

Prevalence of oral diseases: a 15-year follow-up

Prevalência de lesões bucais: 15 anos de acompanhamento

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ABSTRACT

Objective

The aim of this study was to assess the prevalence of oral lesions diagnosed in the project "Diagnosis, Treatment and Epidemiology of the diseases of the oral cavity", conducted at the State University of Maringá, from 1992 to 2007.

Methods

A total of 1227 patients' records were analyzed and the lesions were classified into 9 categories: neoplasm, non neoplastic proliferative processes, cysts, glandular lesions, pigmented, precancerous, dermatological, bone and other types. The data was tabulated and interpreted by descriptive analysis.

Results

The results showed that there was higher prevalence of lesions in the female gender (66.26%). As regards age, the fourth decade of life (21.32%) was the most affected. The categories of most prevalent lesions were the non neoplastic proliferative processes (47.10%), glandular lesions (13.20%) and neoplasm (10.10%). Lesions most frequently diagnosed were inflammatory papillary hyperplasia, mucoceles, periapical cyst and lichen planus.

Conclusion

During the 15-year follow-up of the Oral Lesion Project activities, it was possible to determine the prevalence of lesions diagnosed in the region where the project operates, thus allowing the planning of actions in the area of oral health, in addition to early diagnosis and better therapeutic approach.

Indexing terms: Epidemiology. Mouth diseases. Prevalence.

RESUMO

Objetivo

Avaliar a prevalência de lesões bucais diagnosticadas no projeto de extensão: Diagnóstico, Tratamento e Epidemiologia das doenças da cavidade bucal no Projeto de Lesões Bucais, realizado na Universidade Estadual de Maringá, no período de 1992 a 2007.

Métodos

Foram analisados 1227 prontuários, sendo as lesões classificadas em 9 categorias: neoplasias, processos proliferativos não neoplásicos, cistos, lesões de origem glandular, pigmentadas, potencialmente malignas, dermatológicas, ósseas e outras. Os dados foram tabulados e submetidos a análise descritiva.

Resultados

Os resultados demonstraram que houve uma maior prevalência de lesões no gênero feminino (66,26%). Em relação à idade, a quarta década de vida (21,32%) foi a mais acometida. As categorias de lesões mais prevalentes foram os processos proliferativos não neoplásicos (47,10%), lesões de origem glandular (13,20%) e neoplasias (10,10%). As lesões mais frequentemente diagnosticadas foram hiperplasia fibrosa inflamatória, mucocele, cisto periapical e líquen plano.

Conclusão

(Durante o acompanhamento de 15 anos das atividades do Projeto de Lesões Bucais, pode-se determinar a prevalência das lesões diagnosticadas na região em que o projeto atua, permitindo o planejamento de ações na área de saúde bucal, bem como diagnóstico precoce e melhor abordagem terapêutica.

Termos de indexação: Epidemiologia. Prevalência. Doenças da boca.

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INTRODUCTION

Studies to determine the prevalence of oral lesions have been conducted in various geographical regions. Knowledge of the prevalence of lesions in different locations allows the prediction of diagnosis even before biopsy is performed. Moreover, it makes it possible to direct a clinical approach that evaluates the risks and benefits to the patient¹. Furthermore, during the clinical exam it is impossible to limit the focus of diagnosis, and it is therefore plausible to establish a probable diagnosis based on the knowledge of how frequently the pathology occurs². In addition, these studies contribute to demonstrating the profile of oral lesions, such as definition of the ideal nomenclature, best manner of classification and therapeutic approach³.

In Brazil, various study designs of a retrospective nature have been conducted with the goal of determining the prevalence of oral lesions. Almeida & Saiki⁴ studied the occurrence of lesions in Piracicaba, Brazil, between the years 1975 and 1984 and evaluated the diagnosis, location of lesions, gender and age of patients in a total of 1211 cases. Torreão et al.⁵ evaluated 394 biopsies performed in the Pathology Laboratory of the Pernambuco Dental School in the period from 1994 to 1997. Kamei⁶ evaluated 3096 diagnoses made at the Orocenter of the Dental School of the State University of Campinas between 1980-1998. Other authors⁷⁻⁹, conducted surveys in order to observe the frequency of lesions diagnosed by the Oral Diagnosis Service of the Oral Pathology Course at the Dental School of the State University of Campinas, Surgery Course at the Dental School of the University of São Paulo and in the city of Uberaba (MG), respectively.

