

Incidence of Recurrent Aphthous ulcers in a group of student population in Libya: A Questionnaire Study

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ABSTRACT

Recurrent aphthous ulcers (RAUs) are most common painful mucosal oral conditions affecting 25% of the general population. Despite their high prevalence, etiopathogenesis remains unclear. However, the number and distribution and type of these cases vary from place to place. To date, no documentation has been reported regarding its occurrence and distribution and type's of recurrent aphthous stomatitis in Libyan students. Therefore the aim of the following paper was to report above mentioned clinical entity in detail with its variations in clinical occurrence in a group Libyan student's.

Keywords: Diagnostic criteria, recurrent aphthous stomatitis, stress ulcers.

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Introduction

The term "aphthous" has been derived from a Greek word "aphtha" which means ulceration [1]. The classic clinical presentation of RAU is recurrent, self-limiting ulcers that mainly affect nonkeratinized oral mucosa. A prodromal burning sensation lasting 24 to 48 hours can often precede the onset of ulcers. They clinically present in 3 different forms, minor, major and herpetiform. Minor RAU, which makes up more than 80% of all RAU cases, is a small (up to 1 cm in diameter), shallow, painful, well-circumscribed, and round-shaped ulceration that is covered by a yellow-grayish pseudomembrane and surrounded by an erythematous halo. The ulceration generally heals without scarring after 10 to 14 days. Major RAU is characterized by ulcers that are typically larger and deeper than minor RAU. Furthermore, they heal more slowly and often cause scarring. Herpetiform ulcers manifest as multiple recurrent clusters of small ulcers (less than 4 mm in diameter) that are scattered throughout the oral mucosa. These ulcers may further coalesce into larger ulcerations [2-6].

To date, no documentation has been reported regarding its occurrence and distribution and type's of recurrent aphthous stomatitis in Libyan students. Therefore the aim of the following paper was to report above mentioned clinical entity in detail with its variations in clinical occurrence in a group Libyan student's.

MATERIAL AND METHODS



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A questionnaire containing a total of 12 questions in which 4 questions giving the personal details of the patient which included name, age, sex, and smoker/nonsmoker were recorded. The names of these students were kept confidential. Whereas 8 questions related to aphthous ulceration (which included whether patient has any history of RAU or no, if they had history of RAU then what are the triggering factors, whether it is Related to exam/stress or not, Duration of the ulcer present, number of days took for Healing, any medication patient taking for the same problem, during there visit whether they had any ulcer in the mouth. and any related comments) were recorded.

Among total of 1500 dental students (studying in various phases of 1st 2nd, 3rd and final year BDS and Interns at Faculty of Dentistry, Garyounis University, Benghazi, Libya) 500 (33%) of them (who were volunteers) were selected in our study group. The objective of the study was explained to all of them and the questionnaire regarding information about the occurrence of RAU was distributed for further collection of information. Inclusion of all of those who were volunteers of the study, irrespective of the occurrence of the RAU. Exclusion of those students who failed to give informed consent were done. All the details of each patient were entered into Microsoft Excel sheet and the details were recoded and interpreted.

RESULTS

Among total of 1500 dental students (studying in 1st 2nd, 3rd and final year BDS, Interns at Faculty of Dentistry, Garyounis University, Benghazi, Libya) 500 (33%) of them (who were volunteers) were selected in the study group. The objective of the study was explained to all of them and the questionnaire regarding information about the occurrence of RAU was distributed for further collection of information. Inclusion of all of those who were volunteers of the study, irrespective of the occurrence of the RAU. Among 500 students the age of these patients ranged between 18 to 31 years. These patients were later divided into two

Table 1. Age group range in our study.

Sl. No	Age group range (in years)	No. Of patients
1	18-24 yrs	267 (53.4%)
2	25-31 yrs	233 (46.6%)
Total		500

groups, where the first group included the patients between 18-24 years of age and second group included the patient's age ranging between 25-31 years of age (Table 1, 2). Among 500 volunteers

Table 2. Gender Distribution in our study.

Sl. No	Age range (in years)	Male	Female
1	18-24 yrs	65 (40%)	154 (45.6%)
2	25-31 yrs	98 (60%)	183 (54.3%)
Total	500	163 (33%)	337 (67%)

there were 148 (30%) of them who gave history of occurrence of recurrent aphthous ulcer and 254 (70%) of them had no history of occurrence of aphthous ulcer. Among these 148 students 82 (55 %) were female and 66 (45%) were males (Table 3). Among 66 male

Table 3. Gender Distribution in patients with RAU (n=146).

Sl. No	Age range (in years)	Male	Female
1	18-24 yrs	35 (53%)	35 (44%)
2	25-31 yrs	31 (47%)	45 (56%)
Total	146	66 (45%)	80 (55%)

patients 36 (54%) of them were smokers and 30 (46%) of them were nonsmokers.

