

PATTERN OF PRESENTATION OF ORAL ULCERATIONS IN PATIENTS ATTENDING AN ORAL MEDICINE CLINIC IN NIGERIA

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ABSTRACT

Aim: This study aimed at describing the epidemiology and pattern of presentation of oral ulcerations among patients seen in Oral Medicine clinic of Obafemi Awolowo University Complex, Ile-Ife.

Methodology: This study was a retrospective cohort study of all cases that presented with oral ulcers in the oral medicine clinic between May 2015 and May 2017. The clinical diagnosis of oral ulcers was based on the WHO guidelines for oral mucosa diagnosis. All the case notes in the unit were retrieved and reviewed. Information extracted from the case notes included age, sex, medical history, clinical findings and treatment received. The data was analyzed using STATA 13 statistical software.

Results: Out of 250 patients seen in the Oral Medicine Clinic during the study period, oral ulcerations were seen in 50 patients comprising 34(68%) males and 16(32%) females, giving a prevalence of 20%. The mean age was 35.4 ±14.7 years and patients were most frequently seen in the third decade of life 16 (32%). The commonest site was lower lip (20; 40%) and ulcers were rare on the gingiva (1, 2%). More than half of the ulcers were solitary (26; 52%) and painful at presentation. Recurrent aphthous ulceration accounted for 47 cases (94%), others were traumatic ulcer (2; 4%) and Chemical burns (1; 2%). Physical stress was the most frequent implicated predisposing factor observed in 38 (76%) patients.

Conclusion: Recurrent aphthous ulcer was the most frequent form of oral ulceration and was commoner in males. Physical stress was the most frequently implicated predisposing factor.

Keywords: Oral ulcerations, Stress, Oral medicine

INTRODUCTION

Oral ulceration is one of the common reasons for Oral Medicine consultations. It is generally defined as damage of both epithelium and lamina propria of the oral mucosa leading to discontinuity of the oral mucosa.¹ Unlike mucosa erosions which involves the loss of only the superficial layers of the oral epithelium, oral ulcerations is associated with loss of the entire epithelia layers and lamina propria. Patients usually present with oral painful wounds that may affect any oral mucosa especially the lips, tongue, floor of the mouth, palate and buccal mucosa.² The usual presentation is that of painful "aphthae," a term of ancient origin referring to ulceration of oral mucosal surface.³ The aetiology of oral ulcer has been well documented in the literature.^{1,3,4} Traumatic ulcer results from the presence of mechanical (sharp edges of tooth, appliances in the mouth, and so on), radiation, chemical (excessive topical medications such as

salicylate, aspirin burns and so on) and radiation injury to oral mucosa during radiotherapy.^{3,5} Removal or the control of the respective source of trauma is critical to the management. Others are pain control and prevention of secondary infection which are quite essential steps in the management of such oral ulcerations.⁶ Infectious ulcers result from the presence of pathogenic organism such as bacterial (syphilitic ulcer, tuberculous ulcer, acute ulcerative gingivitis and so on), virus (herpetic gingivostomatitis, shingles p) and fungi (such as in histoplasmosis).^{3,7} Other implicated aetiology are immune dysfunction (aphthous ulceration, erythema multiformis e.t.c), stress induced ulcer and drugs. Syndromic forms of oral ulceration had also been reported. Such include Behcet's syndrome and Reiter's syndromes in these cases, oral ulcerations are seen in conjunction with genital and cornea ulcerations. Stress and psychological factors have also been

considered as notable etiological factors in some form of oral ulcerations probably due to the role played by stress in immune dysfunction.⁸

Pain and discomfort associated with oral ulcer has been reported to be associated with reduced quality of life.⁹ It is also associated with difficulty in feeding and taste disturbances. Although oral ulcerations are encountered frequently in daily dental practice, information on the local experience and pattern of presentation of this condition in Nigerian population is scanty. This study was aimed at describing the epidemiology and pattern of presentation of oral ulcerations among patients seen in Oral Medicine clinic of Obafemi Awolowo University Teaching Hospital Complex, Ile-Ife.

METHODOLOGY

Study design

This study was designed as a retrospective cohort study of all cases presented with oral ulcers in our hospital from May 2012 to May 2017

Study location

This study was done at the Oral Medicine Clinic of the Obafemi Awolowo University Teaching Hospital Complex, Ile-Ife. This hospital provides tertiary health care for the Nigerian population in the south Western Nigeria.

Subjects

The subjects for this study were all patients diagnosed with oral ulcer for a period of five (5) years from May 2012 to May 2017.

