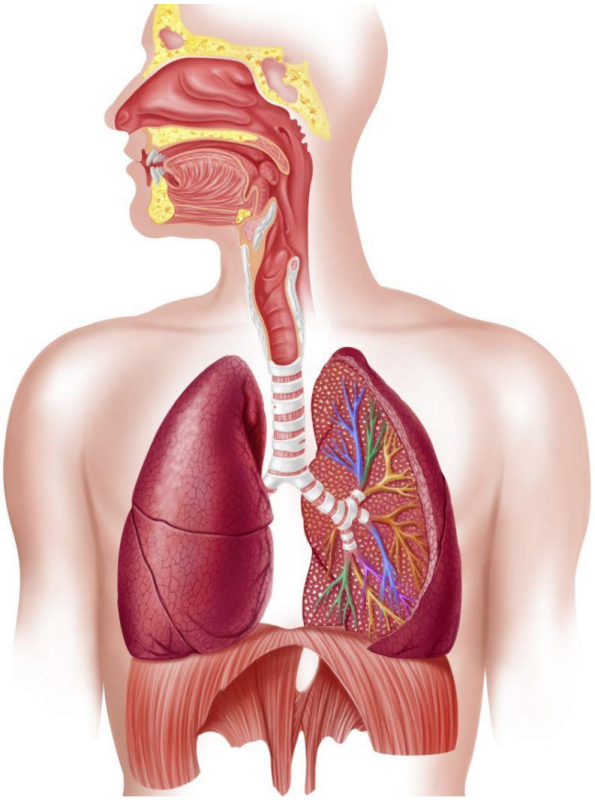
Respiratory System – Clinical Notes



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CLINICOSIS

RS Clinical Notes

1-Pulmonary Embolism

a) A thrombus that obstructs one or more of the pulmonary vessels
b) Instantaneous onset dyspnea
c) Results in
    a. Pleuritic Chest Pain
    b. Small volume hemoptysis
d) Large PE may cause angina-like chest pain
e) History of the following conditions increase the risk of PE
    a. Surgery
    b. Immobility
    c. Recent travel
    d. Cancers
f) Leg swelling may be presents

Note

Acute allergy is considered to be the third cause of Instantaneous dyspnea, along with PE and Pneumothorax

2-Pneumothorax

a) Air leaks to the space between the lung and the chest wall, usually due to trauma → Compromising the lung (Collapsed lung)
b) Spontaneous Pneumothorax → Sudden pneumothorax with/without trauma, occurs in thin and tall males
c) Results in
    a. Instantaneous onset of Dyspnea
    b. Pleuritic Chest pain
    c. Tracheal deviation *toward* the side of the pneumothorax
d) Tension pneumothorax
    a. In this type of pneumothorax, the air enters the thoracic cavity through a one-way valve, as the air enters and cannot go out (in the typical pneumothorax, the air enters and leaves the thoracic cavity, it does not accumulate these)
    b. Results in
        i. Increased JVP
        ii. Trachea deviates *away* from the affected side
e) ***Percussion → Hyper-resonant***
f) ***Auscultation → Absent Breath sounds + Decreased TVF***

Tracheal Deviation

Toward the side of the lesion → upper lobe collapse (pneumothorax), upper lobe fibrosis and pneumonectomy

Away from the side of the lesion → Tension pneumothorax and massive pleural effusion

3-Asthma

a) Dyspnea
    a. onset over hours
    b. Usually wakes patients from their sleep, commonly at dawn (when cortisol levels are decreased) - Compared to COPD, which do not awake patients from sleep
    c. Variable Dyspnea → Means that the breathlessness is no present every day, and breathing is normal some days (Variable Dyspnea is a hallmark of Asthma)
    d. Induced by exercise (appears only after exercise)

b) Wheezes
    a. After exercise
    b. Wakes the patient from sleep
    c. Polyphonic Wheezes → Many wheezes are heard in the same time
c) Cough
    a. Present at night
    b. May be associated with wheezes
    c. May present with yellow sputum that form plugs
d) Atopy
    a. Simply the genetic tendency to develop allergic diseases
    b. Patients with asthma usually has atopy, so a family history of atopic diseases such as eczema or asthma might be presents
e) Fine tremors → Usually due to the use of beta-blockers to treat asthma

Cough

Cough with heartburn suggests GERD

Cough with altered with voice and swallowing suggests laryngeal cause

Chronic Cough > 8 weeks

4-COPD

a) Two separated entities
    a. Emphysema
    b. Bronchitis
b) Dyspnea only over exertion (these patients are comfortable at rest and when they are asleep)
c) Wheezes
    a. during exercise
    b. Worst in the morning, and relieved by clearing the sputum
    c. Polyphonic Wheezes → Many wheezes are heard in the same time
d) Cough →May presents with clear (mucoid) or green (purulent) sputum
e) Most patients are smoker
f) May cause weight loss
g) Physical Changes in COPD
    a. **Hyperinflated Lungs** → Enlarged lungs due to the trapped air inside them
    b. Prolonged Expiration relative to inspiration
    c. '**Pursed Lips**' on expiration
    d. Forceful inspiration
        i. ***Hoover's Sign*** → Indrawing of the intercostal muscles in mid-inspiration (normally, they move out not in)
            1. Absent in the posterior upper chest
        ii. Using the accessory muscles (trapezius , sternocleidomastoid and scalene)
    e. Tripod Position → Patients set forward and brace their arms on a table → Use the pectoralis major during inspiration to pull the ribs outward
    f. ***Flapping Tremors*** → Due to CO_2 retention
    g. **Reduction in the Cotricosternal distance**
    h. **Impalpable apex beat** (due to hyperinflation of the lung, the lingula of the left lung is found between the heart and the chest wall)
    i. **Plethoric Complexion** → Red face appearance, due to polycythemia that accompanies COPD
    j. **Decreased TVF**
h) DO NOT cause Finger clubbing

i) Subcutaneous Emphysema → Accumulation of subcutaneous air bubbles in emphysema

