDEN INFANT DEATH SYNDROME (SIDS)

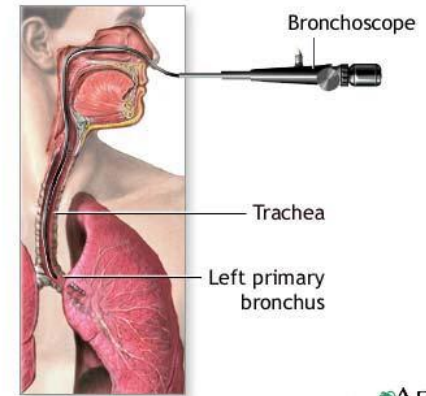
- ❑ Completely unexpected and unexplained death of an apparently well, or virtually well, infant; also called *crib death*.
 - *SIDS is the most common cause of death between the second week and first year of life.*

ARTERIAL BLOOD GAS (ABG)

- Measurement of oxygen (O_2) and carbon dioxide (CO_2) content of arterial blood by various methods.
 - *ABG analysis is used to assess adequacy of ventilation and oxygenation and the acid-base status of the body.*

BRONCHOSCOPY

- Visual examination of the interior bronchi using a bronchoscope, a flexible fiberoptic instrument with a light, which can be inserted through the nose or mouth.
 - *Bronchoscopy may be performed to remove obstructions, obtain a biopsy specimen, or observe directly for pathological changes.*



CHEST X-RAY

- ❑ Radiograph of the chest taken from the anteroposterior (AP), posteroanterior (PA), or lateral projections.
 - *Chest x-ray is used to diagnose atelectasis, tumors, pneumonia, emphysema, and many other lung diseases.*

COMPUTED TOMOGRAPHY (CT)

- ❑ Radiographic technique that uses a narrow beam of x-rays that rotates in a full arc around the patient to acquire multiple views of the body that a computer interprets to produce cross-sectional images of that body part.
 - *CT scanning is used to detect lesions in the lungs and thorax, blood clots, and pulmonary embolism (PE). CT scan may be performed with or without a contrast medium.*

MAGNETIC RESONANCE IMAGING (MRI)

- ❑ Radiographic technique that uses electromagnetic energy to produce multiplanar cross-sectional images of the body.
 - *In the respiratory system, MRI is used to produce a scan of the chest and lungs. MRI does not require a contrast medium, but it may be used to enhance visualization of internal structures.*

PULMONARY FUNCTION TESTS (PFTs)

- Variety of tests to determine the capacity of the lungs to exchange oxygen (O_2) and carbon dioxide (CO_2) efficiently.
 - *Respiratory function is assessed by measuring the capacity of the lungs and the volume of air during inhalation and exhalation.*

FORCED VITAL CAPACITY (FVC)

- Measurement of the amount of air that can be forcefully exhaled from the lungs after the deepest inhalation.

FORCED EXPIRATORY VOLUME IN ONE SECOND (FEV_1)

- Measurement of the volume of air that can be forcefully exhaled during the first second of measuring the FVC.

SPIROMETRY

- ❑ Measurement of VFC and FEV₁, producing a tracing on a graph.
 - *Spirometry measures the breathing capacity of the lungs and produces a tracing on a graph.*



POSTURAL DRAINAGE

- Use of body positioning to assist in removal of secretions from specific lobes of the lung, bronchi, or lung cavities.

BRONCHODILATORS

- ❑ Drugs used to increase airflow by dilating constricted airways through relaxation of the smooth muscles that surround the bronchioles and bronchi.
 - *Bronchodilators are used to treat asthma, emphysema, chronic obstructive pulmonary disease (COPD), and exercise-induced bronchospasm. Most bronchodilators provide metered doses of the medication and may employ a spacer as a reservoir for the medication.*

CORTICOSTEROIDS

- ❑ Hormonal agents that reduce tissue edema and inflammation associated with chronic lung disease.

NEBULIZED MIST TREATMENT

- Therapy that uses a device to produce a fine spray (nebulizer) that delivers medication directly into the lungs.

