COUGH

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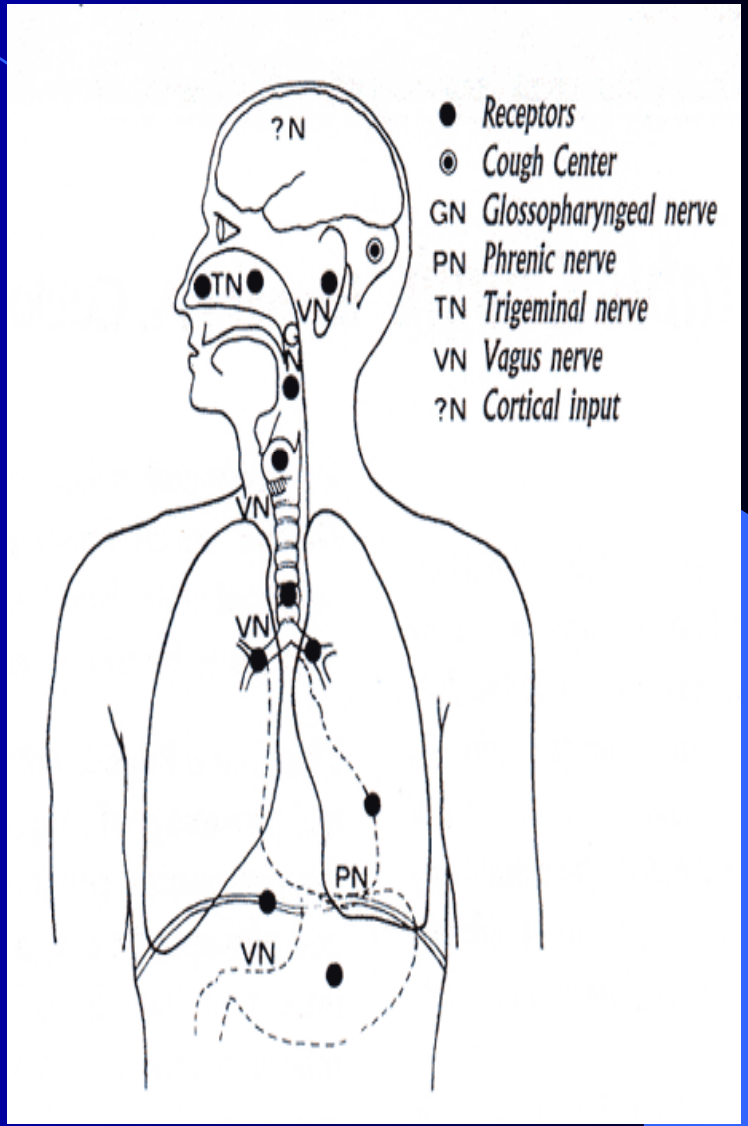
- Cough is an explosive expiration that provides a normal protective mechanism for clearing the tracheobronchial tree of secretions and foreign material.

- When excessive or bothersome, it is also one of the most common symptoms for which patients seek medical attention.

Mechanism

- Coughing may be initiated either voluntarily or reflexively.
- As a defensive reflex it has both afferent and efferent pathways.
- The afferent limb includes receptors within the sensory distribution of the trigeminal, glossopharyngeal, superior laryngeal, and vagus nerves.
- The efferent limb includes the recurrent laryngeal nerve and the spinal nerves.
- Cough centre- medulla oblangata

