

Epidemiologic Study of the Prevalence of Oral Mucosal Lesions in the Biopsied Samples at Buali and Imam Khomeini Hospitals from 2000 to 2014

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ABSTRACT

Background and Aim: Oral mucosal lesions have various prevalence rates among different populations. Few studies have evaluated the frequency of oral mucosal lesions in Iranian population. This study aimed to determine the frequency of oral mucosal lesions and the related factors.

Methods and Materials: This descriptive study was conducted based on the data in the archives of two referral centers, including the Pathology Departments of the Cancer Institute of Imam Khomeini and Buali hospitals in Tehran, from June 2000 to July 2014. Age, sex, location of the lesions and microscopic diagnosis were retrieved from the files, and the data were analyzed by SPSS13 using Chi-square test.

Results: Among 59273 files, 976 patients (1.56%) had oral mucosal lesions, and the most prevalent pathologies were epithelial lesions (89.4%), followed by connective tissue lesions (6.5%). Squamous Cell Carcinoma (53%) was the most prevalent epithelial lesion. The most common location of oral mucosal lesions was the lips (27.8%). Mean age of the patients was 44 ± 3 years. The incidence of mucosal lesions increased with age, while no correlation was observed between mucosal lesions and sex ($P < 0.9$).

Conclusion: The most prevalent oral mucosal lesion was the Squamous Cell Carcinoma, which is a malignant tumor with epithelial origin, and its early diagnosis is necessary.

Original Article

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Introduction:

Oral mucosal lesions have various prevalence rates in different populations. Complete oral examination is of great assistance in the differential diagnosis of these lesions.⁽¹⁾ If no local information is available about oral mucosal lesions and they are not diagnosed early, the consequences would harm the patient as well as the society in both emotional and economic terms.⁽²⁾

Scattered studies have been conducted on the frequency of oral mucosal lesions and the related factors among Iranian population.⁽³⁾ The early diagnosis of these lesions prior to progression would increase the chance of recovery.^(4, 5, 6) Several authors have conducted epidemiological studies on oral mucosal lesions. Some of these studies are clinical-based without histopathology confirmation and some are retrospective evaluation of biopsied lesions. The prevalence of these lesions ranges from 11.83 to 58.7% in different reports.^(3, 5-9)

Despite the numerous published articles on the prevalence of oral mucosal lesions in other countries, few surveys have been conducted in Iran. In a clinical-based study conducted by Jahanbani et al, Fordyce granules, fissured tongue, leukoedema and hairy tongue were frequently found in 598 Iranian patients.⁽³⁾ A 10-year retrospective study of the biopsied oral soft tissue lesions in an Iranian population revealed 18.4% benign soft tissue tumors, including 91.2% reactive and 8.8% neoplastic lesions. The most common lesion was the Pyogenic granuloma (29.6%).⁽¹⁰⁾ In a retrospective study by Seyedmajidi et al, the most common fibrous lesion of the oral cavity was the irritation fibroma and the most common hemorrhagic soft tissue lesion was the Pyogenic granuloma.⁽¹¹⁾

Considering the different reports and geographic differences in the prevalence of oral mucosal lesions, the present survey of oral mucosal lesions was conducted among an Iranian population.

Methods and Materials:

This retrospective study was carried out on the biopsied specimens in the archives of two referral pathology laboratories in Tehran, Iran, including the pathology departments of the Cancer Institute of Imam Khomeini and Buali hospitals from June

2000 to July 2014. Data such as age, sex, location of the lesion and microscopic diagnosis were retrieved from the archives. Only the samples with complete information which had occurred in the oral cavity were enrolled. We also tried to complete the deficient records. If there was no access to accurate information, the samples were excluded from the study. Therefore, 126 samples were excluded due to incomplete data. It should be noted that only the lesions that were limited to the oral cavity were studied. Finally, all the oral mucosal lesions were classified as epithelial, soft tissue, mucocutaneous, developmental, infectious or miscellaneous lesions.⁽¹²⁾ Data were analyzed by SPSS13 statistical software using Chi-square test.

