

Awareness On Recurrent Aphthous Ulcer And Its Association With Stress Among Dental Students

Research Article

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Abstract

Aphthous ulcer or Recurrentaphthous stomatitis is one of the most common mucosal disorders of the mouth. The exact etiology of aphthous ulcer is uncertain, but precipitated factors include stress, trauma, food sensitivity, and genetic predisposition. Previous studies have suggested that stress and anxiety have a role in the onset and recurrence of aphthous ulcers. Study was aimed to estimate the prevalence of Aphthous ulcer among dental students and to find out its association with stress. The study was conducted among dental undergraduates. The study group consisted of 3rd year, 4th year and Interns students. Total number of students included in the study was 121 participants. The data was collected and analysed through IBM SPSS statistical analysis. Descriptive statistics were done. The prevalence of aphthous ulcers among medical students was high (62.3%). Family history was significant among the ulcer experienced group ($p=0.004$). Perceived stress scores were high among the medical students especially among the ulcer experienced group ($p=0.001$). 49 students (46.2%) were under high stress out of which 39 were with ulcers. Medical students show a high prevalence of aphthous ulcers. Study revealed that they are having increased stress which is more so in the ulcer experienced group which indicates that stress may be the precipitating factor for aphthous ulcer in the vulnerable group.

Keywords: Aphthous Ulcer; Recurrentaphthous Stomatitis; Perceived Stress.

Introduction

Oral ulceration is a common complaint of patients attending out-patient departments. The estimated point prevalence of oral ulcers worldwide is 4%, with aphthous ulcers being the most common, affecting as many as 25% of the population worldwide. Aphthous ulcers or recurrent aphthous stomatitis (RAS) are common inflammatory lesions of the oral mucosa [1]. The estimated prevalence of oral ulcers worldwide is 4%, with aphthous ulcers being the most common, affecting as many as 25% of the population worldwide RAS occurs usually in the non-keratinized areas like lips, ventral surface of the tongue, buccal mucosa, floor of the mouth and soft palate [2]. They are usually painful, shallow round ulcers with an erythematous halo covered by a yellowish-gray fibromembranous layer [3]. Stanley classified RAS into 3 types [4]. 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 non keratinised mucosa and heals in 10-14 days without scarring. Major aphthous ulcers (10-15% of RAS) are larger than minor ones (>1 cm) and may involve the keratinised oral mucosa such as the hard palate, fauces etc. They may take upto 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. These ulcers may coalesce to form large ulcers and last for about 10-14 days and most of them heal without scarring even though they have a potential to scar. This variant is commonly seen in women and has a late onset when compared to other variants [5]. The etiology of RAS is uncertain, and both environmental and genetic factors are indicated. The precipitating factors include stress, physical or chemical trauma, infection, allergy, genetic predisposition, or nutritional deficiencies [6]. Studies of Ship et al [7] and Miller et al [8] showed association between RAS and stress whereas studies of Ferguson et al [9] and Heft and Wray [10] did not show any association between them. Studies reveal an increased prevalence

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of RAS in students and also with higher level of education. This finding supports the role of stress and anxiety in occurrence of RAS among educated patients, especially during the time of examination. How the stress causing RAS is not fully understood. It has been suggested that Increased levels of salivary cortisol or of reactive oxygen species in the saliva initiates the lesions [11]. A genetic alteration of pathways linked to stressful responses may also be involved [12]. RAS has also been linked to immune system changes, namely the modifications that affect multiple immune system components like the distribution, proliferation and activity of lymphocytes and natural killer cells, phagocytosis, and production of cytokines and antibodies which may partially explain the role of stress in the etiology of RAS [13]. Study was aimed to estimate the prevalence of Aphthous ulcer among dental students and to find out its association with stress.

Materials and Methods

Study Design

A cross sectional questionnaire based study was carried out among dental undergraduates of a University in Chennai who were practicing in clinics.

Sampling

This study was conducted in an online setting. A total of 121 dental undergraduates participated in this study. The sample consisted of Forty three Third year students, Thirty eight Final year students, Forty Internship students.

Approval

Informed consent was obtained from all the participants before conducting the study. Ethical clearance was obtained from the Institutional Ethical Committee and Scientific Review Board of the University [SDC/SIHEC/2020/DIASDATA/0619-0320].

