



## Traumatic oral mucosal lesions in elderly dental patients - An institutional study

Aishwarya Reddy B<sup>1</sup>, Herald J Sherlin\*<sup>2</sup>, Nivethigaa B<sup>3</sup>

<sup>1</sup>Saveetha Dental College and Hospitals, Saveetha Institute of Medical and Technical Sciences, Saveetha University, Chennai – 600077, Tamil Nadu, India

<sup>2</sup>Department of Oral pathology, Saveetha Dental College and Hospitals, Saveetha Institute of Medical and Technical Sciences, Saveetha University, Chennai – 600077, Tamil Nadu, India

<sup>3</sup>Department of Orthodontics, Saveetha Dental College and Hospitals, Saveetha Institute of Medical and Technical Sciences, Saveetha University, Chennai – 600077, Tamil Nadu, India



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### ABSTRACT

Oral trauma in elderly population constitutes an increasingly recognized problem. Aging results in a progressive decline in cellular function, which leads to loss of their capacity to respond to an injury. The aim of the study is to check the prevalence of traumatic oral mucosal lesions in elderly population/patients visiting a dental clinic. Elderly patients with oral mucosal lesions reported to dental hospitals were selected. Data from 86000 patients visiting Saveetha Dental College during the time period of June 2019 to March 2020 were reviewed, and the data was collected. This is a single centred retrospective study conducted in a private dental institution, Chennai. The collected data were tabulated and analysed using SPSS software by IBM. Out of 80 patients, 56.3% of the patients were of age 60 to 65 years. 42% of the patients had Denture stomatitis which was the highest among all the traumatic oral mucosal lesions. Males were more prevalent to oral mucosal lesions with 57.5% than females. The most common site with oral mucosal lesions is palate with 44%. The overall prevalence of traumatic oral mucosal lesions in the elderly population is high. Denture stomatitis is the most commonly occurring oral traumatic mucosal lesion among elderly patients visiting the dental clinic.

### \*Corresponding Author

Name: Herald J Sherlin

Phone:

Email: [sherlin@saveetha.com](mailto:sherlin@saveetha.com)

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### INTRODUCTION

In spite that different cut off levels have been suggested, 65 years represent the most accepted age to consider a patient as an elderly or geriatric patient. Bacterial infection or leukoplakia is also more common in elderly people (Sridharan *et al.*, 2017). The proportion of elderly worldwide is changing the distribution and shape the population pyramid and bringing new social and economic concerns. Untreated lesions may develop malignancy (Thangaraj *et al.*, 2016). This population is now projected to reach two billion by 2050, with 80% in developing countries. Cases with Oral cancers are also increasing day by day with squamous cell carcinoma being the most common type (Gupta

and Ramani, 2016).

Among disabling diseases, traumas have been a growing concern for the elderly, especially because of specific characteristics, such as the decline in physiological reserves and the ability to maintain homeostasis. Previous studies have been done on squamous cell carcinoma (Jayaraj *et al.*, 2015c). The sharp cusps of the third molars might cause mucosal lesions (Sivaramakrishnan and Ramani, 2015). Older adults are more vulnerable because at the cellular level reflects anatomic and functional changes, which are also influenced by associated diseases and the chronic use of medications. Previous studies on saliva as a diagnostic tool have been done (Shree *et al.*, 2019). Trauma-related oral lesions are common in the clinical practice of dentistry; untreated lesions might develop into cancerous lesions (Viveka *et al.*, 2016). Such lesions can impair a patient's normal oral function and cause pain in patients while eating, chewing and talking. Dental photography plays a major role as we can compare the clinical appearance of mucosal lesions, how the treatment works and proper conclusions on healing can be done (Hannah *et al.*, 2018). After receiving a diagnosis, treatment can be provided if the causative factors are removed. Previous studies on cleft lip were done; this experience led us to work on the present study (Jangid *et al.*, 2015). An injury to the oral mucosa and result from physical, chemical, mechanical or thermal trauma. Oral epithelial dysplasia can also cause mucosal lesions (Jayaraj *et al.*, 2015a).

Traumatic mucosal injuries can result from accidental tooth bite, hard food, sharp edges of the tooth, hot food or excessive tooth brushing. Previous studies on salivary metabolics in oral leukoplakia have been done, which will help on the current topic (Sridharan *et al.*, 2019). Some injuries can also be caused by iatrogenic damage during dental treatment or other procedures related to the oral cavity. History plays a major role in diagnosing the case (Swathy *et al.*, 2015). Oral mucosal lesions are more common among the elderly population. These groups of patients are at risk of developing many pathologies owing to increased occurrence of systemic diseases, age-related metabolic changes, nutritional deficiencies. Malignant cancerous lesions have less rate of healing (Sherlin *et al.*, 2015). They are also under long term medications for systemic diseases and might have deleterious habits like tobacco or alcohol. The lesions must be treated as they, in turn, become malignant (Gheena and Ezhilarasan, 2019).

