

Prevalence of Oral Mucosal Lesions in Geriatric Population of Coastal Andhra Pradesh

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ABSTRACT

Introduction: Elderly people are more susceptible to various oral mucosal lesions due to associated co-morbidities related to age. Nevertheless, limited studies were done in determining the prevalence of oral mucosal lesions in geriatric population in Indian sub-continent.

Aim and Methodology: The aim of the study was to evaluate the prevalence of oral mucosal lesions in male and female geriatric population of coastal Andhra Pradesh. This hospital-based retrospective study includes 686 geriatric patients. E record files were obtained from 2018 to 2020 with patient details regarding age, gender, socio-demographic factors, chief complaint, systemic diseases, deleterious oral habits, and denture use status were obtained.

Results: A total of 686 geriatric patients with 389 male and 297 female patients were examined. Among these subjects, a total of 375 (54.66%) geriatric patients where 225 (60%) of male patients and 150 (40%) of female patients had oral mucosal lesions. The most prevalent oral mucosal lesion was leukoplakia 72(19.2%) with male predominance followed by lichen planus 66 (17.6%) with female predominance.

Conclusion: Oral mucosal lesions were more prevalent in geriatric population compared to adult population because of associated co-morbidities in geriatric population and deleterious habits. The prevalence of oral mucosal lesions is an indicator of the oral health condition of elderly individuals. The study highlights the importance of early diagnosis of oral mucosal lesions by screening examination and timely interventions.

Keywords: Coastal Andhra Pradesh, geriatric population, oral mucosal lesions, prevalence.

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INTRODUCTION

Geriatric dentistry provides dental care to the elderly population, including diagnosis, prevention, and treatment plan related to ageing and age-related disorders. This takes place as a part of interdisciplinary team alongside other health care providers. Humans' health, diseases, longevity, and mortality have undergone significant demographic shifts over the past century. People, especially the elderly, should care for their dental health because oral mucosa is vital in maintaining one's overall health. According to WHO criteria, a population should be regarded as elderly if the average age is greater than 60 years.¹

In general, elderly people have comorbid conditions and are more susceptible to illnesses that affect the soft and hard tissues of the oral cavity. Oral lesions impede a person's ability to speak and chew, among other functions. Deleterious habits, irregular or sharp teeth, ill-fitting prostheses, and poor oral hygiene are other factors that determine the occurrence of oral mucosal lesions. In 2017, 13% of the world's population were 60 years or older, rising at a rate of about 3% per year,¹ whereas in India, 8% of the population fall under the age group of 60 years and above, with Kerala having the highest percentage of elderly people (12%).²

The high occurrence of systemic diseases, age-related metabolic changes, and nutritional deficiencies have led to a risk of developing a variety of pathologies in geriatric

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patients compared to adult population. Other risk factors for oral mucosal lesions include wearing a prosthesis and engaging in deleterious habits such as tobacco smoking or drinking alcohol which stimulates and aggravates the oral mucosal lesions. To prevent the adverse effects from the risk factors mentioned patient awareness, implementing lifestyle changes, and emphasizing oral health is necessary which reduce these disease patterns. To map these historical patterns, the current study investigated the prevalence of oral mucosal lesions in the elderly population. The data about

geriatric population health status obtained from the oral health surveys aids in health policy decisions and the development of prevention programs.

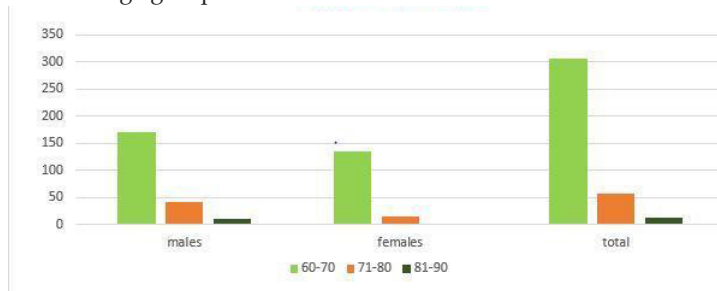
MATERIALS AND METHODS

A hospital-based retrospective study was conducted by examining a total of 686 medical and clinical examination record files of geriatric patients attending dental college/hospital for multidisciplinary dental treatments. E-record files of geriatric patients from 2018 to 2020 with patient details regarding age, gender, socio-demographic factors, chief complaint, systemic diseases, deleterious oral habits, and denture use status were obtained. Systemic disease status, deleterious habits, and denture usage were recorded as dichotomous variables and details. Geriatric patients with lack of written information regarding medical and clinical examination records were excluded. Oral mucosal lesions were classified following the WHO criteria.³ The institutional ethical committee board cleared ethical approval.

