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Original Research Article

Histopathological Spectrum of Oral Cavity Lesionsin Tertiary Health Care Centre: A Study of 60 Cases

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Abstract

Objective: To analyze the spectrum of Oral lesions detected in a tertiary health care hospital, in Nanded, Maharashtra. *Materials and Methods:* This is a 1 year prospective study from January 2018 to December 2018. All the oral cavity specimens received in the Department of Pathology, Dr. Shankarrao Chavan Government Medical College, Nanded) during the study period was included for the study. Data regarding the age, sex, clinical complaints of subjects, location and type of lesions were obtained for each case. All the histological sections were stained in hematoxylin & eosin stain mounted. All the histological sections were examined microscopically & findings were recorded and tabulated. *Results:* A total of 60 cases were analyzed during the study period. The age group ranged from 3 to 70 years in the study. Overall males were affected more than the females with male:female (M:F) ratio of 1.6:1. Buccal mucosa (43.34%) was the commonest site involved followed by tongue (30%). Maximum lesions were malignant: 40%, followed by benign lesions: 35%, premalignant lesions: 15% and non-neoplastic lesion: 10%. Among the neoplastic lesion, squamous cell carcinoma (SCC) was seen in 75% cases; verrucous carcinoma in 20.83% and of adenoid cystic carcinoma in 4.16% cases of neoplastic oral lesions. Mild Dysplsia, 45.45% was the most common premalignant lesion, hemangioma was the commonest benign oral lesions 54.16% and Inflammatory lesions 50% were the most common non-neoplastic lesion. Most common chief complaint was growth in oral cavity (42 cases, 70%). It was also noted that tobacco chewing was the most prevalent habit amongst the patients with oral lesions, comprising of 21 cases (35%). *Conclusion:* A variety of lesions were encountered in the study with predominance of malignant lesions. Squamous cell carcinoma was the commonest malignant lesion, and buccal mucosa was the commonest site involved.

Keywords: Oral cavity lesions; Tobacco chewing; Buccal cavity; Squamous cell carcinoma.

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Introduction

Histopathological assessment of a tissue is the gold standard of diagnosis. An adequate incisional biopsy taken from the lesion can provide over 98% diagnostic accuracy as to whether the lesion is malignant or not, when routine pathological techniques are used.[1]

Certain common oral lesions appear as masses, prompting concern about oral carcinoma. Many are benign, although some (e.g., leukoplakia) may represent neoplasia or cancer. Oral cancer may appear clinically as a subtle mucosal change or as an obvious mass. Oral leukoplakia is the most common premalignant oral lesion. For persistent white or erythematous oral lesions, biopsy should be performed to rule out neoplastic change or cancer. Most oral cancers are squamous cell carcinomas. Tobacco and heavy alcohol use are the principal risk factors for oral cancer.[2] The present study is undertaken to study the incidence and spectrum of lesions of the oral cavity. We found out that majority of oral cavity lesions were malignant. Majority of the patients were smokers and presented with a growth in the oral cavity and buccal mucosa was the most common site for neoplastic lesions of oral cavity. Carcinoma was most common, with Squamous cell carcinoma as the commonest histological variety.

Aims and Objectives

The main aim of the present study is to analyse the spectrum of oral lesions detected in a tertiary health care hospital.

Material and Methods

This prospective study was done in department of pathology, at a tertiary health care hospital for a period of 1 year (January 2018 to December 2018). Data regarding the age, sex, clinical complaints of subjects, location and type of lesions were obtained for each case. A total of 60 specimens from oral cavity were obtained. A thorough gross examination was done and then tissue was fixed in 10% neutral buffered formalin. A minimum of one sections per specimen was studied. All the histological sections were stained in H & E stain & mounted. All the histological sections were examined microscopically & findings were recorded and tabulated.

Inclusion criteria

- Specimen of neoplasms of oral cavity, which was adequate and representative of the lesion.
- Properly resected surgical specimens like punch biopsies, incisional biopsies, wedge biopsies, surgical excision, radical neck dissection, hemiglossectomy, hemimandibulectomy etc. from lesions of oral cavity were included.

Exclusion criteria

- Inadequately preserved specimens with handling artefacts.
- Improper clinical record (history and examination).
- Lesions arising from nasopharynx and hypopharynx.
- Lesions arising from bones of jaws and odontogenic tumors.

Results and Observations

In the present study, [Table 1] amongst 60 cases of oral lesions, maximum was malignant: 40% (24 cases), followed by benign lesions (21 cases, 35%), premalignant lesions (9 cases, 15%) and non-neoplastic lesion (6 cases, 10%).

