

Prevalence of Oral Mucositis Among Cancer Patients at a Private Dental Institution: A Retrospective Observational Study

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Abstract

Objective: This study aimed to determine the prevalence of oral mucositis among cancer patients treated at a private dental institution over a five-year period and to identify patient groups at higher risk. **Materials and Methods:** A retrospective observational study was conducted between January 1, 2019, and June 30, 2024, at a private dental institution specializing in the oral care of cancer patients. Data were extracted from the DIAS database and included patient demographics, cancer type, treatment modality, and the presence of oral mucositis. Oral mucositis was diagnosed and graded according to the World Health Organization (WHO) Oral Toxicity Scale. Statistical analyses were performed using SPSS version 26.0. **Results:** A total of 122 patient records met the inclusion criteria. The overall prevalence of oral mucositis was 23.8%, with the highest prevalence observed among patients with head and neck cancers (42.9%) and those receiving concurrent chemoradiotherapy (47.6%). Severe oral mucositis (WHO Grades 3–4) accounted for 31% of all cases. **Conclusion:** Oral mucositis was common among patients receiving cancer therapy, particularly those with head and neck malignancies and those undergoing combined chemoradiotherapy. These findings emphasize the importance of early identification, preventive strategies, and multidisciplinary management to reduce treatment-related complications and improve patient outcomes.

Keywords: Oral mucositis, cancer, prevalence, chemoradiotherapy, head and neck cancer, WHO Oral Toxicity Scale

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Introduction

Oral mucositis (OM) is a common and debilitating complication of cancer treatment, particularly chemotherapy and radiotherapy. It is characterized by acute inflammation of the oral mucosa followed by the development of painful ulcerative lesions. In patients undergoing hematopoietic cell transplantation (HCT), OM has also been associated with increased morbidity and mortality [1].

Oral mucositis can significantly impair patients' quality of life by causing severe pain, difficulty in eating, swallowing, and speaking, as well as increasing the risk of local and systemic infections. These complications may necessitate treatment interruptions, dose reductions, or discontinuation of cancer therapy, thereby compromising

treatment outcomes [2].

The prevalence of oral mucositis varies depending on the type of malignancy, treatment modality, and patient-related factors. Previous studies have reported prevalence rates ranging from 20% to 100% among patients receiving different oncologic treatments [3, 4]. However, data on the prevalence of oral mucositis in specialized private dental institutions remain limited, despite the important role of these centers in the prevention, diagnosis, and management of oral complications in patients with cancer.

Therefore, this study aimed to determine the prevalence of oral mucositis among cancer patients attending a private dental institution over a five-year period and to provide

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insight into the burden of this condition in a specialized oral healthcare setting.

Materials and Methods

Study Design and Setting

This retrospective observational study was conducted at a private dental institution specializing in the oral healthcare of patients with cancer. Medical records of eligible patients treated between January 1, 2019, and June 30, 2024, were reviewed. Ethical approval was obtained from the Institutional Review Board (Approval No. SRB/SDC/OMED-2305/25/268).

Data Collection

Data were extracted from the Dental Information Archiving Software (DIAS), which serves as the institution's electronic patient record system. The extracted variables included patient demographics, cancer diagnosis, treatment modality, and the presence or absence of oral mucositis. Oral mucositis was diagnosed during clinical examination and graded according to the World Health Organization (WHO) Oral Toxicity Scale [5].

Inclusion and Exclusion Criteria

Patients were included if they had (1) a confirmed diagnosis of cancer, (2) were undergoing or had recently completed cancer therapy, and (3) complete medical records available for review. Patients with incomplete records or pre-existing oral mucosal diseases unrelated to cancer therapy were excluded.

Statistical Analysis

Statistical analyses were performed using SPSS version 26.0 (IBM Corp., Armonk, NY, USA). Descriptive statistics were used to summarize patient characteristics and determine the prevalence of oral mucositis. Associations between oral mucositis and clinicodemographic variables, including cancer type and treatment modality, were evaluated using the Chi-square test. A two-sided P value < 0.05 was considered statistically significant.

Results

Patient Characteristics

A total of 395 patient records were initially identified from the institutional database.

Gender Distribution

The gender distribution of the study population is presented in Table 1. Male patients accounted for 57.4% of the study population, whereas female patients accounted for 42.6%.

Age Distribution

The age distribution of patients is shown in Figure 1. Cases were observed across a broad age range, with the highest frequencies occurring among patients older than 60 years.

