

ORIGINAL ARTICLE

Lesion Characteristics of Recurrent Aphthous Stomatitis in Oral Medicine Patients: An Analysis of Medical Records and Demographic Data

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ABSTRACT

Background: Recurrent aphthous stomatitis (RAS) is an ulcerative condition that is common in the oral mucosa, especially in young females. **Objectives:** This study aims to analyse lesion profiles of RAS and identify predisposing factors that contribute to its occurrence. **Methods:** This descriptive study was conducted from a secondary data search from a Dental Teaching Hospital. The sample was collected from the medical records of outpatients with a diagnosis of RAS at YARSI Dental Hospital (RSGM) between 2016 and 2020. **Results:** Data were collected from 102 patients, showing the highest prevalence in the 20-29 year age group (64.7%), with a female majority (76.5%). The most common RAS lesions were found on the labial (35.9%) and buccal (31.3%) mucosal areas, with the ulcer lesion types (87.9%) being predominant. Lesion healing duration mostly ranged from 7-14 days (94%), while the main triggering factors identified were mechanical trauma (41.9%) and stress (21%). **Conclusion:** This study showed that RAS is more common in young females with triggering factors such as mechanical trauma and stress. This condition requires a multifaceted approach to develop a treatment plan that reduces the frequency of recurrence.

Key words: *Reccurent aphthous stomatitis, Oral Lesion, Inflammation, Mechanical trauma*

INTRODUCTION

Recurrent aphthous stomatitis (RAS) is a common oral condition characterized by recurrent ulcerations, painful and have a significant impact on quality of life, also affecting 10-20% of the population.¹ RAS typically presents in three forms: minor, major and herpetiform. The condition can interfere in eating, speaking and swallowing, thus requires appropriate treatment.^{2,3} Although the exact cause of RAS is not fully understood, factors such as stress, immune system disorders, nutritional deficiencies (e.g. lack of vitamin B12, folic acid and iron) and genetics are suspected to contribute to this condition.^{4,5} In addition, it is possible that systemic diseases such as Celiac and Crohn's disease may also play a role in the onset of recurrent aphthous stomatitis.^{6,7}

Research on recurrent aphthous stomatitis is important because apart from being an oral health problem, it can also be an indicator of more serious systemic disorders such as Bechet syndrome, anemia etc. The lesion profile of RAS, including the frequency of occurrence, size, location and duration of the lesions, can provide important information on the patterns and its characteristics. Although RAS is quite common, there are limitations in understanding the prevalence and factors that influence its occurrence in the oral disease patient population. Understanding the lesion profile of RAS will allow us to improve treatment for patients as well as identify possible associations between recurrent aphthous stomatitis and other medical conditions.^{6,7}

This study aims to investigate the lesion profile of RAS by identifying lesion characteristics, frequency of occurrence, and factors influencing the occurrence of these lesions. Results of this study will contribute to a better understanding of RAS and aid in developing more effective treatment strategies for patients.

METHODS

The type of research conducted was descriptive research. The data was taken from the medical records of all patients visiting integration clinic of RSGM YARSI, Jakarta, Indonesia, diagnosed with RAS during 2016-2020. The data obtained was age, gender and occupation. Data related to this diagnosis includes: type, location, number, duration, progressivity of the lesion and management given. All the medical records included were complete medical records in accordance with the data to be studied and data used were the last data of patients undergoing treatment.

RESULTS

Data were collected from complete medical records regarding the lesion profile and RAS management. The total number of medical record of patients with RAS was 102. Univariate analysis was performed to determine the frequency distribution of the study variables. Demographic data recorded in this study includes gender, age, occupation. The number of male patients is fewer than female (76.5%), with the highest number at the age of 20-29 years old (64.5%), and the majority of the patients were students (70.6%), as shown in Table 1.

Tabel 1. Demographic Data.

Variable		Frequency	%
Gender	Men	24	23,5
	Female	78	76,5
Age	7 - 19 years old	10	9,8
	20 -29 years old	66	64,7
	30- 39 years old	10	9,8
	40-49 years old	4	3,9
	50 -59 years old	6	5,9
	60- 69 years old	6	5,9
Occupations	Student	72	70,6
	Housewives	13	12,7
	Employees	13	12,7
	Public servant	1	1
	Retired	3	2,9

Table 2 illustrates that the highest number of RAS patients was in 2019 (38.2%) based on the year of visit.