Results:

3.2% of 59273 recorded cases were oral lesions, and 976 (1.65%) of them were oral mucosal lesions. The most prevalent oral lesions were epithelial lesions (89.4%), followed by connective tissue lesions (6.5%). Among the epithelial lesions, the most prevalent pathologies were Squamous Cell Carcinoma (SCC) (53%), Basal Cell Carcinoma (30%) of the lips, Melanocytic Nevus (5%) and Epithelial Focal Hyperplasia (1.4%). Pyogenic Granuloma (3.2%), Peripheral Giant Cell Granuloma (PGCG) (2%), Hemangioma (0.6%), Lipoma (0.4%) and Schwannoma (0.3%) were the most prevalent lesions among the soft tissue pathologies. Mucocutaneous lesions included Lichen planus (0.7%) and Pemphigus (0.3%). Developmental lesions included Epidermoid cyst (0.5%) and Lymphoepithelial cyst (0.3%). Other lesions consisted of inflammatory processes (0.2%), retention cysts (0.2%) and Hodgkin's lymphoma (1.4 %). 535 lesions were found in males (54.8%) and 441 in females (45.2%). Mean age of the patients was 44±3 years and most lesions (89.4%) were found in patients with the age range from 25 to 68 years with the peak of incidence in the 5th decade of life (Fig. 1).

). 37.9% of the cases were below the mean age (44±3 years old) while 66 cases (62.1%) were above the mean age. The frequency of the biop-

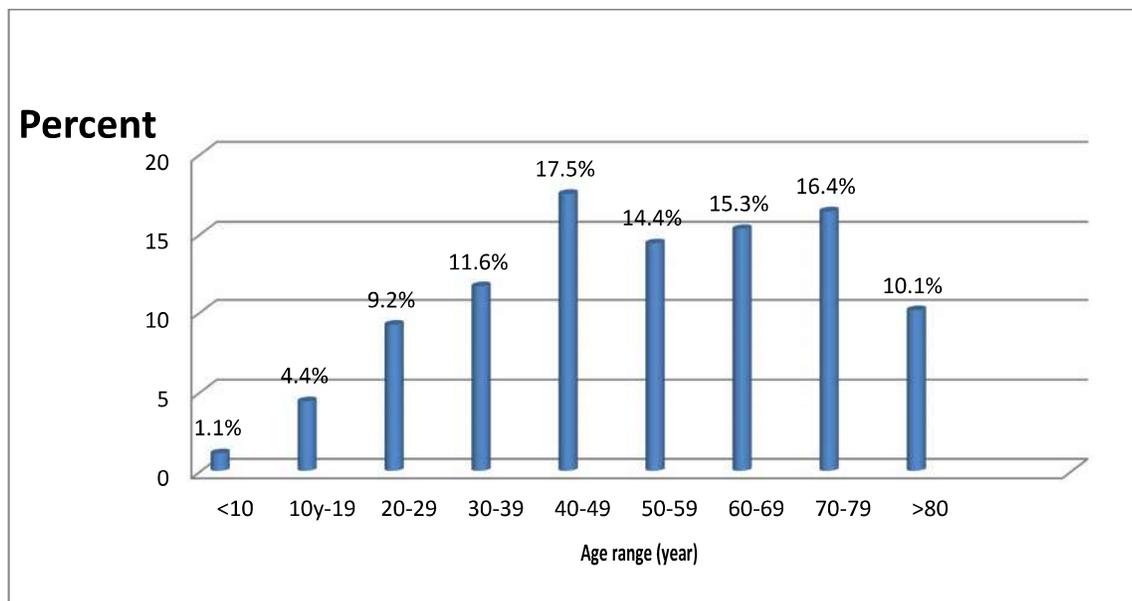


Figure1- Distribution of the biopsied patients according to the age range (decade of life)

sied oral mucosal lesions (types of the lesions) according to the age range (decade of life) are shown in Table 1. The most common locations of oral mucosal lesions were the lips (27.8%) followed by tongue (25.6%), buccal vestibule (25.4%), gingiva (5.2%) and palate (3.1%), while 12.9% of the lesions had non-specified locations. The incidence of mucosal lesions increased with age, while no correlation was observed between mucosal lesions and sex ($P < 0.9$).

