



Respiratory symptoms

By
Dr. Samah Mohamed
Shehata
Associate professor of
Chest diseases



COMMON SYMPTOMS OF PULMONARY DISORDERS

- Primary symptoms:
 - *dyspnea*
 - *cough*
 - *chest pain*
 - *sputum production*
 - *hemoptysis*
 - *wheezing*
- Secondary symptoms:
 - hoarseness or voice change
 - Dysphagia (difficult swallowing)
 - syncope/dizziness/fainting
 - ankle swelling (peripheral edema)
 - fever, chills, night sweats
 - long bone, joint, muscle pain
 - Sleep disturbance** related symptoms

Analysis of the complaint

- Each must be explored in detail in terms of:
 1. **When** did it begin (*Time of onset*: circumstances, ~~when does it occur now: night, awakening, exercise~~).
 - Time-course* after onset (intermittent, progressive, remission and exacerbation) and *duration of illness* :Provides clues to etiology.
 2. **What:**
 - i. Brought the symptom to begin with?
 - ii. Makes it worse or relieves?
 3. **How** the symptom is affecting the patient's life style:
 - i. daily activities restricted
 - ii. going to work
 - iii. attending school
 - iv. shopping
 - v. other household tasks
 4. **Severity/intensity/character of Sx:**

cough

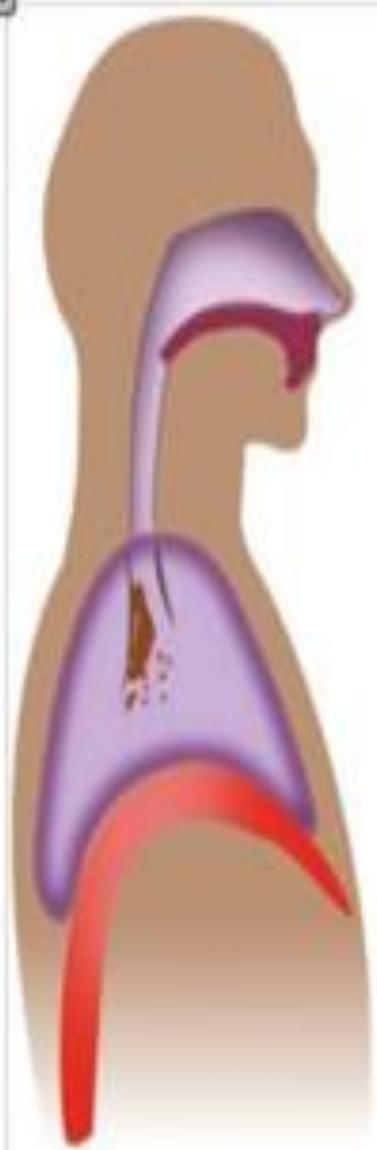
Concept

- ✓ **A protective reflex act**
- ✓ **clean excessive secretion & foreign material**
- ✓ **Initiated by miscellaneous stimuli or by voluntary exertion.**
- ✓ **The most common respiratory symptom.**
- ✓ **Severe cough is a serious clinical problem.**

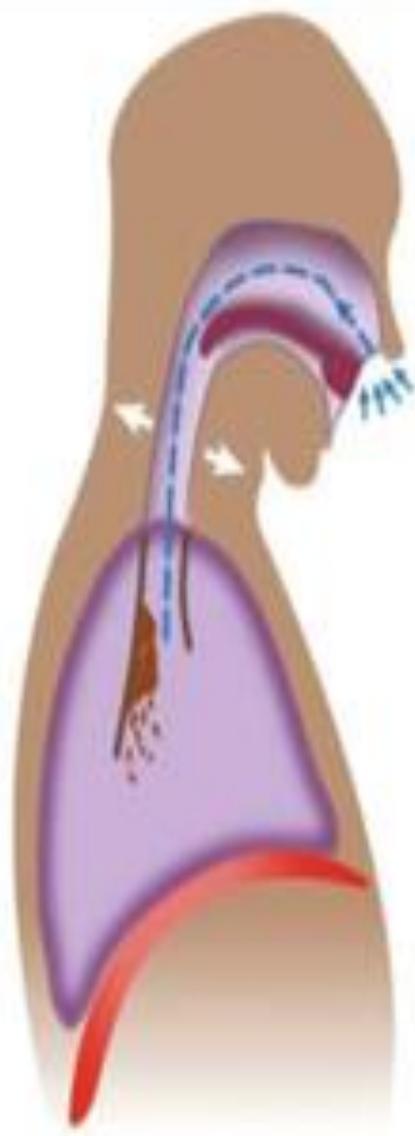
What is a cough!!!

