Original Research Article

Histopathological spectrum of oral cavity lesions in a tertiary care hospital in Gwalior

Arvindra Rahul[1*], Reema Bhushan[2]

[1]MD Pathology, Post Graduate Medical Officer, Civil Hospital, Gwalior, Madhya Pradesh, India
[2]Assistant Professor, Gajra Raja Medical College, Gwalior, Madhya Pradesh, India

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Abstract

Introduction: Oral cavity is most common site for neoplastic as well as non-neoplastic lesions especially in males in India, commonly attributed to tobacco chewing. Squamous cell carcinoma is most commonly found in this population. **Material and method:-** This is a 3 year retrospective cohort study of oral cavity lesion from November 2015 to November 2018. During this time period, 497 histological specimens of oral cavity lesions were received in Department of Pathology, G R Medical College, Gwalior. Age, sex and site of the lesion were recorded. They were processed and subjected to histopathological examination.The lesions were categorized as non-neoplastic(chronic inflammatory lesions, fibrous hyperplasia, fibrosis, cystic lesions and ranula), benign tumors (granuloma pyogenicum, squamous papilloma, hemangioma and benign salivary gland tumors) and malignant tumors. The data was collected, summarized and compared statistically. **Results: -**In the study, out of the total 497 cases, most common lesions were malignant tumors i.e. 346cases (69.61%), whereas 61 cases (12.27%) were benign lesions and 90 cases were non neoplastic lesions (18.10%). Overall, male to female ratio was 3.3:1. Most commonly affected age group was 41-50 years. Out of 346 malignant lesions, squamous cell carcinoma was reported in 340 cases (98.26%). Most common affected site by squamous cell carcinoma was tongue (35.58%, 121/340). Out of 61 benign lesions the most common finding was granuloma pyogenicum (45.90%). **Conclusion: -** Most of the oral cavity lesions were malignant with male predominance and in which most common malignant lesion was squamous cell carcinoma.

Introduction

Oral cavity lesionsare most prevalent in our country. In the malignant category, most frequently seen is squamous cell carcinoma which rank amongthe top three types of cancer in the country. In our populationit is mainly related to use of tobacco and tobacco product. Most of the studies quote oral lesions to be predominant in male population[1]. Squamous cell carcinoma is seen mainly between the sixth to seventh decades of life. Its occurrence in younger people (<40 years old) is rare [2,3]. Oral squamous cell carcinoma accounts for 4% of all carcinomas in male and 2% in female [4] At least 30% of cases of squamous cell carcinoma show local metastasis [5].Oral lesion is major public health problem. Most of the cases are ignored by the patient and are diagnosed at later stage. This results in lower treatment outcomes and considerable costs to the patient[6].

Incidence of benign lesions is comparatively less than malignant. Mostly seen benign lesions include granuloma pyogenicum, squamous papilloma, hemangioma and some salivary glands tumour like pleomorphic adenoma, warthin tumour etc. Non neoplastic pathology of oral cavity mainly includes chronic inflammatory lesions. Human papillomavirus(HPVs) infection has been known as an important factor, particularly in those cases of oral carcinoma where no relation has been found with respect to tobacco or alcohol consumption [7].

*Correspondence
Dr. Arvindra Rahul
MD Pathology, Post Graduate Medical Officer, Civil Hospital, Gwalior, Madhya Pradesh, India
E-mail: deepu.arvindra@gmail.com

Materials and Methods

It is a 3 year retrospective study from November 2015 to November 2018. The specimens were received in Department of Pathology, G.R. Medical College from the surgery department of our institute. Specimens were fixed immediately in 10% buffered formalin. Proper labeling of the specimen was checked or done before further processing. Gross examination of the specimen was done. Site, size, shape, color, appearance on surface, and consistency of the specimen was recorded. Sectioning of specimen was done to observe color, consistency and content of specimen. Desired sections were taken .Further procedures i.e. fixation, dehydration, clearing, embedding, microtomy, staining and mounting of specimen were done as per standard procedures of our department. Staining was done with routine hematoxylin and eosin stain. Mounting was done with DPX(distyrene, plasticiser and xylene,). Prepared slides were examined under binocular microscope. Reporting and diagnosis of oral lesions were done as per WHO criteria.

The data was collected, retrieved, tabulated, summarized and compared statistically by frequency distribution and percentage Proportion.

