**Vocal Fold Paralysis Treatment Techniques and Approaches**

**Tracheotomy**

De Leyn, P. et al. (2007). Tracheotomy: clinical review and guidelines.*European Journal of Cardio-Thoracic Surgery*, 32(3): pp. 412–421.

Tracheotomy is a very common surgical that involves placing an opening in the trachea to relieve a breathing obstruction. It is believed that the procedure already existed in the second millennium before Christ but the first successful operation was recorded in 1546 when a patient suffering from laryngeal abscess was operate on by an Italian physician known as Antonio Moussa Brasavola. The technique has been refined over the years after being identified as one of the most effective treatments for diphtheria among children in mid-1800s. Tracheotomy has four major indications that include; copious secretions, upper airway obstruction, weaning failure, and long-term mechanical ventilation. Prior major neck surgery or skin infection can be complete contraindications to tracheotomy. The procedure is normally done by entering the trachea between the third and fourth cartilage rings or between the second and third cartilage rings. A patient stands the risk of a subglottic stenosis when the procedure is done close to the cricoid. On the other hand, bleeding from the brachiocephalic trunk might occur in case of a too low tracheotomy. When performing tracheotomy, a local or general anesthesia can be used with a patient’s neck moderately extended in terms of positioning. 100% oxygen is given when it comes to ventilated patients and the procedure requires continuous monitoring of sanitation, blood pressure, and pulse rate. There are two major types of tracheotomy ad these include surgical tracheotomy (ST) and Percutaneous dilatationa tracheotomy (PDT). Portex tubes or the Bjork-Shiley tubes are the best options when it comes to tracheotomy tubes. Some of the advantages associated with this procedure include; clearance of secretion, no need for ICU, enhanced mobility and speech, reduced laryngeal ulceration, and improvement of respiratory mechanics. However, the procedure is associated with complications such as; swallowing problems, tub obstruction, wound infection, hemorrhage, as well as stomal complications.

**Medialization Laryngoplasty**

University of Iowa Healthcare (2018). *Medialization Laryngoplasty- Type I Thyroplasty with ePTFE (Gore-Tex)*. Retrieved from https://medicine.uiowa.edu/iowaprotocols/medialization-laryngoplasty-type-i-thyroplasty-eptfe-gore-tex

Medialization Laryngoplast is also referred to as thyropalsty. There are four major types of Medialization Laryngoplasty include tensioning of the vocal cord, relaxation of the vocal cord, as well as medialization of the vocalization. Incomplete vocal fold approximation leads to glottic incompetence that is also referred to as symptomatic laryngeal paralysis. Medialization Laryngoplasty is a technique or procedure that can be used in relieving pain associated with impaired vocal fold motion after voice use. This approach is applied even when there is no hoarseness. Symptomatic unilateral laryngeal paralysis has many treatment options but the most common is injection laryngoplasty as it can be performed easily in an outpatient clinic. On the other hand, Medialization Laryngoplast requires an overnight stay and placement of drain, as well as a neck incision that require an operating room. However, this treatment is always the most preferred treatment among patients on Plavix/Coumadin, those that desire a lasting medialization as well as those that are allergic to injections materials or have contraindications to in-clinic laryngeal injections with collagen. The most notable contraindications associated with this procedure include; Poor abduction of the contralateral vocal cord, anticipated recovery from laryngeal paralysis, and abnormalities of the neck skin. Before the operation is carried out, it is important to evaluate the patient through Videolaryngoscopy with voice recording as well as Speech pathology assessment. For selected cases, it is important to consider Laryngeal electromyography and trial of voice therapy. In addition, the procedure should be carried out together with arytenoid adduction for patients with posterior glottic incompetency. In order to secure the vocal code in a more medial position, an implant (Gore-Tex) is normally placed next to the vocal cord through a window made as a result of the neck incision. The neck incision is also used to manipulate the vocal cord position. Some of the complications associated with this procedure include; airway obstruction, breathing problems, implant intrusion, wound infection, chonndritis, bleeding, as well as reaction to anesthesia.

**Arytenoid Adduction**

Simpson, B. & Rosen, C. (2008).  *Arytenoid Adduction. In: Operative Techniques in Laryngology*. Berlin: Springer, pp. 257-262.

When it comes to achieving fold repositioning, one of the most notable framework surgical procedures that are normally used isArytenoid Adduction. The procedure involves the recreation of the pull of the LCA muscle to achieve physiologic effects such as the rotation of the arytenoid cartilage, lengthening of the vocal cord, stabilization and medialization of the vocal process, and lowering the position of the local process. The procedure is used in the treatment of vocal fold paralysis but the surgery must include Medialization Laryngoplasty (ML). Arytenoid Adduction is in most instances used when; it is difficult to achieve good voice through ML alone, there is severe foreshortened vocal fold, there are vertical height differences between vocal folds, or when there is a posterior glottic gap. The posterior technique used in Arytenoid Adduction is separate from ML.

Kraus, D. et al. (1999). Arytenoid adduction as an adjunct to type I thyroplasty for unilateral vocal cord paralysis. *Journal of the Sciences and Specialties of the Head and Neck*, 21(1): pp.  52-59.

There has been a lot of improvement in the surgical treatment and management of unilateral vocal cord paralysis over the last 30 years. Type I thyroplasty is one of the most popular treatments for vocal cord paralysis as it is known to improve respiration, swallowing, and voice. The most safe and effective procedure when it comes to the treatment of unilateral vocal cord paralysis is Arytenoid adduction as part of type I thyroplasty. Arytenoid adduction combined with type I thyroplasty improves laryngeal function in terms respiration, swallowing, voice speech.

**References**

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University of Iowa Healthcare (2018). *Medialization Laryngoplasty- Type I Thyroplasty with ePTFE (Gore-Tex)*. Retrieved from https://medicine.uiowa.edu/iowaprotocols/medialization-laryngoplasty-type-i-thyroplasty-eptfe-gore-tex