5-Acute Pulmonary Edema

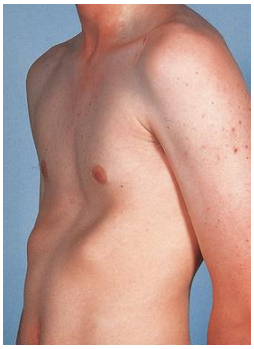
a) Accumulation of water inside the alveoli
b) Associated with pulmonary hypertension and heart failure
c) Results in
    a. fine inspiratory crackles
    b. Dyspnea with onset over hours
    c. Pink (serous/frothy) sputum

6-Lung tumors

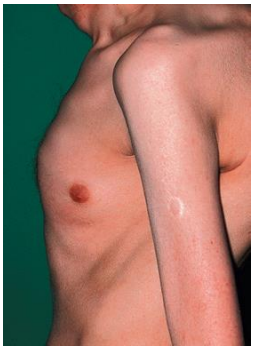
a) Dyspnea with insidious onset
b) Cough
    a. Persistent cough (especially in smokers)
    b. Commonly in bronchial sarcoma
    c. May present with hemoptysis → Recurrent streaks of blood with clear sputum
        i. Recurrent streaks of blood with purulent sputum suggests TB/Cancer with infection, of over one year, suggests bronchiectasis
    d. Presentation → These patients may be misdiagnosed with pneumonia, but the pneumonia (and the cough) fails to regress in 4-6 weeks
    e. If it was associated with Large volumes of frothy secretions over weeks/months → Bronchoalveolar cell carcinoma
c) *Left Hilum Tumors*
    a. Compress the *Left recurrent laryngeal* nerve → Paralysis of the vocal cords
    b. Results in *Bovine Cough* → Cough without the initial explosive sound

d) *Apical Lung Tumor*
    a. Tumors that affect the apex of the left lung has many complications as follows
    b. Compression of the T1 nerve root fibers, results in
        i. Horner syndrome → ptosis, miosis and anhidrosis
        ii. pain and numbness in the inner aspect of the upper arm
        iii. Wasting of the small muscles of the hand
    c. SVC Syndrome
        i. Obstruction of the SVC
        ii. causing swelling in the arms and the face
        iii. Subconjunctival Edema
        iv. Raised JVP above the angle of the jaw
e) All types of lung tumors may cause
    a. Weight loss, fever, rigors, night sweats
    b. Finger clubbing
    c. Hypertrophic Pulmonary Osteoarthropathy
        i. Painful, tender swelling of the wrists and the ankles,
        ii. X-Rays will show subperiosteal new bone formation
    d. Increased TVF

7-Airflow Obstruction



a) Causes dyspnea exerted by lying down
    a. Similar to orthopnea of the heart failure
    b. Diaphragmatic weakness also causes a similar presentation
b) Extra thoracic airway obstruction leads to Inspiratory Stridor
c) Intrathoracic airway obstruction leads to expiratory stridor
d) Large airway narrowing at the thoracic inlet → Inspiratory and Expiratory Stridor
e) Pectus Carinatum
    a. Inward displacement of the lower ribs with prominent sternum
    b. Indicates severe outflow obstruction during childhood
    c. Harrison Sulcus May be present



f) Fixed Bronchial Obstruction → Solitary Wheeze

8-Psychological Dyspnea

a) Form of dyspnea that is of no physical cause
b) Usually due to hyperventilation in anxious patients
c) Associated Symptoms
    a. Digital and Perioral Paresthesia
    b. Lightheadedness
    c. Chest tightens

9-Bronchiactesis

a) Chronic accumulation of the mucous inside airways → Airways dilation
b) Wheezes
c) Cough
    a. With large volumes of sputum (yellow/green) over long periods of time, or hemoptysis
    b. Maybe with hemoptysis → Recurrent blood streaks with purulent sputum over one year
    c. Increased viscosity of the mucous indicates exacerbation
d) History of these conditions is a risk factor to develop bronchiectasis
    a. pneumonia
    b. whooping cough
    c. Measles
    d. Pleurisy
    e. Inhalation of foreign body
    f. Connective tissue diseases (Rheumatoid Arthritis)
e) Other Symptoms
    a. Weight loss
    b. Finger clubbing
    c. Coarse Crackles