In the northern region of the State of Paraná, the Oral Lesion Project of the State University of Maringá is a regional reference for the diagnosis and treatment of oral diseases. In 2007, the project completed 15 years of existence, without any studies having collected the data in this period.

The aim of this study was to establish the prevalence of the oral lesions diagnosed by histopathological reports in the Oral Lesion Project ("Projeto de Lesões Bucais - LEBU") of the Dental Clinic at the State University of Maringá during the period from 1992 to 2007.

METHODS

The present study was sent to the Ethics Committee on Research involving Human Beings of the

State University of Maringá, and was approved by means of Report No.331/2008, CAAE no 01070093000-08.

This was a quantitative retrospective study in which 1227 patient record charts were analyzed, which contained histopathological reports issued by pathologists, with reference to lesions biopsied in the Oral Lesion Project of the State University of Maringá, in the period from 1992 to 2007. Data with reference to gender, age, classification and location of lesions were considered. The lesions were grouped and classified into nine categories: 1) neoplasias; 2) non neoplastic proliferative processes; 3) cysts; 4) lesions of glandular origin; 5) pigmented lesions; 6) potentially malignant lesions; 7) dermatological lesions; 8) bone lesions and 9) other types of lesions, reports without diagnosis, and reports containing diagnosis of aspects of normality.

As regards the anatomic location, the oral regions were divided as follows: Jugal mucosa; palate; tongue; lip; gingiva; alveolar ridge; retromolar trigone; bottom of the sulcus; floor of the mouth; mandible; labial commissure; maxilla and lesions without data with respect to location. Thus, an endeavor was made to standardize the sites of lesion occurrence in order to better evaluate the percentage distributions.

The data collected were organized in Microsoft Excel electronic spreadsheets and analysis was performed by means of direct description of the percentages, identifying the most prevalent lesions and their characteristics.

RESULTS

Of the 1227 patient record charts evaluated, 811 (66.1%) reports corresponded to individuals of the female gender and 416 (33.9%) to the male gender. The patients' ages ranged from 1 to 91 years, with a mean of 40.23 years. The most affected age group in this study was that from 41 to 50 years (21.32%).

The results demonstrated that the sites of lesions varied significantly. The alveolar ridge (19.55%) was the site with highest occurrence of lesions in general, followed by the lip (18.5%) and jugal mucosa (15.56%). The occurrence of lesions was also observed in the bottom of the sulcus, maxilla, palate, tongue, mandible, gingiva, floor of the mouth, retromolar trigone, labial commissure and labial frenulum.

The Table 1 shows the prevalence of the different categories of oral lesions, according to the patients' gender. The category with the highest prevalence of lesions was

the non neoplastic proliferative processes, involving almost half of all the lesions. Inflammatory fibrous hyperplasia, with 483 cases (83.5%) was the most prevalent lesion in both the category and entire study, totaling 40.42 % of the whole sample. Table 2 presents the prevalence of the most frequently diagnosed lesions in this study.

The second most prevalent category consisted of lesions of glandular origin. Of these, mucocele was the most common disease (87.6%) and ranked second among all the lesions found. Ranula, a phenomenon of mucus extravasation located in the floor of the mouth, was diagnosed in 7 cases (4.3%), and after this sialadenitis (5 cases, 3.1%), necrotizing sialometaplasia and sialolith (3 cases) representing 1.9% each. Lastly, there were sialolithiasis and Sjogren syndrome with 1 case each (0.6%).

Neoplasias were ranked the third group of lesions most frequently found, with papilloma and squamous cell carcinoma, found in 23 (18.5%) and 21 (17.0%) cases, respectively, as the most prevalent diseases in the group, followed by hemangioma (18 cases or 14.5%) and fibroma (13 cases or 10.5%). Pleomorphic adenoma (8 cases or 6.4%); lymphangioma, ameloblastoma and compound odontoma, with 5 cases each (4.0%); odontogenic neuroma, mixoma and lipoma with 3 cases (2.4%) each, concluded the most frequently present lesions.

