
Prevalence of aphthous stomatitis reported in a private dental institution - a retrospective study

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Abstract: Aphthous ulcers or recurrent aphthous stomatitis (RAS) are benign ulcerated lesions common in oral mucosa with uncertain etiology, considered as immunologically mediated hence management of recurrence becomes challenging. The aim of the study was to assess the prevalence of various clinical types of Aphthous stomatitis reported in Oral Medicine Department of Saveetha Dental College. A total of 44 cases were collected from the Oral Medicine Department of Saveetha Dental College. The incomplete documented cases were not included. Statistical tests were used to calculate the frequency of age, gender, type of Aphthous ulcer and site of aphthous ulcer. The Pearson chi square test was used and analyzed in SPSS version 26. The comparison of frequency of age showed that aphthous ulcer was common in 20 to 35 years of age. On analysis of frequency distribution of Aphthous stomatitis males were higher [68%] than females [32%]. On comparing the clinical types of Aphthous ulcer, minor aphthous ulcer [79.5%] was higher than major aphthous ulcer [13.6%] and Herpetiform ulcer [6.8%] was least prevalent. On comparing the various site of Aphthous ulcer, tongue prevalence [36.6%] was higher. Pearson chi square association analysis of type of aphthous stomatitis with clinical site revealed statistical significance with p value <0.05. Minor aphthous ulcer more prevalent in tongue while major aphthous ulcer in labial mucosa and herpetiform in buccal mucosa.

Keywords: Aphthous Major, Aphthous Minor, Aphthous Stomatitis, Herpetiform Aphthous innovative technique.

INTRODUCTION

Aphthous ulcers or recurrent aphthous stomatitis (RAS) are benign ulcerated lesions considered as one of the most common oral ulcerations with exacerbations and self limiting in most of the cases. (Venugopal and Uma Maheswari, 2016). Aphthous ulcer is divided into three forms: minor, major, and herpetiform. The most common clinical presentation, the minor form, is responsible for 70% to 85% of all, characterized by circular, ovoid or elongated lesions with a crateriform base, measuring less than 1cm in diameter, covered by a white-gray pseudomembrane and with a resolution time of 10 to 14 days. (Chaitanya *et al.*, 2017) The number of ulcerations is also important and the minor aphthous ulcer usually varies from one to five and usually does not cause scarring. (Subashri and Uma Maheshwari, 2016)

The major form is less common than the minor, representing around 7% to 20% of the cases, have more than 1cm in diameter, are deeper and can be associated with dysphagia and can last for months, leaving scars. (Maheswari *et al.*, 2018) The dysphagia is associated with the site of the lesion, being more frequent in the internal mucous membrane of the lip, tongue, and soft palate. The herpetiform form is rare and presents as groups of pinpoint ulcers in 5% to 10% of RAS, with a size of 0.1-0.2cm and in a large number (5-100 ulcers at the same time). They can coalesce forming a large and irregular lesion that can have a clinical course of 7-14 days. Despite the name and its features, the herpes simplex virus (HSV) is not identified in these lesions. (Misra *et al.*, 2015)

Aphthous ulcers do not have a clear etiology and, in some cases, are challenging especially in control of recurrence rate and management of refractory cases causing discomfort to the patients. (Steele *et al.*, 2015) The development of recurrence can be related to hereditary, psychosomatic, infectious, hormonal (periods, pregnancy or post-menopausal) factors, trauma, stress, food allergies, nutritional deficiencies (iron, vitamin B12, and folic acid and hematological abnormalities. (Chaitanya *et al.*, 2018; Patil *et al.*, 2018) However, the absence of biochemical and histological specific changes characterizes this condition and allows the diagnosis of recurrent aphthous ulcers. (Muthukrishnan and Warnakulasuriya, 2018)

Its similarities with other mucocutaneous, oral ulceration conditions make the diagnosis difficult, in a way that the differential diagnosis with other lesions such as herpes, chickenpox, erythema multiforme, erosive lichen planus with ulceration, Sutton's ulcers, Riga-Fede disease, pemphigus Vulgaris and pemphigoid should be based in the clinical features, location, and course of the ulceration.

Clinically diagnosis of recurrent aphthous ulceration depends mainly on history and clinical examination. The prevalence of aphthous varies greatly among different populations and in different age groups with a range from 5-66% among different nations.(Rohini and Jayanth Kumar, 2017) Patients with mild recurrent aphthous ulceration usually do not require any treatment for the lesion. However topical corticosteroid therapy may be used to reduce the frequency and severity of attacks especially in severe refractory cases.

