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Giant Cell Fibroma of the Oral Cavity. I. A Clinico-Pathological Study in Thai Population

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Abstract

Thirty six cases of giant cell fibroma of the oral cavity in Thai patients were clinico-pathologically analyzed. The results showed that giant cell fibroma occurred in all age groups with the predilection for the third decade of life. No significant sex predilection of occurrence was noted. Clinically, the lesions presented as sessile or pedunculated masses with either smooth or papillary surface. Most of the lesions were under 10 mm in diameter. The most common location was the gingiva. Microscopically, the lesion was composed of large stellate-shaped mononuclear and multinuclear cells in a highly vascularized loose connective tissue. From this study, it appeared that the giant cell fibroma in Thai population possessed similar clinical and histopathologic features as those reported in the literature except in age and gender of the patient and in the frequency of giant cell fibroma in fibrous lesions.

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Key words : giant cell fibroma, multinucleated giant cell, stellate cells

Introduction

Fibrous overgrowth lesions of the oral cavity are extremely common and appear to be a proliferative response to chronic irritation. The term giant cell fibroma (GCF) was coined in 1974 by Weathers and Callihan to describe a group of benign fibrous lesions that had distinctive clinical and histologic features^{1,2}. Histologically, it was characterized by the presence of stellate, mononuclear and multinucleated cells so the name giant cell fibroma was proposed. In fact, several fibrous lesions of the skin and mucous membrane such as fibrous papule of the nose, ungual fibroma, perifollicular fibroma, melanocytic angiofibroma, acral fibromatosis and gingival fibromatosis also contained multinucleated cells.^{1,2,3,4}

The GCF represented from 0.4-2.7% of the total biopsy surveyed.^{1,2,3,5} The lesions were usually under 1 cm. in diameter and the average size was approximately 4-5 mm. in diameter.^{1,2,6} A large GCF consisted of 2 lumps, each of which was measured up to 4 cm. in diameter was also reported.⁷ Clinically, the lesions were pedunculated and had a nodular or papillary surface.^{1,2,5} They were diagnosed as fibroma, papilloma, fibroepithelial polyp, verruca vulgaris, peripheral giant cell granuloma and pyogenic granuloma.^{1,2,8} The lesions were usually asymptomatic and had been presented for several years prior to examination and treatment^{1,2}. The most common location for GCF was the gingiva⁹ especially on the mandibular gingiva followed by the tongue, buccal mucosa, palate, lip and floor of the

mouth.^{1,2,5} The majority of the GCF occurred in the first three decades of life with the peak incidence in the second decade of life.^{1,2,3} There was slight female predilection over male in the GCF.^{1,2,5} The treatment of choice was simple surgical excision and recurrence was rare.^{2,5}

The aim of this study was to investigate the GCF occurred in Thai population and compare to the previous studies.

Material and Method

The total of 5,496 oral pathology reports from the Department of Oral Pathology, Faculty of Dentistry, Chulalongkorn University between 1987-1997 were reviewed. During this period of time, 343 cases with the histological diagnosis in the group of fibrous overgrowth lesions were selected. These lesions included GCF, fibroma, fibroepithelial polyp and gingival or fibrous

hyperplasia. The hematoxylin & eosin stained tissue sections from the lesions were histopathologically reviewed. Of these cases, 36 exhibited features of the GCF as reported by Weathers and Callihan.¹ In each case, the clinical data was registered and evaluated by the age and sex of the patient, location, clinical appearance and clinical diagnosis of the lesion.

Results

Histologically, most of the lesions were pedunculated masses composed of large stellate mononuclear and multinuclear cells dispersed in the vascularized loosely arranged fibrous connective tissue (Figure 1). The Stellate cells had large vesicular nuclei. The multinucleated cells usually had 2-5 nuclei. The cytoplasm of these cells was well demarcated with dendritic processes (Figure 2).

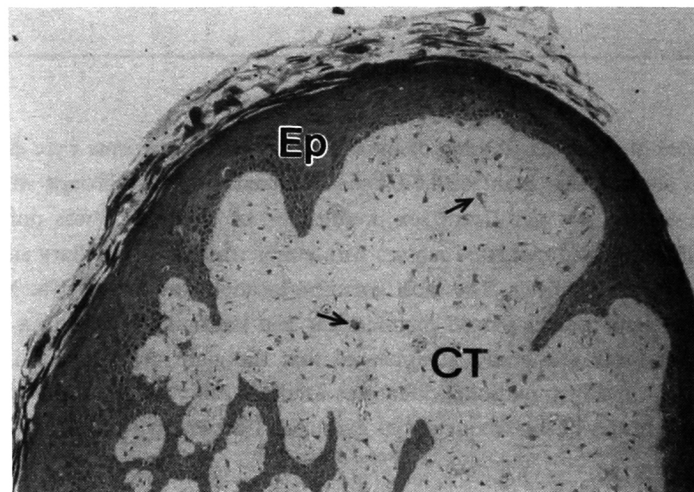


Figure 1 Photomicrograph of giant cell fibroma showing large stellate and multinucleated cells (arrows) dispersed in the vascularized loosely arranged connective tissue. Hematoxylin and eosin stain. 36x

