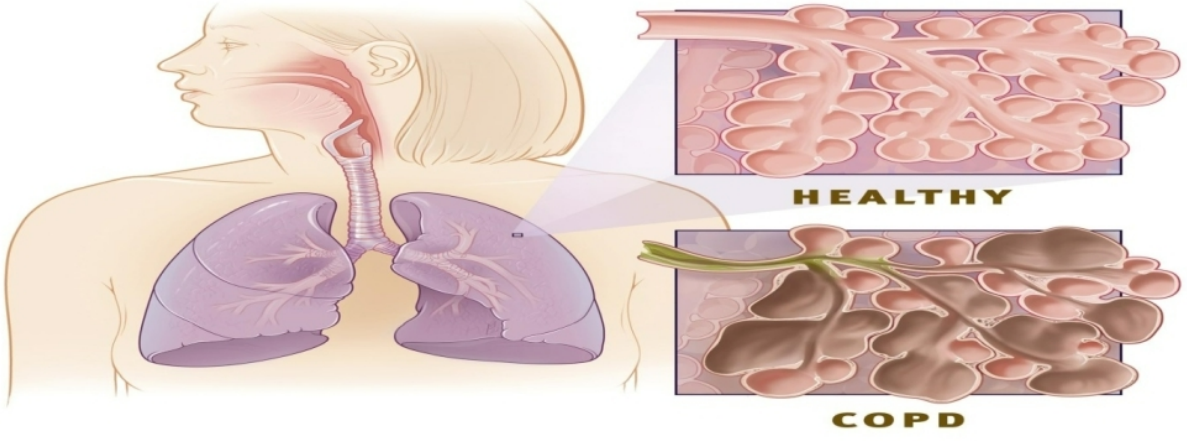
بسم الله الرحمن الرحيم

السلام عليكم
ورحمة الله وبركاته

COPD

Management of Patients with Chronic Obstructive Pulmonary Disease



Outlines

- Introduction.
- Definition
- Pathophysiology.
- Causes & Risk factors.
- Clinical Manifestations.
- Assessment and Diagnostic Findings.

- Complications.
- Medical Management.
- Surgical Management.
- Nursing Process.

Introduction

- Chronic obstructive pulmonary disease is considered a leading cause of morbidity and mortality, approximately 80 million individuals worldwide. Based on these numbers, it is estimated that 4 million individuals are suffering from COPD in the Arabic-speaking countries.

Chronic obstructive pulmonary disease

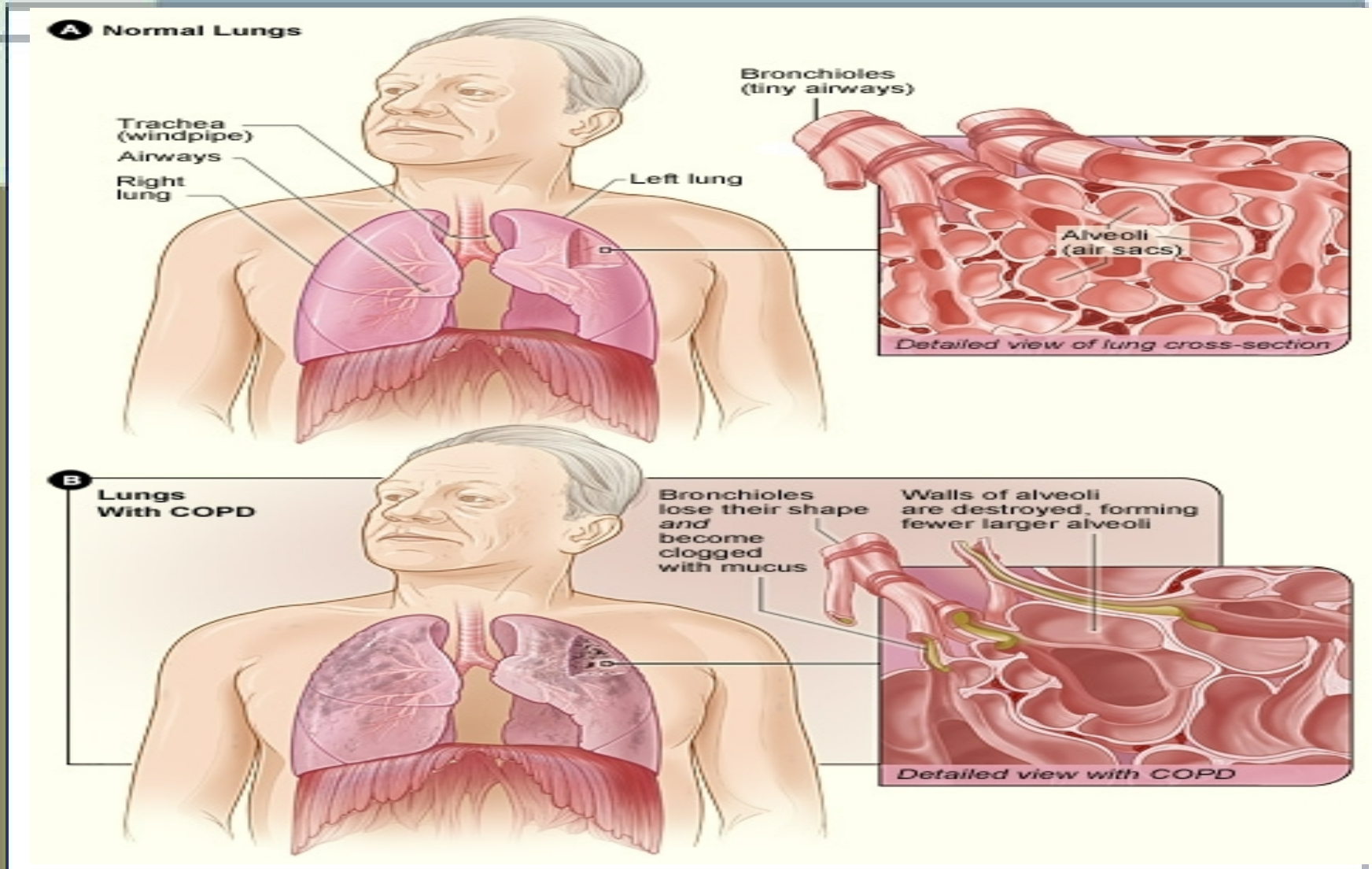
Disease state characterized by airflow limitation that is not fully reversible, sometimes referred to as chronic airway obstruction or chronic obstructive lung disease