RESULTS

Out of 686 geriatric patients examined, there were 389 (56.71%) men and 297(43.29%) women; oral mucosal lesions were seen in 375 (54.66%) study subjects. Of these, 225 (60%) were males, and 150 (40%) were females. In this study, three age groups were considered: 60-70years (group I), 71-80years (group II), 81-90years (group III). 170 male patients and 136 female patients were in the age group of 60-70 years. Whereas 42 male and 14 female patients were in the age group of 71-80 years, 11 male patients and 2 female patients were in the age group of 81-90 years as shown in graph 1.

Graph 1: Distribution of lesions in males and females in different age groups



The prevalence of oral mucosal lesions in this study was 54.66%. The most prevalent lesions were leukoplakia 72(19.2%), followed by lichen planus 66(17.6%), malignancy 48(12.8%), denture stomatitis 33(8.8%), non-healing and traumatic ulcers 27(7.2%), oral sub mucous fibrosis 23(6.13%), smoker's melanosis 22(5.8%), fibromas 18(4.8%) and smoker's palate 17(4.53%). The least prevalent oral mucosal lesions are burning mouth syndrome 10(2.6%), mucocele 9(2.43%), vascular malformations 9(2.43%), epulis fissuratum 9(2.43%), candidiasis 7(1.88%), lichenoid reaction 2(0.53%), tobacco pouch keratosis 1(0.26%), pemphigoid 1(0.26%), herpangina 1(0.26%). All these mucosal lesions were solely diagnosed based on clinical and physical examination. Neither cytology nor histopathological examinations were performed. The prevalence of different oral mucosal lesions in males and females is shown in graph 2.

DISCUSSION

Current demographic research indicates that the geriatric population is growing globally, which is reflected in the trajectory of the Indian population. High life expectancy and declining fertility rates are the two leading causes of population ageing, according to the World Health Organization (WHO). Better socio-economic conditions, improvements in healthcare infrastructure, and a shift in the primary cause of mortality from infectious and parasitic diseases to non-communicable and chronic conditions are further contributing factors 2.

Most physicians are unaware of the prevalence of oral diseases, which frequently results in delayed diagnosis, underestimating and improperly managing the disease. It would be helpful in this regard to understand the prevalence

Graph 2: Prevalance of lesions among males and females

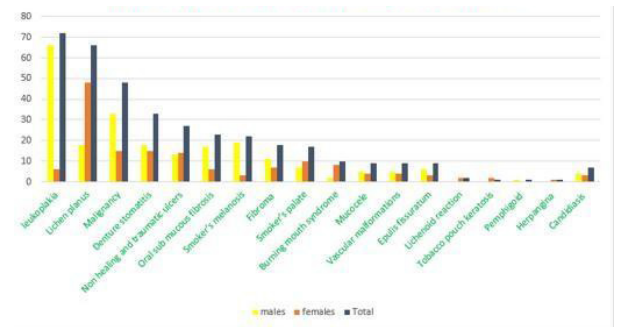


Fig. 1: Mild dysplasia in homogenous leukoplakia patient



Fig. 2: Oral squamous cell carcinoma of gingivobuccal sulcus – left mandible



Fig. 3A & B: Pemphigoid involving mucous membrane and skin in a 65-year-old female patient

and distribution of oral mucosal diseases.²

As previous epidemiological studies have provided very little information regarding oral mucosal lesions in the geriatric population of India, epidemiological studies are crucial as they prove that the oral mucosal lesions are not similar in all populations, races, age groups, and gender⁴. Oral mucosal lesions are prevalent in the geriatric population because associated co-morbid systemic diseases like hypertension, diabetes mellitus, and also decline in functioning of immune system as age progresses contribute to the oral lesions' vulnerability.

