Original Article

Correlation between Radiographic and Histopathological Findings in Squamous Cell Carcinomas of the Gingiva

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Summary

The relationship between the radiographic features of jaw bone destruction and the histopathological features of tumor cells in 115 squamous cell carcinomas of the lower gingiva was investigated. The radiographic features were classified into four patterns as saucer-shaped, permeated, geographic and moth-eaten. Histopathologically, the cases were divided into three groups, a) the highly differentiated type showing papillary and nest structure well keratinized, b) the moderately differentiated type showing small cord and strand structure with moderate keratinization, and c) the poorly differentiated type showing marked cellular dissociation with poor keratinization. In the group of saucer-shaped, permeated, geographic-and moth-eaten type, the proportion of histologically highly differentiated tumors was high. Namely, highly differentiated tumors tended to reveal a fairly mild and compressive resorption and poorly differentiated tumors showed more invasive and aggressive potential to the bone.

This study suggested that the radiographic images of the mode of bone destruction in squamous cell carcinomas of the gingiva are influenced by the histopathological nature of the tumor cells.
Introduction

Carcinomas of the gingiva are likely to affect the adjacent jaw bone because of their intimate anatomical relationship. The radiographic image of the mode of bone invasion and the histopathological malignancy regarding squamous cell carcinoma of the gingiva have been examined by some authors. A few relationships between radiographic and histopathological features were suggested, for example, radiologically permeated and moth-eaten types of bone invasion tended to show histopathologically a moderate or poor differentiation.

The purpose of the present study is to investigate whether the radiographical types of bone destruction could be influenced by the histopathological nature.

Materials and Methods

One hundred and fifteen patients with squamous cell carcinoma of the lower gingiva were treated at the Osaka University Hospital during the period of 1970 to 1988 and their radiographs and histopathological sections were available for this study.

The age and sex distribution of the cases are shown in Table 1.

Concerning the radiographic images of the mode of bone destruction, the tumors were classified into four patterns, saucer-shaped, permeated, geographic and moth-eaten type (Fig. 1).

A typical radiographic feature of the saucer-shaped bone destruction is shown in Fig. 2. In this type, the margin of the defect

Table 1 Age and sex distribution

<table>
<thead>
<tr>
<th>Age</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>~29</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>30~39</td>
<td>3</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>40~49</td>
<td>10</td>
<td>3</td>
<td>13</td>
</tr>
<tr>
<td>50~59</td>
<td>16</td>
<td>9</td>
<td>25</td>
</tr>
<tr>
<td>60~69</td>
<td>22</td>
<td>9</td>
<td>31</td>
</tr>
<tr>
<td>70~79</td>
<td>19</td>
<td>17</td>
<td>36</td>
</tr>
<tr>
<td>80~</td>
<td>3</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td>74</td>
<td>41</td>
<td>115</td>
</tr>
</tbody>
</table>

Fig. 1 Schematic drawings of radiographic images of the mode of bone destruction