

# SNEEZING, REVERSE SNEEZING, GAGGING

## BASICS

### OVERVIEW

- “Sneezing” is the forceful expelling of air (expiratory effort) through the nose, usually caused by irritation of the lining of the nose and nasal passages; it is a normal, protective reflex and commonly is associated with discharge from the nose
- “Reverse sneezing” is a sudden attack or spasm of noisy intake of air (inspiratory effort) to clear irritating materials or accumulated discharge from the back of the nasal passages; it is a normal, repetitive, protective reflex
- “Gagging” is a “heaving” or “choking” response due to contraction of the muscles of the throat; it is a normal, protective reflex to clear discharges from the voice box (larynx), upper windpipe (trachea), throat (pharynx) or esophagus (the tube running from the throat to the stomach); it is also called “retching” and is frequently misinterpreted as vomiting
- “Upper respiratory tract” or “upper airways” includes the nose, nasal passages, throat, and windpipe (trachea)
- “Lower respiratory tract” or “lower airways” includes the bronchi, bronchioles, and alveoli (the terminal portion of the airways, in which oxygen and carbon dioxide are exchanged)

### SIGNALMENT/DESCRIPTION of ANIMAL

#### Species

- Dogs and cats

#### Mean Age and Range

- Sneezing, reverse sneezing, and gagging are not associated with any specific age, but rather with conditions which cause them
- Young animals—examples include infections and cleft palate
- Older animals—examples include nasal tumors and dental disease

### SIGNS/OBSERVED CHANGES in the ANIMAL

- Head and mouth position may help determine which of these reflexes is present
- Sneezing typically results in sudden, explosive expiratory effort(s), with the mouth closed and head thrown downward; may result in the animal’s nose hitting the ground
- Reverse sneezing is a sudden inspiratory effort, that frequently occurs as an “attack” or “spasm,” with the head pulled back, mouth closed and lips sucked in
- Gagging typically occurs with the head and neck extended, mouth held open and usually ends with the animal swallowing (with little to nothing expelled)
- Sneezing—often accompanied by discharge from the nose

### CAUSES

- Any irritation or inflammation of the lining of the nose, voice box (larynx), or throat can elicit these reflexes; the same irritating agent in the nasal passages might elicit a sneeze, but when placed into the back of the throat would result in a reverse sneeze
- Common causes of sneezing and reverse sneezing include excess nasal discharge, foreign body (especially if signs are sudden [acute] and violent in onset), allergy, tumors and parasites (dogs—*Pneumonyssoides*; dogs and cats—*Cuterebra* and *Capillaria*; cats—*Linguatula*)
- Diseases outside of the nasal passages—pneumonia, enlarged esophagus (known as “megaesophagus”), long-term (chronic) vomiting, cricopharyngeal achalasia (a condition of the nerves and muscles in the upper esophagus, in which the muscles do not relax adequately to allow swallowing); discharge from these conditions may be forced up into the back of the throat, resulting in reverse sneezing, sneezing, and/or discharge from the nose
- Gagging is often due to discharges being coughed up from the lower airways and into the voice box (larynx) or upper windpipe (trachea); to dysfunction of the voice box (larynx) resulting in airway aspiration; or to vomiting from diseases of the esophagus (the tube running from the throat to the stomach) and gastrointestinal tract (stomach and intestines)

### RISK FACTORS

- Poorly vaccinated animals may develop infection/inflammation of the upper airways (nose, nasal passages, and upper windpipe) and sneezing (for example, kittens with upper respiratory infections caused by viruses, puppies with kennel cough)
- Coughing may move discharges into the back of the throat and lead to reverse sneezing
- Long-term (chronic) dental disease may cause inflammation of the nose (known as “rhinitis”) and either sneezing or reverse sneezing
- Mites (type of parasite) in the nose may cause both sneezing and reverse sneezing in dogs (but not in cats)
- Foreign bodies in the nose will elicit sneezing and/or reverse sneezing, depending on their location; outdoor animals perhaps more at risk

## TREATMENT

### HEALTH CARE

- Removal of the agent that is irritating the lining of the nose, voice box (larynx), or throat (where and when possible) will result in relief from these reflexes

### SURGERY

- Depending on the underlying cause, anesthesia for surgery or use of a special lighted instrument called an “endoscope” (general term for procedure is “endoscopy”) may be needed to remove a foreign body causing discharge from the nose
- Anesthesia and dental surgery may be needed to remove an abscessed tooth
- Surgery may be necessary to treat disease of the voice box (larynx); however, risk of aspiration pneumonia should be considered when gagging is a prominent feature of the disease, due to an increased risk of aspiration pneumonia

### 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.

- No drug specifically suppresses these reflexes—treatment is directed at the underlying irritating agent
- Nasal bacterial infections (secondary to foreign body, dental disease, tumor) are best treated with antibiotics directed against gram-positive bacteria (most common)
- When no underlying nasal condition is found, long-term, non-specific treatment with doxycycline and piroxicam may be tried
- Nasal mites (type of parasite) are treated with ivermectin or milbemycin; all dogs in the household should be treated to prevent reinfection
- Lower airway diseases with excess discharge are treated with gram-negative spectrum antibiotics, if bacterial infection is confirmed
- For non-specific airway inflammation, use an anti-inflammatory (such as prednisolone or piroxicam), if no infection is confirmed
- Decongestants (such as ephedrine) or antihistamines may reduce discharges and sneezing in some cases

### FOLLOW-UP CARE

#### PATIENT MONITORING

- Depends on underlying cause

#### PREVENTIONS AND AVOIDANCE

- Depends on underlying cause
- Vaccinate against diseases that infect the upper respiratory tract (such as upper respiratory infections caused by viruses in kittens and cats, kennel cough in puppies and dogs)

#### POSSIBLE COMPLICATIONS

- Serious aspiration pneumonia may develop in some cases of gagging due to disease of the voice box (larynx)

#### EXPECTED COURSE AND PROGNOSIS

- Nasal mites (type of parasite) should respond within 3 weeks of treatment
- Gagging and reverse sneezing secondary to non-infectious causes resolve slowly

### KEY POINTS

- Sneezing, reverse sneezing, and gagging are normal reflexes; diagnostics testing is required to determine the underlying cause and to allow appropriate treatment
- Close contact with other animals should be limited until treatment for the underlying cause is completed
- Episodes of paroxysmal reverse sneezing may be decreased by stimulating the dog to swallow (such as by rubbing the throat, giving water)