

# Epidemiologic Study of Benign Soft Tissue Tumors of Oral Cavity in an Iranian Population

## Original Article

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**Received:** Aug 31, 2011  
**Accepted:** Jan 4, 2012

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## **Abstract**

**Introduction:** Few studies on benign soft tissue tumors of oral cavity have been conducted in an Iranian population. The purpose of this study was to evaluate the prevalence of the benign soft tissue tumors of the oral cavity in three central pathology centers of Rasht, Iran.

**Materials and Methods:** In this retrospective study, all benign soft tissue tumors of the oral cavity, were retrieved from Razi, Afrah and Poursina Hospital Pathology Laboratories during 2000 to 2008, and demographic data for each case was recorded.

**Results:** From 433(18.4%) benign soft tissue tumors, 395(91.2%) reactive and 38 neoplastic lesions (8.8%) were found. The mean age of the patients was  $41.89 \pm 18.13$  years. Females constituted 65.4% of the population suffering from lesions. Gingiva was the most common site of tumors (53.1%). The most common lesion in the reactive group was pyogenic granuloma (32.4%, n=128). Hemangioma (39.5%, n=15) and lipoma (36.8%, n=14) were highly noticeable in the neoplastic group respectively. There was no significant correlation between gender and age, and the type of the tumor (Neoplastic or reactive) except the site of involvement. However, a significant correlation existed between the site of lesion and the type of tumor.

**Conclusion:** The most common benign soft tissue tumor was pyogenic granuloma followed by irritation fibroma. Most of the reactive lesions were found in gingiva.

**Key words:** •Mouth •Soft tissue neoplasm  
•Granuloma, pyogenic •Fibroma

## Introduction

The term “soft tissue tumor” includes a different group of neoplastic and reactive lesions derived from the supporting mesenchymal or connective tissues of the body. These are consisted of tumors of fibrous tissue, fat, muscle, nerves and vessels. In spite of the fact that soft tissue tumors are pointed as rare tumors, they are relatively frequent in the maxillofacial region. Regarding clinical features, most of them show the common characteristics of slow and progressive growth, as well as the benign histopathologic features.<sup>(1)</sup>

Many studies concerning the prevalence of oral benign soft tissue tumors have been reported in China, Slovenia, India, Jordan, Saudi Arabia and many other countries.<sup>(2-7)</sup> However, few surveys have been conducted in the Iranian population. Besides, limited information is available.

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.<sup>(8)</sup>

According to a 9-year retrospective study on biopsied lesions, 55% of the oral soft tissue tumor like lesions were fibrous lesions and 45% were soft tissue hemorrhagic lesions.<sup>(9)</sup> Reactive lesions of the oral cavity were analyzed retrospectively in Kerman province, Iran. The survey showed that pyogenic granuloma and traumatic fibroma were the most prevalent lesions.<sup>(10)</sup>

Because of the similarity of the clinical features of these tumors, some information of their epidemiology in different populations is necessary.<sup>(11,12)</sup> The aim of this study was to find the demographic distribution and the prevalence of the benign soft tissue tumors of the oral cavity in three different central laboratories of the city of Rasht, Iran.

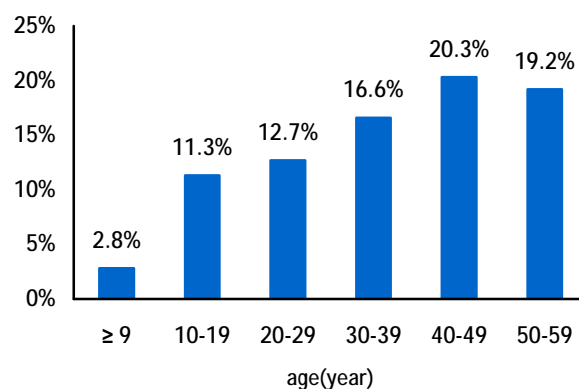
## Materials and Methods

This retrospective study was carried out on biopsied specimens in the archives of three central pathology laboratories in Rasht, Iran, including Razi, Afra and Poursina hospital laboratories. Specimens during 2000 to 2008 were surveyed and all the benign soft tissue tumor slides were retrieved. Histopathologic features of the slides were reviewed by two

pathologists and classified to reactive and neoplastic groups. Diagnosis and classification of the lesions were based on two pathology text books, reference No: 13 & 14 . The demographic data including age, gender, site of lesion and clinical impression were recorded for each sample. The variables were analyzed, using the Statistical Package for Social Sciences (SPSS) Version 13.0 for Windows (SPSS: Chicago, USA).

