# Cough and Homoeopathy



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## Cough and Homoeopathy

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## Definition

Cough is the voluntary expulsion or reflex of the inspired air by forced expiratory effort against a momentarily closed glottis. It may be regarded as a display of diseases affecting several other systems including a major symptom of pulmonary diseases. Cough is usually associated with mucus secretion, bronchoconstriction and transient rise in systemic BP.

## Purpose of cough

Cough is one of the unique defensive reflex, planned to clear the tracheobronchial tree of secretion and foreign body. It is also known as the 'watch-dog' (i.e. protective reflex) of the respiratory system.

## Mechanism

It requires a complicated network of neurosensory-muscular coordination.

## Afferent pathway

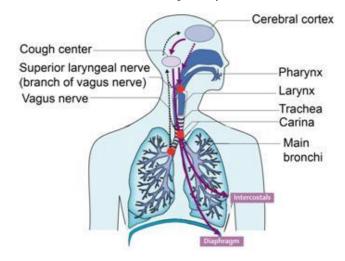
It originates from the sensory receptors present in epithelium of the airways (larynx, trachea and major bronchus), and the afferent nerves involved are trigeminal, glossopharyngeal, superior laryngeal and vagus.

## Cough center

It is present in medulla oblongata.

## Efferent pathway

The efferent impulses reach the diaphragm, intercostal muscles, abdominal muscles, and to larynx through vagus, phrenic, recurrent laryngeal and spinal motor nerves resulting in cough, while the laryngeal air velocities produced as a result of violent action of respiratory muscles make a sound.



## Phases of cough

## Apt stimulus

It initiates deep inspiration. It may be-

- Mechanical (dust, mucus, foreign body)
- Chemical (toxic gases, fumes, cigarette smoke)
- Inflammatory (Oedema and hyperaemia of respiratory mucous membrane) and
- Thermal stimuli (inhalation of either very cold or hot)

## Glottic closure

- Contraction of muscles of expiration including accessory muscles
- Relaxation of diaphragm resulting in maximum intrathoracic pressure and
- Narrowing of trachea.

## Glottic opening

- High flow rate produced as a result of pressure difference between the airways and the atmosphere and
- Tracheal narrowing propelling excessive mucus and foreign body outside

## Etiology

## Respiratory tract

Acute and chronic infection/neoplasm of larynx or pharynx, post-nasal drip, acute tracheobronchitis, cigarette smoking, pulmonary tuberculosis, bronchial asthma, chronic bronchitis, bronchiectasis, emphysema, interstitial pulmonary fibrosis, pneumonia, lung abscess, bronchogenic carcinoma, sarcoidosis, tropical eosinophilia, pneumoconiosis, cystic fibrosis, cough variant asthma, pleurisy, pleural effusion, mediastinal mass.

## Ear, nose and throat

Inhalation of toxic gases, fumes, cooking fuels, dust or foreign body; otitis media, wax impacted in external ear, laryngitis, tracheitis, allergic rhinitis, sinusitis (maxillary) and postnasal drip.

## Cardiovascular system

Pulmonary oedema, pericardial effusion, aortic aneurysm, enlarged left atrium (from mitral stenosis commonly), left ventricular failure.

## GI tract

Gastroesophageal reflux disease (GERD), hiatus hernia, achalasia cardia, esophageal diverticulum.

#### Reflex

Happens to be due to irritation of vagus nerve and is commonly from wax impacted in external ear, otitis media, subdiaphragmatic abscess and acute distension of stomach.

## Drug-induced

ACE-inhibitors (due to accumulation of bradykinin, substance P and prostaglandin E2), β-blockers (indirect effect of bronchoconstriction).

## Psychogenic

Found in adolescents and self-conscious adults; usually spasmodic and explosive in nature; often it is barking (or 'honking') and loud in character. It may be seen as a part of obsessional neurosis or coordinated tics.

## Idiopathic

Sometimes no cause can be detected.

## Classification

- Acute (< 3 weeks) or chronic (> 3 weeks).
- Dry (upper respiratory tract infection, smoker's cough, early stage of pulmonary tuberculosis) or wet (e.g. bronchiectasis).
- Paroxysmal cough (usually lasts for 1-2 minutes): Whooping cough, tracheal obstruction, bronchial asthma, pulmonary oedema, foreign body inhalation.

