Survey of Fellowship Trained Laryngologists on the Current Incidence and Treatment of Bilateral Vocal Fold Immobility

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INTRODUCTION

Bilateral vocal fold immobility (BVFI) is a relatively uncommon, yet serious and often life-threatening condition, often referred to as Laryngologists. The true incidence of BVFI remains unknown and difficult to determine. The literature lacks information on its current incidence, methods of diagnosis, and preferred surgical treatment in adult patients.

Typical causes of BVFI include trauma, damage to the bilateral Recurrent Laryngeal Nerves during thyroid or neck surgery, joint fixation due to prolonged intubation, as well as rare genetic and idiopathic causes. A small portion of patients will recover function without intervention, yet if spontaneous movement does not occur within 12 months, the majority of patients are left with chronically paralyzed vocal folds.

This study aimed to better understand current trends in the volume, management, and preferred surgical treatment of patients with bilateral vocal fold immobility. We created an anonymous survey to gather data from practicing Laryngologists around the country, all of whom were Fellowship-trained at a single institution over the past 17 years. Our survey queried preferred surgical technique, patient volume, and the current method of pre- and post-operative evaluation in an attempt to better understand current practices.

METHODS AND MATERIALS

All graduates of the Laryngology Fellowship Program at Vanderbilt University Medical Center, Nashville, TN from 1992 to 2009 with available contact information were emailed a link to a computerized survey. The survey was sent out in March 2011 and reminder emails were sent in April and June 2011. There were no enticements or financial incentives. Confidentiality of responses was maintained and analysis of the data was performed by those blinded to respondents.

The questionnaire consisted of 32 items. The term “bilateral vocal fold immobility” (BVFI) was used as the condition of interest throughout the survey. Items queried included time since graduation from Fellowship, the most common etiologies of BVFI, the most common surgical procedure performed, and changes over time in preferred surgical procedure. Free response questions asked about number of patients seen and procedures performed in past years. A Likert scale (1: Always to 5: Never) was used for questions regarding the effect of preferred surgical treatment for BVFI on voice, aspiration, exercise tolerance, etc.

REDCap software was used for survey creation, data collection, and data analysis.

RESULTS

Our results represent the first survey to collect data about the treatment and management of bilateral vocal fold immobility by fellowship-trained Laryngologists from one institution. The results shed light on the current trends in treatment and management of BVFI, a complex and challenging condition.

In this study, cordotomy was the most common (75%) preferred primary surgical treatment for BVFI, and unilateral and/or laser cordotomy were the most common preferred methods of the cordotomy procedure. Arytenoidectomy, tracheostomy, and suture lateralization were less commonly preferred, and a trend away from tracheostomy and arytenoidectomy towards cordotomy or suture lateralization was noted.

Most common causes of BVFI (Respondents asked to select 2)

<table>
<thead>
<tr>
<th>Cause</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surgery</td>
<td>17 (81%)</td>
</tr>
<tr>
<td>Intubation-related</td>
<td>12 (57.1%)</td>
</tr>
<tr>
<td>Trauma</td>
<td>5 (23.8%)</td>
</tr>
<tr>
<td>Neurological Disorder</td>
<td>4 (19%)</td>
</tr>
<tr>
<td>Extra-laryngeal malignancy</td>
<td>1 (4.8%)</td>
</tr>
<tr>
<td>Other</td>
<td>1 (4.8%)</td>
</tr>
</tbody>
</table>

How do you measure a successful outcome of BVFI surgery?

<table>
<thead>
<tr>
<th>Measure</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient satisfaction</td>
<td>20 (95.2%)</td>
</tr>
<tr>
<td>Usable voice</td>
<td>18 (15.7%)</td>
</tr>
<tr>
<td>Decannulation (if tracheostomy previously in place)</td>
<td>19 (90.5%)</td>
</tr>
<tr>
<td>Exercise Tolerance</td>
<td>17 (81%)</td>
</tr>
<tr>
<td>Able to complete ADL’s</td>
<td>16 (76.2%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cause</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cordotomy</td>
<td>75%</td>
</tr>
<tr>
<td>Arytenoidectomy</td>
<td>15%</td>
</tr>
<tr>
<td>Tracheostomy</td>
<td>5%</td>
</tr>
<tr>
<td>Suture Lateralization</td>
<td>5%</td>
</tr>
<tr>
<td>Other</td>
<td>0%</td>
</tr>
</tbody>
</table>

DISCUSSION

Consistent with the literature, surgery was the most common reported etiology of BVFI, and intubation was the second most common etiology reported. Historically, thyroidectomy for carcinoma excision has been the most common type of causative surgery, yet the current study did not query specific details.

Cordotomy or arytenoidectomy for BVFI has been called “The Great Compromise” due to worsening of voice for an improved airway. Our results suggest the majority of surgeons note worsening of patient voice with their technique, yet the majority do not perform voice testing or exercise tolerating testing, thus it is difficult to quantify this compromise.

CONCLUSION

Bilateral vocal fold immobility (BVFI) is still an uncommon presentation, as revealed in a recent survey of all graduates from a single Laryngology Fellowship program. Additionally, surgery and intubation were the most common reported etiologies and cordotomy was reported as the most common preferred surgical treatment of BVFI.

REFERENCES