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Original Research Article

Prevalence of aphthous stomatitis or recurrent aphthous ulcers in dental students

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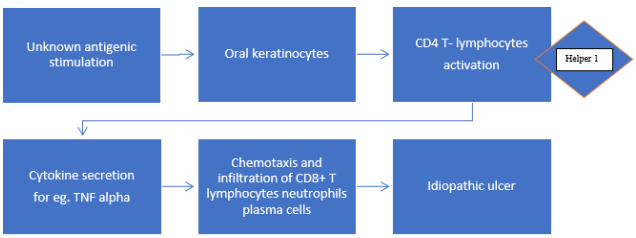
ABSTRACT

Introduction: Aphthous stomatitis is a painful and recurrent inflammatory disorder affecting oral mucosa. It appears as oral manifestation of various diseases. It affects approximately 20% of the general population. Its etiopathogenesis is still unknown. Various risk factors and environmental factors are linked with its pathogenesis. Recently its association with stress has been emphasised in various studies. We tried to find out the most common site and cause of ulcerations in our subjects.
Materials and Methods: A cross-sectional survey was conducted on 314 dental students by distributing a questionnaire via Google forms platform.
Result: Aphthae were most commonly seen on the lower labial mucosa and significant correlation with the mental stress was seen.
Conclusion: The study concluded with a correlation between stress of examinations and work deadlines to be an important factor behind the episodes of aphthous ulcer in dental students.

1. Introduction

Recurrent aphthous ulcer is confined to the oral mucosa in patients with no other signs of disease. It is a diagnosis of exclusion since hematologic deficiencies, immune disorders, and connective tissue diseases may cause oral lesions clinically similar to recurrent aphthous ulcer. These ulcers can be classified as minor ulcers, major ulcers (Sutton disease, periadenitis mucosa necrotica recurrens), and herpetiform ulcers.[1] Various associated predisposing factors are genetic, systemic disease, stress, mechanical injury, hormonal, infections etc. Stress plays an important role in young population between 15-25 years of age. Presence of examination stress, increase in workload, fear of failure have been shown to be highlighting factors in dental students.[2–4] Stress linked alteration in the immune system affects the distribution, proliferation and activity of lymphocytes and natural killer cells, phagocytosis, and production of cytokines and antibodies this lead to aphthous ulcer formation.[5]

Pathogenesis of recurrent aphthous ulcer[6]



2. Aims and Objective

To study the prevalence of recurrent aphthous ulcer and their association with psychological stress in dental students of

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Fig. 1: Minor aphthous ulcer- erythematousprodromal burning stage

Fig. 2: Minor aphthae withsmall white papule ulcerative lesion with pseudo membrane

Fig. 3: Minor aphthous ulcer with localized area of erythema

Fig. 4: Minor aphthous ulcer in healing stage

Fig. 5: Major aphthous ulcer

3. Material and Methods

A cross sectional survey was conducted in Sri Sukhmani Dental College and Hospital, Derabassi, Sas Nagar, Mohali, Punjab on 314 dental students by distributing a questionnaire via Google forms platform. The questionnaire consisted of ulcer episode and their treatment strategies, information about any deleterious habits, family history and causes of stress. The survey conducted included case group of ulcer experience and control group of non- ulcer experience in dental students of first second, third, final year and intern. The questionnaire consisted of the following questions:

1. Have you experienced any ulcer in the past 1 year
2. When was the last time you had an ulcer episode?
3. How many episodes of ulcers were there?
4. How many ulcers did you experience in each episode?
5. How long did the ulcers last?
6. What part of mouth is/was involved?
7. How painful is/was the episode?
8. Did you take any treatment?
9. How helpful is/ was the treatment?
10. Any association of other conditions with the ulcers?

