

Effect of Jaftex Herbal Mouthwash on the Treatment of Recurrent Aphthous Stomatitis

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ABSTRACT

Introduction: Recurrent Aphthous Stomatitis (RAS) is the most common cause of recurring in oral ulcers. Natural herbal medicines as an alternative therapy for RAS have been widely used in many countries for decades. The purpose of this study was to evaluate the effect of Jaftex herbal mouthwash in the treatment of RAS.

Materials and Methods: This double-blind clinical trial study was performed on 40 patients, with a diagnosis of minor aphthous stomatitis, referred to the dental clinic of Dentistry School, Ahvaz Jundishapur University of Medical Sciences. Participants were randomly divided into two equal groups: Group A: The patients received Jaftex mouthwash and Group B: The patients received the placebo. The amount of pain was recorded using visual analog scales (VAS) and the size of lesion using the stencil in millimeters. The collected data were analyzed by using T-test (Significance level was considered to be less than 0.05).

Results: There was no significant difference in the amount of pain and the size of lesion between the two groups before treatment, but on the second and sixth day after treatment, the mean pain level in the Group A was significantly lower than the group B ($p < 0.001$). There was no significant difference in the mean size of lesion at the start of treatment and two days later. But on the sixth day, the mean size of the lesion in group A was significantly lower than group B ($p = 0.002$).

Conclusion: According to the results of this study, the Jaftex is recommended as an herbal mouthwash in control and treatment of RAS.

Key words: Aphthous stomatitis, Jaftex, Pain, Lesion size

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INTRODUCTION

Recurrent Aphthous Stomatitis (RAS) is the most common oral recurrent disorder [1]. It is a disorder characterized by recurring ulcers of oral mucosa in patients who have no other signs of disease [2].

RAS affects approximately 20% of the general population [2]. Etiology of RAS is unknown, but several factors have been suggested to cause aphthous ulcers, including genetics, immune conditions, systemic conditions, local trauma, allergies [3], blood problems, family history, mental conditions, taking some medications, including barbiturates [4], upper respiratory tract infection and hormonal conditions, including menstruation. Also, the best predisposing factor is inheritance [2].

RAS is common in non-keratinized mucosa, including buccal and labial mucosa [1]. The lesions are confined to the oral mucosa and begin with prodromal burning any

time from 2 hours to 48 hours before an ulcer appears [2]. During this initial period, a localized area of erythema develops [3]. Within hours, a small white papule forms, ulcerates, and gradually enlarges over the next 48 hours to 72 hours. RAS is classified according to clinical characteristics: minor ulcers, major ulcers, herpetiform ulcers, and severe aphthous ulcers. Minor ulcers are the most common type of RAS [1], 0 cm-1.3 cm in size and healed within 10 days to 14 days without scars [2]. RAS is essentially diagnosed by exclusion of other diseases. The clinical appearance and medical history help to diagnose these lesions [5].

There is currently no clear treatment for RAS [6], and overall therapeutic objectives include reducing pain and inflammation, preventing secondary infection, reducing the incidence and frequency of aphthous lesions [4]. Topical corticosteroids are the most commonly used drugs for the treatment of RAS [1]. Triamcinolone acetonide is the most common topical corticosteroid used for the treatment RAS [3].

RAS treatment with corticosteroids may cause side effects, including adrenal suppression, Cushing's syndrome,

epithelial atrophy, candidiasis, and acne in patients. Therefore, the use of drugs with fewer side effects is recommended [3]. It is noteworthy that corticosteroids, even if used topically, have systemic absorption and cause adverse reactions [7].

The World Health Organization (WHO) has sought to find new natural resources, including herbal extracts, to overcome the adverse effects of chemicals [8]. Therefore, in many countries, for many decades, extensive use of herbal medicines has been used as an alternative to the treatment of RAS [9].

One of the plants with many therapeutic properties is oak [10]. Various research sources have cited various therapeutic properties for different parts of the oak, including fruit, trunk skin, and young stems, leaves and flowers [11]. Studies have been conducted on the effect of oak fruit husk on the control of minor oral mucosal ulcers and the repair of coetaneous wounds [12].

The internal skin of the oak fruit is known as Jaft (in Persian language), with medicinal and industrial uses. Jaft is recommended for the treatment of oral mucosal aphthous, and microbial and viral diseases [10].