## Results

During 2000 to 2008, 2353 oral samples were recorded and 433(18.4%) out of these, were soft tissue tumors of the oral cavity. Females constituted 65.4% (n=283) and males 34.6% (n=150). The age range of the patients was 6 to 85 years and the mean age was 41.89±18.13 years. Most of the soft tissue tumors were found in 4th to 6th decade of life (Figure1).



**Figure 1. Distribution of the benign oral soft tissue tumors according to the age range (decade of life)**

The more affected area was gingiva (53.1%), followed by the tongue (13.4%) and lips(12.7%) (Table 1).

Reactive lesions constituted 395(91.2%) cases out of 433 soft tissue tumors and neoplastic ones did 38(8.8%). Among the reactive lesions, pyogenic granuloma (32.4%, n=128) was the most frequent lesion, followed by irritation fibroma(26.2%, n=103). Of these, 99.1% was found in gingiva. Hemangioma and li-poma were the most prevalent lesions in the neoplastic group, constituting 39.5%<sup>(15)</sup> and 36.8%<sup>(14)</sup> respectively. (Table2).

There was no significant correlation between age, gender and the type of the tumor. However, a significant correlation was

observed between the site of the lesion and the tumor type.

Table1. The Frequency of the benign soft tissue tumors according to the site of involvement

Site of involvement	Number	Percent
Gingiva	230	53.1
Lips	55	12.7
Tongue	58	13.4
Vestibule	15	3.5
Alveolar mucosa	10	2.3
Buccal mucosa	47	10.9
Palate	18	4.2
Total	433	100

Table 2. The Frequency of the benign soft tissue tumors (reactive or neoplastic)

Type of lesion	Lesion	Number	Percent
Reactive	POF	37	8.5
	IFH	60	13.9
	PGCG	66	15.2
	IF	104	24
	PG	128	29.6
Benign neoplasm	Lipoma	14	3.2
	Shwannoma	5	1.2
	Neurofibroma	4	0.9
	Hemangioma	15	3.5
Total		433	100

(POF: Peripheral Ossifying Fibroma, IFH: Inflammatory Fibrous Hyperplasia, PGCG: Peripheral Giant Cell Granuloma, PG: PyogenicGranuloma)

## Discussion

In this 9-year-retrospective study, the number of benign soft tissue tumors was 433, which comprised (18.4%) of the whole oral lesions. An 11-year-epidemiologic study was run by Hussain Al-Khateeb et al in which 818 benign soft tissue tumors were analyzed. They reported just the number of the lesions, not the percentage of each tumor.<sup>(3)</sup>

In the present study, 395 reactive (91.2%) and 38 neoplastic lesions (8.8%) were found which indicates the reactive lesions are nearly 9 times as common as the neoplastic ones. Hussain Al-Khateeb et al reported that 36 (4%) lesions were neoplastic, and 782 (96%) were non-neoplastic out of 818 lesions. The tissue neoplasms originating from were epithelial in 18 (50%) cases and mesenchymal in 18 (50%).<sup>(3)</sup> In fact, they studied all mucosal

lesions contrary to the present study in which just mesenchymal soft tissue lesions were focused on.

A study of 300 patients assessing the benign tumors of the oral cavity was carried out by Domingo et al. They just reported the number of the lesions (the percentage was not included)<sup>(1)</sup>. Trobs et al studied the oral tumors and tumor-like lesions in infants and children in their pediatric surgery department and found 95 patients in their study of 30 years duration. They reported hemangioma (43%) was the most common tumor.<sup>(15)</sup>

The most common lesions found in the present study was pyogenic granuloma (29.6%) followed by irritation fibroma(24%). Lipoma and hemangioma were the most common neoplastic lesions. Pleomorphic adenoma and lipoma were the most common benign neo-

plasms according to Hussain Alkhateeb. The non-neoplastic lesions were classified as traumatic (43%), inflammatory/infective (33%), cystic (14%) and developmental lesions (9%). In a descending order, common non-neoplastic lesions were fibroepithelial polyp, pyogenic granuloma, mucocoeles, hemangioma and squamous papilloma.<sup>(3)</sup> Trobs et al reported hemangioma as the most common benign tumor of the oral cavity which consisted 43% of all tumors.<sup>(15)</sup> Based on the literature, lipoma (in adults) and hemangioma (in children) are the most common soft tissue tumors. Our results are in accordance with the other findings<sup>(3,15)</sup> which report lipoma & hemangioma as the most common tumor. Pyogenic granuloma and traumatic fibroma were the most common reactive (non-neoplastic) lesions in this study which is like the findings of Zarei et al.<sup>(10)</sup> In contrast, Mashhadi Abbas et al reported irritation fibroma, peripheral giant cell granuloma and pyogenic granuloma in a descending order. This difference might be related to the time of the study. Mashhadi Abbas et al ran a 25-year period study since 1981 to 2006.<sup>(16)</sup> Since these lesions are associated with oral hygiene, it can be explained that the prevalence of these lesions might be decreased with the passage of time and oral hygiene improvement among people. This result is compatible with Zarei et al's<sup>(10)</sup> and our studies in comparison with Mashhadi Abbas et al's study. However, reactive soft tissue tumors are rather common lesions.