The prevalence of oral mucosal lesions in elderly patients who participated in this study was 54.66%, which is contrary to the findings of Jainkittivong A et al (83.6%) and Rabiei M et al.(84%), Patel D et al. (80%), Al-Maweri SA et al. (77.1%) but higher prevalence when compared to studies conducted by Yadav NR et al. (44%), Choufani A et al. (22.8%). However, the frequency observed in current study coincides approximately with the studies of Mujica V et al. (57%), Espinoza I et al. (53%), and Al-Aswad F et al. (48%). On the other hand, Gonzalez Lopez B et al (1995) in Mexico demonstrated a prevalence rate of 23.2%. Other series reported in Spain documented a rate of 39% in elderly patients presenting with oral mucosa alterations.⁵⁻¹⁵

Considering the whole geriatric population participated in the study, the most prevalent oral mucosal lesion was leukoplakia 72(19.2%), followed by lichen planus 66(17.6%) and least being tobacco pouch keratosis 1(0.26%), pemphigoid 1(0.26%), herpangina 1(0.26%).

The present study showed the highest prevalence of leukoplakia (19.2%) with a male predominance. Among the different variants of leukoplakia, homogenous leukoplakia 61(84.7%) was commonly observed followed by speckled leukoplakia 9(12.5%), erythroleukoplakia 2(2.7%). The subjects presented with leukoplakia were chronic chutta smokers, which is a common practice in coastal Andhra Pradesh. Chutta smoking is more harmful to oral mucosa because of its high nicotine content and total particulate matter than cigarettes, bidi and hence it is more associated with leukoplakia.¹⁶ Similar results were noticed in the study conducted in North Indian population (2016) – leukoplakia (12%).¹⁷ In comparison, other studies showed the prevalence of smoker's palate (26.6%) in

Chhattisgarh population (20210), nicotinic stomatitis (43%) in – Indian population (2015) (17) benign tumours (17.1%) in – Yemen population (2015), denture stomatitis (54.6%) – northeast Iranian population (2014), traumatic ulcer (2.98%) in Turin population. These variations could be due to the different sampling methodologies used. Cultural differences, deleterious habits, educational level, and even genetic susceptibility can be responsible for these variations.¹⁵

In this study the highest prevalence after leukoplakia is oral lichen planus (17.6%) and malignancy (12.8%). Although the exact aetiology of oral lichen planus is unknown, certain factors are associated with oral lichen planus. Psychological stress, genetic background, habits like betel nut chewing rather than cigarette smoking, diabetes mellitus, hypertension, autoimmune disorders like celiac disease, ulcerative colitis, Crohn's disease, patients with hepatitis C virus infection, usage of drugs like NSAIDs, beta-blockers, ACE inhibitors, sulfonyleureas, contact allergens like toothpaste flavourings, dental materials like silver amalgam, gold, cobalt, epoxy resins (composite) can precipitate oral lichen planus in the current study, female predominance is seen with oral lichen planus. The correlation of lichen planus in female patients is attributed to hormonal alterations (especially menopause) and psychosomatic pathophysiology(stress). The most common type of lichen planus observed in this study is reticular lichen planus (64.6%) followed by erosive lichen planus (26.2%). This finding is in accordance with Luciana Correa et al and J Scott et al¹⁸⁻²¹.

In this study the highest prevalence after oral lichen planus is malignancy (12.8%). Prevalence of malignancy in this study showed more male predominance who had the habit of smoking chutta and gutka consumption. In contrast, reverse smoking contributed as a primary etiological factor to female palatal squamous cell carcinomas. This shows an association between potentially malignant lesions, malignancy and deleterious habits.