Jaftex is a new herbal mouthwash that is consisted of Jaft aquatic extract Fas A base and aquatic extracts *Zataria multiflora* and *Satureja bachtiarica*. It has been prepared scientifically in the medicinal plant growth center of Ahvaz Jundishapur University of Medical Sciences (AJUMS). The main basis for this oral mouthwash is Jaft. In a laboratory study carried out by Babadi et al., the antibacterial effect of Jaftex mouthwash has been proven [13]. Considering that the use of Jaft in the treatment of oral mucosal ulcers has been recommended in past studies [10], and since the use of herbal medications can improve the quality of life and prevent the side effects of chemical drugs, this study aimed to evaluate the effect of Jaftex mouthwash on the treatment of RAS.

MATERIALS AND METHODS

This study has been approved according to the guidelines of the ethics committee of Ahvaz Jundishapur University of Medical Science (Ethical Code: IR.AJUMS.REC.1397.250).

This is a double-blind clinical trial study. 40 patients were selected among those referred persons to the dental

clinic of AJUMS. The subjects were diagnosed with minor aphthous stomatitis. The inclusion criteria included: 1) Patients willing to participate in this study; 2) Individuals who did not have systemic problems; 3) Patients who had a single minor aphthous ulcer in their mouths at least 24 hours ago. To prepare the Jaftex mouthwash, the aqueous extracts of the Jaft, *Zataria multiflora* and *Satureja bachtiarica* were prepared separately. After the integration, 9 grams of sodium chloride were added and then distilled water was added, until its volume reached 1 litre. To make a placebo mouthwash, we added 9 grams of sodium chloride and increased the allowed color to distilled water to a volume of one liter. Both Jaftex and placebo mouthwashes were prepared in similar containers by the medicinal plant growth center of AJUMS and labeled as A and B so that researchers and participants did not know the contents inside glass containers.

Patients were randomly divided into two groups: A and B. In group A: They received Jaftex mouthwash, and in group B, the patients received placebo. The age, sex, size of the lesions, and the amount of pain before the treatment were recorded. The amount of pain of the patients was measured using visual analog scales (VAS) and patients were asked to specify a numerical pain score of 0 to 10 for their degree of pain. The initial size of the lesion was recorded using the stencil in millimeters at the beginning of the work. The method of consumption was taught to individuals in each group. They should use the mouthwash for two weeks, twice a day, 15 cc and for 2 minutes each time. They were asked to return 2nd and 6th day after receiving the mouthwash. The amount of pain and size of the ulcer were recorded. The t-test was used for comparing the results between the two groups and the analysis was performed using SPSS version 22. The significance level was considered 0.05. This clinical trial code (IRCT) is IRCT20141027019698N5.

RESULTS

The results showed that the amount of pain and the size of lesion in the group A in each stage had a significant reduction compared to the previous stage ($p < 0.001$). The mean of amount of pain and the size of the lesion in both groups are shown in Table 1.

Table 1: Mean and standard deviation of the pain amount and the lesion size of patients in two groups: A and B

Variables	Intervals	Group A	Group B	p-value
		M ± SD	M ± SD	
Pain amount	Baseline	7.95 ± 2.84	8.25 ± 2.12	0.707
	2 Day	3.70 ± 2.39	7.00 ± 1.97	<0.001
	6 Day	0.45 ± 0.83	1.85 ± 0.18	<0.0001
Lesion size	Baseline	3.73 ± 2.65	3.40 ± 1.90	0.659
	2 Day	2.85 ± 1.62	3.40 ± 1.90	0.332

6 Day	0.80 ± 0.52	1.85 ± 1.23	0.002
M=Mean, SD=Std. Deviation			

The results of the independent t-test showed that there was no significant difference between the mean of amount of pain in in A and B groups at the start of treatment ($p=0.707$). At 2nd day and 6th day after the start of treatment, the mean pain level in group A was significantly lower than group B ($p<0.001$). There was no significant difference between the mean of lesion size in both groups on the day of treatment and 2 days later ($p>0.05$). In 6th day, mean lesion size in group A was significantly lower than group B ($p=0.002$). According to the results, there is a significant difference between the amount of pain and the size of the lesion before and after the treatment in both groups, but in group A, in comparison with group B, there was a further decrease in the amount of pain and size of the lesion at the end of day 6 and this difference was significant ($p<0.001$). In this study, it was also observed that the time has a positive effect on the recovery process of both groups, but it was more effective in group A. Hence as the results show, the Jaftex plant mouthwash results in a faster recovery of the pain and size of the aphthous lesion.