Table 1- Frequency of the biopsied oral mucosal lesions (the type of lesion) according to the age range (decade of life).

| Type of lesion Age range(year) | Epithelial lesions | Soft tissue tumors | Mucocutaneous lesions | Developmental lesions | Infectious lesions | Miscellaneous | Total |
|-----------------------------------|--------------------|--------------------|-----------------------|-----------------------|--------------------|---------------|-------------|
| | No(Percent) | No(Percent) | No(Percent) | No(Percent) | No(Percent) | No(Percent) | No(Percent) |
| <10 | 9(0.9) | 1(0.1) | 1(0.1) | 0 | 0 | 0 | 11(1.1) |
| 10-19 | 39(4) | 2(0.2) | 0 | 1(0.1) | 0 | 1(0.1) | 43(4.4) |
| 20-29 | 84(8.6) | 1(0.1) | 2(0.2) | 1(0.1) | 0 | 2(0.2) | 90(9.2) |
| 30-39 | 100(10.3) | 6(0.6) | 3(0.3) | 2(0.2) | 0 | 2(0.2) | 113(11.6) |
| 40-49 | 153(15.7) | 9(0.9) | 1(0.1) | 2(0.2) | 2(0.2) | 4(0.4) | 171(17.5) |
| 50-59 | 120(12.3) | 14(1.5) | 1(0.1) | 1(0.1) | 1(0.1) | 3(0.3) | 140(14.4) |
| 60-69 | 140(14.3) | 4(0.4) | 1(0.1) | 1(0.1) | 1(0.1) | 3(0.3) | 150(15.3) |
| 70-79 | 146(15) | 11(1.1) | 0 | 0 | 1(0.1) | 2(0.2) | 160(16.4) |
| >80 | 81(8.3) | 15(1.6) | 1(0.1) | 0 | 0 | 1(0.1) | 98(10.1) |
| Total | 872(89.4) | 63(6.5) | 10(1) | 8(0.8) | 5(0.5) | 18(1.8) | 976(100) |

Discussion:

This retrospective study was performed in two referral biopsy centers in Tehran from 2000 to 2014. The results showed that oral lesions constituted 3.2% of the lesions, while 976 cases (1.65%) were oral mucosal lesions. Although the results demonstrated that oral lesions comprised a low percentage of the lesions in the whole body, the percentage of mucosal lesions indicates their importance. However, because of rare reports in Iran with a similar study design, comparison is not feasible. Similar to the results obtained by Jahanbani et al.⁽³⁾, Demko et al.⁽¹⁾, and Pentenero et al.⁽¹³⁾, most of the lesions in this study were of epithelial type. Nevertheless, the mentioned studies were clinical-based in contrast to the present study which retrospectively evaluated the biopsied cases, and the differences in percentages of the lesions are related to the study sample and referral centers.

In the present study, the most common locations of the oral mucosal lesions were the lips (27.8%) and tongue (25.6%). The most prevalent lesion in this study was the SCC with the common location of the lips, which is in line with the findings of other studies.⁽¹²⁾ Splieth et al.⁽⁸⁾ reported the cheek mucosa, hard palate, alveolar bone and lips as the most prevalent locations of oral lesions. Al-Khateeb⁽¹⁴⁾ reported the palate, tongue, upper lip and buccal mucosa as the most prevalent locations for benign neoplasms and the gingiva, buccal mucosa, lower lip and tongue were reported as the most common locations of non-neoplastic lesions. Shulman et al.⁽⁹⁾ reported that the most common locations were the lips and tongue, respectively, which is similar to the findings of this study. The study of Splieth et al was conducted on normal individuals visiting a clinic. Al-Khateeb only focused on the benign lesions which can justify the differences in the results, and points out the importance of the research population, evaluated lesion type as well as the research method (clinical or pathological). Mehrotra et al.⁽¹⁵⁾ reported the tongue as the most common location, which is rather similar to the findings of the present study in which the tongue was the second most common location. In a study by Cebeci

et al.⁽¹⁶⁾, tongue lesions ranked third in terms of frequency. The most common site in our study could be resulted from the most common lesion that we found. On the other hand, SCC is most commonly reported in the lips (related to UV exposure) and tongue.

