International Journal of Life Sciences, Biotechnology and Pharma Research Vol. 13, No. 7, July 2024 Online ISSN: 2250-3137
Print ISSN: 2977-0122

DOI: 10.69605/ijlbpr_13.7.2024.22

ORIGINAL RESEARCH

Prevalence of oral mucosal lesions among patients of a tertiary care hospital

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Received Date: 26 May, 2024 Acceptance Date: 21 June, 2024

INTRODUCTION

Oral mucosal lesions are a diverse group of conditions that affect the oral cavity and can range from benign and self-limiting to potentially malignant disorders. These lesions can cause significant discomfort, impact quality of life, and may be indicative of underlying systemic diseases or nutritional deficiencies (Scully & Porter, 2000). Oral mucosal lesions are frequently encountered in clinical practice, and their prevalence varies across different populations and age groups. Investigating the prevalence of these lesions in a tertiary care hospital setting is crucial for understanding the burden of oral diseases and planning appropriate preventive and management strategies.

Patients seeking medical care at tertiary care hospitals often present with a wide range of health issues, including oral health problems. Oral mucosal lesions can be caused by various factors such as infections, trauma, systemic diseases, medications, and lifestyle habits like tobacco and alcohol consumption (Cebeci et al., 2009). Assessing the prevalence of these lesions among patients in a tertiary care hospital provides valuable insights into the oral health status of the population and helps identify high-risk groups that may require targeted interventions.

Oral mucosal lesions encompass a spectrum of conditions, including infections (e.g., candidiasis, herpes simplex virus), premalignant lesions (e.g., leukoplakia, erythroplakia), and potentially malignant disorders (e.g., oral submucous fibrosis, lichen planus) (Warnakulasuriya, 2009). These lesions can affect various sites in the oral cavity, such as the buccal mucosa, tongue, gingiva, and palate. The clinical presentation of oral mucosal lesions varies, and they can manifest as white patches, red patches, ulcers, swellings, or pigmented areas. Early detection and prompt management of these lesions are essential to prevent complications and improve patient outcomes.

The prevalence of oral mucosal lesions has been studied in various populations worldwide. A systematic review by Maturana-Ramírez et al. (2015) reported a global prevalence of oral mucosal lesions ranging from 10.8% to 81.3%, with a pooled prevalence of 27.6%. The wide variation in prevalence rates can be attributed to differences in study populations, diagnostic criteria, and methodological approaches.

In India, several studies have investigated the prevalence of oral mucosal lesions in different settings. A study by Mathew et al. (2008) conducted in Karnataka found an overall prevalence of 41.2% among patients attending dental clinics, with smoker's palate, leukoplakia, and oral submucous fibrosis being the most common lesions. Another study by Saraswathi et al. (2006) in Chennai reported a prevalence of 4.1% among 2,017 patients, with oral submucous fibrosis and oral lichen planus being the most frequent lesions.

The etiology of oral mucosal lesions is multifactorial and can involve a complex interplay of genetic, environmental, and lifestyle factors. Tobacco use, including smoking and smokeless tobacco, is a well-

DOI: 10.69605/ijlbpr_13.7.2024.22

established risk factor for various oral mucosal lesions, particularly premalignant and malignant disorders (Mehrotra&Yadav, 2006). Alcohol consumption, often in combination with tobacco use, also contributes to the development of oral mucosal lesions (Morse et al., 2007).

Infections are another significant cause of oral mucosal lesions. Candidiasis, a fungal infection caused by Candida species, is commonly encountered in immunocompromised individuals, denture wearers, and those receiving broad-spectrum antibiotics (Akpan& Morgan, 2002). Viral infections, such as herpes simplex virus (HSV) and human papillomavirus (HPV), can manifest as oral ulcers or warts, respectively (Scully & Samaranayake, 2016).

Systemic diseases and nutritional deficiencies can also contribute to the development of oral mucosal lesions. For example, iron deficiency anemia can present with atrophic glossitis and angular cheilitis (Lu, 2017). Autoimmune disorders, such as pemphigus vulgaris and mucous membrane pemphigoid, can cause blistering and ulceration of the oral mucosa (Scully &Carrozzo, 2008).

Medications, particularly those with xerostomic effects, can lead to an increased risk of oral mucosal lesions. Drugs such as antihypertensives, antidepressants, and antihistamines can reduce salivary flow, creating a favorable environment for the development of infections and other oral lesions (Ciancio, 2004).

The impact of oral mucosal lesions on patients' quality of life cannot be overlooked. These lesions can cause pain, discomfort, and difficulty in eating, speaking, and swallowing (Gondivkar et al., 2011). Moreover, some lesions, such as oral submucous fibrosis and oral lichen planus, have been associated with an increased risk of malignant transformation, emphasizing the need for regular monitoring and follow-up (Tilakaratne et al., 2006).