With regard to the category of cysts, which comprises dermoid cyst, mucosal cyst of the maxillary sinus, periapical cyst, naso-palatine duct cyst, odontogenic tumor, keratocyst, lateral periodontal cyst, radicular cyst, residual cyst, dentigerous cyst, epidermoid cyst and naso-labial cyst, the most frequently found was the periapical cyst, with 53 cases (45.7%). In addition, important lesions such as the periodontal cyst (18 cases or 15.5%), dentigerous cyst (8 cases or 6.8%), nasopalatine duct cyst (7 cases or 6.0%) and Keratocystic odontogenic tumor (6 cases or 5.1%) were observed.

Dermatological lesions were diagnosed in 81 cases, representing 6.6% of the entire sample. Lichen planus (38 cases) represented 46.9% of the total, and 3.10% among all the lesions. Paracoccidioidomycosis was found in 22 cases (27.2%), lichenoid reaction in 8 cases (9.9%), penfigo in 7 cases (8.7%), Foliate papillitis 3 cases (3.7%) and there was 1 case (1.2%) of each of the following: actinomycosis, histoplasmosis and leishmaniasis.

In the category "other lesions", which comprised biopsies without conclusive diagnosis, cases of normality, and other less prevalent lesions, 13 cases (17.5%) of non specific inflammation, 10 cases (13.5%) in which there

were insufficient data for a conclusive diagnosis and 7 cases (9.4%) of candidosis were verified. In this group there were 74 cases, representing 6.03% of all the record charts analyzed.

The findings with reference to bone pathologies totaled 2.70% of the total number of cases, with emphasis on ossifying fibroma (15 cases or 31.2%) and fibrous dysplasia (11 cases or 22.9%). In addition, other findings were observed, such as central giant cell lesions (7 cases or 14.6%), Torus (4 cases or 8.3%), osteoma, fibro-osseous lesion, exostosis, a cemento-osseous dysplasia, periapical cement dysplasia (2 cases each or 4.1%) and histiocytosis X (Doença das células de Langerhans' cell disease) (1 case or 2.0%), which were accounted for in the category of other lesions, reports without diagnosis and reports with diagnosis of aspects of normality.

With respect to the potentially malignant lesions the following results were obtained: 18 cases (66.7%) of leukoplasia with dysplasia, 8 (29.6%) of actinic cheilitis, and 1 (3.7%) case of hyperkeratosis.

As regards the occurrence of pigmented lesions, this was the category with the lowest number of cases in this study; with emphasis on focal argyrosis (7 cases or 41.2%), nevus (6 cases or 35.3%), melanic pigmentation (3 cases or 17.6%) and hemosiderosis (1 case or 5.9%).

Table 3 lists the category of lesions and the most frequent site of occurrence.

Table 1. Categories of lesions related to gender.

Category of lesion	Female	Male	Total
Non neoplastic proliferative processes	437	141	578
Lesions of glandular origin	86	76	162
Neoplasias	68	56	124
Oral cysts	67	49	116
Dermatological lesions	47	34	81
Other lesions	49	25	74
Bone pathologies	34	14	48
Potentially malignant lesions	7	20	27
Pigmented lesions	16	1	17
Total	811	416	1227

Table 2. Prevalence of oral lesions diagnosed.

Type of lesion	Number of cases
Inflammatory fibrous hyperplasia	483
Mucocele	142
Periapical cyst	53
Lichen planus	38
Pyogenic granuloma	37
Inflammatory papillary hyperplasia	34
Papilloma	23
Apical periodontal cyst	18
Hemangioma	18
Ossifying fibroma	13
Others	368
Total	1227

Table 3. Number of lesions classified per category and related to their site of occurrence.

Category	1	2	3	4	5	6	7	8	9
Site									
Floor of mouth	8	14	1	13	1	1	-	-	3
Labial commissure	1	5	-	-	-	-	-	-	1
Labial frenulum	-	1	1	-	-	-	-	-	-
Bottom of sulcus	1	83	6	1	-	1	4	-	1
Gingiva	8	38	1	1	1	-	8	9	3
Jugal mucosa	7	112	3	16	2	6	37	1	7
Lip	23	69	1	110	1	10	7	-	6
Tongue	16	32	-	10	1	4	10	-	7
Mandible	17	2	27	1	-	-	1	13	13
Maxilla	8	5	56	-	-	-	-	10	12
Palate	9	39	10	3	4	3	5	2	7
Alveolar Ridge	21	169	9	5	4	1	9	13	8
Retromolar trigone	5	8	1	2	3	1	-	-	4
Without data as regards site	-	1	-	-	-	-	-	-	1
Total	124	578	116	162	17	27	81	48	73