10-Pulmonary Effusions (pleural effusions)

a) Accumulation of fluids inside the pleural cavity of the lungs
b) Connective tissue diseases (such as Rheumatoid Arthritis) are well-known risk factors
c) Results in
    a. Dyspnea with insidious onset
    b. If Massive → Tracheal deviation away from the side of the lesion
    c. **Diminished breath sounds**
    d. **Stony Dullness on percussion** (the only cause of stony dullnes along with the hemothorax)
    e. **Decreased TVF**
d) Drugs that cause pleural Effusion include
    a. Amiodarone
    b. Nitrofurantoin
    c. Phenytoin
    d. Methotrexate
    e. Pergolide

11-Pulmonary Fibrosis

a) Lung scarring, the normal lung parenchyma is replaced by fibrosis
b) Causes of Fibrosis include
    a. Connective tissue diseases increase the risk of the pulmonary fibrosis
    b. Cancers and some chemotherapeutic agents (methotrexate, bleomycin) may also cause pulmonary Fibrosis
c) Results in
    a. Finger clubbing
    b. Tracheal deviation toward the affected side
    c. **Bronchial Breath sounds**
    d. **increased TVF**
    e. **Dullness on percussion**

12- Respiratory Infections

a) Dyspnea with onset over hours
b) Causes wheezes and cough
c) Yellow/Green sputum suggests bronchial infection
d) Allergic Bronchopulmonary Aspergillosis → Sputum forms plugs
e) Acute/Chronic Respiratory Infections → Most common cause of hemoptysis

13-Pneumonia

a) Causes pleuritic chest pain → By either direct pleural inflammation or by adhesions and pleural traction
b) Lobar Pneumonia may cause rigors
c) Pneumococcal Pneumonia → Produces Red/brown rusty sputum
d) Auscultation → Bronchial Breath sounds
e) **Increases TVF**

7-Acute Bronchitis

a) A condition called persisting air way activity after acute bronchitis results in acute onset cough with sputum
b) Results in streaks of blood with purulent sputum

8-Interstitial Lung Diseases

a) Dyspnea with insidious onset
b) Cough → Persistent dry cough
c) Causes fine inspiratory crackles at bases of the lungs (best heard posteriorly and laterally)
d) May cause weight loss

13-Rhinitis

a) Causes sneezing, nasal blockage with discharge

14-Idiopathic Cough

a) Long history of cough
b) Negative investigations
c) Diagnosis of Exclusion

15-Other Causes of Chest pain

a) Bornholm Disease
    a. Infection by Coxsackie B Virus causes inflammation in the intercostal muscles
    b. Results in episodes of unilateral severe strapping muscle pain (myalgia) over the intercostal spaces
    c. Regress in few days
b) Costochondritis
    a. Idiopathic inflammation of the costochondral cartilages
    b. Results in localized pain and tenderness that settles with simple anesthesia
    c. Tietze's Syndrome → Costochondritis + Swelling in the affected joints
b) Herpes Zoster Virus Infection
    a. Vesicular Rash usually affects the a certain dermatome
    b. The pain persists even if the rash had regressed
c) Burning Retrosternal Pain → Esophagitis / MI
d) Central Constant, progressive, non-pleuritic chest pain → mediastinal diseases (malignancy)
e) A pain that disturbs malignancy is typica in malignancies

16-Tubercolosis

a) Chronic Infection in the lungs
b) Causes night sweats, weight loss
c) Scalene lymph node is enlarged

17-Obstructive Sleep Apnea

a) Repetitive episodes of upper airway obstruction during sleep → Sleep disruption
b) The patient will be sleepy during daytime (Daytime Somnolence), tired when he wakes
c) Obesity is a risk factor

d) Usually, these patients are advised cessation of driving
e) Partner may observe breathing cessation with increased respiratory efforts during sleep, followed by loud resumption of sleep

19-Drug History

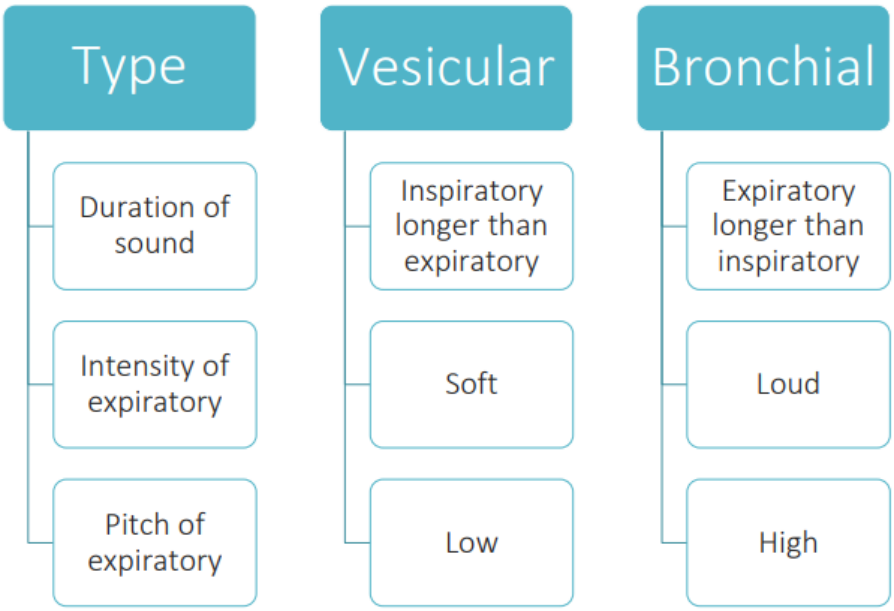
a) Drugs that cause bronchoconstriction
    a. Beta Blockers
    b. Opioids
    c. NSAIDs
b) Drugs that cause cough
    a. ACEIs
c) Drugs that cause Bronchiolitis Obliterans
    a. Penicillamine
d) Drugs that cause diffuse parenchymal lung disease
    a. Cytotoxic agents: bleomycin, methotrexate
    b. Anti-inflammatory agents: sulfasalazine, penicillamine, gold salts, aspirin
    c. Cardiovascular drugs: amiodarone, hydralazine
    d. Antibiotics: nitrofurantoin Intravenous drug misuse
e) Drugs that cause Thromboembolisms
    a. Estrogens
f) Drugs that cause Pulmonary Hypertension
    a. Estrogens
    b. Dexfenfluramine, fenfluramine
g) Drugs that cause respiratory depression
    a. Opioids
    b. Benzodiazepine

