

The most common site of tracheal collapse is where the trachea enters the chest at the thoracic inlet and is a combination of both.

Diagnosis and Treatment

Dogs with tracheal collapse may have a honking cough, wheezing, hacking, gagging after coughing, or difficulty breathing after excitement or exercise. Many dogs will not show symptoms until a secondary, complicating factor is introduced. Factors that can worsen tracheal collapse are:

- Obesity
- Respiratory infection (e.g. kennel cough)
- Airborne irritants such as cigarette smoke, dust, and allergens
- Hot, arid weather
- Heart disease

A diagnosis of tracheal collapse is made by performing tracheoscopy under a "light" plane of anesthesia to directly visualize the trachea. Chest radiographs (x-rays) are taken to evaluate for secondary factors such as an enlarged heart or respiratory infection. Dogs with less than a 50% collapse in tracheal diameter may benefit from medical management (non-surgical) and treatment of secondary factors (i.e. weight loss, removal of airborne irritants, etc.) Dogs with 50 to 75% collapse or greater may require surgical treatment.



The goal of surgery is to support the tracheal cartilages, preventing collapse and respiratory distress. Two different techniques are currently in use. The traditional technique utilizes rigid prostheses placed around the tracheal rings to prevent collapse. This method is limited to extrathoracic tracheal collapse only. A relatively newer technique utilizes an expanding prosthesis (stent) placed inside the trachea to support the cartilage rings from the inside out. The stent can be used to treat both extrathoracic and intrathoracic tracheal collapse. However, the lower airways (main stem bronchi) can collapse as this disease progresses. If this occurs, pets are no longer candidates for this surgery.

Conclusion

Symptomatic dogs with greater than 50% collapse or that have not responded to medical management may require surgical treatment for tracheal collapse. Studies have shown greater success in younger patients regardless of surgical technique. If you suspect your dog may have tracheal collapse, please consult your veterinarian or call the Veterinary Surgical Centers of the Delta for further evaluation and information regarding diagnosis and treatment options.



