

Original Article

A Survey of Soft Tissue Tumor-Like Lesions of Oral Cavity: A Clinicopathological Study

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ABSTRACT

Background and Objective: Different mechanisms may lead to the development of soft tissue tumor-like lesions in the oral cavity. Many of these lesions can be identified as specific entities on the basis of their histopathological features and are divided into fibrous, vascular, and giant cell types. The purpose of this study was to establish the relative prevalence of the different histopathological aspects of biopsies of oral soft tissue tumor-like lesions at School of Dentistry, Kerman Univ. Med. Sci.

Materials and Methods: Documents and records of 260 patients with localized lesions of oral tissues diagnosed from March 1996 to March 2004 were reviewed. The lesions were classified into either fibrous or soft hemorrhagic lesions. Clinical data regarding age, gender, location, and treatment of lesions were obtained for each case. Data included in the present retrospective study were analyzed by SPSS statistical software (13.5) using t- test and chi-square tests.

Results: A total of 260 surgical specimens of lesions of the oral cavity presented clinically were studied; 143 cases (55%) had fibrous lesions and 117 cases (45%) had soft hemorrhagic lesions. The fibrous lesions included 91 cases (63.6%) of gingival lesions, whereas 98 cases (83.76%) of the soft hemorrhagic lesions had gingival lesions. The patients were simultaneously treated by excisional biopsy and elimination of the chronic irritant.

Conclusion: Oral lesions are often detected by dental professionals, surgeons and ENT specialists. Knowledge of the frequency and presentation of the most common oral lesions is beneficial in developing a clinical impression of such lesions encountered in practice.

Key words: Soft Tissue, Fibroma, Pyogenic Granuloma, Oral Cavity

Introduction

Soft tissue tumor-like lesion is said to any pathologic growth that projects above the normal contour of the oral surface. Different mechanisms may lead to the development of a soft tissue tumor-like lesion in the oral cavity (1). The most

common mechanisms included reactive hyperplasia and neoplasia (2). The great majority of localized overgrowths of the oral mucosa are considered to be reactive rather than neoplastic in nature. Many of these lesions can be identified as specific entities on the basis of their histopathological features and are divided into fibrous, vascular, and giant cell types.

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The soft hemorrhagic lesions are highly vascular and hemorrhage is a prominent clinical and histological feature (3). Fibrous inflammatory hyperplasias may occur on any surface of the oral mucous membrane as either pedunculated or sessile growth. On the gingiva, a similar lesion is often referred to as an epulis, that is, a growth on the gum. The majority remain small and lesions more than 1 cm in diameter are rare on the cheeks, tongue, and floor of the mouth possibly because masticatory trauma restricts their size through necrosis and ulceration (4). An exception to this rule occurs in lesions associated with the periphery of ill-fitting dentures, so-called the epulis fissuratum, in which the growth is often divided by the edge of the denture (5). On the dorsal surface of the tongue, nodular lesions may represent neurofibroma as well as fibrous inflammatory hyperplasia. Fibrous inflammatory hyperplasias have no malignant potential, and recurrences following excision are almost a result of failure to eliminate the particular chronic irritation involved. Therefore, fibrous inflammatory hyperplasias of the oral cavity should be treated by complete local excision and removal of the chronic irritant. The soft tissue tumor-like of the oral cavity have been widely documented and include irritation fibroma, epulis fissuratum, and peripheral ossifying fibroma, squamous papiloma, myxofibroma, pyogenic granuloma, pregnancy tumor, epulis granulomatosum and peripheral giant-cell granuloma (6,7). The prevalence of these lesions has been determined in different studies around the world.

Cooke et al (8) observed that irritation fibroma was more common in females. Also, these researchers found no marked difference in location of irritation fibroma between upper and lower jaw. The pyogenic granuloma is a common tumor like growth of the oral cavity that is considered to be non-neoplastic in nature (9). Peripheral giant cell granuloma (PGCG) is a relatively common tumor-like growth of the oral cavity and accounts for 7% of all benign tumors of the jaw (10). Gandara et al in their study on 13 cases of PGCG found 8 lesions to be located in the upper jaw (11). Bhaskar et al (12) in a review of 50 cases reported a slight predilection for the male sex. The overall sex distribution of 60% for female and 40% for male was reported by Katsikeris (13).

