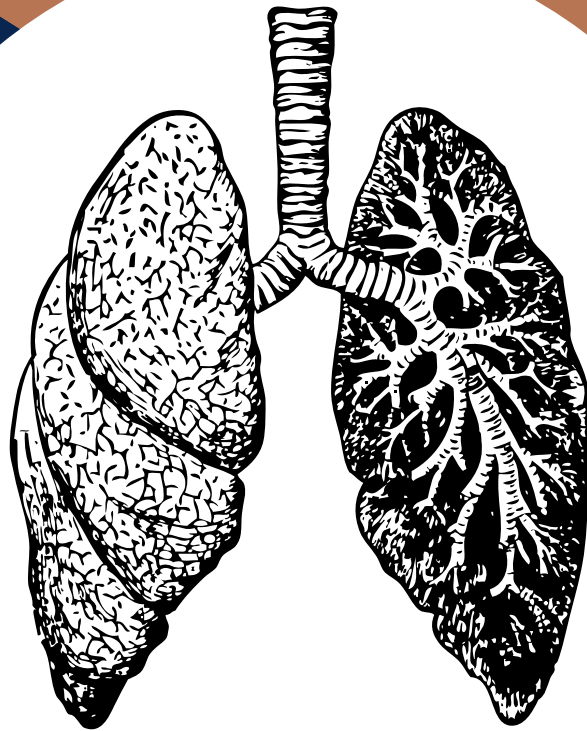


PATHOLOGY

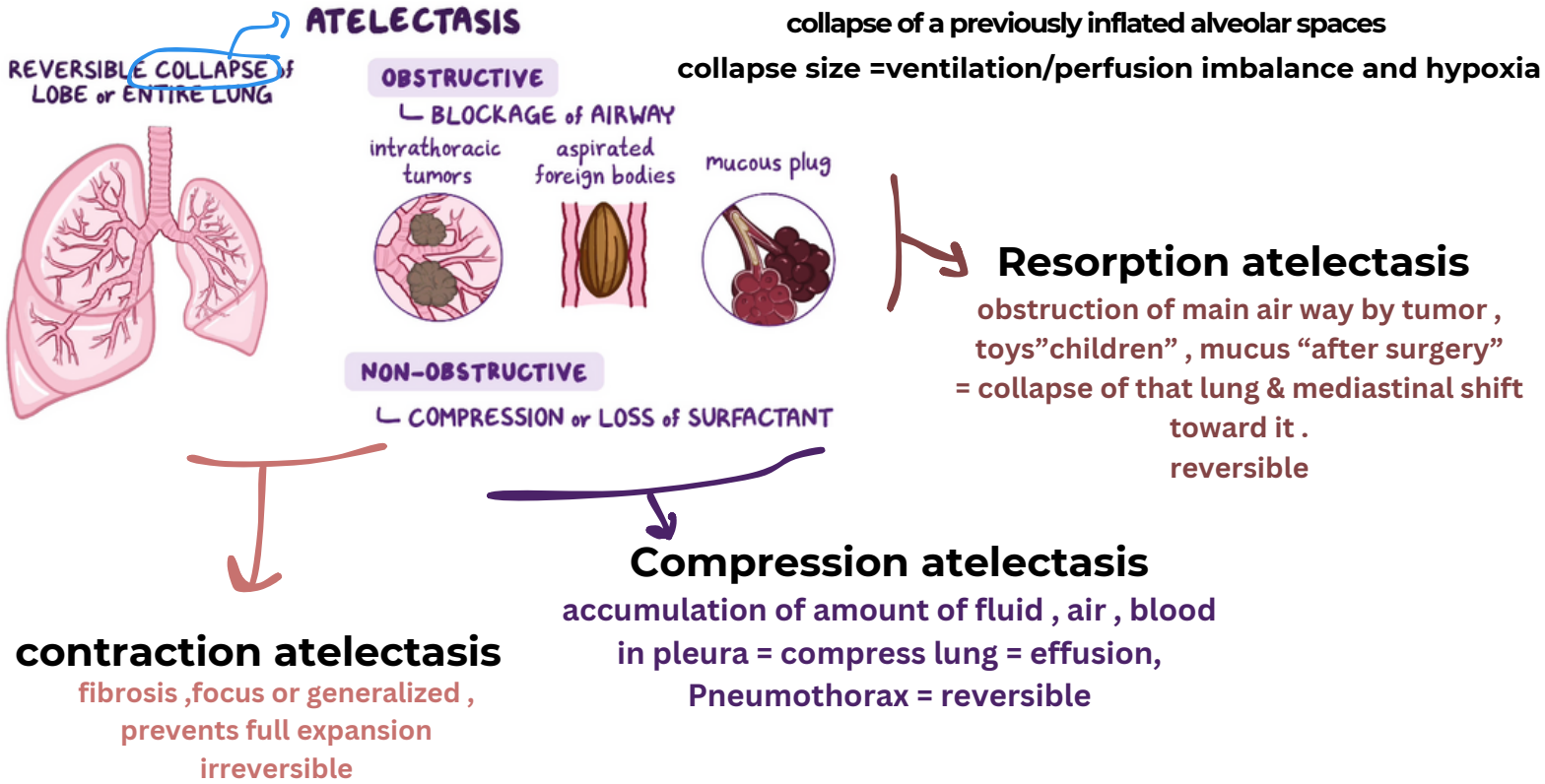
RS -MID- SUMMARY



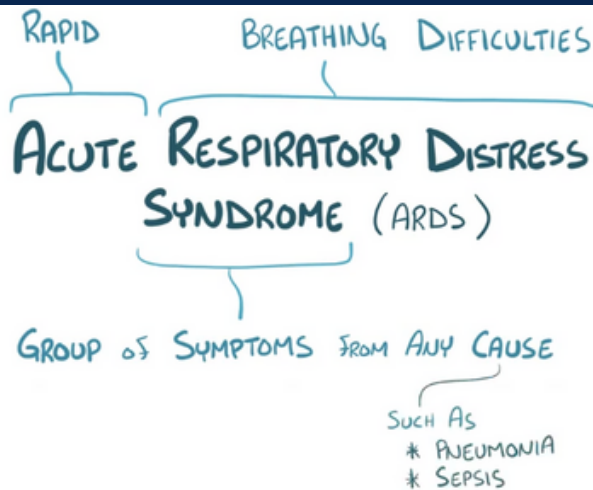
PREPARED BY
eaa alzubi



ATELECTASIS



ACUTE RESPIRATORY DISTRESS SYNDROME



least one lung function is lost
diffuse alveolar damage (DAD)
inadequate oxygenation
hypoxemia = organ failure

refractory to oxygen therapy = damage alveoli = no exchange

50% sepsis - infection - aspiration - head injury

infant RDS is due surfactant deficiency not damage

damage - macrophages - il-1, il-8, TNF - permeability - Edema (low surfactant) - protein + neutrophil enter - proteases = Hyaline membranes - respiratory failure

it all about fighting back - more

regeneration = repair, fibrosis = death

SYMPTOMS

- * SEVERE & LIFE THREATENING
- * BEGINS with SHORTNESS OF BREATH a FEW HOURS AFTER INITIAL INJURY
- * RAPIDLY WORSENS to RESPIRATORY FAILURE
- * HYPOXEMIA → CYANOSIS (BLUISH SKIN)
- * EDEMA → CRACKLING SOUND (RALES)

multiple bilateral opacities



COLLAPSED ALVEOLI POPPING OPEN

Infection
Sepsis*
Diffuse pulmonary infections*
Viral, Mycoplasma, and Pneumocystis pneumonia; miliary tuberculosis
Gastric aspiration*
Physical/Injury
Mechanical trauma including head injuries*
Pulmonary contusions
Near-drowning
Fractures with fat embolism
Burns
Ionizing radiation
Inhaled irritants
Oxygen toxicity
Smoke