Table 1: Malignant, Benign, Premalignant and Non-Neoplastic Oral Lesions

Lesions	Number	Percentage
Malignant	24	40
Benign	21	35
Premalignant	9	15
Non-Neoplastic	6	10
Total	60	100%

Table 2 shows, in the present study, amongst non-neoplastic lesions, inflammatory lesions were the most common, comprised of around 3 cases (50%), followed by mucocoele, arteriovenous malformations and fibrosis which comprised of 1 case each (16.67%)

Amongst the benign oral lesions, hemangiomas were the maximum, 13 cases (54.16%) followed by squamous papilloma (4 cases, 19.04%), fibroma (3 cases, 14.28%) and 1 cases of pleomorphic adenoma of minor salivary glands (4.76%).

In the category of premalignant lesions, maximum lesions comprised of mild dysplaia (4 cases, 45.45%) followed by moderate dysplasia (3 cases, 33.34%) and severe dysplasia (2 cases, 22.24%).

Overall maximum lesions were found to be of malignant type, out of which majority were squamous cell carcinoma (18 cases, 75%), 5 cases were of verrucous carcinoma (20.83%) and 1 case of adenoid cystic carcinoma (4.16%) was encountered.

Table 2: Histopathological Diagnosis

Histopathological Diagnosis	No. of cases	Percentage
Non Neoplastic Lesion		
• Mucocoele	1	16.67
• Inflammatory lesion	3	50.00
• AV Malformation	1	16.67
• Fibrosis	1	16.67
Benign Lesion		
• Hemangioma	13	54.16
• Fibroma	3	14.28
• Squamous Papilloma	4	19.04
• Pleomorphic adenoma of minor salivary gland	1	4.76
Premalignant Lesion		
• Mild Dysplasia	4	45.45
• Moderate Dysplasia	3	33.34
• Severe Dysplasia	2	22.24
Malignant Lesion		
• Squamous Cell Carcinoma	18	75.00
• Verrucous Carcinoma	5	20.83
• Adenoid Cystic Carcinoma of minor salivary gland	1	4.16

Of all the specimen's sites (Table 3), buccal mucosa with 26 cases (43.34%) cases was the commonest site of involvement, where the most common lesion was found to be of malignant type; followed by tongue 18 (30%) cases; Lip 11 cases (18.34%), where the most common lesion was of benign type; 4 cases (6.67%) were situated in the palate and 1 case (1.67%) of malignant type was in the floor of mouth.

Table 3: Clinical Sites

Site	Malignant		Benign		Pre-malignant		Non-Neoplastic		Total
	No.	%	No.	%	No.	%	No.	%	
Buccal mucosa	12	50.00	7	33.34	5	55.56	2	33.34	26 (43.34%)
Tongue	10	41.68	3	14.29	2	22.23	3	50.00	18 (30%)
Lip	1	4.16	8	38.09	1	11.12	1	16.67	11 (18.34%)
Palate	0	0	3	14.29	1	11.12	0	0	4 (6.67)
Floor of mouth	1	4.16	0	0	0	0	0	0	1 (1.67)
Total	24		21		9		6		

Table 4 shows that in the present study, maximum number of the patients presented with a chief complain of growth in the oral cavity (42 cases, 70%), followed by ulcer in the oral cavity (11 cases, 18.34%) and 7 cases (11.66%) presented with plaque in the oral cavity.

Table 4: Nature of Presenting Lesion

Clinical presentation	Malignant	Benign	Premalignant	Non-Neoplastic	Total
Plaque	2	2	1	2	7 (11.66%)
Ulcer	7	0	3	1	11 (18.34%)
Growth	15	19	5	3	42 (70%)

Table 5 shows that in our study, Tobacco Chewing was the most prevalent habit amongst the patients with oral lesions, comprising of 21 cases (35%), followed by smoking, comprising of 18 cases (30%) and 15 cases out of 60 cases (25%) were found to be free of any habits. Amongst the Malignant cases, 50% cases (12 cases) were smokers, and 41.6% cases had the habit of Tobacco Chewing. Whereas, in the benign, 9 cases (42.85%) as well as non-neoplastic oral lesions, 4 cases (66.67%), majority of the cases were free of any habits.

Table 5: Oral Lesion on the Basis of the Habits

Habits	Malignant		Benign		Pre-malignant		Non-Neoplastic		Total
	No.	%	No.	%	No.	%	No.	%	
Tobacco Chewing	12	50.00	5	23.8	5	55.56	1	16.67	23 (38.3%)
Smoking	10	41.68	4	19.00	3	33.33	1	16.67	18 (30%)
Alcohol Intake	1	4.16	3	14.28	1	11.12	0	0	5 (8.34%)
None	1	4.16	9	42.85	0	0	4	66.67	14(23.3%)
Total	24		21		9		6		

In our study, males constituted 63.3 percent (38 cases) and females, 36.6 percent (22 cases); hence, the male to female ratio was 1.6:1 (Table 6).

