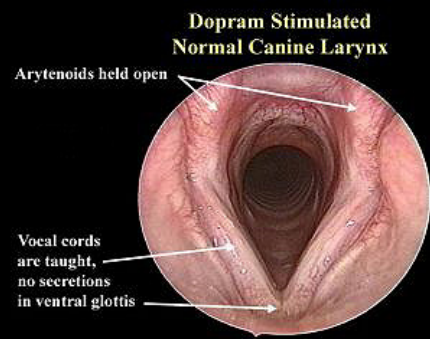


**VETERINARY VOICE:  
Tips of the Trade**

**Surgery - Laryngeal Paralysis**

<p><b>Definition</b></p>	<p>Laryngeal paralysis is the loss of innervation to the laryngeal muscles which results in the inability of the arytenoid (laryngeal) cartilages to open and close. The cause is usually idiopathic, but can result from trauma (bite wounds to the neck), iatrogenic (previous thyroidectomy surgery), a diffuse polyneuropathy (such as seen in hypothyroidism), or congenital (Bouvier des Flandres, Siberian Huskies, Dalmatians).</p>
<p><b>Signalment and Clinical Signs</b></p>	<p>Laryngeal Paralysis is most commonly seen in older, large breed dogs, however, small breed dogs and cats can also be affected. Idiopathic laryngeal paralysis typically has an insidious, progressive onset and a chronic history. Historical complaints can include noisy and/or difficulty breathing, change or loss in bark or meow, coughing and/or gagging (especially when eating or drinking), exercise and heat intolerance. Some dogs will present in acute respiratory distress or suffering from severe heat exhaustion.</p>
<p><b>Diagnosis (Why do I need to use Doxapram?)</b></p>  <p><b>Dopram Stimulated Normal Canine Larynx</b> Arytenoids held open Vocal cords are taught, no secretions in ventral glottis</p>	<p>Diagnosis of laryngeal paralysis is made by observing the lack of abduction (opening up) of the laryngeal arytenoid cartilages during <b>inspiration</b> while the patient is <b>lightly</b> sedated. (Slow intravenous injection with one third to one half of the calculated induction dose of propofol works well.) Care must be taken that the plane of sedation is not too deep or the arytenoids will appear paralyzed resulting in a potential false positive diagnosis of laryngeal paralysis.</p> <p>Doxapram HCl (available as Dopram-V® from Ft. Dodge) is recommended as a respiratory stimulant to improve the assessment of laryngeal function. Definitive diagnosis is made by injecting 2.2 mg/kg IV of Dopram-V to stimulate respiration and increase intrinsic laryngeal motion (same dose in cats and dogs) and observing the abduction of the arytenoid cartilages during inspiration. This movement <b>must</b> be differentiated from the larynx being “blown” open during expiration. Dopram’s onset of action is very fast (within 15-30 seconds) with duration of approximately 2 minutes. Anesthetic depth may lighten substantially following the administration of Dopram and additional anesthetic may be needed. Airway obstruction may worsen if paralysis or other obstructive disorders (laryngeal collapse, mass) are present and the clinician should be prepared to immediately intubate if needed.</p>
<p><b>Treatment</b></p>	<p><u>Acute Respiratory Distress:</u> If the patient is having difficulty breathing, sedation with acepromazine +/- butorphanol or morphine and keeping the patient in a cool, quiet environment often works well. If the patient is cyanotic, induction of anesthesia and placement of an endotracheal tube will re-establish an airway. If the patient is hyperthermic, the patient should be carefully and slowly cooled down.</p> <p><u>Surgical Therapy:</u> The best long-term treatment is surgery. The best surgical technique is a unilateral arytenoid lateralization (“tie-back) procedure. Partial arytenoidectomy and vocal cordectomy is not recommended due to the high complication rates of aspiration pneumonia and glottic stenosis.</p>
<p><b>Prognosis</b></p>	<p>With the unilateral arytenoid lateralization or “tie-back” surgery, the prognosis is very good for relief of inspiratory stridor and return to good, pet-quality function. Relief is immediately apparent postoperatively. The change in bark and a mild cough or gag will persist. All patients with laryngeal paralysis are at increased risk for aspiration pneumonia (~19%), but this risk does not increase with the unilateral “tie-back” surgery.</p>
<p><b>Questions? Surgical Experts:</b> Jim Boulay, DVM, DACVS, MS Barb Gores, DVM, DACVS Sharon Shields, DVM, DACVS</p>	<p>The Veterinary Specialty Center of Tucson has board-certified surgeons available for questions and consultations on surgical conditions during the weekdays. A member of the surgery team is on-call 24/7 to provide consultations to VSCT emergency doctors and to perform emergency surgery for patients seen by the VSCT emergency service. Board-certified surgeons have four additional years of training are certified by the American College of Veterinary Surgeons to assure competency in advanced veterinary surgery.</p>