

Oral Mucosal Diseases in Primary School Students

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ABSTRACT

Backgrounds This research is a population-based descriptive observational study which aims to determine the profile of oral soft tissue disorders in elementary school students. It is hoped that the data obtained can help map and improve community dental and oral health services.

Method The population in this study was elementary school all students Candijati 01, Arjasa, Jember. The subject sampling technique used in this research was purposive sampling.

Results A total of 155 research subjects consisting of 77 male subjects and 78 were found to have oral soft tissue abnormalities, the majority of which were normal variations in the form of *coated tongue* (61.07%), oral melanotic macules (9.4%), *Recurrent Aphthous Stomatitis (RAS)* (7.83%), traumatic ulcer (6.71%), cheilitis (4.03%), geographic tongue (4.03%), fissured tongue (2.68%), atrophic glossitis (2.68%), mucocele (1.34%), and angular cheilitis (0.67%).

Conclusion The most frequently occurring soft tissue abnormalities in the oral cavity are normal variations *coated tongue*, furthermore oral melanotic macules, and *Recurrent Aphthous Stomatitis (RAS)*.

KEYWORDS: Oral Soft Tissue Diseases, Elementary School Children

ARTICLE DETAILS

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1. INTRODUCTION

Oral soft tissue diseases are often found in children, some of these diseases are manifestations of systemic diseases. Soft tissue diseases of the oral cavity in children can also affect the chewing, swallowing, speaking system, causing discomfort or pain, thus interfering with daily activities (Ahmed et al., 2021). Children are a valuable asset for future generations so factors that can influence children's growth and development need to be considered, including the health of children's teeth and mouth (Evanirwana, 2021). Elementary school children are the group most vulnerable to dental and oral problems. Dental and oral health has an important role in determining the health status of children and influences the health status of elementary school age children (Haryani et al., 2021).

The percentage of dental and oral health services for elementary school children and the equivalent in Jember Regency is 0.3% and is in 23rd place out of 38 districts and cities in East Java (East Java Provincial Health Service, 2021). This figure is low enough that efforts need to be made to increase it. Arjasa District is one of the regions in Jember Regency. This area is included in the agro-industrial area so that most of the people in the area work in the agricultural

industrial sector (Jember Regency Central Statistics Agency, 2021).

Data collection on abnormalities in a population can help explain a health problem and provide a description of the distribution, extent and magnitude of the health problem (Nangi et al., 2019). Data regarding oral soft tissue abnormalities in Candijati 01 Jember elementary school children can help in mapping dental and oral health problems in Jember Regency so that promotive, preventive, curative and rehabilitative health efforts can be implemented optimally.

METHOD

This research is a descriptive observational study which aims to determine the phenomenon of dental and oral health in society, especially in elementary school age children. The population in this study were all students Candijati 01 elementary school, Arjasa District, Jember Regency, totaling 168 students. The sampling technique is purposive sampling. The variables in this study were the types of soft tissue abnormalities in the oral cavity. Data was collected by taking anamnesis, intra and extra examination. Data analysis was

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carried out in a descriptive manner, data was obtained in the form of percentage of oral soft tissue disease, distribution of disease based on age, gender, location of disease in the oral soft tissue. The data was processed using the Microsoft Excel application and presented in the form of a bar chart and pie chart.

RESULTS

The research subjects were 155 students consisting of 78 male students and 77 female students, with 75 people aged 6-9 years and 80 people aged 10-12 years. The results of examination of the condition of the oral soft tissue of 155 research subjects showed that 115 people (79.49%) had oral soft tissue disease, while 40 people (25.81%) were in normal condition (table 1). There are 10 types of oral soft tissue diagnosis with a total of 149 cases found, normal variations in the form of *coated tongue*, oral melanotic macules, Recurrent Aphthous Stomatitis (RAS), traumatic ulcer, cheilitis, geographic tongue, fissured tongue, atrophic glossitis, mucocele and angular cheilitis with percentages as in table 2.

