

## Laryngeal Paralysis

The larynx is the opening of the trachea (wind pipe). The normal larynx opens wide when breathing in and closes when swallowing to prevent aspiration of food or saliva into the trachea and lungs.

Laryngeal paralysis (LP) is a progressive condition. LP develops when the muscles that normally pull open the larynx do not function properly. This muscle dysfunction is caused by dysfunction of the nerves that control the muscles that open the larynx. Adult large and giant breed dogs are most commonly affected, but this can occur in cats as well. Underlying causes are: hypothyroidism, cervical trauma, thyroid tumor, previous cervical surgery, a peripheral neurologic disease and most commonly, unknown (idiopathic) causes. Hereditary forms are reported in the Bouvier, Siberian Husky and Dalmation and LP can be seen in puppies of these breeds.

In patients with laryngeal paralysis, it is difficult for the animal to move enough air and oxygen in to the lungs. The harder the patient tries to breath, the more swelling occurs in the larynx, making the opening even smaller. Distress is often seen as the panicked animal tries to get more air, which can even result in collapse or the animal turning blue.

### Clinical Signs of Laryngeal Paralysis

- Noisy breathing
- Exercise intolerance (lethargy), especially in warm weather
- Coughing or regurgitation when eating and drinking
- Change in the character of the bark (or meow)
- Sometimes presents as an emergency patient with heat stroke or signs of upper airway obstruction
  - Close up view of the canine larynx that has been diagnosed with laryngeal paralysis. The opening is too narrow, indicating the muscles are not working to pull open the cartilage.
  - Close up view of the canine larynx after surgery. The opening is larger, which allows your pet to breathe more normally.

### Diagnosis

Confirmation of laryngeal paralysis requires examination of the laryngeal function under light sedation. Ancillary diagnostic tests such as x-rays of the chest and neck, blood work including a thyroid level and a thorough examination of the neck should also be performed to rule-out other underlying problems. Additional testing may be recommended, since these patients are often older and can have other non-related health problems.

### Procedure

- Surgery is the only effective long-term treatment for laryngeal paralysis.
- Many different surgical procedures have been reported; most effective is the tieback procedure.
- The incision is made on the left side of the neck to expose the laryngeal cartilages.
- A new “muscle sparing” technique may be used to promote better function of the upper esophageal sphincter after surgery.
- The arytenoid cartilage is identified.
- Two sutures are used to permanently hold open one half of the larynx.
- Incisions are then closed and the larynx is observed to confirm an open airway

## **Postoperative Care**

Discourage your pet from scratching at the surgery incision. Inspect the incision daily and report any increase in swelling, persistent discharge or bleeding, or loss of sutures to us. Clean gently with a small amount of warm water as necessary. Keep the incision clean and dry at all times. Schedule a suture removal appointment in 10-14 days. Try to prevent your pet from barking for 3 weeks (avoid doorbell use, visitors, etc.). Restrict your pet's activity level during the first 3 weeks after surgery. Confine to a small room or kennel when unsupervised. When supervised, running, jumping and unleashed outdoor activity should be limited as much as possible. Avoid the use of a collar while walking your pet for the first 3 weeks after surgery. We recommend using a harness instead. Often hand-feeding is recommended for the first 1-3 weeks after surgery until your pet is comfortable eating and drinking without coughing. Swimming is never recommended after surgery due to the airway being permanently open.

## **Complications**

- Complications from laryngeal tieback surgery are uncommon. It is normal to see a slight cough and a change in bark as a long-term sequel to the surgery.
- SEROMA: Occasionally we see an incisional complication called a 'seroma.' This is a fluid filled pocket that causes no harm, but can be alarming. These usually resolve on their own over several weeks.
- ASPIRATION PNEUMONIA: Dogs with laryngeal paralysis are predisposed to developing aspiration pneumonia after surgery. The incidence of aspiration pneumonia is 15%. If recognized and treated early and aggressively, most cases of pneumonia are not life threatening.
- Rarely, the suture from the tieback will break or pull out necessitating reoperation.
- SIGNS OF COMPLICATIONS: The complications listed above are relatively uncommon. You should report excessive cough, lethargy, and poor appetite to your veterinarian if noticed. These may be early warning signs of pneumonia. You should report any sudden reoccurrence of difficulty breathing to your veterinarian.

## **Prognosis**

The prognosis for dogs with laryngeal paralysis that undergo surgical repair is good. At least 85% of dogs return to a good quality of life with improvement in their breathing and activity level. Dogs with underlying disorders may also have a good prognosis depending on the other disorders that may be present. The occurrence of serious aspiration pneumonia is low and can usually be treated.