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# Localized Lesions of Oral Cavity: A Clinicopathological Study of 107 Cases

Maryam Seyedmajidi, Mohammadtaghi Hamzehpoor and Soodabeh Bagherimoghaddam
Dental Materials Research Center, Department of Oral and Maxillofacial Pathology,
Dental Faculty, Babol University of Medical Sciences, Babol, Iran

**Abstract:** Most of localized overgrowths of oral mucosa are considered to be reactive rather than neoplastic in nature. The purpose of this study was to establish the relative prevalence of the different histopathological aspects (fibrous, vascular and giant cell types) of biopsies of oral localized lesions at Dental Faculty, Babol University of Medical Sciences. Documents and records of 107 patients with localized lesions of oral tissues diagnosed from 2004-2010 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. A total of 107 surgical specimens of lesions of the oral cavity presented clinically were studied; 51 cases (47.7%) had fibrous lesions and 56 cases (52.3%) had soft hemorrhagic lesions. The majority of the lesions were located in the gingiva. It is helpful to know the frequency and presentation of the most common oral lesions in order to develop a clinical impression of such lesions met in practice. This study indicates there are some differences in age and gender distribution as well as in location between the different lesions.

**Key words:** Fibroma, pyogenic granuloma, peripheral ossifying fibroma, peripheral giant cell granuloma, oral cavity lesions, Iran

## INTRODUCTION

Most of localized overgrowths of the gingiva and oral mucosa are naturally more considered to be reactive than neoplastic. It is possible to diagnose the lesions as particular entities based on their histopathological features which can be divided into vascular and fibrous types. The soft hemorrhagic lesions are so vascular and hemorrhage is an important clinical and histological feature (Pour *et al*., 2008). Inflammatory fibrous hyperplasias may occur on any surface of the oral mucous membranes either pedunculated or sessile growth. On the gingiva that is a growth on the gum, a similar lesion is often referred to as an epulis. Most of them don't grew bigger and lesions >1 cm in diameter rarely appear on the cheeks, tongue and floor of the mouth possibly because masticatory trauma restricts their size through ulceration and necrosis (Daley *et al*., 1990). There is an exception for this rule that is in lesions associated with the periphery of ill-fitting dentures known as the epulis fissuratum in which the edge of the denture often divides the growth (Budtz-Jorgensen, 1981).

Inflammatory fibrous hyperplasias have no malignant potential and recurrences of following excision are almost the result of failure to eliminate the specific chronic irritation involved. Thereby, researchers should treat them by the thorough excision and elimination of the chronic irritant. The localized lesions of the oral cavity have been broadly documented including: irritation fibroma, epulis fissuratum, peripheral ossifying fibroma, squamous papilloma, giant cell fibroma, pyogenic granuloma and peripheral giant cell granuloma (Vilmann *et al*., 1986). The prevalence of these lesions has been specified through vary studies world wide.

Cooke found that irritation fibroma was more common in females (Pour *et al*., 2008). Also these researchers didn't observe any noticeable difference in location of irritation fibroma between lower and upper jaw. A common tumor-like growth of the oral cavity called pyogenic granuloma that is considered to be non-neoplastic in nature (Jafarzadeh *et al*., 2006). It is a small, pedunculated and hemorrhagic nodule that is most frequently seen on the gingiva and has a strongly tends to recur following simple excision (Vilmann *et al*., 1986). The lesions occur in association with florid gingivitis and periodontitis that probably complicate pregnancy and are known as pregnancy epulis or tumor (Jafarzadeh *et al*., 2006).

Peripheral Giant Cell Granuloma (PGCG) is a relatively common tumor-like growth of the oral cavity and includes 7% of all benign tumors of the jaw (Comert *et al*., 2006). Gandara-Rey *et al*. (2002) studied on 13 cases of PGCG and observed 8 lesions that were in the upper jaw. Bhaskar reviewed 50 cases and reported a slight

**Corresponding Author:** Maryam Seyedmajidi, Department of Oral and Maxillofacial Pathology, Dental Faculty, Babol University of Medical Sciences, Babol, Iran

predilection for the male sex (Pour *et al*., 2008). According to study of Katsikeris *et al.* (1988), the overall sex distribution is 60% for female and 40% for male. Although, these tumor-like lesions are not neoplastic, they indicate a chronic process in which an exaggerated repair (granulation tissue and formation of a scar) follows injury (Neville *et al*., 2009; Regezi *et al*., 2008). Concentrations of circulating hormones are also very significant in the development of some of these lesions for example, peripheral giant cell granulomas can be associated with hyperparathyroidism; pyogenic granuloma may develop during pregnancy and some reactive lesions can develop during puberty (Burkes and White, 1989; Papageorge and Doku, 1992; Whitaker *et al*., 1994). Reactive hyperplasia is one of the most common types of oral exophytic lesion (Zarei *et al*., 2007).