Pathophysiology (Overview)

In COPD, less air flows in and out of the airways because of one or more of the following:

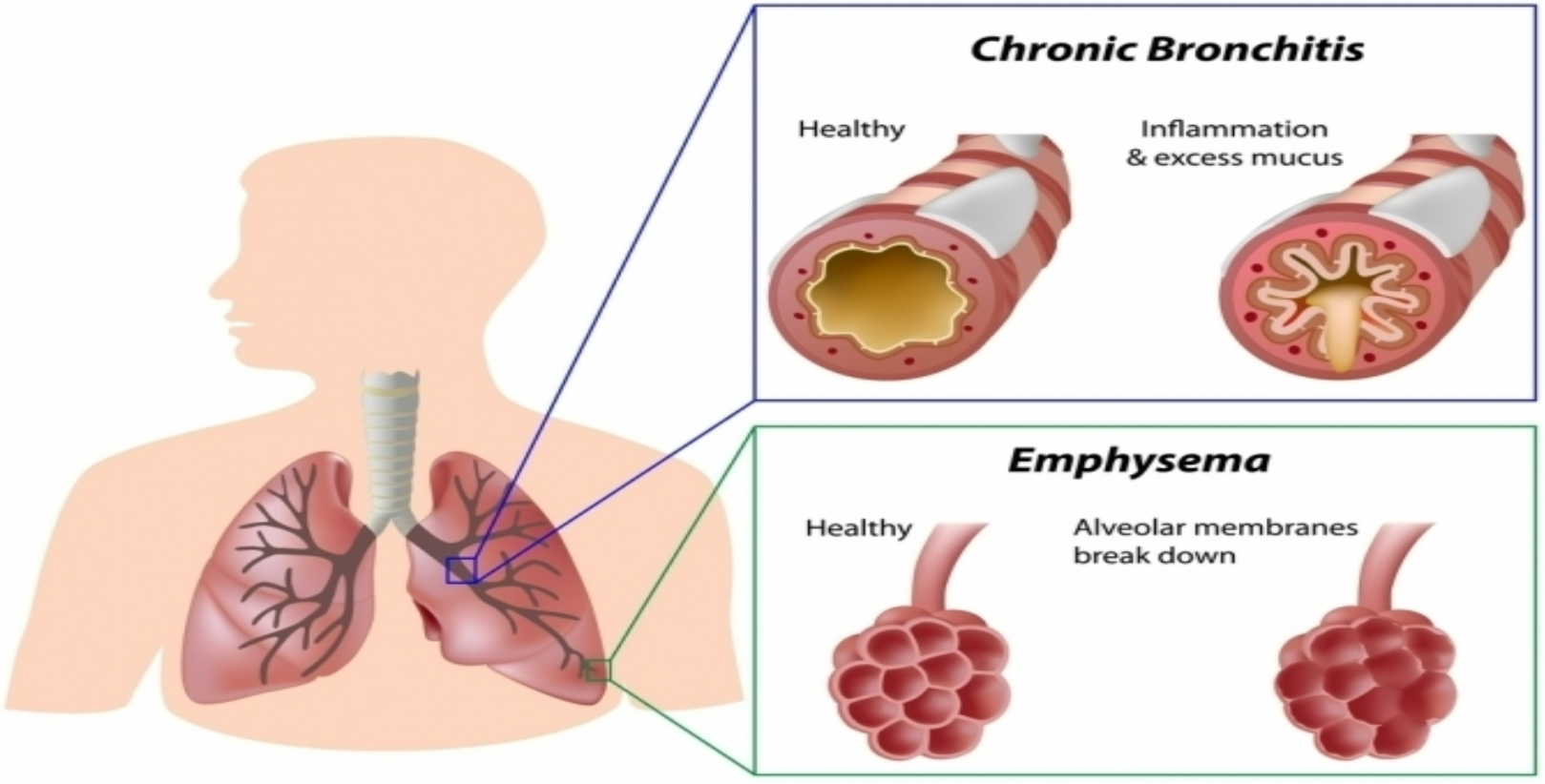
- The airways and air sacs lose their elastic quality.
- The walls between many of the air sacs are destroyed.
- The walls of the airways become thick and inflamed.
- The airways make more mucus than usual, which tends to clog them.

