Al-Wesabi, M.A, et al. Yemeni J Med Sci. 2025; 19: 55 - 61
https://doi.org/10.20428/yjms.v19i1.2617
https://journals.ust.edu/index.php/yjms

OPEN ACCESS ORIGINAL ARTICLE

Prevalence of Oral Ulcers among a Sample of Patients in Aden City, Yemen

Ahmed Salem Batarfi[1], Hanan Ahmed Gaber[1], Shatha Fathi Ali[1], Mohammed Ali Al- wesabi[*2]

1 Dental Students, Department of Dentistry, Faculty of Health and Medical Sciences, University of Science and Technology, Aden, Yemen.
2 Assistant lecturer, Department of Dentistry, Faculty of Health and Medical Sciences, University of Science and Technology, Aden, Yemen.

ABSTRACT

Background: Oral ulcers are generally painful lesions that related to various conditions developing within the oral cavity. The main aim of this study is determining the prevalence of oral ulcer among Sample of Patients in Aden City, Yemen.

Methodology: This cross-sectional study was carried out among 11-65 years old patients. The data was collected using convenience sampling technique and 841 patients were surveyed, the sampling was collected from dental patients at Aden University and University of Science and Technology and other public health centers from June 2021 to July 2022. The data were collected using a self-reported questionnaire; the questionnaires adapted from other studies on the same topic and had two sections.

Results: The study sample was 841 patients, about 369 patients of the total sample were had oral ulcers, this makes the overall prevalence (43.9%). Males were 388 (46.1 %) cases less than females 453 (53.9%) with statistically significant difference (P=0.043), most of the study participants were single (651, 77.4%, P=0.001). Regarding the systematic diseases, 151 (18.0%) of the patients reported that they had a history of systemic diseases (P=0.009). History of using drugs was reported by 130 (15.5%) of the cases (P=0.001).

Conclusion: the prevalence of oral recurrent ulcers among the patient of Aden City, Yemen was high. Females were more commonly affected than males. The most common site was gingiva followed by lips and tongue. Gender, marital status, using medications, and systemic diseases were the associated factors for occurrence.

Keywords: Recurrent Aphthous Stomatitis, Stress, Prevalence, Oral Ulcers, Yemen.

**** Corresponding author address:*** ***malwossabi@gmail.com***

https://doi.org/10.20428/yjms.v19i1.2617
https://journals.ust.edu/index.php/yjms

INTRODUCTION

Oral ulcers are generally painful lesions that related to various conditions developing within the oral cavity (1). Oral ulcers are usually very painful and are a frequent reason for consultation, Infectious processes, neoplasms, gastrointestinal diseases, blood disorders, rheumatic diseases, immunological diseases, trauma lesions and other factors are among its causes. An appropriate differential diagnosis is necessary due to the various factors that can cause them (2, 3). Ulcers can be primary, when not preceded by a previous lesion (in the case of canker sores) or secondary (aphthoid) to trauma or a ruptured blister or vesicle (4). Oral ulcers classified into two main groups: acute ulcers with abrupt onset and short duration, and chronic ulcers with slow onset and insidious progression (5, 6). Acute oral ulcers are one of the most common conditions to afflict the oral mucosa (1, 7). Acute oral ulcers are often named "aphthae," which refers to an ulcer of a mucosal surface (8). It is associated with conditions such as trauma, recurrent aphthous stomatitis, Behçet's disease, bacterial and viral infections, allergic reactions or adverse drug reactions. Chronic oral ulcers are associated with conditions such as oral lichen planus, pemphigus vulgaris, mucosal pemphigoid, lupus erythematosus, mycosis and some bacterial and parasitic diseases (9) .