The highest percentage of patients belonged to the age group of 50–60 years. The youngest patient was 3-year-old and the oldest patient was 70 years old.

In 60 cases of oral lesions studied, the age distribution for premalignant lesions was 40 to 50 years and malignant ranged from 50 to 60 years.

T**able 6:** Gender Distribution

Gender	No. of Cases
Males	38 (63.34%)
Females	22 (36.6%)
Total	60

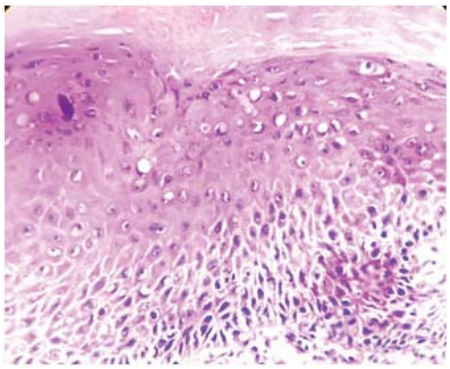

Fig. 1: Mild Dysplasia: High power show cytological atypia extending to middle one third of the squamous epithelial lining. (H&E, 100X).

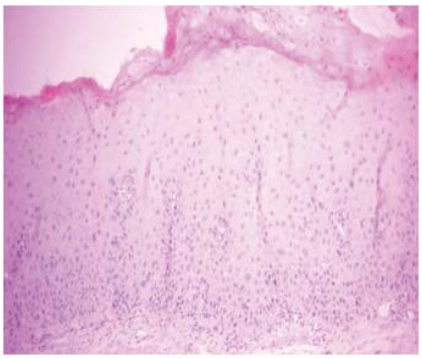

Fig. 2: Moderate Dysplasia: High power show cytological atypia limited to lower one third of the squamous epithelial lining. (H&E)

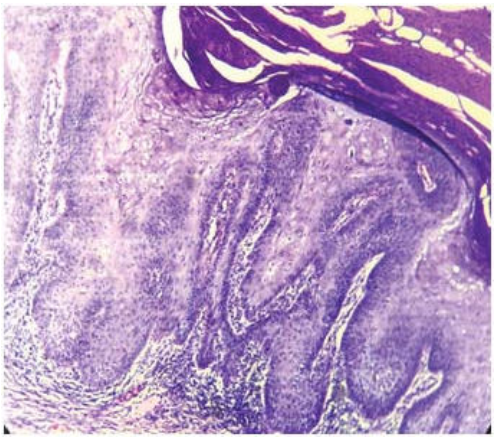

Fig. 3: Verrucous Carcinoma: High power shows bulbous finger like sheets of well differentiated tumor cells invading the underlying stroma with pushing borders.(H&E, 400X).

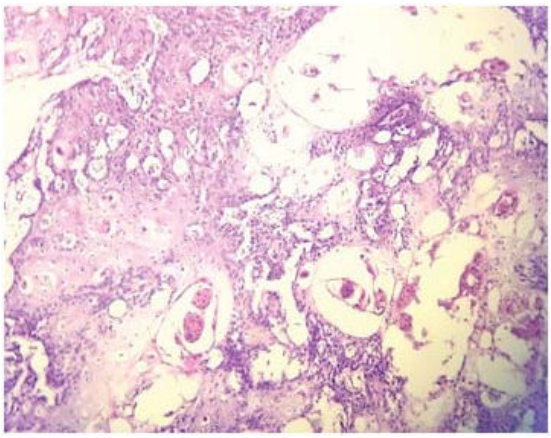

Fig. 4: Squamous Cell Carcinoma: High power view showing pleomorphic squamous epithelial cells arranged in sheets and nests with keratin pearls (H&E, 400X).

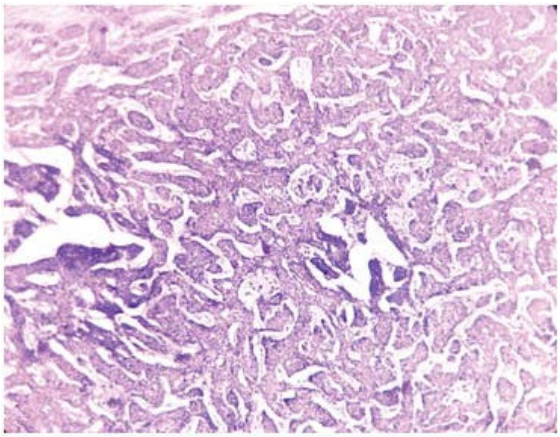

Fig. 5: Adenoid Cystic Carcinoma of Buccal Mucosa: High power view showing nests of cells with microcystic spaces (H&E, 100X).

