A Clinicopathologic Study of 82 Intraoral Minor Salivary Gland Tumors

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1. Introduction

Minor salivary glands are functional structures located in the submucosa of the upper aerodigestive tract (1). Lesions in these glands are important because these tumors are more likely to be malignant than other lesions (2). Salivary gland tumors have a special category in human neoplasia and possibly have the most complex histopathologic characteristic of the body organs (3). Studies from other countries have reported that 13.9-51.4% of all the salivary gland tumors (SGTs) arise from an intraoral area and 34.7-67.1% of them are benign (4-7). It is however possible that geographical location and racial factors may influence the incidence of SGTs (8, 9). Currently, there is a paucity of studies on a large series of patients with minor salivary glands tumors (MSGTs) in Iran. The aim of this study was to determine the clinicopathologic characteristics of 82 benign and malignant intraoral MSGTs.

2. Patients and Methods

We included all 82 cases of epithelial SGT in the oral mucosa and jaws (diagnosed on the basis of histopathologic test results) recorded by the pathology department of Khalili Hospital from 2005 to 2009. Recurrent, metastatic and non–epithelial neoplasms were excluded. We retrospectively reviewed the patients’ medical files and analyzed the information on patient’s age, gender, tumor location, and histopathologic type of the tumor according to the 2005 World Health Organization (WHO) classification by using the SPSS software (version 11.5, Chicago, IL).

3. Results

Among 356 SGTs, tumors were diagnosed as epithelial
SGT in the oral mucosa and jaws in 82 cases (23%). Forty-four (53.7%) tumors were benign and 38 (46.3%) were malignant (Table 1). The age range of the patients was 13 to 80 years, with the mean age being 41.4 ± 18.9 years. The palate was the most common site of involvement in cases of both benign and malignant tumors (64.6% of all the cases) (Figure 1). In 5 cases, tumors (7.4%), including a pleomorphic adenoma (PA), a polymorphic low-grade adenocarcinoma (PLGA), and 3 mucoepidermoid carcinomas (MECs), were centrally located in the maxilla and mandible. The overall male to female (M/F) ratio was 1:1.27. Table 1 shows the distribution of tumors according to tumor type and patient age and gender.

4. Discussion

Currently, little data is available on the clinicopathologic presentation of MSGTs in Iran. In this study, we studied cases in an ENT center during a 5-year period. Among the 9700 cases studies, cases of MSGTs were uncommon and accounted for 0.84% of all the biopsy specimens. In studies performed in USA, Japan, Venezuela, and Thailand, biopsy specimens of intraoral MSGTs accounted for 0.28–1.9% of all specimens (5, 10-12). In our series, malignant neoplasms constituted 46.3% of all the cases; this finding is in agreement with those of previous studies (6, 10, 13). However, some other studies have shown a predominance of malignant tumors (7, 10, 14-16). However, this finding is attributable to the fact that most of these studies were performed in special situations such as by using a cancer registry or in cancer treatment centers. In the current study, PA was the most common tumor, representing 43.9% of all tumors present and 81.8% of the benign tumors. This finding is comparable with those of other studies in which the incidence of PA ranged from 15.8 (15) to 78% (2, 4-7, 10-12, 15-17).

Among the malignant tumors, adenoid cystic carcinoma (AdCC) was the most common. This finding is similar to those in some reports, (15, 16, 18) but studies conducted in USA, Brazil, Venezuela, Australia, China and Iran reported that MEC was the most frequent (7, 11, 17, 19-22). Thus, these data may indicate a geographic variation in the relative frequencies of AdCC and MEC. However, these 2 types of neoplasms are the top 2 malignant tumor types in most studies. The palate was the most common site of involvement in our study (64.6%), followed by the buccal mucosa. The palate accounted for 34.6–82.9% (12, 22) of the cases in previous studies. In our study, both benign and malignant neoplasms were found to occur at this location, but benign tumors were predominantly reported. This finding is in agreement with those of other studies (4, 5, 12, 21). Our results show that the tongue (8.5%) and jaw (7.3%) were the next most common sites. Similar to our findings, Dhanuthai et al. and Jabber et al. reported 6.5% and 5.2% of MSGTs in the jaw (12, 22).