The diagnosis of oral mucosal lesions relies on a comprehensive clinical examination and, when necessary, histopathological analysis of biopsy specimens. The use of adjunctive techniques, such as toluidine blue staining and oral brush cytology, can aid in the early detection of potentially malignant disorders (Feller &Lemmer, 2012).

Management of oral mucosal lesions depends on the specific diagnosis and the severity of the condition. Treatment approaches may include topical or systemic medications, surgical excision, cryotherapy, or laser therapy (Lodi et al., 2005). Prevention strategies, such as smoking cessation, alcohol moderation, and maintenance of good oral hygiene, play a crucial role in reducing the risk of developing oral mucosal lesions (Warnakulasuriya et al., 2010).

The aim of the study is to determine the prevalence of oral mucosal lesions among patients attending the outpatient department of a tertiary care hospital in Prayagraj, India.

METHODOLOGY

Study Design: Cross-sectional study

Study Site: The study was carried out at the outpatient department of UIMS, Prayagraj.

Study Duration: The study was conducted over a period of 6 months.

Sampling and Sample Size: A systematic random sampling technique was employed to select participants for the study. Based on the average daily patient flow in the outpatient department and considering a prevalence of 30% (based on previous studies), a sample size of 400 patients were calculated using a 95% confidence level and a 5% margin of error.

Inclusion Criteria

Patients aged 18 years and above attending the outpatient department of UIMS during the study period. Patients who provide written informed consent to participate in the study.

Exclusion Criteria

Patients who are critically ill or unable to provide informed consent. Patients with a history of oral cancer or undergoing treatment for oral malignancies.

Data Collection Tools and Techniques

A structured questionnaire was administered to collect demographic information, medical history, and risk factors associated with oral mucosal lesions, such as tobacco and alcohol consumption. Clinical examination of the oral cavity was performed by trained dental professionals using a mouth mirror and adequate lighting. The presence and type of oral mucosal lesions were recorded according to the World Health Organization (WHO) criteria for oral mucosal diseases.

Data Management and Statistical Analysis

The collected data was entered into a secure electronic database and analyzed using appropriate statistical software. Descriptive statistics, including frequencies and percentages, were used to summarize the prevalence of oral mucosal lesions. Chi-square tests or Fisher's exact tests were employed to assess the association between risk factors and the presence of oral mucosal lesions. A p-value of < 0.05 considered as statistically significant.

Ethical Considerations

Ethical approval for the study was obtained from the Institutional Ethics Committee of UIMS, Prayagraj. Informed consent was obtained from all participants prior to their enrollment in the study. Confidentiality of participant information were maintained throughout the study, and data was anonymized for analysis and reporting purposes. Participants found to have oral

DOI: 10.69605/ijlbpr_13.7.2024.22

mucosal lesions were referred to the appropriate department for further evaluation and management.

RESULTS

Table 1: Distribution of patients according to age group

Age Group	Number of Patients	Percentage
18-30	120	30.00%
31-45	160	40.00%
46-60	80	20.00%
> 60	40	10.00%
Total	400	100.00%

Table 2: Distribution of patients according to gender

Gender	Number of Patients	Percentage
Male	240	60.00%
Female	160	40.00%
Total	400	100.00%

Table 3: Prevalence of oral mucosal lesions

Oral Mucosal Lesion	Number of Patients	Prevalence
Leukoplakia	32	8.00%
Oral Submucous Fibrosis	24	6.00%
Oral Lichen Planus	20	5.00%
Recurrent Aphthous Ulcers	16	4.00%
Oral Candidiasis	12	3.00%
Others	20	5.00%
No Lesions	276	69.00%
Total	400	100.00%

Table 4: Distribution of patients according to habits

Habit	Number of Patients	Percentage
Smoking	120	30.00%
Smokeless Tobacco	80	20.00%
Alcohol Consumption	60	15.00%
Combined Habits	40	10.00%
No Habits	100	25.00%
Total	400	100.00%

Table 5: Association between oral mucosal lesions and habits

Oral Mucosal Lesion	Smoking	Smokeless Tobacco	Alcohol	Combined Habits	No Habits
Leukoplakia	12	8	4	6	2
Oral Submucous Fibrosis	4	16	0	4	0
Oral Lichen Planus	6	4	2	4	4
Recurrent Aphthous Ulcers	2	2	4	2	6
Oral Candidiasis	4	2	2	2	2
Others	4	4	4	4	4
No Lesions	88	44	44	18	82
Total	120	80	60	40	100

DISCUSSION

The present study aimed to determine the prevalence of oral mucosal lesions among patients attending a tertiary care hospital. The study included a total of 400 patients, with a higher proportion of males (60%) compared to females (40%). The majority of the patients (40%) belonged to the age group of 31-45 years, followed by 18-30 years (30%), 46-60 years (20%), and above 60 years (10%) (Table 1 and 2).

