A retrospective analysis of gingival biopsied lesions in south indian population: 2001-2006

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Abstract

Objective: The purpose of the study was to analyze the frequency and distribution of gingival lesions in South Indian population.

Study design: A retrospective study of 244 cases of gingival biopsies obtained over a period of 6 years from 1st January 2001 to 31st December 2006 in the Department of Oral Pathology, Government Dental College, Calicut was designed. The lesions were classified into neoplastic lesions and nonneoplastic lesions. Data regarding the age and sex of subjects and the location and type of lesions were obtained from biopsy register for each case.

Results: Nonneoplastic lesions accounted for 75.5% of cases with pyogenic granuloma being the most frequent. Neoplasms accounted for 24.5% of biopsies (18% benign, 6.5% malignant). The most frequent benign and malignant neoplasms were peripheral ossifying fibroma and squamous cell carcinoma respectively.

Conclusion: This study indicates that there are some differences in the frequency and distribution of gingival lesions in South Indian population. The data presented in this study can be used as a guide for additional multicenter studies in India.

Key words: *Gingival, benign tumour, malignant tumour, reactive lesion.*

Introduction

Gingiva is a common site for either neoplastic or nonneoplastic lesions. Neoplasms are characterized by progressive autonomous growth that can be either a benign or a malignant course (1). Nonneoplastic lesions on the other hand are usually inflammatory or represent a reaction to some kind of irritation or low grade injury (2). The great majority of localized overgrowths of gingiva are considered to be reactive and nonneoplastic lesions (3).

A few studies in different countries regarding gingival lesions have been reported (2-7). Pyogenic granuloma is a well known oral lesion known to involve the gingiva commonly. Clinically, oral pyogenic granuloma is a smooth or lobulated exophytic lesion manifesting as small, red erythematous papules on a pedunculated or sometimes sessile base, which is usually haemorrhagic (8). The peripheral ossifying fibroma is a benign neoplasm presents as an exophytic, smooth-surfaced, pink or red nodular mass that is sessile, or is less frequently seen on a pedicle (9).

The epidemiology of gingival lesions in South Indian population is not well documented in literature. The aim of this study was to analyze the frequency and distribution of gingival lesions in South Indian population.

Materials and Method

A retrospective study of 244 cases of gingival biopsies obtained over a period of 6 years from 1st January 2001 to 31st December 2006 in the Department of Oral Pathology, Government Dental College, Calicut was designed. The lesions were classified into either neoplastic lesions or nonneoplastic lesions.

The following criteria were used:

A) Inclusion criteria

1. All age groups
2. Both sexes-male and female
3. Reports with adequate case histories.

B) Exclusion criteria

1. Subjects taking anticonvulsant drugs, calcium channel blockers and immunosuppressants.
2. Edentulous subjects.

Data regarding the age and sex of the subjects and the location and type of lesions were obtained from the biopsy register for each case. Histopathologic examination was the method of diagnosis in all cases. Statistical analysis was executed using Microsoft Excel computer software.

Results

Among the 244 cases of gingival biopsies, the most frequent category of lesions encountered was the nonneoplastic, which accounted for 75.5% of cases (Figure 1). Neoplasms, on the other hand, accounted for 24.5% of cases. There were 164 female patients and 80 male patients, with a female to male ratio of 2:1.

Nonneoplastic lesions

As shown in Figure 1, 75.5% cases of gingival biopsies were nonneoplastic lesions. The lesions were divided into 8 types as shown in Table 1.Pyogenic granuloma was the most frequent lesion (52.71%) followed by inflammatory hyperplasia (17.93%) and fibrous hyperplasia (15.21%).

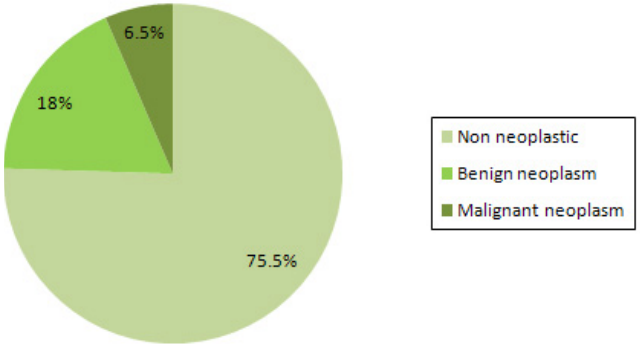

Fig. 1. Frequency of all biopsied gingival lesions.

The total number of maxillary nonneoplastic lesions was higher than the total number of mandibular nonneoplastic lesions (Table 1). Pyogenic granuloma and inflammatory hyperplasia were more frequent in the maxilla and fibrous hyperplasia was more frequent in the mandible. Surprisingly, the jaw distribution of individual nonneoplastic lesions was variable (Table 1).

Of the 184 nonneoplastic lesions, 127(69%) were from female patients and 57(31%) were from male patients. The distribution of these lesions in relation to gender was shown in Table 1.

