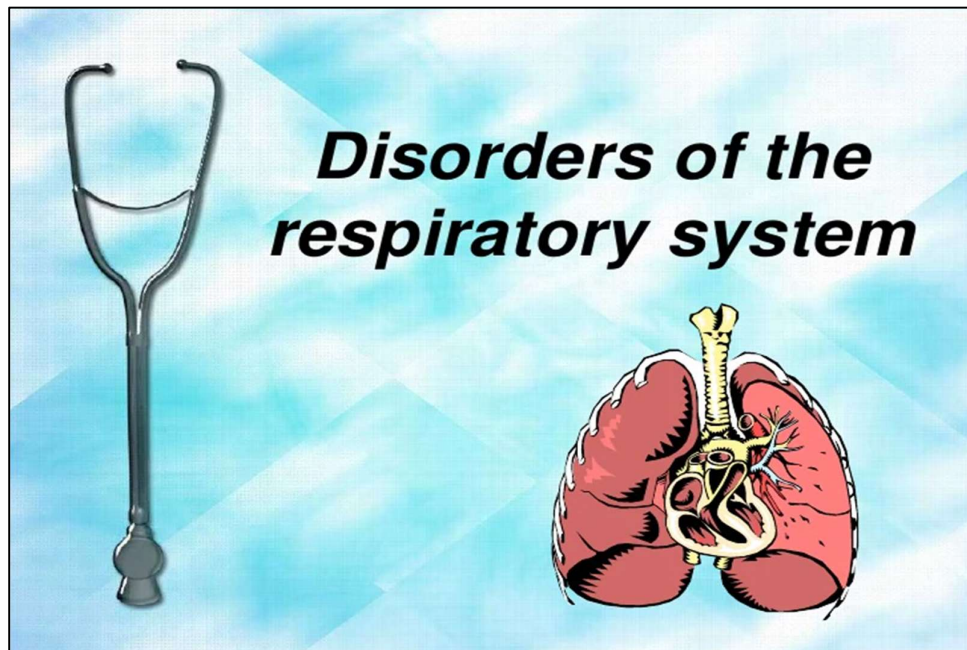




**AL-Mustaqbal University College**  
**Pharmacy Department**  
**Third stage**  
**Practical Pathophysiology**  
**(Disorders of respiratory system)**  
**Lab 6**



**Lecturer: Noor Muhsen Jawad**

# Disorders of respiratory system

We take our breathing and our respiratory health for granted, but the lung is a vital organ that is vulnerable to airborne infection and injury, from the external environment because of its constant exposure to particles, chemicals and infectious organisms in ambient air.

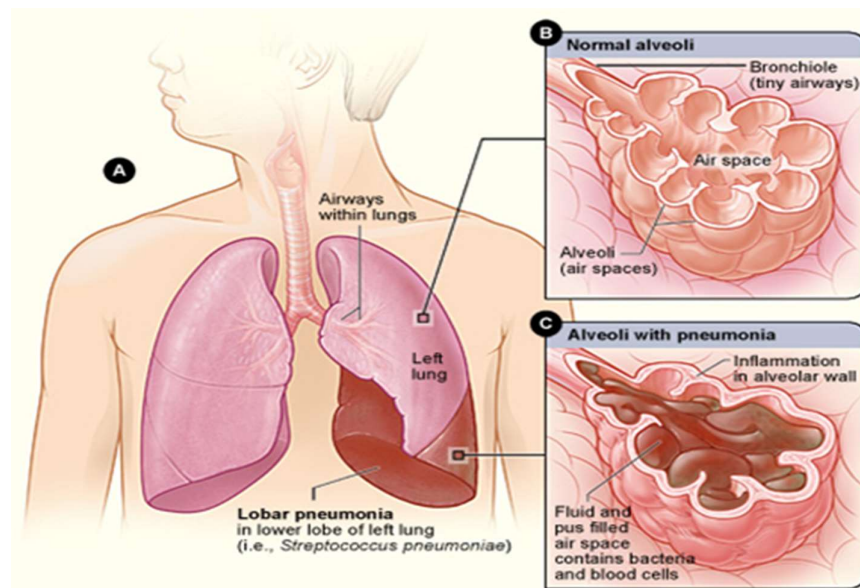
**There are two types of respiratory diseases and disorders: Infectious and Chronic.**

**Pulmonary infections** are most commonly bacterial or viral such as pneumonia.

**Chronic lung diseases**, fall into one of two main classes: **Obstructive or Restrictive**

- **Obstructive disorders** that obstruct airflow into and out of the lungs such as asthma, bronchitis and emphysema.
- **Restrictive disorders** are conditions that limit normal expansion of the lungs such as pneumothorax, atelectasis, respiratory distress syndrome and cystic fibrosis.

