

ORAL CANCER: CLINICOPATHOLOGICAL STUDY OF 5 YEARS AT A TERTIARY CARE CENTRESunil Vitthalrao Jagtap¹, Neerav Saini², Rohit Shivaji Kadam³, Swati S. Jagtap⁴¹Professor, Department of Pathology, Krishna Institute of Medical Sciences Deemed University, Karad, Maharashtra, India.²Assistant Lecturer, Department of Pathology, Krishna Institute of Medical Sciences Deemed University, Karad, Maharashtra, India.³Assistant Lecturer, Department of Pathology, Krishna Institute of Medical Sciences Deemed University, Karad, Maharashtra, India.⁴Associate Professor, Department of Physiology, Krishna Institute of Medical Sciences Deemed University, Karad, Maharashtra, India.**ABSTRACT****INTRODUCTION**

Oral cancer is one of the commonest cancer in the world. It is known that oral carcinoma begins with multiple cumulative epigenetic and genetic changes that caused by various carcinogens which ultimately lead to clinical and microscopic visible changes called invasive neoplasm. Oral cancer has a very poor prognosis because it is not detected when it is a small lesion and in early stage. Oral examination and histopathology of lesion plays important role in detecting oral cancers.

AIMS AND OBJECTIVES

To study clinical presentation, prevalence, histopathological types and grades of various malignant oral lesions.

MATERIALS AND METHODS

This study is retrospective and prospective analytical type. Study period was 5 years from May 2010 to April 2015. Detailed clinical data, relevant investigations and complete histopathological examination was done and data analysed.

RESULTS

This study includes a total of 135 consecutive cases of malignant oral lesions during study period. The common associated risk factor observed was habituated to tobacco chewing (91.11%). Males were commonly affected 98/135 cases (72.59%) than females 37/135 (27.41%) with ratio M: F is 2.6:1. The maximum number of patients were from 40-49 years of age group. Site wise distribution of malignant lesion was common in buccal mucosa (45.12%) followed by tongue (23.71%), gingiva (16.34%), lip (7.35%), etc. On histopathological examination of total 135 cases, conventional squamous cell carcinoma was diagnosed in 122 cases (90.36%), verrucous carcinoma in 8 (5.94%), followed by malignant melanoma (0.74%), mucoepidermoid carcinoma (0.74%), polymorphous low grade adenocarcinoma (0.74%).

CONCLUSION

Oral cancer is a major health problem in India. Proper clinical examination and histopathological examination are important tools to diagnose premalignant and malignant lesions of oral cavity. The early detection and treatment plays important role in prognosis of disease. Patient's awareness of associated risk with tobacco and its effects are equally important.

KEYWORDS

Oral Cancer, Histopathology, Squamous Cell Carcinoma, Head and Neck Malignancies.

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INTRODUCTION: The oral cavity is one of the most common site for various tumours and tumour like lesions. Oral cancer is one of the most common cancer in South East Asia.¹ In India, the incidence is 7-17/100000 persons per year with 75000-80000 new cases registered annually.¹ while it accounts for only 2% of all malignancies in UK and USA.² In early stages, oral cancer may not be noticed by the

patients as it is asymptomatic. Early detection of oral cancer is relatively easy for a clinician as oral cavity has direct access for visual and clinical examination. However, due to negligence to oral lesions and unawareness of malignancy, patients seek delayed treatment. The mortality related to oral cancer is highest as most of the time it is diagnosed in advanced stage. Oral cancer has major cause of morbidity and mortality with metastasis and invasive ability.³ Also it has been noted that oral cancer has a high risk of producing second primary malignancies.⁴

MATERIALS AND METHODS: This study is an analysis of 135 oral cavity cancers for a period of 5 years. The study was conducted at Department of Pathology, Krishna Institute of Medical Sciences and Deemed University, Karad,

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Maharashtra, India. The study period was from May 2010 to April 2015. This is a 3 years retrospective and 2 years prospective study.

The various parameters like age, gender of patient, relevant clinical history, tobacco habit, associated risk factor, site of oral lesion, gross features, microscopic histopathological findings of tissue specimen were studied. The routine paraffin tissue blocks sections stained with haematoxylin and eosin were studied. The oral malignancies were classified accordingly to the recent WHO classification. Squamous cell carcinoma was graded into well, moderately and poorly differentiated squamous cell carcinoma. The tumours were differentiated based on the Broder's system.⁵ Specimen included were oral lesion from punch biopsies, wedge biopsies, resected oral lesion, wide local excision, hemiglossectomy, hemimandibulectomy and modified radical neck dissection. The tumour from nasopharynx, oropharynx, odontogenic and bony origin were excluded.

RESULTS: Total number of 135 cases of oral cancer were analysed. The age wise range of study group was from 31 to 87 years with maximum number of cases of oral cancer was noted in the age group of 40-49 years that was 43/135 (31.85%) cases.

