Effect of gastroesophageal reflux on base of the tongue

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ABSTRACT

Hypertrophy of the base of the tongue due to gastroesophageal reflux disease (GERD). But, there have been no reports explaining the effects of GERD on the base of the tongue histopathologically. Therefore, we investigated the histopathologic changes of tongue base using an experimental model of reflux.

Material and Methods: The randomized study was conducted at Haydarpaşa Numune Training Hospital. Eighteen rats were divided into three groups according to exposure time, and four rats were examined for each group. An experimental model of gastroesophageal reflux was induced by an esophageal laparotomy incision. In the exposed group, the base of the tongue were observed under a light microscope and histopathologically. Subepithelial edema was significantly different in the exposed group compared to the control group. The submucosal gland hypertrophy was significantly different from the control group. While we assessed submucosal gland hypertrophy and subepithelial edema in the group exposed to refluxate for 12 weeks, they were found to be much increased compared with the 4 week group. Also, inflammation, vascular dilatation and achantosis were determined to be significantly increased compared with the control group.

Conclusion: The current study suggests that GERD results in histological changes in the base of the tongue. Therefore, it suggests a new perspective to the relationship between GERD and throat clearing, dry cough and respiratory infections or the use of alcohol and tobacco. The sensation in HBT cases is probably because of the follicles touching the posterior wall of the pharynx. 2. In a study, it was found that severe HBT was more frequent in patients with GER symptoms. Previously recorded data have shown a high frequency of lymphoid tissue in patients with signs of GER (82.4%), indicating that the presence of gastric juice in the pharyngolaryngeal region may be important in the etiology of HBT.

4. REFERENCES

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1. INTRODUCTION

Gastroesophageal reflux disease (GERD) is the most common esophageal disease, and it is known as one of the causes of laryngeal irritation. At a magnification of 100, a score was assigned according to the degree of subepithelial edema, submucosal gland hypertrophy and subepithelial edema in the group exposed to refluxate for 12 weeks, they were found to be much increased compared with the 4 week group. Also, inflammation, vascular dilatation and achantosis were determined to be significantly increased compared with the control group.

3. RESULTS

Table-1: Comparison of the changes in the base of the tongue.

4. DISCUSSION

The complaints due to severe hypertrophy of the base of the tongue (HBT) are globus sensation, laryngopharyngeal reflux (LPR), dry cough, nasal regurgitation, hoarseness, and respiratory infections or the use of alcohol and tobacco. The sensation in HBT cases is probably because of the follicles touching the posterior wall of the pharynx. In a study, it was found that severe HBT was more frequent in patients with GER symptoms. Previously recorded data have shown a high frequency of lymphoid tissue in patients with signs of GER (82.4%), indicating that the presence of gastric juice in the pharyngolaryngeal region may be important in the etiology of HBT.

Our results have shown that subepithelial edema in the group exposed to refluxate for the first week was significantly different compared to the control group. After 12 weeks of refluxate exposure, in addition to subepithelial edema and submucosal gland hypertrophy, inflammation, vascular dilatation and achantosis were determined to be significantly increased compared with the control group. Therefore, at this point, our results may aid in the histopathological explanation of the etiology of the relationship between LPR and HBT.

4. REFERENCES


Table-1: Comparison of the changes in the base of the tongue.

<table>
<thead>
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<th>Subepithelial edema</th>
<th>Inflammation</th>
<th>Vascular Enlargement</th>
<th>Achantosis</th>
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</tr>
<tr>
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<td>4</td>
<td>0.001</td>
<td>4</td>
<td>0.001</td>
</tr>
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The Mann-Whitney U test was used for the evaluation of differences. The statistical significance level was established at p<0.05 and confidence interval was 95%.