

Chronic Bronchitis of Dogs

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Definition and Causes

Chronic bronchitis is, in most cases, a non-infectious inflammatory condition affecting the lining (mucosa) of the large airways – the trachea and bronchi. In most cases, the specific cause of chronic bronchitis in dogs is not identified. Most chronic bronchitis is neither infectious, nor contagious – dogs will not pass it on to other dogs.

Acute bronchitis, on the other hand, is most often caused by infectious agents, such as viruses (e.g. parainfluenza virus, distemper virus or bacterial agents *Bordetella bronchiseptica* is the most common). It is commonly termed kennel cough or canine infectious tracheobronchitis in these cases. Inflammation can also be caused by noxious irritants such as second hand smoke, foreign bodies, allergens (similar to hay fever in humans), foods allergens, and either migrating or primary lung parasites. In many of these cases, this acute bronchitis, occurring at the time of the infection or insult, will resolve with appropriate therapy from your veterinarian. However, if the bronchitis persists long enough – generally, more than a few months – it is labelled chronic, and the cough itself can begin to cause and perpetuate airway inflammation.

Clinical Signs

Dogs with chronic bronchitis generally have a persistent hacking cough. Some people describe it as sounding like a goose honking. However, any trachea-bronchial inflammation/irritation can produce a similar sounding cough. Often, the coughing occurs during the night or when the dog first starts to move around upon waking. It also commonly occurs with excitement or exercise.

Diagnosis

Chronic bronchitis is a diagnosis of exclusion. Other diseases can cause clinical signs similar to chronic bronchitis. These include tracheal collapse, laryngeal paralysis, lung diseases, lung cancer and infectious causes of acute bronchitis (listed above). Your veterinarian will likely attempt to rule out many of these causes with a history, physical examination and additional testing.

Diagnostic tests that are used to establish a diagnosis of chronic bronchitis include chest x-rays (thoracic radiographs), airway endoscopy (passing a small camera into the larynx, trachea and bronchi), collecting samples from the lower airways for culture and analysis of the cells in the airways (broncho-alveolar lavage or a trans-tracheal washing), and sometimes even echocardiography (ultrasound examination of the heart). A faecal analysis might be required to rule out parasites.

Treatment

Once a diagnosis of chronic bronchitis is made, your veterinarian will generally treat this condition.

There are several things to remember about treating chronic bronchitis:

- *The cough in chronic bronchitis is unlikely to completely disappear.* The aim is to reduce the coughing by more than 70-80%, and to reduce the severity of the coughing fits.
- *Coughing begets coughing* – the more a dog coughs, the more they irritate their own airways, which stimulates more coughing. Therefore, the aim is to initially break the coughing cycle.

Treatment of chronic bronchitis generally relies on using a combination of medications:

- These drugs are the main therapy for chronic bronchitis. They reduce and suppress the inflammation in the airways. They can be given orally (pills) or via an inhaler. Specific canine inhalers are required to properly administer steroids.

- *Cough suppressants.* These are usually narcotic-based preparations that require a prescription. They sometimes need to be given to the point of sedating the dog, especially early in treatment.
- *Bronchodilators.* These may help by relaxing the airways, allowing air to move more easily into and out of the lungs.

Your veterinarian might prescribe a combination of these drugs, and alter the doses as the disease is controlled to minimize side effects while still maintaining good control of the coughing.

An important factor in successful therapy of chronic bronchitis is **weight loss**. If your pet is overweight, a reduction of even 5-10% of the body weight can dramatically improve the coughing. When the dog is overweight, improving your dog's condition is completely in your hands; therefore, your veterinarian might prescribe a weight-loss program for your pet in addition to the medications.

Your veterinarian might also ask you to keep a "coughing log" to keep track of the severity and frequency of coughing, as this can help determine how successful the treatment is.

Prognosis

The prognosis for treating chronic bronchitis is good. However, because this condition generally occurs in older dogs, other causes of chronic coughing (listed above) might complicate the management. If coughing persists or recurs despite appropriate therapy, your veterinarian might be required to pursue other causes, or refer you to a specialist for additional diagnostic tests.

Chronic Bronchitis in Dogs

September, 2011 [Wendy Brooks](#)

What is Bronchitis?

Most of us have heard of bronchitis and most of us have probably suffered from it at some point. The bronchi are the larger airways through which air is moved throughout the lungs. The trachea (windpipe) brings air from the throat down into the chest and branches into two mainstem bronchi, one for each lung. Each mainstem bronchus branches into smaller bronchi, which eventually become smaller structures called bronchioles that in turn branch and eventually terminate on the alveoli, small chambers where oxygen is absorbed into our bodies from the air we inhale.

Bronchi are basically tubes made of cartilage forming the larger "pipes" in our lungs.

When the bronchi are injured by irritants (cigarette smoke, air pollution, biochemical products of infection, etc.), they respond with a healing process that is inherently inflammatory. When the injury becomes ongoing, the inflammatory/healing process also becomes ongoing and the end result involves excessive mucus production in the airways. The mucus obstructs the smaller bronchi, which stimulates coughing, which in turn leads to irritation and then to inflammation and then to more mucus and a vicious cycle results.