Recurrent aphthous stomatitis (RAS) is one of the most common mucosal disorders of the mouth (10). RAS is benign ulcerated, painful, shallow round ulcers with an erythematous halo covered by a yellowish-gray fibromembranous layer (11). The prevalence of oral ulcers worldwide is 4%, with aphthous ulcers being the most common, affecting as many as 25% complaining from ulcer, RAS occurs usually in the non-keratinized areas like lips, ventral surface of the tongue, buccal mucosa, floor of the mouth and soft palate (12). Stanley classified RAS into 3 types- Minor, Major and Herpetiform ulcers. 80 % of RAS are minor RAS or mild aphthous ulcers; they are small ulcers of 8-10mm size, 1 to 5 in number, affecting nonkeratinized mucosa and heals in 10-14 days without scarring. Major aphthous ulcers (10-15% of RAS) are larger than minor ones (>1cm) and may involve the keratinized oral mucosa such as the hard palate, fauces etc. They may take up to 6 weeks to heal and often leave a scar. In Herpetiform ulceration, there are groups of small ulcers more than 10, may be up to 100 in number of 1-3mm in diameter and last for about 10-14 days and heal without scarring (13). A few studies were assessed the prevalence of oral ulcers in among Yemeni adults. The aims of this study was to determine the prevalence of oral ulcers among Yemeni population, assess the profile of its distribution in the oral cavity, and investigate the associated risk factors.

METHODS

This cross-sectional study was carried out among 11-65 years old patients. All the patients from various age groups and both gender who agreed to participate in the study were included the data was collected using convenience sampling technique and 841 patients were surveyed, the sample was collected from dental patients at the dental poly clinics at Aden University and University of Science and Technology and other public health centers from June 2021 to July 2022 .

The entire study sample was informed about the purpose of the study and appealed to fill up the questionnaires, which were provided by investigator. The data were collected using a self-reported questionnaire; the questionnaire was adapted from other studies on the same topic (13). The tool was included two sections, the first part included personal details and the second part included details related to ulcers such as history, period, and site of ulcer. In addition to questions regarding the presence and frequency of oral ulcers and questions regarding the lifestyle, stress factors, anxiety level, health and medications reported by the patients at the time of survey. The data were analyzed using Statistical Package for Social Sciences (SPSS®) version 22 software. The study

https://doi.org/10.20428/yjms.v19i1.2617
https://journals.ust.edu/index.php/yjms

protocol followed the ethical standards of medical research in regards to confidentiality of patients information.

RESULTS

The total number of study participants was 841 patients, about 369 patients of the total sample were had oral ulcers, the overall prevalence was 43.9%. Males were less (388, 46.1 %) cases compared to female counterparts (453, 53.9%) with statistically significant difference (P=0.043). Most of the study participants were from Aden city and not married "single" (651, 77.4%, P=0.001), Table (1).

Table (1): Socio-demographic characters of the study sample.

Variable		Frequency	%	P- value
Sex	Male	388	46.1	**0.043**
	Female	453	53.9	
Governorate	Aden	703	83.6	**0.001**
	Shabwah	7	0.8	
	Hadhramout	4	0.5	
	Other	127	15.1	
Marital Status	Single	651	77.4	**0.001**
	Married	185	22.0	
	Divorced	5	0.6	
Financial Status	Low	153	18.2	**0.001**
	Moderate	639	76.0	
	High	49	5.8	
Age	Mean ±SD; 34.3±10			**0.001**

Regarding the systemic disease, 151 (18.0%) of the patients reported that they had a history of systemic disease (P=0.009). History of using drugs was reported by 130 (15.5%) of the cases (P=0.001), Table (2).

Stress was found as the most common cause related to oral ulcers and affect about 667 (79.3%) of the cases with a statistically significant association (P=0.052) Table (2).

Table (2): Frequency of General Health Condition-Related Variables

	Variable	Frequency	Percent	P- value
Presence of systemic diseases	Yes	151	18.0%	**0.009**
	No	690	82.0%	
Allergy	Yes	336	40.0%	**0.060**
	No	505	60.0%	
Current use of drugs	Yes	130	15.5%	**0.001**
	No	711	84.5%	
Stress	Yes	667	79.3%	**0.052**
	No	174	20.7%	

Having a prosthesis and practicing Qat chewing habit were statistically non-significant factors 63, 7.5%, P=0.608 and 239, 28.4%, P=0.177; respectively), Table (3).

https://doi.org/10.20428/yjms.v19i1.2617
https://journals.ust.edu/index.php/yjms

Table 3 : Dental health status and related habits among study sample.

