

# ASTHMA AND BRONCHITIS IN CATS

## BASICS

### OVERVIEW

- “Upper respiratory tract” (also known as the “upper airways”) includes the nose, nasal passages, throat (pharynx), and windpipe (trachea)
- “Lower respiratory tract” (also known as the “lower airways”) includes the bronchi, bronchioles, and alveoli (the terminal portion of the airways, in which oxygen and carbon dioxide are exchanged)
- Asthma—sudden (acute) or long-term (chronic) inflammation of the lower airways, associated with increased responsiveness of the airways to various stimuli, airway narrowing, and presence of eosinophils, lymphocytes, and mast cells within the airways; “eosinophils” are a type of white-blood cell—they are involved in allergic responses by the body and are active in fighting larvae of parasites; “lymphocytes” are a type of white-blood cell that are formed in lymphatic tissues throughout the body—they are involved in the immune process; “mast cells” are immune-system cells that frequently are located near blood vessels—they contain histamine and are involved in allergy and inflammation
- Long-term (chronic) bronchitis—inflammation in the lower airways (bronchi and bronchioles); presents clinically as a chronic cough of greater than 2 months’ duration
- The terms “feline bronchitis” and “feline bronchopulmonary disease” are used to describe the clinical disease in cats of sudden (acute) or long-term (chronic) coughing or wheezing (squeaking or whistling sounds) accompanied by lower airway inflammation

### SIGNALMENT/DESCRIPTION of ANIMAL

#### Species

- Cats

#### Breed Predispositions

- Siamese appear to be more likely to develop asthma or bronchitis than other breeds

#### Mean Age and Range

- Any age; more common between 2 and 8 years of age

#### Predominant Sex

- One study indicated that females are more likely to develop asthma or bronchitis than males; however, this is not a consistent finding

### SIGNS/OBSERVED CHANGES in the ANIMAL

- Coughing (80%), sneezing (60%), labored breathing or wheezing (40%)
- Signs typically are episodic and can be sudden (acute) or long-term (chronic)
- Sluggishness (lethargy) and lack of appetite are reported occasionally
- Severely affected cats may have open-mouth breathing, rapid breathing (known as “tachypnea”), and bluish discoloration of the skin and moist tissues (known as “mucous membranes”) of the body, caused by inadequate oxygen levels in the red-blood cells (known as “cyanosis”)
- Increased sensitivity to feeling the windpipe (trachea) is common
- Listening to the chest with a stethoscope (known as “chest auscultation”) may reveal short, rough snapping sounds (known as “crackles”) and/or squeaking or whistling sounds (wheezes), or may be normal
- Heart rate is typically normal to slow, although stress may result in a rapid heart rate (known as “tachycardia”)

### CAUSES

- Triggers or causes of airway inflammation are largely unknown

### RISK FACTORS

- Exposure to cigarette smoke, dusty cat litter, hair sprays, and air fresheners could possibly make the disease worse in some cats
- Parasitic lung infections are more common in outdoor cats in certain geographic locations
- Use of potassium bromide (treatment for seizures) has been implicated as a cause for signs of asthma or bronchitis in some cats

## TREATMENT

### HEALTH CARE

- Removal of cat from the inciting environment may help
- Patient should be hospitalized for a sudden (acute) crisis, characterized by breathing distress
- Oxygen therapy and sedatives may help in a sudden (acute) crisis

- Minimize handling during a crisis, in order to lessen stress and oxygen needs of the cat

#### **ACTIVITY**

- Usually self-limited by the cat

#### **DIET**

- Calorie restriction for obese cats

### **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.

#### **Emergency Treatment**

- Combine the use of oxygen and a medication that enlarges the bronchi and bronchioles in the lungs, administered by injection (medication known as a “parenteral bronchodilator”)
- A short-acting steroid, administered by injection, also may be required
- Terbutaline is a  $\beta$ -agonist that is used as a bronchodilator; administered by injection
- Steroids, such as [dexamethasone](#) sodium phosphate or [prednisolone](#) sodium succinate (Solu-Delta-Cortef®), administered by injection, also can be used