Discussion

Oral mucosal lesions present as a significant health problem with a considerable morbidity and mortality. While comparing the occurrence of oral lesions with various studies, it has been found, that the difference in the age, distribution and prevalence is observed. The study comprised of a wide spectrum of lesions which ranged from benign inflammatory (non neoplastic) lesions to malignant lesions. Different sites in oral cavity show predilection for different types of lesions.[3] Carcinomas are common in buccal mucosa, mucoceles are more commonly seen on lower lip, while minor salivary gland tumors are seen most commonly on upper lip.[4] Knowledge of site predilection for different diseases will be useful in acknowledging the factors responsible for the same.[5]

Oral cancer is the most common cancer in India amongst men (16.1% of all cancers). It accounts for 72,616. Total deaths in men and women together. Around 80–90% of oral cancers are directly attributable to tobacco use. The mean age of oral cancer is 50 years.[6] Over 90% of these tumours are squamous cell carcinoma which arise from oral mucosal lining.[7] Many oral carcinomas arise within regions that previously had premalignant lesion. The most common premalignant lesion seen in oral cavity is leucoplakia with associated dysplasia.[8]

Table 7 shows that the histopathological findings in the present study is in concordance with the study conducted by Ravi et al. (2003)[9], Ravi et al. (2008)[10], Mishra et al. (2009)[11] and Kaur et al. (2017).[12]

Common etiological factors are tobacco consumption, betel - quid chewing and alcohol abuse. HPV infections, Syphilis, nutritional deficiencies, sunlight (in cases of lip cancer), miscellaneous factors including heat (particularly heat from a pipe stem in cases of lip cancer), trauma, sepsis, and irritation from sharp tooth and dentures also play a role in the etiology of oral cancers.[13]

Table 7: The histopathological findings in the present study is in concordance with the other studies

	Ravi et al. (2003)[9]	Ravi et al. (2008)[10]	Mishra et al. (2009)[11]	Kaur et al. (2017)[12]	Present Study
Malignant	30.12%	38.4%	45.11%	42%	40%
Benign	35.17%	31.7%	18.6%	36%	35%
Pre-malignant	16.7%	29.8%	37.2%	22%	15%

In our study, it was observed that 50% cases were smokers and 41.6% cases had habit of tobacco chewing, which is in concordance with the study conducted by Gupta et al.,[14] 45.5% cases were smokers and 32% cases had habit of tobacco chewing.

Regarding the site for the development of oromucosal lesions, the main site reported in this study was buccal mucosa which was similar as that reported by Wahi et al.[15] This indicates more prevalence of addictions and habits like tobacco chewing, pan, khaini etc.

Amongst the malignant lesions, the prevalence of squamous cell carcinoma in our study was about 75%, followed by verrucous carcinoma which was comparable with the studies done by Kaur et al.[12] and Masamatti et al.[16]

Amongst the Premalignant lesions, in our study, majority of the patients comprised of mild dysplasia, which was in concordance with the study of Masamatti et al.[16]

Oral cavity is easily accessible to examination, so early diagnosis of pre-cancerous and cancerous lesions can be detected much easily. However, the most important step is in preventing the use of tobacco or its products. Various research techniques have been used to increase the sensitivity and specificity of detection of oral lesions especially malignancy but all have their own limitations. These diagnostic tests include – Toluidine blue staining, oral brush cytology, tissue reflectance, narrow emission tissue fluorescence, tumour markers and molecular diagnostic techniques.[17, 18]

Conclusion

Histopathological examination of all oral lesions is important for typing and to rule out malignancy. The oral cavity is accessible for visual examination, and oral cancers and premalignant lesions have well clinical diagnostic features. In our study, we concluded that majority of oral cavity lesions were malignant, with most of the patients being smokers and presented with a growth in the oral cavity. Buccal mucosa was the most common site for neoplastic lesions of oral cavity. Carcinoma was most common, with Squamous cell carcinoma as the commonest histological variety. Both benign and malignant minor salivary gland tumors were also seen. In benign tumors squamous papilloma, lobular capillary haemangioma, fibroma, were also seen. A higher degree of suspicion, based on clinical findings and associated risk factors, precise histopathological typing of lesions to confirm or rule out malignancy is essential in the management of oral lesions.

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