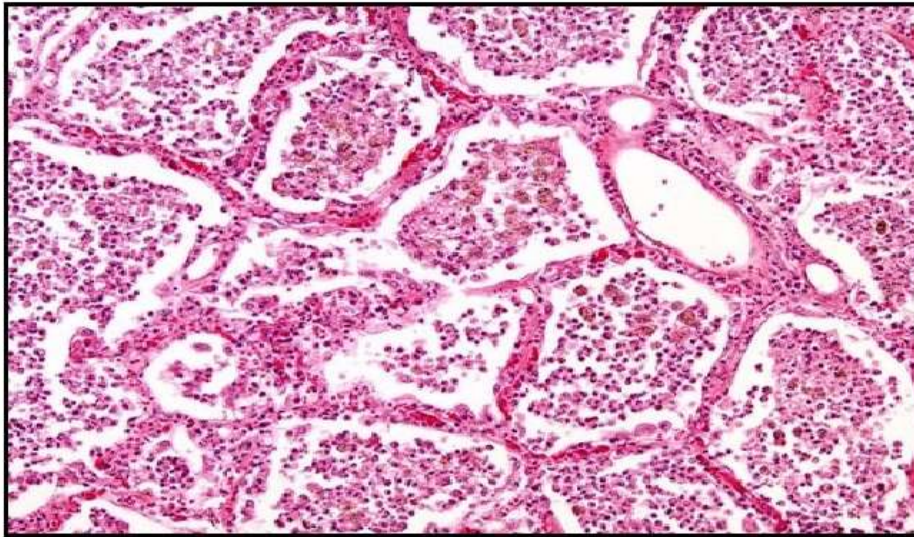
In **pneumonia**, the inflammation affects primarily the alveoli, which are the tiny air sacs of the lungs. Inflammation causes some of the alveoli to become filled with fluid so that gas exchange cannot occur.



**Symptoms of pneumonia:** Typically include coughing, chest pain, difficulty breathing, and fever.

**Pneumonia** often develops as a consequence of an upper respiratory tract infection such as the common cold or flu, especially in the very young and the elderly. It is usually caused by bacteria or viruses, although some cases may be caused by other microorganisms such as fungi. The majority of cases are caused by just a few pathogens, the most common being the bacterium *Streptococcus pneumoniae*. Pneumonia is more likely to develop in people who have other lung diseases such as asthma, a history of smoking, heart failure, or a weakened immune system.

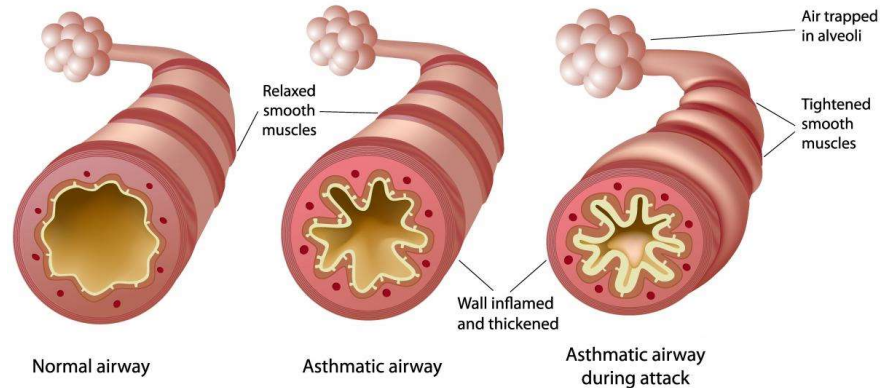
### **Lobar Pneumonia - LPP**



**All the alveoli are filled with fibrinous exudate containing fibrin threads, polymorphs, macrophages and red cells. Alveolar walls are congested. Pleura is covered by fibrinous exudate.**

