Original Article

Frequency of Giant Cell Lesions in Oral Biopsies

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Abstract:

Objective: Oral lesions are among the important reasons for seeking dental care. Being frequently encountered, giant cell lesions form an important group of oral lesions. The epidemiologic data on these lesions, however, is scarce in Iran. The present study investigated epidemiological and demographic characteristics of giant cell lesions in oral biopsies done in one of the largest oral pathology departments in Iran.

Materials and Methods: This descriptive survey studied the existing biopsy records of 2265 patients referred to the Department of Oral Pathology in Shahid Beheshti Dental School from 1991 to 2002. Records with final diagnosis of giant cell lesion were identified. Data on type of lesion, distribution of lesions, the involved jaw, and patients' gender and age was extracted from these records.

Results: In total, 144 giant cell lesions were identified. These lesions comprised peripheral giant cell granuloma (59.5%), central giant cell granuloma (36.6%), cherubism (2.5%), and aneurysmal bone cyst (1.4%). Most of the cases had been occurred among women (54.9%), in their second and third decades of life (49.4%). The anterior region of the mandible was the most common location of these lesions (26.2%). In approximately half of the cases, the first clinical diagnosis was similar to the histopathologic diagnosis.

Conclusion: The giant cell lesions were more common in women and in the anterior region of the mandible. More commonly, they occurred in the second and third decades of life unilaterally. This study elucidates the epidemiologic data of giant cell lesions in Iran and the results can be helpful for dental scholars in various fields.

Key Words: Granuloma, Giant Cell; Bone Cysts, Aneurysmal; Biopsy; Cherubism

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INTRODUCTION

Dentists frequently encounter patients complaining from an oral lesion. Giant Cell Lesions (GCLs) form an important group of oral lesions. Late diagnosis and treatment of GCL will result in extension of the lesion and difficulties in treatment. Some dentists, however, lack the expertise in this regard due to lack of sufficient information and knowledge about clinical pathology [1].

GCLs have a uniform appearance in histopathology: a gathering of multi-nuclear giant cells over a background of mononuclear cells, fibrohistiocytes, big fibroblasts, and extravasated red blood cells [2]. However, their clinical appearance is variable. GCLs subtypes are Peripheral Giant Cell Granoluma (PGCG), Central Giant Cell Granoluma (CGCG), Cherubism, and Aneurysmal Bone Cyst (ABC) [3].

Taking biopsies is an invasive procedure and may not be feasible to be done in all patients. Therefore, it is necessary for dentists to be able to clinically identify GCLs.

Table 1. Frequency of type of giant cell lesions

Diagnosis	Number	Percentage
PGCG	85	59.03
CGCG	53	36.80
Cherubism	4	2.78
ABC	2	1.39
Total	144	100.00

Table 3. Distribution of frequency of giant cell lesions by direction and side of lesion

Side	Number	Percentage
One-sided	108	75
Two-sided	23	16
Unknown	13	9
Total	144	100

On the other hand, epidemiologic and demographic data greatly help clinicians make a sound clinical diagnosis, which is a prerequisite for appropriate treatment [4]. However, epidemiologic data on GCLs in Iranian population is scarce.

The present study investigated epidemiological and demographic characteristics of giant cell lesions in oral biopsies done in one of the largest oral pathology departments in Iran.

MATERIALS AND METHODS

The records of biopsies performed over a period of ten years from 1992 to 2002 at the Department of Pathology in Shahid Beheshti Dental School were studied. For each biopsy record diagnosed as GCL, a form was completed. The form requested information on results of histopathology, epidemiologic information of patients such as age and gender, location of lesions, jaws involved, and clinical diagnosis.

The lesions were categorized into four groups: PGCG, CGCG, Cherubism, and ABC. These four groups were studied separately.

The involved region was defined to be anterior (anterior to the first molar), posterior (posterior to the first molar), and simultaneous involvement of anterior and posterior regions. The results were expressed through descriptive statistics.

RESULTS

From a total of 2265 biopsies, 144 were diagnosed as GCL (6.36%). Table 1 shows the subtypes of GCL in our sample. Ninety-five (69%) GCLs were in mandible, 48 (33.2%) in maxilla, and 1.0 (0.7%) in both the jaws. Among all GCLs, PGCG was the most common (59.5%) and ABC was the least common type (1.4%).

Mean age of the patients with GCL was 30 years (range 5 to 70 years). The majority of cases were in the second or third decades of their lives. Seventy-nine (54.9%) patients were female, and 65 (45.1%) were male. Table 2 shows the position of GCLs in our sample and Table 3 demonstrates the side of the GCLs. In 78 cases (54.1%), the initial clinical diagnosis was consistent with the histopahtological diagnosis.

Among different types of the giant cell lesions PGCG was seen more in the mandible (60%) and mainly in the anterior region (25.3%) and had been occurred mostly in women (53%) in their fifth decade of life (23.6%). CGCG had been reported mainly in women (66.1%) of the second and third life-decades (66.6%), totally affecting the mandible (69.8%) mainly in the anterior region (41.8%), and involving one jaw (81%).

