Idiopathic laryngeal paralysis is an extremely common disorder in large breed dogs that can result in a life threatening inability to breathe. This disorder is often treated by unilateral surgical fixation (a “tie back procedure”) of the arytenoid cartilage in an abducted (open) position. Approximately 10-30% of surgically treated dogs will develop aspiration pneumonia following this procedure.1-4 Although permanently opening the glottis is likely the largest contributor to the development of aspiration pneumonia post-tie back, surgical access to the larynx may contribute to this complication. The standard surgical approach involves transecting muscles which contribute to the upper esophageal sphincter and thus play a critical role in the act of swallowing and in preventing esophageal reflux. When surgically approaching a joint, a basic principle is to avoid transecting muscle fibers whenever possible – it is likely that this principle should also be applied to the cricoarytenoid articulation. The standard tie-back, also involves transecting the cricoarytenoideus dorsalis muscle which likely increases the risk of damaging intrinsic nerves that innervate nearly all other ipsilateral laryngeal/pharyngeal muscles as well as the mucosa of the larynx/pharynx. A muscle sparing laryngoplasty technique thus has the potential to decrease the risk of potentially life-threatening aspiration in the post-operative period.

We have performed the muscle sparing technique in canine cadavers and have found that transection of the thyropharyngeus mm. and the cricoarytenoideus dorsalis mm. are not required to gain access to the cricoarytenoid joint, or to perform arytenoid lateralization, and that the exposure gained is similar to that when using standard technique. This technique is similar to the abductor muscle prosthesis technique reported by Payne except that the cricoarytenoid joint is opened, and in their cases the thyropharyngeus was transected in an unspecified number of dogs.4 Following cadaveric work, a comparison was performed between the standard technique and a muscle-sparing approach in normal beagles. This discussion will focus on the potential physiologic consequences associated with the standard tie-back procedure, and will introduce preliminary information on these normal dogs where pre- and postoperative swallowing studies5,6 were compared in a blinded manner.

References