

Original Research Article

A 7-year retrospective study of biopsied oral lesions in 460 Iranian patients

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Received for publication: August 21, 2013. Accepted for publication: November 26, 2013.

Keywords: oral lesion;
retrospective study.

Abstract

Introduction: Frequency of oral lesions is varied in different population and knowledge of diseases prevalence in a geographic location will improve preventive measures. **Objective:** The objective of this study was to determine the prevalence of oral biopsied lesions in a major oral pathology laboratory center of city of Tehran. **Material and methods:** A retrospective study was done on data obtained from the archive of oral and maxillofacial pathology department of Islamic Azad University, dental branch of Tehran, from 2005 to 2011. Following variables were analyzed: age, gender, anatomic location, and the histological results obtained. Lesions were classified to 18 different categories. Data were analyzed using the SPSS version 12.0 for windows Xp. All the data were recorded in Microsoft Office Excel for further evaluation and making a data bank to easy access. **Results:** Of the 460 patients studied, the mean age was 38 years. The most frequent lesions were in the group of reactive lesions (22.51%), followed by odontogenic cysts. The most frequent lesion was radicular cyst and odontogenic keratocyst (keratocystic odontogenic tumor). Malignant lesions constituted 2.38%, of which squamous cell carcinoma was the most common malignancy (1.52%). Mandible was the most common location for occurrence of lesions (32.6%) followed by gingiva (11.95%). **Conclusion:** Our study provides helpful

information of oral lesion's distribution in an Iranian population. The results showed high frequency of odontogenic keratocyst (keratocystic odontogenic tumor) which is not in agreement with other studies and need more evaluation of etiological factors.

Introduction

When comparing the frequency of oral lesions in different population, major and minor differences regarding to age, gender and geographic distributions would be found. Better control of diseases and improvement of preventive measures will be achieved considering the relative frequency of oral lesions in a geographic location. Many studies focusing on the prevalence of oral and maxillofacial lesions have been conducted around the world [1, 2, 4, 5, 11, 16, 24-27]. But to our knowledge, few studies on Iranian population were reported [2, 8, 9, 19, 21, 22]. Surprisingly, we found few reports on the frequency of histologically confirmed oral lesions in Iran [19, 21-23]. The purpose of this study was to investigate the relative prevalence of different types of oral and maxillofacial biopsied lesions received by the Oral and Maxillofacial Pathology

Department of Islamic Azad University and to review the literature on this subject.

Material and methods

This retrospective descriptive study was carried out on the biopsied specimen of the archives of the Oral and Maxillofacial Pathology Department of Islamic Azad University, which is one of the major oral pathology departments of Tehran. The department mainly receives specimen from general and specialized dental practitioners in the North-East of Tehran and affiliated hospital (BouAli hospital) which is located in the East of Tehran. All the specimens from 2005 to 2011 were surveyed and following data were retrieved: patient's age, sex, clinical manifestations and diagnosis and the histopathological results. Lesions were classified in 18 different categories, as detailed in table I.

Table I - Classification of diagnoses

Reactive lesions	Irritation fibrosis, epulis fissuratum, pyogenic granuloma, peripheral giant cell granuloma, epulis granulomatosa, inflammatory papillary hyperplasia, traumatic neuroma, giant cell fibroma
Odontogenic cysts	dentigerous cyst, odontogenic keratocyst (keratocystic odontogenic tumor), paradental cyst, calcifying odontogenic cyst, orthokeratinized odontogenic cyst
Pulp & periapical lesions	Periapical cyst, periapical granuloma, residual cyst, periapical abscess, osteomyelitis
Immunologically mediated lesions	Lichen planus, pemphigus vulgaris, pemphigoid
Bone pathology	Central giant cell granuloma, traumatic bone cyst, cemento-osseous dysplasia, focal osteoporotic bone marrow defect, central ossifying fibroma
Odontogenic tumors	Ameloblastoma, odontoma, odontogenic myxoma
Epithelial lesions	Benign hyperkeratosis, verrucous hyperplasia, carcinoma in situ, squamous papilloma, keratoacanthoma
Salivary gland diseases	Mucocele, mucus retention cyst, sialolithiasis
Malignant epithelial tumors	SCC
Benign mesenchymal tumors	Lipoma, arteriovenous malformation, neurofibroma
Pigmented lesions	Nevus, amalgam tattoo, oral melanotic macule

