

Laryngeal Paralysis

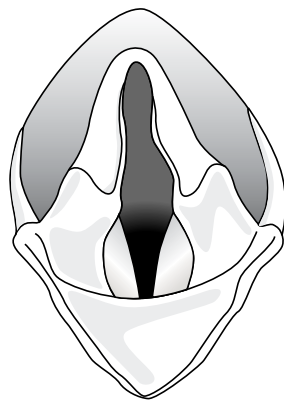
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What is laryngeal paralysis?

Laryngeal paralysis is a common upper respiratory disease of dogs. It most often affects large breed dogs such as Labrador retrievers and Golden retrievers but it can affect any dog of any breed or size. Normally when a dog inhales the larynx (voice box) opens to allow air into the trachea and lungs. The larynx closes between breaths to prevent food and water from going into the trachea and lungs. In laryngeal paralysis the muscle that opens the larynx stops functioning. This results in a very narrow passageway to get air into the lungs instead of the normal wide-open larynx. Dogs with laryngeal paralysis have difficulty inhaling and the harder they try the more difficult it becomes to inhale adequate air.



Normal laryngeal opening during inhalation



Laryngeal opening in a dog with laryngeal paralysis

What is the cause of laryngeal paralysis?

In most cases the cause of laryngeal paralysis is unknown. It commonly affects older large breed dogs and is most likely due to a degeneration of the nerve that supplies the larynx or due to a failure of the connection between the nerve and the muscle. The nerve that supplies the larynx is called the recurrent laryngeal nerve and is one of the longest nerves in the body! Fortunately, laryngeal paralysis is not associated with the degeneration of other nerves in the body.

Other less common causes of laryngeal paralysis include birth defects, bite wounds, or cancer.

What are the signs of laryngeal paralysis?

Several signs may suggest that a dog has laryngeal paralysis:

Harsh breathing – laryngeal paralysis usually leads to a characteristic harsh breathing sound that gets louder with exercise. This noise is caused by air passing through the narrow space in the larynx

Voice change – laryngeal paralysis will often cause a change in a dog's bark, making it sound more hoarse.

Coughing – Some dogs may have a cough with laryngeal paralysis that sounds like it comes from the throat.

Gagging – Many dogs with laryngeal paralysis may gag when they eat or drink.



Exercise intolerance – Dogs with laryngeal paralysis may not be able to exercise as much as they used to. This is due to their inability to get enough air for heavy activity.

Why is laryngeal paralysis dangerous?

Laryngeal paralysis can be life threatening due to the inability of the dog to move air in and out of the lungs normally. Dogs get rid of excess body heat primarily through their breath instead of sweating. Laryngeal paralysis limits the ability of a dog to get rid of excess heat. This can lead to severe or fatal heat stroke. Laryngeal paralysis is much more evident in the summer when dogs pant more to cool themselves. When possible, this disease should be treated before the weather gets too warm.

Laryngeal paralysis can also lead to aspiration pneumonia when food is not prevented from entering the trachea because of the malfunction of the larynx.

How is laryngeal paralysis diagnosed?

Laryngeal paralysis is suspected based on the dog owners description of voice change, exercise intolerance, gagging, and harsh breathing. We also suspect laryngeal paralysis by listening to the dog breath during a routine examination. The characteristic harsh breathing noise is very typical of laryngeal paralysis. The definitive diagnosis of laryngeal paralysis is made by performing a laryngeal examination under anesthesia. The anesthesia must be done very carefully using specific medications or the disease will be misdiagnosed. During this examination we look for abnormal movement of the larynx.



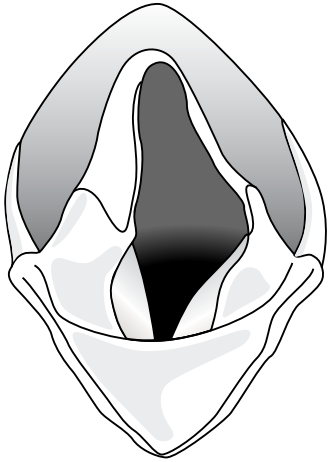
How is laryngeal paralysis treated?

Laryngeal paralysis is best treated by surgery. There are several surgical options although one procedure, the “tie-back” is the most accepted and most commonly performed by Board Certified surgeons.

Tie back

In the tie back procedure the larynx is ap-

proached through the side of the neck. The failed muscle is then identified and replaced with a suture to permanently open the larynx on one side. This procedure produces the best airway with the least complications of any of the available surgeries.



Appearance of the larynx following a tie back procedure

Partial arytenoidectomy

In this procedure the portions of the larynx that obstruct the airway (the arytenoids) are removed by scissor or laser through the mouth. This procedure is not recommended because of the high risk of scar formation that can severely obstruct the airway.

Castellated laryngofissure

This procedure enlarges the airway through a complicated series of incisions and reconstructions from the underside of the neck. There have been no definitive advantages shown with this procedure and it is rarely performed.

Permanent tracheostomy

A permanent tracheostomy should only be performed when a tie back procedure will not correct the airway obstruction. Dogs with permanent tracheostomies cannot swim and may have other chronic airway complications

What are the risks of surgery?

There are only two common risks of the tie-back procedure. The first is seroma formation which is a benign collection of fluid at the site of the surgery. This occurs in most cases because of the anatomy of the neck. The seroma usually goes away within two weeks without any treatment. Seroma's should not be drained unless directed or performed by the surgeon.

The most significant risk with any laryngeal paralysis surgery is aspiration pneumonia. Dogs with laryngeal disease or after surgery may infrequently inhale water or food into their trachea or lungs. In most cases this results in a mild cough and the veterinarian will recommend antibiotics and rest for a week. Rarely, more severe aspiration may occur and hospitalization may be required for intensive care.

As discussed above, the oral technique of excision of the vocal folds and arytenoids can result in serious scarring of the larynx and so this procedure is not recommended.

All surgical procedures for treatment of laryngeal paralysis will result in further changing of the dogs bark.

When can my dog go home?

Most dogs undergoing tie back surgery for laryngeal paralysis go home the day following surgery. There is usually a dramatic and rapid improvement in the ability to breath as soon as the dog is awake. We prefer to observe the patient for the night following surgery and then send them home the next day.

What is the aftercare?

Following tie-back surgery we recommend one to two weeks of quiet activity before returning to normal exercise. We also recommend changing from a collar to a harness if the dog is on a leash. This avoids any stress on the neck region.



Following surgery we recommend a temporary change in the diet to canned dog food that can be shaped into meatballs. These tend to be soft and easy for the dog to swallow and protect the surgery site during the healing period. After a week or two of meatballs the dog can be gradually returned to the normal diet. It is important for the owner to watch the dog during this transition to see what type of food the dog eats most comfortably without gagging. For dogs that tend to eat very quickly, we may suggest putting large clean rocks in the food bowl to slow down the eating. We also suggest elevating the food and water bowls.



What is the prognosis with surgery?

The prognosis following tie-back surgery is excellent for significant improvement in breathing. Many dogs are able to return to normal activity and the risk of heat stroke is dramatically reduced or eliminated. Many dogs are able to return to swimming as well. The level of activity should be based on careful observation of the dog's breathing and consultation with the surgeon.

Laryngeal paralysis is a serious disease, fortunately the tie-back procedure results in a dramatic and rapid improvement in the ability of the dog to breathe.



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