The study aims to assess the prevalence of various clinical types of Aphthous ulcer reported in the Oral Medicine Department in a University setting. The primary objective is to evaluate the frequency distribution of various clinical types of Aphthous stomatitis in age and gender and in various clinical sites.

Our department is passionate about research we have published numerous high quality articles in this domain over the past years (Abraham *et al.*, 2005; Devaki, Sathivel and BalajiRaghavendran, 2009; Neelakantan *et al.*, 2010, 2015; Arja *et al.*, 2013; Ramshankar *et al.*, 2014; Sumathi *et al.*, 2014; Surapaneni and Jainu, 2014; Surapaneni, Priya and Mallika, 2014; Ramamoorthi, Nivedhitha and Divyanand, 2015; Manivannan *et al.*, 2017; Ezhilarasan, 2018; Ezhilarasan, Sokal and Najimi, 2018; J *et al.*, 2018; Ravindiran and Praveenkumar, 2018; Malli Sureshbabu *et al.*, 2019; Mehta *et al.*, 2019; Krishnaswamy *et al.*, 2020; Samuel, Acharya and Rao, 2020; Sathish and Karthick, 2020)

The secondary objectives are to assess the association of clinical types of Aphthous stomatitis with clinical sites apart from age and gender.

MATERIALS AND METHODS

The number of aphthous ulcer cases was collected through the electronic database of Saveetha Dental College using a database system in a University setting. The study population was 44. The sampling was done by collecting case records data from [01/06/2019] till [01/03/2020] and compiled systematically in an excel sheet wherein the patient age, name, gender, duration of pain and specifically identifying the prevalence of site and type of ulcer. The methods were done by the study setting which consists of university data collected from the Oral Medicine Department. There has been an approval of ethical clearance from the Scientific Review Board [SDC/SIHEC/2020/DIASDATA/0619-0320]. The number of people involved in the current study were three namely the principal investigator, guide and reviewer.

In this data, all the case sheets are reviewed, cross verification was done, duplicate entries were removed and photographic evidence was also used for confirmation of all cases included. There were also measures taken only to include clinically diagnosed aphthous ulcer cases. The parameters which were retrieved and tabulated in data extraction were Name, age, gender, clinical sites and types of aphthous ulcers along with clinical findings such as site, size, shape and significant palpatory findings. The inclusion criteria was clinically diagnosed recurrent aphthous stomatitis cases with proper documentation of case history such as complaint and history of present illness with prodromal symptoms, recurrence, pain history and clinical examination of ulcers such as clinical site, type, size. The exclusion criteria was incomplete documentation of cases and ulcers not clinically diagnosed as aphthous stomatitis. The inclusion and exclusion criteria was devised to ensure internal and external validity and convenience sampling method was followed to ensure proper selection of study samples. The data was transferred to excel and duplicate entries were removed. The analysis was done using SPSS software version 26. The dependent variable considered as various types of aphthous ulcer and independent variables are age, gender, and site of aphthous ulcer. The Descriptive statistics such as frequency distribution of various clinical types in age, gender and clinical sites was done. Inferential statistical tests such as Pearson chi-square analysis were conducted to evaluate the association of clinical types of aphthous ulcers with age, gender, and clinical sites.

RESULT AND DISCUSSION

The prevalence of Aphthous ulcer was higher in males 68% than females 32%. The common types of Aphthous ulcers were Recurrent aphthous minor as 79.5% when compared with recurrent aphthous major [13.6%] and least prevalent was Herpetiform aphthous 6.8% [Graph 1]. Based on Clinical sites, the most common site was tongue as 38.6% followed by the buccal mucosa as 18.2%, labial mucosa as 29.5% and palate as 13.6% [Graph 2]. Association of clinical types of aphthous ulcer with clinical types [Graph 3], and association of aphthous ulcer with different age groups [Graph 4] and gender [Graph 5] revealed no statistical significant association with p value greater than 0.05. The Highest prevalence was observed in the age group of 20 to 35 years. In agreement with this study [Mustafa et al, in his research shows a higher prevalence in age groups greater than 20 years of age group. Contrary to this study Santhosh et al proposed higher in more than 30 years age groups. (Dharman and Muthukrishnan, 2016; Muthukrishnan, Bijai Kumar and Ramalingam, 2016). Overall Consensus the prevalence of Aphthous ulcer is higher in age groups greater than 20 yrs. The Prevalence of Aphthous ulcer is higher in males