## Types

## Dry or non-productive

Acute laryngotracheobronchitis; acute dry pleurisy, smoker's cough, early stage of pulmonary tuberculosis.

## Wet, productive or moist

Sputum production may be due to lung abscess, bronchiectasis, resolution stage of pneumonia.

## Bovine (larvngeal cough)

The explosive nature of cough is lost in recurrent laryngeal nerve palsy (commonly due to bronchogenic carcinoma).

## Brassy (or metallic)

Dry cough with a metallic sound may be heard in carcinoma of larynx.

## Whooping

There is rapid succession of dry cough which gradually gather speed and end in a deep inspiration when the characteristic 'whoop' is audible; found in pertussis.

## Spluttering cough

In tracheo-oesophageal fistula (cough during swallowing).

## Hacking (pharyngeal cough)

Dry and irritable cough in heavy smokers.

## Barking

Harsh and loud cough; found in epiglottitis and hysteria.

## Nocturnal

chronic bronchitis, LVF, tropical eosinophilia, post-nasal drip, aspiration (e.g. from GERD).

## Nagging cough

Commonly after use of ACE-inhibitors.

## Croupy cough

Laryngitis, especially in children.

## Fetid cough

In bronchiectasis and lung abscess, there is cough with foul smelling expectoration.

## Suppressed cough

Short spell of suppressed cough is found in pleurisy to avoid pain during coughing.

## Modalities of cough

## Acute onset Cough

Foreign body aspiration, pulmonary thromboembolism (PTE), pulmonary oedema, acute exacerbation of bronchial asthma, inhalation of fumes.

## Cough with wheeze

Bronchial asthma, chronic bronchitis, pulmonary thromboembolism (PTE).

## Related to meals

Hiatus hernia, esophageal diverticulum, tracheooesophageal fistula, neurogenic dysphagia (e.g. bulbar palsy).

#### Related to exertion

Early left ventricular decompensation, mitral stenosis, bronchial asthma.

## Related to posture

Bronchiectasis and lung abscess (cough evoked after change of posture in bed), GERD (cough evoked while lying horizontally).

## Related to seasonal variation

Bronchial asthma and chronic bronchitis become worse in winter.

## Related to working hours

Byssinosis (triggered by cotton dust).

## Induced after inhalation of cold air

bronchial asthma.

## Predominantly nocturnal cough

tropical eosinophilia, bronchial asthma, LVF, esophageal disorders.

## Predominantly early morning cough

Post-nasal drip, chronic bronchitis, sinusitis.

## Recurrent cough since childhood

Cystic fibrosis, childhood asthma, congenital heart disease, cystic disease of lung, hypogammaglobulinaemia.

## Evaluation of sputum or expectoration

- Amount (profuse or not).
- Character (serous, mucoid, purulent, mucopurulent).
- Colour (yellow, green, black, pinkish, rusty).
- Odour or taste (offensive or not).
- Mixed with blood (hemoptysis) or not.
- Sputum production influenced by change of posture (bronchiectasis, lung abscess) or not.

Profuse sputum means > 100 ml of sputum production per day.

## Profuse and fetid (foul-smelling) sputum

- Bronchiectasis
- Lung abscess
- Infection with anaerobic organism
- Infected cavity or neoplasm
- Empyaema thoracis ruptured into bronchus

## Different colours of sputum

Red

Hemoptysis.

#### Black

Carbon particles from atmosphere, cough in coal-miners (benign in nature).

### Green

Respiratory tract infection (verdoperoxidase from dead neutrophil turns yellow sputum to green), bronchial asthma (due to large number of eosinophils), pseudomonas infection.

## Pink and frothy

In acute pulmonary oedema.

## Rusty or golden yellow

Pneumonia (pneumococcal).

#### Yellow

Respiratory tract infection (creamy).

## Yellow (with Sulphur granules)

Actinomycosis of lung.

### Brown to red and tenacious

Klebsiella pneumoniae infection.

## Anchovy-sauce like

Amoebic liver abscess ruptured into lung.

#### Mucoid

Chronic bronchitis, COPD, chronic bronchial asthma.

## Frothy

Pulmonary oedema, bronchoalveolar carcinoma (serous and frothy).