Among 148 students with RAU 108 (72%) of them had history of minor apthae and 38 (27%) of them had major apthous and 2 (1%) had herpetiform ulcer formation. Among these 108 students with minor apthae 52 (48%) of them were males and 56 (52%) of them were females. Among 38 patients with major apthae 24 (63%) of them were females and 14 (37%) of them were males. The common sites affected for minor apthae were right and left buccal mucosa, upper and lower labial mucosa, buccal vestibule, commissure of lip, right lateral, left lateral side and tip for tongue. Dorsal surface of tongue, gingiva and palate areas for major apthous ulcer and Dorsal surface of tongue and palate where herpetiform ulcers noted (Table 4).

Table 4. Different sites mentioned with type of ulcer

Sl.No.	Site	Number of students affected.
MINOR		
1	Right buccal mucosa	40 (27%)
2	Left buccal mucosa	15 (10%)
3	Upper labial mucosa	18 (12%)
4	Lower labial mucosa	9 (6%)
5	Buccal vestibule	8 (5%)
6	Commissure of lip	6 (4%)
7	Right lateral border of tongue	4 (2%)
8	Left lateral border of tongue	5 (3%)
9	Tip of tongue	3 (2%)
MAJOR		
1	Dorsal surface of tongue	18 (12%)
2	Gingiva	11 (7%)
3	Palate	9 (6%)
HERPETIFORM		
1	Dorsal surface of tongue	1 (0.6%)
2	Palate	1(0.6%)
Total		148

Among 146 students 41 (28%) of them had triggers before the occurrence and 102 (70%) students were without any triggers 3 (2%) of them were not aware of any triggers. Stress, abdominal pain, burning sensation, common cold, Hard food/brush injury, Gastritis, Hot tea/coffee/food, Menstrual cycle in females, smoking in males, spicy food consumption, winter seasons were among triggering factors in these patients (Table 5). When the

Table 5. Different Triggering factors noted in our study.

Sl.no.	Triggering factors	No. of students
1	Stress	15 (37%)
2	Common cold	5 (12%)
3	Burning sensation	3 (7%)
4	Hard food/brush injury	2 (5%)
5	Hot tea/coffee/food	2 (5%)
6	Abdominal pain	3 (7%)
7	Menstrual cycle in females	3 (7%)
8	Gastritis	2 (5%)
9	Smoking in males	3 (7%)
10	Spicy food consumption	2 (5%)
11	Winter seasons	1 (2%)
	Total	41

question was asked about occurrence of RAU whether it is related to exams, 84 (57%) of them correlated it with exam phase and 62 (43%) of them did not.

Duration of the ulcer in the mouth present varied from 2- 10 days (Table 6). Regarding the treatment modalities they men-

Table 6. Duration of ulcer present with number of people.

Sl.No.	No. of days	No. of people affected
1	2-5days	120 (49%)
2	>than 5days	75 (31%)
3	>than 7days	40 (16%)
4	10 days	11 (4%)
	Total	246

Table 7. Treatment modes used by the patient.

Sl.No.	Treatment followed	No. of students
1	Antibacterial mouthwash with Chlohex	76 (31%)
2	Warm saline	40 (16%)
3	Warm saline + Chlohex	20 (8%)
4	Top anesthetics	45 (18%)
5	Top anesthetics + Chlohex	25 (10%)
6	Top anesthetics + Warm saline	25 (10%)
7	Top anesthetics + Antibacterial mouthwash	15 (6%)

tioned the following modes they were using to get relief from ulcer (Table 7). Around 31% of them used antibacterial mouthwash with Chlohex, followed by topical anesthetics (18%), warm saline (16%), warm saline + Chlohex (8%), Topical anesthetics + Chlohex and warm saline (10%), Topical anesthetics + Antibacterial mouthwash (6%). Around 74 (30% of them had presence of RAU when the questionnaire was given and 172 (70%) of them did not have any ulcer.

When the comments were asked 64 (26%) of them did not give any comments and remaining students gave the following comments

1. RAU associated with stomach problem
2. They cant have food when ulcer is present
3. They sleep less during exams which leads to ulcer.
4. Lot of suffering from pain.

DISCUSSION

Recurrent Aphthous ulcer (RAU) is a common disease of the oral cavity, affecting about 20% of the world's population [5]. women are more affected than men, and in most cases it starts around the first decade of life. The recurrence rates at the interval of 3-month are as high as 50% [6]. The results obtained from our study also showed higher occurrence in females during their second decade of life.

RAU is characterized by recurrent bouts of solitary or multiple shallow painful ulcers, at intervals of few months to few days in patients who are otherwise well[7,8,9]. RAU has been described under three different clinical variants as classified by Stanley in 1972 [10].

