SOFT PALATE INJURIES DURING OROTRACHEAL INTUBATION WITH THE VIDEOLARYNGOSCOPE

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Introduction

The videolaryngoscope (Glidescope® or MacGrath®) is a valuable aide for the exposure of the larynx in difficult airways; however, there are risks associated with the implementation of any technology. We present nine soft palate injuries associated with intubation with the aide of a videolaryngoscope. Risks associated with the videolaryngoscope and the management of soft palate injuries will be discussed.

Methods

- Retrospective chart review was performed on patients with soft palate injuries related to the use of the Glidescope® or MacGrath® videolaryngoscope from 2010 to 2016 at three tertiary care hospitals.
- Data collected included: age, sex, BMI, Mallampati score, acuity of surgery and management.
- Conservative management was defined as supportive therapy with watchful waiting, ingestion of cold fluid or ice, throat lozenges or spray, and/or post-operative follow up.

Results

<table>
<thead>
<tr>
<th>Patient</th>
<th>Sex</th>
<th>Age</th>
<th>BMI</th>
<th>Mallampati Score</th>
<th>Laryngoscope</th>
<th>Emergent vs Elective</th>
<th>Laceration vs Perforation</th>
<th>Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>M</td>
<td>60</td>
<td>45</td>
<td>III</td>
<td>Glidescope®</td>
<td>Elective</td>
<td>Perforation</td>
<td>Primary closure, Steroid</td>
</tr>
<tr>
<td>2</td>
<td>M</td>
<td>54</td>
<td>36</td>
<td>III</td>
<td>Glidescope®</td>
<td>Elective</td>
<td>Perforation</td>
<td>Primary closure, Steroid</td>
</tr>
<tr>
<td>3</td>
<td>F</td>
<td>52</td>
<td>55</td>
<td>III</td>
<td>Glidescope®</td>
<td>Emergent</td>
<td>Perforation</td>
<td>Primary closure, Steroid</td>
</tr>
<tr>
<td>4</td>
<td>M</td>
<td>41</td>
<td>36</td>
<td>III</td>
<td>Glidescope®</td>
<td>Elective</td>
<td>Laceration</td>
<td>Conservative</td>
</tr>
<tr>
<td>5</td>
<td>F</td>
<td>59</td>
<td>23</td>
<td>II</td>
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<td>Elective</td>
<td>Laceration</td>
<td>Conservative</td>
</tr>
<tr>
<td>6</td>
<td>M</td>
<td>73</td>
<td>22</td>
<td>II</td>
<td>MacGrath®</td>
<td>Elective</td>
<td>Laceration</td>
<td>Conservative</td>
</tr>
<tr>
<td>7</td>
<td>F</td>
<td>59</td>
<td>20</td>
<td>II</td>
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<td>Elective</td>
<td>Laceration</td>
<td>Conservative</td>
</tr>
<tr>
<td>8</td>
<td>M</td>
<td>81</td>
<td>24</td>
<td>II</td>
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<td>Elective</td>
<td>Laceration</td>
<td>Primary closure</td>
</tr>
<tr>
<td>9</td>
<td>M</td>
<td>80</td>
<td>25</td>
<td>III</td>
<td>Glidescope®</td>
<td>Elective</td>
<td>Laceration</td>
<td>Conservative</td>
</tr>
</tbody>
</table>

- Three of the nine patients had soft palate perforations. These patient were treated with primary closure, had BMI >35 and Mallampati Score of III.
- Six of the nine patients were injured with the Glidescope®.
- Six of the nine injuries had oropharyngeal lacerations. The majority were treated conservatively, with the exception of one that was treated with primary closure.

Discussion

- User factors that may contribute to increased risk of injury include: use of a rigid stylet, increased flexion to accommodate the stylet, increased tonsillar pillar tension, and blind insertion of the ETT into the oral cavity/oropharynx while the user’s visual attention is diverted from the mouth to the monitor.
- Patient factors that may contribute to increased risk of injury include: higher Mallampati scores, obesity, and urgent/emergent intubation.
- Soft palate and oropharyngeal injuries are generally self limited in severity and require minimal, if any, surgical interventions. Most injuries are treated with conservative management.

Management

1. Injury to be reviewed by otolaryngology prior to extubation of patient.
2. Prophylactic antibiotics for larger injuries greater than 1-2cm or those requiring surgical repair. The use of steroids is debatable.
3. Surgical repair for injuries resulting in through and through perforation and/or large flap >1cm.
4. Safely extubate patient once hemostasis and/or repair is achieved.

Conclusion

- Soft palate injuries associated with the videolaryngoscope have been increasingly reported in the literature. This is the largest series reported in the otolaryngology literature.
- ETT insertion and advancement should be controlled and under direct visualization. Advance the tube along the videolaryngoscope beyond the uvula prior to diverting attention to the video monitor.
- Soft palatal injuries should be evaluated by an otolaryngologist for management prior to safe extubation of patients. The majority are treated with conservative management.

Works Cited