

Cough

Basics

OVERVIEW

- The respiratory tract consists of the “upper respiratory tract” (the nose, nasal passages, throat, and windpipe [trachea]) and the “lower respiratory tract” (the bronchi, bronchioles, and alveoli [the terminal portion of the airways, in which oxygen and carbon dioxide are exchanged])
- The “large airways” are the windpipe (trachea) and large bronchi that branch from the trachea to the right and left lungs
- A cough is a sudden and often repetitively occurring defense reflex that helps clear large airways of excess secretions, irritants, foreign particles, and microbes as well as clear foreign material from upper airways
- The cough reflex consists of three phases: breathing in (inhalation), forceful exhaling action (expiration) against a closed glottis (the “glottis” is the opening between the vocal cords in the voice box [larynx]) and a violent expulsion of air from the lungs, following the opening of the glottis) and usually accompanied by a sudden sound
- Coughing can happen voluntarily as well as involuntarily, although it is presumed to be essentially involuntary in dogs and cats



SIGNALMENT/DESCRIPTION OF PET

Species

- Dogs and cats of all ages and breeds

SIGNS/OBSERVED CHANGES IN THE PET

- Cough; much more common clinical sign in dogs than in cats
- Description of the cough may be helpful in identification of the structures involved (for example, honking for windpipe collapse, harsh cough followed by retching may be bronchial, a quiet moist cough may be heard in pneumonia)
- Cough can be described as dry or moist; productive; honking; short or harsh; faint or deep
- Cough may be followed by gagging or retching
- May be caused by pulling on the collar or may be worsened by exercise or excitement, or after rest (as in cough due to heart failure)
- May be accompanied by stertor (noisy breathing when inhaling; it is a low-pitched, snoring sound that usually arises from the vibration of relaxed or flabby tissue or fluid; usually arises from airway blockage in the throat [pharynx]) or stridor (high-pitched, noisy breathing; the higher-pitched sounds result when relatively rigid tissues vibrate with the passage of air; result of partial or complete blockage of the nasal passages or voice box [larynx] or collapse of the upper part of the windpipe [known as “cervical tracheal collapse”]), or difficulty breathing (known as “dyspnea”)

CAUSES

- Cough is a sign that results from many conditions. These include diseases or abnormalities in the upper airway (respiratory) tract consisting of the nose and throat (known as the “nasopharyngeal” area), the voice box (larynx), and the windpipe (trachea). The lower respiratory tract consists of the lungs and related tissues (such as the bronchi). In addition, problems involving the lungs and the blood vessels in the lungs (pulmonary/vascular disease) can lead to coughing as can problems in the esophagus and lining of the chest

Upper Respiratory Tract Diseases

- Nasopharyngeal area (nose and throat)—inflammation of the nose (rhinitis); inflammation of the sinuses (sinusitis); foreign body or tumor in the nose or throat; inflammation of the tonsils (tonsillitis); tumor of the tonsils
- Upper airway cough syndrome—inflammation and/or secretions into the throat (pharynx) and/or voice box (larynx) from the nasopharyngeal area; previously known as “postnasal drip syndrome”
- Larynx (voice box)—inflammation; paralysis; tumors; collapse of the voice box or larynx (known as “laryngeal collapse”)
- Trachea (windpipe)—inflammation (tracheitis); infections (viral, bacterial, and parasitic); foreign body; collapse of the windpipe (tracheal collapse); narrowing of the trachea (known as “tracheal stenosis”); tumor

Lower Respiratory Tract Diseases

- Bronchial—inflammation; infection (viral, bacterial, and parasitic); allergy; foreign body; tumors or cancer
- Pulmonary (lung)—inflammation; infection (viral, bacterial, parasitic, and fungal); aspiration pneumonia; fluid buildup in the lungs (pulmonary edema);
- Cancer—may originate in the lungs (primary cancer) or have spread into the lungs (metastatic cancer); may be secondary to enlarged lymph nodes compressing airways
- Chemical agents (such as noxious fumes)
- Trauma (such as near-drowning, foreign body, hit-by-car)
- Pulmonary/vascular (lung/blood vessels)—heartworm disease; blood clots in the lungs (thrombosis or embolism); congestive heart failure (CHF); high blood pressure in the lungs (pulmonary hypertension); heart-base tumors

Other Causes

- Esophagus—enlarged esophagus (known as “megaesophagus”); gastroesophageal reflux (backward or reverse flow of stomach or intestinal contents into the esophagus)
- Compression of respiratory structures by fluid surrounding the lungs (pleural effusion) or organ enlargement
- Passive smoke inhalation
- Adverse reaction to medication (such as to potassium bromide in cats)
- Inherited ciliary dyskinesia, mostly in dogs (cilia are little hairs that move secretions up and out of the lower airways, and do not work properly in this condition)