Results

A total of 497 specimens were received in this study period which include 383 males (77.06%) and 114 females (22.93%). Age wise distribution of oral cavity lesionsis summarized in table no. 1

Table 1: Age wise distribution of oral cavity lesions

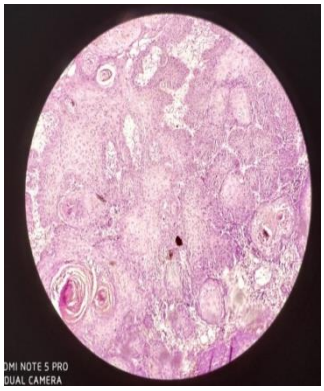
Age group (in years)	Malignant	Benign	Non-neoplastic
0-10 years	nil	6	4
11-20 years	5	10	12
21-30 years	35	14	25
31-40 years	87	13	23
41-50years	95	8	9

51-60yeras	76	6	7
61-70years	40	4	6
>70years	8	Nil	4
Total	346(69.61%)	61(12.27%)	90(18.10%)

Out of 497 cases, 346 cases were malignant. These cases show male predominance Most frequently found lesion was squamous cell carcinoma in both sex which is summarized in table no. 2 and image no 1 ,2

Table 2:Genderwise and histopathological categorization of malignant lesions

Type of malignancy	Total no. of cases	Male	Female
Squamous cell carcinoma	340	276	64
Mucoepidermoid carcinoma	3	3	-
Adenoid cystic carcinoma	3	2	1



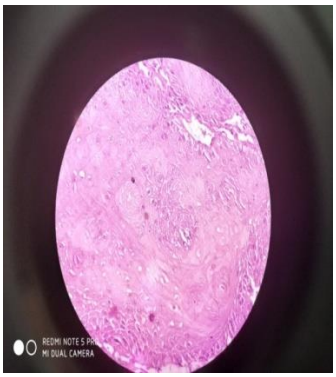


Fig 1: H&E 10X, I **Fig 2: H&E 40X: sections show malignant nests of squamous cells with formation of keratin pearls**

Benign lesions in our study wasfound in 61 cases. Most common lesion was pyogenic granuloma (28cases image no 3,4), followed by squamous papilloma(16cases image no 5), hemangioma(15 cases), Warthin's tumor(1case) and pleomorphic adenoma(1 case image no 6) (table no.3).

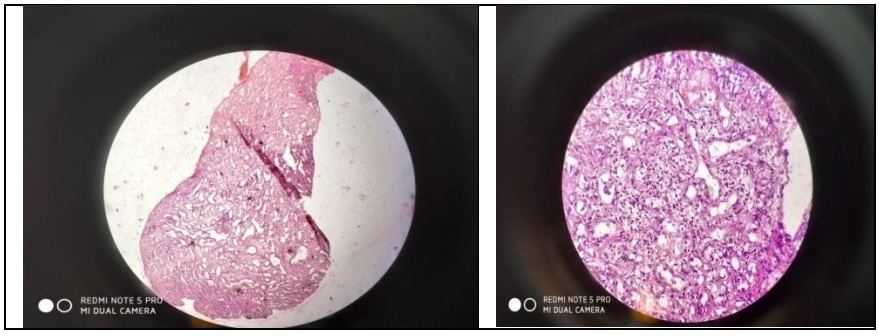


Fig 3: (H&E10x) **Fig 4(H & E 40x):sections chow lobular pattern of vascular proliferation with inflammation and edema resembling granulation tissue**

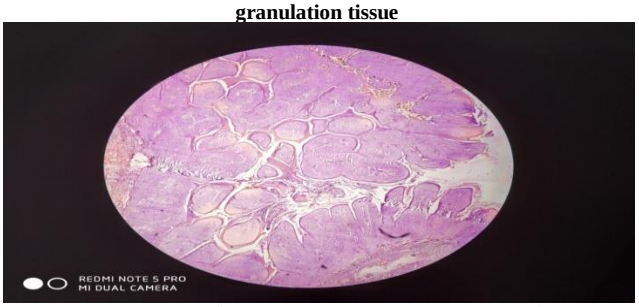


Fig 5: H&E 10X: Section show finger like papillary proliferations lined by keratinized stratified squamous epithelium with fibrovascular connective tissue cores