Pathophysiology



Types of Chronic Obstructive Pulmonary Disease

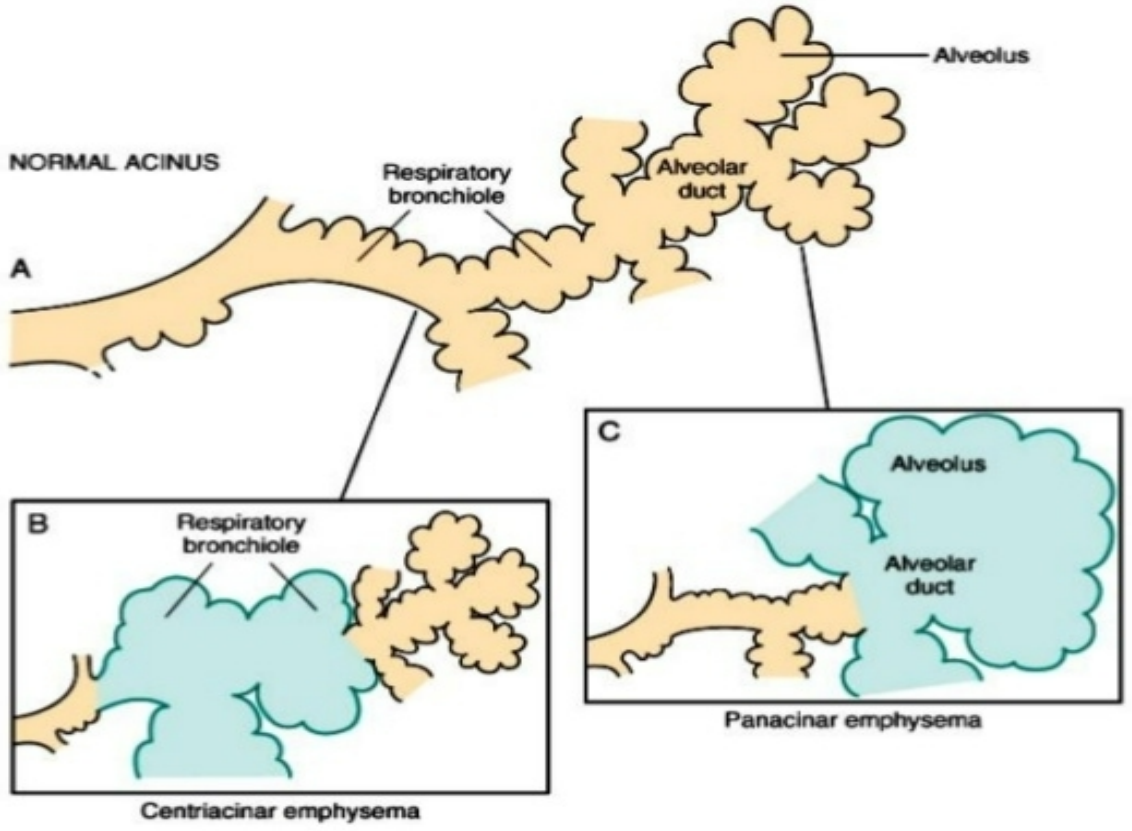
Chronic Obstructive Pulmonary Disease (COPD)