The mucosal lesions are more common in denture wearers. The sooner the diagnosis of the lesion,

the better the treatment (Jayaraj *et al.*, 2015b). The area of the oral mucosa covered by a complete denture is greater than that covered by a partial denture. It may, therefore increase the risk of denture-related mucosal lesions. Contact allergy to denture base occasionally occurs (Fleishman *et al.*, 1985). In such cases, redness will not be restricted to the tissue under the denture, but all mucosal surfaces in contact with the acrylic will be red. Mucosal lesions such as traumatic ulcer, denture-induced stomatitis, denture hyperplasia, angular cheilitis, frictional keratosis occur in patients wearing dentures (Anura, 2014). Hence, these patients are prone to a wide range of lesions ranging from infections to neoplasms (Singh, 2016). These disease patterns could be altered by improving patient awareness, incorporating lifestyle changes and focusing on oral health (Brauer *et al.*, 1986).

Hence, this study is designed to study the prevalence of traumatic oral mucosal lesions in elderly patients visiting a dental clinic. Not many studies are done on the south Indian population as an institutional experience. This study helps to know about the common oral traumatic lesions seen in the elderly population. This study will fulfill the lack of knowledge about the incidence of various traumatic oral mucosal lesions.

## MATERIALS AND METHODS

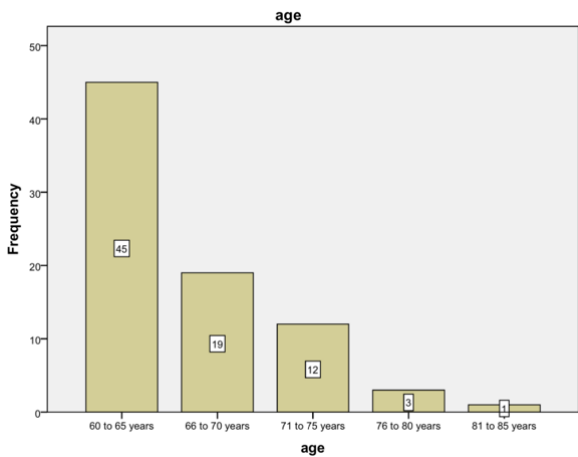
It is a single centred retrospective study in a private dental institution, Chennai. The samples were taken from the patients who checked in from June 2019 to March 2020, reported to the dental hospital with Traumatic and Mucosal lesions. Ethical clearance for this study was obtained from the institutional review board.

Two reviewers were involved. Data from 86000 patients visiting Saveetha Dental College during the time period of June 2019 to March 2020 were reviewed, and the data was collected. The data was obtained from the category- Traumatic mucosal lesions and patients above the age of 60 years. The patient list was identified, and the case sheet was verified with the help of photographs and treatment notes. The internal validity included diagnosed cases as per the criteria, clinical findings and habits.

The data collected were tabulated under the following parameters: Age, Gender, Cause of the lesion, Lesion present and Site of the lesion. The data was imported to SPSS, and the analysis was done using SPSS software version 19 by IBM. The Chi-square test was performed to compare the data and check for its distributions. The statistical significance of p-value is set at 0.05.