Epidemiological studies and determination of the prevalence of lesions in each society have a special importance. As of the prevalence of lesions, especially in oral cavity, a better and adequate program in

teaching students can be established. Also early detection and excision of these lesions is important to minimize potential dentoalveolar complications. Therefore, knowledge of the frequency and presentation of the most common lesions is beneficial in developing a clinical impression of such lesions encountered in practice. Also the results of this study and similar reports can help the clinicians to make a better diagnosis and treatment.

Therefore, the purpose of this study was to establish the relative prevalence of the different biopsied soft tissue tumor-like lesions. These lesions included epulis fissuratum, irritation fibroma, peripheral ossifying fibroma, and myxofibroma in addition to squamous papiloma as an epithelial proliferation and soft hemorrhagic lesions besides hemorrhagic lesions included peripheral granuloma, pregnancy tumor, epulis granulomatosum and peripheral giant cell granuloma at School of dentistry, Kerman Univ. Med. Sci.

Materials and Methods

The records of the histopathological diagnosis of the oral tissue lesions treated at department of oral pathology, School of dentistry, Kerman Univ. Med. Sci from March 1996 to March 2004 were reviewed. The lesions were classified into two groups: fibrous lesions predominantly comprised of collagen connective tissue (epulis fissuratum, irritation fibroma, peripheral ossifying fibroma, squamous papiloma, myxofibroma) and soft hemorrhagic lesions (pyogenic granuloma, pregnancy tumor, epulis granulomatosum and peripheral giant-cell granuloma).

Clinical data regarding age, gender, location of the lesion, and treatment were obtained for each case from patients' records. For the purpose of recording the location of lesions, jaws were divided into upper and lower jaw. The other locations were lip, palate, tongue, and buccal mucosa. All the lesions were treated by excisional biopsy and elimination of the chronic irritant at the time the lesion was excised. The total number of localized gingival and oral tissue lesions was determined both as an absolute number and as a percentage of the total number of the lesions. Also only those cases of oral lesions were considered in this report that no recurrent, in situ or malignant lesions were included. Finally, the patients were analyzed according to sex, age, and site of the lesions. These data were analyzed by SPSS statistical software (13.5) using t-test and chi-square tests.

Results

The histological features and clinical prevalence of the lesions were examined and analyzed. From 666 cases, 260 cases (39%) had soft tissue tumor-like lesions. A total of 260 surgical specimens of lesions of the oral cavity presented clinically were studied and 143 cases (55%) had fibrous lesions and 117 cases (45%) had soft hemorrhagic lesions.

The age of the patients at the time of excision ranged from 4 to 81 years. The mean age was 34.58 ± 18.31 .

The distribution of different types of soft tissue tumor-like lesions in relation to age is shown in Table 1. The relationship between age and fibrous lesions was not statistically significant ($p > 0.05$). In addition, the relationship between age and squamous papiloma and myxofibroma was statistically significant ($p < 0.05$). The relationship between age and soft hemorrhagic lesions was statistically significant ($p < 0.05$). Also the relationship between age and pregnancy tumor and epulis granulomatosum was statistically significant ($p < 0.05$).

