

PROSTHETIC LARYNGOPLASTY

Procedure

Prosthetic Laryngoplasty also known as the “Tie back” procedure involves the placement of a suture or wire between the muscular process of the arytenoid cartilage and the cricoid cartilage. The prosthesis is placed in such a manner as to fix the corniculate process of the arytenoid cartilage in an abducted position, out of the airway.

The tie back is often combined with vocal cord and ventricle surgeries based on the surgeon’s preference.

The head is placed in a fully extended position using a headstand and stabilized in a sagittal position by an assistant. The linguofacial vein is marked with a sterile pen, and 2% lidocaine (10–15 mL) was infiltrated subcutaneously at the proposed incision site, ventral to the linguofacial vein. Lidocaine (20–35 mL) is then sprayed into the left or right nasal passage using a Chamber’s catheter.

A standard approach to the caudal aspect of the cricoid cartilage, ventral to the linguofacial vein, should be used. Local anaesthetic solution is sprayed from a syringe (or applied with a local anaesthetic-soaked gauze) to the exposed dorsal aspect of the cricoid cartilage before applying the lateralization suture. As the procedure develops, different suture prostheses can be used and changed to enhance the placement of the prosthesis in the cricoid cartilage and muscular process.

The muscular process of the arytenoid cartilage is exposed by separating the cricopharyngeus and thyropharyngeus muscles. Local anaesthetic-soaked gauze soaked is applied to the muscular process and surrounding tissue before placing the suture. For some draft horses, the rostral aspect of the cricopharyngeus muscle needs to be transected perpendicular to the direction of its fibers. The cricoarytenoid joint is curetted (n ¼ 33). The suture is passed through the muscular process by using a 13 gauge (1.8 mm) Jamshidi bone marrow needle and a 1.5 mm crochet-style hook¹⁴ (n ¼ 33) or by using a reverse cutting or No. 6 Mayo needle (n ¼ 24). Sutures are passed in a slightly craniomedial to caudolateral direction, parallel to the cricoarytenoid joint. Alternatively, they can be anchored by using a 3.5 mm titanium corkscrew (Arthrex) (n ¼ 4) with the screw placed in a lateral to medial position.

Either a single suture (n ¼ 49) or 2 sutures (n ¼ 18) can be used. If 2 sutures are used, the more dorsal suture is passed through the cricoid cartilage, 10 mm lateral to the dorsal midline, and the more lateral suture is placed 10 mm lateral to the dorsal suture. The more lateral suture is passed through the muscular process, 10 mm rostral and 10 mm ventral to the insertion of the cricoarytenoid dorsalis muscle in a medial to lateral direction, and the dorsal suture is then passed through the muscular process, 10 mm rostral to the first suture, engaging the spine in a single or double loop manner.

The endoscope is inserted through the previously anesthetized nasal cavity, and the sutures are tightened and tied under endoscopic visualization to optimize the degree of abduction of the left arytenoid cartilage (Dixon grade 3 for draft horses and Dixon grade 2 for other horses). When 2 sutures are used, the lateral suture is tied first.

The surgical wound is lavaged and closed in 3 layers. Skin is closed using staples. An adhesive dressing or a stent bandage is applied to sutured incision.