Irritant gases and chemicals
Chemical injury
Heroin or methadone overdose
Acetylsalicylic acid
Barbiturate overdose
Paraquat
Hematologic Conditions
Transfusion-associated lung injury (TRALI)
Disseminated intravascular coagulation
Pancreatitis
Uremia
Cardiopulmonary Bypass
Hypersensitivity Reactions
Organic solvents
Drugs

*More than 50% of cases of acute respiratory distress syndrome are associated with these four conditions.

The majority of deaths are attributable to:

1. sepsis or 2. multiorgan failure or 3. severe lung injury.

CLINICAL

dyspnea ,tachypnea,cyanosis ,respiratory acidosis

recover 6-12 months

Obstructive airways diseases

easy to inhale , difficult to exhale

hyperinflation

common, irreversible, preventable

80% SMOKING

CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD)

CHRONIC BRONCHITIS

Defined by CLINICAL FEATURES

PRODUCTIVE COUGH

at least $\frac{3\text{ months}}{\text{year}}$ for at least 2 years

EMPHYSEMA

Defined by STRUCTURAL CHANGES

ENLARGED AIR SPACES

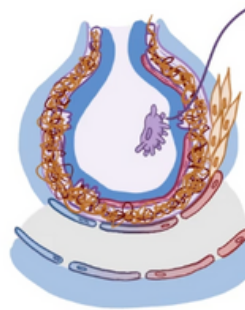
Restrictive diseases

difficult to inhale - low capacity

wall : severe obesity , neuromuscular disorders

acute : ARDS

chronic : pneumoconioses , sarcoidosis



MACROPHAGES ATTRACT & ACTIVATE FIBROBLASTS

SCAR TISSUE

RESTRICTIVE LUNG DISEASE

CHRONIC BRONCHITIS overlapping EMPHYSEMA

EMPHYSEMA

EMPHYSEMA

"INFLATE or SWELL"

