



## Relationship of Recurrent Aphthous Stomatitis with Nutritional Habits

### Geriatrik Hastalarda Reküren Aftöz Stomatit ile Beslenme Alışkanlıklarının İlişkisinin Değerlendirilmesi

Reküren Aftöz Stomatit ve Beslenme Alışkanlıkları / Recurrent Aphthous Stomatitis and Nutritional Habits

Gül Soylu Özler<sup>1</sup>, Ayşe Neslin Akkoca<sup>2</sup>, Cengiz Cevik<sup>1</sup>, Erhan Yengil<sup>2</sup>

<sup>1</sup>Department of Otorhinolaryngology, <sup>2</sup>Department of Family Medicine, Mustafa Kemal University, Hatay, Turkey

#### Özet

**Amaç:** Bu çalışmada geriatrik hasta grubunda reküren aftöz stomatit(RAS) sıklığı ve oral aftların aile öyküsü, boy, kilo, antibiyotik kullanımı, diş fırçalama ve beslenme alışkanlıkları ile ilişkisi araştırıldı. **Gereç ve Yöntem:** Altmış beş yaş üstü hastalar çalışmaya dahil edildi. Değerlendirme öncesi olgulara oral aftöz ülser tanımı yapıldı ve fotoğraflardan oluşan bir görsel bilgilendirme formu sunuldu. Hastaların yaşı,cinsiyeti,boyu ve kilosu not edildi. Ardından RAS öyküsü sorgulandı ve oral aft öyküsü olanların ülser sıklığı, ülser tipi, ülser yerleşimi, ülserin neden olduğu subjektif semptom, aile öyküsü, antibiyotik kullanım sıklığı, diş fırçalama alışkanlığı ve beslenme alışkanlıkları bir anket ile değerlendirildi. **Bulgular:** Seksen hasta çalışmayı tamamladı. Olguların %31, 5' i reküren oral ülser tarifledi. Olguların %44'ü tarafından tanımlanan ağrı en sık görülen subjektif semptom idi. Olguların % 15'inde aile öyküsü mevcuttu. Antibiyotik kullanım sıklığı ile RAS öyküsü arasında korelasyon saptanmadı. Aynı zamanda, diş fırçalama alışkanlığı ile RAS arasında da korelasyon saptanmadı. RAS' lı grup çay ve asitli içecekleri daha sık tüketirken,süt ve süt ürünlerini, ceviz, ekme ve diğer tahılları daha nadir tüketmekteydi. **Tartışma:** Beslenme alışkanlıkları reküren aftöz ülser oluşumunda rol oynayabilir. Bu nedenle riskli besinlerin alınımının kesilmesi ve koruyucu besinlerin eklenmesi tedavi periyodunun ilk adımı olabilir.

#### Anahtar Kelimeler

Geriatrik Hastalar; Reküren Aftöz Stomatit(RAS); Beslenme

#### Abstract

**Aim:** In this study we investigated the frequency and relationship of recurrent aphthous stomatitis(RAS) with family history, personal variables such as weight, height, antibiotic usage, teeth brush and nutritional habits in geriatric patients. **Material and Method:** The patients over 65 years old were included in the study. Before examination, the definition of recurrent oral aphthous ulcers and a visual informatory form including photographs were presented to the subjects. The age, sex, height, weight of the subjects were noted on a chart. Then the history of recurrent oral aphthous ulcerations were asked and if present the frequency of the ulcers, the type of the ulcers, the localization of the ulcers, the subjective symptom of the ulcers, familial history for the ulcers, frequency of antibiotic usage, teeth brush habits and nutritional habits were examined by a questionnaire. **Results:** Eighty subjects completed the study. 31.25% of subjects declared recurrent oral ulcer history. Pain was the leading subjective symptom declared by 44% of the subjects. 15% of the subjects had a family history for recurrent oral ulcers. There was no correlation between frequency of antibiotic usage and history of RAS. Also, there was no correlation between teeth brush habits and history of RAS. The RAS group consumed tea and fizzdrinks more frequently whereas they consumed milk and milk products, walnut, bread and other grains more rarely. **Discussion:** Nutritional habits may have a role on occurrence of recurrent oral aphthous ulcerations. So we are of the opinion that the elimination of the risky nourishments and the addition of the protective nourishments may be the first step of the treatment period.

