PREVALENCE OF ORAL MUCOSAL LESIONS IN CHILDREN

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Abstract

Due to the high number of lesions which can be found in children's oral mouths, it becomes really important to make a correct diagnosis in order to plan the right research and treatment. Appropriate diagnosis and management of these lesions in children require the knowledge of pediatric dentists of the frequency of such lesions and to distinguish which of them is caused, or associated, with a systemic disease. The aim of the study is to determine the prevalence of oral mucosal lesions in children. This is a retrospective study. All the data were taken from the patient archives of the dental institute. Children were in the age group of 5-17 years. A total of 1910 children were included in the study. All the necessary information was collected and entered in Microsoft Excel spreadsheet and subsequently transferred to SPSS version 23.0 for statistical analysis. Chi square tests were employed to find the association between different variables and $p < 5\%$ was considered statistically significant. The prevalence of oral mucosal lesions in children was found to be 5.44%. Males and females had an equal distribution of oral mucosal lesions of 0.37%. The 13 - 17 years age group had more mucosal lesions (2.53%). Among the gender and age groups different types of lesions were studied and it was found that aphthous ulcers are the highest which is 0.73% among gender and 0.45% among age groups. The dental professionals can educate the parents of the children about some common oral mucosal lesions so as to aid in the timely identification and treatment of the mucosal lesions.

Keywords: Mucosal lesion, children, aphthous ulcer, prevalence, novel study

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1. Introduction

The concept of child oral health has recently been broadened to include oral mucosal lesions and conditions in addition to dental caries, periodontal diseases, and malocclusion. Subsequently, the responsibility of the oral health‑care providers in the total health care of oral and perioral regions has been widely emphasized. The majority of epidemiological studies on oral mucosal lesions were conducted on adult populations.(1)
Only a few studies were designed to investigate the prevalence of oral mucosal lesions among children, despite that due to continuous emotional and biological changes in children, various types of alterations and lesions in the orofacial region can take place. (2)
The lesions in oral mucosa in children can present as ulcers, vesicles, macules, changes in color, texture, size, consistency and configuration of the oral anatomy. In kashmir, there are hardly any studies about oral mucosal lesions, neither in adult or pediatric populations. On the other hand, it is important to organize and standardize the criteria of examination for the various medical procedures in oral mucosa. Several studies in different geographic locations have reported prevalence in oral mucosal lesions. In a study conducted in Argentina by Muniz et al., in 1981, for a total sample of 75 healthy pediatric male patients, ages 6 to 13, 46 patients presented oral mucosal lesions, with a prevalence of 61.3 %. The most common lesions were angular cheilitis (14.7 %), followed by herpes labialis (10.7 %), impetigo (9.3 %), geographic tongue, recurrent aphthous ulcer, and verruca vulgaris (2.7 %) (Muñiz et al., 1981)
Childhood oral mucosal lesions (COML) are one of the rare topics that pediatricians, dentists, and dermatologists are interested in. Considering the high number of lesions which can be found in children's oral mouths, it becomes really important to make a correct diagnosis in order to plan the right research and treatment. An inadequate conduct during child oral examination and an inability to do a differential diagnosis between COML, can bring to overlook important diseases or to adopt unnecessary treatment plans. So far studies for the incidence and classification of COML have been rare and, above all, they didn't have a certain standard, with regard to age grouping and methods. According to the World Health Organization recommendations, the epidemiologic literature about children and adolescents in this field is quite limited.(3)Moreover, the signs and symptoms of oral mucosal disorders in childhood can change with aging and are often different from common adult oral pathologies. These differences should be recognized by clinicians, and are aided by

epidemio(3)logic studies that document the frequency of oral lesions in children.
Oral mucosal lesions located in the soft tissues of the oral cavity are a broad group of alterations, recognizable by their etiology, clinical characteristics, prognosis, and dissimilar treatments. The fundamental way to obtain a diagnosis of oral conditions and lesions is the clinical examination, which is why it must be correct, thorough, and systematic. The proper examination of oral soft tissues in pediatric patients involves knowledge of normal size, shape, color, and texture of the structures that comprises it. The correct exploration of the oral mucosa can provide important tools in diagnosing developmental, neoplastic, infectious, or inflammatory alterations(4)
The four main lesions found are canker sores, traumatic lesions, herpes, and lingual lesions(5). In addition, certain systemic pathologies (inflammatory diseases of the colon and intestines, IBD, hemopathies, and diabetes) may also have oral manifestations (6) (7). The presence of intraoral material during orthodontic treatment is associated with a greater risk of traumatic or reactive lesions ((8))(9) These are either treatment-induced or of allergic origin. The diagnosis of oral mucosal pathologies is based on a rigorous approach including a thorough anamnesis, clinical examination with the search for elementary lesions, and additional examinations. Through regular check-up appointments during orthodontic treatment, the practitioner is able to detect the appearance of lesions, to monitor their evolution, and to manage them if necessary
Appropriate diagnosis and management of these lesions in children require the knowledge of pediatric dentist of the frequency of such lesions and to distinguish which of them is caused, or associated, with a systemic disease.(10) In addition, baseline data on the oral mucosal lesions in children are important for health-care planning and education. Our team has extensive knowledge and research experience that has translate into high quality publications(11),(12),(13),(14),(15),(16),(17),(18),(19–24),(25–29), Hence, this study was designed to determine the prevalence of oral mucosal lesions among children.