Age Group (Years)	No. of cases		Total	%
	Males	Females		
30-39	07	01	08	05.97
40-49	32	11	43	31.85
50-59	20	07	27	20.00
60-69	22	08	30	22.22
>70	17	10	27	20.00
Total	98	37	135	100

Table 1: Age and Sex distribution of cases of Oral Cancer

The oral cancers were more common in males (98/135) than females (37/135).

Symptoms	No. of cases
Oral Ulcer	19
Oral ulceroproliferative growth	90
Pain in mouth	8
Difficulty in chewing	6
Oral mucosal irregularities	3
Oral white patch	5
Excessive salivation	1
Cervical lymph node enlargement	3
Total	135

Table 2: The Common Clinical presentations of Oral Cancer Cases

The most common clinical presentation was Oral ulceroproliferative growth 90/135 cases (66.66%).

Sl. No	Site	No. of cases	%
1	Buccal mucosa	62	45.94
2	Tongue	32	23.74
3	Gingiva	22	16.34
4	Lip	10	7.35
5	Floor of mouth	01	0.73
6	Hard palate	03	2.20
7	Retromolar trigone	05	3.70
	Total	135	100

Table 3: The Site wise distribution of Oral Lesions

The most common site was buccal mucosa, 62/135 cases (45.92%) followed by tongue, 32/135 cases (23.71%).

Type of Carcinoma	No. of cases	%
Squamous cell carcinoma	122	90.36
Verrucous Carcinoma	08	5.94
Micro-invasive SCC	01	0.74
Spindle cell variant of SCC	01	0.74
Lentigo malignant melanoma	01	0.74
Mucoepidermoid carcinoma	01	0.74
Polymorphous low grade adenocarcinoma	01	0.74
Total	135	100

Table 4: The various Histological type of Oral Cancers

SCC=Squamous Cell Carcinoma.

Most common histological type was conventional squamous cell carcinoma 122/135 cases (90.36%).

Grades	No. of cases	%
Well differentiated	67	54.91
Moderately differentiated	49	40.18
Poorly differentiated	06	4.91
Total	122	100

Table 5: Showing Squamous cell Carcinoma Histological Grades

Maximum number of cases, 67/122 (54.91%) were of well differentiated squamous cell carcinoma.

DISCUSSION: Oral cancer is the sixth most common cancer in the world.² Oral cancer is a very frequent malignancy in India, Srilanka and some Eastern countries. It is probably related to habit of betel-nut chewing, tobacco chewing and revered smoking.⁴ Other various risk factors related are chronic alcohol consumption, HPV 16, 18, 33 type viral infection, poor oral hygiene, ill-fitting denture, etc.⁶ In other studies, it is observed that the prevalence of oral cancer is higher in this region of Western Maharashtra and also noted in earlier age group of patients.

In our study, age range was 31 to 87 years of age with mean age of presentation was 54.5 years. The maximum number of patients were from 40-49 years of age group. The study by Mehrotra et al in 2006 showed that the maximum number of patients were in sixth decade.⁷ Present study showed male predominance with male to female ratio 2.6:1 (Table No-1). The study by Khandekar SP et al showed maximum patients were male.⁸

Tobacco chewing has emerged as a stronger risk factor of oral carcinoma than smoking, since there is direct exposure of tobacco chewing on the mucosa for longer period, while smoking has more contact with pharynx, larynx and lungs. Smoking, tobacco chewing along with alcohol is thought to serve as promoter which causes synergistic effect for development of oral cancer.⁶

In our study of malignant lesions out of 135 cases, 123 (91.11%) patients were habituated to tobacco. In a study done by Khandekar SP et al, 71.3% of patients were habituated to tobacco.⁸

The study done by Durazzo MD et al showed 80.8% of patients were habituated to tobacco.⁹ Another study done by Iype et al showed 56.4% were habituated to tobacco chewing or alcohol.⁴ Again, tobacco chewing or alcohol consumption was noted majority in male patients as compared to female counterparts. Smokeless tobacco is used in various form such as placement of tobacco quid in the gingival buccal sulcus region has been attributed to the development of oral cancer and is an important risk factor. In our study, the most common clinical presentation was ulceroproliferative growth in oral cavity (Table no-2). The squamous cell carcinoma of oral cavity presents with various types on gross examination as thickened patch, ulcerative growth, papillary or varicose type, nodular growth or scirrhous type. Few patients may present with enlarged cervical lymph nodes as noted in our study.

Buccal mucosa was the commonest site involved in the present study, 62 out of 135 cases (45.92%) followed by tongue that is 32 out of 135 cases (23.71%) (Table no-3). A study done by Ahluwalia et al in 2001 showed buccal mucosa was the commonest site in 55.26% of cases.¹⁰ While study done by Shankarnarayana R et al in 2005 also showed the most common site was buccal mucosa in 50.4% of cases.¹¹

A study done by Bhattacharjee et al in 2006 showed 32.67% of cases involved tongue.¹² Present study was in concordance with above studies which showed 45.12% of cases in buccal mucosa as the most common location. It is observed and learnt from the various literatures that the anterior parts of oral cavity (Buccal mucosa, anterior two third of tongue, lip, alveolus and base of tongue) were more frequently involved due to the prolonged exposures of carcinogens.