Table 1. Distribution of Patients by Gender.

Gender	n	%
Male	70	57.4
Female	52	42.6
Total	122	100.0

Table 2. Distribution of Medications Used for Oral Mucositis.

Treatment	n	%
Chlorhexidine	42	34.4
Lidocaine	42	34.4
Benzydamine HCl	38	31.2
Total	122	100.0

Treatment for Oral Mucositis

The distribution of medications used for the management of oral mucositis is presented in Table 2. Chlorhexidine and lidocaine were the most frequently prescribed medications (42 patients each; 34.4%), followed by benzydamine hydrochloride (38 patients; 31.2%).

Cancer Treatment Modalities

The distribution of cancer treatment modalities is shown in Table 3. Chemotherapy was the most common treatment modality (n = 44), followed by radiotherapy (n = 41) and combined chemoradiotherapy (n = 37).

Treatment of Oral Mucositis According to Cancer Type in Female Patients

Table 4 illustrates the distribution of oral mucositis treatments among female patients according to cancer type. Squamous cell carcinoma was the most common malignancy. Lidocaine was the most frequently prescribed treatment (n = 13), followed by benzydamine hydrochloride (n = 7) and chlorhexidine (n = 7).

Treatment of Oral Mucositis According to Cancer Type in Male Patients

Table 5 presents the distribution of oral mucositis treatments among male patients. Squamous cell carcinoma was the most common malignancy. Lidocaine was the most frequently prescribed treatment (n = 14), followed by chlorhexidine (n = 11) and benzydamine hydrochloride (n = 9).

Cancer Treatment Modalities in Female Patients

The distribution of cancer treatment modalities among female patients is shown in Table 6. Radiotherapy was the

Table 3. Distribution of Cancer Treatment Modalities.

Treatment Modality	n	%
Chemotherapy	44	36.1
Radiotherapy	41	33.6
Combined chemoradiotherapy	37	30.3
Total	122	100.0

Table 4. Distribution of Medications Used for Oral Mucositis among Female Patients According to Cancer Type.

Cancer Type	Benzydamine HCl	Chlorhexidine	Lidocaine	Total
Ameloblastoma	1	5	2	8
Salivary gland carcinoma	2	2	2	6
Squamous cell carcinoma	7	7	13	27
Verrucous carcinoma	3	4	4	11
Total	13	18	21	52

most common treatment for squamous cell carcinoma (n = 11), followed by chemotherapy (n = 10) and combined chemoradiotherapy (n = 6).

Cancer Treatment Modalities in Male Patients

Table 7 shows the distribution of cancer treatment modalities among male patients. Radiotherapy was the most common treatment for squamous cell carcinoma (n = 14), whereas chemotherapy was the most common treatment for ameloblastoma (n = 8).

Distribution of Cancer Types

Squamous cell carcinoma was the most common diagnosis (50.0%), followed by verrucous carcinoma (18.85%), ameloblastoma (17.21%), and salivary gland carcinoma (13.93%). As shown in Table 8, squamous cell carcinoma was the most common cancer type (61/122, 50.0%), followed by verrucous carcinoma (18.9%), ameloblastoma (17.2%), and salivary gland carcinoma (13.9%).

Discussion

This retrospective study evaluated the prevalence of oral mucositis among cancer patients attending a private dental institution and demonstrated that oral mucositis remains a common complication of cancer therapy. The

overall prevalence observed in this study (23.8%) falls within the range reported in previous studies, although it is at the lower end of the reported spectrum [6, 7]. This finding may reflect the specialized oral healthcare services and preventive measures implemented at the study institution.

Consistent with previous reports, patients with head and neck cancer exhibited the highest prevalence of oral mucositis. This finding is expected because radiotherapy directly affects the oral mucosa, resulting in epithelial injury and ulceration [8, 9]. Likewise, patients receiving concurrent chemoradiotherapy experienced the highest prevalence of oral mucositis, supporting previous evidence that combined treatment modalities exert synergistic effects on mucosal toxicity [10, 11]. Furthermore, approximately one-third of oral mucositis cases were classified as severe (WHO Grades 3–4), emphasizing the considerable clinical burden of this complication.

The present findings underscore the importance of early detection and standardized assessment of oral mucositis using validated tools such as the WHO Oral Toxicity Scale. Early diagnosis, together with multidisciplinary collaboration among oncologists, dentists, and oral medicine specialists, is essential for optimizing preventive strategies and improving patient outcomes [2, 12].

