Irritation Fibroma of the Oral Mucosa: A clinicopathological study of 129 lesions in 124 cases

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Irritation fibromas are very common hyperplastic lesions of the oral mucosa, although there have been few studies of large numbers of cases. Clinicopathological features of this type of lesion were examined in 129 lesions in 124 patients, consisting of 47 males and 77 females. The peak incidence of the lesion was in the 6th decade of life. The lesions occurred in the tongue (n=66), the buccal mucosa (n=42), the labial mucosa (n=14), and the hard palate (n=7). All of the lesions were excised totally, and no recurrence was reported in any of the cases. Histologically, the lesions were divided into "radiating" type (n=105) and "circular" type (n=24) according to Barker & Lucas (1967). The incidence of the lesions in the buccal and labial mucosae was higher in the circular type of lesions (83.3%) than in the radiating type of lesions (34.3%), with a significant statistical difference ($p<0.05$). This supports the hypothesis that a low level of trauma or mechanical irritation might produce a radiating lesion on fixed mucosa and a circular lesion on mobile mucosa.

***Key words*: irritation fibroma, oral mucosa, fiber pattern**

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Introduction

Localized fibrous overgrowths are of frequent occurrence in the oral mucosa (1, 2). Most of them are reparative or reactive proliferations (hyperplasias); true neoplasms, or true fibromas, are very rare (1-3). For the localized, non-neoplastic fibrous lesions of the oral mucosa, various terms have been used in the oral pathology and oral surgery literature, which include irritation fibroma, irritational fibroma, traumatic fibroma, fibrous hyperplasia, focal fibrous hyperplasia, localized fibrous hyperplasia, fibrous polyp, and fibroepithelial polyp (1, 2, 4-6). Of these, irritation fibroma seems to be the most popular term today (2, 6), and we use this term in this paper. Although irritation fibroma is one of the most common lesions among intraoral exophytic lesions of the soft tissues (2), there have been few studies of large numbers of this type of lesion. In this paper, the clinical and histopathological features of 129 such lesions in 124 patients are examined.

Materials and Methods

The material in this study consisted of 129 oral irritation fibromas found in 124 patients treated in the Department of Oral and Maxillofacial Surgery, Gifu University School of Medicine, and diagnosed histopathologically in the Clinical Laboratory, Gifu University Hospital, during the 12-year period from 1989 to 2000. There were no true fibromas in this period. The lesions from the gingiva and the alveolar mucosa, including fibrous epulis and denture fibroma, as well as pyogenic granulomas, were left for future study. The charts of the 124 patients were retrospectively reviewed. The clinical features recorded were age and sex of the patients; duration of disease from the initial notice of the lesions to the first medical examination; location, size and macroscopic appearances of the lesions; treatment; and prognosis. Moreover, tissue specimens stained with hematoxylin and eosin were examined, and in the cases in which fiber patterns were indistinct, van Gieson staining was carried out. The lesions were subclassified histologically into "radiating" type and "circular" type, according to the following crite-

Table 1: Age distribution of the patients with irritation fibroma

Age (years)	No. of patients
0-9	2
10-19	7
20-29	8
30-39	15
40-49	16
50-59	27
60-69	24
70-79	17
80-89	8
90-	0
Total	124
Range:	7 ~ 87 years
Mean:	52.5 years

Table 2: Sizes of the lesions in the largest dimension

Size (mm)	No. of lesions
1	4
2	10
3	19
4	18
5	34
6	16
7	11
8	2
9	2
10	7
11	1
12	3
13	2
Total	129
Mean:	5.4 mm

Table 3: Summary of age and sex of the patients, duration and size of the lesions in the "radiating" and "circular" types of oral irritation fibromas

Clinical findings	Histological type# The "radiating" type	The "circular" type	Statistical difference
Age (years) mean±SD	53.9±18.59	49.7±22.13	NS*
male to female ratio	38:67	11:13	NS**
Duration of lesion (months) mean±SD	18.4±25.7	21.8± 31.1	NS*
Size of lesion (mm) mean±SD	5.2 ±2.3	6.1 ±3.1	NS*