Table 1: Frequency of ulcer experience

	Yes	**No**	**Total**
Ulcer Experience	132 (42.03%)	182 (57.9%)	314

Table 2: Frequency of parameters in ulcer experienced group

Ulcer experience group		**Number (frequency)**	**Percentage**
Last Ulcer Episode	1 month	47	35.6%
	6 month	41	31.06%
	1 year	20	15.15%
	Presently	24	18.18%
Number of Episodes	Once	71	53.7%
	2-3	54	40.9%
	4 or more	7	5.3%
Days The Ulcer Lasted	0-2 days	39	29.5%
	3-5 days	73	55.3%
	6 or more days	20	15.15%
Number of Ulcers In Each Episode	1-2	117	88.6%
	3-6	13	9.8%
	7 or more	2	1.5%
Site In Oral Mucosa Involved	Upper lip	17	12.8%
	Upper gum	12	0.09%
	Throat	10	0.075%
	Cheek	46	34.8%
	Lower lip	66	50%
	Lower gum	22	16.6%
	Tongue underside	32	24.2%
	Tongue top	28	21.2%
	Multiple areas	15	11.3%
Pain Experienced	No pain	14	10.6%
	Slight pain	63	47.7%
	Moderate pain	50	37.8%
	Severe pain	5	3.78%
Association of The Following Conditions(some students had association with multiple conditions)	Fever	0	0
	Spicy food	43	32.5%
	Sharp tooth/cheek bite/tooth	25	18.9%
	Repeated infections	2	1.5%
	Gastric disturbances	21	15.9%
	Skin problems	5	3.7%
	Menstrual cycle changes	9	6.8%
	Vitamin deficiencies	9	6.8%
	Hormonal changes	6	4.5%
	Ortho treatment	15	11.3%
	Diabetes	1	0.75%

Table 3: Stress association

Stress association	**Yes**	**Maybe**	**No**
Frequency	55(41.6%)	41(31%)	36(27.2%)

Table 4: Reason of stress

Examination or work deadlines	69 (52.2%)
Change of Places	28 (21.2%)
Family Dispute	9 (6.8%)
COVID Pandemic	5 (3.7%)
Death of near one	4(3.03%)
Other	12(9%)

Table 5: Treatment done

Any Form Of Treatment Done (some students tried multiple treatments)	No treatment	Vitamins/gels	Home remedies
Frequency	43(32.5%)	71(53.7%)	24(18.1%)
Was It Helpful: YES-84(63%) (out of 89 students that tried some treatment strategies) NO-5(0.03%)			

Table 6: Smoking habit

Smoking habit	Never	Occasionally	Regularly	Previous smoker
Frequency	130*	1	1	0

*No association of smoking and aphthous ulcer was found in our study

Table 7: Family history of ulcers

Any family history of ulcer	Yes	No
Frequency	24(18.1%)	108(81.8%)

Table 8: Association with systemic condition

Any association with systemic conditions	Headache	Bodyache	Conjuctivitis, papules, erythema, scrotal or vaginal ulcers	None
Frequency	14(10.6%)	11(0.083%)	0	113(85.6%)

11. Were you under any stress during ulcer episode?
12. Habit of smoking?
13. Any change in ulcer after smoking cessation?
14. Any family history of ulcers?
15. In case of any stress, please specify cause of stress?
16. Any associated systemic condition?

4. Result

Out of 314 dental students 132 students i.e.42.03% (Table 1) complained of ulcer experience in the last 1 year. Among the ulcer experiencing group majority were females. Out of ulcer experiencing 132 students, 47(35.6%) [Table 2] stated that they had an ulcer episode in the last month, 41(31.06%) [Table 2] had an ulcer episode within the last 6 months and 20(15.1%)[Table 2] in the last 1 year and 24(18.1%) [Table 2] were presently experiencing ulcers. Among ulcer experiencing 132 students 71(53.7%) [Table 2] had at least one episode, 54(40.9%) [Table 2] had 2-3 episodes in the last one year and the least number of students had 4 or more episodes i.e. 7(5.3%) [Table 2]. Majority of students had 1-2 ulcers i.e.117 (88.6%) [Table 2] and most of these lasted 3-5 days in 73(55.3%) [Table 2] students. In this study most of the students complained of lower lip being the common site i.e. 66(50%) [Table 2]. Majority of the students stated that they experienced slight pain i.e. 63(47.7%) [Table 2]. Positive family history of ulcers was reported in 24 (18.8%) [Table 7] Among 132 students, 89(67.4%) [Table 5] took vitamins B 12/complex or home remedies and 84(63%) [Table 5] found these treatments to be helpful. Some of the students associated the ulcer episode with spicy food ie. 43 (32.5%) [Table 2]. 55(41.6%) [Table 3] of students said that they were under stress during the ulcer episode. Most of the students complained of being under stress of examination and work deadlines i.e. 69% [Table 4].