Questionnaire

The 14 questions were framed with the help of experts in the field. A self-administrated questionnaire consisting of Fourteen close ended questions were used for data collection. The dental students answered the questionnaire through an online setting-survey planet.

Statistical analysis

The data from their response were entered in the excel sheets. The analysis was done using SPSS software through frequency tests and Chi-square tests.

Results And Discussion

Study was carried out in 121 Dental students out of which 46.7% (56 students) reported that they had experienced oral ulceration (Figure-1). Among those who complained of ulcer episodes, 3.3% were experiencing presently, 11.5% of them had ulcer 1 month back, 34.4% of them had ulcer 3 month back and 49.2% of them had more than 6 months back (Figure-2). Frequency of ulceration was once in 3 months for majority and the rest used to experience it once in a month to once in 6 months duration (Figure-3). Majority (65.6%) were having a 3-6 ulcer during each episode and lasting for 3-5 days (73.8%) (Figure- 4,5). Predominant area of occurrence was the cheek (50.8%) followed by lips (8.2%), tongue (23%) and gums (14.8%) (Figure-6). Majority of the participants did not take any medication (63.3%) whereas a good proportion (28.3%) had used home remedies and very few had sought some vitamins and topical gels (8.3%) (Figure- 7). None of them were exposed to tobacco in any form. Positive family history was reported by about 19% of the study participants which was statistically very significant ($p=0.004$). Out of the 121 participants who experienced ulcer, 48 were females and 13 were males. It did not show any significance statistically ($p=0.512$) (Figure 8). Among

Figure 1. Graph showing the distribution of the study population who had experienced oral ulceration.

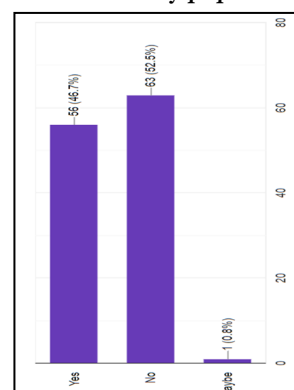


Figure 2. Graph showing the distribution of the study population who had complained of ulcer episodes.

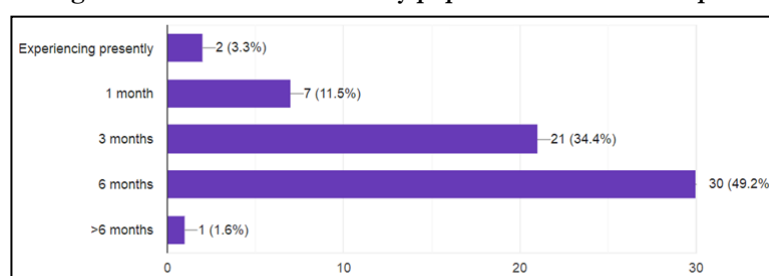


Figure 3. Graph showing the distribution of the study population about frequency of oral ulceration.

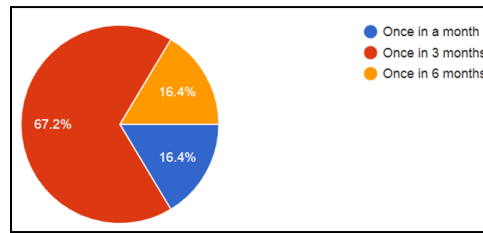


Figure 4. Graph showing the distribution of the study population about the number of oral ulcerations during each episode.

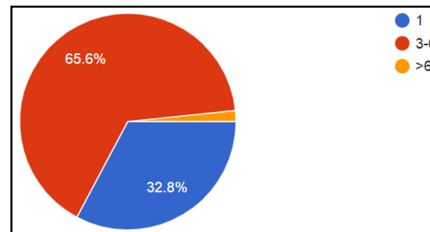


Figure 5. Graph showing the distribution of the study population about lasting of oral ulceration during each episode .

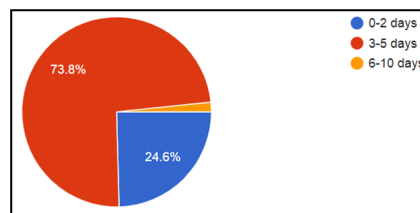


Figure 6. Graph showing the distribution of the study population about predominant areas of occurrence of oral ulceration.