Table 1. Percentage of Soft Tissue Diseases of the Oral Cavity

	Abnormalities		Normal		Total
	N	%	n	%	
Gender:					
Man	62	79.49	16	20.51	78
Woman	53	68.83	24	31.17	77
Total	115	74.19	40	25.81	155
Age Group:					
6-9 years	47	62.67	28	37.33	75
10-12 years	68	85.00	12	15.00	80
Total	115	74.19	40	25.81	155

Table 2. Percentage of Types of Soft Tissue Diseases of the Oral Cavity

Oral Soft Tissue Disorders	Total n	%
<i>Coated Tongue</i>	91	61.07%
Oral Melanotic Macule	14	9.40%
<i>Recurrent Aphthous Stomatitis (RAS)</i>	11	7.38%
<i>Traumatic Ulcer</i>	10	6.71%
<i>Cheilitis</i>	6	4.03%
<i>Geographic Tongue</i>	6	4.03%
<i>Fissured Tongue</i>	4	2.68%
<i>Atrophic Glossitis</i>	4	2.68%
<i>Angular Cheilitis</i>	1	0.67%
Mucocele	2	1.34%
Total	149	100%

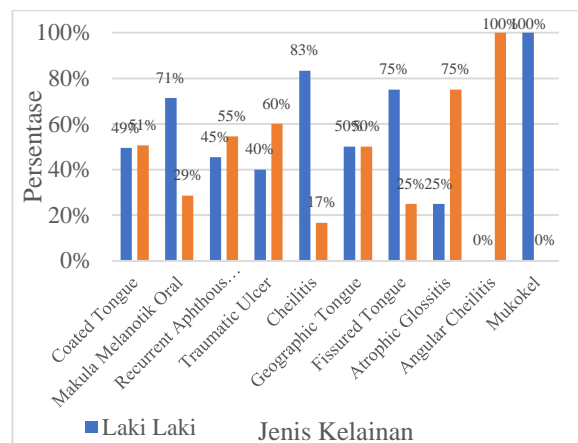


Figure 1. Graph Distribution of Types of Soft Tissue Diseases of the Oral Cavity Based on Gender

Coated tongue more often experienced by female subjects; Oral melanotic macules more often experienced by male subjects; *Recurrent Aphthous Stomatitis (RAS)* more often experienced by female subjects; *traumatic ulcers* more often experienced by female subjects; *exfoliative cheilitis* more often experienced by male subjects; *geographic tongue* the number of male and female subjects is the same; *tongue fissures* more often experienced by male subjects; *atrophic glossitis* more often experienced by female subjects; *angular cheilitis* only experienced by female subjects; mucocele only experienced by male subjects.

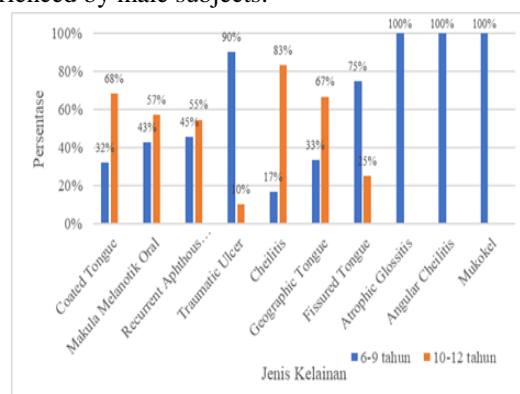


Figure 2. Graph Distribution of Types of Soft Tissue Diseases of the Oral Cavity Based on Age Groups

The results of research on types of oral soft tissue disorder and age groups among students at elementary school Candijati 01, normal variations in the form of *coated tongue* occurs more frequently in the 10-12 year age group; Oral melanotic macules occurs more often in the 10-12 year age group; *Recurrent Aphthous Stomatitis (RAS)* occurs more often in the 10-12 year age group; *traumatic ulcers* occurs more frequently in the 6-9 year age group; *exfoliative cheilitis* occurs more often in the 10-12 year age group; *geographic tongue* more common in the 10-12 age group; *tongue fissures* occurs more often in the 6-9 year age group; *atrophic glossitis* only appears on age group 6-9 years; *angular cheilitis* only appears on age group 6-9 years; mucocele only appears on age group 6-9 years.

