Oraland Maxillofacial Lesions in an Elderly Population in Shiraz, Iran

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1. Background

Aging causes many changes in human physiology, increasing the risk of pathologic conditions in elderly populations. Different studies have shown higher frequency of oral and maxillofacial lesions in older people. Knowing the prevalence and distribution of these lesions can help dentists in screening these patients.

Objectives: This study aimed to evaluate the frequency and distribution of oral pathologic lesions among patients referred to Oral Pathology Department of Shiraz Dental School.

Patients and Methods: By referring to archives of Oral Pathology Department of Shiraz University of Medical Sciences, the histopathological reports of all 231 patients aged 60 years or over were reviewed. The data were described and analyzed using SPSS software. Chi-square test was performed and a P value less than 0.05 was considered significant.

Results: The most prevalent lesion was oral lichen planus (21.6%), followed by inflammatory fibrous hyperplasia (15.8%) and squamous cell carcinoma (7.6%). There was a statistically significant difference between men and women in the occurrence of odontogenic cysts and dermatologic diseases, (P = 0.018 and 0.002, respectively; chi-square = 5.63 and 9.47, respectively). Moreover, non-neoplastic lesions were the most prevalent group of lesions in this study.

Conclusions: High frequency of life-threatening oral conditions among elderly populations makes it essential for dentists to pay special attention to the most frequent lesions and help enhance the life quality of elders by early diagnosis and management of these diseases.

Keywords: Pathology; Pathology, Oral; Elderly

2. Objectives

As aging causes many socioeconomic and physical limitations for elderly patients and may restrict their access to appropriate treatments and due to the importance of...
early detection and treatment of malignant lesions, we performed this study. Hopefully the findings of the study will help dentists to make more accurate differential diagnoses.

3. Patients and Methods
This was a cross-sectional study performed in Shiraz University of Medical Sciences, Iran, in 2013. Sampling was performed by census and by referring to archives of the Oral Pathology Department of Dentistry School, Shiraz University of Medical Sciences, from 2002 to 2011. The study comprised 231 participants over 60 years old with at least one pathologic condition. The participants’ sex, age, associated lesion and diagnosis, and location of the lesion were recorded. Reports with nondefinitive diagnoses and the ones requiring further biopsy were excluded from the study. Moreover, participants whose ages were not mentioned were not entered to the study. Lesions were classified into eight groups according to the textbook of oral and maxillofacial pathology (10). After collecting the data, the researchers tabulated and described them using SPSS software (statistical package for the social sciences for windows 17.0; SPSS Inc., Chicago, IL, USA). Chisquare test was performed to evaluate the gender difference in the prevalence of lesions. P value less than 0.05 was considered significant. The study also reported common locations for different kinds of lesions.

Ethical issues were considered during all the study stages. Only the research team had access to the archives and no private information of the patients were mentioned anywhere in the study.

4. Results
From 1304 biopsies available at the archives of the Oral Pathology Department, 231 biopsies (17.7%) were related to patients with 60 years of age or older. A total of 208 participants were included in this study and 23 were excluded. The mean age of the included patients was 68 ± 4.2. The prevalence of lesions according to the patients’ age is shown in Table 1. Most of the lesions were related to patients from 60 to 69 years old. Females comprised 54.8% of the participants, the percentage of which was slightly higher than the male participants (45.2%). The most common lesion was oral lichen planus (OLP) (21.6%, n = 45), followed by inflammatory fibrous hyperplasia (15.8%, n = 33) and SCC (7.6%, n = 16).

The mean age of patients was 66.9 ± 2.6 for OLP, 67.1 ± 1.7 for inflammatory fibrous hyperplasia, and 71.7 ± 2.2 for squamous cell carcinoma. SCC was more prevalent in men (62.5%). In contrast, 75% of patients with OLP were female. Inflammatory fibrous hyperplasia was slightly more prevalent among females than in males (51.5% compared to 48.5%, respectively). Owing to the diversity of lesions including soft tissue and hard tissue diseases, we proposed two types of classifications to include all the lesions; the first, as shown in Table 2, considered the origin of the lesions.