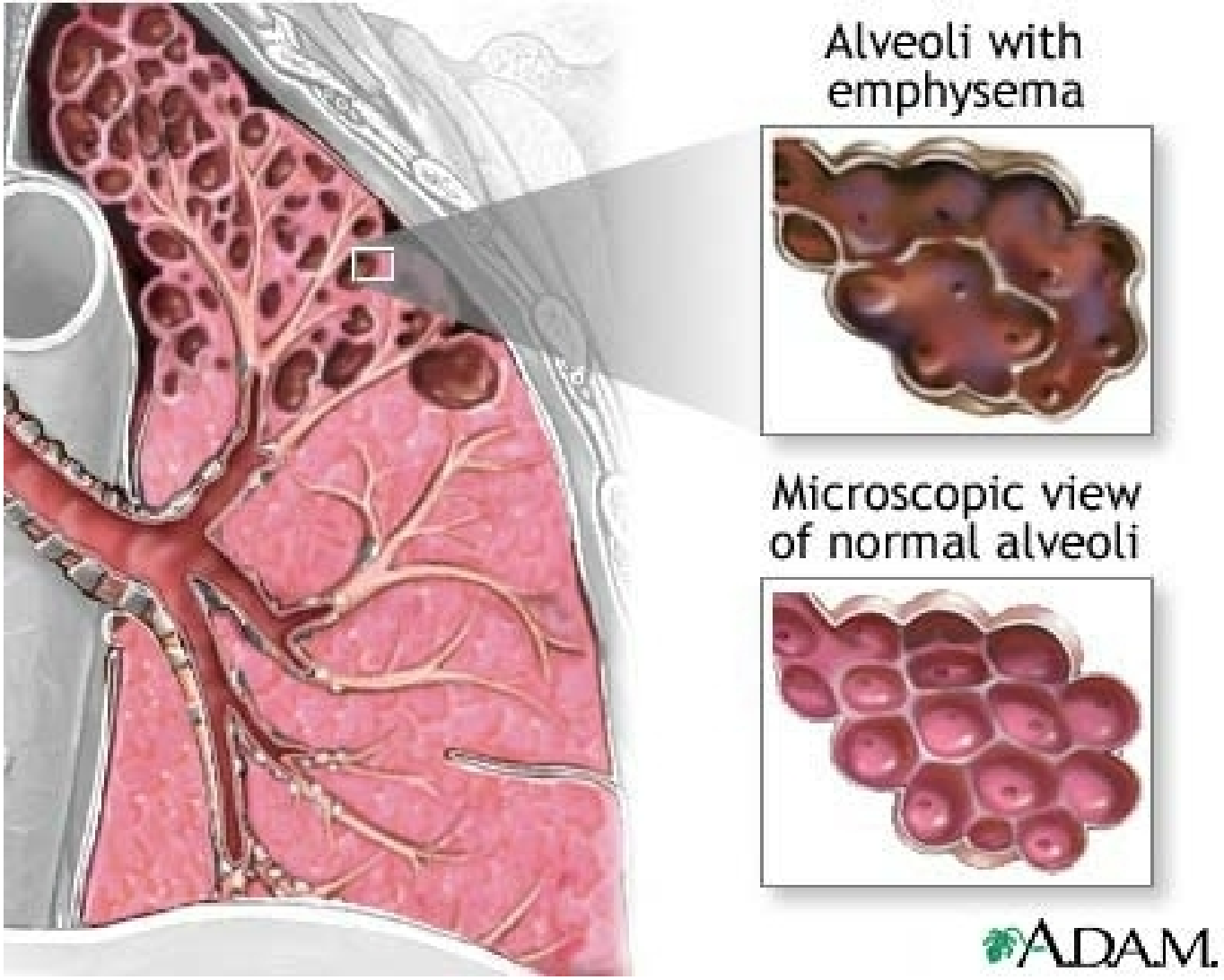
Emphysema

- In emphysema, impaired gas oxygen and carbon dioxide exchange results from destruction of the walls over distended alveoli. “Emphysema” is a pathologic term that describes an abnormal distention of the air spaces beyond the terminal bronchioles, with destruction of the walls of the alveoli.

- This leads to central cyanosis and respiratory failure. The patient also develops peripheral edema, which is treated with diuretic therapy.


Alveolus
NORMAL ACINUS
Respiratory bronchiole
Alveolar duct
A
B
Respiratory bronchiole
C
Alveolus
Alveolar duct
Centriacinar emphysema
Panacinar emphysema

Emphysema


Alveoli with emphysema
Microscopic view of normal alveoli
A.D.A.M.

