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A 17-year clinical and pathological evaluation of inflammatory/reactive oral lesions in children and adolescents

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KEYWORDS

Adolescents, Children, Oral biopsied lesions, Reactive lesions, inflammatory lesions

A B S T R A C T

The presence of clinical features, symptoms, treatment and prevalence of oral lesions in children and adolescents may be different from that of adults. The aim of this study was to evaluate the clinical and pathological features of inflammatory/reactive oral lesions in children and adolescents from 1996 to 2013. Patient records of the Department of Oral Pathology of Kerman dental school, Iran during 17 years were reviewed. Demographic data, clinical diagnosis and histopathologic features were retrieved. The data were analyzed using SPSS 20 soft ware. Chi-square or t-test was used for groups comparison. Significant level was set at 0.05. Out of 1561 records, 241(14.59%) were between 0 and 18 year- old and 102 (42.32%) cases of inflammatory/reactive lesions were seen. The most common lesion was pyogenic granuloma. Most of the lesions were located in the maxilla (p=0.028).There was significant differences between age and frequency of lesions (p=0.008). In 63.2%of cases clinical features were compatible with histopathological diagnosis. Based of the findings of the current study, inflammatory/reactive lesions were the most common oral biopsied lesions.

Introduction

The presence of clinical features, symptoms, treatment and prevalence of oral lesions in children and adolescents may be different from that of adults (1-4). Reactive lesions comprise a group of connective fibrous tissue lesions that commonly occur in the mouth as a result of trauma (5). Regardless of dental caries, periodontal disease and periapical inflammatory lesions, hyperplastic lesions represent the most common oral mucosal lesions in humans (6,7). These lesions are classified as pyogenic granuloma, peripheral ossifying fibroma, and peripheral giant cell granuloma and irritation fibroma. Chronic local irritation is the most frequently etiologic factor of all this lesions. However, these lesions can show dramatic different

histopathological features (8). It's believed that the difference may be due to the connective tissue response to different intensities of mucosal irritation which may be affected by some serum hormones (5). Considerable variation in the prevalence of oral reactive lesions has been reported (9). Wang et al. showed that 45.5% of biopsied oral lesions of children aged 0-14 years in Taiwan were reactive lesions (3). Akinmoladm et al. in a histopathological review article of oral lesions in North East Nigeria reported a prevalence of 19.1% for reactive/ inflammatory lesions (6). Another study by Kamath in India showed that the most common non-neoplastic lesion in children was pyogenic granuloma (10). The frequency of Peripheral reactive lesions in children from Chili and Brazil was 75.8 and 64.4 percent, respectively (11,12). Shah et al. identified reactive/inflammatory lesions as the most commonly oral lesions in children (13). The most common inflammatory lesions in Israeli children were peripheral ossifying fibroma (33%) followed by pyogenic granuloma (14). The racial characteristics, variation in sampling, diagnostic criteria, and the behavioral and cultural diversity in the studied populations may explain differences in prevalence of peripheral reactive lesions (15). To be knowledgeable on the prevalence of these lesions may help clinicians to improve evaluation and management of oral lesions in children before any biopsy. The aim of this study was to evaluate the clinical and pathological features of inflammatory/reactive oral lesions in children and adolescents based on recordings from Department of Oral & Maxillofacial Pathology, Kerman Dental School, retrieved from 1996-2013 .

Subjects and methods

This retrospective cross-sectional study conducted on oral biopsies obtained from patients aged 0-18 in the archive of Oral & Maxillofacial Pathology Dept., Dental School, Kerman University of Medical Sciences from 1996 to 2013. All of the cases histopathologically recorded as peripheral reactive lesions were retrieved. The following data were collected from patient charts: age at diagnosis, gender, lesion site. The patients with incomplete clinical data and no histopathology diagnosis were excluded. The data were analyzed using SPSS 20. Chi-squared or t-test were used for group comparison. Significant level was set at 0.05.

Results and Discussion

Out of 1561 records, 241 (14.59%) were in 0-18 years old. Peripheral reactive lesions were found in 102(42.32%) of the cases. The mean age was 12.36±3.81 years. Of the affected children, 49.9% were boys and 50.1% were girls. The anterior maxillary region was the most common location (37%) with a significant difference compared to other sites (p=0.028) (table 1). Pyogenic granuloma (PG) was the most common reactive lesion (32.4%). Frequency of lesions based on histopathologic and clinical diagnosis is shown in Table 2. Almost 4% of lesions had been detected in 0-5 years of age, 45.3% in the group aged 6-12 year-old and 50.5% of patients with reactive lesions were between 13 to 18 years (p=0.008).