Variable		Frequency	%
Oral Hygiene	Always	512	60.9%
	Sometimes	266	31.6%
	Never	63	7.5%
Dental Visits	Always	72	8.6%
	Sometimes	385	45.8%
	Never	384	45.7%
Prosthesis	Yes	63	7.5%
	No	778	92.5%
Qat Chewing	Yes	239	28.4%
	No	602	71.6%
Times of Qat Chewing	Always	112	13.3%
	Sometimes	149	17.7%
	Never	580	69.0%

Gingiva was the most frequent site of ulcer among the study sample, (133, 15.8%, P=0.000) Table (4).

Table 4. Oral ulcer-related characters of the study sample.

Variable		Frequency	Percentage
Occurrence of ulcer	Always	40	4.8%
	Sometimes	338	40.2%
	Never	463	55.1%
Ulcer site	Lip	80	9.5%
	Tongue	46	5.5%
	Gingiva	133	15.8%
	Palate	23	2.7%
	Cheek	33	3.9%
	Never	325	38.6%
	More than one site	201	23.9%
Ulcer treatment	Yes	203	24.1%
	No	638	75.9%

As shown in Table 5, Gender, Marital status, Systemic disease, and use of drugs were significantly associated with the occurrence of oral ulcers among the study sample, (P=0.043, P=0.001, P=0.009, P=0.001; respectively)

Table (5): Distribution of the proposed associated factors among the categories of oral ulcers.

Associated Factors		Oral Ulcer						P- Value
		Always		Sometimes		Never		
		No.	%	F	%	No.	%	
Gender	Male	13	3.4%	165	42.5%	210	54.1%	.043
	Female	27	6.0%	173	38.2%	253	55.8%	
Marital status	Single	21	3.2%	256	39.3%	374	57.5%	.001
	Married	19	10.3%	81	43.8%	85	45.9%	
	Divorced	0	0.0%	1	20.0%	4	80.0%	
Systemic diseases	Yes	15	9.9%	56	37.1%	80	53.0%	.009
	No	25	3.6%	282	40.9%	383	55.5%	
Using drugs for other disease	Yes	15	11.5%	56	43.1%	59	45.4%	.001
	No	25	3.5%	282	39.7%	404	56.8%	
Stress	Yes	24	8.5%	117	41.2%	143	50.4%	.052
	Sometimes	9	2.3%	162	42.3%	212	55.4%	
	No	7	4.0%	59	33.9%	108	62.1%	
Prosthesis	Yes	5	7.9%	27	42.9%	31	49.2%	.608
	No	35	4.5%	311	40.0%	432	55.5%	
Qat chewing	Yes	13	5.4%	106	44.4%	120	50.2%	.177
	No	27	4.5%	232	38.5%	343	57.0%	

https://doi.org/10.20428/yjms.v19i1.2617
https://journals.ust.edu/index.php/yjms

DISCUSSION:

Ulceration of the oral mucosa is one of the painful oral lesions that make patients to seek dental treatment. It usually accompanied by pain during speaking and mastication (13). Diagnosis of oral ulcerative lesions ranged from benign inflammatory ulcers to highly malignant oral cancers.

Oral ulcers are encountered frequently in our daily practice; it causes a lot of suffering and agony for the patients throughout their life. Clinically; oral ulcers are usually painful, shallow, round in shape with an erythematous halo covered by a yellowish-gray fibro membranous layer (14). According to diagnosis; most of the oral ulcers are treated symptomatically by prescribing topical corticosteroid to decrease the pain and accelerate the healing process. On the other hand, some of the cases needs careful examination and some investigations to exclude more critical systemic conditions and malignant lesions. Recurrent aphthous ulcers (RAU) considered the most type of ulcerations affecting oral mucosa (15). It has an estimated point prevalence of 4% in the United States (15).