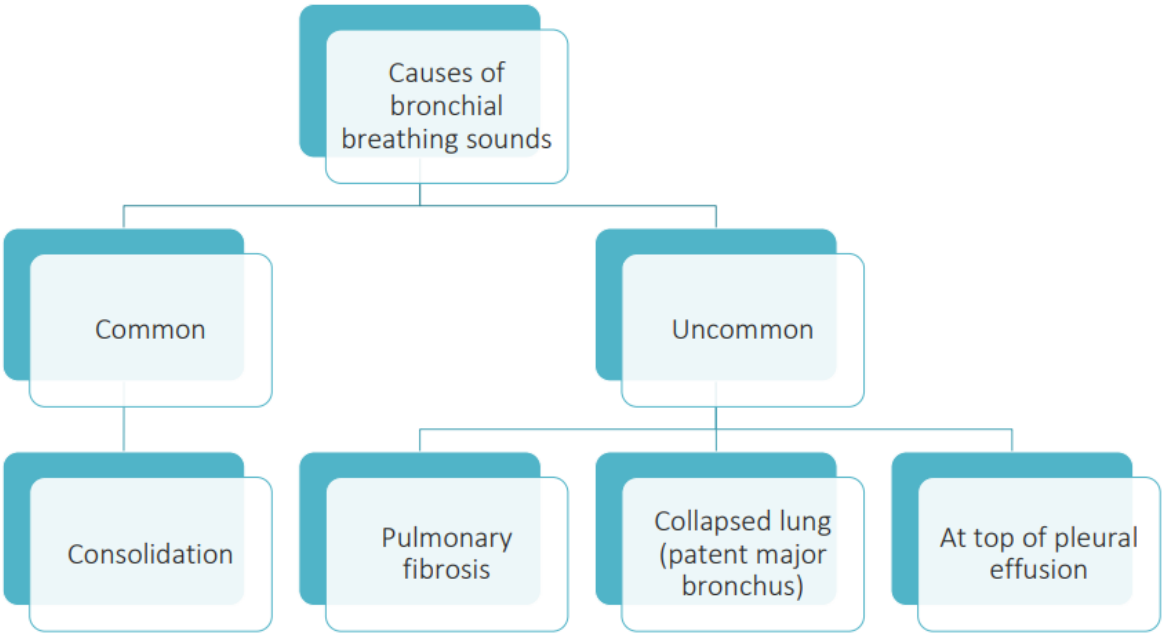
20-Cheyne-Stokes Breathing

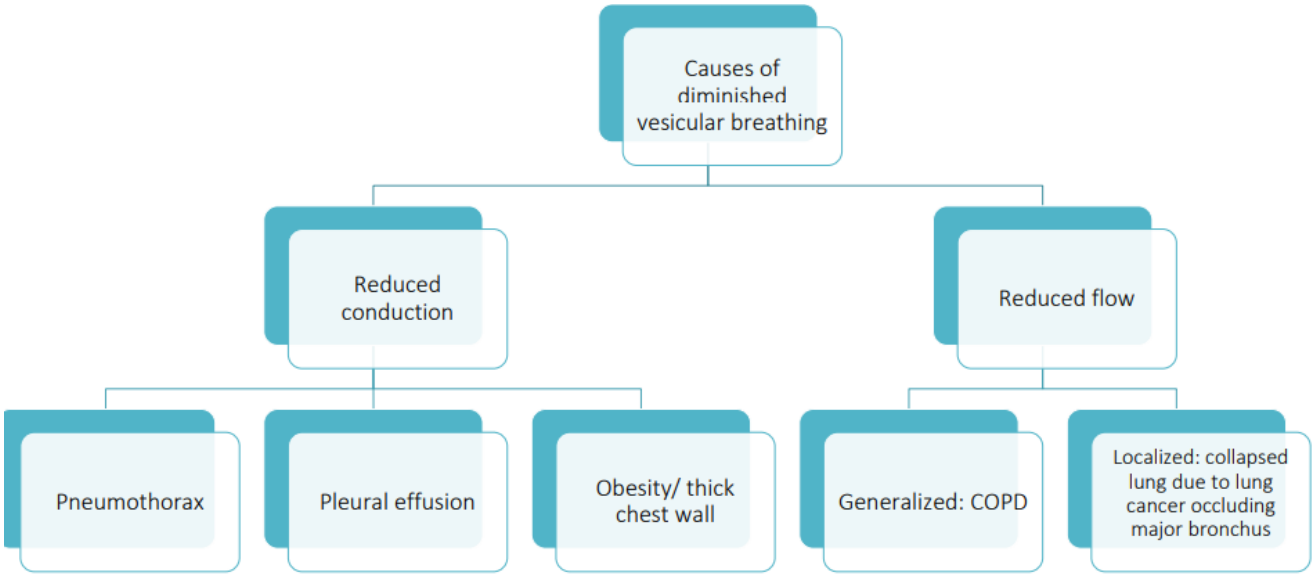
a) Alternating episodes of deep and shallow breathing
b) Seen in
    a. Healthy people on high altitudes
    b. Elderly people with heart failure
c) Usually due to abnormal feedback from the carotid chemoreceptors to the respiratory centers in the medulla Oblangata
d) Kussmaul Breathing is seen in patients in DKA (Diabetic Ketoacidosis)