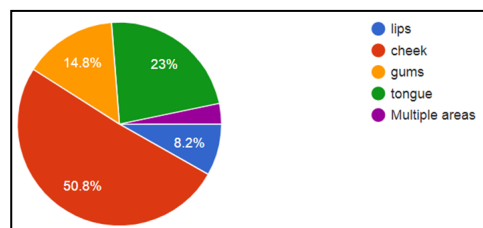


Figure 7. Graph showing the distribution of the study population about medication for oral ulceration.

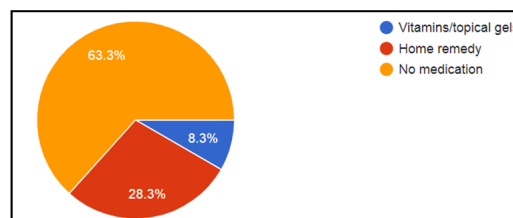
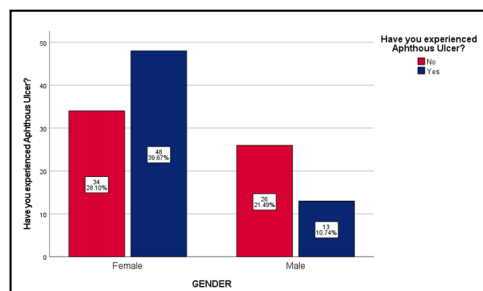


Figure 8. The bar graph represents the association between the gender and their responses to the given question, whether they have experienced aphthous ulcer. X-axis represents the gender of students and Y-Axis represents the number of respondents. Pearson Chi Square test, P Value = 0.512>0.05, hence the association is not statistically significant.



the 121 participants, 61 reported to have some form of stress out of which 40 with ulcer and 21 without ulcer) had exams as the main cause of stress. For 15 (with ulcers) of them change of food, 13 (with ulcers) of them 2 or more of these were the causes of stress. For 21 of them none of the above mentioned were

the cause for the stress (Figure-9). There was no statistical significance noted between self-reported stress among ulcer-experienced and ulcer-non experienced individuals ($p=0.895$). Statistical analysis did not show any significance between ulcer and cause of stress ($p=0.062$). 49 students with ulcers reported to have an as-

Figure 9. The bar graph represents the association between the stress and their responses to the given question that, if the dental students are associated with stress and oral ulceration. X-axis represents the dental students are associated with stress and oral ulceration and Y-Axis represents the number of respondents. Pearson Chi Square test, P Value = 0.895>0.05, hence the association is not statistically significant.

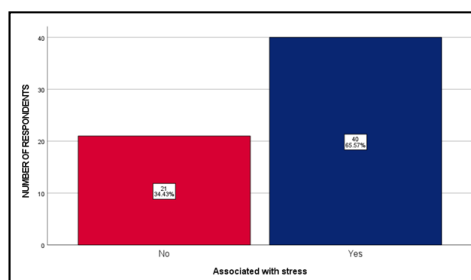


Figure 10. The bar graph represents the association between the medical condition and their responses to the given question, if the dental students are associated with any other medical condition and oral ulceration. X-axis represents the dental students are associated with any other medical condition and oral ulceration and Y-axis represents the number of respondents. Pearson Chi Square test, P Value = 0.006<0.05, hence the association is not statistically significant.

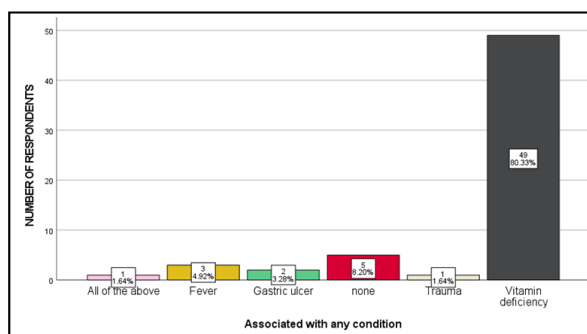
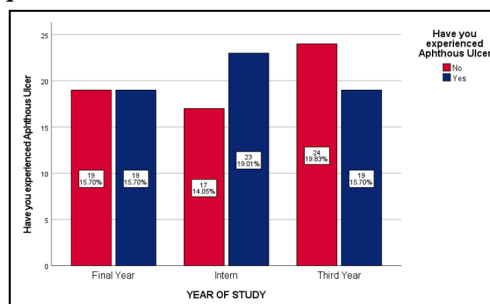


Figure 11. The bar graph represents the association between the year of study and their responses to the given question, whether they have experienced aphthous ulcer. X-axis represents the year of study of their respondents and Y-axis represents the number of respondents. Pearson Chi Square test, P Value = 0.012>0.05, hence the association is not statistically significant.



sociated vitamin deficiency, 3 of them had associated fever, 2 of them had gastric ulcers and 5 of them had not associated with any other conditions (Figure 10). On statistical analysis it was found significant with a p value of 0.006 which indicates that aphthous ulcer is not associated with any other conditions.