Once the vicious cycle of mucus production to coughing to inflammation to mucus has become entrenched, it is unlikely to be cured and therapy is geared towards controlling the symptoms.

What Makes Bronchitis Chronic?

Bronchitis can be temporary, as in short-term infectious disease such as kennel cough, or it can be chronic, which basically means it has been going on for a long time. To fit the definition of chronic, the cough must occur daily for at least a couple of months. There are many causes of ongoing cough, and bronchitis is certainly not the only one. It is important to determine whether or not there is a reversible underlying cause. The sound of the cough is not particularly helpful in determining its cause.

Diagnosis

There are many conditions that make dogs cough chronically including but not limited to:

- Pneumonia
- Tracheal collapse
- Cancer
- Heart failure
- Heartworm infection

Note that asthma is conspicuously missing from this list. Asthma involves recurring episodes of airway inflammation and narrowing rather than the continuous (non-episodic) airway inflammation. Asthma is not a natural clinical entity in dogs though it is certainly a well-described condition in cats.

Radiographs (x-rays) of the lungs are crucial in ruling out conditions that have a specific treatment. In bronchitis, mucus in the airways tends to outline the shape of the airways in patterns that look like parallel lines (so-called tram lines) when looking at an airway's side view or circles (so-called doughnuts) when looking at an airway end on. In bronchitis the airways may be dilated as well, especially if the case is advanced. Other conditions tend to have characteristic radiographic appearances of their own but there is definitely room for ambiguity.

In a perfect world, bronchoscopy can be performed and samples of the airway secretions can be analyzed. In bronchoscopy, a small video camera is inserted down the airway system. The color and character of the airway walls can be examined and a fluid wash can be used to aspirate out secretion samples. General anesthesia is required for this procedure.

Bronchoscopy and sampling of airway secretion

Alternatively, a tracheal wash can be done to obtain samples using tubing and fluid washes. In this procedure, only samples are taken and there is no camera involved and no visual inspection of the airways. Sedation is generally needed.

Sedation and anesthesia are not without risk in patients with lung compromise so the benefit of obtaining diagnostic information must be weighed against patient risk. Often invasive procedures are skipped and trial courses of medication are used.

Trial Courses of Medication

Different individuals respond to different medications and in bronchitis there are several options to choose from and even combine.

Cough Suppressants

The cough itself is involved in the vicious cycle of irritation described above. Suppression of the cough reflex through medication may be helpful in establishing patient comfort. On the other hand, we want our patient to be able to clear the mucus from the inflamed airways if there is an excess of mucus present. Common medications used are hydrocodone and butorphanol. Over-the-counter human products are often ineffective and may be combined with harmful additional medications such as decongestants or pain relievers.

Never medicate your pet without checking with your veterinarian first about what product to use and how to dose it.

Airway Dilators

Although airways technically do not constrict in chronic bronchitis, it may be helpful to relax them allowing air to pass through bronchi that had previously been so small as to be occluded by mucus. Common medications

Corticosteroids

Corticosteroids such as prednisolone relieve inflammation and cut secretions like no other medication can. Typically a short course is used to control symptoms initially followed by a lower dose maintenance course. This helps dry up the mucus in the airways and stop the cough-irritation vicious cycle. The problem is that oral steroids have side effects potential with long-term use. Furthermore, because they are suppressive to the inflammatory process, it is important to have ruled out infectious causes of coughing that might be made worse with steroid use.

As an alternative to oral steroids, inhaled steroids can be used as is done with human asthmatics. A special facemask is used and a spacer connects the mask to the metered dose inhaler. A couple of puffs from the inhaler doses the dog with inhaled steroids and then it is possible to avoid the systemic side effects associated with oral steroids. Dogs typically need to use inhalers at least twice a day to control the symptoms of bronchitis. Airway dilators can also be given via inhalation in the same way as steroids.

Antibiotics?

Chronic bronchitis is not an infectious disease but all the inflammation and mucus in the lung certainly compromises the patient's normal resistance to infection and ability to clear inhaled bacteria. Sometimes antibiotics are a helpful temporary addition to the therapies listed above.

Other Therapies

Nebulization and Coupage

It is important for the bronchitis patient to cough up inflammatory secretions as long as coughing does not become excessive and perpetuate the inflammation. It is not easy to draw the line as to when cough is helpful and when it is excessive; only experience will tell. In patients for whom coughing is encouraged, it may be useful to moisten secretions with a vaporizer or even a nebulizer; the difference in these pieces of equipment is the size of the water droplet they generate. Inhalation of water vapor a couple of times daily will help keep secretions moist.

Coupage is a form of respiratory physical therapy that allows for moistened secretions to be moved into more central airways so they can be coughed up. See video below for details.

Obesity Management

Pressure on the chest from body fat hampers the patient's ability to take a deep breath. Many patients with chronic coughs do not require medication after excess weight has been lost simply because the chest can then expand properly.

No Second Hand Smoking.

No Lead, harness, neck pressure etc.

Chronic bronchitis represents an ongoing airway change that generally cannot be cured; however, symptoms are manageable for most patients. Discuss the options for therapy with your veterinarian, expect some trial and error to be necessary, and it is likely the outcome will be a system that keeps your pet comfortable.