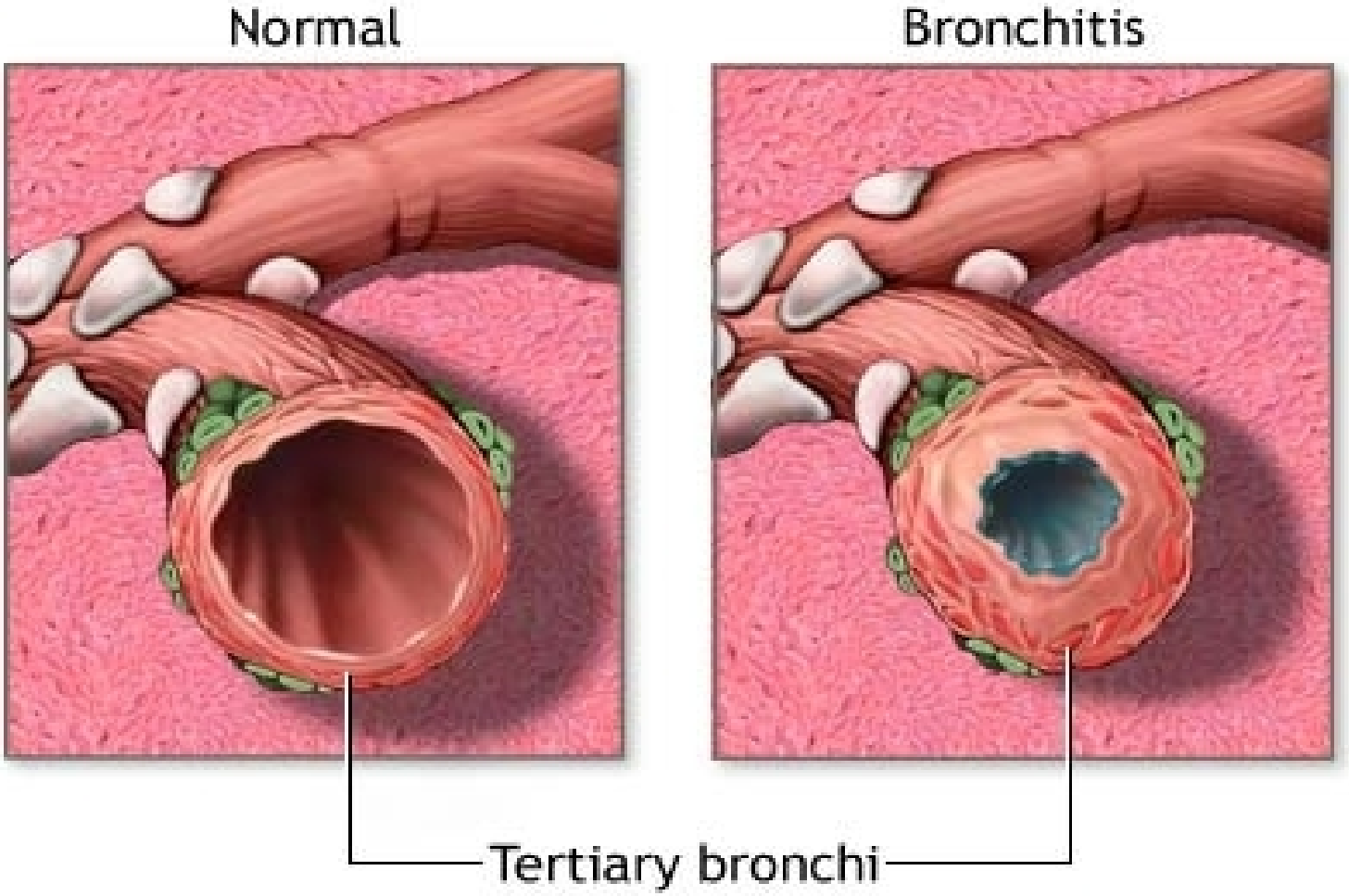
Chronic Bronchitis

Chronic bronchitis, a disease of the airways, is defined as the presence of cough and sputum production for at least 3 months in each of two consecutive years.