#### Keywords

Geriatrics; Recurrent Aphthous Stomatitis(RAS); Nutrition

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Corresponding Author: Gül Soylu Özler, Mustafa Kemal University, Department of Otorhinolaryngology, Hatay, Turkey.

T.: +90 3262293323 GSM: +905053980778 E-Mail: soylugul@yahoo.com

## Introduction

Recurrent aphthous stomatitis(RAS) is a disease which presents as painful open sores inside the oral cavity characterized by a break in the mucous membrane. It may effect up to 20% of the population and women are more often affected than men[1].

Recurrent aphthous ulcers are classified according to the diameter of the lesion. Minor aphthous ulcers are 3-10 mm in diameter. They can be single or multiple. They heal spontaneously within 2 weeks. Major aphthous ulcers have the same appearance as minor ulcerations, but are greater than 10 mm in diameter and are extremely painful. They usually take more than a month to heal, and frequently leave a scar. These typically develop after puberty with frequent recurrences. Herpetiform ulcerations are the most severe form. It occurs more frequently in females, and onset is often in adulthood. It is characterized by small, numerous, 1–3 mm lesions that form clusters. They typically heal in less than a month without scarring[2].

The etiology of RAS still remains unknown. These ulcerations may be indicative of underlying systemic diseases ranging from vitamin deficiency to autoimmunity[3]. There are several studies investigating the role of genetics, stress, hematinic deficiencies, vitamin deficiencies, trauma, microbial agents and autoimmunity in the literature[4-8].

In this study we investigated the frequency and relationship of RAS in geriatric patients with family history, personal variables such as weight, height, antibiotic usage, teeth brush habits and nutritional habits.

## Material and Method

### Study design

This study is conducted at Mustafa Kemal University between November 2013 and January 2014. Ethics committee approval was obtained and was conducted adhering to the Declaration of Helsinki. Informed consent was obtained from all participants.

Study population and Progress of the study.

The patients who referred to ear nose throat and family medicine clinics over 65 years old were included in the study. Before examination, the definition of recurrent oral aphthous ulcers and a visual informatory form including photographs were presented to the subjects. The age, sex, height, weight of the subjects were noted on a chart. Then the history of recurrent oral aphthous ulcerations were asked and if absent the frequency of the ulcers, the type of the ulcers, the localization of the ulcers, the subjective symptom of the ulcers, familial history of the ulcers, frequency of antibiotic usage, teeth brush habits were examined by a questionnaire. Food consumption frequency questionnaire is the most common criteria of nutritional evaluation in epidemiological studies and has a standard form translated to Turkish[9]. So, food consumption frequency questionnaire were used to evaluate the nutritional habits of the subjects. In this questionnaire, nourishments were evaluated in 9 main groups:

1- Milk and milk products( full fat milk, half fat milk, full fat yoghurt, half fat yoghurt, full fat cheese, half fat cheese, skimmed cheese, butter milk)

2- Meat and meat products(fatty beef, lean beef, fatty mutton, lean mutton, chicken, turkey, fish, meat products, sweetbread)

3-Egg(whole egg, egg yolks, egg white, quail eggs)

4- Legume and oily pits(legume, walnut, hazelnut, peanut, pistachio nut, seed)

5- Bread and other grains(white bread, brown bread, white flat bread, brown flat bread, whole wheat bread,rye bread, macaroni, rice,cracked wheat,pastry,biscuits,cake)

6- Vegetables and fruits(green vegetables, yellow vegetables, potato, tomato, other vegetables, citrus fruits, summer fruits, dried fruits)

7- Oil(olive oil, canola oil, hazelnut oil, vegetable oil, margarine, butter, tail fat)

8- Sugar and desserts( sugar, desserts, honey, jam, sesame paste, molasses, chocolate)

9- Other(olive, tea,turkish coffee, instant coffee, alcohol beverages,fruit juices,fizzdrinks,turnip,pickles,spices,ketchup,mayonnaise)

The subjects were asked how often they consumed these 9 main groups and subgroups of nourishments. The options were every meal, every day in two meals, every day in one meal, once a week, twice or three days a week, 4 days a week, five or six days a week, three days or twice a month,once a month and never.

The same clinician filled the questionnaire and evaluated the parameters. The frequency of RAS in geriatric patients and relationship between RAS and family history, personal variables such as weight, height, antibiotic usage, teeth brush and nutritional habits in geriatric patients were evaluated.