METHODS

Records of all patients that presented and were treated for oral ulcer within the study were retrieved and reviewed. Information retrieved from the case notes includes the biodata such as age, sex and marital status. Relevant history that revealed predisposing factors and systemic conditions of the patients were also recorded. Other information recorded are the results of the examinations such as the location, number and shape of ulcers as well as other lesions seen. The clinical diagnosis of oral ulcers in our clinic is usually routinely made based on the WHO guidelines for oral mucosa diagnosis as reported by Kramer *et al* in 1980.¹⁰ Information obtained was recorded on a Subject Information Sheet.

Data analysis

Data analysis was done using Stata 13 statistical software (Statacorp, College Station, Texas). Descriptive statistics was used to characterize socio-demographic variables such as sex, marital status and occupation. For descriptive continuous variables, the

mean, median, minimum value, maximum value and appropriate measures of variability were determined depending on if they are normally distributed or not. For descriptive variables that are categorical, simple frequency and percentages was determined. Bivariate analysis such as *t*-test and Fisher's exact or their non-parametric equivalents was used as appropriate to compare between two variables. Statistical significance was inferred at $p < 0.05$ and confidence interval was set at 95% for all the analysis.

RESULTS

A total of 250 patients attended the oral medicine clinic during the period of study out of which fifty (50) patients had clinical diagnosis of oral ulceration giving a prevalence of 20%. The various forms of ulceration seen were recurrent aphthous ulcer, complex aphthosis, traumatic ulcer, and drug/chemical induced ulcer.

Table 1: Socio-demographics of the patients

Variable	Frequency	Percentage (n=50)
Sex		
Male	34	68
Female	16	32
Age (Years) Mean = 35.4 ± 14.7		
<20	6	12
21-30	16	32
31-40	11	22
41-50	7	14
51-60	7	14
>60	3	6

Socio-demographics of the patients were shown in Table 1. Of the total 50 patients with oral ulcers during the period, 34 were males (68%) and 16 were females (32%) giving a male to female ratio of 2.1: 1. Most of the patients were in the third decade of life (n=16, 32%).

Though most of the ulcers were single ulcers (n=26, 52%), they are almost equally distributed with multiple ulcers being (n= 24, 48%). (Fig. 1)

Table 2: Location of the ulcers

Location	Frequency	Percentage
Lower lip	20	40
Buccal mucosa	10	20
Tongue	6	12
Tongue and lips	9	18
Posterior cheek	4	8
Gum and tongue	1	2

Table 3: Clinical diagnosis of the ulcers

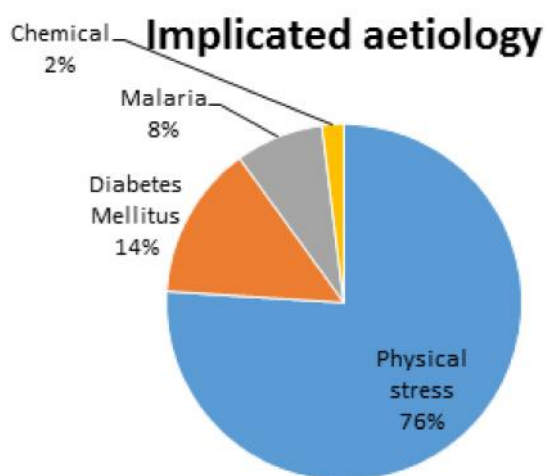
Diagnosis	Frequency	Percentage
Minor Aphthous ulcer	27	54
Major Aphthous ulcer	14	28
Complex aphthosis	6	12
Traumatic ulcer	2	4
Chemical induced ulcer	1	2

Majority of the ulcers were located on the lower lip (n=20, 40%), buccal mucosa was next (n=10, 20%) the gingiva being least in frequency (n=1, 2%). (Table 2)

Recurrent aphthous ulcer (RAU) formed the bulk of ulcers that presented to our clinic within this period (n=47, 94%). Minor aphthous was (54%, n=27), major aphthous (28%, n=14) and complex aphthosis (12%, n=6).

Implicated etiological factor

Stress of various forms was responsible for majority of the implicated predisposing factor while exposure to chemical agents was the least factor (Fig. 1)

**Fig. 1:** Implicated etiological/predisposing factor**Table 4:** Relationship between age and oral ulcerations

Age Category	Minor Aphthous	Major Aphthous	Complex aphthosis	Traumatic ulcer	Chemical
<20	5	0	0	0	1
21-30	10	5	1	0	0
31-40	6	3	1	1	0
41-50	3	2	2	0	0
51-60	3	1	2	1	0
>60	0	3	0	0	0

Age 21-30 is the most frequent age for minor aphthous ulcers (n=10, 37.04% of minor recurrent aphthous ulcer [MiRau]). Most frequent age for occurrence of major aphthous ulcer is also 21-30yrs (n=5, 35.71% of major aphthous ulcer [MajRau]). Overall 21-30yrs is the age with the most frequent oral ulceration (n=16, 32% of total oral ulceration).