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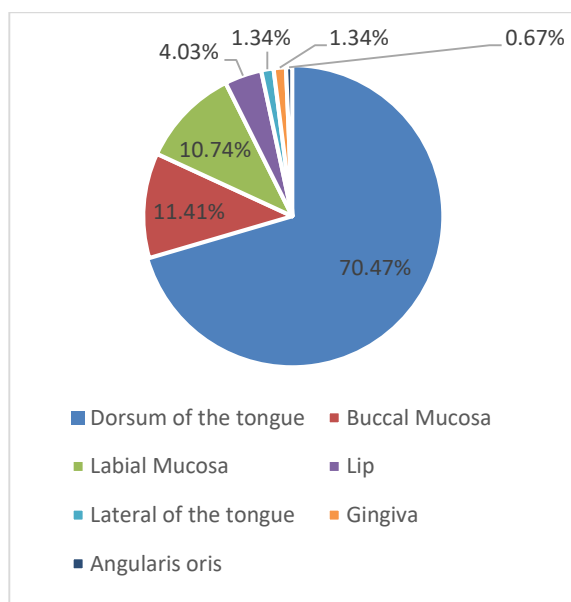


Figure 3. Graph Percentage of Locations of Oral Cavity Soft Tissue Abnormalities

Normal variations in the form of *coated tongue* have the highest proportion of 70.47%. Soft tissue disorders of the oral cavity located on the dorsum of the tongue include: *coated tongue*, *geographic tongue*, *fissured tongue* and *atrophic glossitis*. The location with the lowest proportion is at the corners of the lips at 0.67% with the type of disorder being angular cheilitis.

DISCUSSION

Research results regarding the incidence of oral soft tissue disorders vary from around 4.1% to 69.5%. Research on oral soft tissue disorders often shows varying results (Toum et al., 2018). In table 1, the results of examining the condition of the soft tissue of the oral cavity from 155 research subjects showed that 115 people had soft tissue abnormalities in the oral cavity with a percentage of 74.19%, while in the study conducted by Wahyuni et al. (2021) The percentage of oral soft tissue abnormalities in elementary school students was 88.5% of the total research subjects. Differences in results from various studies can be caused by differences in population size, age group, place, time period and research methodology, in addition to other factors such as socio-economics, environment and different habits can also influence research results. (Toum et al., 2018)

On Table 2 can be seen from the results of the examination of 78 male subjects, it was found that 62 people (79.49%) subjects experienced soft tissue abnormalities of the oral cavity, while in female subjects with a total of 77 people there were 53 people (68.83%) have soft tissue abnormalities of the oral cavity. Percentage of oral soft tissue disorders in group 10-12 years old is greater than group aged 6-9 years, namely 85.00%, meanwhile group age 6-9 years was 62.67%. The high percentage of oral soft tissue abnormalities in men can be caused by men tending to have a lower level of oral health. This is possibly because men are more neglectful in

caring for and paying attention to their oral health (Lipsky et al., 2021), this is also in line with the research conducted Mattila et al. (2016) that the level of concern for oral health and hygiene as well as attitudes towards maintaining oral health in boys is lower than in girls.

The most frequently occurring type of oral soft tissue disorder was coated tongue (61.07%) followed by oral melanotic macules (9.03%) and Recurrent Aphthous Stomatitis (RAS) (7.10%). Research on types soft tissue disorders of the oral cavity in children show varying results. In the research that has been carried out Wahyuni et al. (2021) about soft tissue disorders of the oral cavity most often appearing in elementary school students showing macular results oral melanotic the most frequently occurring disorder followed by coated tongue and *recurrent aphthous stomatitis*, while in the research conducted Yao et al. (2022) shows prevalence the most frequently occurring oral soft tissue disorders in children were oral ulceration (18.3%), Linea alba (16.7%) and pigmentation lesions (13.3%). Based on the literature, differences in research results can occur due to differences in research populations, differences in the age groups of research subjects and differences in the accuracy of examinations in research. Different sociodemographic factors in each study can also influence differences in research results (Toum et al., 2018).

