Age-related changes in the aryepiglottic muscle

Motohiro Sawatsubashi MD, PhD; Toshiro Umezaki MD, PhD; Kazuo Adachi, MD; Shizuo Komune MD, PhD
Department of Otorhinolaryngology - Head and Neck Surgery, Graduate School of Medicine, Kyushu University, JAPAN

ABSTRACT

The aryepiglottic muscle acts as a constrictor of the laryngeal orifice during swallowing, and it will disappear in the aryepiglottic fold with the aging process. Age-related changes in the aryepiglottic muscle appear to be associated with the risk of aspiration in the elderly.

INTRODUCTION

The aryepiglottic muscle is located at the back of the arytenoid cartilage and inserting on the lateral margin of the epiglottis [4]. However, some reports showed absence of the muscle in the aryepiglottic fold [1,2]. Our study shows that muscle fibers are found within the aryepiglottic fold with the aging process.

METHODS AND SUBJECTS

Normal postmortem laryngeal tissue samples were obtained at autopsy from 10 individuals with no history of laryngeal disease. The subjects were divided into two groups: those aged 75-86 years (elderly group, n=5) and those aged 30-46 years (non-elderly group, n=5). Specimens were fixed in 10% formalin, and Hematoxylin-Eosin staining and Hematoxylin-Eosin staining were performed and characteristics of the aryepiglottic muscle were compared between groups.

RESULTS

The aryepiglottic muscle extended from epiglottis to arytenoid cartilage in the non-elderly group, however the muscle cannot be observed in the elderly group (Figure 1, 2). The numbers of collagenous fibers, and elastic fibers were significantly decreased in the elderly group in comparison to those in the non-elderly group. (Table 1, P<0.01, Mann-Whitney’s U tests.)

DISCUSSION and CONCLUSIONS

Age-related changes in the aryepiglottic muscle appear to be associated with function of the epiglottis during swallowing. Epiglottic dysfunction leads to aspiration and other airway troubles. The aryepiglottic muscle acts as a constrictor of the laryngeal orifice during swallowing, and it will disappear in the aryepiglottic fold with the aging process. Age-related changes in the aryepiglottic muscle appear to be associated with the risk of aspiration in the elderly.

REFERENCES


Figure 1. Median sagittal section (non-elderly group).

Figure 2. Median sagittal section (elderly group).

Table 1. Fiber distribution pattern.

<table>
<thead>
<tr>
<th>Group</th>
<th>Age Sex</th>
<th>Fiber distribution pattern</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elderly</td>
<td>74 F</td>
<td>Lack</td>
</tr>
<tr>
<td>Elderly</td>
<td>82 M</td>
<td>Lack</td>
</tr>
<tr>
<td>Elderly</td>
<td>82 M</td>
<td>Lack</td>
</tr>
<tr>
<td>Elderly</td>
<td>86 M</td>
<td>Lack</td>
</tr>
<tr>
<td>Non-elderly</td>
<td>29 M</td>
<td>Dense</td>
</tr>
<tr>
<td>Non-elderly</td>
<td>30 M</td>
<td>Dense</td>
</tr>
<tr>
<td>Non-elderly</td>
<td>31 M</td>
<td>Dense</td>
</tr>
<tr>
<td>Non-elderly</td>
<td>30 M</td>
<td>Dense</td>
</tr>
</tbody>
</table>

CONTACT

Motohiro Sawatsubashi MD, PhD
Department of Otorhinolaryngology - Head and Neck Surgery, Graduate School of Medicine, Kyushu University
Email: motohiro@qent.med.kyushu-u.ac.jp
Phone: +81-92-642-5685