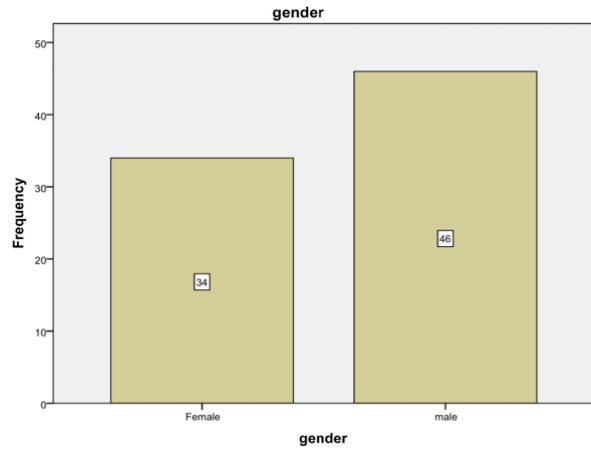
**RESULTS AND DISCUSSION**

The data collected from the patient management software was tabulated, imported to SPSS, and Descriptive statistics were obtained. Out of 80 patients, 56% of the patients were from the age group 60 to 65 yrs, 23% of them from 66 to 70 yrs, 15% from 71 to 75 yrs, and 4% above 75 yrs. The X-Axis denotes age group. Y-axis denotes the percentage. A more frequent occurrence is noted in the elderly population within 60-65 years of age. From the results, it is evident that 56.3% of the elderly patients with traumatic mucosal lesions are from the age group 60 to 65 yrs, as shown in Figure 1. In the study given by Al-Maweri et al. (2015), 72.5% of the patients were from the age group 60 to 69 yrs. This study shows a similar ethnicity. The decrease in the incidence of traumatic oral mucosal lesions with increasing age can be due to certain medical reasons or quitting oral risk habits such as smoking, tobacco chewing, etc. Consequently, the incidence of such lesions will decrease significantly.

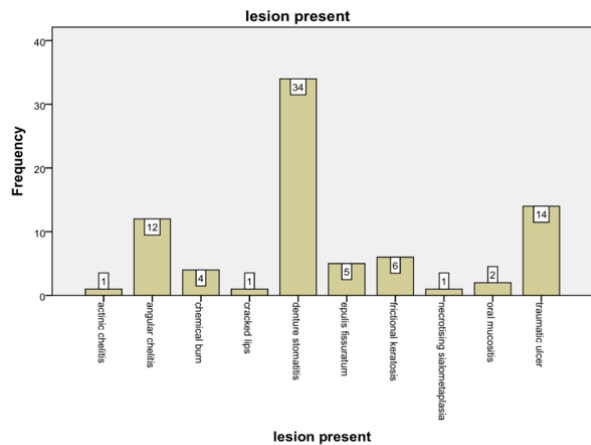


**Figure 1: The bar graph depicts the frequency of age groups in the elderly population with traumatic oral mucosal lesions**

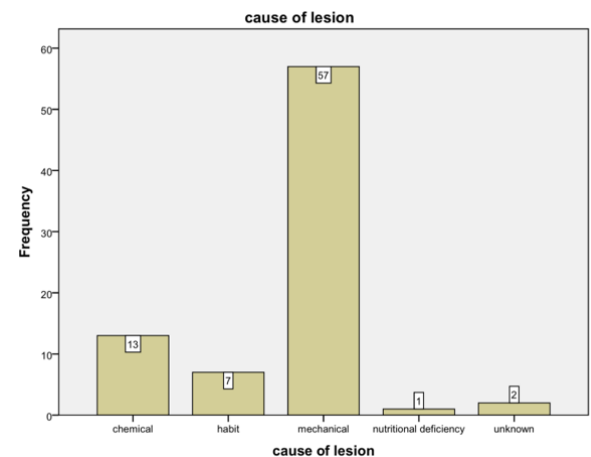
Out of 80 patients, 57.5% were males, and 42.5% were females. The X-Axis represents Gender. Y-axis represents frequency. Males have an increased frequency of traumatic mucosal lesions compared to females (Figure 2). The prevalence of oral mucosal lesion is greater in males with 85% and less in females with 15%. In the study given by Shet et al. (2013), Males had a greater prevalence of traumatic oral mucosal lesions than Females. This might be due to sharp cusps, trauma, lip-biting habit, accidental tooth bite, risk habits, hard food, hot food, or even excessive tooth brushing. And women are more conscientious than men regarding their oral hygiene. The most common traumatic oral mucosal lesion



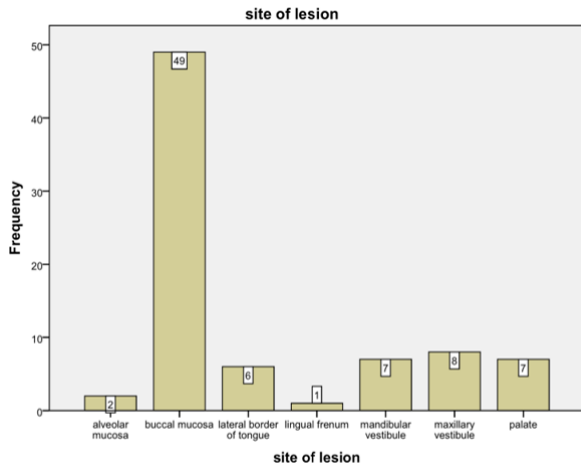
**Figure 2: The bar graph depicts the frequency of occurrence of traumatic oral mucosal lesions in Males and Females**