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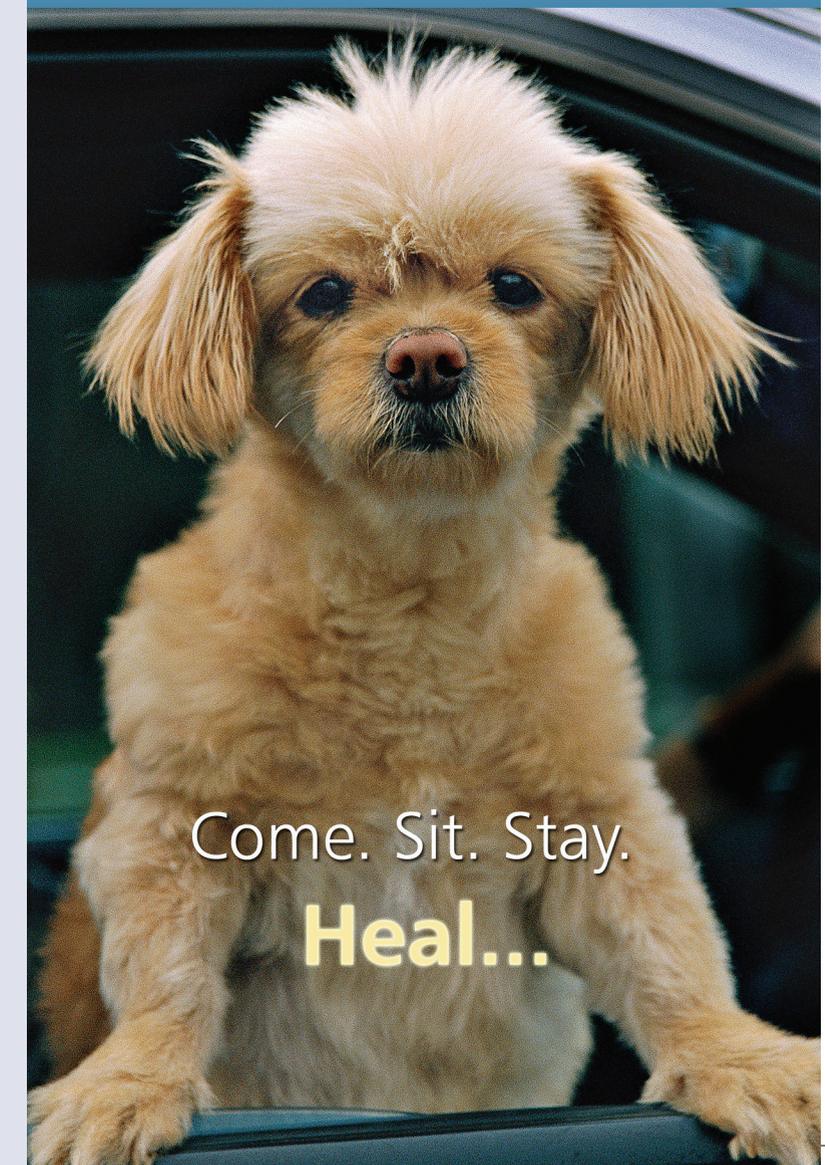
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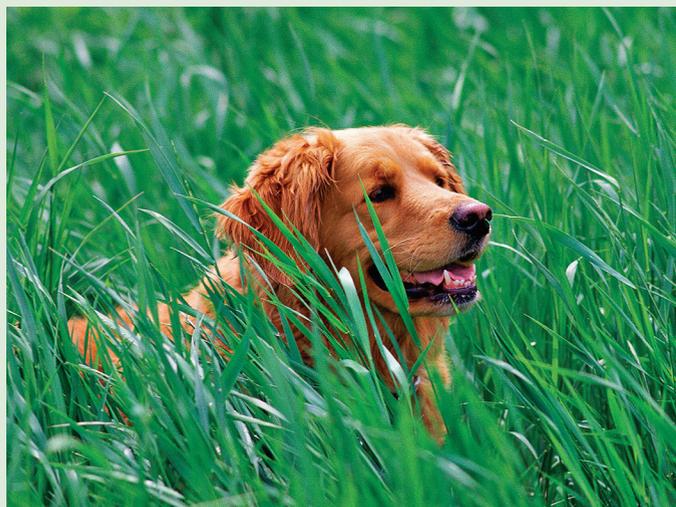
Dogs and cats can acquire or develop abnormalities in their upper airways (mouth, nose, throat). These problems can be genetic, nutritional or traumatic in origin and may even be life-threatening. Once diagnosed, some of these conditions may be permanently or temporarily resolved with the assistance of a veterinary surgeon. Resolution of these conditions through surgery can dramatically improve a pet's quality of life. Laryngeal paralysis and collapsing trachea are two upper airway diseases that commonly occur in dogs.

Laryngeal Paralysis

The larynx — known as the “voice box” — is located in the throat at the entrance to the respiratory tract. It opens to allow air in and out. During eating or drinking, it closes to prevent food or water from being inhaled (aspirated). In some dogs, the nerves supplying the muscles that open the laryngeal cartilages (abductor muscles) gradually stop functioning. As a result, the larynx does not open enough for proper breathing and does not close properly during eating or drinking. This condition, called laryngeal paralysis, can be fatal if left untreated.

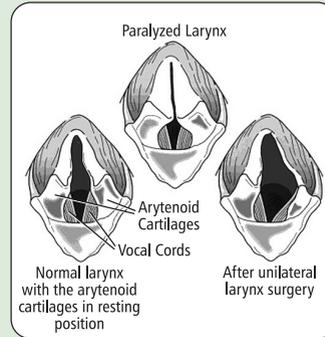
Symptoms

Laryngeal paralysis is most commonly seen in middle aged to older Retrievers, though it has been observed in a



variety of breeds, including Dalmatians, New Foundlands and Bouvier De Flanders. Signs include:

- Loud noisy breathing
- Increased panting — hoarse or raspy panting
- Voice change or “loss” of bark
- Tiring easily on walks or during exercise
- Gagging or hacking during eating and drinking



Heat, excitement, and activity worsen these signs. In these situations, dogs with laryngeal paralysis breathe harder and attempt to breathe more deeply. The airway of these pets can swell from this effort, making breathing more difficult. These dogs can quickly become anxious, distressed, and may collapse from inability to breathe. This is an emergency! A dog that has collapsed or is in severe distress should be kept as cool as possible and taken to an emergency clinic *immediately*.