Table 1. Frequency of Lesions in Different Age Groups

<table>
<thead>
<tr>
<th>Age Range, y</th>
<th>Lesions, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>60-69</td>
<td>61.1</td>
</tr>
<tr>
<td>70-79</td>
<td>32.6</td>
</tr>
<tr>
<td>80 And older</td>
<td>6.3</td>
</tr>
</tbody>
</table>

Table 2. Frequency of Different Groups of Lesions in Elderly Patients Based on Their Origins a

<table>
<thead>
<tr>
<th>Type of Lesion</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
<th>Lesions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soft tissue tumors</td>
<td>37 (17.8)</td>
<td>35 (16.8)</td>
<td>72 (34.6)</td>
<td>Peripheral giant cell granuloma, irritation fibroma, pyogenic granuloma, epulis granulomatosa, Inflammatory fibrous hyperplasia, vascular malformation and hemangioma, neurofibroma, fibrous hyperplasia, lipoma</td>
</tr>
<tr>
<td>Bone pathology</td>
<td>2 (0.95)</td>
<td>2 (0.95)</td>
<td>4 (1.9)</td>
<td>Central giant cell granuloma, osteoma, fibrous dysplasia, cemento-osseous dysplasia, familial gigantiform cementoma</td>
</tr>
<tr>
<td>Odontogenic cysts and tumors</td>
<td>10 (4.8)</td>
<td>3 (1.5)</td>
<td>13 (6.3)</td>
<td>Odontogenic myxoma,ameloblastoma, odontogenic kerato cyst, lateral periodontal cyst, radicular cyst</td>
</tr>
<tr>
<td>Dermatologic diseases</td>
<td>12 (5.8)</td>
<td>35 (16.8)</td>
<td>47 (22.6)</td>
<td>Lichen planus, pemphigus &amp; pemphigoid, erythema multiforme</td>
</tr>
<tr>
<td>Inflammatory periapical diseases</td>
<td>3 (1.4)</td>
<td>1 (0.5)</td>
<td>4 (1.9)</td>
<td>Periapical granuloma, osteomyelitis</td>
</tr>
<tr>
<td>Epithelial pathology</td>
<td>17 (8.2)</td>
<td>27 (13)</td>
<td>44 (21.2)</td>
<td>Squamous cell carcinoma, epithelial malignant tumor, Spindle cell carcinoma, verrucous carcinoma, dysplasia, epithelial hyperplasia, hyperkeratosis, squamous papilloma, inverted papilloma, verrucous hyperplasia, verrucous leukoplakia</td>
</tr>
<tr>
<td>Salivary gland pathology</td>
<td>7 (3.5)</td>
<td>2 (0.95)</td>
<td>9 (4.3)</td>
<td>Mucoepidermoid carcinoma, pleomorphic adenoma, sialadenitis, salivary duct cyst, mucocele and ranula</td>
</tr>
<tr>
<td>Others</td>
<td>6 (2.9)</td>
<td>9 (4.3)</td>
<td>15 (7.2)</td>
<td>Telangiectasia, traumatic lesions, non-specific inflammation, sinus conditions</td>
</tr>
</tbody>
</table>

a Values are presented as No. (%).
For four groups of lesions with soft tissue tumors, odontogenic cysts and tumors, epithelial pathology, and dermatologic diseases possessing the highest frequencies, chi-square test was performed. Only for two groups, odontogenic cysts and tumors and dermatologic diseases, there was a significant difference between males and females (P = 0.018 and 0.002, respectively; chi-square = 5.63 and 9.47, respectively). For the other two groups, soft tissue tumors and epithelial pathology, the difference was not significant (P = 0.20 and chi-square = 0.96 for epithelial pathology, P = 0.12 and chi-square = 1.70 for soft tissue tumors). As this classification failed to show the nature as well as malignant or benign behavior of the lesions, another classification was performed including these variables. The results are shown in Table 3.

<table>
<thead>
<tr>
<th>Type of Lesion</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-neoplastic</td>
<td>69 (33.3)</td>
<td>84 (40.3)</td>
<td>153 (73.6)</td>
</tr>
<tr>
<td>Benign neoplastic</td>
<td>9 (4.3)</td>
<td>6 (2.9)</td>
<td>15 (7.2)</td>
</tr>
<tr>
<td>Premalignant</td>
<td>10 (4.8)</td>
<td>12 (5.8)</td>
<td>22 (10.6)</td>
</tr>
<tr>
<td>Malignant neoplastic</td>
<td>7 (3.4)</td>
<td>11 (5.3)</td>
<td>18 (8.7)</td>
</tr>
</tbody>
</table>

Table 3. Frequency of Different Groups of Lesions Based on Their Behaviors

There was no significant difference between males and females considering the prevalence of these groups (P > 0.05). In this classification, premalignant conditions referred to biopsies showed moderate and severe dysplasia, but could not be diagnosed as specific lesions.