Recent advances in supportive care, including photobiomodulation therapy, keratinocyte growth factor, and other preventive interventions, have shown promising results in reducing the incidence and severity of oral mucositis. However, further high-quality prospective studies are required before these approaches can be routinely incorporated into clinical practice [13–16].

This study has several limitations. Its retrospective design may have resulted in incomplete documentation of mild oral mucositis cases. In addition, the study was conducted at a single institution with a relatively small sample size, which may limit the generalizability of the findings. Future multicenter prospective studies involving larger patient populations are warranted to validate these findings, identify additional risk factors, and evaluate preventive interventions for oral mucositis in different

Table 5. Distribution of Medications Used for Oral Mucositis among Male Patients According to Cancer Type.

Cancer Type	Benzydamine HCl	Chlorhexidine	Lidocaine	Total
Ameloblastoma	3	5	5	13
Salivary gland carcinoma	6	4	1	11
Squamous cell carcinoma	9	11	14	34
Verrucous carcinoma	7	4	1	12
Total	25	24	21	70

Table 6. Distribution of Cancer Treatment Modalities among Female Patients According to Cancer Type.

Cancer Type	Chemotherapy	Combined Chemoradiotherapy	Radiotherapy	Total
Ameloblastoma	3	2	3	8
Salivary gland carcinoma	3	1	2	6
Squamous cell carcinoma	10	6	11	27
Verrucous carcinoma	4	3	4	11
Total	20	12	20	52

Table 7. Distribution of Cancer Treatment Modalities among Male Patients According to Cancer Type.

Cancer Type	Chemotherapy	Combined Chemoradiotherapy	Radiotherapy	Total
Ameloblastoma	8	2	3	13
Salivary gland carcinoma	3	5	3	11
Squamous cell carcinoma	7	13	14	34
Verrucous carcinoma	6	5	1	12
Total	24	25	21	70

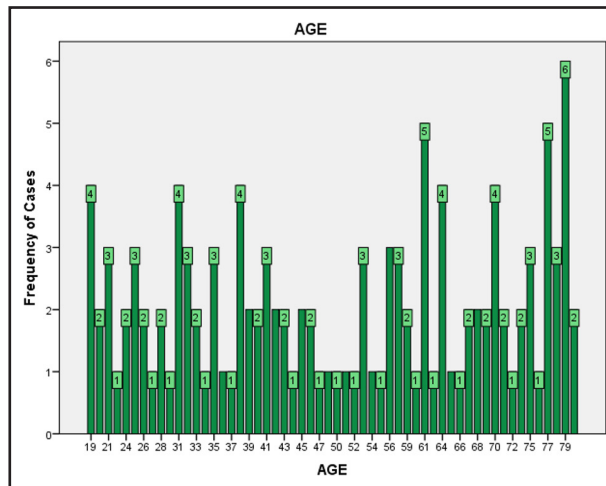


Figure 1. The Age-wise Distribution of Cases, Showing the Frequency of Cases in Various age Groups

clinical settings.

In conclusion, this retrospective study demonstrated that oral mucositis remains a common complication among cancer patients, with an overall prevalence of 23.8% in this specialized dental care setting. Higher prevalence rates were observed among patients with head and neck cancers and those receiving concurrent chemoradiotherapy. These findings highlight the importance of early identification, routine oral assessment, and multidisciplinary management to minimize the clinical impact of oral mucositis and support uninterrupted cancer treatment. Further prospective multicenter studies are needed to validate these findings and evaluate effective preventive and therapeutic strategies for oral mucositis.

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Conflicts of Interest

The authors declare that they have no conflicts of interest.

Author Contributions

All authors contributed to the conception and design of the study. Data collection, analysis, interpretation,

Table 8. Distribution of Cancer Types.

Cancer Type	n	%
Squamous cell carcinoma	61	50.0
Verrucous carcinoma	23	18.9
Ameloblastoma	21	17.2
Salivary gland carcinoma	17	13.9
Total	122	100.0

manuscript preparation, and critical revision were performed by the authors, who approved the final version of the manuscript.

Ethics Approval and Consent to Participate

This study was approved by the Institutional Review Board (Approval No. SRB/SDC/OMED-2305/25/268). Owing to the retrospective nature of the study, the requirement for informed consent was waived by the ethics committee.

Data Availability Statement

The data supporting the findings of this study are available from the corresponding author upon reasonable request, subject to institutional and ethical regulations.

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