[68%] than females [32%]. In agreement with this study presentation of recurrent aphthous ulcer among patients in a tertiary hospital, (Okoh and Ikechukwu, 2019) showed a higher prevalence in males [54.5%]. Contrary to this study showed a higher prevalence in females [56.3%](Patil *et al.*, 2014). The Consensus overall was most studies results proved to be prevalent among females than males depending upon population. The most common type of Aphthous ulcer was minor [86%], followed by major [12%] and least prevalent was herpetiform [2%]. In agreement with this results of the current study higher prevalence type of ulcer that was minor aphthous ulcer (Okoh and Ikechukwu, 2019). The Overall consensus suggests most articles concerning type are minor aphthous ulcers. The Clinical sites associated, buccal mucosa 18.2%, Tongue 38.6%, Labial mucosa 29.5% and Palate 13.6%. In agreement with this study, the highest prevalence was tongue (Abdullah, 2013). Contrary to this study [Yojari *et al.*, the prevalence of recurrent aphthous stomatitis in the western population of Maharashtra, India] showed higher prevalence is the labial mucosa. (Choudhury *et al.*, 2015).

The Overall consensus explores that most studies concerning sites as common sites are tongue and labial mucosa. (Muthukrishnan and Bijai Kumar, 2017; Subha and Arvind, 2019). The Limitations of this study are the limited population covered with specific periods are covered with limited samples and subjects covered from a single institutional study. Future studies' concentrating on educational levels and occupational status with more details of clinical examination and associated systemic diseases and finding the association of prevalence of aphthous stomatitis with biochemical evaluation will have a great impact on management of refractory cases of aphthous stomatitis.

CONCLUSION

Within the limits, the present retrospective study concludes that males are mostly affected with aphthous ulcer. The age group between 20 to 35 years are commonly affected. The most common site of aphthous ulcer was tongue with the most common type was minor aphthous ulcer. Pearson association analysis reveals statistical significant association with clinical types and clinical sites with p value 0.048. Future studies on focussing the biochemical evaluation of Aphthous stomatitis may provide insight in the predisposing factors and can provide information in proper management of recurrence and refractory cases of Aphthous stomatitis.

AUTHOR CONTRIBUTIONS

The first author (Dr. Dhanvanth) performed the analysis, and interpretation and wrote the manuscript. The second author (Dr. Uma maheswari.T.N) contributed to the conception, data design, analysis, interpretation, and critically revised the manuscript. The third author (Dr. Deepika.R) participated in the study and revised the manuscript. All three authors have discussed the results and contributed to the final manuscript.

Conflicts of interest: The authors declare no conflicts of interest.

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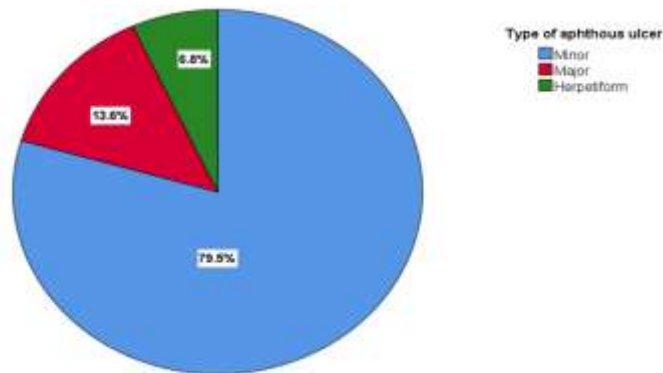
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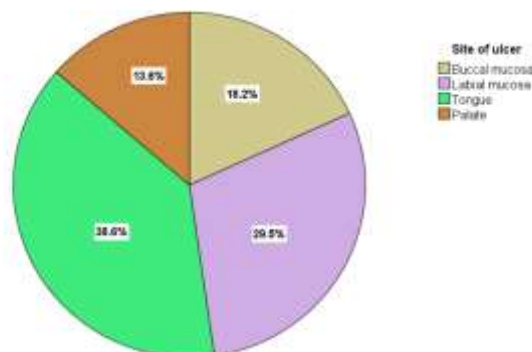
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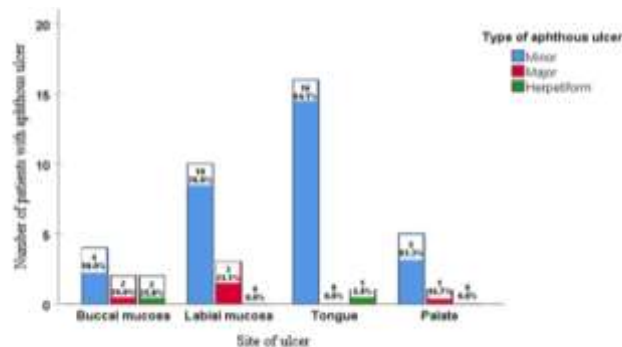
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Graph 1: Pie chart represents the frequency distribution of aphthous ulcer based on type of aphthous ulcer. Blue colour indicates minor aphthous ulcer 79.5%. Red colour indicates major aphthous ulcer 13.6%. Green colour indicates Herpetiform aphthous ulcer 6.8%. It was found that the most common prevalence type of aphthous ulcer was minor aphthous ulcer 79.5%.