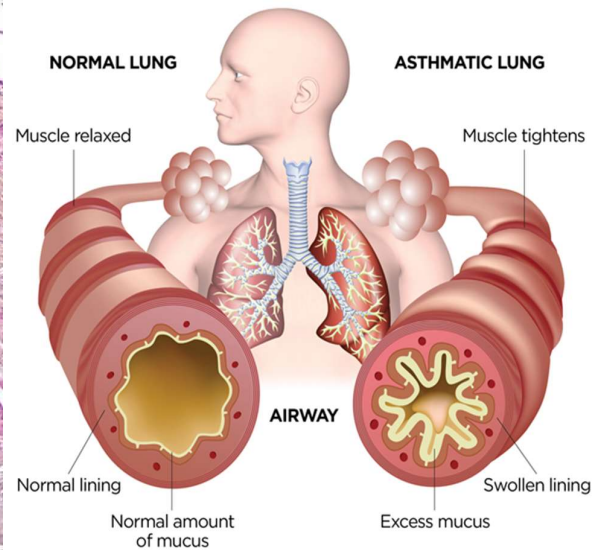
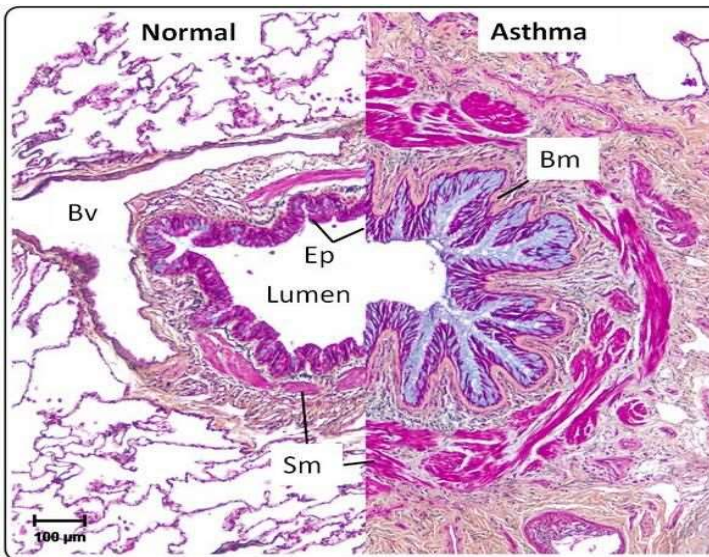
**Vaccines** are available to prevent certain types of bacterial and viral pneumonia, including pneumonia caused by *Streptococcus pneumoniae*. Treatment of pneumonia depends on the cause. For example, if it is caused by bacteria, antibiotics are generally prescribed. In cases of severe pneumonia, hospitalization and supplemental oxygen may be required.

**Asthma** is a chronic inflammatory disease of the airways in the lungs, in which the airways periodically become inflamed, this causes swelling and narrowing of the airways, often accompanied by excessive mucus production.



**Symptoms of asthma** include difficulty breathing, coughing, wheezing, shortness of breath, and chest tightness. Some people with asthma rarely experience symptoms, and then usually only in response to certain triggers in the environment. Other people may have symptoms almost all of the time.