Pathophysiology

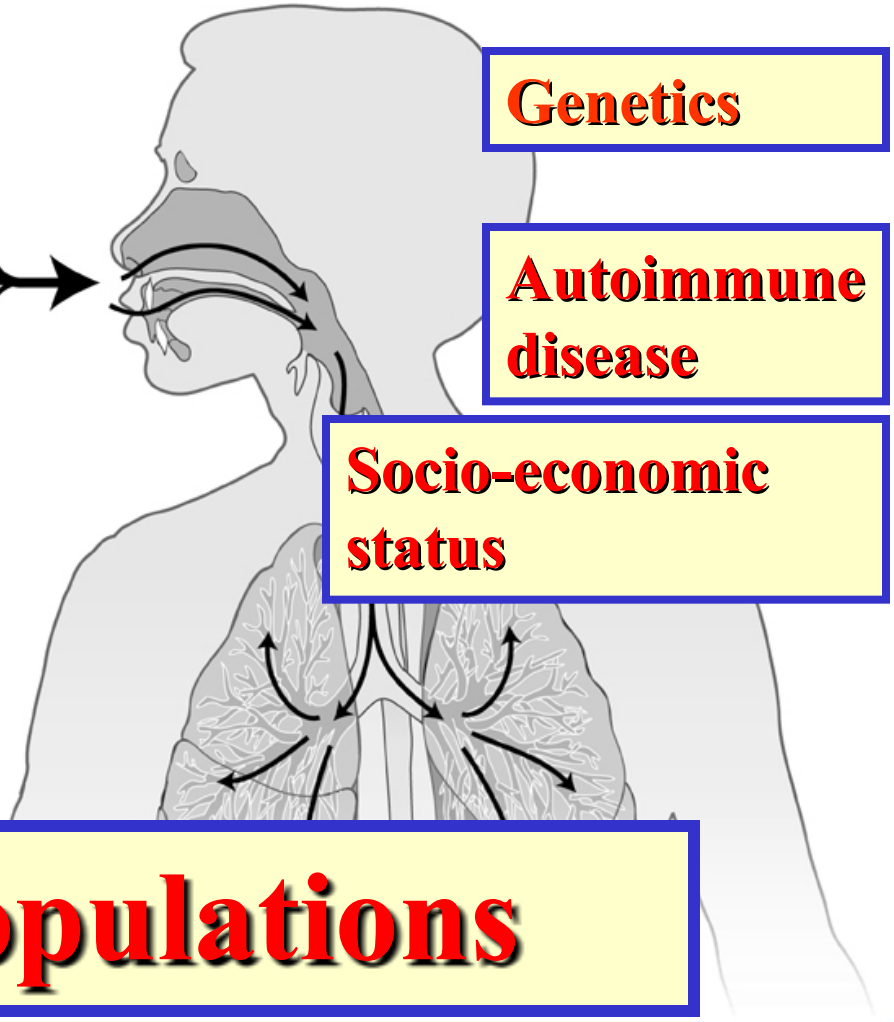
- In many cases, smoke or other environmental pollutants irritate the airways, resulting in hypersecretion of mucus and inflammation.Ciliary function is reduced, and more mucus is produced. The bronchial walls become thickened, the bronchial lumen narrows, and mucus may plug the airway

Normal versus Diseased Bronchi



Causes & Risk factors

- Cigarette smoke
- Occupational dust and chemicals
- Environmental tobacco smoke (ETS)
- Indoor and outdoor air pollution



Genetics

Autoimmune disease

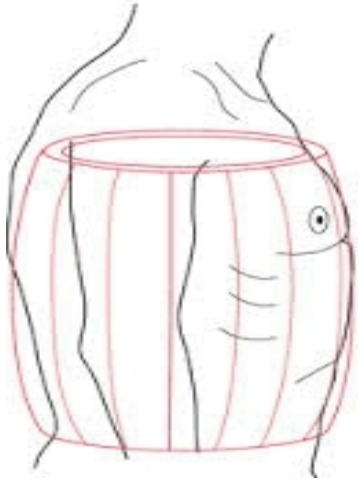
Socio-economic status

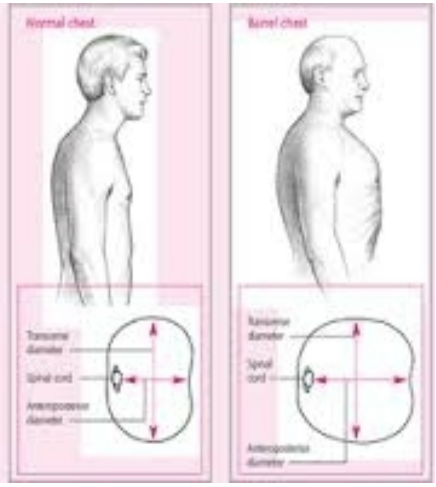
Aging Populations

Clinical Manifestations

- COPD is characterized by three primary symptoms: chronic cough, sputum production, and dyspnea on exertion .These symptoms often worsen over time. Chronic cough and sputum production often precede the development of airflow limitation by many years.