Table I (continued)

Non-odontogenic cysts	Nasopalatine duct cyst, epidermoid cyst, nasolabial cyst
Malignant salivary tumors	Adenoid cystic carcinoma, mucoepidermoid carcinoma
Benign bone tumors	Osteoma, juvenile ossifying fibroma
Benign salivary gland tumors	Pleomorphic adenoma
Physical and chemical injuries	Surgical ciliated cyst
Periodontal diseases	Juvenile periodontitis
Miscellaneous	Nonspecific ulcer, normal bone, nonspecific inflammatory process, fibrotic dental follicle

Based on the new WHO classification, odontogenic keratocyst is now considered as an odontogenic tumor, "keratocystic odontogenic tumor" [18]. Because most of the previous studies are according to earlier classification system which included the odontogenic keratocyst in odontogenic cyst's group, to comparing the data and better evaluation, we have used the previous classification system [14].

All the results were subjected to statistical analysis, using the SPSS version 12.0 for windows Xp. The data also were recorded in Microsoft Office Excel, as a data bank.

Results

The number of patients studied was 460, excluding patients with incomplete records or those who had more than one biopsy at the same time. The age range of the patients was 3-89 years and the mean age was 38 years. Most of the lesions (62%) were found in the third to fifth decades of life. Females constituted 53.26% (n = 245) of the cases and 46.73% (n = 215) of the lesions found in males. The most affected anatomic location was the mandible (32.6%), followed by gingiva (11.95%) and buccal mucosa (10.86%). The distribution of lesions according to location is shown in figure 1. The prevalence of the most common different diagnoses is shown in table II.