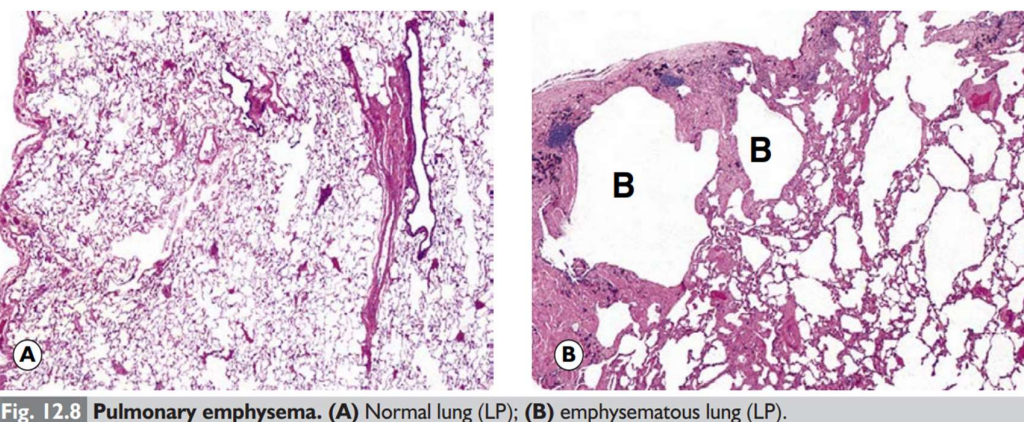
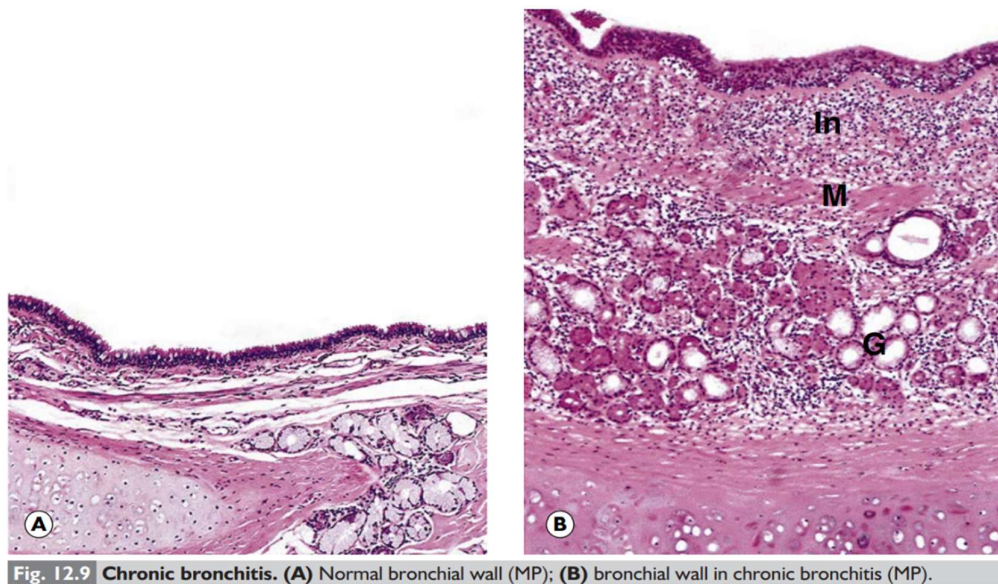
There is no cure for asthma at present, but the symptoms of asthma attacks usually can be reversed with the use of inhaled medications called **bronchodilators**.



**Chronic obstructive pulmonary disease (COPD)** refers to conditions characterized by chronic or recurrent obstruction of air flow and includes **chronic bronchitis** and **emphysema**.

**Chronic bronchitis** is defined as excess sputum production on most days for at least 3 months in at least 2 consecutive years.

Recurrent episodes of acute bronchitis or persistent, non-infective irritation of bronchial mucosa (e.g., as a result of cigarette smoking) may produce chronic bronchitis, which is frequently associated with persistent dilatation of air spaces and destruction of their walls, a condition known as **emphysema**.



**Fig. 12.8 Pulmonary emphysema. (A) Normal lung (LP); (B) emphysematous lung (LP).**

**Lung cancer** is a malignant tumor characterized by uncontrolled cell growth in tissues of the lung. The tumor may arise directly from lung tissue (primary lung cancer) or as a result of metastasis from cancer in another part of the body (secondary lung cancer).

**Three common types:** Squamous cell carcinoma, Adenocarcinoma and Small cell carcinoma

**The most common symptoms of lung cancer** include coughing (especially coughing up blood), wheezing, shortness of breath, chest pain, and weight loss.

**The major cause of primary lung cancer** is tobacco smoking, which accounts for about 85 percent of cases. Cigarette smoke contains numerous cancer-causing chemicals. Besides smoking, other potential causes of lung cancer include exposure to radon gas, asbestos, secondhand smoke, or other air pollutants.

Most cases of lung cancer cannot be cured.