- In patients with COPD that has a primary emphysematous component, chronic hyperinflation leads to the *"barrel chest"* thorax configuration.



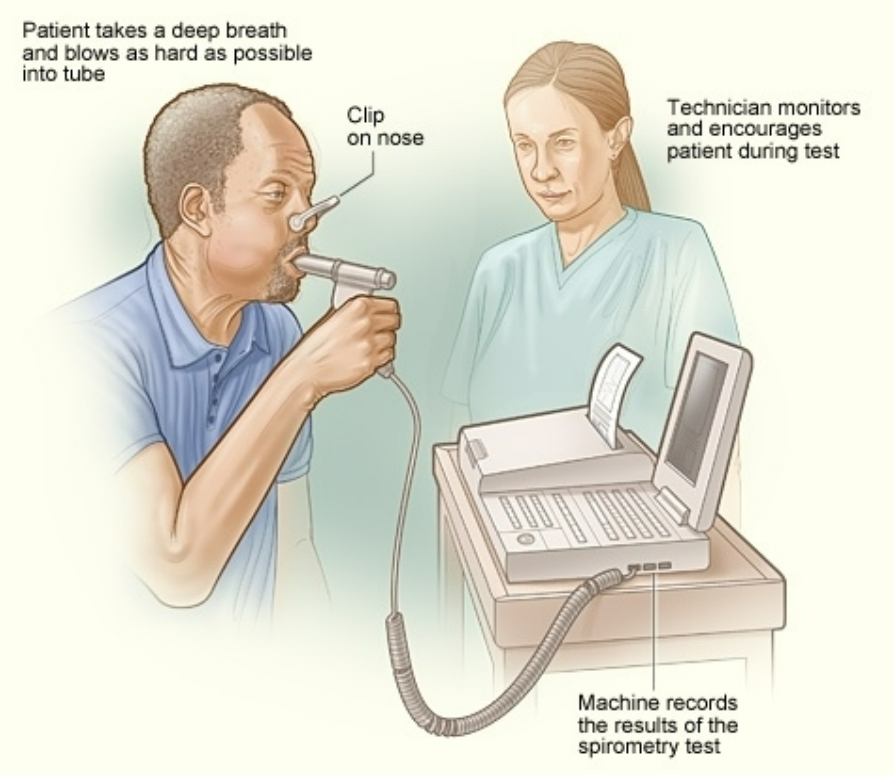


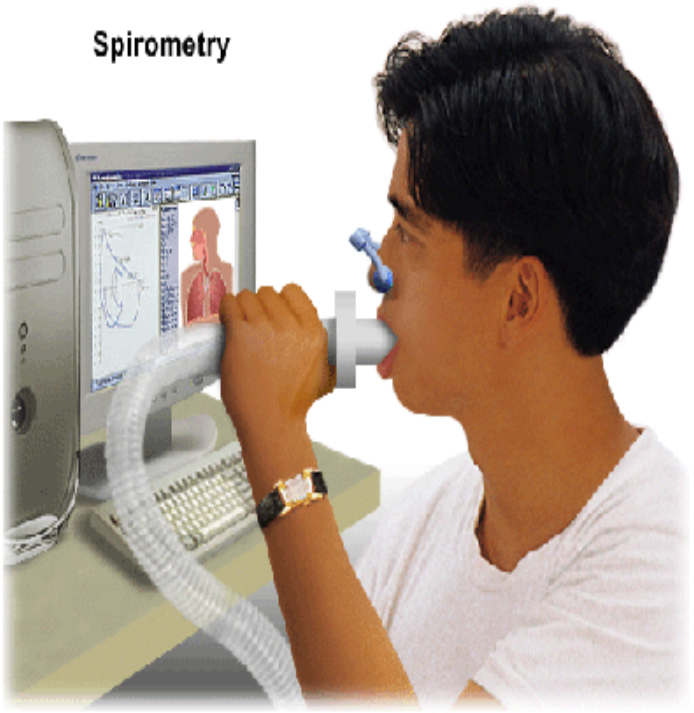
- Retraction of the supraclavicular fossae occurs on inspiration, causing the shoulders to heave upward
- Weight loss is common, because dyspnea interferes with eating and the work of breathing is energy-depleting.
- The accessory muscles are recruited in an effort to breathe.

Assessment and Diagnostic Findings

- Symptoms.
- Physical examination.
- Sample of sputum.
- Chest x-ray.
- CT.
- Pulmonary function test (spirometery).
- Arterial blood gases test.
- Pulse oximeter.