- Cough is a 3-phase expulsive motor act characterized by an inspiratory effort (*inspiratory phase*), followed by a forced expiratory effort against a closed glottis (*compressive phase*) followed by opening of the glottis and rapid expiratory airflow (*expulsive phase*)





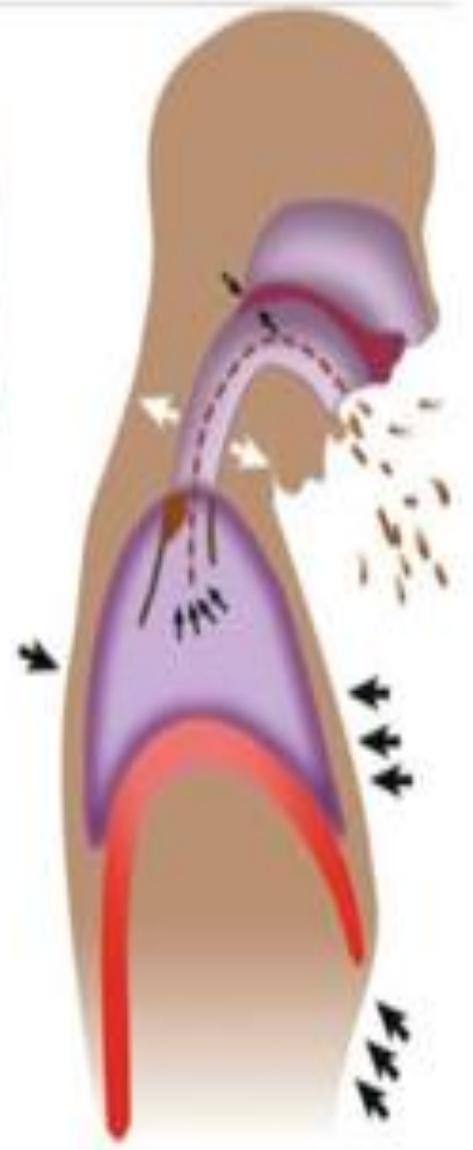
Irritation



Inspiration



Compression



Expulsion

Anatomy of a Cough Reflex

Receptors	Afferent Nerves	Cough Center	Efferent Nerves	Effector Organs
Larynx, trachea, bronchi, ear canal, pleura, and stomach	Vagus	Diffusely located in medulla near the respiratory center; under control of higher centers	Vagus; phrenic; intercostal and lumbar	Muscles of larynx and bronchi; diaphragm; intercostal abdominal and lumbar muscles
Nose and paranasal sinuses	Trigeminal			
Pharynx	Glossopharyngeal		Trigeminal, facial, hypoglossal, and accessory	Upper airways and accessory respiratory
Pericardium, diaphragm	Phrenic			

Types of Cough

- **Non-productive (dry):** No useful purpose, increases discomfort to the patient → needs suppression
- **Productive (tenacious):** Presence of excessive sputum → suppression not desired → needs coughing/clearing out of the sputum



	DRY COUGH	WET/PRODUCTIVE COUGH
Characteristics	No phlegm production	Phlegm production
	Occasional associated with scratchy or painful throat when excessive	
Common Causes	Viral infection	Tuberculosis
	Cold or dry Air	Bacterial pneumonia
	Air pollutants	Bronchitis
	Any inhaled irritants	
	Foreign bodies	

Table 1. Causes of cough.

Duration	Acute (<3 weeks)	Subacute (3–8 weeks)	Chronic (>8 weeks)
Common causes	Common cold Rhinitis (allergic, irritant, and vasomotor) Acute bacterial sinusitis	Post-infectious cough	UACS Asthma NAEB GERD <u>Chronic bronchitis due to smoking or other irritants</u> <u>ACE inhibitor use</u>
Less common causes	Acute exacerbation of airway diseases (asthma, bronchiectasis, and COAD)	Subacute bacterial sinusitis Asthma	COAD Bronchiectasis Airway foreign body <u>Tuberculosis and other infection</u> <u>Lung cancer</u>
Uncommon causes	Life-threatening conditions (pneumonia, cardiovascular disease, and pulmonary embolism)	<i>B. pertussis</i> infection	<u>Congestive heart failure</u> Chronic aspiration due to oral-pharyngeal dysphagia <u>Mediastinal or thyroid mass compressing the airway</u> Interstitial lung disease Cerumen impaction <u>Psychogenic cough</u>

COUGH Analysis

❖ effective:

- strong enough to clear the airway

❖ noneffective or inadequate:

- too weak to mobilize secretions

❖ **productive:**

- clears mucus or other material

❖ **dry or nonproductive:**

- does not clear mucus

1-Whooping cough (violent fits of cough then insp.stridor due to lary.spasm)

2-Bovine cough (vocal cord paralysis)

3-Brassy cough(Tracheal compression)

Timing, and setting may provide clues to cause of cough:

1. Early morning.....Bronchial asthma
2. Nocturnal Post-nasal discharge, Bronchial asthma, PND
3. In the evening Exposure to irritants during the work day
4. Post-prandialGERD
5. Disappear during sleepPsychogenic

COUGH

⦿ Complications

- ❖ fatigue
- ❖ Spread of infection
- ❖ **torn chest muscles**
- ❖ Hernia
- ❖ rib fractures
- ❖ disruption of surgical wounds
- ❖ pneumothorax or pneumomediastinum
- ❖ syncope
- ❖ dysrhythmia
- ❖ esophageal rupture
- ❖ urinary incontinence



Expectoration

● *Sputum* is abnormal secretion produced in or expelled from the Broncho-pulmonary system.

It is NOT saliva...NOT nasopharyngeal in origin

SPUTUM PRODUCTION

- **Tracheobronchial tree secretes ~ 100 ml of mucus daily**
- Usually swallowed unnoticed
- May need to collect and inspect mucus over 24 hours for accurate analysis

SPUTUM Analysis

- Color, consistency, quantity, time of day produced, odor, and presence of blood or other distinguishing matter, relation to posture.
- Character of sputum may be indicative of a particular disorder.

Types of sputum

Type	Appearance	cause
Serous	Clear, watery	Acute pulmonary oedema
	Frothy, pink	Alveolar cell cancer
Mucus	Clear, grey	Chronic bronchitis/COPD
	White, viscid	Bronchial asthma
Purulent	Yellow	Acute bronchopulmonary infection, Asthma (eosinophils)
	Green	Suppurative lung
Rusty	Rusty red	Pneumococcal pneumonia

Watery ,salty fluidruptured hydatid cyst

-**Anchovy-sauce** → hepatopulmonary
amebiasis

**Odor ... fetid in Anaerobic infections,
suppurative lung diseases**

Relation to posture

HEMOPTYSIS

- Expectoration of sputum containing blood, varying in severity from slight streaking to frank bleeding.
- It is an *alarming symptom* that may herald serious disease or massive hemorrhage.

HEMOPTYSIS Causes

Pulmonary

- Airways diseases
 1. *bronchitis*
 2. bronchiectasis
 3. cystic fibrosis
- Neoplasms
 1. *bronchogenic carcinoma*
 2. bronchial carcinoid
- Inflammatory disorders
 1. *tuberculosis*
 2. pneumonia
 3. lung abscess
 4. aspergilloma
- Pulmonary vascular diseases
 1. *pulmonary thromboembolism*
 2. pulmonary vasculitis
 3. arteriovenous malformations

Cardiovascular

- Mitral stenosis
- Congestive heart failure

Miscellaneous

- Use of anticoagulants or fibrinolytics

Hemoptysis has to be differentiated from:

1- Epistaxis.

2- Spurious or false hemoptysis: its origin from above vocal cord

3- Hematemesis (Vomited blood).

Hemoptysis	Hematemesis
<ul style="list-style-type: none">- Red, frothy, fresh bl.- Alkaline pH.- Resp. symptoms.- Bl. Streaked sputum	<p>Dark & may contain food particles</p> <ul style="list-style-type: none">- Acidic pH.- GIT upset (dyspepsia).- Tarry stool.