DISCUSSION

The proportion of women affected by lesions is in agreement with the majority of the data found in the literature. Gómez³, Bertoja et al.¹⁰ and Colombo et al.¹ also observed a higher prevalence in women. The

predilection for the female gender may be explained by the greater concern expressed by women with regard to their own health, which leads them to seek care services more frequently. Nevertheless, one cannot overlook the fact that the incidence of pathologies in the oral maxillofacial complex is higher in women¹⁰.

It was also observed that the lesions were more prevalent in the fourth decade of life, as also related by Gómez³, Araújo et al.⁹ and Colombo et al.¹. On the other hand, authors such as Deboni et al.⁸ and Bertoja et al.¹⁰ found different results. Deboni et al.⁸ demonstrated higher prevalence in the second decade of life, and Bertoja et al.¹⁰ in the fifth. These findings are justified when one observes the sample of these studies: In the study of Bertoja et al.¹⁰, there was a similar distribution among the age groups, explained by the great variation in studies of this nature in various parts of the world. Whereas, Deboni et al.⁸ conducted their study based on biopsies performed only at the surgery clinic, leaving other disciplines, such as semiology (stomatology) and pediatric dentistry out of the study, which may have led to these results.

As regards the category that comprises the non neoplastic proliferative processes, inflammatory fibrous hyperplasia is pointed out as the most prevalent lesion. Fregnani⁷, Almeida & Saiki⁴, Araújo et al.⁹ and Bertoja et al.¹⁰ also observed similar data. Some studies, such as those of Gómez³, Torreão et al.⁵ e Colombo et al.¹, found lower rates of inflammatory fibrous hyperplasia, nevertheless, this was still the pathology most present in these studies. The high presence of inflammatory fibrous hyperplasia may be associated with the standardization of the present nomenclature, considering that at other times, various names such as denture-related hyperplasia, granuloma fissuratum, epulis fissuratum, among others were used³. It may also be associated with recurrent cases, which is frequent in this type of lesion, or even be related to the manner in which it is approached by different institutions, since many adopt a more conservative approach, hoping that the lesion will regress, reflecting on the number of pathological exams. This lesion was more frequently located on the alveolar ridge, followed by the jugal mucosa (Table 3).

Pyogenic granuloma was ranked the second most prevalent lesion, as occurred in the studies of Fregnani⁷ and Weir et al.², however, percentages lower than 2% have been seen in other analyses: Kamei⁶, Bertoja et al.¹⁰ and Colombo et al.¹. The majority of cases were found in the female gender, and in the gingiva. Regezi & Sciubba¹¹ explained this fact, since the hormone alterations in

in the female gender, and in the gingiva. Regezi & Sciubba¹¹ explained this fact, since the hormone alterations in puberty and pregnancy may be factors that change the reparative response of the gingiva to aggressions. Another outstanding pathology in the category was inflammatory papillary hyperplasia, more predominant in the hard palate region, and is thus in agreement with Regezi & Sciubba¹¹, who also associated this lesion with the use of a removable dental prosthesis.

The prevalence of peripheral giant cell lesions was shown to be in agreement with the finding of other authors^{6,10}, while other researches showed slightly higher rates. Cavalcante et al.¹² found a frequency of 2.97% and Colombo et al.¹, 4.09%.

Among the lesions classified as being of glandular origin, mucocele showed a higher frequency in the lip and the mean age of the patients was 19.95 years. Similar results were found in the literature consulted^{6,10,13}.

In the group of neoplastic lesions, papilloma was the most prevalent, corroborating the studies of Almeida & Saiki⁴, Torreão et al.⁵ and Regezi & Sciubba¹¹. The majority of these lesions occurred in the female gender, in agreement with Rocha et al.¹⁴. However, Cavalcante et al.¹² described an equal frequency for both genders. In this study, the most common sites of occurrence were shown to be the tongue and gingiva, differing from the findings of Regezi & Sciubba¹¹ and Cavalcante et al.¹² who found the lip to be the most frequent site.