There is a special importance for epidemiological studies and determination in the prevalence of lesions in each society. Concerning the prevalence of lesions, especially in oral cavity it can established a better and adequate program in teaching students. Besides an early diagnosis and elimination of these lesions is significant to minimize potential dentoalveolar complications.

Thus, it is helpful to know the frequency and presentation of the most common lesions in order to develop a clinical impression of such lesions encountered in practice. The outcomes of this study and similar reports are beneficial to the clinicians to make a better diagnosis and treatment. Thus, this study served the purpose of establishing the relative prevalence of the different biopsied localized lesions of oral cavity including epulis fissuratum, irritation fibroma, peripheral ossifying fibroma, giant cell fibroma in addition to squamous papilloma as an epithelial proliferation and soft hemorrhagic lesions included pyogenic granuloma and peripheral giant cell granuloma at Dental Faculty, Babol University of Medical Sciences.

## MATERIALS AND METHODS

The records of the histopathological diagnosis of the oral tissue lesions treated at Department of Oral Pathology, Dental Faculty, Babol University of Medical Sciences from 2004-2010 were reviewed. The lesions were classified into two groups: fibrous lesions predominantly comprised of collagen connective tissue (epulis fissuratum, irritation fibroma, peripheral ossifying fibroma, giant cell fibroma and squamous papilloma) and soft hemorrhagic lesions (pyogenic granuloma and peripheral giant-cell granuloma). Clinical data regarding age, gender, location of the lesion and treatment were obtained for each case from patients records.

In order to record the location of lesions, jaws were divided into lower and upper jaw. The other locations were lip, tongue, palate and buccal mucosa. Excision of biopsy and elimination of the chronic irritant was applied to all the lesions while they were removed. The whole 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.

## RESULTS AND DISCUSSION

The histological features and clinical prevalence of the lesions were examined. From 389 cases, 107 cases (27.5%) had localized lesions. A total of 107 surgical specimens of lesions of the oral cavity presented clinically were studied and 51 cases (47.7%) were fibrous lesions and 56 cases (52.3%) were soft hemorrhagic lesions. The fibrous lesions included 32 (62.74%) gingival lesions; 19 (37.26%) were located in different areas in the oral cavity. Whereas 43 (76.78%) of the soft hemorrhagic lesions were gingival lesions and 13 (23.22%) were in other locations of the oral cavity tissues. The age of the patients at the time of excision ranged from 8-75 years. The distribution of different types of fibrous lesions concerning age is shown in Table 1. The most common lesion was the irritation fibroma and the peak was in the 41-50 year old age group (7 cases; 6.5%) followed by the 31-40 year old age group in 4 (3.7%) cases. The distribution of soft hemorrhagic lesions in relation to age is shown in Table 2.

Pyogenic granuloma was the most common lesion in 15 (14.02%) cases in the 21-30 year old age group, followed by peripheral giant cell granuloma in 5 (4.67%) cases in the 31-40 year old age group. Researchers found

Table 1: Distribution of fibrous lesions by age group

| Lesion/ Age group | Epulis fissuratum No. (%) | Squamous papilloma No. (%) | Irritation fibroma No. (%) | Peripheral fibroma with calcification No. (%) | Giant cell fibroma No. (%) | Total No. (%) |
|---|---|---|---|---|---|---|
| 0-10 | 0.0 | 0.0 | 0.0 | 1 (0.9) | 0.0 | 1 (0.9) |
| 11-20 | 0.0 | 0.0 | 2 (1.9) | 1 (0.9) | 0.0 | 3 (2.8) |
| 21-30 | 1 (0.9) | 1 (0.9) | 3 (2.8) | 5 (4.7) | 1 (0.9) | 11 (10.3) |
| 31-40 | 1 (0.9) | 0.0 | 4 (3.7) | 0.0 | 1 (0.9) | 6 (5.6) |
| 41-50 | 2 (1.9) | 0.0 | 7 (6.5) | 0.0 | 0.0 | 9 (8.4) |
| 51-60 | 7 (6.5) | 0.0 | 2 (1.9) | 2 (1.9) | 0.0 | 11 (10.3) |
| 61-70 | 4 (3.7) | 0.0 | 3 (2.8) | 0.0 | 2 (1.9) | 9 (8.4) |
| 71-80 | 1 (0.9) | 0.0 | 0.0 | 0.0 | 0.0 | 1 (0.9) |
| Total | 16 (14.9) | 1 (0.9) | 21 (19.6) | 9 (8.4) | 4 (3.7) | 51 (47.7) |