5. Discussion

Recurrent aphthous ulcer is the most common ulcerative lesion of oral mucosa characterised by recurring painful ulcers of mouth that are round or oval and have an inflammatory halo. Minor ulcers, which comprise over 80% of Recurrent aphthous ulcer cases, are less than 1 cm in diameter and heal without scars [Figures 1, 2, 3 and 4]. Major ulcers are over 1 cm in diameter take longer to heal and often scar [Figure 5]. Herpetiform ulcers are considered a distinct clinical entity that manifests as recurrent crops of dozens of small ulcers throughout the oral mucosa. There are cases in which a clear distinction between minor and major ulcers is blurred, particularly in patients who experience severe discomfort from continual episodes of over 10 multiple lesions, although each lesion is under 1 cm in diameter. These lesions have been referred to as “severe” minor ulcers. Sunday o. akintoye et al. reviewed that minor ulcers are most commonly seen on non-keratinised mucosa such as labial [Figures 1, 2, 3 and 4] and buccal mucosa and floor of mouth and ventral surface of tongue.[1–15] While major ulcer is most commonly present on keratinised mucosa such as gingiva attached gingiva hard palate and herpetiform ulcer are seen on buccal and labial mucosa.[7]

Recurrent aphthous ulcer affects approximately 20% of the general population, but when specific ethnic or socioeconomic groups are studied, the incidence ranges from 5 to 50%. In selected groups, such as medical and dental students, it has been observed with a frequency as high as 50% to 60%. We are concerned as aphthous ulcer

interferes with day to day activities by affecting eating and swallowing of patients so it is important to know the prevalence and to provide the treatment strategies as suggested by Ship J A et al.[8]

Aphthae can occur in any age group, but it is more commonly found in the second decade. In our study as well the age group ranges from 18 to 24 years, because this group is unable to cope up with stress.[9,10] Also various studies have shown that there is a correlation of stress and aphthous ulcer. In our study stress related to examination and work deadlines came out to be the main triggering factor in dental students. Gallo et al. studied that psychological stress lead to parafunctional oral habits, including lip and cheek biting, and that those physical traumas may initiate the ulcerative process in susceptible individuals.[2] In our survey spicy food was one of the associating factors in ulcer episodes. Tarakji et al. stated in the study done on Nigerian students that, although dietary habits have no important role in development of recurrent aphthous ulcer but can be playing a minor role in the pathogenesis of recurrent aphthous ulcer by causing hypersensitivity.[4,10–18] Some students gave history of ulcers in their families. Study by Slebioda et al. cited that there is infact some role of family history and genetics in etiology of aphthous ulcer.[19] Further investigation is still required. Majority of the patients in our survey were females. This can be due to stress factor and hormonal changes in the menstrual cycles of females. Kaneswaran T et al. suggested that hormones and recurrent aphthous ulcer do have some correlation but further investigation is still needed.[12–14] Volkov I et al. studied the recovery of some recurrent aphthous ulcer patients after treatment of the nutritional deficiency (Vit B12) has further supported the causative role of nutritional deficiency.[15]

The proper treatment of recurrent aphthous ulcer depends on the severity of symptoms, frequency, size, and number of the ulcers. Greenberg et al. suggested that patients who experience occasional episodes of minor aphthous ulcers experience significant relief with appropriate topical therapy.[4,7] Chlorhexidine mouth rinses or chlorhexidine gluconate gels may reduce the severity and pain of ulceration as studied by Porter et al., although more studies need to be conducted for further investigations.[16] Objective of treatment should be to decrease the symptoms, reduce ulcer number and size as well as prolong duration of ulcer free periods. Chlorhexidine mouthwash without alcohol base may be recommended along with topical anaesthetic gel (2% viscous Lignocaine hydrochloride) to reduce the associated discomfort. Chlorxehidine gluconate gels can give be used as topical treatment. Patients should also be advised to maintain good daily oral hygiene. Avoidance of irritating agents, such as acidic, hard, spicy and salty foods and alcoholic beverages may also be desirable.

6. Conclusion

Recurrent aphthous ulcer is a commonly occurring condition of the oral cavity. It frequently affects quality of life of individuals due to painful nature of recurrent ulcers. This condition has a vexatious impact on speech, eating, social interaction and mental health. Most studies have educed the correlation between stress of examinations and work deadlines to be an important factor behind the episodes of aphthous ulcer in students. In this study as well, prevalence of stress has become a root cause of the formation of ulcers in dental students. Hence, early detection and proper management help the students in coping with this condition. Apart from all, students must be educated with the benefits of nutritious balanced diet, regular exercise, yoga and meditation, to reduce the occurrence of ulcer.

7. Source of Funding

None.

8. Conflict of Interest

None.

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