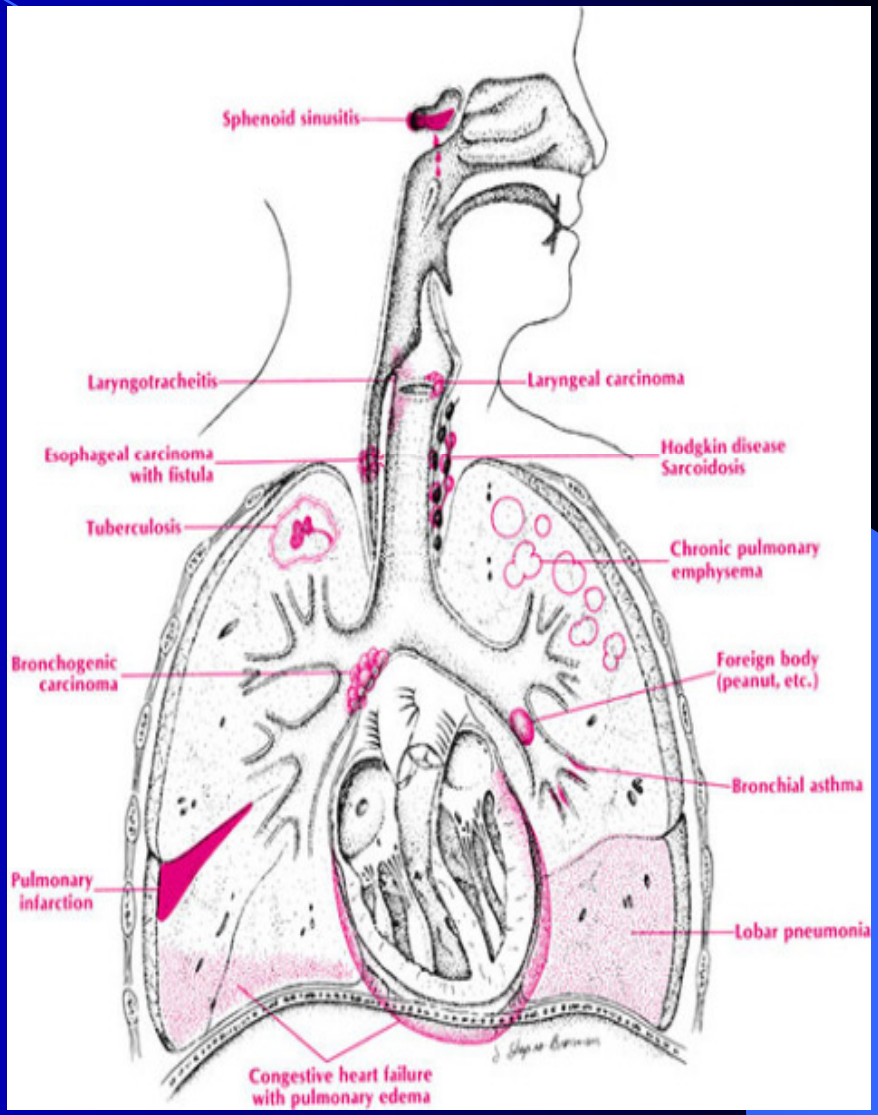


Mechanism

- The cough starts with a deep inspiration followed by glottic closure, relaxation of the diaphragm, and muscle contraction against a closed glottis.
- The resulting markedly positive intrathoracic pressure causes narrowing of the trachea.
- Once the glottis opens, the large pressure differential between the airways and the atmosphere coupled with tracheal narrowing produces rapid flow rates through the trachea.
- The shearing forces that develop aid in the elimination of mucus and foreign materials.

ETIOLOGY

- exogenous source (smoke, dust, fumes)
- endogenous origin (postnasal drip, gastric contents)
- viral or bacterial bronchitis to bronchiectasis
- neoplasm infiltrating the airway wall
- endobronchial sarcoidosis or tuberculosis
- compression of airways (mediastinal tumors)
- parenchymal lung disease (pneumonia, lung abscess)
- congestive heart failure
- use of ACE inhibitors



Approach to the Patient

- Detailed history
- Is the cough acute, subacute, or chronic?
- At its onset, were symptoms suggestive of a respiratory infection?
- Is it seasonal or associated with wheezing?
- Is it associated with symptoms suggestive of postnasal drip or gastroesophageal reflux
- Is it associated with fever or sputum? If sputum is present, what is its character?
- Does the patient have any associated diseases or risk factors for disease (e.g., cigarette smoking, risk factors for infection with HIV, environmental exposures)?
- Is the patient taking an ACE inhibitor?