PERMANENTLY ENLARGE ALVEOLI
 O_2/CO_2 exchange DAMAGED/DESTROYED

LOSE ELASTICITY → DIFFICULTY EXHALING

Irregular emphysema (Airspace enlargement with fibrosis)

clinically asymptomatic and insignificant

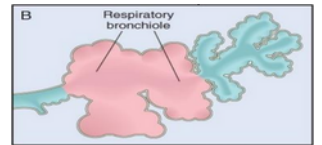
pathogenesis :

inflammation : smoking -leukotriene B4, interleukin [IL]-8, TNF

Protease-antiprotease imbalance (elastase) , $\alpha 1$ -Antitrypsin inhibits protease

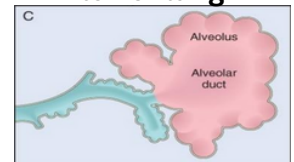
Oxidative stress & infections

Central emphysema
 smoking ,upper & anterior lung



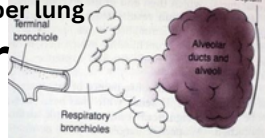
Acinus destruction
 Decreased capillary bed area

Panacinar emphysema
 $\alpha 1$ -antitrypsin deficiency lower lung



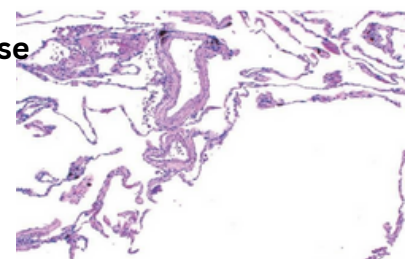
distal acinar emphysema
 spontaneous pneumothorax = rupture upper lung

darker



mediastinum to another lung

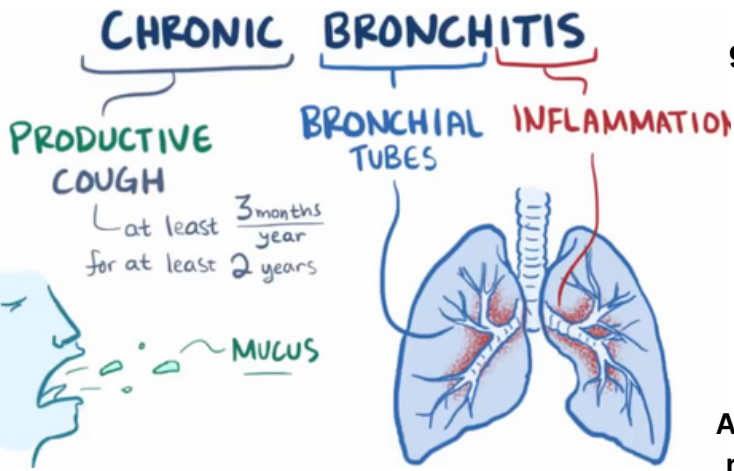
only focal centriacinar fibrosis



Dyspnea
Weight loss
barrel-chested
Sitting forward
lips to exhale



CHRONIC BRONCHITIS



90% cigarette smokers , cough for 3 months , 2 years decline function , may metaplasia , early normal airway

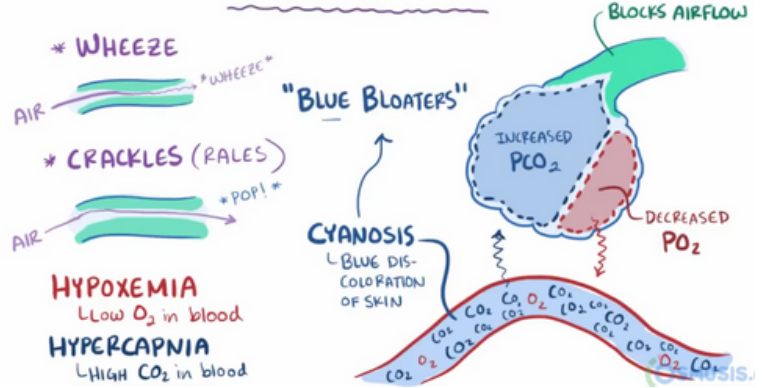
- Other RISK FACTORS
- * AIR POLLUTANTS (S_2 & NO_2)
 - * DUST & SILICA
 - * GENETIC FACTORS (family history)

pathogenesis :
hypersecretion of mucus

Acquired cystic fibrosis transmembrane conductance regulator (CFTR) dysfunction (obstruction of mucus) inflammation (eosinophils) & infections

- The characteristic features are:
 - mild chronic inflammation of the airways (predominantly lymphocytes)
 - Enlargement (hyperplasia) of the mucus-secreting glands of the trachea and bronchi
 - squamous metaplasia and dysplasia of the bronchial epithelium

SIGNS & SYMPTOMS



persistent cough
 sputum
 cor pulmonale
 cardiac failure
 cyanosis
 "blue bloaters"



اللهم إني أسألك أنك العليم الكريم أن توفقنا لما تحبه وترضى،
 وأن تكتب لنا النجاح والفلاح والتوفيق في تحصيل كل علم
 نافع، اللهم مالك السماوات والأرض ومنزل الكتاب لا تنزع
 العلم من بيننا وارفعنا به، وارزقنا يا الله فهم أنبيائك وحفظ
 الملائكة ورسلك