Table 3 shows the mean and standard deviation of age of patients according to the type of lesions. In the present study, the consistency rate of clinical diagnosis and histopathological reports was 63.2%.

The data of the present study show that 14.59% of the biopsies from the pathology archives of Kerman Dental School were related to children and adolescents. This finding is similar to the one reported by Dhanuthai et al. (16) (15.05%) as well as in

other study conducted previously in Brazil (13.1%) (17), lower than the finding of Zuñiga et al. study in Chili who showed that 20.6%of oral biopsies were related to children and adolescents. In the current study, higher values were observed when compared to 8.2% reported in a 30-year study in Europe (1) , and 6.5% reported in South Africa (18). Lima et al. also showed that 6.6% of oral biopsies were obtained from children and adolescents under 14 years old (12). The difference may be due to the type of study, limited age groups, the sample size, inclusion criteria and study duration.

In the current study, most lesions were recorded among adolescences aged from 13 to 18 years. The data is consistent with some other studies (1,3,12,17).

Based of the findings of the current study, inflammatory/reactive lesions were the most commonly lesions (42.32%). Chen et al. also reported that inflammatory/reactive lesions were the most common lesions in the children and adolescents (19). Similar results were reported in Iran (61.9%)(20), Taiwan (45.5%)(3) and Brazil (64.4%)(17).

Table.1 number and percent of lesions according to location

Location	No	%
Anterior of maxilla	40	37.00
Posterior of maxilla	16	14.81
Anterior of mandible	38	35.18
Posterior of mandible	14	12.96
Total	108	100

Table.2 number and percent of lesions according to clinical and histopathologic diagnosis

Lesion	Clinical diagnosis		Histopathological diagnosis	
	NO	%	NO	%
Peripheral giant cell granuloma	34	31.48	27	25.00
Pyogenic granuloma	33	30.55	36	33.33
Squamous papilloma	13	12.03	11	10.18
Mucocele	11	10.18	9	8.33
Irritation fibroma	10	9.25	7	6.48
Peripheral ossifying fibroma	7	6.48	16	14.81
Giant cell fibroma	-	-	2	1.85
Total	108	100	108	100

Table.3 Mean and standard deviation of patients 'age according to type of lesions

Lesion	Mean age	Standard Deviation
Peripheral giant cell granoluma	10.64	3.34
Pyogenic granuloma	13.38	3.91
Squamous papilloma	11.60	2.85
Mucocell	10.33	4.27
Irritation fibroma	14.33	2.80
Peripheral ossifying fibroma	13.39	3.48
Giant cell fibroma	10.64	3.34

In this study, pyogenic granuloma was the most common inflammatory/reactive lesion. Similar results have been observed in the studies by Awange et al. (21), Kamath et al. (10) and Krishnapillai et al. (22). This finding is not in agreement with that observed by Buchner et al. who stated that Peripheral Ossifying Fibroma (POF) was the most common inflammatory/reactive lesion (14). On the other hand, in many other studies Mucocell has been the most common lesion (11,23,1,24,17,12).

Similar to the findings of Vale et al. study (17), in 63.2% of the cases in our survey, clinical diagnoses were consistent with the pathologic reports.

Most of the lesions were located in the maxilla, which is in accordance with a previous study by Lima et al. (12).It has been shown that Peripheral Ossifying Fibroma, Peripheral Giant Cell Granuloma and Pyogenic Granuloma are more common in the maxillary than mandibular jaw (24,25,26).

In agreement with other studies (1.23,5), we did not find any statistically significant association between sex and dental trauma.

In our study, we found two cases of giant cell fibroma (GCF) that were not diagnosed clinically. Clinical diagnosis in both cases was irritation fibroma. Giant cell fibroma is a lesion of fibrous connective tissue origin. It usually tends to occur in the 2nd and 3rd decades of life, with almost 60% probability to be found in the first three decades of life (27). Irritation fibroma can be considered in the differential diagnosis of giant cell fibroma. However, the frequent pebbly or papillary surface of GCF is not the feature of irritation fibroma (28, 8).

Conclusion

The basal findings of this study suggest that reactive lesions are the most common oral lesions among children and adolescents. Pyogenic granuloma was the most common reactive lesion. The lesions were more often found in the maxilla than in the mandible.

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