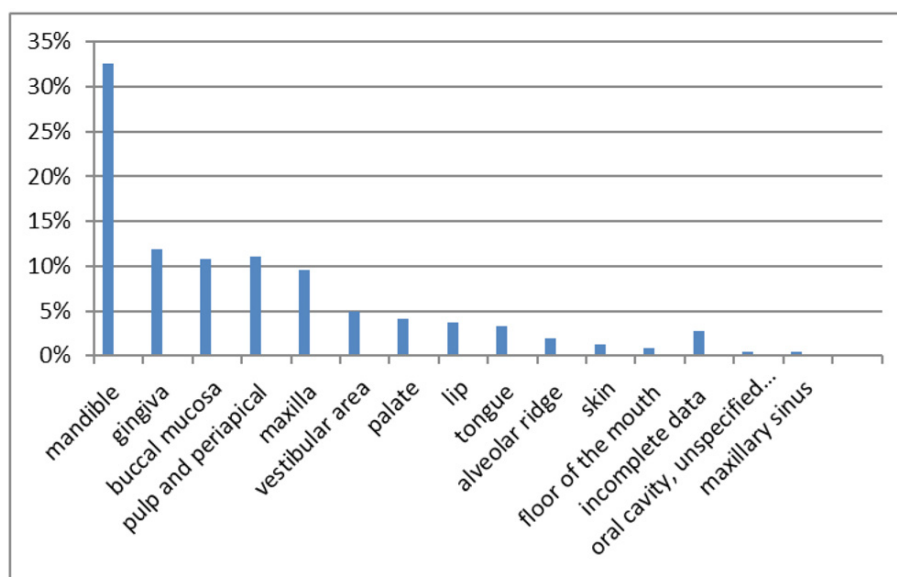


Figure 1 - Distribution of lesions according to location

Table II - Three most common diagnoses in each category

	NO	Percent
Reactive lesions	99	21.52
irritation fibroma	29	6.30
epulis fissuratum	19	4.13
pyogenic granuloma	15	3.26
Odontogenic cysts	80	17.39
Odontogenic keratocyst (keratocystic odontogenic tumor)	34	7.39
Dentigerous cyst	25	5.43
Paradental cyst	4	0.86
Pulp & periapical lesion	72	15.62
Radicular cyst	34	7.39
Periapical granuloma	25	5.43
Residual cyst	10	2.17
Immunologically mediated lesions	25	5.43
Lichen planus	20	4.34
Pemphigus vulgaris	4	0.86
pemphigoid	1	0.21
Bone pathology	23	5
CGCG	5	1.08
TBC	3	0.65
COF	3	0.65
Odontogenic tumors	23	5
Ameloblastoma	14	3.04
Odontoma	6	1.30
Myxoma	2	0.43
Epithelial lesions	18	3.91
Benign keratosis	4	0.86
Hyperkeratosis with mild dysplasia	3	0.65
Papilloma	2	0.43
	11	2.39
Salivary gland disease	9	1.95
Mucocele	1	0.21
Mucous retention cyst	1	0.21
Sialolithiasis	7	1.52
Malignant epithelial tumors	7	1.52
SCC	7	1.52
Benign mesenchymal tumors	7	1.52
Neurofibroma	3	0.65
Cavernous hemangioma	2	0.43
Lipoma	1	0.21
Pigmented lesions	7	1.52
Exogenous pigmentation	3	0.65
Amalgam tattoo	2	0.43
Intradermal nevus	1	0.21

Non-odontogenic cysts	5	1.08
Nasolabial cyst	3	0.65
Epidermoid cyst	1	0.21
Nasopalatine duct cyst	1	0.21
Malignant salivary gland tumors	4	0.86
Mucoepidermoid carcinoma	2	0.43
Adenoid cystic carcinoma	1	0.21
Malignant salivary gland tumor	1	0.21
Benign salivary gland tumors	2	0.43
Pleomorphic adenoma	2	0.43
Physical and chemical injuries	2	0.43
Surgical ciliated cyst	2	0.43
Periodontal diseases	1	0.21
Juvenile periodontitis	1	0.21
Unclassified tumor	1	0.21
Benign spindle cell tumor	1	0.21
Non-diagnostic	40	8.69
Miscellaneous	33	7.17
Granulation tissue	4	0.86
Perifollicular fibrosis	2	0.43
Non specific ulcer	2	0.43

CGCG = Central giant cell granuloma

TBC = Traumatic bone cyst

COF = Central ossifying fibroma

SCC = Squamous cell carcinoma

Intra-osseous lesions constituted 56.4% and extra-osseous lesions 43.6%. The most frequent lesions were in the group of reactive lesions (21.52%), followed by odontogenic cysts (17.39%). The most frequent lesion was radicular cyst and odontogenic keratocyst (7.39% each). Malignant lesions constituted 2.38%, of which squamous cell carcinoma was the most common malignancy (1.52%).

Discussion

In this study, we analyzed the prevalence of oral lesions, biopsied during seven years in an academic oral pathology laboratory and found 460 specimens. The mean age of the patients was 38 years and 62% of the lesions were discovered during the third to fifth decades of life. The mean age in similar studies, reported by Fierro-Garibay *et al.* [4] and Sixto-Requeijo *et al.* [25] were 54 and 51.8 years respectively. In addition, the mean age in the survey of Kniest *et al.* [11] was 47.2 years.

It seems that oral lesions in our study revealed in lower age range in comparison with other surveys which may be related to younger population in our country. Although, Al-Khateeb [1] reported the mean age of 33 years for the patients, but their study was conducted only on benign oral masses excluding intra-osseous lesions. Luqman and Al Shabab [15] recorded 31 years for mean age in their study which is much similar to our results. Shahsavari *et al.* [23] analyzed oral mucosal lesions in an Iranian population and found that 90% of lesions were in 30-58 years old. Likely to most of the other studies [4, 6, 11, 25], we found slightly more frequency of lesions in women, which may reflect attitude of women about their oral health. However, in a similar study conducted on a small population of Saudi patients, the majority of lesions were discovered in males [15]. In addition, Jahanbani *et al.* [9] in a clinical based study on an Iranian population, revealed more frequency of lesions among men that may be a sign of different type of study design.

