

## **COLLAPSED TRACHEA**

### ***What is a collapsed trachea?***

The trachea, also known as the windpipe, is an important structure, which connects the throat to the lungs. It serves the purpose of directing air into the respiratory tract.

The normal trachea is tubular. It maintains its shape because of a series of rings made of cartilage. These rings do not completely encircle the trachea. Instead, they go from the 2 o'clock to 10 o'clock positions. The remainder of the trachea is composed of a flexible membrane that joins the ends of the cartilage rings.

When the cartilage rings are flattened from the top to the bottom, the trachea is said to be collapsed. Rapid inhalation of air can cause the trachea to flatten and make it difficult for air to enter the lungs.

### ***Why does it happen?***

We do not completely understand how this condition develops. However, we know that these dogs have an abnormality in the chemical makeup of their tracheal rings. The rings lose their stiffness so they are not able to retain their circular shape. We also know that it occurs in certain breeds of dogs, notably Chihuahuas, Pomeranians, Shih Tzus, Lhasa Apsos, Toy Poodles, and Yorkshire Terriers. Because of that, we suspect that there is a genetic factor involved.

### ***What are the clinical signs?***

The most common clinical sign is a chronic cough. It is often described as dry and harsh and can become quite pronounced. The term "goose honk" is often used to describe it. Coughing is often worse in the daytime and much less at night. The cough may also begin due to excitement, pressure on the trachea (from a leash), or from drinking water or eating.

### ***How is a collapsed trachea diagnosed?***

A dog of the breeds listed above with a chronic cough, especially a "goose honk," should be suspected as having collapsed trachea. Many times, very light pressure placed on the trachea during the physical examination can raise a suspicion of collapsed trachea in a small dog with a persistent dry cough. While the information gained from the physical examination is helpful, other tests are needed to confirm this condition.

Radiographs (x-rays) of the chest can identify the trachea and its shape. However, a collapsed trachea changes its diameter during the respiratory cycle. It is usually collapsed during inhalation

and normal during exhalation. Therefore, we attempt to make radiographs during both phases of respiration. This is easy in some dogs and rather difficult in others since dogs are not likely to understand the command, "Take a deep breath and hold it."

Endoscopy is another way to visualize the trachea. An endoscope is a tube that is small enough to insert into the trachea; the operator can see through it and visualize the inside of the trachea. By watching the trachea during inspiration and expiration, abnormal collapsing can be seen. Unfortunately, tracheal endoscopes are expensive and not available at every veterinary hospital.

### ***Isn't coughing also a sign of heart failure?***

Yes, it is. Many dogs with collapsed trachea will also have heart disease. Testing that occurs when diagnosing this disease should include chest radiographs (x-rays) so the heart can be evaluated. Treatment for heart disease is not indicated unless it can be demonstrated with some form of testing.

### ***How is it treated?***

Collapsed trachea can be treated medically or surgically. Some dogs respond well to bronchodilators and various types of anti-inflammatory drugs. The trachea of these dogs is easily infected, so antibiotics are usually part of the treatment. If obesity is present, weight loss is often beneficial. Excitement and vigorous exercise are likely to cause a relapse, so they should be avoided as much as possible.

Some dogs respond well to the medical approach, and others do not. Because medical therapy only treats the symptoms and does not correct the problem, these dogs are always subject to recurrences of coughing and breathing difficulty.

If medical therapy is not successful, the dog should be evaluated for possible surgery. Radiographs and endoscopy are used to determine how much of the trachea is collapsed. If the only abnormal part is that segment between the throat and the point where the trachea enters the chest (the thoracic inlet), surgery may be curative. However, if the segment of the trachea that is within the chest cavity is abnormal, surgery is not likely to be helpful because that part is not accessible to the surgeon.

There are several surgical approaches that have been used. Each approach implants an artificial support device that is secured around or within the trachea. The purpose of the support device is to hold the tracheal rings in their normal, open position. Although some dogs have excellent results and are truly cured of the disease, the outcome is not uniformly successful.