2. Materials and methods

Study design
This is a retrospective study conducted in a private dental institution. The patient case records were reviewed for the necessary information by a trained examiner. In the present study the case records used were intraoral pictures of paediatric patients. Among patients who have visited the dental clinic

of the institution, the records of 1910 patients were inspected for the presence of oral mucosal lesions. The institutional ethical committee provided approval for the study.

Inclusion criteria
1. Children from 5 years to 17 years of age
2. Children with oral mucosal lesions

Exclusion criteria
1. Children less than 5 years of age
2. Children with more than one oral mucosal lesion

Sampling
A total of 1910 paediatric patients who visited the dental institution were inspected for oral mucosal lesions. Convenient sampling method was used to select the patient for the study. The data was obtained from the archives of the pedodontics department and were cross verified with patient case records.

Data collection
All the data after thorough checking for duplicates, incomplete entries and cross verification with patient case records were entered in Microsoft excel spreadsheet in order to organise the data. The variables obtained from the data included age, gender, oral mucosal lesions, types of oral mucosal lesions. Here the age and gender were the independent variables and the oral mucosal lesions were the dependent variable.

Statistics
The statistical analysis of the obtained data was performed by the SPSS software version 23.0. The data from the excel spreadsheet was transferred to SPSS software for analysis. Chi square tests were employed in order to find the association between different variables and p value $< 5\%$ was considered to be statistically significant. The final results are presented in the form of graphs for further interpretation and discussion.

3. Results and discussion

Among the 1910 patients 104 paediatric patients had oral mucosal lesions. The prevalence of the oral mucosal lesions was found to be 5.44%. The value could be a result of the sample size taken and sampling technique used to determine the same. A larger sample size probably would have yielded a different result. According to Flaitz et al.,(30) Oral candidiasis was more likely to occur in children with systemic diseases, owing to local and systemic predisposing factors (immunodeficiencies, diabetes, en- docrine disturbances, antibiotic therapies, corticoste- roids therapies, malignancy, xerostomia, and poor oral hygiene.

The distribution of the oral mucosal lesions in males and females were studied [figure 1] and it was found that males and females had an equal distribution of the mucosal lesion which were found to be 0.37%. There is a statistically significant association ($p < 0.027$) between the oral mucosal lesions and the gender of the patients. There was no significant relation between gender and gingival lesion. According to several studies (31), Nerves and end organs in the oral mucosa may also be affected by age. The effects include a progressive loss of sensitivity to thermal, chemical and mechanical stimuli, and these reactions of the oral mucosa to a prosthesis also change with increasing age.

The distribution of the oral mucosal among different age groups was studied [figure 2]. The age group 13 – 17 years were found to have more oral mucosal lesions (2.53%) which was followed by 5 – 8 years (1.56%) and finally by the 9 – 12 age group (0.06%). The association between age groups and presence of oral mucosal lesions were found to be statistically significant ($p < 0.05$).
As per recent scientific studies (32), affluent children had significantly higher prevalence of recurrent aphthous stomatitis (RAS) and geographic tongue, and lower prevalence of angular cheilitis and recurrent herpes labialis (RHL) than did poor children.

There were different types of oral mucosal lesions encountered in the children and their distribution among the different genders were studied [figure 3]. In females 41.15% had no lesion and 0.05% had aphthous ulcer, 0.16% had Candidiasis, 0.26% had fibroma and 0.10% had mucocele. In Male patients 55.03% had no lesions whereas 0.73 % had aphthous ulcer, 0.05% had candidiasis and mucocele and 0.26% had gingival abscess. The Chi square analysis was done and the association was found to be statistically significant ($p < 0.05$).

Among females, fibroma/irritational fibroma was found to be the dominant oral mucosal lesion whereas in males, aphthous ulcers were the dominant lesion. Recurrent aphthous ulcer is the most common oral ulcerative disease, affecting 10%-20% of the population.
In the study by Regezi et al, (33) RAS was most prevalent in children affected by immunodeficiency, nutritional deficiencies,malabsorption, and celiac disease. This is consistent with the premise that epithelial homeostasis, good nutrient status, and proper immune surveillance contribute to the prevention of RAS.