Spirometry


Patient takes a deep breath and blows as hard as possible into tube
Clip on nose
Technician monitors and encourages patient during test
Machine records the results of the spirometry test


Spirometry

Complications

- Respiratory insufficiency and failure are major life-threatening complications of COPD.
- Pneumonia and atelectasis.
- Pneumothorax and pulmonary arterial hypertension (**Cor pulmonale**).

Preventive measures

To prevent irritation and infection of the airways, instruct the patient to:

•Avoid use of aerosol sprays. Avoid exposure to cigarette, pipe, and cigar smoke as well as to dusts and powders.

•Stay indoors when the pollen count is high.

•Stay indoors when temperature and humidity are both high.

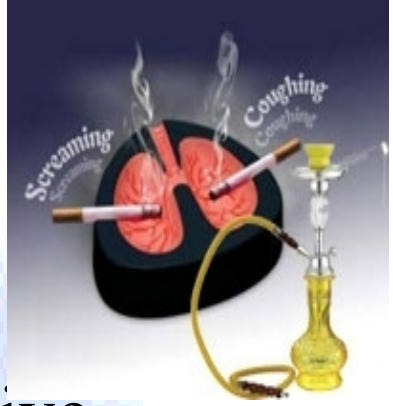
• Use air conditioning to help decrease pollutants and control temperature.

. Avoid exposure to persons known to have colds or other respiratory tract infection

. Avoid enclosed, crowded areas during cold and flu season.

. Obtain immunization against influenza and streptococcal pneumonia

Medical Management



Reduce Reduction

•Smoking cessation is the single most effective And cost-effective - intervention to reduce the risk of developing COPD and slow its progression.

•Smoking Prevention

•Avoid occupational Exposures.

Oxygen Therapy

- Portable oxygen systems allow the patient to exercise, work, and travel.
- explains the proper flow rate and required number of hours for oxygen use as well as the dangers of arbitrary changes in flow rate or duration of therapy.

- Caution the patient that smoking with or near oxygen is extremely dangerous.
- Reassures the patient that oxygen is not “addictive” and explains the need for regular evaluations of blood oxygenation by pulse oximetry or arterial blood gas analysis.

- **Pharmacologic Thearpy:**
  - Bronchodilators.
  - Glucocorticosteroids.
  - Vaccines.
  - Antibiotics.
  - Mucolytic.
  - Antitussives.
  - Respiratory Stimulants.

Surgical Management

Bullectomy

- A bullectomy is a surgical option for select patients with bullous emphysema. Bullae are enlarged airspaces that do not contribute to ventilation but occupy space in the thorax; these areas may be surgically excised.

Lung Volume Reduction Surgery

- Treatment options for patients with end-stage COPD (stage IV) with a primary emphysematous component are limited.

Lung Transplantation

- Lung transplantation is a viable alternative for definitive surgical treatment of end-stage emphysema. It has been shown to improve quality of life and functional capacity in a selected group of patients with COPD

Nursing Process

Assessment

- **History**
  - Patient's environment.
  - Work history, exercise pattern, smoking habits.
  - The onset & development of symptoms.
  - Sleeping positions.

Physical examination

- Signs of heavy smokers.
- Observe for clubbing.
- Distended neck vein on expiration.
- The presence of barrel chest.
- Observe for abdominal breathing.
- The use of pursed lips breathing and chest movement.
- Auscultate the chest& listen for musical wheezes characteristics of chronic bronchitis.

Review the results of diagnostic procedure:

- Arterial blood gases.
- Pulmonary function tests.
- X-ray films.

Nursing diagnosis

- Impaired gas exchange related to ventilation–perfusion inequality.
- Ineffective airway clearance related to bronchoconstriction, increased mucus production, ineffective cough, bronchopulmonary infection, and other complications

Nursing diagnosis

- Ineffective breathing pattern related to shortness of breath, mucus, bronchoconstriction, and airway irritants.
- Activity intolerance due to fatigue, ineffective breathing patterns, and hypoxemia.
- Deficient knowledge of self-care strategies to be performed at home.

- High risk for ineffective individual coping related to chronic disease, its effects& its treatment.
- High risk for altered health maintenance related to insufficient knowledge of prevention, identification and treatment of respiratory complication of COPD.

Nursing Interventions

- Promoting Smoking Cessation.
- Improving Gas Exchange.
- Achieving Airway Clearance.
- Improving Breathing Patterns.
- Improving Activity Tolerance.

- Enhancing Self-Care Strategies by:
- Setting realistic goals.
- Avoiding temperature extremes.
- Modifying lifestyle.

- Enhancing Individual Coping Strategies
- Monitoring and Managing Potential Complications


SUMMARY
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Any Question
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Thank you