In the present study the prevalence of aphthous stomatitis was 46.7% (figure-1). Similar studies have been reported from India as well as other countries. Studies of Handa et al from Jaipur reported a prevalence of 26% and a study of Naito et al from Japan revealed a prevalence of 31% [14, 15]. As our study population was dental students, we can attribute this high prevalence rate of aphthous ulcer in this study to stress because compared to other professional courses students endure more stress due to the nature of the curriculum. Apart from that students appear to be under some stress due to the fear of impending exams or compulsion to complete assignments given. There are a number of studies suggesting association of anxiety, depression, and psychological stress with RAS [16, 17]. Huling LB, recorded daily stress of events in 160 cases of patients of RAU through telephone follow-

up, which found that stressful events may be involved in initiation of new RAS episodes [12]. On the contrary, a study of Pedersen A on 22 patients in 1989 found no association between stress and RAU and concluded that standardized circumstances are needed to demonstrate such associations using increased keratinization of the oral mucosa [12]. There are studies showing the role of stress in the development of RAS especially in those who have an underlying anxiety trait [19], A report by Kasi PM et al in 2007 showed that significant levels of stress were identified among medical graduates, which led to their management of stress using negative coping mechanisms [20]. As a result of stress habits like biting the cheeks and lips may develop which will injure the oral mucosa and cause oral ulcers. In our study none of the students reported to be using tobacco. This is not completely reliable because the students may not have revealed the history of smoking for fear of scrutiny by faculty. It has been suggested that cigarette smoking prevents aphthous ulcers, and it has been proposed that a component of tobacco which is systemically absorbed might be responsible for protecting against aphthous ulcer. Smokeless tobacco was found to be protective, suggesting nicotine as the

protective factor [21]. Among the participants, females had higher RAS prevalence compared to males, which is similar to study reported by Handa et al., where females are more commonly affected than males [14]. The Mean stress scores of females were more compared to males in this study, which is similar to a study reported by Singh et al [22] in which female nursing students perceived more stress than male students. In the present study even though there was increased stress among dental students we couldn't find a difference in stress experienced between third year and final year dental students (Figure -11). This is similar to the studies of Handa et al [14] and Singh et al [15] who reported that higher class students felt more stress when compared to juniors. Recurrent aphthous ulcers occur commonly on areas like the buccal mucosa and labial mucosa, floor of the mouth, ventral surface of the tongue and soft palate [23]. In the majority of the participants of the present study, the ulcer was observed on the cheeks. Majority were having 3-6 ulcers during each episode and lasting for 3-5 days. Similar observations were seen in the study of Safadi in 2009 in a study on Jordanian dental students who noticed that two – thirds of the subjects, ulcers lasted for less than a week [24]. In our study most of them did not take any treatment measures. But a good proportion of the participants resorted to the home remedies as the majority of the clinicians prescribe these during ulcer episodes and a few of them the vitamin supplements and topical gels. A statistically significant relation was seen between family history and ulcer ($p=0.004$). It has been proposed that patients with a positive family history of RAS may develop oral ulcers at an earlier age and have more severe symptoms than those with no such history [25]. We should aim to decrease the symptoms when treating and also to prolong duration of ulcer free periods. Patients should also be advised to maintain good daily oral hygiene. Measures should be taken to decrease the stress among dental students which not only decrease their suffering but also improve their academic performance.

Conclusion

In this study we found that prevalence of aphthous ulcers was high among medical students and the self reported stress was also very high among them. When we evaluated with modified perceived stress scores (PSS), we found a significant association between stress and aphthous ulcer which was confirming the above said finding. As it is clear about the high stress among medical students, some interventions are required to reduce the stress among medical students.

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