This study revealed 34.6% of benign oral soft tissue tumors were found in males and 65.4% in females which was similar to that of Mashhadi Abbas et al<sup>(16)</sup> which reported 61.9% of the whole lesions in females and 38.1% in males. Male to female ratio was 1:1.8 in the present study while it was 1:1.5 in Hussain Al-Khateeb et al's study.<sup>(3)</sup> This discrepancy might be the result of wide range of the lesions they included in their study (e.g. salivary gland diseases and cystic lesions). Zarei et al reported male to female ratio of 1:1.5.<sup>(10)</sup> In comparison to our study, in which 395 subjects were studied, Zarei et al investigated 172 cases.<sup>(10)</sup> It should be mentioned that the male to female ratio for the entire cases and also in the reactive lesions were equal, (1:1.8) because the neoplastic le-

sions were found as low as 8.8%. There was no correlation between gender and the type of the lesion; whether it was neoplastic or reactive.

The mean age of the patients was  $41.89 \pm 18.3$  in our study. The most number of lesions were found in 4<sup>th</sup> to 6<sup>th</sup> decade of life. Hussain Al-Khateeb et al reported the mean age of 33 years correlating with the majority of lesions in the 2<sup>nd</sup> to 4<sup>th</sup> decade of life.<sup>(3)</sup> Mashhadi Abbas et al reported 18% of subjects in the 6<sup>th</sup> decade and 16.3% of patients in the 3<sup>rd</sup> decade of life, accordingly.<sup>(16)</sup> Zarei et al mentioned the mean age of the patients for each lesion separately e.g. traumatic fibroma 40.6, peripheral fibroma with calcification 27.4, pyogenic granuloma 30.1, peripheral giant cell granuloma 26 and the higher mean age was found in denture hyperplasia. The age range was 5 to 79 in their study.<sup>(10)</sup> There was no correlation between age and the type of lesion in this study.

Most of the lesions were found in the gingiva (53.1%, n=230), followed by tongue (13.4%, n=58), lips (12.7%, n=55) and buccal mucosa (10.9%, n=47) in our study in a descending order. Accordingly, Hussain Al-Khateeb et al reported these sites as the common areas for benign neoplasms: palate, tongue, upper lip and buccal mucosa. Moreover, these locations for non-neoplastic lesions: gingiva, buccal mucosa, lower lip and tongue. We found reactive lesions most-ly on gingiva, tongue, lip and buccal mucosa. Our results are similar to the literature which have stated gingiva as the common location for reactive lesions.<sup>(3,13,14)</sup> Zarei et al also reported gingiva as the most common site for reactive lesions. They reported tongue and buccal mucosa for the pyogenic granuloma. In addition, buccal mucosa and lips were the common site of involvement for traumatic fibroma.<sup>(10)</sup> Mashhadi Abbas et al reported gingiva (64%) as the most susceptible site.<sup>(16)</sup> Our results are consistent with the previous findings regarding the most common site of involvement of neoplastic lesion. As we found, lipoma and hemangioma are the most common benign neoplasms and the most common sites of these tumors are the lips and tongue.<sup>(13,14)</sup>

There was correlation between location and the type of the lesions in this study. It means most of the reactive lesions (99.1%) were found in gingiva ( $p=0.0001$ ). It has been stated in the literature that reactive lesions such as pyogenic granuloma often occur in gingiva. It is interesting that gingiva has a strategic situation due to accumulation of the microorganisms in gingival sulcus, plaque and calculus accumulation and gingiva is also well vascularized which is suitable for most of reactive lesions such as peripheral ossifying fibroma, peripheral giant cell granuloma, Epulis fissuratum and even irritation fibroma.<sup>(10,13,14)</sup>

## Conclusion

Our research showed that the most common benign soft tissue tumors were pyogenic granuloma followed by irritation fibroma. Most of the reactive lesions were found in gingiva.

## Acknowledgement

We are grateful to the managers of Razi (Dr. Habibzadeh), Afrah (Dr. Karimzadegan), Poursina (Dr. Nikookar) pathology laboratories and all the personnels for their invaluable contributions to this study.

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