Endoscopic Repair of Anterior Glottic Web Using a False Vocal Fold Microflap as a Biological Keel

Murtaza T. Ghadiali, MD, Ronen Nazarian, MD, Dinesh K. Khetri, MD, Gerald S. Berke, MD
UCLA Voice Center, Los Angeles, California

Introduction

The management of anterior glottic webs can pose a significant challenge for the laryngologist. There can be a tendency for laryngeal webs to recur even after surgical treatment. One common surgical procedure involves the use of a laryngofissure with placement of a keel to prevent re-stenosis. This procedure is often complicated by the development of a laryngeal stenosis, which may lead to recurrent webbing and vocal cord immobility.

Methods

A retrospective chart analysis from 2005 to 2008 revealed 5 patients who underwent laryngofissure with keel placement for recurrent anterior glottic web. Each patient was lost to follow-up after the procedure and was excluded from the review. Outcomes were determined regarding recurrence of anterior glottic web and improvement in symptoms of hoarseness or dyspnea.

Operative Procedure Details

The operative procedure performed was similar for all patients. Each patient underwent general endotracheal anesthesia. The Dedo laryngoscope was used to visualize the larynx, and a 4-0 Vicryl suture was placed through the thyrohyoid membrane at the anterior commissure as a biological keel, preventing apposition of the divided anterior glottic flaps. The keel was then secured by inserting a prolene suture percutaneously through the thyrohyoid and cricothyroid membranes to deliver the sutures to the skin surface. These sutures were then secured over silicone buttons acting as bolsters on the anterior neck. Out of 10 patients in the study, one was complicated by suture dehiscence and another by infection.

Discussion

Anterior glottic web is most often seen after endoscopic resection of laryngeal papillomas near the anterior commissure. This web occurs during the healing process when raw mucosal edges at the anterior commissure rub together to form a scar that spans both vocal folds. Many reports in the past have described this complication rate to range from 7% to as high as 47%.

The earliest description of endoscopic repair of anterior glottic web was by McNaught in 1950, in which a laryngofissure with keel placement was used to prevent re-stenosis. This technique is also utilized in our report. Liyanage et al used a silastic keel to prevent restenosis. This keel was then secured by inserting a prolene suture percutaneously through the thyrohyoid and cricothyroid membranes to deliver the sutures to the skin surface. This technique involves placing sutures through the thyrohyoid and cricothyroid membranes. This technique is also utilized in our report. Liyanage et al used a silastic keel to prevent restenosis. This keel was then secured by inserting a prolene suture percutaneously through the thyrohyoid and cricothyroid membranes to deliver the sutures to the skin surface. This technique involves placing sutures through the thyrohyoid and cricothyroid membranes to deliver the sutures to the skin surface.

Results

Table I. Review of Patient Outcomes Post Procedure

<table>
<thead>
<tr>
<th>Gender</th>
<th>Age</th>
<th>Etiology for Web</th>
<th>Symptoms</th>
<th>Follow up</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>67</td>
<td>RRP</td>
<td>Hoarseness</td>
<td>Complicated by recurrence of papilloma at 15 months</td>
</tr>
<tr>
<td>Male</td>
<td>36</td>
<td>RRP</td>
<td>Hoarseness</td>
<td>Resolved: No recurrence at 17 months; Botox utilized</td>
</tr>
<tr>
<td>Male</td>
<td>54</td>
<td>RRP</td>
<td>Hoarseness</td>
<td>Resolved: No recurrence at 44 months</td>
</tr>
<tr>
<td>Female</td>
<td>18</td>
<td>s/p excision of granular cell tumor of larynx</td>
<td>Mild exercise intolerance and dysphonia</td>
<td>Resolved: No recurrence at 10 months</td>
</tr>
</tbody>
</table>

Conclusion

The use of false vocal fold microflaps for management of anterior glottic webs can be very effective. These microflaps serve as biological keels to prevent local fibrosis and recurrence. The microflap eliminates the risk of foreign body placement in the airway from a silastic keel. To our knowledge this is the first description of this specific technique in the literature.