Laryngeal Paralysis

**What is it?**

The larynx is a cartilaginous structure at the end of the trachea that is responsible for voice production. It also serves to protect the trachea from food and water during swallowing. The ventricular folds (vocal folds) in a normal patient retract out of the way during breathing, and close during swallowing. When a patient has problems with laryngeal paralysis, the nerves and muscles controlling this action fail to work properly, and the ventricular folds partially obstruct the airway, causing a hoarse breathing sound called stridor. As the airway obstruction worsens, the patient has difficulty exchanging enough air to provide proper oxygenation, leading to a blue tinge to the tongue and mucous membranes (cyanosis). They also lose the capability of cooling themselves sufficiently through panting. The signs worsen during hot humid weather or when the patient is under stress or exertion. The combination of poor oxygenation and inability to provide cooling can rapidly become life-threatening.

Laryngeal paralysis can be one manifestation of a broader degenerative neuromuscular problem called Geriatric Onset Laryngeal Paralysis Polyneuropathy (GOLPP) that can also include difficulty swallowing (causing coughing and choking after eating or drinking), dilation of the esophagus and pelvic limb weakness. The underlying degenerative neuromuscular problem is poorly understood, and not reversible. In fact, the degeneration tends to be progressive. Patients that have concurrent difficulty swallowing are at a higher risk of aspiration pneumonia both before and after surgery than patients without this problem.

**Medical therapy**

Mild cases of laryngeal paralysis can be managed conservatively, by restricting physical activity to avoid overexertion. Patients should be kept in air conditioning during hot humid weather. Anxiety-inducing circumstances are minimized or treated with medications. Corticosteroids are occasionally used to reduce swelling in the larynx during flare-ups. Most cases progress to a point where conservative medical management is no longer sufficient.
**Surgical intervention**

The signs of laryngeal paralysis (breathing difficulty) can be improved by surgically enlarging the airway opening in the larynx, either by tying back one of the laryngeal folds or by removing a portion of the laryngeal folds (called a ventriculocordectomy). Neither surgery will return the airway to a fully normal function, but they can relieve the difficulty breathing.

The "tie-back" procedure creates a larger airway diameter but carries a higher risk of aspiration pneumonia (MSU reports an 18% chance of aspiration pneumonia), while the ventriculocordectomy carries a higher risk of recurrence, either due to progression of the disease process or scar tissue formation. We refer cases to Michigan State University for the tie-back procedure. The ventriculocordectomy procedure can be performed at Cascade Hospital for Animals. Neither procedure results in a completely normal breathing sound, nor do they correct any associated issues like hindlimb weakness or difficulty swallowing. The tie-back procedure is probably best for dogs who will be rather athletic, while the ventriculocordectomy is reserved for patients that are more sedentary, patients that have pre-existing difficulty swallowing (coughing or gagging associated with eating or drinking) or patients having more financial constraints.

Both surgical procedures seem to be well-tolerated by the patient, causing a minimum of discomfort and recovery tends to be quick. Both procedures involve an incision in the throat region. Patients are generally hospitalized one night after surgery. Post-operative care includes keeping the patient relatively quiet during the initial two weeks to minimize swelling, avoiding situations that might stimulate barking, using a harness or head halter instead of a collar to prevent pressure at the surgery site, providing food and water in bowls elevated from the ground to make swallowing easier, protecting the incision from attempts to scratch at it, and returning in 10-14 days for an examination to assess healing. We also recommend feeding a moistened or canned food during the first two weeks to decrease the chance of inhaling dry food particles.

The use of a harness rather than a collar, feeding from an elevated platform, caution during swimming and avoidance of strenuous activities (especially in hot weather) are practices that should be continued for life following the surgery.

**Estimated costs**

Services:

- Office call
- Pre-anesthetic blood testing
- IV catheter placement and fluid administration
- Anesthesia
- Surgery
- Antibiotics
- Pain medications
- Hospitalization
- Recheck examination

**Total estimated cost: $1170 - $1800**