DISCUSSION

Oral ulceration is one of the commonest reasons for dental consultations and has been associated with impaired quality of life.⁹ The prevalence of oral ulceration in this study was 20%. This result is at variant with a United State study that reported 4%.¹¹ Unlike this study which was conducted among patients who come for dental consultations, the US study was a community based study and that may be responsible for the lower prevalence. In a study done among patients with Behcet syndrome prevalence of 25% was reported.¹² Recurrent Aphthous ulcer which is probably the commonest oral ulceration affects a range of 5% to 66% of population depending on the group studied.¹ Some previous African studies had, however, reported low prevalence for oral ulceration as low as 1.3% and 1.96% being the findings of a Ghanaian study by Amoateng et al and a Nigerian study by Omoregie et al respectively.^{13,14}

The distribution of oral ulcers is greatly affected by sex. The finding of this study showed a male preponderance with a male female ratio 2.1: 1. This is in agreement with the reports of Omoregie *et al.*¹³ Unlike this study, Amoateng *et al.*⁴ reported a female predominance. Female predispositions to oral ulcers may be due to hormonal changes which is peculiar to females, hormonal changes is one of the predisposing factors to oral ulcerations.¹⁵

Minor aphthous ulcer, also known as mickuliz apthae was the most frequent oral ulcer that presented in this study, representing 54% of all oral ulcerations seen. This findings is in agreement with most earlier studies.^{1,3,13,16} It typically presents as recurrent small,

round or ovoid ulcers with circumscribed margins, erythematous haloes and yellow or grey fibromembranous floor.⁸ Recurrent aphthous ulcer is the commonest disease of the oral mucosa affecting between 5% and 66% with about 20% of individuals in most population having the condition to some degree.¹⁴ The higher prevalence of the predisposing factors of aphthous ulcer among the populace may be responsible for the higher prevalence of aphthous ulceration.⁸

The commonest location of oral ulcer in this study was lower lip, seen in 40% of the subjects. This finding is in agreement with the report of an Iranian study by Mortazavi *et al*, 2016 that showed the lips as the commonest site of oral examination.^{1,2} However, a Nigerian study by Ojo *et al* earlier reported the site distribution of the ulcers in favour of the gingiva for recurrent aphthous ulcer.¹⁷ The later study was done among children who are known to naturally have higher prevalence of gingivitis¹⁸ this probably is responsible for the higher prevalence of ulceration in the gingivae. The distribution of oral ulceration is also affected by age. In this study, oral ulceration is commonest among the subjects in 21-30 years age category. This is in agreement with the report of Chaudhuri *et al*, 2016 who examined 705 patients with ulceration and showed that the most frequent age group of occurrence to be 21-30 with 145 (20.7%) subjects. Muhaidat *et al*, however, in a Jordan population study reported oral ulcer to be commonest among those in 31-40 years.¹⁹ Most of the implicated aetiology of oral ulcers is commoner in active individuals between ages 21-40; this may be responsible for the higher prevalence in the age groups.

Physical and emotional stress has been strongly associated with oral ulcers and that was found in this study. The mechanisms explaining stress as an etiological factor in recurrent aphthous ulcer episodes are not fully-understood. Increased levels of salivary cortisol or of reactive oxygen species in the saliva have been suggested as the initiator of the lesions.²⁰⁻²² Due to stress, patients may begin parafunctional habits that cause traumatic injuries to the area, thus leading to an episode.²⁰ A genetic alteration of pathways linked to stressful responses may also be involved.²² The real role of stress is still unknown but it can probably be related with the modifications that affect multiple immune system components including the distribution, proliferation and activity of lymphocytes and natural killer cells, phagocytosis, and production of cytokines and antibodies.

CONCLUSION

This study showed a higher prevalence of oral ulcerations among patients presenting at Oral Medicine Clinic having reported that about one out of every five patients has oral ulceration. The oral ulcers seen in this study were mainly recurrent aphthous, others are complex aphthoses, traumatic ulcer due to biting the oral tissues or injuries from food and chemical ulcers. Male predilection was also found in this study. Lips were the commonest intra oral site and the disorder was commonest among patients at age group 21-30 years. Having identified stress as a major predisposing factor to the development of oral ulcers, it become necessary to recommend proper health education and programme that will ease the stress of the population. Also understanding the pathophysiology, careful examination of oral ulcers and determining the underlying causes will assist immensely in the management of such lesions.