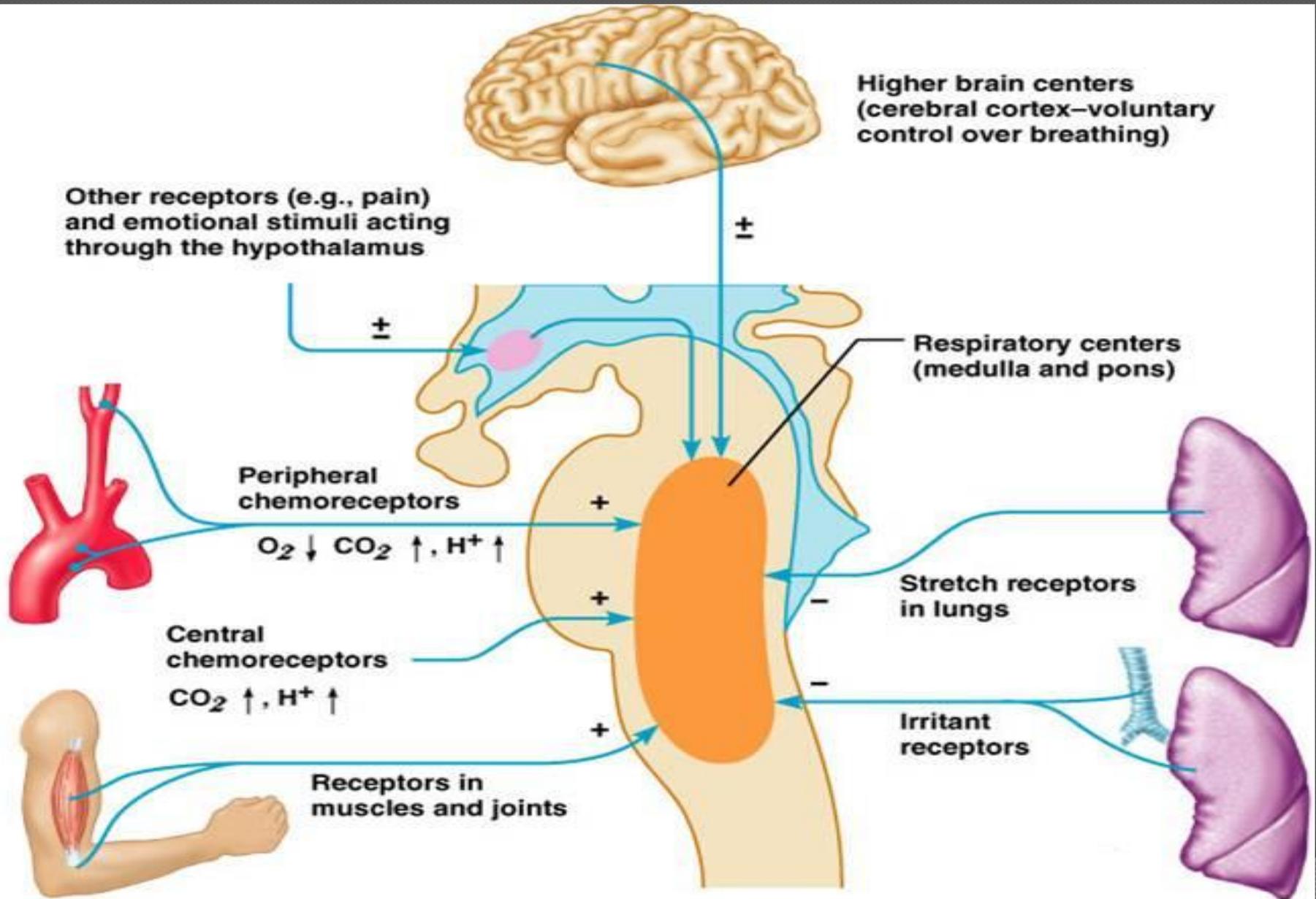
Assessment of severity of hemoptysis:

- **Mild** → occasionally blood-streaked sputum.
- **Moderate** → persistent blood-streaked.
- **Massive** → coughing up 150 cc or more at once.
 - 400 cc or more within 3 hours.
 - 600 cc or more within 24 hours

SHORTNESS OF BREATH (DYSPNEA)

- Many definitions of dyspnea
- “Difficult, labored, uncomfortable breathing”, an “awareness of respiratory distress”, “the sensation of feeling breathless or experiencing air hunger”.

MECHANISMS OF DYSPNOEA



Shortness of Breath: Common Causes

- *Psychological*
e.g. anxiety and stress
- *Pulmonary*
e.g. Asthma, bronchitis, emphysema, pulmonary fibrosis, pulmonary hypertension and pleurisy.
- *Cardiac*
e.g. heart failure, cardiomyopathy and pericarditis
- *Other Problems*
e.g. acute kidney failure, obesity and pregnancy

❖ Comment on dyspnea:

1. Onset, course, duration
2. Timing
3. Postural dyspnea
4. Grading, severity
5. Associated Precipitating, relieving factors

Mode of onset and course:

- 1- Sudden onset → pulmonary embolism, pneumothorax.
- 2- Acute → inhalation of fumes.
- 3- Subacute → (progressive over weeks) → pleural effusion.
- 4- Chronic (progressive over months or years) → **COPD, IPF and Primary pulmonary hypertension.**
- 5- Paroxysmal (intermittent) → in asthma.

Postural Dyspnea

Orthopnea is the sensation of breathlessness in the recumbent position, relieved immediately by sitting or standing.

