



Laryngeal Paralysis and Polyneuropathy

Laryngeal Paralysis: degeneration of nerves and muscles that move the laryngeal cartilages and the vocal cords in the throat. These cartilages control airflow into and out of the trachea (windpipe) during breathing. Normal laryngeal function protects the airway during swallowing by closing the opening to the trachea and preventing aspiration of food or water.

In laryngeal paralysis, respiratory obstruction occurs because the cartilages remain in a central position causing airway resistance, instead of opening up the airway during inspiration.

Polyneuropathy: the nerves responsible for laryngeal movement arise from one of the body's major nerves. Clinical investigations have shown that other nerves are also affected in some dogs; leading to clinical signs such as poor swallowing function, slowly progressing hind-end weakness, and loss of hind leg muscle mass.

Who is most commonly affected?

- Geriatric dogs, anywhere from 8 to 13 years, average age of 11 years.
- Medium to large breed dogs; most commonly Labrador Retrievers, Newfoundlands, Borzois, Golden Retrievers, Greyhounds, German Shepherd Dogs, Brittany Spaniels, and mixed breeds.

What are the signs?

- Increased noisy breathing from throat, most noticeable when panting.
- Distressed breathing, especially in hot weather, humidity, and when excited or stressed.
- Unable to exercise as much, may sit down or even collapse.
- Bark change or hoarse bark.
- Throat-clearing, or hacking, or coughing.
- Gagging with or without regurgitation (may be associated with drinking/eating).
- Hind-end weakness, unsteady gait, and loss of muscle mass.

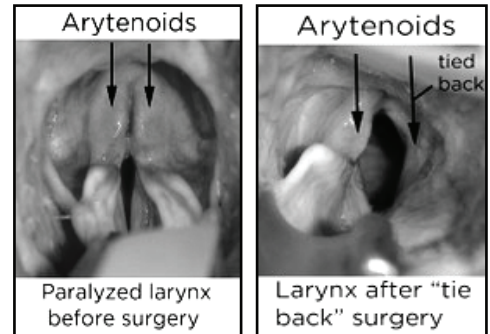
How is it diagnosed?

- Neurological exam: examines gait, muscle tone, awareness of leg position and reflexes.
- Chest X-rays: evaluate the internal structures of the chest including the heart, lungs, trachea, and esophagus.
- CBC (complete blood count), serum chemistry and urinalysis: assess the overall health of your dog.
- Laryngeal exam: using a short-acting anesthetic, evaluates laryngeal movement during breathing.

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How is it treated?

- Unilateral arytenoid lateralization surgery ("tie-back"): An incision is made on the side of the dog's neck to approach the larynx. One of the laryngeal cartilages (arytenoid) is permanently fixed in an open position with sutures. This increases the laryngeal opening and decreases airway resistance. Dogs experience immediate and marked improvement in breathing after this surgery.



What are the complications associated with the "tie-back surgery"?

- Aspiration pneumonia = ~ 18% risk. This is probably due to both the "tie back" increasing the risk of aspiration and to ongoing deterioration of esophageal function.
- Risk of aspiration increases with severity of esophageal dysfunction.
- The earliest signs of aspiration pneumonia are inappetence, lethargy, coughing, and increased respiratory rate. Aspiration pneumonia can usually be treated very successfully with medical management.
- Failure of "tie back" surgery is extremely rare and results in recurrence of clinical signs.

What to expect after surgery:

- Quality of life and exercise tolerance will improve significantly.
- Respiratory noise will decrease, but some noise may still be present when exercising.
- Feeding: throat-clearing is not unusual following eating or drinking, and sometimes during the night. This may improve with elevating food/water bowls, slowing down eating, and medications (if needed). One way to feed on an incline (ideally 30°) is to put food/water bowls on the stairs so that your dog can stand with 2-3 steps between their front and back paws, effectively elevating the front end above the hind end. A sitting position should be maintained for 10 minutes after eating.

What to expect long-term:

- The nerves affected by this polyneuropathy progressively degenerate at a variable and unpredictable rate in some dogs. This type of neurologic degeneration is not painful, and affected dogs are still active and happy.
- Visible signs that occur with time are worsening hind-end weakness and muscle wasting.
- Dogs that have or develop esophageal dysfunction are at risk for recurrent episodes of aspiration pneumonia.
- Visit the Michigan State Geriatric Onset Laryngeal Paralysis Polyneuropathy website for additional information: <https://cvm.msu.edu/scs/research-initiatives/golpp>.