The present study was designed to determine the prevalence of oral ulcers among a selected sample of Yemeni population and to determine factors associated with the development of these lesions. The results of present study showed that the prevalence of oral ulcers among the study sample was 43.9%. This prevalence rate is higher than that reported in other studies that performed among other countries such as United States (40%)(16), Japan (31%) (17), Iraq (28.2%) (18), Iran (25.2%) (19) Turkey (25.5%)(20), and Saudi Arabia (14%) (21). This comparatively high prevalence might be due to the stress related to the socioeconomic status of most of the Yemeni population that associated with the undergoing war and political conflict situation since about nine years. On the other hand, a study of oral ulcers among Jordanian population was found a prevalence of 78% (22). This comparatively higher ratio might be due to that the sample of this study was selected from dental patients who already complained from dental oral conditions and came to seek dental treatment.

As mentioned before, oral ulcers can be caused by a variety of factors, one of the most common associated risk factors of developing recurrent aphthous ulcers is stress and psychological problems. Studies among US dental students (9) and western population of Maharashtra, India was reported this association (23).

The present study failed to find a significant association between stress and recurrent aphthous stomatitis and this also can be owned to the age, socioeconomic status of the most patient in the present study sample and their marital status and occupation which usually exposed to less stress compared to older and married people and other stressful careers.

As they undergo different physiological and hormonal change throughout their life, female patients were found to be more exposed to oral ulcerative lesions compared to male counterparts, this finding has been also agreed by the study among Jordanians female patients (45.0% and 53.9%); respectively (22) . This also has been found in other populations in middle east as reported by studies from Iraq and Iran (18, 19).

Episodes of ulcers may be precipitated by other related factors such as the marital state, (married) was the most affected patients with significant association. Also having a systemic disease was a significant risk for developing ulcer. As oral ulcers are a multifactorial lesion this study investigated the association of other factors with those lesions such as medication use and systemic disease, The finding were in the same line with that of other studies (1, 6, 8).

In the present study, the sites of occurrence of oral ulcers as reported by the respondents were gingiva, lips, tongue, and cheek. The results of our study were different with that of other study conducted among Jordanian population (22), which revealed that lips and buccal mucosa were the most common sites of oral ulcers, whereas in our study, gingiva was the

most common site of oral ulcers. This disagreements might be sue to the difference in populations characteristics such as life style, diet, and habits practiced.

CONCLUSIONS

Based on the results of our study, the prevalence of oral ulcers in Yemen population was high. Females were more commonly affected than males, and the most common group of marital state in our study was the single patients, and the most common site was gingiva followed by lips and tongue. Gender, marital status, using medications, and systemic diseases were the associated factors for occurrence. Future studies on this topic is needed with emphasize on clinical characters of oral ulcers with detailed clinical examination.