1. Minor RAU is also known as Miculiz's aphthae or mild aphthous ulcers. It is the most common variant, constituting 80% of RAU. Ulcers vary from 8 to 10 mm in size. It is most commonly seen in the nonkeratinized mucosal surfaces like labial mucosa, buccal mucosa, and floor of the mouth. Ulcers heal within 10-14 days without scarring.
2. Major RAU is also known as periadenitis mucosa necrotica recurrens or Sutton's disease. It affects about 10-15% of patients. Ulcers exceed 1 cm in diameter. Most common sites of involvement are lips, soft palate, and fauces. Masticatory mucosa like dorsum of tongue or gingiva may be occasionally involved[11]. The ulcers persist for up to 6 weeks and heal with scarring.
3. Herpetiform ulceration is characterized by recurrent crops of multiple ulcers; may be up to 100 in number. These are small in size, measure 2-3 mm in diameter. Lesions may coalesce to form large irregular ulcers. These ulcers last for about 10-14 days. Unlike herpetic ulcers, these are not preceded by vesicles and do not contain viral infected cells. These are more common in women and have a later age of onset than other clinical variants of RAU[12].

Diagnosis of RAU is based on history, clinical manifestations, and histopathology. Other causes of recurrent oral ulceration must be ruled out. Diagnostic criteria for minor RAU were proposed by Natah et al[13], in 2004. They proposed that a diagnosis of idiopathic RAU and secondary RAU (associated with systemic disease) is established when four major and one minor

criteria are fulfilled.

RAU is an idiopathic condition in most patients. The most likely precipitating factors are local trauma and stress. Other associated factors include systemic diseases, nutritional deficiencies, food allergies, genetic predisposition, immune disorders, medications, and human immunodeficiency virus infection. Although RAU may be a marker of an underlying systemic illness, such as celiac disease, or may present as one of the features of Behcet disease, in most cases no other body systems are affected and patients remain otherwise fit and well. Because the etiology is unknown, diagnosis is entirely based on history and clinical criteria; no laboratory procedures exist to confirm the diagnosis [13-16].

Some researchers thought that protective effect due to smoking is related to the increased keratinization of the oral mucosa in smokers and that this keratin layer acts as a mechanical and chemical barrier against trauma or microbes [17-19].

Psychological stress as a triggering factor for RAU has already been mentioned in the literature, and is typically observed during stressful situations[20], such as school exam periods, dental treatments[21], and periods of significant changes in life[22]. Sixty-eight percent of patients reported that the occurrence of RAU was associated with some of the aforementioned situations, particularly changes in life such as family problems, new job, and new position at the job or new location of residence. Psychological stress induces immunoregulatory activity by increasing the number of leukocytes at sites of inflammation [21]; this is a characteristic often observed during the pathogenesis of RAU[6]. The pathophysiologic consequences of stress on patients are not uniform, especially given the dynamic and complex mechanisms that affect individuals in different ways. Similarly, the same patient may exhibit different degrees of manifestation associated with the same kind of emotional stress[22]. As the stress level was investigated during active RAU episodes in this trial, the extent to which recurrent ulcers are themselves stressful to patients who suffer from life-long RAU must be considered. Pedersen[23], evaluated the psychological stress of [22]. RAU patients during active and inactive stages of the disease, and despite the patients' claims of positive associations between stress and RAU episodes, there were no differences between active and inactive stages. The results of this trial suggest an influence of stress on RAU expression, although the trial did not clarify the mechanisms involved. Some investigators have speculated that anxiety could lead to parafunctional oral habits, including lip and cheek biting, and that those physical traumas may initiate the ulcerative process in susceptible individuals. RAU patients enrolled in our trial denied such habits and showed no clinical signs of chronic trauma. Additionally, it is known that minor physical injuries to the oral mucosa in susceptible RAU patients can frequently trigger RAU lesions[24]. RAU manifestations appear to be influenced by acute psychological stress. Thus,

stress-management interventions like relaxation may be beneficial in reducing RAU recurrence [25, 26].

The worldwide distribution, high frequency and decreased quality of life generated by RAU have resulted in a greater deal in doing research towards this disease.

However, the etiology of RAU still remains unclear, and the currently available therapy remains inadequate. On the other hand, many factors have already been implicated in the promotion and/or exacerbation of RAU; these include positive family history, local trauma, nutritional deficiency, food hypersensitivity, immune disturbance, smoking cessation, and psychological stress, among others [3-7].

CONCLUSION

RAU frequently affects patient quality of life of these individuals as a result of long lasting and recurrent episodes of burning pain. As RAU has a detrimental effect on speech, nutrition, and social interaction, early detection and management of these patients by finding underlying etiology is essential for better management of these cases.

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