Geriatric Onset Laryngeal Paralysis Polyneuropathy: GOLPP

GOLPP: what is this disease?

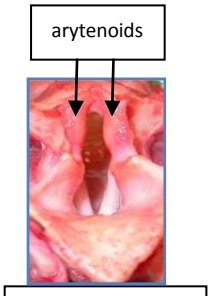
- Geriatric onset: average age of occurrence is 11 years.
- Laryngeal Paralysis: degeneration of nerves which control muscles that move arytenoid cartilages, located in the throat, to allow air into and out of the trachea during breathing. Respiratory obstruction occurs because instead of moving to allow an open airway during breathing, the arytenoids remain in a central position causing airway resistance. During swallowing normal arytenoid function protects the airway by closing the opening to the trachea and preventing aspiration of food and/or water.
- Polyneuropathy: the nerves responsible for arytenoid movement branch from the vagus nerve, one of the body's major nerves. Previous clinical investigation has shown that other nerves are also affected; leading to clinical signs such as loss of muscle mass, hind-end weakness, and decreased esophageal function.

Etiology: who is most commonly affected by GOLPP?

- Geriatric dogs, average age of 11 years.
- Large breed dogs including but not limited to Labrador retrievers, Newfoundlands, Brittany spaniels, German Shepherds, mixed breed dogs.

Clinical signs / symptoms for GOLPP:

- Increased respiratory noise (stridor), commonly described as "roaring."
- Respiratory distress or difficulty breathing, especially in warm, humid environments.
- Pale or blue colored mucous membranes (gums).
- Decreased exercise tolerance; collapse.
- Bark change / hoarse bark.
- Coughing or throat clearing.
- Regurgitation.
- Hind-end weakness.
- Loss of muscle mass.



paralyzed larynx before surgery

Diagnosis of laryngeal paralysis:

- Laryngeal exam: performed using a short-acting anesthetic which allows evaluation of arytenoid movement during breathing.
- Laryngeal paralysis refers to lack of arytenoid movement during inspiration.

Additional Diagnostics:

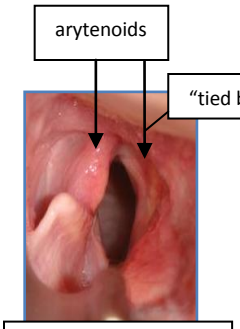
- Neck radiographs (x-rays): evaluates the throat (larynx) and neck to rule out other causes of laryngeal paralysis including cancer, trauma, and foreign body.
- Thoracic (chest) radiographs: three views are taken to maximally evaluate the internal structures of the chest including the heart, lungs, trachea, and esophagus.
- Esophagram: evaluates esophageal function during swallowing using real-time x-ray (fluoroscopy). Three phases are evaluated using liquid contrast material, canned food mixed with contrast, and kibble mixed with contrast. Signs of gastroesophageal reflux and hiatal hernia are also evaluated.

Compiled by Michele C. Fritz, August 2009

- Neurologic exam: evaluates neurologic status by examining reflexes, conscious proprioception, and cranial nerves.
- CBC (complete blood count) and serum chemistry: evaluates overall health status including white and red blood cells, liver and kidney function, and hydration status.
- Urinalysis: evaluates for kidney function and hydration status.

Treatment:

- Laryngeal paralysis: An incision will be made on the side of the dog's neck for an arytenoid laryngoplasty. This surgical correction involves a permanent "tie back" of one arytenoid cartilage to increase the laryngeal opening and decrease airway resistance. Post-operatively dogs experience immediate and marked respiratory improvement.
- Esophageal function: depending on the degree of esophageal dysfunction and risk of aspiration pneumonia, medications to aid with swallowing may be prescribed. Feeding habits may also be changed to decrease risk of aspiration pneumonia.



larynx after "tie back"surgery

Post-operative complications:

- 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 based on worsening degree of esophageal dysfunction.
- Aspiration pneumonia usually responds well to medical management.
- Failure of "tie back": risk of failure is very low; clinical signs of laryngeal paralysis will reoccur.

Immediate post-operative period: what to expect after surgery

- Incision: sometimes a small swelling develops. Monitor for redness, swelling, discharge, and heat; call your veterinarian if these occur.
- Respiratory noise: will decrease but some noise may still be present.
- Exercise tolerance: will improve, but limit exercise for several weeks; recommend using harness.
- Feeding: feed small meatballs made from canned food for first week then transition to dry kibble. Coughing / throat clearing is not unusual following eating or drinking. This may improve with changing the position of food/water bowls from the ground to the floor or feeding with the dog's front end two stairs above the hind end.
- Signs of aspiration pneumonia: inappetence, lethargy, coughing, increased respiratory rate; call your veterinarian if these occur.
- Quality of life improves significantly.

Long-term care: what to expect

- GOLPP is a progressive degeneration of nerves. Over time, overall neurologic function will continue to decrease which will slowly cause further hind-end weakness and muscle wasting of the hind-end and head muscles.
- This type of neurologic degeneration is not painful, and affected dogs are still bright and alert.
- Exercise tolerance: will become limited by hind-end weakness and loss of conscious proprioception; will not be limited by breathing.