The distribution of different types of oral mucosal lesions among age groups were studied [figure 4]. Among the age group 13 – 17 years, 51.69% had no lesions, 0.06% had mucocele. Among the age group 9 – 12 years, 6.49% had no lesions whereas 0.13% had gingival abscess. Among the age group 5 – 8 years, 0.45% were diagnosed with aphthous ulcer and 0.26% with candidiasis. The Chi square analysis was done and the association was found to be statistically significant (p<0.05). Crivelli et al. (34)compared the prevalence of oral mucosal lesions in 846 children between 4 and 13 years of age attending a suburban private school to estimates for children of the same age attending a public school in an indigent area. They found that, while there was no difference in overall lesion prevalence.

4. Conclusion

Though the prevalence of the oral mucosal lesions in the present study was found to be minimal the dental professional must take measures and spread awareness about some common mucosal lesions such as aphthous ulcers, candidiasis etc. to the parents of the children in order to prevent and also to aid in timely identification of the lesion such that it can be treated as early as possible thereby having a good prognosis.

Author contribution
Data collection: Debarun David
Data analysis: Debarun David
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Critical revision of the article: Vivek Narayan
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Conflict of interest
No potential conflict of interest relevant to this article was reported

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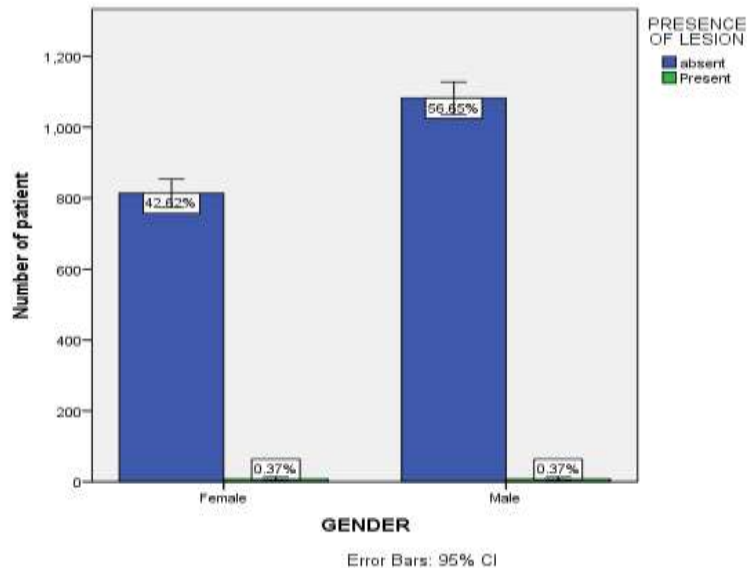

Figure 1 - represents mucosal lesion gender   N=1910 female absent lesion 42.62% and present lesion 0.37% and Male 56.65% absent lesion and present 0.37% .The Chi square analysis was done and the association was found to be statistically significant, p-value being 0.027 (p<0.05).
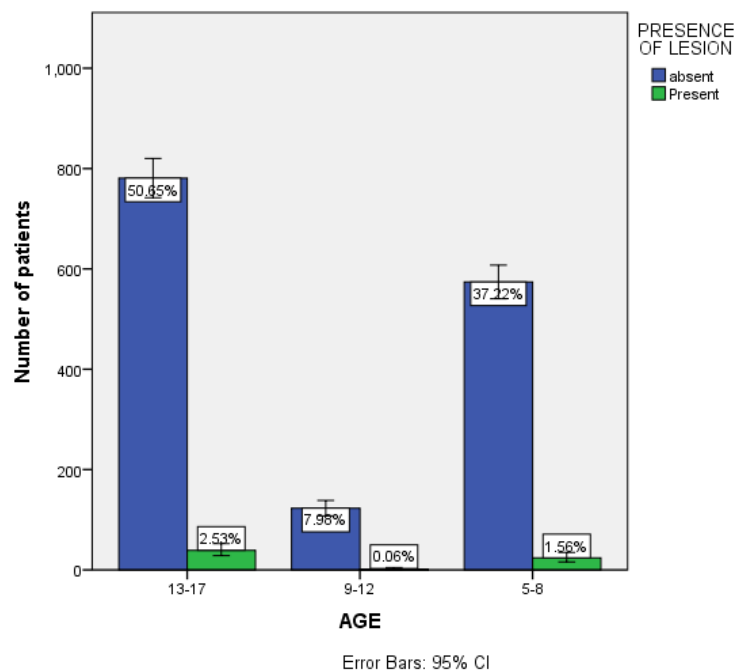