### Statistical Methods

The SPSS statistical software package (SPSS, version 19.0 for Windows; SPSS Inc, Chicago, IL) was used to perform all statistical calculations. Adequacy of all parameters to normal distribution was tested by using Kolmogorov-Smirnov test. Parametric tests were applied to values with normal distribution; nonparametric tests were used in those without normal distribution. Chi-square test was used to compare the categorical parameters between the groups. Independent-samples t test was used for statistical comparison of data that match with normal distribution, and Mann-Whitney U test was applied to compare data without normal distribution between the groups. Differences were considered statistically significant at  $p \leq 0.05$ .

### Results

Eighty subjects (36 men and 44 women) with a mean age of  $74.83 \pm 8.131$  (age range 63 –108 years) completed the study. 25 of 80(31.25%) subjects declared recurrent oral ulcer history. 8 of 25(32%) subjects declared recurrent oral ulcers once a year, 9 of 25(36%) subjects declared one to three times a year, 8 of 25(32%) subjects declared three times a year. The localization of oral ulcers were buccal mucosa in 8 of 25(32%) subjects, labial mucosa in 7 of 25(28%) subjects, tongue in 4 of 25(16%) subjects, gingival mucosa in 3 of 25(12%) subjects, palatal mucosa in 2 of 25(8%) subjects and tonsilla palatina in 1 of 25(4%) subjects.

The type of ulcers were declared as minor by 19 of 25(76%) subjects, major by 6 of 25(24%) subjects. No subject declared herpetiform oral ulcers.

Pain was the leading subjective symptom declared by 11 of 25(44%) subjects. Dysphagia in 2(8%) subjects, dining difficulty in dining 4(16%) subjects, speaking difficulty in 4(16%)

subjects, poor appetite in 2(8%) subjects were the other subjective symptoms. 2 of 25(4%) subjects declared that they had no subjective symptoms caused by the oral ulcer.

12 of 80(15%) subjects had a family history for recurrent oral ulcers.

The frequency of antibiotic usage were as follows; once a year in 17( 21.3%) subjects, once in six months in 26( 32.5%) subjects, once in three months in 32 (40.0%) subjects, once a month in 4 (5.0%) subjects and once in fifteen days in 1( 1.3%) subject. Teeth brush habits were as follows; twice a day in 2( 2.5%) subjects, once a day in 4( 5%) subjects, every other day in 45 (56.3%) subjects, once or twice a week in 12( 15%) subjects and once in fifteen days in 9 (11.3%) subjects.

Then the subjects that had a history of oral ulcers( RAS group) and did not have a history of oral ulcers(control group) were compared for demographic data, personal variables and nutritional habits. The analysis of the groups were not statistically different in terms of age and height( $p=0.502$ ,  $p=0.499$ ) whereas the RAS group had statistically lower weight than the control group ( $p=0.018$ ).

Table 1. The evaluation of age, height and weight of RAS group and control group

	RAS group (n=25)	Control group (n=55)	p value
Age	74.44 ± 9.152	75.00 ± 7.708	$p=0.502$
Height	166.20 ± 10.66	164.27 ± 8.966	$p=0.499$
Weight	62.40 ± 9.367	68.04 ± 10.279	$p=0.018$

31(56.36%) of RAS group, 13(52%) of control group were females. The groups were similar in terms of sex( $p=0.716$ ).

5 of 25(20%) subjects in RAS group, 7 of 55(12.7%) subjects in control group had a family history for recurrent oral ulcers. The groups were not statistically different in terms of family history( $p=0.3398$ ).

There was no correlation between frequency of antibiotic usage and history of recurrent oral ulcers( $p=0.549$ ).

Also, there was no correlation between teeth brush habits and history of recurrent oral ulcers( $p=0.138$ ).

The analysis of correlation of nutritional habits and history of recurrent oral ulcers revealed no statistically significant difference for meat and meat products, egg, legume, hazelnut, peanut, pistachio nut, seed, vegetables and fruits, oil, sugar and desserts, olive, turkish coffee, instant coffee, alcohol beverages, fruit juices, turnip, pickles, spices, ketchup, mayonnaise( $p \geq 0.05$ ). On the other hand, there was correlation for milk and milk products, walnut, bread and other grains, tea and fizzdrinks( $p \leq 0.05$ ). The RAS group consumed tea( $p=0.0001$ ) and fizzdrinks( $p=0.017$ ) more frequently whereas they consumed milk and milk products( $p=0.045$ ), walnut ( $p=0.026$ ), bread and other grains( $p=0.0001$ ) more rarely.