NS*: no significant statistical difference evaluated by Student's t-test
NS**: no significant statistical difference evaluated by Pearson's χ^2-test
According to Barker & Lucas (1967)(1)

ria proposed by Barker & Lucas (1): the radiating lesion consists of excessive production of collagen fibers apparently commencing in the lamina propria, with the fibers then radiating towards the overlying epithelium from the base of the lesions; the circular lesion consists of a central mass of largely unoriented fibers surrounded by a peripheral layer of collagen fibers running just beneath and parallel to the surface of the overlying epithelium, in a circular manner (1). In both types of lesion, the fiber bundle thickness is similar to that of the fibers in the adjacent normal connective tissue (1). Furthermore, in neither type, is there any capsular formation (1). Although some lesions showed both patterns, one pattern was predominant in each of the cases. The lesions were classified according to the predominant pattern of each one. The statistical differences in age of the patients, duration and size of the lesions were analyzed between the radiating and the circular lesions using Student's t-test. The statistical differences in male to female ratio and in incidence of the lesions in the buccal and labial mucosae were analyzed between the two types of lesions using Pearson's χ^2-test.

Results

There were 47 male and 77 female patients. The ages of the 124 patients ranged from 7 to 87 years, with the average being 52.5 years. The peak incidence was in the 6th decade of life (Table 1).

The lesions occurred in the tongue (n=66), the buccal mucosa (n=42), the lower labial mucosa (n=10), the hard palate (n=7), and the upper labial mucosa (n=4). In the tongue, the tip of the tongue was the most common site (n=35), followed by the lateral border (n=19), the dorsal surface (n=11), and the ventral surface (n=1). Three patients had plural lesions: a 55-year-old female patient had two separate lesions at the tip of the tongue and one at the lateral border of the tongue; a 79-year-old male had three separate lesions in the buccal mucosa; and an 84-year-old female had two independent lesions on the hard palate.

The duration of disease was unknown in 17 lesions. In the remaining 112 lesions, the duration ranged from 1 week to 13 years, with an average of approximately 19 months. In 82 lesions (73.2% of the 112 lesions), the duration was one year or less.

Information on the history of trauma or irritative events was obtained in only 21 cases. Repeated and non-repeated accidental biting of the oral mucosa was described in 8 and 6 lesions, respectively. Chronic irritation by removable denture, fixed bridge, and natural tooth was described to be the possible inducement for the lesions in 3, 2 and 1 case, respectively. Tongue habits were described in 2 cases, both of which had lingual lesions.

Clinically, the lesions appeared as localized, well-demarcated, movable, elastic hard to soft masses, which were described to be sessile (n=68), pedunculate (n=32), polypoid (n=28), and pendulum-shaped (n=1). The size in the largest dimension of the lesions ranged from 1 to 13 mm (Table 2), with an average of 5.4 mm. Approximately 80% of the lesions (102 of 129 lesions) were 7 mm or smaller in the largest dimension (Table 2).

Preoperative diagnosis was fibroma in 74 lesions, irritation fibroma in 20 lesions, tumor in 17 lesions, benign tumor in 14 lesions, mucocele in 3 lesions, and polyp in 1 lesion.

Histologically, 105 (81.4%) out of the 129 lesions were of the radiating type (Fig. 1) and the remaining 24 (18.6%) were of the circular type (Fig. 2). Age and sex of

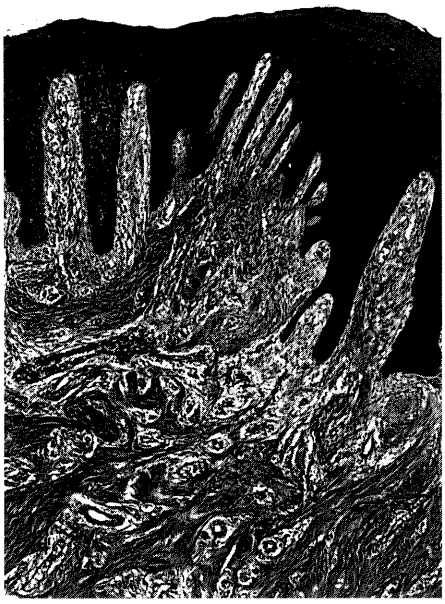

Fig. 1: Photomicrograph showing the "radiating" pattern (H & E, × 40).