that all age groups were affected with a relative predilection from 0-80 years of age. The fibrous lesions are usually observed in the adult age group. Most of cases (46 cases; 43%) were from individuals between 21-70 years of age while most of soft hemorrhagic lesions (52 cases; 48.6%) were from individuals between 11-60 years of age. Of the biopsied lesions, 37 lesions (34.6%) were from male patients and 70 lesions (65.4%) were from female patients.

The distribution of fibrous lesions in relation to gender is shown in Table 3; the irritation fibroma found in 21 (19.62%) cases and it was the most common lesion. The distribution of soft hemorrhagic lesions in relation to gender is shown in Table 4; pyogenic granuloma found in 38 (35.5%) cases was the most common lesion of the soft hemorrhagic lesions. From the 107 biopsies, 75 (70.1%) cases were from the gingiva of both the upper or lower jaw and 32 (29.9%) cases were from other sites of the oral cavity.

Table 2: Distribution of soft hemorrhagic lesions by age group

| Lesion/ Age group | Pyogenic granuloma No. (%) | Peripheral giant cell granuloma No. (%) | Total No. (%) |
|---|---|---|---|
| 0-10 | 1 (0.9) | 1 (0.9) | 2 (1.9) |
| 11-20 | 7 (6.5) | 3 (2.8) | 10 (9.3) |
| 21-30 | 15 (14.0) | 1 (0.9) | 16 (14.9) |
| 31-40 | 9 (8.4) | 5 (4.7) | 14 (13.1) |
| 41-50 | 4 (3.7) | 4 (3.7) | 8 (7.4) |
| 51-60 | 2 (1.9) | 2 (1.9) | 4 (3.7) |
| 61-70 | 0.0 | 1 (0.9) | 1 (0.9) |
| 71-80 | 0.0 | 1 (0.9) | 1 (0.9) |
| Total | 38 (35.5) | 18 (16.8) | 56 (52.3) |

Table 3: Distribution of fibrous lesions by gender

| Lesion/ gender | Epulis fissuratum No. (%) | Squamous papilloma No. (%) | Irritation fibroma No. (%) | Peripheral fibroma with calcification No. (%) | Giant cell fibroma No. (%) | Total No. (%) |
|---|---|---|---|---|---|---|
| Male | 3 (2.8) | 1 (0.9) | 7 (6.5) | 5 (4.7) | 3 (2.8) | 19 (17.7) |
| Female | 13 (12.1) | 0.0 | 14 (13.1) | 4 (3.7) | 1 (0.9) | 32 (29.9) |
| Total | 16 (14.9) | 1 (0.9) | 21 (19.6) | 9 (8.4) | 4 (3.7) | 51 (47.7) |

Table 4: Distribution of soft hemorrhagic lesions by gender

| Lesion/ gender | Pyogenic granuloma No. (%) | Peripheral giant cell granuloma No. (%) | Total No. (%) |
|---|---|---|---|
| Male | 14 (13.1) | 4 (3.7) | 18 (16.8) |
| Female | 24 (22.4) | 14 (13.1) | 38 (35.5) |
| Total | 38 (35.5) | 18 (16.8) | 56 (52.3) |

The pyogenic granuloma was the most common lesion found which was diagnosed in 38 (35.5%) cases of the lesions. The distribution of the fibrous lesions according to location is shown in Table 5. The most common location of fibrous lesions was in gingival of either the upper or lower jaw.

The distribution of soft hemorrhagic lesions according to location is shown in Table 6. Pyogenic granuloma found on the gingiva of both jaws was the most common location of the 25 (23.36%) cases of soft hemorrhagic lesions.