Diagnosis and Treatment

Laryngeal paralysis is diagnosed by examining the larynx under a “light” plane of anesthesia. In a normal larynx, the laryngeal cartilages can be seen widely opening and closing during the cycle of inspiration and expiration. In pets with laryngeal paralysis, these cartilages do not move and may even collapse with increased respiratory effort.

Laryngeal paralysis is treated with surgery. The goals of surgery are to open the airway and prevent further distress, as well as to maintain the larynx's ability to protect the airway during eating and drinking. Though several different techniques have been used, the most commonly performed surgery is the laryngeal “tie back” (also known as arytenoid lateralization). In this procedure, the arytenoid cartilage on one side of the larynx is tied

open (“back”) with sutures, permanently opening that side of the airway.

Conclusion

Arytenoid lateralization allows dogs to breathe more easily, more quietly, and tolerate heat and exercise better. During the first two weeks after surgery, it is important to avoid circumstances that cause heavy breathing — such as excitement and stress — in order to allow the surgery site to heal. Barking must be prevented during this recovery period. The most common complication with this procedure is pneumonia from aspiration. Dogs with laryngeal tie-back surgery generally will learn how to protect their “new” airway after surgery, but will always be at risk for aspiration pneumonia since half of the airway has been permanently opened. A recent study showed that, after surgery, 90% of owners felt that their dog's quality of life had improved, citing that their dogs had decreased respiratory distress and increased exercise tolerance.

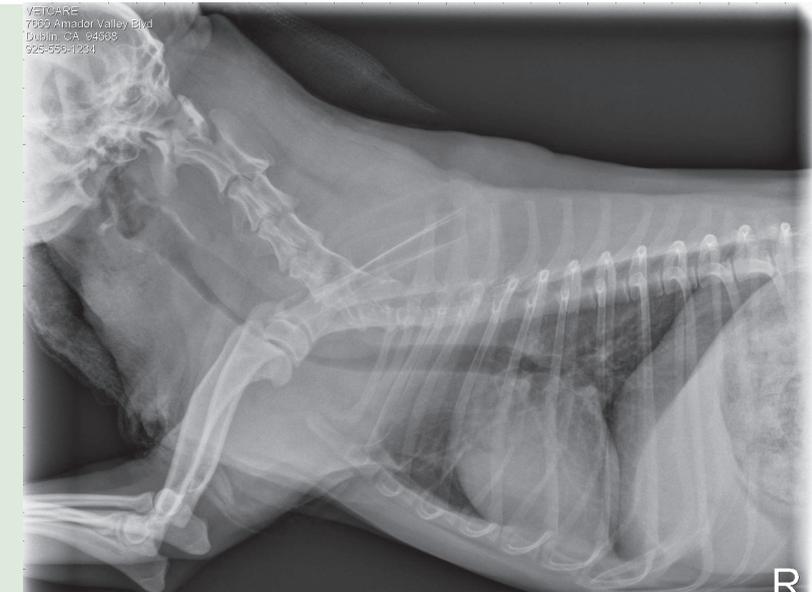
Tracheal Collapse

Structure of the Airway

The trachea — or “windpipe” — is the main airway that connects the lungs to the nose, and mouth. It is a semi-rigid tube made up of C-shaped rings of cartilage. The open ends of these C-shaped rings are connected by a thin muscle called the tracheal membrane. The trachea extends from the larynx (in the throat) into the chest, where it connects with smaller airways that branch out into the lungs.



Toy and miniature-breed dogs — such as poodles, Yorkshire terriers, and Pomeranians — have a tracheal defect that causes the C-shaped cartilages to lose their rigidity with age. The cartilages weaken and flatten out,



losing their shape. The tracheal membrane droops down into the trachea instead of stretching tightly across the cartilage rings. When the membrane sags so much that it touches the inside of the trachea, this triggers coughing and inflammation. Pressure generated by air movement during panting, rapid, or heavy breathing can completely flatten (collapse) the trachea and the tracheal membrane. When this occurs, air cannot flow through the trachea. These dogs rapidly become anxious, distressed, and may collapse as they struggle to breathe.

Tracheal collapse can occur along the entire length of the trachea. When the collapse only occurs in the neck it is classified as extrathoracic (outside the chest), while when it only occurs in the chest it is classified as intrathoracic.