Table 2. Distribution based on year of visit.

Years	Patient diagnosed with RAS n(%)
2016	6(5,9)
2017	21(20,6)
2018	30(29,4)
2019	39(38,2)
2020	6(5,9)
Total	102(100%)

The analysis of RAS lesion profile showed the number of lesions, lesion progressivity, healing duration, and recurrence frequency within a year. Table 3 shows the RAS lesion profile, the number of lesions found, mostly 'one' lesion (63.6%) and rarely 'three' lesions (13.7%). Lesion progressivity were consisted of macula, erosive lesion and ulcer. The most common lesion was ulcer (87.9%), and the least was macula (1.5%). The duration of healing of most lesions was 7-14 days (94%) and there was no lesion healing duration of more than 14 days. The frequency of RAS recurrence was mostly 3x a year (54.5%) and least 4x a year (18.2%).

Table 3. Profile of RAS lesion.

Lesion Profile		n(%)
Number of lesions	One lesion	61(59,8)
	Two lesion	21(20,6)
	Three lesion	20(19,6)
Lesion progressivity	Ulcer	90(87,9)
	Erosive	10(10,6)
	Macula	2(1,5)
Healing duration	<7 days	6(6)
	7-14 days	96(94)
	>14 days	0(0)
Recurrence frequency	3 times a year	55(54,5)
	4 times a year	19(18,2)
	>4 times a year	28(27,3)

Based on medical records, there were several locations of RAS lesions found in the oral cavity. The lesions can be found in more than one location, which was related to the number of lesions found. The results of the analysis of RAS lesion locations were found in 132 locations. Locations include the floor of the mouth, gingival mucosa, lateral tongue, ventral tongue, buccal mucosa, labial mucosa, mucobuccal fold and oropharyngeal mucosa. The most common location of RAS lesions was labial mucosa (35.9%) and only one lesion was found on the oropharyngeal mucosa (0.5%). The analysis results are shown in Table 4.

Table 4. Univariate analysis of RAS lesion location.

Category		n(%)
Lokasi lesi	Floor of the mouth	15(7,7)
	Gingival mucosa	28(14,4)
	Lateral of the tongue	10(5,1)
	Ventral of the tongue	4(2%)
	Buccal mucosa	61(31,3)
	Labial mucosa	70(35,9)
	Mucobuccal fold	4(2)
	Oropharynx	1(0,5)
Total		195(100)

Table 5 shows results of analysis for predisposing factors of RAS lesions, including allergy, anemia, gastritis, genetic, hormonal, lack of drinking water, lack of fibre from eating vegetables and fruits, diabetes mellitus, autoimmune diseases, trauma, and stress. RAS patients may have more than one predisposing factor. The most common predisposing factors were trauma (41.9%) and stress (21%). The least predisposing factor was not drinking enough water (1.6%).

Table 5. Univariate analysis of RAS predisposing factors.

Category		n(%)
Predisposing factor	Allergy	6(4,8)
	Anemia	3(2,4)
	Gastritis	2(1,6)
	Genetic	12(9,7)
	Hormonal	10(8,1)
	Insufficient water intake	2(1,6)
	Insufficient intake of fruits and vegetables	5(4)
	Diabetes Melitus	2(1,6)
	Autoimmune disease (SS)	4(3,2)
	Trauma	52(41,9)
	Stress	26(21)
Total		124(100)

Management of RAS, based on data, consist of giving Communication, Information, and Education to patients about the disease, predisposing factors, how to use drugs and a good diet. The administration of medication helps to reduce pain and promote healing of the lesions. Patients with RAS with predisposing factors of dental mechanical trauma, denture and fixed orthodontic appliance were treated with grinding of sharp teeth, denture repair and orthodontic wax.

Medications for RAS lesions were given mouthwash and topical gel. Data also showed that some were given multivitamins, to accelerate healing of the lesions. Univariate analysis was performed on the topical medications given, as shown in Table 6. Chlorhexidine 0.2% mouthwash (71.2%) was the most commonly prescribed.