## Evaluation of cough at the bedside

- Duration (days/months/years); acute < 3 weeks, chronic > 3 weeks.
- Variability (daytime/nocturnal/morning).
- Precipitating factors (dust/fumes/pollen/cold air/lying down).
- Seasonal variation? wheeze?
- Types (dry/wet/bovine).
- Hemoptysis, present or not.
- Change of character of cough in a chronic heavy smoker (e.g. development of COPD or bronchogenic carcinoma).
- Associated symptoms (port-nasal drip, GERD, occult asthma, fever, dyspnoea).
- Chest pain (pleurisy) or breathlessness (COPD, pneumonia).
- 10 H/O drug intake–ACE-inhibitors or β-blockers.

## Evaluation of chronic cough

- Viral infection
- GERD
- Post-nasal drip
- Cough variant asthma (present with cough in the absence of wheezing or breathlessness)
- ACE-inhibitor induced

## Investigations

- Chest X-ray (PA and oblique view)
- ENT check-up
- PNS X-ray and CT scan of sinus for post-nasal drip
- Lung function tests and histamine bronchial provocation testing for cough variant asthma
- CT scan of thorax (to exclude interstitial lung disease)
- Radionuclide ventilation/perfusion (VA/Q) scan for recurrent PTE
- Fibreoptic bronchoscopy—to rule out inhaled foreign body or carcinoma of the bronchus
- Ambulatory esophageal pH monitoring for GERD
- ECG, echocardiography (to exclude valvular lesion or LV dysfunction)

## Complications

- Chest and abdominal wall soreness form harassing cough, exhaustion, loss of sleep.
- Severe vomiting, rib fracture (especially in elderly with osteoporosis, multiple myeloma or osteolytic metastases), cough syncope (momentary unconsciousness due to raised intrathoracic pressure during coughing which impedes venous return to the heart and reduces cardiac output), spontaneous pneumothorax, subconjunctival hemorrhage, frenal ulcer (in tongue), urinary or fecal incontinence, prolapse of rectum/uterus/hernia.
- Postoperative wound dehiscence, rupture of rectus abdominis (rare), heart block (rare).

## Management

Cessation of smoking, application of antibiotics, stoppage of ACE inhibitors, treatment of LVF.

## Homoeopathic Remedies

Some of the most commonly used remedies are given below-

#### **ACONITE**

Short, dry or barking cough, arising form constant tickling in larynx, excited by drinking. Stitches in the chest, hindering respiration. Coughs, which are caused by cold, dry weather and winds and begin with a sudden invasion of a hot, dry, feverish state. Worse < lying on the side, eating and drinking, from cold dry winds or current of air, walking in open air, when assuming an upright position, deep inspiration and speaking. Great restlessness, fear and worry with tossing about.

## ANTIMONIUM TART

Cough with great rattling of mucus with little or no expectoration. Profuse mucus in the chest with feeble expulsive power. Violent cough after each meal, ending with vomiting of the food, cough with suffocating attacks, violent sneezing, tickling in air passages provoking cough. Nightly cough with expectoration of thick, yellow, tough mucus. Better > sitting upright, from expectoration, when carried in a upright position. Worse < after midnight, after eating, when angry, sleeping in damp cellars, warm in bed, every morning, rattling of phlegm in chest, lying down, with oppression. Drowsy, sleepy, despondent, fear of being alone but a child will not want to be touched without whining.

## ARSENICUM ALBUM

Wheezing respiration with cough and frothy mucus. Air passages constricted, can not breath fully. Asthmatic type of cough. Great prostration and debility. Very sensitive to cold. Cough with scanty, difficult expectoration. Anxious and oppressive shortness of breath. Anxiety, restlessness, fussy with thirst for drinks little and often.

#### **BELLADONNA**

Dry spasmodic cough, worse < at night, wakes from sleep. Soreness in chest, children cry when coughing, Sensation as if there was down or dust in the throat causes constant tickling, with irresistible desire to cough. Redness and heat of the face, dilated pupil, glistening eyes, burning heat, acuteness of senses, throbbing headache, red injected sore throat. Mental state can be almost frantic, furious, children may strike and bite, or the person may sit calmly with no anxiety and fear.