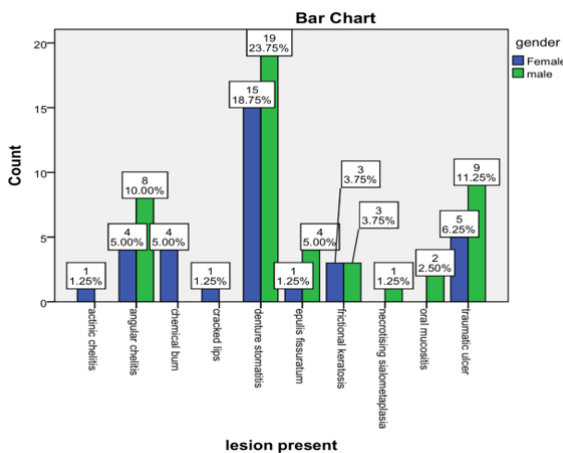
**Figure 3: The bar graph depicts the frequency of occurrence of various oral traumatic mucosal lesions in the elderly population**



**Figure 4: Bar graph depicts the various causes of traumatic oral mucosal lesions in the elderly population**



**Figure 5: The bar graph depicts the frequency of occurrence of traumatic oral mucosal lesions in various sites**



**Figure 6: The bar chart is representing the association between gender and traumatic oral lesions**

was denture stomatitis with 42.5%, followed by a traumatic ulcer with 17.5%, angular cheilitis with 15%, frictional keratosis with 7.5%, epulis fissuratum with 6.3%, chemical burn with 5%, oral mucositis with 2.5%, actinic cheilitis with 1.3%, Cracked lips with 1.3% and Necrotising sialometaplasia with 1.3%. The X-Axis represents the various traumatic oral lesions. Y-Axis denotes frequency. Most frequent occurrence out of all the various lesions was denture stomatitis (Figure 3). In the study given by [Koray and Tosun \(2019\)](#), It states that Denture stomatitis is the most common lesion with 34% followed by Angular cheilitis-18%, Traumatic ulcer-20%, Frictional keratosis 23%. This study shows a similar ethnicity. Because a loss of dentition is the most common aspect in elderly people, they wear dentures. Wearing dentures can lead to denture stomatitis, and there might be a rupture of mucosa

due to ill-fitting dentures which might cause denture stomatitis and frictional keratosis. Few values and prevalence percentage might vary due to the sample size and geographical locations.

The cause of the lesion was the mechanical cause with 71.3%, chemicals with 16.3%, habits with 8.8%, unknown cause with 2.5% and nutritional deficiency with 1.3%. The X-axis represents the causes. Y-axis represents the frequency. The most common cause of traumatic oral mucosal lesions was mechanical trauma (Figure 4). Mechanical trauma includes traumatic injuries such as sharp cups and rough brushing, which is most common among elderly patients. As per the results, the most common site for the traumatic oral mucosal lesion to occur is buccal mucosa with 61.3% followed by a maxillary vestibule with 10%, palate with 8.8%, Mandibular vestibule with 8.8%, Lateral border of the tongue with 7.5%, Alveolar mucosa with 2.5% and lingual frenulum with 1.3%. The X-axis represents the site. Y-axis represents the percentage. The most common site for the occurrence of traumatic oral mucosal lesions is the buccal mucosa (Figure 5).

According to the study given by [Patil et al. \(2015\)](#), the common site for the occurrence of mucosal lesions was hard palate with 23.1% followed by tongue with 16.4%, Buccal mucosa with 12.3%, vestibule with 6.9%. This study does not show a similar ethnicity. This might be due to the highest prevalence of denture stomatitis, where the most common problem is ill-fitting dentures and also due to secondary fungal colonisation.

Chi-square test was done to correlate between gender and lesion present, where the most commonly occurring lesion was denture stomatitis in both males and females. The X-axis represents the traumatic lesions; Y-axis represents the frequency of gender with various traumatic oral mucosal lesions. Blue represents females, and the green represents males. There was no statistical significance in the occurrence of traumatic lesions between males and females. Pearson’s Chi-square,  $P = 0.201$  ( $P > 0.05$ ) (Figure 6). The p-value was 0.201, which is statistically insignificant. Thus, this study serves as evidence and adds to a consensus as there is a simpler ethnicity with other articles. This study can be utilised for further studies for a larger population and clinical studies.

**CONCLUSION**

Within the limits of the study, the most common traumatic lesion occurring in the elderly population is denture stomatitis, and the common age group is 60 to 65 yrs. Males are more prevalent than

females. The commonest site for the occurrence of the lesion is the palate, and the highest type of cause is the mechanical cause. Studies on more population should be done to explore the reasons for and treatment planning for the traumatic oral mucosal lesions. This study will act as a guide to understand the prevalence of various traumatic oral mucosal lesions in elderly population visiting dental clinics.

#### Conflict of Interest

The authors declare that they have no conflict of interest for this study.

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