5. Discussion

Owing to the growing number of elders, they are more prone to different types of diseases and lesions. In addition, systemic problems of elderly patients make management of the conditions more complex. As a result, prevention and early detection of life-threatening lesions are of crucial importance.

In spite of the importance of the studied issue, few investigations have been performed in Iran focusing on histopathological features of the lesions. Although clinical examination is essential, it is still not conclusive, especially for malignant and premalignant lesions. In two separate studies performed by Mozaafari (8) and Rabiei (9) in Mashhad and Rasht, Iran, respectively, the data were collected by examining both healthy and diseased elders clinically; however, we aimed to perform this study on the basis of histopathological diagnosis, which was considered more reliable and conclusive.

The results of this study showed that 17.7% of biopsies were related to patients of 60 years of age or older. As previously mentioned, SCC was the most common malignant lesion and the third most common lesion (comprising 71.6% of malignant and 7.6% of all lesions) among the studied population. In similar studies performed by Carvalho (7) and Correa (4) in Brazil, SCC was the most common type of oral cancer. In another study carried out in England, Warnakulasuriya reported the same findings (11).

Fifty percent of all malignancies were located in lateral border of the tongue; this shows how critical it is for a dentist to find a lesion in this area, even if it does not seem to be a malignant lesion clinically.

The high prevalence of SCC can be attributed to different factors. As SCC is a lesion that does not cause much pain and discomfort, patients may not seek treatment when they first discover the lesion. In addition, elderly people might be more reluctant to refer to a healthcare provider when noticing an abnormal condition in their oral cavities. Another factor might be related to the distance that one should travel from a town or village to refer to a more advanced center for management of his/her lesion. All the mentioned factors might result in developing a premalignant condition into a malignant lesion. OLP was the most frequent lesion observed in our study. In our study, 75% of patients were female. In a study performed by Shen et al., OLP was more common in females compared with males. In their study, females were twice more inflicted by OLP than males (12). By contrast, Munde et al. reported a higher prevalence of OLP among males (M:F = 1.61:1) (13).

Inflammatory fibrous hyperplasia was the second most common lesion in this study (15.8%). In the study performed by Carvalho et al. inflammatory fibrous hyperplasia comprised 19.1% of all cases, which was close to our findings (7). In another study performed by Coelho, the frequency of inflammatory fibrous hyperplasia was reported 15% (14).

Conducting the present study, the researchers faced a number of limitations. For instance, some clinical data, such as systemic condition of the patient, the drugs taken by patients, and locations of the lesions were not mentioned by the referring dentists, so these data could not be used in the reports. Moreover, in some elderly patients, the surgery to take a biopsy was contraindicated because of their systemic conditions. Therefore, a large number of lesions, for which biopsies did not exist, could not be reviewed in this study. On the other hand, since general and oral pathology in some conditions such as salivary gland pathologies overlapped, a great number of biopsies were referred to general pathologists, especially those made by otolaryngologists. As a consequence, salivary gland lesions, despite their high prevalence among the elderly, had been reported for only a small fraction of the cases of this study.

Because of the high frequency of life-threatening oral conditions in elderly populations, it is essential that dentists pay special attention to the most frequent lesions and help enhance the life quality of elders by early diagnosis and management of these diseases.
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Authors’ Contributions

Study concept and design: Mohammad Mehdi Fani and Soheil Pardis; acquisition of data: Mohammad Mehdi Taheri; analysis and interpretation of data: Mohammad Mehdi Taheri, Mohammad Mehdi Fani and Soheil Pardis; drafting of the manuscript: Mohammad Mehdi Taheri and Soheil Pardis; critical revision of the manuscript for important intellectual content: Soheil Pardis and Mohammad Mehdi Fani; statistical analysis: Mohammad Mehdi Taheri; administrative, technical, and material support: Mohammad Mehdi Fani and Soheil Pardis; study supervision: Soheil Pardis and Mohammad Mehdi Fani.

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