#### **BRYONIA**

Hard, dry, racking cough. coming from the gastric region, preceded by tickling or creeping in stomach or throat. Cough at night in bed, intense dryness of the mucus membranes and thirst for great quantities of water. Stitches in chest when coughing or breathing deeply (Acon, Bell.) Sensation when coughing as if head and chest would fly to pieces, must press his hand against the sternum for support. Coughs with involuntary discharge of urine, stitches in the chest, small of the back, Worse < by touch, motion, talking, laughing, eating and drinking, cough in bed at night, compelling one to spring up and assume erect posture at once. Better > rest, lying on the painful side. Patient is irritable, wants to be left alone.

#### **CAUSTICUM**

Dryness, rawness, hoarseness, aphonia, cough hard, and racks the whole chest. Chest feels full of mucus, feels as if only they could cough a little deeper it would raise up the mucus, obliged to swallow the sputum raised, inability to expectorate. Cough with involuntary emissions of urine. Much better > drinking cold water. Intensely sympathetic, sensitive, individuals who take a great interest in the welfare of others.

## DROSERA

Spasmodic, nervous and sympathetic cough, deep sounding, hoarse and barking, with pain in the hypochondrium, must hold the part with the hands. Cough with paroxysms following each other very rapidly, can scarcely breath, chokes. Harassing and titillating cough in children which commences as soon as the head touches the pillow at night. Worse < immediately on lying down, after midnight, warmth, drinking, laughing, singing, weeping.

#### HEPAR SULPH

Croupy cough, with loose, rattling phlegm in windpipe. Rattling, choking cough, worse < after midnight. Severe laryngeal catarrh, with roughness and pain in the upper part of throat. Can not bear to be uncovered, least exposure of cold excites cough (Rumex). Anxious, hoarse, wheezing respiration. Worse < cold, dry weather. Better > in warm, moist weather. Suits thin, irritable, impatient, chilly, oversensitive individuals

#### **HYOCYAMUS**

Dry spasmodic cough, especially at night when lying down, relieved by sitting up, from itching in the throat, as if uvula were too long. suited to hysterical females and young girls.

## *IGNATIA*

Dry spasmodic cough in the evening, feels as if there is fumes or dust in the throat pit. The longer they cough the more irritation they feel. Suited to nervous, young people or women with hysterical tendencies. Cough due to emotional difficulties such as grief, unrequited love, and sadness.

#### *IPECAC*

Spasmodic, asthmatic suffocating, shaking, cough with sweat on the forehead. Child becomes blue and stiff, wheezing, rattling respiration, great weight and anxiety in the chest, worse < least motion, better open air. Loss of breath with cough with inclination to vomit without nausea. Intense nausea with chest complaints with clean tongue.

#### KALI BICH

Loose cough, with rattling in chest. Cough with thick, heavy expectoration of bluish, yellow, or white lumpy mucus. Cough with expectoration of tough, stringy, mucus, which adheres to the parts and can be drawn out in long strings. Catarrhal laryngitis, coughs have a brassy sound. Suits far, light-haired persons, or fat, chubby, short-necked children disposed to croupy affections.

#### KALI CARB

Cough, wheezing, asthmatic, must lean forward with head on knees. Cough with cutting or stitching in chest with respiration and between the breath (Bry, stitching on breath only). Sputum of small, white, round lumps that fly from the mouth when coughing or hawking. Edema, above the eyes, morning, disappearing during day, constipation. Suits conservative, rigid, possibly dogmatic individuals, who dislike change. Never quiet or contented, desires to be with people but treats them outrageously.

## NUX VOMICA

Dryness cough, caused by a rough, scraping sensation in throat. Cough, with pain in head, as if skull would burst, or a sensation as if bruised in region of stomach. Constipation, large, hard difficult stools with ineffectual urging. Desires to eat during the cough. After abuse of cough mixtures. Worse < after eating, mental efforts, on awaking, smoking, drinking, eating. Better > warm drinks. Suits anger, impatient, irritable, ambitious driven individuals.