Table 1: Distribution of soft tissue tumor-like lesions by age group

Age group Lesion No (%)	0-9	10-19	20-29	30-39	40-49	50-59	60-69	70-79	≥80	Total
Epulis Fissuratum	0	0	0	0	9 (3.46)	7 (2.69)	8 (3.08)	4 (1.54)	0	28 (10.78)
Squamous Papiloma	0	4 (1.54)	4 (1.54)	2 (0.77)	2 (0.77)	0	1 (0.38)	0	0	13 (5)
Irritation Fibroma	1 (0.38)	12 (4.62)	16 (6.18)	13 (5)	13 (5)	10 (3.82)	11 (4.23)	2 (0.77)	0	78 (30)
Periphral Ossifynig Fibroma	0	9 (3.46)	1 (0.38)	5 (1.92)	3 (1.16)	1 (0.38)	0	0	0	19 (7.3)
Myxofibroma	0	0	2 (0.77)	0	3 (1.16)	0	0	0	0	5 (1.9)
Pyogenic Granuloma	5 (1.92)	17 (6.54)	15 (5.8)	15 (5.8)	9 (3.46)	6 (2.31)	1 (0.38)	0	0	63 (24.23)
Pregnancy Tumor	0	0	2 (0.77)	1 (0.38)	1 (0.38)	0	0	0	0	4 (1.54)
Peripheral Giant Cell Granuloma	9 (3.46)	9 (3.46)	7 (2.69)	8 (3.08)	2 (0.77)	4 (1.54)	5 (1.92)	0	1 (0.38)	45 (17.32)
Epulis Granulomatosum	0	0	2 (0.77)	0	2 (0.77)	1 (0.38)	0	0	0	5 (1.92)
Total	15 (5.8)	51 (19.62)	49 (18.9)	39 (15)	44 (16.92)	29 (11.13)	26 (10.01)	6 (2.31)	1 (0.38)	260 (100)

The fibrous lesions tended to occur in the adult age group. Meanwhile, 91 cases (35%) with fibrous lesions were from individuals between 20 to 59 years of age. The most common lesion in fibrous lesions group was the irritation fibroma (78 cases, 30%) and the peak was in the 20 to 29 years old age group (16 cases, 6.18%), followed by the 10 to 19 years old age group in 12 cases (4.62%). The largest number of cases (85 cases, 32.7%) with soft hemorrhagic lesions was from individuals between 0 to 39 years of age. The most common lesion of the soft hemorrhagic

lesions was pyogenic granuloma found in 63 cases (23.13%). Pyogenic granuloma was the most common lesion in 17 cases (6.54%) in the 10 to 19 years old group, followed by peripheral giant cell granuloma in 9 cases (3.46%) in the 0 to 9 and 10-19 years old age groups. All age groups were found to be affected with a relative predilection from 10 to 49 years of age.

Of the biopsied lesions, 161 cases (61.9%) were from female patients and 99 cases (38.1%) were from male patients. The distribution of soft tissue tumor-like lesions in relation to gender is shown in

Table 2. The relationship between gender and fibrous lesions was statistically significant ($p<0.05$). Also the

relationship between gender and epulis fissuratum was statistically significant ($p<0.05$).

Table 2: Distribution of soft tissue tumor-like lesions by gender

Lesion	Gender		Total No (%)
	Male No (%)	Female No (%)	
Epulis Fissuratum	3 (1.16)	25 (9.62)	28 (10.78)
Squamous Papiloma	7 (2.69)	6 (2.31)	13 (5)
Irritation Fibroma	1 (0.38)	12 (4.62)	16 (6.18)
Periphral Ossifyng Fibroma	33 (12.68)	45 (17.32)	78 (30)
Myxofibroma	6 (2.31)	13 (5)	19 (7.3)
Pyogenic Granuloma	23 (8.86)	40 (15.37)	63 (24.23)
Pregnancy Tumor	0	4 (1.54)	4 (1.54)
Peripheral Giant Cell Granuloma	24 (9.21)	21 (8.11)	45 (17.32)
Epulis Granulomatousum	1 (0.38)	4 (1.54)	5 (1.92)
Total	99 (5.8)	161 (19.62)	260 (100)

Out of the 260 biopsies, 189 cases (72.7%) were from the gingiva and 71 cases (27.3%) were from other sites of the oral cavity. The fibrous lesions included 91 cases (63.6%) gingival lesions; 52 cases (36.4%) were located in different areas in the oral cavity. Whereas 98 cases (83.76%) of the soft hemorrhagic lesions had gingival lesions and 19 cases (16.24%) had lesions in other locations of the oral cavity tissues.