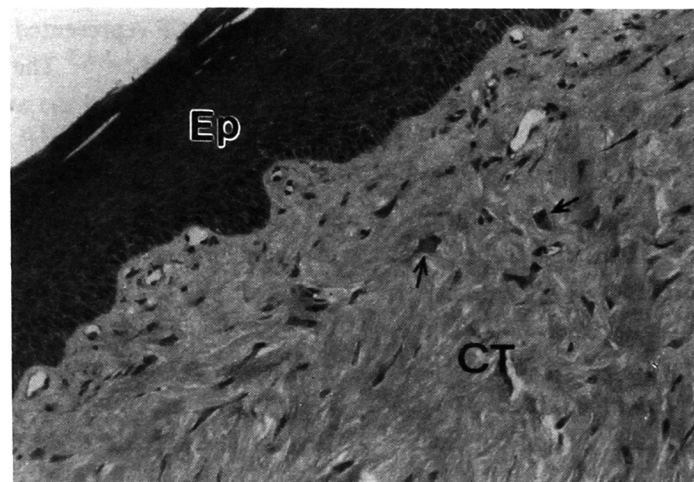


Figure 2 Higher magnification of the giant cell fibroma showing characteristics of the stellate and multinucleated cells. Note the dendritic processes of these cells. (Hematoxylin and eosin stain. 180x)

Clinically, the GCF represented 0.66% of total biopsy specimens surveyed and 10.49% of the biopsied fibrous lesions. Of the 36 cases in our series, 30 cases were less than 1 cm in greatest dimension and the remaining 6 cases were measured more than 1 cm in greatest dimension with one case was measured up to 4 cm.

The age of the patients with GCF in this study ranged from 8 years to 71 years. Approximately 70% of the GCF cases occurred in the third to fifth decade of life. The average age was 35.21 years.

The GCF was distributed equally between male and female: 18 in each category. The result showed that male to female ratio was 1:1.

The most common site of occurrence was gingiva (38.89%). Palate (25.00%) was the next most common location. The lesions were also found at the buccal mucosa, tongue and lip. The results of this study were summarized in tables 1,2,3 and 4.

Of these 36 cases, twenty eight (77.78%) were clinically diagnosed as fibroma, four (11.11%) as GCF, three (8.33%) as gingival hyperplasia and one (2.78%) as fibroepithelial polyp (table 5).

Table 1 Incidence of giant cell fibroma

| | |
|---|-----------------------------|
| Total biopsied cases in 11 years | 5,496 cases |
| Total cases of the peripheral fibrous lesions | 343 cases |
| | (6.24% of total biopsies) |
| Pathological diagnosis of giant cell fibroma | 36 cases |
| | (0.66% of total biopsies) |
| | (10.49% of fibrous lesions) |

Table 2 Age incidence of giant cell fibroma

| Age range | No. of patients | % |
|-----------|-----------------|-------|
| 0-9 | 2 | 5.56 |
| 10-19 | 3 | 8.33 |
| 20-29 | 11 | 30.56 |
| 30-39 | 5 | 13.89 |
| 40-49 | 9 | 25.00 |
| 50-59 | 3 | 8.33 |
| 60+ | 3 | 8.33 |
| Total | 36 | 100 |

Mean age 35.21

Table 3 Sex incidence of giant cell fibroma

| Gender | No. of patients | % |
|--------|-----------------|-------|
| Male | 18 | 50.00 |
| Female | 18 | 50.00 |

Male : Female 1:1

Table 4 Incidence of location of giant cell fibroma

| Location | No. of patients | % |
|---------------|-----------------|--------|
| Buccal mucosa | 7 | 19.44 |
| Gingiva | 14 | 38.89 |
| Palate | 9 | 25.00 |
| tongue | 5 | 13.89 |
| lip | 1 | 2.78 |
| Total | 36 | 100.00 |

Table 5 Clinical diagnosis of giant cell fibroma

| Clinical diagnosis | No. of patients | (%) |
|-----------------------|-----------------|--------|
| Fibroma | 28 | 77.78% |
| Giant cell fibroma | 4 | 11.11% |
| gingival hyperplasia | 3 | 8.33% |
| Fibroepithelial polyp | 1 | 2.78% |
| Total | 36 | 100% |

Discussion

In this study, the GCF represented 10.49% of the biopsied fibrous lesions and 0.66% of total biopsy specimens surveyed, compared to 5% of the fibrous lesion and 0.7% of the total accessions reported by Weather and Callihan¹; 4.7% of fibrous lesions and 1% of total lesions by Houston.² Our results of this study appeared to show similar occurrence rate as those previous studies, but the percentage of giant cell fibroma among the fibrous lesions was twice of those previously reported.