WORK UP

- GPE - Examination of the oropharynx, Auscultation of the chest
- inspiratory stridor (upper airway disease)
- rhonchi or expiratory wheezing (lower airway disease)
- inspiratory crackles (involving pulmonary parenchyma)
- CXR
- Pulmonary function testing
- Sputum,- gross and microscopic examination
- Fiberoptic bronchoscopy
- High-resolution computed tomography (HRCT)

Complications

- chest and abdominal wall soreness
- urinary incontinence
- exhaustion
- syncope
- headache
- cough fractures of the ribs

Treatment

- Definitive treatment - determining the underlying cause - specific therapy
- Symptomatic or nonspecific therapy of cough - (1) cause of cough not known or specific treatment not possible (2) cough performs no useful function or causes marked discomfort or sleep disturbance.
- Antihistamine-decongestant combination, nasal glucocorticoids
- If ineffective, empirical treatment for asthma, and GE reflux
- Irritative, nonproductive cough - antitussive agent (codeine)
- However, productive cough should usually not be suppressed

Hemoptysis

- Hemoptysis is defined as the expectoration of blood from the respiratory tract, (blood-streaking of sputum to coughing up large amounts of pure blood)

- Massive hemoptysis - expectoration of >100–600 mL over a 24-h period

Differential Diagnosis of Hemoptysis

Upper airway (nasopharyngeal) bleeding	Lupus pneumonitis
Gastrointestinal bleeding	Lung contusion
Tracheobronchial source	Primary vascular source
Neoplasm (bronchogenic carcinoma)	Arteriovenous malformation
Bronchitis (acute or chronic)	Pulmonary embolism
Bronchiectasis	Elevated pulmonary venous pressure (MS)
Broncholithiasis	Pulmonary endometriosis
Airway trauma	Systemic coagulopathy or drugs
Foreign body	Goodpasture's syndrome
Pulmonary parenchymal source	Idiopathic pulmonary hemosiderosis
Lung abscess	Wegener's granulomatosis
Pneumonia	Mycetoma ("fungus ball")
Tuberculosis	

Hemoptysis or Hemetemesis

Hemoptysis	*Hematemesis*
History	
Absence of nausea and vomiting	Presence of nausea and vomiting
Lung disease	Gastric or hepatic disease
Asphyxia possible	Asphyxia unusual
Sputum examination	
Frothy	Rarely frothy
Liquid or clotted appearance	Coffee ground appearance
Bright red or pink	Brown to black
Laboratory	
Alkaline pH	Acidic pH
Mixed with macrophages and neutrophils	Mixed with food particles

WORK UP

- History of previous or coexisting disorders (renal disease, lupus erythematosus , recent chemotherapy previous bleeding disorders, treatment with anticoagulants, use of drugs associated with thrombocytopenia)
- GPE - Examination of the oropharynx, Auscultation of the chest , Cardiac examination
- Complete blood count, coagulation profile, assessment for renal disease with urinalysis
- CXR
- Sputum,- gross and microscopic examination
- Fiberoptic bronchoscopy
- High-resolution computed tomography (HRCT)

Treatment

- When the bleeding is confined to either blood-streaking of sputum or production of small amounts of pure blood, gas exchange is usually preserved; establishing a diagnosis is the first priority.
- Keeping the patient at rest and partially suppressing cough may help the bleeding to subside
- With massive bleeding, the need to control the airway and maintain adequate gas exchange may necessitate endotracheal intubation and mechanical ventilation.
- Laser phototherapy, electrocautery, bronchial artery embolization, surgical resection of the involved area of lung.


Thank You