Fig. 2: Photomicrograph showing the "circular" pattern (H & E, × 40).

the patients, as well as duration and size of the lesions in the cases of the radiating and circular lesions are summarized in Table 3. There were no statistically significant differences in these clinical findings between the two types of lesions (Table 3). Regarding the macroscopic appearances, the radiating lesions appeared as sessile (n=58), pedunculate (n=25), polypoid (n=21), and pendulum-shaped lesions (n=1); the circular lesions appeared as sessile (n=10), pedunculate (n=7), and polypoid lesions (n=7). Thus, there is no significant difference in the incidence of lesions of each macroscopic appearance between the two types of lesions. Regarding location, however, the two types of lesions showed different predilections. Out of the 105 radiating lesions, 62 (59.0%) were found in the tongue, 27 (25.7%) in the buccal mucosa, 9 (8.6%) in the labial mucosa, and 7 (6.7%) in the hard palate (Table 4). On the other hand, out of the 24 circular lesions, 15 (62.5%) were found in the buccal mucosa, 5 (20.8%) in the labial mucosa, 4 (16.7%) in the tongue, and none in the hard palate (Table 4). There was a statistically significant difference in the incidence of the lesions in the buccal and labial mucosae between the radiating type of lesions (34.3%) and the circular type of lesions (83.3%) ($p<0.05$).

Regarding treatment, all of the 129 lesions were excised totally. In some cases, removal of possible irritation was performed, which included adjustment of removable denture and fixed bridge. Treatment of tongue habits was also conducted in the 2 cases.

Sufficient information on the prognosis was not available in most cases because most patients were lost to follow-up 1 to 2 weeks after the operation, with no recurrence being reported in any of the cases.

Discussion

According to Bouquot & Gundlach (2), who examined oral exophytic lesions in 23,616 white Americans over 35 years of age, irritation fibroma was the most common lesion of the oral soft tissue. They found 283 irritation fibromas, which accounted for about 35.8% of 791 benign oral soft tissue masses, with a combined prevalence rate of 12.0 lesions per 1,000 population. Thus, the irritation fibroma is one of the most popular lesions in the oral mucosa, though there have been only few studies on the clinicopathological aspects of this lesion in detail.

In 1967, Barker & Lucas (1), who studied a series of 171 localized fibrous overgrowths of the cheek, lip, palate and tongue, established histologic criteria for true fibromas: a sharp margin of the lesion which is well demarcated from the adjacent tissue by a capsule and a different character of the fibrous tissue within the lesions from that of the surrounding tissue. They found only two true fibromas among their 171 oral fibrous lesions (1), while there were no such neoplastic lesions in our series.

Barker & Lucas (1) reported a higher incidence of the lesions in females. They found most of the lesions to occur in patients between the third and seventh decades of life (1). These findings are similar to those obtained in the present study. However, there is a significant difference in location of the lesions between these studies. Barker & Lucas (1) found 62 lesions in the cheek, 45 in the palate, 39 in the lip, and 25 in the tongue. Thus, a much higher incidence of the lesions in the tongue was found in our series (51.2%) than in their series (14.6%). On the other hand, the incidence in the palate was much lower in our series (5.4%) than in their series (26.3%).

According to Barker & Lucas (1), only 22 of 169 non-neoplastic lesions (13.0%) were of the circular type.

Table 4: Incidences of the "radiating" and "circular" types of oral irritation fibromas in different sites

Site	Histological type*		Total
	The "radiating" type	The "circular" type	
Buccal mucosa	27	15	42
Tongue	62	4	66
Upper lip	2	2	4
Lower lip	7	3	10
Hard palate	7	0	7
Total	105	24	129

* According to Barker & Lucas (1967)(1)

The circular type, although comprising only a minority of the buccal lesions, was far more common in the buccal mucosa than in any other site (1). Moreover, 17 of the 22 circular lesions occurred in the buccal mucosa, which accounted for 27.4% of the buccal lesions (1). With these findings, Barker & Lucas (1) speculated that the difference in fiber pattern between the radiating type and the circular one might be due to the effect of differing degrees of mechanical irritation on tissues which are fixed, or mucoperiosteum, and those which are more mobile, like the buccal mucosa. Barker & Lucas (1) speculated that a low level of trauma might produce a circular lesion on a mobile base but a radiating lesion on a fixed base, although they could not show a higher incidence of the circular lesions in the lips. In our series, however, there was a relatively high incidence of circular lesions in the buccal mucosa (35.7%) and in the labial mucosa (35.7%) as well as a very low incidence in the lingual mucosa (16.7%) and in the hard palate (0%) in our series. Thus, the present study revealed that the incidence of circular lesions was distinctly lower in the fixed mucosa than in the more mobile one. Moreover, the incidence of the lesions in the buccal and labial mucosae was higher in the circular type of lesions (83.3%) than in the radiating type of lesions (34.3%), with a significant statistical difference ($p<0.05$), while there were no significant statistical differences in age of the patients, male to female ratio, or duration and size of the lesions between these two types of lesions. These results might support more strongly the hypothesis by Barker & Lucas (1) than did their own study.

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