With regard to patient age, the peak prevalence of benign tumors was observed in the third decade of life while that of malignant types was observed in the sixth and seventh decades of life. Specifically, the mean age of patients with malignant tumors was 13.8 years more than that of those with benign tumors. This difference was higher in our population than in the previous studies, which reported values ranging from 2.9 years in Thais to 13.3 years in African populations (12, 23). This finding is due to the fact that in our study, patients with benign tumors were younger (mean age: 35) while others have stated that the mean age of the affected patients with these neoplasms ranged from 40 (in a Chinese cohort) to 49 years (in a Japanese cohort) (4, 5). Overall, the incidence of MSGTs was higher in females (M/F ratio was 1:1.27). This ratio has been reported to vary from 1:0.02 (16) to 1:2 (11). Gender distribution of SGTs has been reported to be related to ethnic variations (5, 23). In conclusion, in the present cohort, PA was the most common tumor, representing 43.9% of all tumors present and 81.8% of the benign tumors. This finding is comparable with those of other studies in which the incidence of PA ranged from 15.8 (15) to 78% (2, 4-7, 10-12, 15-17).

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Table 1. Distribution of Minor Salivary Glands Tumors According to Tumor Type, Age, And Gender

<table>
<thead>
<tr>
<th>Tumor type</th>
<th>Frequency (%)</th>
<th>M:F</th>
<th>Mean ± SD</th>
<th>Age range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benign tumors, PA</td>
<td>44 (53.7)</td>
<td>22:22</td>
<td>35 ± 17.25</td>
<td>13-72</td>
</tr>
<tr>
<td>Myoepithelioma</td>
<td>36 (43.9)</td>
<td>16:20</td>
<td>34.5 ± 2.7</td>
<td>13-72</td>
</tr>
<tr>
<td>Monomorphic adenoma</td>
<td>7 (8.5)</td>
<td>6:1</td>
<td>39 ± 8.5</td>
<td>19-71</td>
</tr>
<tr>
<td>Malignant tumors</td>
<td>38 (46.3)</td>
<td>36:46</td>
<td>48.8 ± 18.1</td>
<td>13-80</td>
</tr>
<tr>
<td>MEC</td>
<td>10 (12.2)</td>
<td>3:7</td>
<td>43.7 ± 5.2</td>
<td>15-63</td>
</tr>
<tr>
<td>ACC</td>
<td>1 (1.2)</td>
<td>0:1</td>
<td>60</td>
<td>60</td>
</tr>
<tr>
<td>AdCC</td>
<td>23 (28.0)</td>
<td>10:13</td>
<td>50.8 ± 4</td>
<td>13-80</td>
</tr>
<tr>
<td>ca.ex.PA</td>
<td>1 (1.2)</td>
<td>0:1</td>
<td>67</td>
<td>67</td>
</tr>
<tr>
<td>PLGA</td>
<td>3 (3.7)</td>
<td>1:2</td>
<td>41 ± 7.6</td>
<td>26-51</td>
</tr>
<tr>
<td>Total</td>
<td>82 (100.0)</td>
<td>58:68</td>
<td>41.4 ± 18.9</td>
<td>13-80</td>
</tr>
</tbody>
</table>

a Abbreviations: PA, Pleomorphic adenoma; MEC, Mucoepidermoid carcinoma; ACC, Acinic cell carcinoma; AdCC, Adenoid cystic carcinoma; ca.ex.PA, Carcinoma ex pleomorphic adenoma; PLGA, Polymorphous low-grade carcinoma
However, in our study, patients with benign tumors were younger. We hope that our findings will help us perform better diagnosis and provide early treatment for patients in this geographical location.

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Figure 1:

Figure 1: Location of benign and malignant tumors. L: lower, U: upper, M: mucosa, BM: buccal mucosa

Figure 2:

Figure 2: Incidence of benign and malignant tumors in each decade

References