DISCUSSION

RAS is a common oral disorder of certain etiopathogenesis, and presently, its management is largely focused on symptomatic treatment [14]. The main problem with aphthous ulcers is accompanying the pain. If pain could be controlled, more complicated treatments could be avoided. Topical anti-inflammatory corticosteroids reduce pain severity and ulcer frequency [15]. Management of pain in RAS with various herbal preparations have also been reported [16-18]. Simple non-synthetic, natural antimicrobial agents including in the commercial mouthwash Listerine, whose active ingredients are a mixture of essential oils have been used to decrease the pain, duration, and severity of RAS [19]. Based on the obtained results in this study, Jaftex mouthwash has a significant effect on reducing the pain and ulcer size of the RAS. The present study is the first clinical research which surveys the effect of Jaftex herbal mouthwash on the treatment of RAS, while few studies have been done on the therapeutic effect of Jaft, *Zataria multiflora* and *Satureja bachtiarica* on aphthous treatment. Jahanshahi et al. used a combination extract, prepared from the Oak Fruit and the Darcocephalum plant, as medicine in control and treatment of RAS. They reported that the improvement was significantly faster in patients using Jaft and Darcocephalum [20]. In a study by Mansoori et al. *Zataria multiflora* essential oil effectively resulted in faster pain relief and a shorter healing period in the treatment of RAS [21]. Jafari et al. noted that *Zataria multiflora* extract was an effective treatment for the management of minor aphthous [18]. Babaee et al. investigated the therapeutic effects of *Zataria multiflora* essential oil on RAS lesion. They reported that a significant decrease in the characteristic of the lesion

(diameter of the lesion and halo), complete healing time and burning sensation of the patients [14]. Amanlou et al. reported that *Satureja (S.) khuzestanica* extract and essential oil preparation, compared to the placebo, have better effects in the treatment of RAS [22].

The Jaftex mouthwash is a combination of Jaft extract as a basis, and *Zataria Multiflora* and *Saturej bachtiarica* extracts [23]. Studies have been conducted on the effect of Oak Fruit Husk (Jaft) on the control of minor oral mucosal ulcers [12]. Jaft has a huge effect on the treatment of bacterial and viral diseases and aphthous ulcers of oral mucosa [10]. Possible mechanisms that may potentiate the effectiveness of Jaft in the treatment of RAS include:

1. Jaft contains tannin and tannins can play a role in the development of this therapeutic effect.
2. Tannins in combination with proteins increase their resistance to proteolytic enzymes.
3. Flavonoids are found in the Jaft extract, and accelerate the repair of epithelial wounds by their anticoagulant effect [20].

Another ingredient in the Jaftex is *Zataria multiflora* (ZM). Babaee et al. reported that the use of ZM reduces the time needed to repair aphthous ulcers [14]. A review of the literature yielded few reports on the effect of ZM essential oil in treating oral aphthous lesions [18,21]. The mechanism of action that play a major role in the healing process of these lesions due to its antimicrobial role and anti-oxidative effect on the aphthous reactivity [14]. *Saturej bachtiarica* is another component of the Jaftex mouthwash. Amanlou et al. reported that extract of this plant may be considered as a value in the management of the minor type of RAS. These effects may be attributed to antibacterial effects which were reported for *Saturej khuzestani* [22]. The beneficial effects of this herb in the management of the minor type of RAS could be in part due to the presence of sitosterols of flavonoids in extracts of the aerial parts of *S. khuzestani* which may act as antioxidant and anti-inflammatory agents [24-26].

CONCLUSION

Oak jaft, *Zataria multiflora* and *Saturej bachtiarica* are effective in the treatment of aphthous ulcers. The combination of these three herbs in the Jaftex mouthwash increases its effectiveness in treatment of minor aphthous ulcers. Based on the results of this study the use of the Jaftex mouthwash promotes the reduction of the pain level and the size lesion and reduces the healing time without any adverse effects.

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest regarding the publication of this manuscript.