It is difficult to compare the findings of the present study with other similar epidemiological studies since there are a certain number of studies reporting the prevalence of this kind of oral mucosal lesions around the world. Some differences in age, gender distribution and location were observed between the different histological groups. This study is a report of the prevalence of clinical characteristics of 107 cases of localized oral cavity lesions over a 6 years period. According to the outcome of this study the most common of the fibrous lesions was irritation fibroma and the most common of the soft hemorrhagic lesions was pyogenic granuloma.

In comparison to soft hemorrhagic lesions, fibrous lesions occur in older age groups. The greatest number of cases of fibrous hyperplasia was observed by Cooke in the 4th decade (Pour *et al*., 2008) whereas Buchner *et al*. (1977) found most of the cases occurred in the 3rd, 4th and 5th decade (Buchner *et al*., 1977) and Kfir *et al*. (1980) found the majority of cases mainly in the 2nd, 3rd and 4th decade.

In this study, the ages between 21 and 70 (3rd-7th decades) were the most frequently affected age which confirms other reported studies (Kfir *et al*., 1980; Bataineh and Al-Dwairi, 2005). Usually there is no age or gender predilection for these lesions but some previous studies reported a slightly higher incidence in females (Inagi *et al*., 1991; Al-Khateeb and Ababneh, 2003). Also in this study it was understood that males were less commonly affected than females (34.58 vs. 65.42%). The results obtained in this study were overall in agreement with other similar researches

Table 5: Distribution of Fibrous Lesions by location

| Lesion/Location | Epulis fissuratum No. (%) | Squamous papilloma No. (%) | Irritation fibroma No. (%) | Peripheral fibroma with calcification No. (%) | Giant cell fibroma No. (%) | Total No. (%) |
|---|---|---|---|---|---|---|
| **Gingiva** | | | | | | |
| Max. | 8 (7.4) | 0.0 | 3 (2.8) | 2 (1.9) | 2 (1.9) | 15 (14.0) |
| Min. | 8 (7.4) | 0.0 | 2 (1.9) | 7 (6.5) | 0.0 | 17 (15.9) |
| Palate | 0.0 | 0.0 | 1 (0.9) | 0.0 | 1 (0.9) | 2 (1.9) |
| Lip | 0.0 | 0.0 | 1 (0.9) | 0.0 | 0.0 | 1 (0.9) |
| Tongue | 0.0 | 1 (0.9) | 3 (2.8) | 0.0 | 0.0 | 4 (3.7) |
| Buccal mucosa | 0.0 | 0.0 | 11 (10.3) | 0.0 | 1 (0.9) | 12 (11.2) |
| Total | 16 (14.9) | 1 (0.9) | 21 (19.6) | 9 (8.4) | 4 (3.7) | 51 (47.7) |

Table 6: Distribution of soft hemorrhagic lesions by location

| Lesion/ Location | Pyogenic granuloma no. (%) | Peripheral giant cell granuloma no. (%) | Total no. (%) |
|---|---|---|---|
| **Gingiva** | | | |
| Max | 12 (11.2) | 13 (12.1) | 25 (23.4) |
| Man | 13 (12.1) | 5 (4.7) | 18 (16.8) |
| Palate | 3 (2.8) | 0.0 | 3 (2.8) |
| Lip | 4 (3.7) | 0.0 | 4 (3.7) |
| Tongue | 3 (2.8) | 0.0 | 3 (2.8) |
| Buccal mucosa | 3 (2.8) | 0.0 | 3 (2.8) |
| Total | 38 (35.5) | 18 (16.8) | 56 (52.3) |

(Bataineh and Al-Dwairi, 2005; Al-Khateeb and Ababneh, 2003). Although, the irritation fibroma possibly occurs anywhere in the mouth, the buccal mucosa along the bite line is the most common site. These lesions are most common in the 4-6th decades of life and for the cases submitted for biopsy female to the male ratio is almost 2/1 (Neville *et al*., 2009). Cooke found that irritation fibroma was more common in females (Pour *et al*., 2008). In the present study it was realized that buccal mucosa is the most common site for irritation fibroma. The female to male ratio was 2/1 similar to other studies (Bataineh and Al-Dwairi, 2005; Zain and Fei, 1990). A common tumor-like growth of the oral cavity known as the pyogenic granuloma is considered to be non-neoplastic in nature. A striking predilection for the gingiva is implied by oral pyogenic granulomas which includes 75% of all cases.