Of the 184 nonneoplastic lesions, a peak incidence of occurrence was apparent between the ages of 20-29 years (24.5%) followed by 40-49 years (17.9%)and 10-19 years (14.7%). The most common lesion was the pyogenic granuloma and the peak was in the 20-29 year age group (22.7%) followed by 30-39 year age group (16.5%) and 40-49 year age group (16.5%)(Figure 2).

Table 1. Frequency, site and gender distribution of biopsied nonneoplastic gingival lesions.

Type	No	Maxilla	Mandible	Male	Female
Pyogenic granuloma	97	56	41	28	69
Inflammatory hyperplasia	33	17	16	10	23
Fibrous hyperplasia	28	11	17	12	16
Fibroepithelial polyp	11	8	3	2	9
Peripheral giantcell granuloma	8	5	3	3	5
Lichenplanus	5	3	2	1	4
Tuberculous granuloma	1	1	0	1	0
Eosinophilic ulcer	1	1	0	0	1
Total	184	102	82	57	127

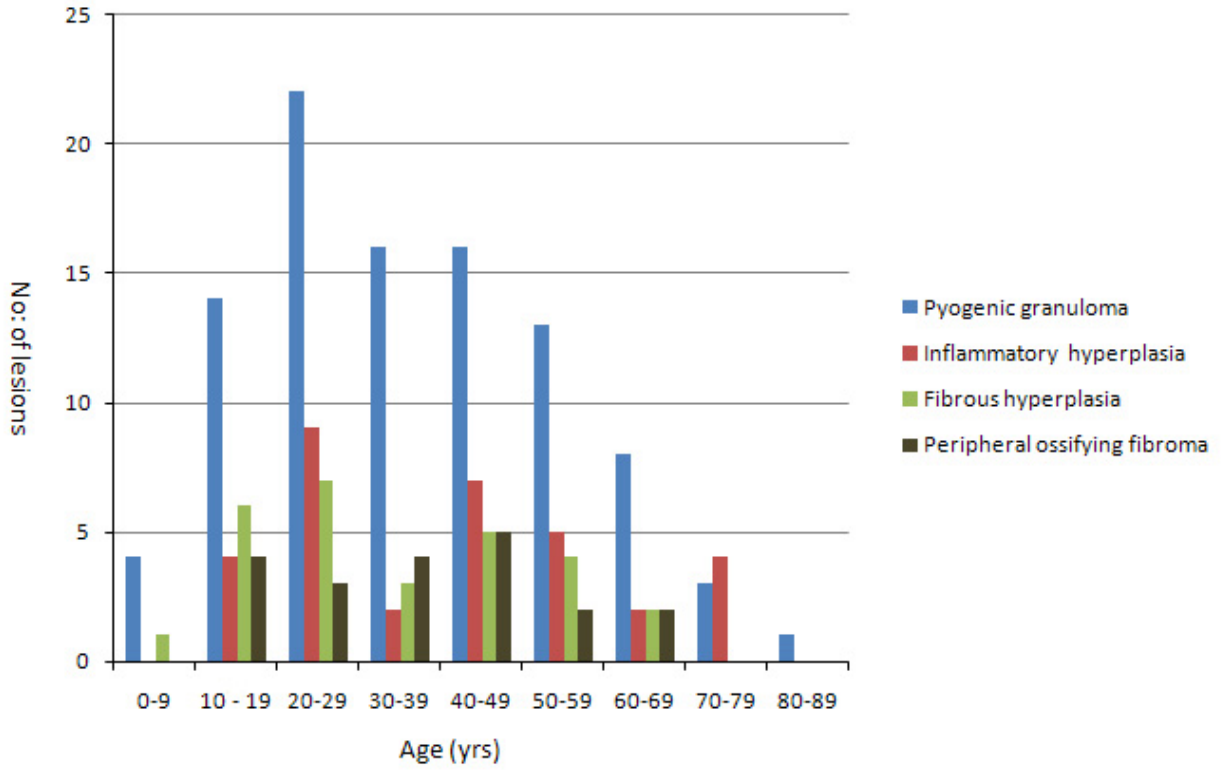

Fig. 2. Age distribution of the four most common biopsied gingival lesions.

Table 2. Frequency, site and gender distribution of biopsied gingival neoplasms.