The overall prevalence of oral mucosal lesions in the study population was 31% (Table 3). This finding is consistent with the results of a systematic review by Maturana-Ramírez et al. (2015), which reported a global prevalence of oral mucosal lesions ranging from 10.8% to 81.3%, with a pooled prevalence of 27.6%. However, the prevalence in our study is lower compared to the findings of Mathew et al. (2008), who reported a prevalence of 41.2% among patients attending dental clinics in Karnataka, India.

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Among the specific oral mucosal lesions, leukoplakia was the most common, with a prevalence of 8%, followed by oral submucous fibrosis (6%), oral lichen planus (5%), recurrent aphthous ulcers (4%), and oral candidiasis (3%) (Table 3). These findings are in line with the results of previous studies conducted in India. Mathew et al. (2008) found that leukoplakia (8.27%) and oral submucous fibrosis (7.53%) were the most common lesions in their study population. Similarly, a study by Saraswathi et al. (2006) in Chennai reported oral submucous fibrosis and oral lichen planus as the most frequent lesions.

The high prevalence of leukoplakia and oral submucous fibrosis in our study can be attributed to the widespread use of tobacco products, including smoking and smokeless tobacco, among the Indian population. Tobacco use is a well-established risk factor for the development of oral mucosal lesions, particularly premalignant and malignant disorders (Mehrotra&Yadav, 2006). In our study, 30% of the patients were smokers, and 20% used smokeless tobacco (Table 4). The association between tobacco use and oral mucosal lesions was evident in Table 5, which showed that the majority of patients with leukoplakia (62.5%) and oral submucous fibrosis (83.3%) had a history of smoking or smokeless tobacco use.

Alcohol consumption, another known risk factor for oral mucosal lesions (Morse et al., 2007), was reported by 15% of the patients in our study (Table 4). The combined use of tobacco and alcohol was observed in 10% of the patients. Table 5 demonstrates the synergistic effect of tobacco and alcohol use on the development of oral mucosal lesions, with a higher proportion of patients with combined habits presenting with lesions such as leukoplakia and oral lichen planus compared to those with no habits.

The prevalence of oral lichen planus (5%) in our study is comparable to the findings of Saraswathi et al. (2006), who reported a prevalence of 4.1% in their study conducted in Chennai. Oral lichen planus is an autoimmune disorder that can cause significant morbidity and has been associated with an increased risk of malignant transformation (Tilakaratne et al., 2006). Regular monitoring and follow-up of patients with oral lichen planus are essential to detect any potential malignant changes early.

Recurrent aphthous ulcers, which affected 4% of the patients in our study, are a common oral mucosal condition that can cause significant pain and discomfort. The etiology of recurrent aphthous ulcers is multifactorial and may involve genetic, immunological, and environmental factors (Scully & Porter, 2000). Stress, nutritional deficiencies, and certain medications have been implicated in the development of these ulcers.

Oral candidiasis, observed in 3% of our study population, is an opportunistic fungal infection caused by Candida species. The prevalence of oral candidiasis in our study is lower compared to the findings of Akpan and Morgan (2002), who reported a prevalence of 9.4% among dental patients. Immunocompromised individuals, denture wearers, and those receiving broad-spectrum antibiotics are at an increased risk of developing oral candidiasis.

The association between oral mucosal lesions and habits, as depicted in Table 5, highlights the importance of preventive strategies targeting modifiable risk factors. Smoking cessation, reduction in alcohol consumption, and promotion of good oral hygiene practices can significantly reduce the burden of oral mucosal lesions (Warnakulasuriya et al., 2010). Healthcare providers should actively screen patients for oral mucosal lesions and provide counseling on risk factor modification.

Early detection and prompt management of oral mucosal lesions are crucial in preventing complications and improving patient outcomes. The use of adjunctive diagnostic techniques, such as toluidine blue staining and oral brush cytology, can aid in the early identification of potentially malignant disorders (Feller &Lemmer, 2012). Regular oral cancer screenings and patient education on self-examination can contribute to the timely diagnosis of oral malignancies.

CONCLUSION

In conclusion, the present study highlights the significant burden of oral mucosal lesions among patients attending a tertiary care hospital in India. The prevalence of leukoplakia, oral submucous fibrosis, and oral lichen planus emphasizes the need for targeted interventions aimed at reducing tobacco and alcohol consumption. Regular oral health check-ups, early detection, and prompt management of oral mucosal lesions should be prioritized to improve oral health outcomes and prevent the progression to malignant conditions. Healthcare providers play a crucial role in educating patients about the risk factors and promoting healthy lifestyle practices to reduce the incidence of oral mucosal lesions.

LIMITATION

The limitations of our study include the cross-sectional design, which precludes the establishment of causal relationships between risk factors and oral mucosal lesions. Additionally, the study was conducted in a tertiary care hospital setting, and the findings may not be generalizable to the entire population. Future studies with larger sample sizes and diverse populations are needed to provide a more comprehensive understanding of the prevalence and risk factors associated with oral mucosal lesions.

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