

Prevalence of Oral Squamous Cell Carcinoma, Class 3 Malocclusion and Various Cystic Lesions of Jaw in a Known Population

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ABSTRACT

Background: This study was conducted to assess the Prevalence of Oral Squamous Cell Carcinoma, Class 3 Malocclusion and Various Cystic Lesions of Jaw in a Known Population.

Material and methods: This study comprised of 100 subjects. The study procedure was explained to all the participants and informed consent was taken from all subjects. All the participants underwent oral clinical examination. The prevalence of oral squamous cell carcinoma, class 3 malocclusion and cystic lesions of jaw was assessed. The findings were tabulated and compared. Statistical analysis was conducted using SPSS software.

Results: In this study, oral squamous cell carcinoma was seen in 33 subjects, class 3 malocclusion was seen in 42 subjects and cysts were evident in 25 subjects. Out of 25 subjects having cysts, 12 subjects presented with odontogenic keratocyst, 8 patients presented with dentigerous cyst and 5 subjects had radicular cyst. In group 1, 33 patients with oral squamous cell carcinoma were present. 42 subjects with class 3 malocclusion were present in group 2 and 25 subjects with cysts were present in group 3. In this study, there were total 55 males and 45 females. There were 21 males and 12 females in group 1, 23 males and 19 females in group 2 and 11 males and 14 females in group 3.

Conclusion: The results of the study conclude that the prevalence of oral squamous cell carcinoma, class 3 malocclusion and cysts was 33%, 42% and 25%, respectively. The most common type of cyst was odontogenic keratocyst. The conditions were more common in males as compared to females.

Keywords: OSCC, Class 3 malocclusion, Cysts, Prevalence.

1. INTRODUCTION

Oral cancers are malignant tumors that impact the tissues or structures of the mouth. They can either be a primary lesion that develops in the mouth, a metastasis from a distant location, or an extension from a neighboring area. Among these oral cancers, over 90% are squamous cell carcinomas that arise in the mucous membranes of the mouth and oropharynx.¹

This issue represents a significant global health challenge, with an estimated 275,000 cases and 128,000 deaths each year. The incidence of oral cancer varies significantly across different geographic regions, with more than half of all cases

occurring in developing nations. India exhibits one of the highest rates of oral cancer, contributing to approximately 30% of all new cases each year. A recent study on cancer mortality in India indicates that oral cavity cancer is the leading cause of cancer-related deaths among men, accounting for 22.9% of such fatalities.^{2,3}

India is classified as a high-risk area for oral and oropharyngeal cancers, primarily due to the widespread use of tobacco, especially chewing tobacco (in both genders), smoking, and alcohol consumption among males. In addition to tobacco and alcohol, other risk factors include dietary habits, human papillomavirus (HPV) infection, genetic predispositions, and oral hygiene practices.^{4,5} Furthermore, social inequalities are associated with oral cavity cancers, with risks linked to factors that directly influence behavior and lifestyle.

This study was conducted to assess the Prevalence of Oral Squamous Cell Carcinoma, Class 3 Malocclusion and Various Cystic Lesions of Jaw in a Known Population.

2. MATERIAL AND METHODS

This study comprised of 100 subjects. The study procedure was explained to all the participants and informed consent was taken from all subjects. All the participants underwent oral clinical examination. The prevalence of oral squamous cell carcinoma, class 3 malocclusion and cystic lesions of jaw was assessed. The findings were tabulated and compared. Statistical analysis was conducted using SPSS software.

3. RESULTS

Table 1: Prevalence of Oral squamous cell carcinoma, class 3 malocclusion and cysts.

Condition	Number of cases	Prevalence (%)
Oral squamous cell carcinoma	33	33
Class 3 malocclusion	42	42
Cysts	25	25

In this study, oral squamous cell carcinoma was seen in 33 subjects, class 3 malocclusion was seen in 42 subjects and cysts were evident in 25 subjects. Out of 25 subjects having cysts, 12 subjects presented with odontogenic keratocyst, 8 patients presented with dentigerous cyst and 5 subjects had radicular cyst.

Table 2: Group-wise distribution of subjects.

Groups	Number of cases	Percentage
Group 1 (Oral squamous cell carcinoma)	33	33
Group 2 (Class 3 malocclusion)	42	42
Group 3 (Cysts)	25	25
Total	100	100

In group 1, 33 patients with oral squamous cell carcinoma were present. 42 subjects with class 3 malocclusion were present in group 2 and 25 subjects with cysts were present in group 3.

Table 3: Gender-wise distribution of subjects.