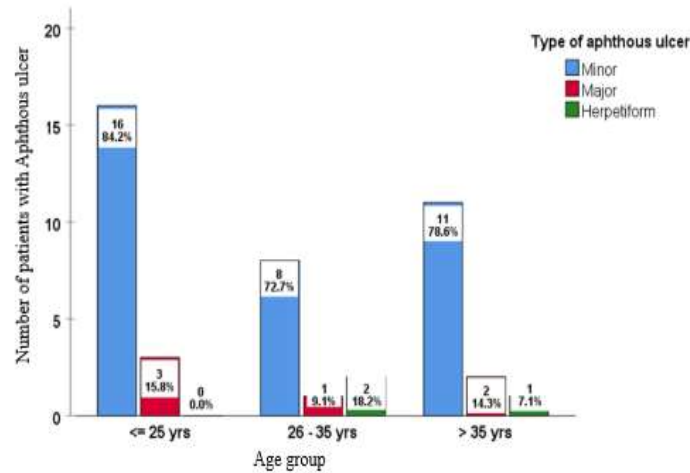


Graph 2: Pie chart represents the frequency distribution of aphthous ulcers based on clinical sites. Green colour indicates tongue 38.6%. Violet colour indicates labial mucosa 29.5%. Brown colour indicates palate 13.6%. Grey colour indicates Buccal mucosa 18.2%. It was found that the most common prevalent site of aphthous ulcer was tongue as 38.6%.

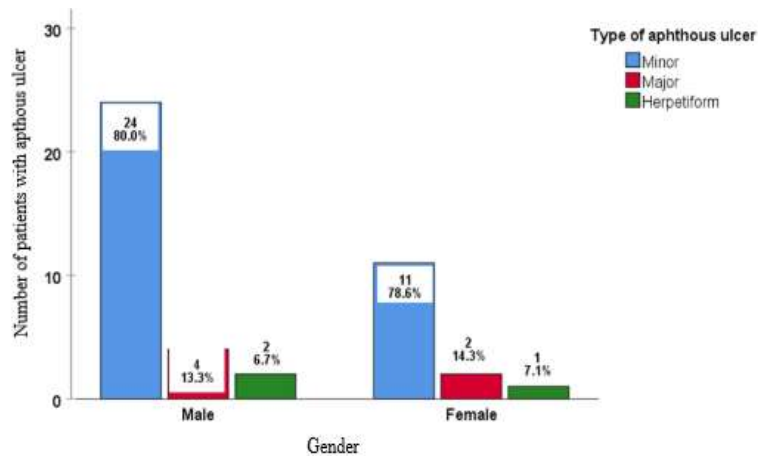


Graph 3: The Bar Graph represents the association of clinical types of aphthous ulcer with clinical sites. X-axis represents the site of ulcer and Y-axis shows the number of patients with Aphthous ulcer. Pearson chi square test (10.516) shows p value is 0.048, (p value <0.05). It is statistically

significant with minor aphthous ulcer more prevalent in tongue while major aphthous ulcer in labial mucosa and herpetiform in buccal mucosa.



Graph 4: The Bar Graph represents the association of clinical types of aphthous ulcer with age groups. X-axis represents the age groups and Y-axis shows the number of patients with Aphthous ulcer. Pearson chi square test (3.734) shows p value as 0.522 ($p > 0.05$) which is statistically not significant however minor and major aphthous ulcer were most prevalent in less than 25 years while herpetiform was most prevalent in 26 to 35 years.



Graph 5: The Bar Graph represents the association of clinical types of aphthous ulcer with gender. X-axis represents the gender and Y-axis shows the number of patients with Aphthous ulcer. Pearson chi square test (0.012) shows p value as 1.000 ($p \text{ value} > 0.05$) which is statistically not significant however minor aphthous ulcer was more prevalent in both males and females.