Laryngeal paralysis is a common cause of obstructive upper airway disease in dogs. Clinical signs are usually dysphonia, stridor, dyspnea, gagging, coughing, exercise intolerance, and airway obstruction (cyanosis, syncope). The inspiratory phase is more severely affected.

Both congenital and acquired forms of the disease occur. The congenital form is rare. These dogs often present with clinical signs at a young age. The acquired form is most common in large breed dogs. The average age of onset is around 9 - 11 years of age.

The larynx functions to regulate airflow, produce sound, and prevent inhalation of food material (aspiration). It is composed of a cricoid cartilage, a thyroid cartilage, paired right and left arytenoid cartilages, and the epiglottis. The arytenoid cartilages act as "sliding doors" which function to open and close the laryngeal opening.

The cause of acquired laryngeal paralysis is most frequently idiopathic. Other causes include cranial mediastinal masses, cervical masses, cervical trauma, neuropathies, or myopathies. An inconsistent relationship with hypothyroidism has been reported. Other common causes of upper airway obstruction include laryngeal masses, laryngeal collapse, and laryngeal stenosis. Recently, a correlation between laryngeal paralysis and megaesophagus has been noted. Some dogs have progressive esophageal dysfunction as part of the neuropathy (due to the shared innervation). These dogs are poor surgical candidates.

Most dogs with laryngeal paralysis present with a progressive history of altered phonation, exercise intolerance, stridor, and dyspnea. History of regurgitation is very important to note, as these patients are at much higher risk for aspiration. Also, signs consistent with peripheral weakness are important; especially if rapid onset or progression is noted, as most myopathies and neuropathies are progressive.

Acute changes in breathing patterns should prompt evaluation for aspiration. Thoracic radiographs should be obtained to evaluate for pneumonia, megaesophagus, or masses.

The diagnosis is made by laryngoscopic evaluation. Light anesthesia is induced with a rapid-acting injectable anesthetic. A light anesthetic plane that allows visualization of the larynx is all that is needed. If the patient is too deep, a normal larynx will appear nonfunctional. Lack of abduction of the arytenoid cartilages during inspiration confirms the diagnosis. At CVSS, we typically schedule this exam on a surgery day, so that if the diagnosis is confirmed, we can proceed to surgery immediately without repeated anesthetic episodes.

Creating a larger laryngeal opening is the definitive treatment for laryngeal paralysis. Standard techniques of unilateral arytenoid lateralization (tie back) are generally used. These procedures abduct one arytenoid to maintain it in an “open” position. The goal is to provide an adequate opening without making the laryngeal opening larger than the epiglottis can adequately cover. Laryngeal evaluation is repeated postoperatively. If the arytenoid is under-lateralized, persistent signs of airway obstruction will be noted. If it is over-lateralized, risk for aspiration is increased.
Risks of surgery are suture or cartilage failure, intraglottic swelling/hematoma, aspiration pneumonia, seroma formation, infection, as well as the inherent risks of general anesthesia.

If the lateralization fails, fallback options include repeating the procedure on the contralateral side, a castellated laryngofissure, per os partial arytenoidectomy, or permanent tracheostomy. If laryngeal swelling is severe, a temporary tracheostomy provides a temporary by-pass until the swelling subsides.

In patients with a regurgitation history, surgery is not recommended as aspiration is very likely. Recumbent animals (paralyzed or severely osteoarthritic) are poor candidates as prolonged recumbency increases the risk of aspiration.

Perioperative management is important for successful outcomes. Providing anti-emetics and prokinetics may help prevent aspiration. Pain relief is important to avoid anxiety, barking, and heavy panting. Also, avoiding opioids that are emetogenic or cause panting is advised. Most patients are kept NPO overnight with gradual re-alimentation started the following day. Water and canned dog food made into small meatballs are given frequently in small quantities.

Long-term management is also important for successful outcomes. Dogs should be fed a solid type of dog food. Foods that are liquid in nature or finely particulate should be avoided indefinitely. Avoiding heat, stress, heavy exercise, the use of neck leads/chokers, and maintaining ideal body weight are all measures that can minimize airway stress. The owners are instructed to monitor for signs of aspiration and to seek evaluation and treatment promptly to minimize hospitalization times and improve survival.