Previously, the peak incidence of GCF was reported to be in the first three decades of life.^{1,2,3} Our result showed the occurrence in Thai population was in higher age groups which were in the third to fifth decades of life. The male:female ratio was 1:1. This was slightly different from other previous reports which showed slight female preponderance.^{1,2,5}

The most common location was gingiva, similar to the previous studies. But the other locations appeared to be different from the other studies. Some of the giant cell fibromas in our series may be larger than average giant cell fibroma. This may due in part to the negligence of the patients or the inaccessibility to medical services, but the characteristic cells appeared exactly the same no matter how large or small the lesions were. In our study, the most common clinical diagnosis for such lesions was fibroma which accounted for 77.78%. This result was in agreement with the study by Houston² which showed that the most common clinical diagnosis was fibroma (44.6%) but different from the study conducted by Weather and Callihan¹

which indicated that many GCF in their original series were diagnosed clinically as papillomas. This may be explained by the fact that GCF was often pedunculated and had a bosselated or papillary surface.² The distinctive light-microscopic appearances in our series were identical to those reported in the literature.^{2,3,5} One point of interest was that the greater number of stellate mononuclear and multinuclear cells were found in the areas just beneath the surface epithelium. The reason for this peculiar distribution is unknown. While there were similarities in histopathologic appearances between giant cell fibroma and irritation fibroma, the presence of giant cells distinguished these two lesions.⁵ There has been scarcity in the study of GCF among Thai population. To the best of our knowledge, this study

is the largest of its kind. Future study on the GCF especially on the larger scale is encouraged.

Conclusion

In conclusion, GCF was a distinctive lesion whose characteristic location, age distribution, sex incidence, and histopathologic features clearly separated it from the usual fibroma or fibrous tumors of the oral mucosa. GCF in Thai population demonstrated similar clinical and histological features to GCF of other races except for the age which was higher in the Thai population and the GCF in the Thai population constituted more percentage towards the total fibrous lesions than in other races.

ไจอานท์เซลล์ไฟโบรมาของช่องปาก. I. การศึกษาทางคลินิกและพยาธิวิทยาในประชากรไทย

บทคัดย่อ

การศึกษานี้เป็นการวิเคราะห์ลักษณะทางคลินิกและทางจุลพยาธิสภาพของผู้ป่วยชาวไทยที่มีเนื้องอกชนิดไจอานท์เซลล์ไฟโบรมาในช่องปากจำนวน 36 ราย ผลการศึกษาพบว่าเนื้องอกชนิดนี้พบได้ด้วยจำนวนเท่ากันในเพศหญิงและเพศชายและในทุกช่วงอายุ โดยพบมากที่สุดในช่วงอายุ 20-30 ปี ลักษณะของก้อนเนื้องอกส่วนใหญ่เป็นก้อนนูนที่มีผิวเรียบหรือขรุขระ ตำแหน่งที่พบได้บ่อยคือเหงือก ขนาดของก้อนเนื้องอกส่วนใหญ่ไม่เกิน 10 มิลลิเมตร ลักษณะทางจุลพยาธิวิทยาของรอยโรคประกอบไปด้วยเซลล์รูปดาวขนาดใหญ่ที่มีนิวเคลียสเดี่ยวหรือหลายนิวเคลียสกระจายอยู่ในเนื้อเยื่อติดต่อกับเส้นเลือดมาเลี้ยงจำนวนมาก จากการศึกษาพบว่าไจอานท์เซลล์ไฟโบรมาในคนไทยมีลักษณะทางคลินิกและทางจุลพยาธิวิทยาของเนื้องอกคล้ายกับที่มีรายงานมาแล้วในชนชาติต่างๆ แต่มีความแตกต่างบ้างในส่วนที่เกี่ยวกับอายุและเพศของผู้ป่วย และอัตราส่วนของการเกิดเนื้องอกชนิดนี้ในกลุ่มของรอยโรคที่มีการงอกเกินของเนื้อเยื่อไฟบรัส

(ว.ทันต.จุฬา. 2542; 22:177-180)

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