Coated tongue is the most common type of oral soft tissue disorder that appears in this study with a percentage of 61.07% or 91 cases. In this study, 46 cases (50.55%) were found in women and 45 cases (49.45%) in men. In the 6–9-year age group there were 29 cases (31.87%) and in the 10–12-year age group there were 62 cases (68.13%). Coated tongue is a normal variation in the soft tissue of the oral cavity that affects the tongue, especially the dorsum of the tongue. Closely related to oral hygiene and consumption patterns, such as high consumption of soft diets and carbohydrates and low consumption of fiber (Ragunathan et al., 2020). The occurrence of coated tongue is often associated with oral hygiene, including the habit of keeping the tongue clean. Cleaning the tongue which is often missed when brushing teeth and difficulty cleaning the posterior part of the tongue due to the gagging reflex can influence the appearance of coated tongue. (Van Gils et al., 2020).

In this study, oral melanotic macules were this type of oral soft tissue disorder appears second most frequently after coated tongue with a percentage of 9.01% with a total of 14 cases. Macula Oral melanosis appeared in 10 cases (71.42%) in the male gender, 4 cases (28.57%) in women, 6 cases (42.86%) in the 6–9-year age group and 8 cases (57.14%) in the age group 10-12 years. In this study, the macula oral melanotic is most commonly found in the buccal mucosa. Oral melanotic macules are the melanocytic lesions that most often appear in the oral cavity. The etiology of this disorder is not yet known with certainty (Langlais et al., 2017). This disorder occurs due to an increase in melanin pigment in the basal cell layer and lamina propria of the oral

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cavity epithelium (Greenberg et al., 2022).

Recurrent Aphthous Stomatitis (RAS) is the third most frequently occurring soft tissue disorder in this study with a percentage of 7.10% or 11 cases. The results of this research obtained RAS appeared on male gender as many as 5 cases (45.45%), female gender as many as 6 cases (54.55%), age group 6-9 years as many as 5 cases (45.45%) and age group 10-12 years as many as 6 cases (54.55%). RAS generally appears in non-keratinized mucosal areas such as the buccal mucosa, labial mucosa and floor of the mouth. In this study, it was found that RAS most often occurred in the labial mucosa in 7 cases and in the buccal mucosa in 4 cases. The etiology of RAS is idiopathic, but the emergence of RAS can be associated with several factors such as genetics, trauma, stress and nutritional deficiencies. Genetic factors Nutrient deficiencies such as iron, folic acid, vitamin A and vitamin B12 also play a role in the occurrence of RAS. Research explains that there is a significant relationship between vitamin A deficiency in children and the occurrence of RAS. Vitamin A plays a role in the maturation, keratinization and hydration processes of mucous membranes. Nutritional deficiencies including vitamin A deficiency can trigger their appearance. oral soft tissue disorders such as RAS.

Soft tissue disorders of the oral cavity most often occur on the dorsum of the tongue, namely 70.47%. The number of soft tissue abnormalities in the oral cavity that occur on the dorsum of the tongue is influenced by the high number of cases of coated tongue in research subjects. In this study, geographic tongue, fissured tongue and atrophic glossitis were also soft tissue disorders of the oral cavity that appeared on the dorsum of the tongue. The appearance of soft tissue abnormalities in the oral cavity on the dorsum of the tongue can be influenced by the subject's lack of ability to maintain cleanliness of the oral cavity, especially the tongue. The level of knowledge about dental and oral hygiene among elementary school children is generally still low. A child's ability to maintain oral hygiene can be influenced by many factors such as level of knowledge, environment and socio-economic status (Adam and Ratuela, 2022).