RISK FACTORS

Breed

- Toy and miniature breeds at risk for collapse of the windpipe (known as “tracheal collapse”)
- Terrier breeds at risk for pulmonary fibrosis, characterized by excessive fibrous or scar-type tissue as part of a reactive process in the lungs
- Siberian husky, Rottweiler, Labrador retriever, and Jack Russell terrier at risk for eosinophilic bronchopneumopathy, a lung disease characterized by the presence of numerous eosinophils (a type of white blood cell) in the lung tissue.
- Giant breeds at risk for dilated cardiomyopathy; dilated cardiomyopathy is a condition in which the heart muscle is flabby and weak (also known as DCM)
- Labrador retriever and large-breed dogs at risk for laryngeal or voice box paralysis
- Siamese cats at risk for feline bronchitis syndrome; bronchitis is inflammation of the bronchi

Environmental Factors

- Longhaired cats that are groomed infrequently will periodically retch, cough, and vomit up mats of hair

Drugs

- Potassium bromide in cats

Geographic Area (or Travel History)

- Certain diseases are common in specific areas and likely to occur in others (such as heartworm disease)

Treatment

- The most successful management of cough involves treatment and resolution of underlying cause, rather than use of medications to decrease or stop the cough (known as “cough suppressants”). A wide variety of conditions can be responsible for the cough. A diagnostic workup may be required to define the underlying cause and to allow appropriate treatment

HEALTH CARE

- Usually outpatient
- The most successful management involves treatment of the cause
- Long-term (chronic) cough—related to inflammation; anti-inflammatory therapy is preferred to medications to decrease or stop the cough (cough suppressants)
- Medications to decrease or stop the cough (cough suppressants)—is limited to pets in which the cause of the cough cannot be treated medically nor resolved, and in which excessive coughing leads to exhaustion of the pet or lack of sleep by the owners

ACTIVITY

- Exercise restriction may be necessary, as recommended by your pet's veterinarian

Medications

Medications presented in this section are intended to provide general information about possible treatment. The treatment for a particular condition may evolve as medical advances are made; therefore, the medications should not be considered as all inclusive

- Antibiotics—for infectious causes of cough such as tracheobronchitis (kennel cough) or bronchopneumonia
- Anti-inflammatory medications—indicated for treatment of feline bronchitis syndrome, canine long-term (chronic) bronchitis, or canine eosinophilic bronchopneumopathy; prednisolone administered by mouth (oral prednisolone)
- Administration of medication in a fine spray (known as “nebulization”)—fluticasone or budesonide; administered with a face mask and spacer
- Antihistamines—can be helpful in allergic inflammation of the trachea (known as “allergic tracheitis”) or bronchi (known as ‘allergic bronchitis’)
- Cough suppressants (known as “antitussives”)— hydrocodone or torbutrol for dogs; no cough suppressants available for cats
- Bronchodilators are medications that open up (dilate) the bronchi, such as extended-release theophylline and terbutaline—may be beneficial for a variety of diseases affecting the trachea and lower respiratory airways
- Short acting and long acting “beta-2 agonists” essentially for cats, include salbutamol, formoterol, different formulations available
- Expectorants are medications intended to loosen and increase the removal of mucus from the lungs, such as guaifenesin—present in some cough medications; benefit not proven

Follow-Up Care

PATIENT MONITORING

- Follow-up physical examinations and diagnostic tests, as directed by your pet's veterinarian

PREVENTIONS AND AVOIDANCE

- Prevention is determined by the cause of the cough; use of heartworm preventives to protect the dog or cat from heartworm infection; vaccinations and limiting exposure to pets with infectious disease coughing (such as

kennel cough for dogs)

POSSIBLE COMPLICATIONS

- Sudden (acute) cough must be treated adequately in order to avoid long-term (chronic) cough, possibly leading to irreversible changes in the respiratory tract
- Progression of underlying disease
- Sudden (acute) severe cough may lead to fainting (known as “syncope”), rib fracture, or accumulation of air between the chest wall and lungs (known as “pneumothorax”)
- Aggravation of trachea collapse

EXPECTED COURSE AND PROGNOSIS

- The expected course and prognosis are determined by the cause of the cough
- Conditions leading to long-term (chronic) cough sometimes can only be controlled, but not cured
- Serious respiratory dysfunction and even death may be caused by underlying disease

Key Points

- Cough is a sign of disease
- Wide variety of conditions can be responsible for cough, and a diagnostic workup may be required to define the underlying cause
- Most successful management of cough involves treatment and resolution of underlying cause, rather than use of medications to decrease or stop the cough (cough suppressants)