REFERENCES

[1] Muñoz-Corcuera M, Esparza-Gómez G, González-Moles M, Bascones-Martínez A. Oral ulcers: clinical aspects. A tool for dermatologists. Part I. Acute ulcers. Clin Exp Dermatol. 2009;34(3):289-94.
[2] del Olmo-López J, Pretel-Irazabal M, España-Alonso A. Úlceras orales. Piel. 2006;21(2):92-100.
[3] Scully C, Felix D. Oral medicine—Update for the dental practitioner Aphthous and other common ulcers. Br Dent J. 2005;199(5):259-64.
[4] Schemel-Suárez M, López López J, Chimenos Küstner E. Oral ulcers: Differential diagnosis and treatment. Med Clin (Barc). 2015;145(11):499-503.
[5] Esparza G, Llamas S, Bascones A. Lesions with tissue loss: Ulcers. In: Bascones Martínez A, editor. Estomatología. Tratado de medicina interna. Barcelona: Ariel; 2005.
[6] Jurge S, Kuffer R, Scully C, Porter S. Number VI recurrent aphthous stomatitis. Oral Dis. 2006;12(1):1-21.
[7] Rogers RS. Pseudo-Behçet's disease. Dermatol Clin. 2003;21(1):49-61.
[8] Lehman JS, Rogers III RS. Acute oral ulcers. Clin Dermatol. 2016;34(4):470-4.
[9] Thevara MC, Shilpashree K, Murthy A, Madhusudha S, Khond M, Coutinho D. Prevalence of recurrent aphthous stomatitis and its association with stress among undergraduate students in a dental institution–a cross-sectional study. Int J Appl Dent Sci. 2020;6(3):458-62.
[10] Queiroz SIML, Silva MVAd, Medeiros AMCd, Oliveira PTd, Gurgel BCdV, Silveira ÉJDd. Recurrent aphthous ulceration: an epidemiological study of etiological factors, treatment and differential diagnosis. An Bras Dermatol. 2018;93(3):341-6.
[11] Dhopte A, Naidu G, Singh-Makkad R, Nagi R, Bagde H, Jain S. Psychometric analysis of stress, anxiety and depression in patients with recurrent aphthous stomatitis—a cross-sectional survey-based study. J Clin Exp Dent. 2018;10(11):e1109-14.
[12] Aslam A, Hassan SH, Khan DA, Chaudhary MAG. Psychological stress associated with aphthous ulcers and temporomandibular disorders: stress with aphthous ulcers and temporomandibular disorders. Pak Armed Forces Med J. 2017;67(3):453-7.
[13] Patil S, Reddy SN, Maheshwari S, Khandelwal S, Shruthi D, Doni B. Prevalence of recurrent aphthous ulceration in the Indian population. J Clin Exp Dent. 2014;6(1):e36-42.
[14] Muhaidat ZH, Rodan RE. Prevalence of oral ulceration among Jordanian people. Pak Oral Dent J. 2013;33(1):1-7.
[15] Axéll T. A prevalence study of oral mucosal lesions in an adult Swedish population. Odontol Revy Suppl. 1976;36:1-103.
[16] Shulman J. Prevalence of oral mucosal lesions in children and youths in the USA. Int J Paediatr Dent. 2005;15(2):89-97.
[17] Naito M, Suzukamo Y, Wakai K, Azechi M, Kaneko F, Nakayama T, et al. One-year period prevalence of oral aphthous ulcers and oral health-related quality of life in patients with Behçet's disease. Genet Res Int. 2014;2014:930348.
[18] Abdullah MJ. Prevalence of recurrent aphthous ulceration experience in patients

attending Piramird Dental Specialty in Sulaimani City. J Clin Exp Dent. 2013;5(2):e89-94.

[19] Davatchi F, Tehrani BA, Jamshidi AR, Shams DS, Gholami Z, Moradi M, et al. The prevalence of oral aphthosis in a normal population in Iran: a WHO-ILAR COPCORD study. Int J Rheum Dis. 2008;11:1-7.

[20] Çiçek Y, Çanakçi V, Özgöz M, Ertas Ü, Çanakçi E. Prevalence and handedness correlates of recurrent aphthous stomatitis in the Turkish population. J Public Health Dent. 2004;64(3):151-6.

[21] Ajmal M, Ibrahim L, Mohammed N, Al-Qarni H. Prevalence and psychological stress in recurrent aphthous stomatitis among female dental students in Saudi Arabia. Clujul Med. 2018;91(2):216-21.

[22] Safadi RA. Prevalence of recurrent aphthous ulceration in Jordanian dental patients. BMC Oral Health. 2009;9:1-5.

[23] Rajmane YR, Ashwinirani S, Suragimath G, Nayak A, Rajmane VS, Lohana M. Prevalence of recurrent aphthous stomatitis in western population of Maharashtra, India. J Oral Res Rev. 2017;9(1):25-8.