Various histopathological types were observed in our study were classified according to WHO classification.¹³ In the present study out of 135 cases, 122 cases were of conventional squamous cell carcinoma (90.37%), 8 cases were of verrucous carcinoma (5.94%), 1 case of micro-invasive squamous cell carcinoma (0.74%), 1 case each of spindle cell carcinoma, melanoma, mucoepidermoid

carcinoma and polymorphous low grade adenocarcinoma (Table No-4). Conventional squamous cell carcinoma shows various grades of differentiation. The tumours were differentiated based on the Broder's system.⁵

A study done by Bhattacharya et al in 2006 showed that the most common oral malignant lesion was squamous cell carcinoma (85.12%).¹² Another study done by Dias et al in 2007 and Brandizzi et al in 2008 showed the same result as squamous cell carcinoma as the most common oral malignant lesion in 93.9% and 91% patients respectively.^{14,15} Present study is comparable with above studies which showed squamous cell carcinoma as the most common oral malignant lesion in 90.37% of cases (Table No-5).

In the present study, 122 cases were oral squamous carcinomas, out of which 67 were well differentiated (54.91%), 49 (40.18%) cases were moderately differentiated and 6 (4.91%) cases were of poorly differentiated.

Well-differentiated squamous cell carcinoma showed sheets and nests of tumour cells with large hyperchromic nuclei. Individual cell keratinisation with well form keratin pearls consistently seen in almost all cases and are the prominent features of well-differentiated squamous cell carcinoma. The pattern of invasion was predominantly pushing type. Stromal lymphoplasmacytic infiltration was also noted.

Moderately differentiated squamous cell carcinoma showed nuclear pleomorphism with decreased individual cell keratinisation. The pattern of invasion mainly of pushing type.

Poorly differentiated squamous cell carcinoma showed predominantly immature cells with mitoses and absence of individual cell keratinisation. There is lack of cohesiveness between tumour cells. Pattern of invasion was predominantly in single cells, cords and islands.

A study done by Iype M et al in 2001 showed that the cases of well-differentiated carcinoma were maximum (52.6%).⁴ Another study done by Patel M M et al in 2004 showed 60.12% cases were of all well differentiated type.¹⁶ Ahluwalia et al in 2001 also showed maximum cases 65.97% was of well differentiated type.¹⁰

Present study was comparable with above studies and maximum cases were of well-differentiated squamous cell carcinoma (52.84%). However, study done by Dragmoir L P et al showed that maximum number of cases were of well-differentiated squamous cell carcinoma type (37.6%) but also there was equal percentage in cases of poorly differentiated squamous cell carcinomas (35%).¹⁷

The various histological subtypes of oral squamous cell carcinoma include spindle cell carcinoma, papillary carcinoma, acantholytic squamous cell carcinoma, adenosquamous carcinoma, carcinoma cuniculatum, considered in classification by IARC – WHO.¹³ In our study, a case of spindle cell carcinoma was noted.

The verrucous carcinoma is a rare low grade variant of squamous cell carcinoma. Oral involvement by this tumour was most commonly noted at buccal mucosa followed by

mandibular crest, gingival and tongue. All the cases of verrucous carcinoma showed well-differentiated squamous epithelium. The epithelial down growth was broad having blunt rete pegs with pushing margins. The lamina propria showing lymphoplasmacytic infiltration. In present study, we diagnosed 8 cases of verrucous carcinoma constituting 5.94%. This variant of oral squamous cell carcinoma has an excellent prognosis.¹⁸ Salivary gland constitutes an important component of oral cavity. Salivary gland tumours are relatively rare.

In our study, 2 cases of minor salivary gland was diagnosed on histopathology as mucoepidermoid carcinoma and polymorphous low grade adenocarcinoma presented as oral growth at buccal mucosa at hard palate. The case of polymorphous low grade adenocarcinoma was presented clinically as recurrent oral ulceration and histopathological examination showed tumour.

Oral cancer diagnosis in early stages significantly affects survival rate. Nevertheless, around 50% of diagnosed patients died within 5 years.¹⁹ Regular oral examination, early detection of premalignant oral lesions and regular oral cancer screening programs are essential for early detection and treatment of the cases which will reduce the patient's morbidity and mortality.

CONCLUSION: The study showed malignant oral lesions are major health problem in this geographic area. The oral cancers are noted in slightly earlier age group. The habituation to tobacco chewing is a major associated risk factor. The histopathological examination of oral lesion is important for classifying and grading the tumour. Conventional squamous cell carcinoma was the most common histopathological tumour. The early detection of patient with oral lesion will be helpful for better management of cases. As in this area people are habitual to tobacco use, regular oral cancer screening program will be helpful for early detection and treatment of oral cancer.

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