Denture stomatitis (8.8%) and epulis fissuratum (2.4%) were the most frequent denture related lesions. Other authors reported 18-33% frequency for denture related lesions.²² The current study's prevalence of denture related lesions (11.2%) can be due to poorly maintained dentures, old unstable dentures, poor oral health status, and lack of regular oral



Fig. 4: Non healing ulcer in a 76-year-old female patient



Fig. 5: Pseudomembranous candidiasis in an asthmatic patient

examinations. The impact of factors like financial burden, lifestyle, education, oral health knowledge, beliefs and attitude toward dental care are critical factors affecting the prevalence of edentulism. Lower-income and education status, poor oral health, and reduced general health correlated with the incidence of tooth loss. Higher periodontal disease followed by dental caries marks perceived poor dental health in the geriatric population.²³

The result revealed a direct correlation between the duration of denture wearing and the number of denture related and oral mucosal lesions. This study assessed some possible risk factors for oral lesions, such as smoking and tobacco habits, old unstable dentures, nutritional deficiency, and use of medication for systemic disorders. Therefore, regular oral and dental check-up by dental professionals must be part of geriatric medical services.

Traumatic and non-healing ulcers (7.2%) are two other lesions detected in our study. These lesions were most commonly seen on the buccal mucosa and labial mucosa, which may be caused by trauma from the fractured restoration, wasting diseases, type of diet or by the habit of placing the tobacco pouch or the betel quid in the buccal or labial vestibule. This finding along with the location of the lesion was in accordance with the study done by Jainkittivong A et al.⁵

In this study, we found that the tobacco-related lesions (leukoplakia/dysplasia) were found to be much higher in males (81.4%) as compared to females (18.6%) and is in accordance with the other studies Bhatnagar P et al, Saraswathi TR et al, Jainkittivong A et al Sujatha D et al Rani M et al Jaber MA et al.^{5, 24-28}

Of the three age groups, 60–65 age category had more lesions. Males had significantly a greater number of mucosal lesions compared to females. Similar result with high prevalence in males ($P=0.028$) and contradictory study results were noticed in the literature. Smoker's melanosis had statistically significant association with male gender. Few lesions were found to be associated with female gender, especially lichen planus and smoker's palate (typical reverse smoking habit of females in coastal Andhra Pradesh). The most frequent sites of soft tissue lesions in our study were the tongue, followed by buccal mucosa. Previous studies have shown that tongue lesions constitute a significant proportion of oral lesions and their prevalence rate varies in different parts of the world.²⁹

Tobacco-related lesions such as malignancies were recorded with 12.8%, smoker's melanosis 5.86%, tobacco pouch keratosis 0.26%, smoker's palate 4.53%, leukoplakia recorded with 19.2%. Since our study population constituted 60% males, this was attributable to the high tobacco consumption among males. Ikeda N et al. in Japan found a prevalence of 25% for leukoplakia, while, in contrast, Reichart PA et al and Bánóczy J et al reported prevalence rates of 1.1% and 1.3%, respectively.³⁰⁻³²

CONCLUSION

The global geriatric population is expanding, especially in developing countries. Consequently, the oral health of this population has become a point of focus in dentistry. The prevalence of oral mucosal lesions is an indicator of the oral health condition of elderly individuals. Henceforth, this study aimed to assess prevalence of various oral mucosal lesions in geriatric population which aids in implementing an appropriate

oral health program. The current study provides a precise estimate of the frequency, pattern, and distribution of different oral mucosal lesions in the elderly population. In the elderly population, oral mucosal lesions and disease are common, and the risk rises with age, the existence of habits, and the use of dentures. Most lesions were potentially malignant lesions, which is strongly correlated with deleterious habits like tobacco chewing and smoking. Tobacco affects the epithelium of oral cavity by causing different changes at cellular and molecular level like hyperkeratosis, acanthosis and dysplasia which leads to various tobacco associated potentially malignant diseases like leukoplakia, smoker's melanosis, nicotinic stomatitis (smoker's palate), tobacco pouch keratosis and other pathologies like periodontal disease, black hairy tongue and malignancies. These results highlight the importance of early diagnosis of oral lesions by screening examination and timely interventions. Treatment needs of geriatric patients can be identified from this study for further policy-making in management and prevention of oral mucosal lesions. The present study with a larger sample size will be an approximate measure to learn about the prevalence, pattern and distribution of oral mucosal lesions enhances further research studies. To adequately gauge the true prevalence of these lesions, also future studies should be conducted on the prevalence and risk factors of oral lesions, concentrating on particular lesions, as well as on specific age groups with investigations and non-selected populations.

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