CONCLUSION

The soft tissue disorders of the oral cavity that appear in the highest numbers are the normal variation of coated tongue, oral melanotic macules, *Recurrent Aphthous Stomatitis (RAS)*, *traumatic ulcer*, *cheilitis*, *geographic tongue*, *fissured tongue*, *atrophic glossitis*, mucocele and angular cheilitis. Most commonly found locations soft tissue abnormalities of the oral cavity located on the dorsum of the tongue.

REFERENCES

- I. Adam, J. d'Arc Z. and JE Ratuela. 2022. Level of knowledge about dental and oral hygiene in elementary school students. *Indonesian Journal of Public Health and Community Medicine*. 3(1):6.
- II. Ahmed, HS, ZA Maktoof, and RS Hashim. 2021. Oral mucosal lesions in children: a review. *Journal of Microbiology and Biotechnology*. 1(2):20–26.
- III. Jember Regency Central Statistics Agency. 2021. Arjasa subdistrict in figures: Arjasa subdistrict in figures 2021
- IV. East Java Provincial Health Service. 2021. Health profile of East Java province in 2021
- V. Evanirwana. 2021. Health education, nutrition and clean and healthy living behavior for children during the Covid-19 pandemic in Belawan Selamat. *Journal Ability: Journal of Education and Social Analysis*. 2(4)
- VI. Greenberg, MS, M. Glick, and JA Ship. 2022. *Burket's Oral Medicine*. 13th Edition Editi.
- VII. Haryani, W., IHY Siregar, and E. Yuniarly. 2021. Relationship between dengue caries risk factor and quality of life in elementary school children. *Journal of Dental Health*. 8(2)
- VIII. Langlais, RP, CS Miller, and JS Nield-Gehrig. 2017. *Color atlas of common oral diseases. Color Atlas of Common Oral Diseases*. 5th Editio:34, 44, 68, 94, 154, 234.
- IX. Lipsky, MS, S. Su, CJ Crespo, and M. Hung. 2021. Men and oral health : a review of sex and gender differences. *American Journal of Men's Health*. 1–8.
- X. Mattila, M., M. Tolvanen, J. Kivelä, K. Pienihäkkinen, S. Lahti, M. Merne-grafström, and M. Merne-grafstro. 2016. Oral health-related knowledge, attitudes and habits in relation to perceived oral symptoms among 12-year-old school children. *Acta Odontologica Scandinavica ISSN: 6357(July):343–347*.
- XI. Nangi, MG, F. Yanti, and LS Arie. 2019. *Basics of Epidemiology*. Yogyakarta: Deepublish.
- XII. Rangunathan, M., E. Herawati, and L. Epsilawati. 2020. Clinical features and predisposing factors of coated tongue in clinical dental students. 3(December 2019):17–20.
- XIII. Toum, S. El, A. Cassia, N. Bouchi, and I. Kassab. 2018. Prevalence and distribution of oral mucosal lesions by sex and age categories : a retrospective study of patients attending the Lebanese school of dentistry. 2018:5–7.
- XIV. Van Gils, LM, DE Slot, E. Van der Sluijs, NL Hennequin-Hoenderdos, and F. Van der Weijden. 2020. Tongue coating in relationship to gender, plaque, gingivitis and tongue cleaning behavior in systemically healthy young adults. *International Journal of Dental Hygiene*. 18(1):62–72.
- XV. Wahyuni, IS, FM Putri, F. Fatriadi, W. Hidayat, and N. Nur'aeny. 2021. The most common and predicted diagnosis or conditions of oral mucosal lesions among elementary school children. *Padjadjaran Journal of Dentistry*. 33(2):94–101.

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XVI. Yao, H., Q. Song, Q. Zhang, G. Tang, and M. Liu. 2022. Prevalence of oral mucosal lesions in children in Xiangyun of Yunnan, China: a cross-sectional

study. *Italian Journal of Pediatrics*. 48:15:1–7.