In the present study, 535 lesions were found in males (54.8%) and 441 in females (45.2%) with M/F ratio of 1.2. Similarly, Jahanbani et al.⁽³⁾ reported the frequency of oral mucosal lesions in males and females to be 62.4% and 37.6%, respectively. Furthermore, Splieth et al.⁽⁸⁾ stated the frequency of oral mucosal lesions to be 12.20% in males and 11.40% in females. Al-Khateeb⁽¹⁴⁾ found the frequency of lesions in females and males to be 60% and 40%, respectively. Likewise, the frequencies were reported to be 57.7% in females and 42.3% in males in the study by Al-Mobeeriek and Al-Dosari.⁽¹⁷⁾ The higher frequency of lesions in males in the present research could be attributed to the most prevalent lesion in this study (SCC) which has been mainly reported in males.

The patients in this study were in the mean age of 44±3 years. Although most lesions (89.4%) were of epithelial origin and were found in patients with the age range from 25 to 68 years, the peak of prevalence was in the 5th decade of life. Figure 1 shows that the most common biopsied lesions were found between the 5th and 8th decades of life, and that the biopsied samples decrease during the 9th decade of life, which is consistent with diminishing life expectancy. In the survey of Al-Khateeb⁽¹⁴⁾, the mean age of the patients was 33 years with the majority of the cases in the 2nd to 4th decades. Other studies were clinical-based or focused merely on benign or malignant lesions. SCC was the most prevalent lesion in the current study. We also found a positive correlation between age and oral mucosal lesions. More than half of the patients (62.1%) were older than the mean age. It can be concluded that the prevalence of the SCC increases with age, which is similar to the literature which states that aging and higher exposure to risk factors increases the risk of cancer.⁽¹²⁾ The results of this study were similar to the studies by Jahanbani et al.⁽³⁾, Splieth

et al ⁽⁸⁾, Al-Mobeeriek et al ⁽¹⁷⁾, Mumcu et al ⁽¹⁸⁾, Kovac-Kovacic et al ⁽¹⁹⁾ and Sixto-Requeijo et al ⁽²⁰⁾, which showed the increase of oral lesion with aging.

It should be considered that the high frequency of the SCC in this study may be a referral bias. Considering that Imam Khomeini Cancer Institute is a referral center for cancer treatment, most of the biopsies are cancerous or precancerous lesions, which can justify some of the differences with other studies. For example, the SCC constituted only 10% of the biopsied oral lesions in the survey by Hoseinpour Jajarm and Mohtasham. ⁽²¹⁾ However, it was the third most common lesion after inflammatory hyperplasia and Lichen planus. ⁽²¹⁾

In a survey of benign oral masses in Jordanians, conducted by Al-Khateeb, only 4% of the lesions were neoplastic and 96% were non-neoplastic. ⁽¹⁴⁾ Non-neoplastic lesions consisted of 43% traumatic lesions, 33% inflammatory/ infectious lesions, 14% cystic lesions and 9% developmental lesions. Pyogenic granuloma constituted 19% and PGCG constituted 6% of the lesions ⁽¹⁴⁾, which is much higher than our results (Pyogenic granuloma 3.2%, PGCG 2%), and reflects the importance of the surveyed referral centers.

Finally, in contrast to other clinical-based studies, most of the lesions in the present study were malignant. This difference could be related to the design of our study which only included the biopsied samples. This means that some lesions are diagnosed clinically, and biopsy is not necessary for all lesions. In fact, biopsy is performed more frequently for undiagnosed lesions and unfortunately some of the lesions are never sent to laboratories especially when the surgeon presumes that the lesion is benign. This fact can justify the differences between clinical and histopathological-based studies of the frequency of oral mucosal lesions. Furthermore, different communities, geographic locations, and ethnicities of the studied populations might cause variations in the results.

Conclusion:

The most prevalent oral mucosal lesion in

the present survey was the Squamous Cell Carcinoma, which is a malignant tumor. However, it seems that this result may be related to the referral centers involved in this survey. The most prevalent locations of mucosal lesions were the lips and tongue. The incidence of mucosal lesions increased with age, while no correlation was observed between mucosal lesions and sex. Although this study reflects some facts about oral mucosal lesions in Iran, further investigations are needed to clarify the exact frequencies of these lesions among Iranians.

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Conflict of interests:

Authors report no conflict of interest related to this study.

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