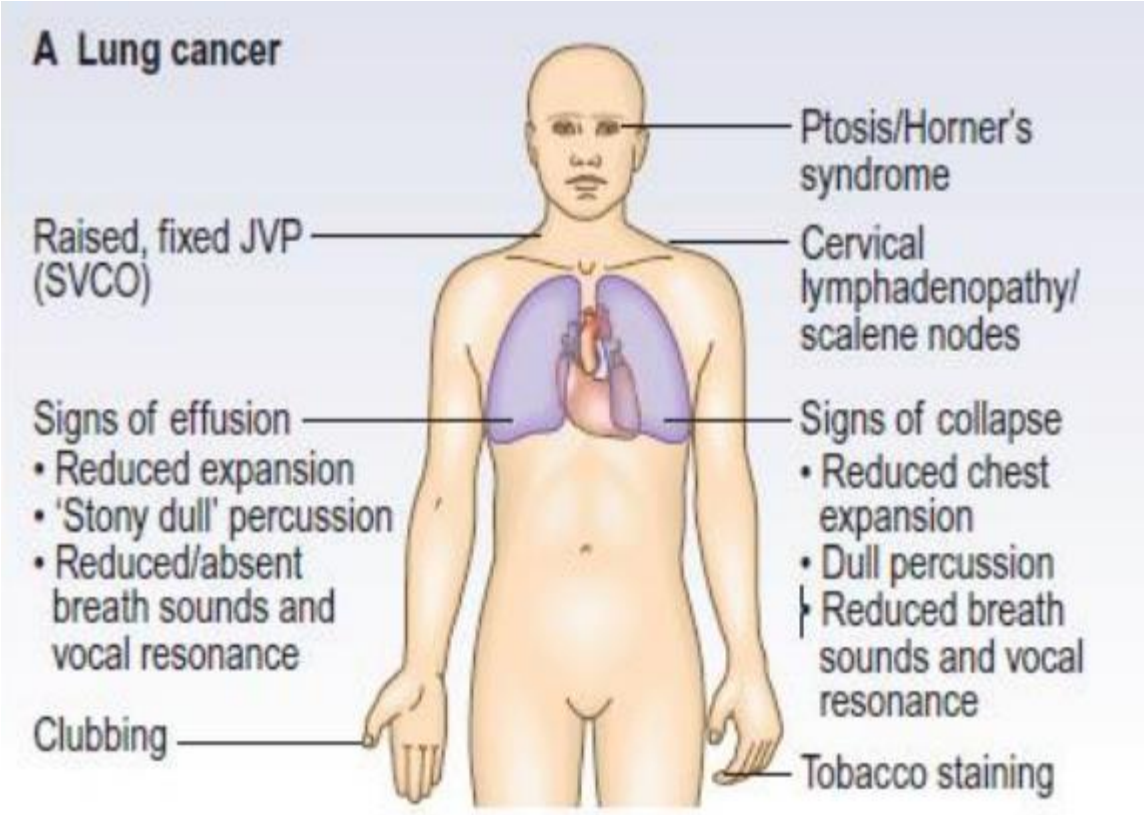
21-Sarcoidosis

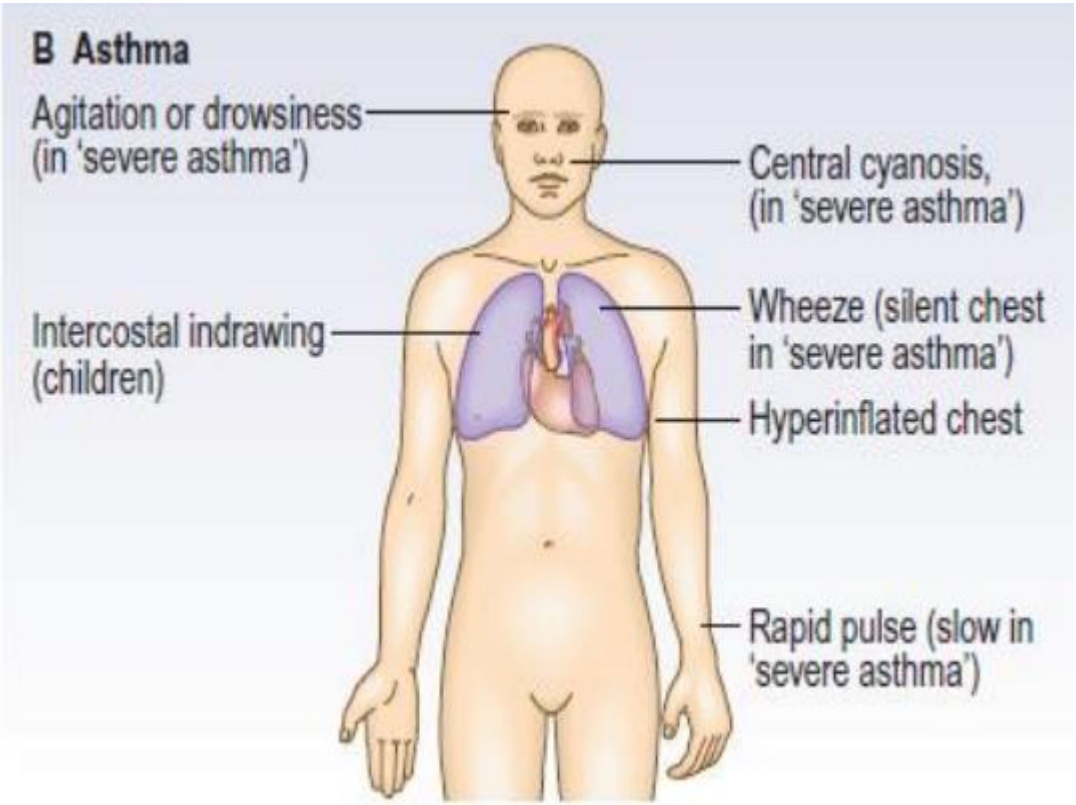
a) Erythema Nodosum

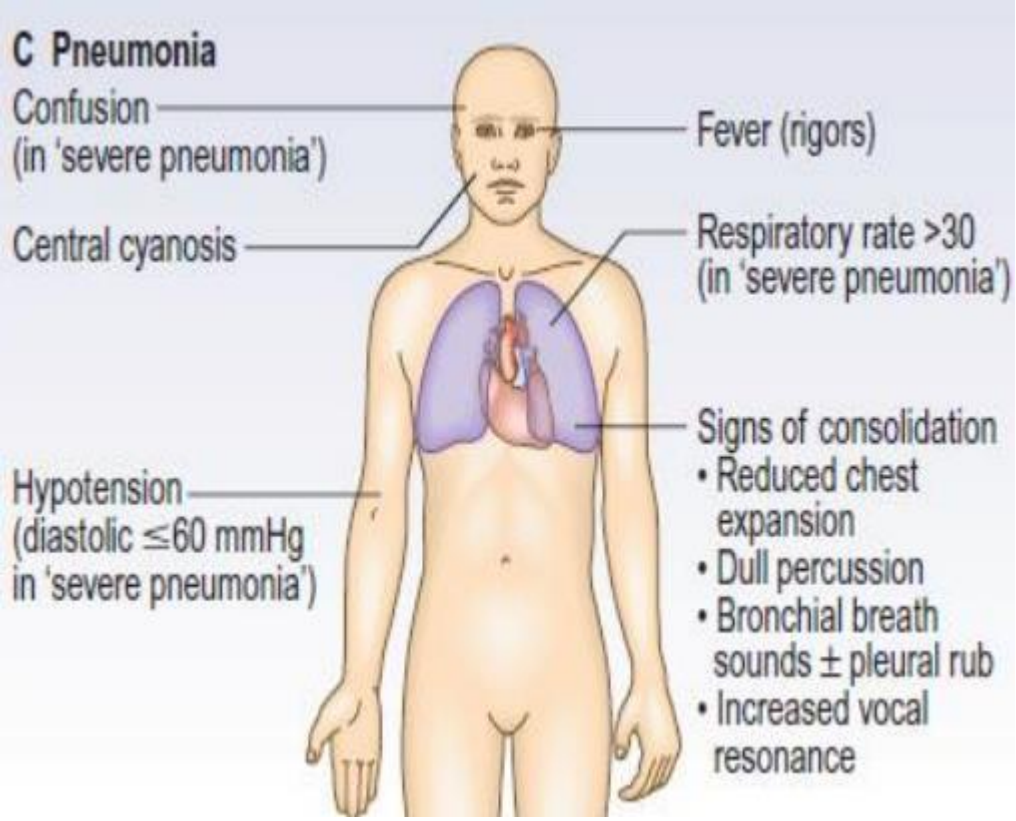

Type
Duration of sound
Intensity of expiratory
Pitch of expiratory
Vesicular
Inspiratory longer than expiratory
Soft
Low
Bronchial
Expiratory longer than inspiratory
Loud
High