REFERENCES

- Chiang CP, Chang JY, Wang YP, et al. Recurrent Aphthous stomatitis - Etiology, serum autoantibodies, anemia, hematinic deficiencies, and management. *J Formosan Med Assoc* 2018; 14:1-11.
- Glick M. *Burket's Oral Medicine*, 12e. PMPH-USA 2015.
- Babadi F, Poodeh RM. Comparison of the effect of Salvizan gel with teriadent in patients with minor aphthous ulcers. *World Family Medicine Journal: Incorporating the Middle East Journal of Family Medicine* 2017; 15:113-7.
- Hamedi S, Sadeghpour O, Shamsardekani MR, et al. The most common herbs to cure the most common oral disease: Stomatitis recurrent aphthous ulcer (RAU). *J Iranian Red Crescent Med* 2016; 18:1-6.
- Rezvaninejad R, Nabavi N, Khoshroo SM, et al. Herbal medicine in treatment of recurrent aphthous stomatitis: A literature review. *J Islam Dent Assoc Iran* 2017; 29:127-34.
- Nasry SA, El Shenawy HM, Mostafa D, et al. Different modalities for treatment of recurrent aphthous stomatitis. A randomized clinical trial. *J Clin Exp Dent* 2016; 8:517-22.
- Rahmani F, Moghadamnia AA, Kazemi S, et al. Effect of 0.5% Chitosan mouthwash on recurrent aphthous stomatitis: A randomized double-blind crossover clinical trial. *Electron Physician* 2018; 10:6912-9.
- Rezaei S, Rezaei K, Mahboubi M, et al. Comparison the efficacy of herbal mouthwash with chlorhexidine on gingival index of intubated patients in Intensive Care Unit. *J Indian Soc Periodontol* 2016; 20:404-8.
- Li CL, Huang HL, Wang WC, et al. Efficacy and safety of topical herbal medicine treatment on recurrent aphthous stomatitis: A systemic review. *Drug Des Devel Ther* 2016; 10:107-15.
- Sharifi A, Gorjipour R, Gorjipour A, et al. Antifungal effect of *Quercus infectoria* gall (oak) on *Saprolegnia* fungi. *Armaghane Danesh J* 2012; 17:78-84.
- Ebrahimi A, Khayami M, Nejati V. Comparison of antimicrobial effect of different parts of quercus persica against *Escherichia coli* O157:H7. *Ofogh-e-Danesh* 2012; 18:11-7.
- Ghassemi F, Momenzade M, Nagafian M, et al. The effect of hydroalcoholic extract of Oak fruit husks on liver in Rat (Wistar). *J Jahrom Univ Med Sci* 2014; 12:1-7.
- Babadi E, Bamzadeh Z, Babadi F. Comparison of the antibacterial effects of chlorhexidine mouth washes with jaftex mouth wash on some common oral microorganisms (An in vitro study). *Middle East J Fam Med* 2017; 7:200-3.
- Babae N, Baradaran M, Mohamadi H, et al. Therapeutic effects of *Zataria multiflora* essential oil on recurrent oral aphthous lesion. *J Dent Res* 2015; 12:456-60.
- MacPhail L. Topical and systemic therapy for recurrent aphthous stomatitis. *Semin Cutan Med Surg* 1997; 16:301-7.
- Gruenewald J, Brendler T, Jaenicke C. *PDR for herbal medicines*. Thomson Reuters 2007.
- Wichtl M. *Herbal drug and phytopharmaceuticals*, English edition (NG Bisset, translated and edited). Boca Raton, FL, CRC Press 2001; 140-2.
- Jafari Sh, Amanlou M, Borhan-Mojabi K, et al. Comparative study of *Zataria multiflora* and *Anthemis nobelis* extracts with *Myrthus communis* preparation in the treatment of recurrent aphthous stomatitis. *DARU* 2003; 11:23-7.
- Meiller TF, Kutcher MJ, Overholser CD, et al. Effect of an antimicrobial mouth-rinse on recurrent aphthous ulcerations. *Oral Surg Oral Med Oral Pathol* 1991; 72:425-9.
- Jahanshahi GHR, Moatar F, Soltani MR. Evaluation of a herbal medicine in the treatment of recurrent aphthous ulcers. *J Dental School SBUMS* 2004; 22:19-25.
- Mansoori PA, Ghavami R, Shafiei A. Clinical evaluation of *Zataria multiflora* essential oil mouthwash in the management of recurrent aphthous stomatitis. *DARU J Pharm Sci* 2002; 10:74-7.
- Amanlou M, Farsam H, Babaei N, et al. Efficacy of *Satureja khuzistanica* extract and its essential oil preparations in the management of recurrent aphthous stomatitis. *DARU J Pharm Sci* 2007; 15:231-5.
- Babadi F, Akbarnezhad M, Amin M, et al. Effect of jaftex and chlorhexidine mouthwashes on oral microorganism: A comparative study. *J Res Med Dent Sci* 2019; 7:20-4.
- Abdollahi M, Salehnia A, Mortazavi SH, et al. Antioxidant, antidiabetic, anti-hyperlipidemic, reproduction stimulatory properties and safety of essential oil of *Satureja khuzestanica* in rat in vivo: A toxicopharmacological study. *Med Sci Monit* 2003; 9:331-5.
- Cimen MY, Kaya TI, Eskandari G, et al. Oxidant/antioxidant status in patients with recurrent aphthous stomatitis. *Clin Exp Dermatol* 2003; 28:647-50.
- Moghaddam FM, Farimani MM, Salahvarzi S, et al. Chemical constituents of dichloromethane extract of cultivated *Satureja khuzistanica*. *Evid Based Complement Alternat Med* 2007; 4:95-8.