Type	No	Maxilla	Mandible	Male	Female
Benign neoplasms					
Peripheral ossifying fibroma	20	12	8	4	16
Fibroma	9	5	4	5	4
Capillary hemangioma	5	3	2	4	1
Peripheral odontogenic fibroma	5	0	5	1	4
Hemangioendothelioma	1	1	0	0	1
Hemangiopericytoma	1	1	0	0	1
Giant cell fibroma	1	1	0	0	1
Angiofibroma	1	1	0	1	0
Fibrolipoma	1	0	1	1	0
Total	44	24	20	16	28
Malignant neoplasms					
Squamouscell carcinoma	14	4	10	7	7
Fibrous histiocytoma	2	0	2	0	2
Total	16	4	12	7	9
Overall Total	60	28	32	23	37

Neoplasms

Neoplasms accounted for 24.5% of gingival biopsies (18% benign and 6.5% malignant) as listed in Figure 1.Benign neoplasms were divided into 9 types as shown in Table 2.Of the benign neoplasms, peripheral ossifying fibroma (45.4%) was the most frequent benign neoplasm followed by fibroma (20.4%).

The total number of maxillary benign neoplasms was higher than the total mandibular neoplasms as shown in Table 2.All individual benign neoplasms showed maxillary predilection except peripheral odontogenic fibroma and fibrolipoma.

Of the 44 benign neoplastic lesions, a peak incidence of occurrence was apparent between the ages of 10-19 years (18.2%) followed by 40-49 years (15.9%) and 50-59 years (15.9%). The most common lesion was peripheral ossifying fibroma and the peak was in the 40-49 year age group (25%) as shown in Figure 2.

Of the 44 benign neoplasms, 28 were from females and 16 from males. The distribution of these lesions in relation to gender was given in Table 2.

Squamous cell carcinoma was the most frequent malignant neoplasm and it was more common in mandibular gingiva. The highest number of cases of squamous cell carcinoma occurred in patients between the ages of 40-49 years. It was distributed almost equally between both sexes. The frequency, site and gender distribution of malignant neoplasms was shown in Table 2.

Discussion

To the best of our knowledge, the present study is the first report on the frequency and distribution of biopsied gingival lesions in South Indian population. The majority of the gingival biopsies showed nonneoplastic lesions, a finding in agreement with the studies of Ababneh (2), Macleod et al (6) and Zarei et al (7). In our study, the most commonly biopsied nonneoplastic lesion was pyogenic granuloma and this was in accordance with other studies (2,3). In this study, a peak incidence of occurrence of all nonneoplastic lesions was noticed in patients between the ages of 20-29 years. This was in support with that reported by Ababneh (2) and Bataineh et al (3).

Pyogenic granuloma occurs in younger patients more often than fibrous hyperplasia and may represent a stage in the development of fibrous hyperplasia (10,11). In this study, it was found that females were more frequently affected with pyogenic granuloma and this was overall in agreement with other studies (7,12). About 57.73% of cases of pyogenic granuloma were found in maxillary gingiva which were lower than those reported by Ababneh (2)(64%) and higher than those reported by Zhang et al (13)(47.10%).

In our study, neoplasms accounted for 24.5%. This percentage is higher than that reported for gingival lesions (2). Some authors (10,14) group peripheral ossifying fibroma as a nonneoplastic lesion together with pyogenic granuloma and peripheral giant cell granuloma. In our case series, peripheral ossifying fibroma was classified following others (2, 15), as a benign neoplasm. The current study was suggesting a female predilection in peripheral ossifying fibroma, which was consistent with the results reported by Kfir et al (10) and Southam and Venkataraman (16).

Our results also showed that the peak incidence of peripheral ossifying fibroma was in the fifth decade, which was older than that reported by Ababneh (2). In the past, peripheral ossifying fibroma was named as peripheral odontogenic fibroma and Gardner (17) in 1982 suggested that the term should be restricted to the extra osseous counterpart of central odontogenic fibroma (World Health Organization type), which is a completely different entity. We have encountered 5 cases of peripheral odontogenic fibroma limited to mandibular gingiva. This finding was in accordance with the previous literature (18).

In our study, squamous cell carcinoma was the most frequent malignant neoplasm (87.5%). Chimenos Kustner et al (19) presented a case of squamous cell carcinoma of the gingiva in a 59-year-old woman with emphasis on its differential diagnosis from other lesions (pyogenic granuloma and gingival metastases). Barasch et al (20) found that gingiva was the third most common site for oral squamous cell carcinoma after carcinoma of the floor of the mouth and tongue. In our case series, majority of the squamous cell carcinoma of gingiva occurred on mandible (71.4%). This was in agreement with the studies of Stablein et al (14) and Makridis et al (21).

In the present study, squamous cell carcinoma most frequently occurred in the 5th decade followed by 6th decade and no case was detected below 40 years. Some authors (20, 21) were of the opinion that squamous cell carcinoma of gingiva was essentially a disease of old age. We also found that the mean age of squamous cell carcinoma was 56.45 and was lesser than that reported by Makridis et al (21).

Conclusion

This study indicates that there are some differences in the frequency and distribution of gingival lesions in South Indian population. Since this study is a single centered study concentrated mainly on South Indian population, similar studies have to be instituted in other centers of India to draw an inference regarding the epidemiology of gingival lesions. Moreover, the data presented in this study can be used as a guide for additional multicenter studies in India.

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