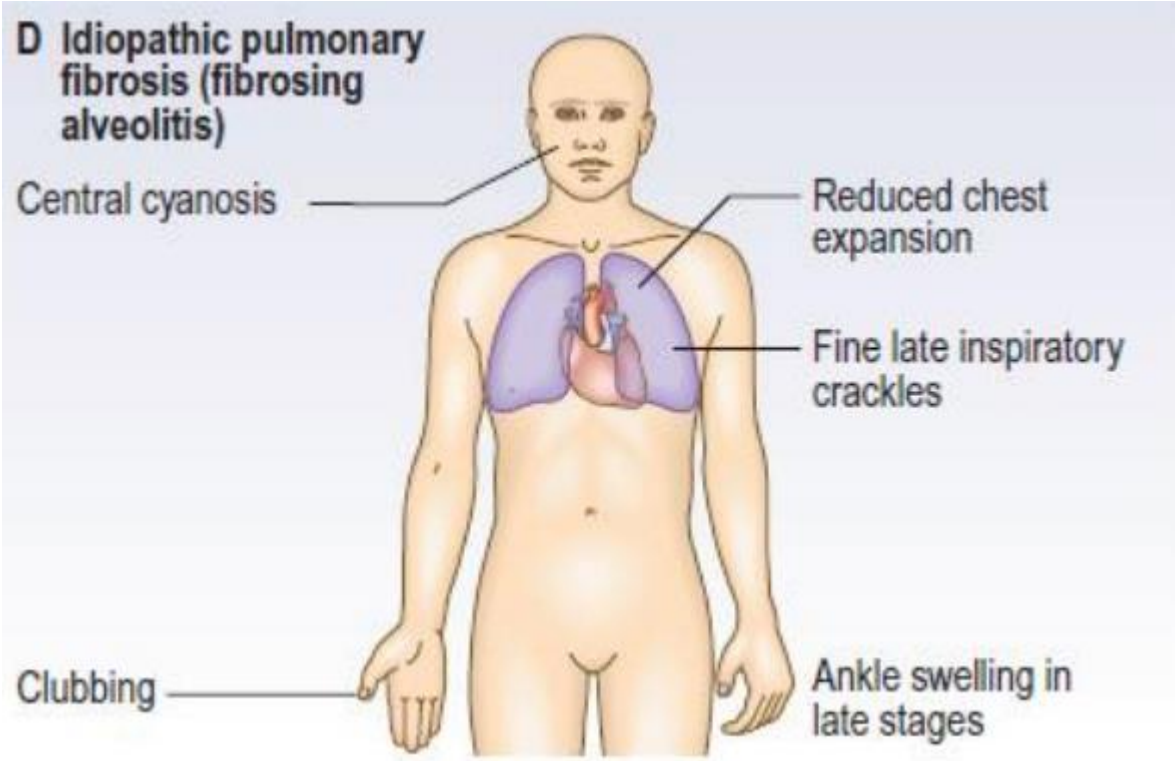

Causes of bronchial breathing sounds
Common
Uncommon
Consolidation
Pulmonary fibrosis
Collapsed lung (patent major bronchus)
At top of pleural effusion

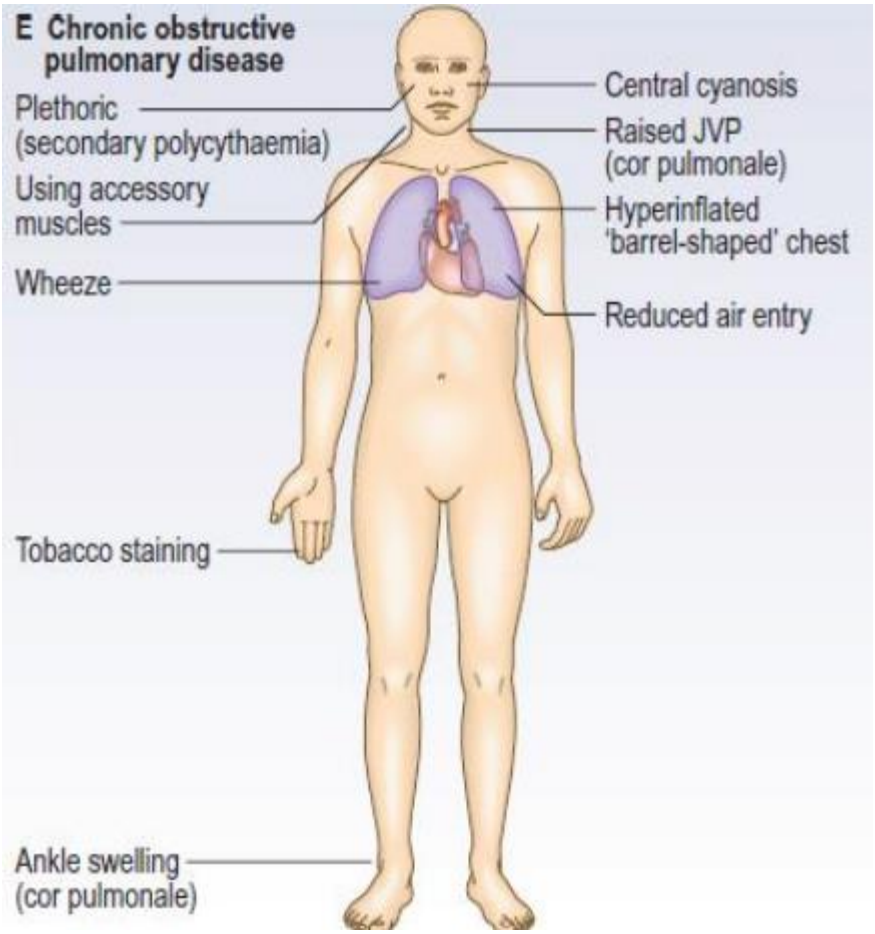

Causes of diminished vesicular breathing
Reduced conduction
Reduced flow
Pneumothorax
Pleural effusion
Obesity/ thick chest wall
Generalized: COPD
Localized: collapsed lung due to lung cancer occluding major bronchus