Although, there is no age limit for the development of the pyogenic granuloma, it is most common in children and young adults. Most studies also showed a definite female predilection may be because of the vascular effects of female hormones (Jafarzadeh *et al*., 2006; Al-Khateeb and Ababneh, 2003).

In the study, the most common hemorrhagic lesion was pyogenic granuloma, similar to that reported by Buchner *et al*., 1977; Kfir *et al*., 1980). Also it was realized that the gingiva was the principal oral site affected by pyogenic granuloma. This finding is in agreement with findings of other researchers (Al-Khateeb and Ababneh, 2003; Lawoyin *et al*., 1997; Parisi *et al*., 2006). The findings about the location also imply that between maxilla and mandible gingival pyogenic granuloma has the same prevalence. Also this lesion was most common in females than males (24 vs. 14 cases). The higher female to male ratio is also consistent with other studies (Jafarzadeh *et al*., 2006; Katsikeris *et al*., 1988; Al-Khateeb and Ababneh, 2003). In current similar to other reported study (Pour *et al*., 2008), pyogenic granulomas are more commonly seen in 2nd-4th decades.

Peripheral Giant Cell Granuloma (PGCG) is a relatively common tumor-like growth of the oral cavity and includes 7% of all benign tumors of the jaw (Comert *et al*., 2006). This lesion is exclusively found on the gingiva or edentulous alveolar ridge (Neville *et al*., 2009). The present study showed that peripheral giant cell granuloma appears to be more common in the gingiva which is consistent with what has been reported in the previous studies (Neville *et al*., 2009). Also PGCG is more common in the lower jaw than in the upper jaw (Bodner *et al*., 1997; Motamedi *et al*., 2007).

Gandara-Rey *et al*. (2002) in a series of 13 cases of PGCG found 8 lesions to be located in the upper jaw. In the series similar to that reported by Gandara-Rey *et al*. (2002) 13 lesions were observed in the upper jaw and only 5 lesions were found in the lower jaw. PGCG affects females more often than males (Chaparro-Avendano *et al*., 2005; Flaitz, 2000; Pandolfi *et al*., 1999; Zhang *et al*., 2007) with a proportion of 2:1 (Pour *et al*., 2008). However, a slight predilection was reported by Bhaskar in a review of 50 cases for the male sex (Pour *et al*., 2008).

Katsikeris *et al*. (1988) reported the overall sex distribution of 60% for female and 40% for male. Also a distribution of 34% for males and 65.42% for females was observed in current study which is also in agreement with the most of previous studies. The peak incidence was considered to be between 20-60 years of age with an average of 30 years that was reported by Shafer and Giansanti (Pour *et al*., 2008).

A marked prevalence between 5 and 15 years of age was reported by Andersen *et al*. (1973) in a series of 97 cases of PGCG. In the series, the age of the patients was at a range of 10-75 years with an average at initial manifestation of 37 years which confirms that reported by Pour *et al*. (2008). The epulis fissuratum is a tumor-like hyperplasia of fibrous connective tissue that develops in association with the flange of an ill-fitting complete or partial denture (Neville *et al*., 2009; Buchner *et al*., 1977; Thomas, 1993).

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 (Buchner *et al*., 1977; Zhang *et al*., 2007; Norman *et al*., 1997). In the present study, epulis fissuratum occurred mainly in the 5th, 6th and 7th decades. Therefore, these findings are generally similar to Buchner *et al*. (1977) and Bataineh and Al-Dwairi (2005). The higher prevalence in females in this study as has been reported in other studies may be due to hormonal alterations during menopause (Pour *et al*., 2008).

It is helpful to know the frequency and presentation of the most common oral lesions in order to develop a clinical impression of such lesions met in practice. Also

the findings of this study and similar reports can be beneficial to the clinicians in order to make a better diagnosis and treatment. Early diagnosis and removal of these lesions can greatly minimize potential dentoalveolar complications. Although these data may help with forming clinical impressions about oral lesions also the clinician must always be aware of possible occurrence of more rare lesions. The results obtained in this study overall confirm those of other researchers.

## CONCLUSION

This study shows that there are some differences in age and gender distribution as well as in the location between different lesions.

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