The distribution of the fibrous lesions according

to location is shown in Table 3. The fibrous lesions and their distribution included 10 cases (3.82%) in palate, followed by 8 cases (3.08%) tongue cases, and 4 cases (1.52%) in the lip. There were also 30 cases (11.55%) with lesions in buccal mucosa. The relationship between site and fibrous lesions was statistically significant ($p<0.05$). Also the relationship between site and peripheral ossifying fibroma was statistically significant ($p<0.05$).

Table 3: Distribution of fibrous lesions by location

Location	Lesion	Epulis Fissuratum No (%)	Squamous Papiloma No (%)	Irritation Fibroma No (%)	Periphral Ossifyng Fibroma No (%)	Myxofibroma No (%)	Total No (%)
Gingiva	Max	16(6.18)	3(1.16)	18(6.92)	19(7.3)	2(0.77)	58(22.35)
Gingiva	Man	10(3.82)	5(1.92)	18(6.92)	0	0	33(12.68)
Palate		0	3(1.16)	7(2.69)	0	0	10(3.82)
Lip		0	0	4(1.54)	0	0	4(1.52)
Tongue		0	2(0.77)	6(2.31)	0	0	8(3.08)
Buccal mucosa		2(0.77)	0	25(9.62)	0	3(1.16)	30(11.55)
Total		28(10.78)	13(5)	78(30)	19(7.3)	5(1.92)	143(55)

Max: Maxillary Man: Mandibular

The distribution of soft hemorrhagic lesions according to location is shown in Table 4. The most common location of the 51 cases (19.62%) soft hemorrhagic lesions was pyogenic granuloma found on the gingiva of both jaws. The relationship between site and soft hemorrhagic lesions was statistically

significant ($p < 0.05$). Also the relationship between site and peripheral ossifying fibroma, epulis granulomatosum and pyogenic granuloma was statistically significant ($p < 0.05$).

The patients were simultaneously treated by excisional biopsy and elimination of the chronic irritant.

Table 4 : Distribution of soft hemorrhagic lesions by location

Location \ Lesion	Pyogenic Granuloma No (%)	Pregnancy Tumor No (%)	Peripheral Giant Cell Granuloma No (%)	Epulis Granulomatosum No (%)	Total No (%)
Gingiva Max	31(11.92)	2(0.77)	10(3.82)	5(1.92)	48(18.46)
Gingiva Man	20(7.7)	0	30(11.46)	0	50(19.24)
Palate	6(2.31)	0	5(1.92)	0	11(4.23)
Lip	1(0.38)	0	0	0	1(0.38)
Tongue	4(1.54)	2(0.77)	0	0	6(2.3)
Buccal mucosa	1(0.38)	0	0	0	1(0.38)
Total	63(24.23)	4(1.54)	45(17.31)	5(1.92)	117(45)

Max:Maxillary Man:Mandibular

This study is a report of the prevalence of clinical characteristics of 260 cases of soft tissue tumor-like lesions over a 9-years period. The results of this study showed that the irritation fibroma was the most common of the fibrous lesions, and of the soft hemorrhagic lesions, pyogenic granuloma was the most common.

Fibrous lesions occur in older age groups as compared to soft hemorrhagic lesions. Cooke (14) observed the greatest number of cases of fibrous hyperplasia in the fourth decade, while Buchner et al (15) found the majority of the cases occurred in the third, fourth, and fifth decade, and Kfir et al (16) found the majority of cases mainly in the second, third, and fourth decade. In this study, the most frequently affected age was between 20 and 59 years old, which are in agreement with other reported studies (15,16). These benign lesions usually had no age or gender predilection although some previous studies reported a slightly higher incidence in females (8,17-19). Also in this study it was found out that females were more commonly affected than males (61.9% versus 38.1%). The results obtained in this study were overall in agreement with other similar researches (8,17-19).

Irritation fibroma or peripheral fibroma account for the great majority of localized gingival swellings as was substantiated by various reports in the literature (20). Although the irritation fibroma can occur anywhere in the mouth, the most common location is

the buccal mucosa along the bite line. These lesions are most common in the fourth to sixth decades of life, and the male to female ratio is almost 1/2 for the cases submitted for biopsy (21).