Groups	Number of males	Number of females	Total
Group 1 (Oral squamous cell carcinoma)	21	12	33
Group 2 (Class 3 malocclusion)	23	19	42

Group 3 (Cysts)	11	14	25
Total	55	45	100

In this study, there were total 55 males and 45 females. There were 21 males and 12 females in group1, 23 males and 19 females in group 2 and 11 males and 14 females in group 2.

4. DISCUSSION

The World Health Organization (WHO) regards malocclusion as one of the most significant oral health issues, following dental caries and periodontal disease.⁶ The prevalence of malocclusion varies considerably, with estimates ranging from 39% to 93% among children and adolescents.^{7,8} This broad range indicates a high level of heterogeneity. Such variability may be attributed to differences in ethnicity and age among the populations studied when evaluating the prevalence of malocclusion.⁹

Malocclusions can manifest in three distinct spatial planes: sagittal, transverse, and vertical. Within the sagittal plane, three different types of skeletal relationships can be identified, which are defined through the analysis of the ANB angle, reflecting the antero-posterior intermaxillary relationship.

In this study, oral squamous cell carcinoma was seen in 33 subjects, class 3 malocclusion was seen in 42 subjects and cysts were evident in 25 subjects. Out of 25 subjects having cysts, 12 subjects presented with odontogenic keratocyst, 8 patients presented with dentigerous cyst and 5 subjects had radicular cyst. In group 1, 33 patients with oral squamous cell carcinoma were present. 42 subjects with class 3 malocclusion were present in group 2 and 25 subjects with cysts were present in group 3. In this study, there were total 55 males and 45 females. There were 21 males and 12 females in group1, 23 males and 19 females in group 2 and 11 males and 14 females in group 2.

Tandon P et al.¹⁰ The purpose of this study was to document its incidence depending upon the involvement of different sites of oral cavity, and its variation with age and gender. Histopathologically proven oral squamous cell carcinoma cases were collected from the department of oral and maxillofacial surgery RDC, PIMS. The cases were systematically grouped under three headings: anatomical sub-site of oral cavity, age group, and gender, which were analysed to calculate the prevalence of oral cancer. The study was undertaken after obtaining approval from the institutional Ethical Committee board. Among the different sites of oral cavity, the highest incidence (31.47%) of oral squamous cell carcinoma was seen for buccal mucosa in our study. The most affected age group (39.50%) were patients above 50 years old, predominantly involving males. The population in this study were mostly from remote areas, among which a high rate of occurrence of oral cancer was encountered because the people were of low socio-economic class, had a casual attitude towards their health, high rate of tobacco consumption, and limited health care facilities. This study provides valuable data of the prevalence of oral cancer among the rural population.

El Gehani R et al.¹¹ The aim of this study was to determine the prevalence of odontogenic jaw cysts in a Libyan population and to compare the data with previously published reports from other countries. They retrieved and analyzed 2190 case notes and biopsy records of the Department of Oral and Maxillofacial Surgery and the Department of Oral Pathology and Microbiology, Al Arab Medical Sciences University, Benghazi, Libya, dating from January 1990 to December 2005. There were 326 cases (14.8%) of diagnosed odontogenic cysts among the 2190 biopsies performed during this period. The cases were analyzed for age and sex distribution, site of presentation, association with impacted teeth, and the method of treatment. The male to female ratio of patients was 1.3:1. Radicular cysts accounted for 222 cases (68.1%), followed by dentigerous cysts (n=49, 15%) and odontogenic keratocysts (n=43, 14.1%). Mean ages of the patients were, respectively, 31.7, 22.7 and 36.1 years. The maxilla was more commonly involved than the mandible (1.3:1). The anterior maxilla was the commonest site (n=132, 37.4%) followed by the posterior mandible (n=96, 29.4%). Fifty three cases were associated with impacted teeth, and the highest frequency was for dentigerous cysts (n=37). Enucleation and curettage was performed on 300 patients, marsupialization on 14, and marginal/segmental resection on 12. To our knowledge, this is the first such study on a Libyan population. Our results are comparable to studies from other countries. Knowledge of the relative frequencies and sites of presentation of odontogenic cysts in different ethno-geographic backgrounds is essential for the early diagnosis and management of these benign yet potentially destructive lesions.

5. CONCLUSION

The results of the study conclude that the prevalence of oral squamous cell carcinoma, class 3 malocclusion and cysts was 33%, 42% and 25%, respectively. The most common type of cyst was odontogenic keratocyst. The conditions were more common in males as compared to females.

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