With respect to the malignant neoplasias, squamous cell carcinoma is pointed out as preferentially being located in the lip, with a mean age of the affected individuals being 39.04 years, and this was the most frequently diagnosed malignant lesion, as was mentioned by Almeida and Saiki⁴ and Araújo et al.⁹.

In the category of cysts, the results showed representative numbers as regards the periapical cyst, and other researches also pointed out this lesion as being outstanding^{2,9-10,15}. The fact that the majority were located in the maxilla may be explained by the maxillary bone tissue being more porous when compared with the mandible, and also because it has a large concentration of epithelial remainders¹⁶. The dentigerous cyst accounted for 6.90% of the sample, and when submitted to descriptive analysis, it was found that the mean age of those affected was 21 years, as was also described by Fernandez et al.¹⁷.

In the category of pigmented lesions, focal argyrosis (tattooing by amalgam), is a lesion that rarely presents inflammation. Its importance lies in its similarity to melanin producing lesions, leading to the need for

submission to biopsy¹¹. The presence of nevus, a pigmented lesion composed of nevus cells, is generally infrequent¹¹.

In the sixth category the potentially cancerous lesions are found, with emphasis on leukoplasia with dysplasia, which is the most frequent potentially cancerous lesion in the oral mucosa¹⁸, since there is no doubt that certain leukoplasia develop into squamous cell carcinoma¹¹. The majority of these lesions affected the male gender, the predominant site was the jugal mucosa, and the mean age was 52.9 years. Other studies have also related these characteristics^{1,18} and these lesions represented 1.46% of all the lesions. Araújo et al.⁹ and Aguiar et al.¹⁹ have observed similar facts.

Among the dermatological lesions, lichen planus was predominant in the female gender, and the mean age was 46.2 years. Similar results were obtained by Araújo et al.⁸ and De Souza & Rosa²⁰. There is a dilemma concerning the most exact classification of lichen planus as dermatological or as potentially cancerous lesions. Regezi & Sciubba¹¹ questioned the potentially cancerous nature of this lesion. Another outstanding lesion was paracoccidiodomycosis, a very common fungal infection in tropical countries and extensively present in Brazil⁷. In the chronic form, the oral mucosa is frequently affected¹¹. The number of cases of this lesion was similar to the number found by Fregnan¹⁷ e Kamei⁶.

With regard to bone pathologies, these represented 3.91% of all the lesions in the study, corresponding with the findings in the literature such as 1.52% by Almeida and Saiki⁴; 3.3% Kamei⁶, and 2.23% Regezi & Sciubba¹¹. The female gender was the one most frequently affected by this type of lesion (70.83%), which was also confirmed by Pinto et al.²¹. The most common lesions were ossifying fibroma, followed by fibrous dysplasia. Pinto et al.²¹ in a study comparing the two types of lesions showed that the mean age for cases of ossifying fibroma was 37.1 years, and for fibrous dysplasia it was 22.5 years. In the present value the mean ages obtained were 33.6 and 36.3 years, respectively.

CONCLUSION

With regard to the lesions diagnosed, there was greater prevalence in the female gender in comparison with the male, and irrespective of the nature of the lesion, lesion were more frequently found, particularly in the fourth decade of life. As regards location, there was prevalence of lesions on the alveolar ridge, followed by

the lip and jugal mucosa. The non neoplastic proliferate processes (47.10%), lesions of glandular origin (13.20%) and neoplasias (10.10%) were the categories of the most prevalent lesions. The most prevalent types of lesions in this study were as follows: Inflammatory fibrous hyperplasia; mucocele; periapical cyst, lichen planus and pyogenic granuloma.

Knowledge of the prevalence of lesions in certain regions contributed to designing a correct diagnostic hypothesis, thereby allowing the risks and benefits to the patient to be analyzed even before the biopsy was performed, making it possible to evaluate the patient from all aspects, both physiological and emotional, and resulting in a correct approach to treatment. Various studies of this nature have been conducted in different regions of

the country, and discussion is also necessary with respect to the data obtained in the Parana region, in which this study was conducted, in order to complete and provide crossing of the data obtained in other spheres, resulting in a broad epidemiological profile.

Collaborators

CR VITURI participated in conception of the study, data collection, data analysis and writing the article. DE PEPELASCOV, RSS TERADA and LF LOLLI participated in data analysis and writing the article, and NC KAMEI participated in conception of the study, data analysis and writing the article.

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