Figure 2 - represent age - oral mucosal l lesion - 5-8 yrs of absent lesion 37.22% present 1.58%, 9-12yrs absent lesion 7.98%, 13-17yrs absent 50.65% and present lesion 2.53%. The Chi square analysis was done and the association was found to be statistically significant, p-value being 0.027 (p<0.05).
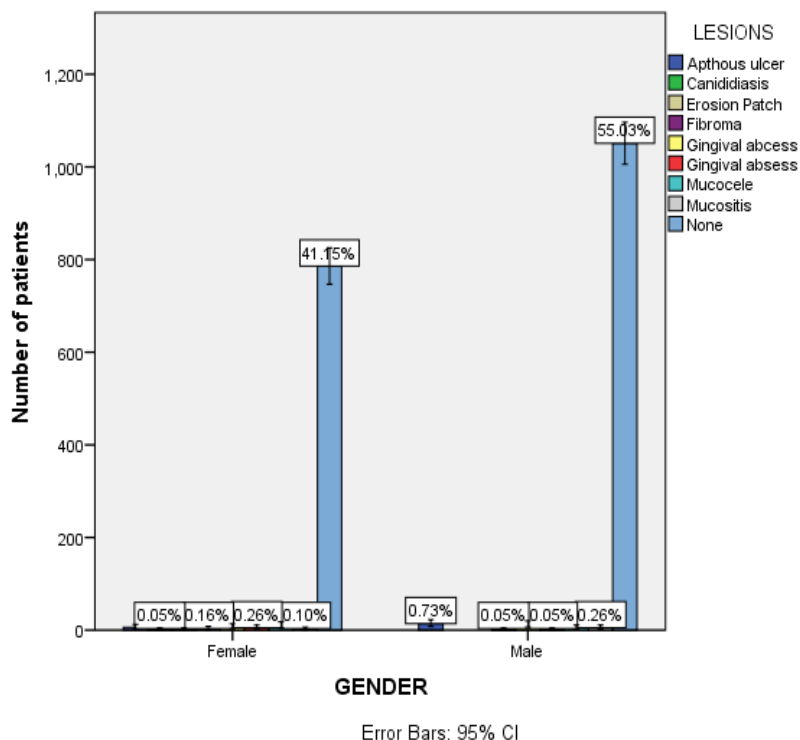
Figure 3 -Bar graph represents association between Gender and Lesion. In females 41.15% had no lesion diagnosed. 0.05% had Apthous ulcer 0.16% had Candidiasis, 0.26% had fibroma and 0.10% had mucocele . In Male patients 55.03% had no diagnosed lesions whereas 0.73 % had aphthous ulcer, 0.05% had candidiasis and mucocele and 0.26% had gingival abscess. The Chi square analysis was done and the association was found to be statistically significant, p-value being 0.027 (p<0.05).
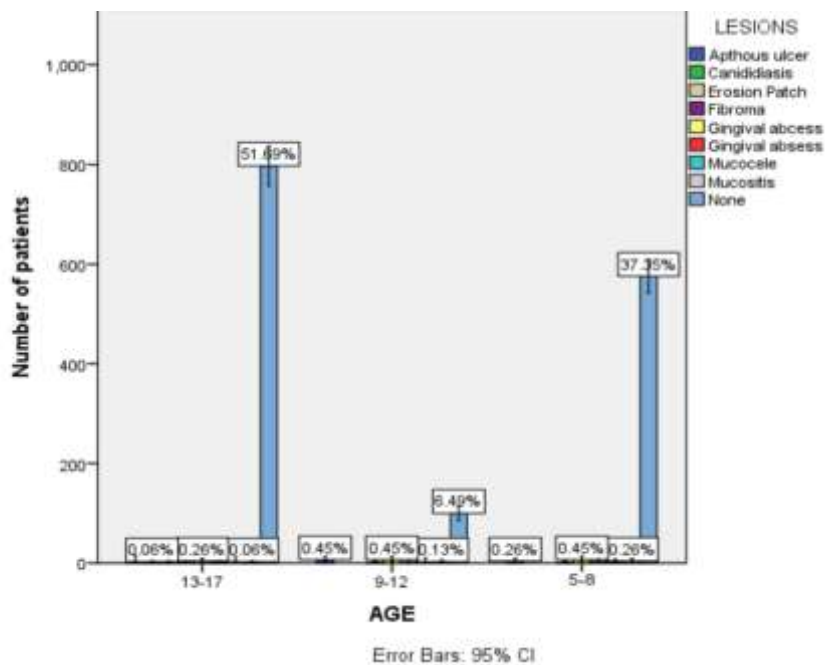

Figure 4 -Bar graph represents various age groups associated with the diagnosed lesions among patients. Among the age group 13-17, 51.69% had no diagnosed lesions, 0.06% were diagnosed with amucocele. Among the age group 9-12, 6.49% had no diagnosed lesions whereas the least 0.13% were diagnosed with gingival abscess. Among the age group 6-10, 0.45% were diagnosed with aphthous ulcer and 0.26% with candidiasis. The Chi square analysis was done and the association was found to be statistically significant, p-value being 0.027 (p<0.05).