Tabel 6. Univariate Analysis of SAR Medications

Category		n(%)
Medication	Hyaluronic acid and aloe vera	10(9,9)
	Chlorhexidine gluconate	59(58,6)
	Triamcinolone acetoneide	21(20,7)
	Zinc acetate dan Oxygene	4(3,6)
	Chlorhexidine digluconate	1(0,9)
	Benzydamine HCl	4(3,6)
	Tantum Verde	3(2,7)
Total		102(100)

DISCUSSION

Our research showed that the prevalence of recurrent aphthous stomatitis (RAS) was higher in females (76.5%) than males (23.5%). This result is consistent with recent studies showing that women tend to be more susceptible to RAS, possibly due to hormonal factors that affect the immune response of the oral mucosa.⁸ Most patients diagnosed with RAS in this study were in the age range of 20-29 years old (64.7%). This period of young adulthood is known as a period of high stress levels, which is a major triggering factor in the pathophysiology of RAS.⁹ This fact confirms that demographic factors play a significant role in the prevention and management of RAS.

The increasing of patients visit with RAS in 2019 (38.2%) in our study time range was noticeable, with a steep decline in 2020 (5.9%). Increasing awareness of oral health may reflect this, while the decline in 2020 could be influenced by the COVID-19 pandemic, which limited patient's access to

healthcare services.¹⁰ The fluctuation in the number of RAS cases each year emphasizes the need for further research into external and environmental factors that may contribute to this dynamic.

Most patients in this study had a single lesion (59.8%) with a healing duration between 7 to 14 days (94%). The most common lesion type was ulcer (87.9%), which is in line with recent literature showing that ulcerative lesions are the most common manifestation of RAS.¹¹ Their recurrent nature, with a frequency of three times a year (54.5%), emphasizes the need for ongoing management and monitoring of patients suffering from RAS to prevent a negative impact on their quality of life.

The location of RAS lesions was noted most common on the labial mucosa (35.9%) and buccal mucosa (31.3%). These locations are often exposed to mechanical trauma that can trigger the formation of lesions. Distribution of the lesion sites provides important insights for clinicians in the diagnosis and management of RAS, especially in identifying local risk factors that can be minimized to reduce the frequency of recurrence. It is indeed in line with other research stating that RAS lesions often occur in areas that are easily mechanically traumatized.¹²

Mechanical trauma (41.9%) and stress (21%) were the most frequent predisposing factors found in RAS patients in this study. Mechanical trauma such as those caused by dentures or orthodontic appliances has long been recognized as a major triggering factor for RAS, and these findings are confirmed by recent studies showing a strong association between local trauma and the development of RAS lesions.¹³ Stress also plays an important role in exacerbating this condition, with studies showing that psychological stress can affect the immune system, thereby increasing susceptibility to RAS lesions.¹⁴

Management of RAS in this study comprised patient education about the disease, use of topical medications, and modification of predisposing factors. The application of chlorhexidine gluconate 0.2% mouthwash (71.2%) was most recommended due to its effective antimicrobial and anti-inflammatory effects in accelerating the healing of RAS lesions.^{15,16} This management is in line with recent clinical guidelines that emphasize the importance of topical treatment in reducing the duration and intensity of RAS lesions.¹⁷

This research provides a demographic, clinical, and management profile of patients with RAS. The high prevalence of RAS in women and young adults suggests that a more focused approach is needed in the prevention and management of these specific groups. Identifying and managing predisposing factors, such as mechanical trauma and stress, is key in preventing recurrence and improving patients' quality of life.¹⁸ In addition, further research is needed to explore the association of RAS with other systemic conditions and to develop more comprehensive management strategies.

CONCLUSION

This study shows that recurrent aphthous stomatitis is more common in women, especially at the age of 20-29 years, with the most common triggering factors being mechanical trauma and stress. The most common RAS lesion sites are on the labial and buccal mucosa, with an average healing duration of 7-14 days. Patient education and the use of topical medications, such as chlorhexidine gluconate, remain the standard approaches in managing this lesion. These findings also pinpoint some risk factors, mostly trauma and psychological stress, which could emphasize the need for further research. This study is also provide a baseline to a more complex study regarding the relationship of RAS and other systemic conditions in this centre.

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CONFLICT OF INTEREST

Authors acknowledge that there is no conflicts of interest related to this study.

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