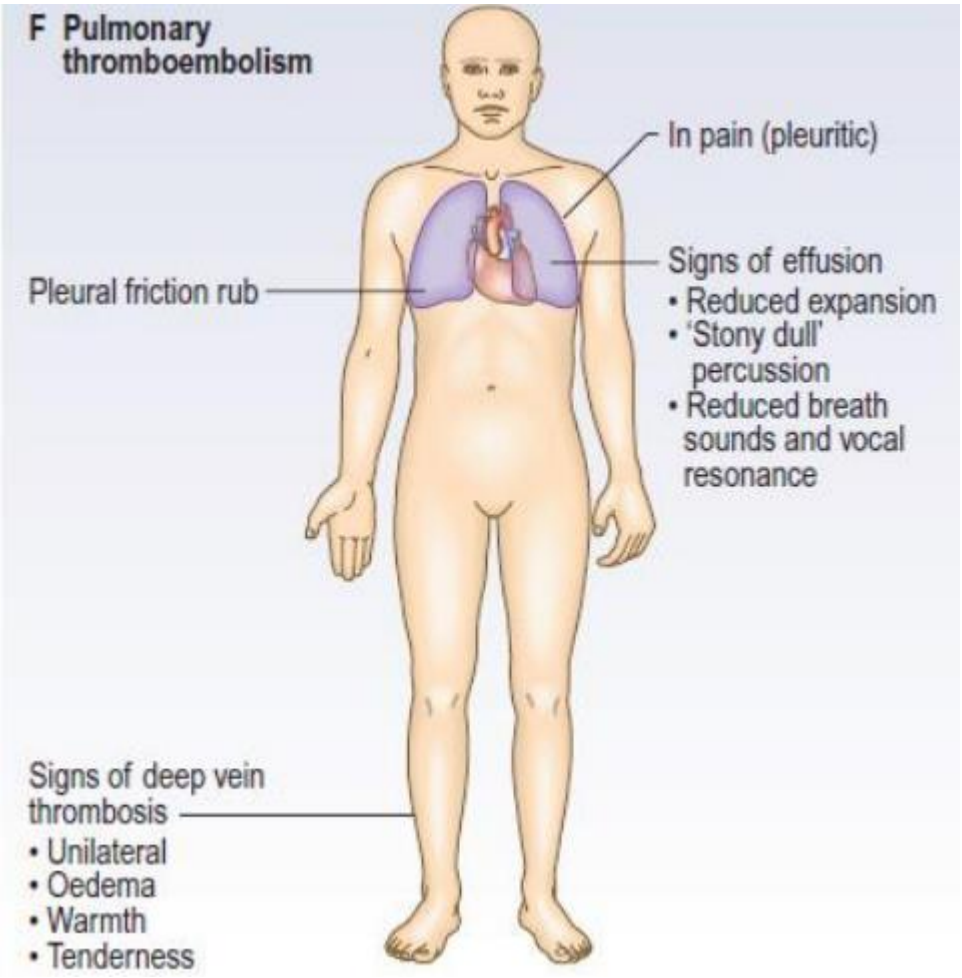

A Lung cancer
Ptosis/Horner's syndrome
Raised, fixed JVP (SVCO)
Cervical lymphadenopathy/ scalene nodes
Signs of effusion
• Reduced expansion
• 'Stony dull' percussion
• Reduced/absent breath sounds and vocal resonance
Signs of collapse
• Reduced chest expansion
• Dull percussion
• Reduced breath sounds and vocal resonance
Clubbing
Tobacco staining


B Asthma
Agitation or drowsiness (in 'severe asthma')
Central cyanosis, (in 'severe asthma')
Intercostal indrawing (children)
Wheeze (silent chest in 'severe asthma')
Hyperinflated chest
Rapid pulse (slow in 'severe asthma')


C Pneumonia
Confusion
(in 'severe pneumonia')
Central cyanosis
Hypotension
(diastolic ≤60 mmHg
in 'severe pneumonia')
Fever (rigors)
Respiratory rate >30
(in 'severe pneumonia')
Signs of consolidation
• Reduced chest expansion
• Dull percussion
• Bronchial breath sounds ± pleural rub
• Increased vocal resonance


D Idiopathic pulmonary fibrosis (fibrosing alveolitis)
Central cyanosis
Clubbing
Reduced chest expansion
Fine late inspiratory crackles
Ankle swelling in late stages


E Chronic obstructive pulmonary disease
Plethoric (secondary polycythaemia)
Using accessory muscles
Wheeze
Tobacco staining
Ankle swelling (cor pulmonale)
Central cyanosis
Raised JVP (cor pulmonale)
Hyperinflated 'barrel-shaped' chest
Reduced air entry


F Pulmonary thromboembolism
In pain (pleuritic)
Pleural friction rub
Signs of effusion
• Reduced expansion
• 'Stony dull' percussion
• Reduced breath sounds and vocal resonance
Signs of deep vein thrombosis
• Unilateral
• Oedema
• Warmth
• Tenderness