Cooke et al (8) observed that irritation fibroma was more common in females. They found no marked difference in location of irritation fibroma between upper and lower jaw. In the present study it was found out that gingiva is the most common site for fibroma such that its incidence in lower and upper jaws is the same. The male to female ratio was 1.44 that is in agreement with those obtained by Cooke et al, Buchner et al, and Kfir et al (8,15,16).

The pyogenic granuloma is a common tumor like growth of the oral cavity that is considered to be non neoplastic in nature. Oral pyogenic granulomas show a striking predilection for the gingiva, which accounts for 75% of all cases. Although the pyogenic granuloma can develop at any age, it is most common in children and young adults. Most studies also demonstrated a definite female predilection, possibly because of the vascular effects of female hormones (6,7,9,15-19,21). In our study, pyogenic granuloma was the most common hemorrhagic lesion, similar to that reported by Buchner et al and Kfir et al (15,16).

Also we found out that the principal oral site affected by pyogenic granuloma was the gingiva. This finding is consistent with other findings (6,7,19,22,23). Our findings regarding the site also confirm the previous

conclusion that gingival pyogenic granuloma is more common in the maxilla than in the mandible (6, 22). Also this lesion was most common in females than males (40 cases versus 23 cases). The higher female to male ratio is also in agreement with other studies (6,9,13,17,19,24).

A mean age of 28.9 years in patients with pyogenic granuloma in the current study is almost similar to that of 35 years reported by Angelopoulos for a white population (6).

Peripheral giant cell granuloma (PGCG) is a relatively common tumor-like growth of the oral cavity and accounts for 7% of all benign tumors of the jaw (10). This lesion occurs exclusively on the gingiva or edentulous alveolar ridge (21). Peripheral giant cell granuloma appears to be more common in the gingiva, which is in agreement with what has been reported in the previous studies (21). Also PGCG is more common in the lower jaw than in the upper jaw (8,16,21,25-27). The reported proportion is 2.4:1 (28). Gandara et al in a series of 13 cases of PGCG found 8

lesions to be located in the upper jaw (11). In our series, 10 lesions were found in the upper jaw.

PGCG affects females more often than males (11,26,29-32) with a proportion of 1:1.5 or 1:2 according to Reichart et al (28) or Giansanti et al (25) respectively. However, Bhaskar et al (12) in a review of 50 cases reported a slight predilection for the male sex. The overall sex distribution of 60% for female and 40% for male was reported by Katsikeris (13), but in our study we found a distribution of 53.7% for males and 46.7% for females. Reichart et al (28) considered the peak incidence to be between 20-60 years of age, with an average of 30 years according to Shafer et al (24) and Giansanti et al (25). Andersen et al (33) in a series of 97 cases of PGCG reported a marked prevalence between 5 and 15 years of age. Giansanti et al (25) reported that it occurred at the mean age of 31.3 years. In our series, the age of the patients was at a range of 4-81 years with an average at initial manifestation of 37 years.

The epulis fissuratum is a tumorlike hyperplasia of fibrous connective tissue that develops in association with the flange of an ill-fitting complete or partial denture (15,21,34). This lesion most often occurs in middle-aged and older adults as would be expected with a denture-related lesion. Denture hyperplasia occurs predominantly in females in some studies and most studies have shown that two thirds to three fourths of all cases submitted for biopsy occur in

women. It is suggested that its formation may be affected by hormonal alterations in the menopause (15,21,32,35). In the present study epulis fissuratum occurred mainly in the fifth, sixth and seventh decades. Thus, these findings are in general agreement with Buchner et al (15).

Conclusion

Oral lesions are often detected by dental professionals, surgeons and ENT specialists. Knowledge of the frequency and presentation of the most common oral lesions is beneficial in developing a clinical impression of such lesions encountered in practice. Also the results of this study and similar reports can help the clinicians to make a better diagnosis and treatment. Also early detection and excision of these lesions is important to minimize potential dentoalveolar complications. Although these data might be used as a guide for forming clinical impressions about oral, also the clinician must always be aware of possible occurrence of more rare lesions. The results obtained in this study were overall in agreement with those of other authors. This study indicates that there are some differences in age and gender distribution as well as in the location between different lesions.

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