Cherubism was reported in four cases with posterior and bilateral involvement of the

Table 2. Frequency of giant cell lesions in the affected jaw by location of lesion.

Jaw	Anterior		Posterior		Both		Unknown	
	N	%	N	%	N	%	N	%
Mandible	38	26.2	24	16.55	25	17.2	22	15.8
Maxilla	22	15.1	9	6.2	4	2.75		

Table 4. Distribution of giant cell lesions by gender and affected jaw in the study samples.

Jaw	Male		Female		Total	
	N	%	N	%	N	%
Mandible	37	56.9	58	73.4	95	66.0
Maxilla	28	43.1	20	25.3	48	33.3
Both	-	-	1	1.3	1	0.7
Total	65	45.2	79	54.8	144	100

mandible. Three males and one female were affected and all cases were under 30 years of age. ABC was reported in two cases; the first one a male in his second decade of life, with a unilateral manifestation in the anterior region of the mandible, and the second one in a female in her third decade of life suffering from anterior and posterior involvement of the mandible. Tables 4 and 5 show the affected jaw and age-gender distribution of the lesions.

DISCUSSION

From a clinical perspective, PCGC is the most common giant cell lesion in both jaws. It occurs as a reaction to local stimulus or trauma and has a tumor like growth [5]. In most cases, a history of tooth extraction is mentioned [6]. This lesion can be seen only in gingiva or edentulous alveolar ridge [7-10]. Concerning age and gender distribution, it is more prevalent among women at their 30's and 40's compared to other groups [6]. It is also more common in pregnant women usually in its recurrent form [11]. The treatment is surgical excision with curettage [12]. In our study, most of the PGCG cases had been reported to occur in the fifth decade of life. Similarly, Mighell et al [13] and Katsikeris et al [14] reported the fourth and fifth decades and Neville [15] mentioned the fifth and sixth decades of life as the most common years of PGCG occurrence. Wood and Goaz [7], however, have mentioned a wider age range of 30 to 70 years as the peak for PGCG occurrence. This period has been reported to be the fourth decade with average age of 29 years in a previous study from Iran [16]. Our findings are most compatible with the first two mentioned reports. Furthermore, in most investigations, greater involvement of females and the mandible was recognized [6,7,10,14], which is similar to our study.

CGCG is an uncommon benign tumor with a radiolucent appearance, which may be seen in jaws [11]. It is less destructive in jaws compared to longer bones in the body [7]. According to previous reports, the lesion is seen mostly in youth [5,6],in women, and in the anterior region of the mandible. For example, Regezi et al [10] Andersen et al [17] have mentioned the anterior regions of mandibular molars as the common place for CGCG occurrence, which is similar to our study. However, Wood and

Table 5. Frequency and percentage of giant cell lesions according to age and sex.

Age	Male		Female		Total	
	N	%	N	%	N	%
0-9	13	20	6	7.6	19	13.2
10-19	12	18.4	23	29.2	35	24.3
20-29	13	20	16	20.2	29	20.1
30-39	5	7.6	9	11.3	14	9.7
40-49	6	9.2	16	20.2	22	15.3
50-59	8	12.3	7	8.9	15	10.4
60 and more	8	12.3	2	2.6	10	7.0
Total	65	45.1	79	54.8	144	100

Goaz [7] mentioned premolar and mandibular molar regions as the locations that CGCG is usually seen. Regarding the age range, all studies were consistent with ours, mentioning the second and third decades of life as the peak for CGCG occurrence [7,10,15,17,18]. Occurrence in women have been reported to be twice as much as men [7,10,11,15,17,18], which is consistent with our results.

Cherubism is a familial or autosomal dominant disease [5,7]. According to previous studies, it is more common in five-year-old children [11], with angel-like faces (upward looking eyes) as one of its characteristics. ABC, a pseudo-cyst without epithelial lining, has been reported to be more common in mandible [11]. It is usually observed in patients under the age of 30 and in half of the cases is accompanied by pain. In this study, Cherubism was seen in patients less than 30 years, mostly men, and in the posterior region of mandible. These findings are consistent with other studies [7,10,15]. However, regarding ABC, authors have reported such age ranges as under 20 years of age [7], and more specifically, the second decade of life [10,15]. Prevalence of this lesion among women has been reported to be equal with men [15], or slightly more than men [10]. Mandible has been reported to be more affected than maxilla [7,10], with a 3 to 1 ratio [7]. Neville et al [15] also has reported all three types of this lesion to be more common in mandible compared to maxilla. Due to the small number of cases with this lesion in our study, we could not compare our results with previous reports.

CONCLUSION

The giant cell lesions were more common in women and in the anterior region of the mandible. More commonly, they occurred in the second and third decades of life unilaterally. In half of the cases, the clinical and histopathological diagnoses were consistent with each other. This study elucidates the epidemiologic data of giant cell lesions in Iran and the results can be helpful for dental scholars in various fields.

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