#### **Long-term Management**

##### **Steroids**

- Decrease inflammation
- Steroid administered by mouth (oral treatment) is preferred over administration by injection, because doses and duration can be monitored more closely; steroids include prednisone and dexamethasone (used mainly for sudden crisis); administer steroids as directed by your pet’s veterinarian
- Some cats only need steroids on a seasonal basis
- Longer-acting injectable steroids (such as Vetalog® or Depomedrol®) should be reserved for situations in which owners are unable to administer medication by mouth on a routine basis
- Inhaled steroids—newer therapy; requires a form-fitting face mask, spacer, and metered-dose inhaler; veterinary brands include AeroKat® (Trudell Medical International) or NebulAir™ (DVM Pharmaceuticals); the most commonly used inhaled steroid in cats is fluticasone propionate (Flovent®); Flovent® is used for long-term control of airway inflammation (takes 10 to 14 days to reach peak effect; during this time steroids administered by mouth should be used as well)

##### **Other Drugs**

- Medications to enlarge or dilate the bronchi and bronchioles (bronchodilators), such as theophylline and aminophylline
- $\beta$ -agonists (terbutaline, albuterol)—inhibit smooth muscle constriction to dilate the bronchi and bronchioles; injectable terbutaline is most helpful in a distressed animal
- Inhaled medications to enlarge or dilate the bronchi and bronchioles (bronchodilators)—[albuterol](#) is the preferred inhalant therapy in cats, providing immediate relief of spasm and constriction of the bronchi—its effect lasts less than 4 hours
- Medications to kill intestinal parasites (known as “anthelmintics”)—routinely recommended for cats with clinical signs of feline bronchopulmonary disease, with predominantly eosinophils found on microscopic examination of material obtained from the lower airways; parasitic inflammation of the bronchi and bronchioles (bronchitis) can be difficult to diagnose—treatment is indicated with appropriate clinical signs and geographic location; appropriate medication will depend on specific parasite suspected in the geographic region; examples include fenbendazole, ivermectin, or praziquantel
- Antibiotics—choice of antibiotic based on bacterial culture and sensitivity testing
- Cyproheptadine—has been shown to inhibit airway smooth muscle constriction in some cats with asthma; should be used only in patients that do not respond to other therapy
- Cyclosporine (Neoral®)—decreases the immune response; may be helpful in cats that do not respond to medications to enlarge or dilate the bronchi and bronchioles (bronchodilators) and steroid treatment

### **FOLLOW-UP CARE**

#### **PATIENT MONITORING**

- Watch for and report any increase in coughing, sneezing, wheezing, or breathing distress; medications should be increased appropriately if clinical signs recur, as directed by your pet’s veterinarian
- Follow-up X-rays are helpful in the first weeks after initial diagnosis to evaluate improvement with medical treatment
- Long-term use of steroids will require blood glucose monitoring every 3 to 6 months to screen for diabetes mellitus (“sugar diabetes”)
- Monitor urine (urinalysis, bacterial culture and sensitivity) as urinary tract infections can occur secondary to decreased ability to develop a normal immune response (known as “immunosuppression”)
- Watch for signs of increased urination (known as “polyuria”) and increased thirst (known as “polydipsia”) that may indicate diabetes mellitus or kidney disease

### **PREVENTIONS AND AVOIDANCE**

- Eliminate any environmental factors (such as cigarette smoke, dusty cat litter, hair sprays, and air fresheners) that may trigger a crisis situation
- Change furnace and air-conditioner filters on a regular basis

### **POSSIBLE COMPLICATIONS**

- Cases that do not respond to medical treatment may die
- Untreated sudden (acute) episodes can be life threatening
- Right-sided heart disease may develop as a result of long-term inflammation of the bronchi and bronchioles (bronchitis)

### **EXPECTED COURSE AND PROGNOSIS**

- Long-term therapy should be expected
- Most cats do well, if recurrence of clinical signs is monitored carefully and medical therapy is adjusted appropriately
- A few cats will not respond to medical treatment; these cats carry a much worse prognosis

### **KEY POINTS**

- Inflammation of the bronchi and bronchioles (bronchitis) is a long-term (chronic), progressive diseases
- Do not discontinue medical treatment when clinical signs have resolved—subclinical inflammation within the lungs is common and can lead to progression of disease
- Life-long medication and environmental changes may be necessary, as directed by your pet's veterinarian