## Discussion

In this study the frequency of RAS in geriatric patients and relationship between RAS and family history, personal variables such as weight, height, antibiotic usage, teeth brush and nutritional habits in geriatric patients were investigated.

RAS is common worldwide and may affect up to 20% of the population. The prevalence of recurrent oral ulcers ranges from

5% to 50% up to the population investigated[10]. In our study 31.25% geriatric subjects declared recurrent oral ulcer history. In our study there was no correlation between sex and history of RAS. In the literature, RAS was reported to be seen more frequently in women and have exacerbations in premenstrual period and regressions in pregnancy[10,11].

The analysis of the groups were not statistically different in terms of height, whereas the mean weight of the RAS group was statistically lower than the control group.

The most common form of RAS is minor aphthous ulceration, and the minor form is respectively followed by major and herpetiform ulcerations[12]. Minor form is 75-85% ,major form is 10-15%, herpetiform form is 5-10% of all oral ulcerations. In our study, 76% of the subjects declared minor aphthous ulcerations, whereas 24% of the subjects declared major aphthous ulcerations. None declared herpetiform type.

The previous studies reported that oral ulcers occurred more frequently on non-osseous sides of oral cavity[13]. In our study the most frequent localizations of oral ulcers were buccal mucosa and labial mucosa followed by tongue, gingival mucosa, palatal mucosa and tonsilla palatina.

Consistent with the literature, pain was the leading subjective symptom declared by 44% of the subjects[9]. Dysphagia, dining difficulty, speaking difficulty, poor appetite were the other subjective symptoms declared by the subjects in our study. 4% of the subjects declared that they had no subjective symptoms caused by the oral ulcer. Fever, exhaustion, musculoskeletal pain, lymphadenopathy, nausea and vomiting are other reported symptoms declared by subjects with RAS in the literature [13,14].

20% of the subjects in RAS group, 12.7% of the subjects in control group had a family history for recurrent oral ulcers. There are several studies reporting the role of genetics in the etiology of RAS but there is no consensus about the percentage of family history[13-15].

There was no correlation between frequency of antibiotic usage and teeth brush habits with history of RAS.

The etiology of RAS still remains unknown. Some authors believe that nutritional habits have a role on the occurrence of recurrent oral ulcers. In previous studies cinnamon, gluten, cow milk, coffee, chocolate, potato, cheese, citrus fruits, strawberry tomato and spice are the most frequently detected nourishments consumed by the subjects having a history of RAS[16-20]. In studies conducted with elimination diets revealed that the elimination of tomato, lemon, vinegar, mustard, cheese, cow milk reduced the frequency of recurrent oral ulcers[18-20]. In another study, the subjects with RAS consumed tea and spice more frequently whereas they consumed walnut, bread and other grains and chocolate more rarely[9].

In our study, there was no correlation between history of RAS and meat and meat products, egg, legume, hazelnut, peanut, pistachio nut, seed, vegetables and fruits, oil, sugar and desserts, olive, turkish coffee, instant coffee, alcohol beverages, fruit juices, turnip, pickles, spices, ketchup, mayonnaise. On the other hand, there was correlation for milk and milk products, walnut, bread and other grains, tea and fizzdrinks. The RAS group consumed tea and fizzdrinks more frequently whereas they consumed milk and milk products, walnut, bread and other grains more rarely.

Geriatric subjects need a targeted approach to their diseases because they have special issues that are unique to this population. The previous studies investigated the frequency of RAS and relationship of RAS with personal variables and nutritional habits in the general population. In that respect this is the first study addressing the geriatric subjects.

The limitations of our study is the number of subjects we investigated. Mental disorders such as dementia and amnesia are seen more frequently in geriatric population, so we excluded the subjects that we were not sure about the reliance of the data they declared.

We believe that studies with larger number of RAS subjects and more detailed studies with the elimination of risky nourishments will be further beneficial.

### Conclusion

Nutritional habits may have a role on occurrence of recurrent oral aphthous ulcerations. So we are of the opinion that the elimination of the risky nourishments and the addition of the protective nourishments may be the first step of the treatment period.

### Competing interests

The authors declare that they have no competing interests.

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