INTRODUCTION

Posterior glottic stenosis (PGS) most commonly results from laryngeal trauma, primarily due to posterior glottic compartmentalization. The mechanism of damage involves the constant pressure of the endotracheal tube on laryngeal soft tissue causing ischemia leads to posterior glottic space collapse. In many cases, this results to severe laryngeal stenosis. The typical patient is intubated for less than six to eight weeks, but PGS has been noted to occur in those intubated for a period of two to three years. (Bogdasarian, 1998). Fibrous adhesion can also occur between the vocal processes of the arytenoid cartilages causing fixation of the vocal cords in adduction (Ossoff, 2000). "Traditional" surgical management of PGS has utilized destructive procedures to provide adequate space for ventilation or speech by ablating arytenoid cartilage, vocal process, and arytenoid muscle, and laser therapy can lead to his success as a remobilization technique. However, recurrence of posterior glottic stenosis is common. An ideal surgical correction of PGS would concentrate on remobilization of the vocal cords and maintaining normal anatomic and physiologic airway patency and voice quality. Remobilization interventions consist of microlaryngoscopy with laser scar resection and direct arytenoidectomy. This is a destructive procedure that focused on airway patency alone. This article focuses on remobilization of vocal cord mobility, thus reestablishing normal voicing and ventilation.

CASE TIMELINES

Patient 6, 18 mo

- 11 days intubation for acute MI/CABG
- 14 days intubation after aspiration of food. VLE:
- 70 day intubation after CAIN, ty touch, CAIN laryngoscopy, tracheotomy for ventilatory support
- 90 day intubation after CAIN
- 100 day: VLE
- 300 day: VLE
- 360 day: VLE
- 400 day: VLE
- 500 day: VLE
- 512 day: VLE

Patient 2, 54 yo

- 14 day intubation after TIPS procedure
- 18 day intubation after TIPS procedure
- 24 day intubation after TIPS procedure
- 43 day intubation after TIPS procedure
- 60 M
- 61 M
- 66 M
- 72 M
- 74 M
- 75 M

METHODS AND MATERIALS

Nine patients were referred to the Department of Otolaryngology - Head and Neck Surgery at Saint Louis University Hospital with PGS, bilateral vocal cord immobility, and tracheotomy dependence between 2001 and 2009. Patient medical records, including office visit dictations, operative reports, and videolaryngoscopy were reviewed. The main outcomes considered include vocal cord mobility, voice intensity, and exercise tolerance.

RESULTS

Four (1, 2, 5, 6) of the five patients in this study whose initial procedure was MTAR maintained long vocal cord mobility and had normal exercise tolerance (figure 3). The one patient (2) who did not have long vocal cord mobility had MXLX with excision of posterior glottis scar and laser resection of the arytenoid cartilage. MTAR did not maintain long vocal cord mobility that was reestablished with MXLX with excision of posterior glottis scar and laser resection of the arytenoid cartilage. This patient required further intervention (laser condensing) to maintain tracheotomy tolerance.

Two (2, 5) of these patients initially managed with MXLX with excision of posterior glottis scar and laser were further managed with MTAR to maintain long vocal cord mobility. One patient (5) had reestablished vocal cord mobility and a fixed open glottis plus excellent voice quality.

Another patient (6) was initially managed with a left laryngotomy. This patient was primarily managed with a posterior glottis destructive procedure that focused on airway patency alone. He later required MXLX with excision of posterior glottis scar to improve his exercise tolerance (figure 3).

In the treatment of PGS, decannulation can be achieved through surgical interventions; however, following a treatment intervention, vocal cord mobility may not be established fully, and thus voice and airway dynamics may not be improved.

CONCLUSIONS

In the treatment of PGS, decannulation can be achieved through surgical interventions, focusing on vocal cord mobility, may not be established fully, and thus voice and airway dynamics may not be improved.

To further improve patient outcomes, it is necessary to gain a better understanding of the physiological glottic function and develop a model that accurately predicts the voice and airway dynamics of the patient. This model should use parameters that are reliable and reproducible. This requires an understanding of how posterior glottic scar formation inhibits glottic function and is a key to understanding the voice and airway dynamics.

REFERENCES

4. Rishi S Zaveri BS, John F Eisenbeis MD. Department of Otolaryngology - Head and Neck Surgery, Saint Louis University School of Medicine.