1. In the horizontal position there is redistribution of blood volume from the lower extremities and splanchnic beds to the lungs. In patients with congestive heart failure:

- ▶ the pulmonary circulation may already be overloaded
- ▶ the additional volume cannot be pumped out by the left ventricle because of disease,
- ▶ there is a significant reduction in vital capacity and pulmonary compliance with resultant shortness of breath

2. Pulmonary congestion decreases when the patient assumes a more erect position, and this is accompanied by an improvement in symptoms.

3. Patients with orthopnea are functionally classified into **NYHA class IV**

Paroxysmal nocturnal dyspnea (PND) is a sensation of shortness of breath that awakens the patient, often after 1 or 2 hours of sleep, and is usually relieved in the upright position for 5-15 minutes.

- As orthopnea, The failing left ventricle is suddenly unable to match the output of a more normally functioning right ventricle; this results in pulmonary congestion.
- Additional mechanisms may be due to **changes occurring during sleep**, decreased responsiveness of the respiratory center in the brain and decreased adrenergic activity in the myocardium during sleep.
- Patients with PND are functionally classified into **NYHA class III**

Trepopnea is dyspnea that occurs in one lateral decubitus position as opposed to the other .

may occur with asymmetric lung disease when the patient lies with the more affected lung down because of **gravitational redistribution of blood flow.**

Platypnea refers to breathlessness that occurs in the upright position and is relieved with recumbency, was originally described in:

- ▶ chronic obstructive pulmonary disease
- ▶ Bilateral basal A-V malformations

CHEST PAIN

Generally due to ischemia or inflammation:

Organ system	Cause
Cardiac	<ul style="list-style-type: none">■ Coronary artery disease■ Aortic valvular disease■ Pulmonary hypertension■ Mitral valve prolapse■ Pericarditis
Vascular	<ul style="list-style-type: none">■ Dissection of the aorta
Pulmonary	<ul style="list-style-type: none">■ Pulmonary embolism■ Pneumonia■ Pleuritis■ Pneumothorax
Musculoskeletal	<ul style="list-style-type: none">■ Costochondritis■ Arthritis■ Muscular spasm■ Bone tumor
Neural	<ul style="list-style-type: none">■ Herpes zoster
Gastrointestinal	<ul style="list-style-type: none">■ Ulcer disease■ Bowel disease■ Hiatal hernia■ Pancreatitis■ Cholecystitis
Emotional	<ul style="list-style-type: none">■ Anxiety■ Depression

CHEST PAIN

- Causes and characteristics

- Questions to ask:

1. *Onset, course, duration*
2. *Site, radiation*
3. *Character*
4. *What increases or decrease??*
5. *Severity*

CHEST PAIN

● Cardinal symptom of heart disease.

	Angina	Not angina
Location	Retrosternal, diffuse	Left inframammary, localized
Radiation	Left arm, jaw, back	Right arm
Description	Aching, dull, pressing, squeezing	Sharp, shooting, cutting
Intensity	Mild to severe	Excruciating
Duration	Minutes	Seconds, Hours, Days
Precipitated by	Effort, emotion, eating, cold	Respiration, posture, motion
Relieved by	Rest, nitroglycerin	nonspecific

CHEST PAIN

○ Pulmonary causes:

- usually involves chest wall or parietal pleura
- lung parenchyma has no pain receptors but pulmonary diseases may involve pleura

○ Pleuritic pain:

- most common symptom of pleurisy
- sharp, abrupt, stitching or stabbing
- increases with inspiration and cough

CHEST PAIN

 Pain from other sites can be referred to the chest and pain from chest can be referred to other sites:

1. Gastritis, cholecystitis, renal colic often referred to chest and interpreted as “chest pain”.
2. pleuritic pain referred to abdomen, Rt shoulder.

NOISY BREATHING AND VOICE CHANGES

TERMS USED TO DESCRIBE NOISY BREATHING:

- 1. Wheezing.*
- 2. Stridor.*
- 3. Snoring.*
- 4. Hoarseness of voice.*

1. WHEEZING

- Whistling or musical sound produced by narrowing of the airways:
 - spasm
 - edema
 - plugging
 - pressure from surrounding lung

1. WHEEZING

- Indicates disease of the lower airways.
- Normally results from bronchospasm or excess mucus or fluid.
- Normally asthma but *“NOT ALL WHEEZING IS ASTHMA”*
- May occur in CHF - “cardiac wheezing”.

2. STRIDOR

- Harsh crowing or snoring sound heard
 - generally on inspiration
- Obstruction of upper airway - trachea or larynx:
 - tumor
 - foreign object
 - edema - croup or epiglottitis

3. SNORING AND SLEEP APNEA