## PHOSPHORUS

Dry cough, arising from tickling in the throat and chest, excited by reading aloud, talking, laughing, drinking (Bry., Dros., Puls.). Dry tickling in the evening, with tightness across the chest. Trembling of the whole body with the cough. Sputum frothy, bloody, rust colored, purulent, white and tough, cold mucus, tasting sour, salty or sweet. Cannot lay on left side or with head low, pains in the chest compel them to sit up. Desire for cold water and cold food. Suits tall, slender individuals, who are open, bright, sympathetic, suggestible, and lively in the beginning of an illness but become slow, tired and apathetic as the disease advances. Worse physical and mental exertion, twilight, change of weather, in evening, lying on left or painful side, during thunderstorm. Better > lying on the right side, cold food, cold open air, sleep.

## PULSATILLA

Dry cough at night and loose cough in the day, yellowish, greenish, or bitter expectoration. Dry cough at night, going off when sitting up, reappearing when lying down. Dryness of the mouth yet thirstless. Suits

soft, gentle, sensitive, tearful persons, who crave sympathy and comfort and need reassurance. Worse < in warm, closed rooms and craves open air even if chilly.

#### RUMEX

Dry cough from tickling in upper-sternal fossa. Laryngo-tracheal cough, with is teasing and persistent, worse < cold, patient must cover the head or mouth with covers and breath warm air to stop the cough. Tickling in the throat pit causing dry, teasing cough. Extremely sensitive to cold air. Worse < lying down, cool, cold air. Better > warmth, keeping mouth covered.

#### **SPONGIA**

Cough, dry sibilant, like a saw driven through a pine board, dry barking, rasping, ringing, wheezing, whistling, everything is perfectly dry, no mucus rales. Worse < sweets, cold drinks, smoking, lying with head low, dry cold winds, talking, reading, laughing, swallowing. Better > eating or drinking warm things.

## **STANNUM**

Loose cough, with heavy, green, sweet or salty sputum. Sensation of great weakness and emptiness in the chest, worse < from talking, laughing, reading aloud, singing. so weak they can hardly talk. Sad, despondent, feels like crying all the time, but cry makes her worse.

### **SULPHUR**

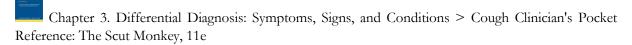
Night cough, suffocating at night, wants the doors and windows open. Congestion of blood to the head and chest with burning chest, head, face and soles of the feet at night, must stick them out from under the covers. Worse < bathing.

## <u>Bibliography</u>

Altitude Illness > High-Altitude Cough Harrison's Principles of Internal Medicine ... High-altitude cough can be debilitating and is sometimes severe enough to cause rib fracture, especially at >5000 m. The etiology is probably multifactorial. Although high-altitude cough has been attributed to inspiration of cold dry air, this explanation appears not to be sufficient...



Chapter 24. Cough The Patient History: An Evidence-Based Approach to Differential Diagnosis





Cough and Hemoptysis Harrison's Manual of Medicine, 19e



Cough and Hemoptysis Harrison's Principles of Internal Medicine



Cough, Fever, and Respiratory Infections Symptom to Diagnosis: An Evidence-Based Guide, 3e



Encyclopedia Homoeopathica

Management of Neuromuscular Respiratory Muscle Dysfunction > Manually Assisted Coughing Fishman's Pulmonary Diseases and Disorders, 5e ... Manually assisted coughing requires substantial lung inflation by air stacking or a deep passive lung insufflation especially if the VC is less than 1.5 L. 13 This is followed by an abdominal thrust applied as the glottis opens. Whereas all three respiratory muscle groups are needed...

Opioid Analgesics & Antagonists > B. Cough Suppression Katzung & Trevor's Pharmacology: Examination & Board Review, 11e

Regulation of Respiration > COUGHING & SNEEZING Ganong's Review of Medical Physiology, 25e ... Coughing begins with a deep inspiration followed by forced expiration against a closed glottis. This increases the intrapleural pressure to 100 mm Hg or more. The glottis is then suddenly opened, producing an explosive outflow of air at velocities up to 965 km (600 mi) per hour. Sneezing...

Respiratory Distress > COUGH Tintinalli's Emergency Medicine: A Comprehensive Study Guide, 8e ... Cough is a protective reflex for clearing secretions and foreign debris from the tracheobronchial tree. 22 Coughing is initiated by stimulation of irritant receptors located largely in the larynx, trachea, and major bronchi. These receptors are stimulated by inhaled irritants (e.g., dust...

Radar 10