Concerning the anatomical location, about one third (32.6%) of lesions in our study were located in the mandible with statistical significant difference with other locations ($p < 0.001$). It was followed by gingiva (11.95%) pulp and periapical tissue (11.08%) and buccal mucosa (10.86%). In the study of Fierro-Garibay *et al.* [4], and Ibnerasa [7], mandible was also the most frequent location. On the other hand, Pour *et al.* [19] reported the gingiva as the most common location.

Similar to report of Fierro-Garibay *et al.* [4], intraosseous lesions were more frequent than peripheral lesions in the present study (56.4% Vs 43.6%). It may be interpreted by high frequency of cysts and odontogenic lesions in the present study. In addition, it shows that patients with more advanced and aggressive treatment plans are more referred to our academic oral pathology laboratory. However, in the other report of the Iranian population, peripheral lesions were more common than intraosseous lesions [6].

The most frequent category in this study was reactive lesions (21.52%), followed by odontogenic cysts (17.39%), similar to results of Jones and Franklin [10]. However, we accounted the radicular cysts and residual cysts in the pulp and periapical lesion's category. Considering them in the odontogenic lesion's category will show odontogenic cysts as the most prevalent lesions and the results would be different.

Consistent with new WHO classification, odontogenic keratocyst is now considered as an odontogenic tumor named "keratocystic odontogenic

tumor" [18]. Considering the fact that most of the previous reports and data are according to former classification of WHO, we have used the earlier classification system for better comparison and assessment [14].

The most prevalent odontogenic cyst was radicular cyst and odontogenic keratocyst (keratocystic odontogenic tumor) (7.39% each one), followed by dentigerous cyst (5.43%). These results were different from the same studies which showed radicular cyst as the most prevalent odontogenic cyst. Daley *et al.* [3], Nakamura *et al.* [17] and Fierro-Garibay *et al.* [4], reported the radicular cyst as the most common cyst, followed by dentigerous cyst and odontogenic keratocyst (keratocystic odontogenic tumor). However, in the study of Ramachandra *et al.* [20] odontogenic keratocyst was the second most common odontogenic cyst after radicular cyst which was in agreement with the report of Koseoglu *et al.* [12]. The high frequency of odontogenic keratocyst in the present study may be due to more recurrence of the cyst which leads to referral of the patients to academic centers. Notwithstanding, the etiological factors should be evaluated in other researches.

Considering the irritation fibroma as the most common lesion among reactive lesions (29.2%), findings are similar to the results of Pour *et al.* [19]. The total frequency of fibromas in the other surveys was 10% [4], 11.4% [25], 5.5% [11] and 3.16% [16]. Jones and Franklin [10] recorded a low percentage of fibromas and a high rate of squamous papillomas. These contradictory results are probably because of different classification systems and histopathological criteria used in different studies.

Malignant lesions constituted 2.38% of the lesions in the present study similar to report of Kniest *et al.* [11] which accounted 2.4%. Malignant lesions were composed of 7 cases (1.52%) of SCC and 4 cases (0.86%) of salivary gland malignancies. Sixto-Requeijo *et al.* [25], found the frequency of malignant lesions 3.9% and SCC 3.4% which is higher than our study as in the report of Jones and Franklin [10] which accounted malignant lesions 5.4%. On the other hand, malignant tumors were observed in 1.9% of cases studied by Mendez *et al.* [16]. The total frequency of SCC in the reports of Fierro-Garibay *et al.* [4] and Franklin and Jones [5] were 0.4% and 0.1%, which are much lower than our assessment.

Conclusion

In general, the prevalence of oral lesions diagnosed in our oral pathology laboratory was

relatively similar to other studies. However, odontogenic keratocyst (keratocystic odontogenic tumor) showed high frequency which needs further evaluation and assessment of etiological factors. Likewise, it is important to put emphasis on the specimen sources that vary significantly among oral pathology laboratories. For instance, 80% of specimens in the study conducted by Weir *et al.* [27] were obtained from a private office, which could shape the occurrence of oral lesions according to the favorite treatment plans of the clinicians. Moreover, diagnostic criteria and classification of lesions are considerably various in different studies which may hinder precise comparison with other studies.

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