REFERENCES

1. **Leao JC**, Gomes VB, Porter S. Ulcerative lesions of the mouth: an update for the general medical practitioner. *Clinics (Sao Paulo, Brazil)*. 2007;62(6):769-780.
2. **Mortazavi H**, Safi Y, Baharvand M. Diagnostic Features of Common Oral Ulcerative Lesions: An Updated Decision Tree. 2016:7278925.
3. **Bruce AJ**, Rogers RS, 3rd. Acute oral ulcers. *Dermatol Clin*. 2003;21(1):1-15.
4. **Azodo CC**, Osazuwa O. Dental conditions among competitive university athletes in Nigeria. *Odontostomatologie tropicale = Tropical dental journal*. 2013;36(141):34-42.
5. **Jasper J**, Roithmann S, Camilotti RS, *et al*. Effect of G-CSF on oral mucositis and traumatic ulcers produced in the tongue of rats undergoing radiotherapy: clinical and histologic evaluation. *Oral surgery, oral medicine, oral pathology and oral radiology*. 2016;122(5):587-596.
6. **Altenburg A**, El-Haj N, Micheli C, *et al*. The treatment of chronic recurrent oral aphthous ulcers. *Deutsches Arzteblatt international*. 2014;111(40):665-673.
7. **Elfering L**, van der Sluis WB, Mermans JF, Buncamper ME. Herpes neolabialis: herpes simplex virus type 1 infection of the neolabia in a transgender woman. *International journal of STD & AIDS*. 2017;28(8):841-843.
8. **Karthikeyan P**, Aswath N. Stress as an etiologic co-factor in recurrent aphthous ulcers and oral lichen planus. *Journal of oral science*. 2016;58(2):237-240.

9. **Kurklu-Gurleyen E**, Ogut-Erisen M, Cakir O, Uysal O, Ak G. Quality of life in patients with recurrent aphthous stomatitis treated with a mucoadhesive patch containing citrus essential oil. Patient preference and adherence. 2016;10:967-73.
10. **Kramer IR**, Pindborg JJ, Bezroukov V, Infirri JS. Guide to epidemiology and diagnosis of oral mucosal diseases and conditions. World Health Organization. Community dentistry and oral epidemiology. 1980;8(1):1-26.
11. **Shulman JD**, Beach MM, Rivera-Hidalgo F. The prevalence of oral mucosal lesions in U.S. adults: data from the Third National Health and Nutrition Examination Survey, 1988-1994. Journal of the American Dental Association (1939). 2004; 135(9): 1279-1286.
12. **Taylor J**, Glenny AM, Walsh T, *et al*. Interventions for the management of oral ulcers in Behcet's disease. The Cochrane database of systematic reviews. 2014(9):Cd011018.
13. **Omoregie O**, Okoh M. Oral ulcerative lesions: a review of 55 cases in Benin-City, Nigeria. Nig Dent J. 2013;21(1):3-7.
14. **Amoateng J**, Donko D. The prevalence of benign oral ulceration among patients attending a dental clinic in Komfo Anokye Teaching Hospital. Ghana Medical Journal. 2004;38(3):101-103.
15. **Balan U**, Gonsalves N, Jose M, Girish KL. Symptomatic changes of oral mucosa during normal hormonal turnover in healthy young menstruating women. The journal of contemporary dental practice. 2012; 13(2):178-81.
16. **Zuhair HM**, Rania ER. Prevalence of Oral Ulceration among Jordanian People. Pakistan Oral & Dental Journal. 2013;33(1):1-15.
17. **Ojo M**, Adegboye A, Ogunbodede E, Olusile A. Occurrence and distribution of oral ulcerative lesions in children at Ile-Ife, Nigeria. 1994; 11: 27-29. Nig Dent J. 1994;11:27-29.
18. **Mandal S**, Ghosh C, Sarkar S, *et al*. Assessment of oral health status of Santal (tribal) children of West Bengal. Journal of the Indian Society of Pedodontics and Preventive Dentistry. 2015; 33(1): 44-47.
19. **MuhaidaT Z**, Rodan R. Prevalence of oral ulceration among jordanian people. Pakistan Oral and Dental Journal 2013;33(1):42-49.
20. **Albanidou-Farmaki E**, Pouloupoulos AK, Epivatianos A, *et al*. Increased anxiety level and high salivary and serum cortisol concentrations in patients with recurrent aphthous stomatitis. The Tohoku journal of experimental medicine. 2008;214(4):291-296.
21. **Keenan AV**, Spivakovksy S. Stress associated with onset of recurrent aphthous stomatitis. Evidence-based dentistry. 2013;14(1):25.
22. **Huling LB**, Baccaglini L, Choquette L, *et al*. Effect of stressful life events on the onset and duration of recurrent aphthous stomatitis. Journal of oral pathology & medicine : official publication of the International Association of Oral Pathologists and the American Academy of Oral Pathology. 2012;41(2):149-152.