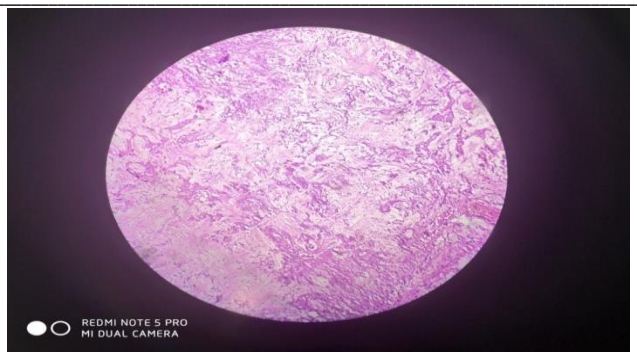


Fig 6, H&E 40X: Section shows epithelial component, myoepithelial component scattered within myxoid stroma

Table 3: List of benign lesions in oral cavity

Type of lesion	No. of cases	%
Pyogenic Granuloma	28	45.90
Squamous Papilloma	16	26.23
Hemangioma	15	24.59
Warthin's Tumor	1	1.64
Pleomorphic Adenoma	1	1.64
Total	61	100

In this study there were 90 cases of oral cavity lesions which showed non neoplastic histology.Most common type of non-neoplastic pathology was cystic lesions which was found in 40 cases out of total 90 cases. Most common cystic lesion was mucus retention cyst(17cases), followed by mucocele (14 cases), ranula (6cases) and dentigerouscyst (3 cases). Second most common lesion under non neoplastic category was chronic inflammatory pathology (32 cases), followed by fibrous hyperplasia (14cases) and fibrosis (4cases) (table no. 4).

Table 4: List of cases of non-neoplastic pathology in oral cavity

Type of lesions	No. of cases	%
Cystic Lesion	40	44.44 %
Chronic Inflammatory Pathology	32	35.55%
Fibrous Hyperplasia	14	15.55 %
Fibrosis	4	4.44 %

The overall distribution of the oral cavity benign, malignant and non-neoplastic lesions according to the site of lesion have been summarized in table no. 5.

Table 5: Overall distribution of the oral cavity benign, malignant and non-neoplastic lesions according to the site of lesion

Site of lesion	Benign	Malignant	Non neoplastic	Total no. of cases
Tongue	8	121	11	140
Buccal mucosa	16	92	31	139
Gingival	10	-	12	22
GB sulcus	-	27	8	35
Lip	14	31	16	61
Palate	7	20	8	35
Alveolus	-	16	-	16
Retro molar trigone	-	22	-	22
Floor of mouth	6	17	4	27

Discussion

In this 3 years retro-prospective study from November 2015 to November 2018,497 specimens were received in the Pathology Department. They were histopathologically examined and were categorized as non-neoplastic, benign and malignant. The interpretation was recorded and compared with work of other similar studies. In this study, oral cavity lesions were mostly seen in males (77.06%) as compared to females (22.93%), which is similar to the study by Pudasaini S et al [8]. However, some studies have mentioned female predominance like study done by Modi D et al[9]. He mentioned that it could be due to deleterious oral habits in females than males in Manipur. However, neoplastic lesions in his study population were more common in males than females similar to this study.In this study, most common malignant oral lesion was squamous cell carcinoma (SCC) followed by mucoepidermoid carcinoma and adenoid cystic carcinoma.Similar result was obtained in the retrospective study done by Ma'aita et al [10]. Out of 118 cases of oral cancers in their study, SCC (96%) was the most common malignant lesion. Smiliar results were found in study by Bhattacharjee A et al, withSCC (97.5%) being most common lesion in their study[11].Most common age group for malignant lesion was 31-60 years which is similar to study done by Sharma RN et al[12]and Saxena ONet al[13]. Haribhakti VV et al [14]and Manjari M et al[15]reported 41-60 years as the most common age group in their studies.In current study pyogenic granuloma was the most common benign lesion (45.90%) followed by squamous papilloma(26.22%), hemangioma(24.59%), warthin tumour (1.63%), and pleomorphic adenoma(1.63%).Similar findings are observed in the study of Zaib Net al[16], which reported highest incidence of granuloma pyogenicum in their study population.Among non-neoplastic lesions, most frequently found lesion was cystic(44.44%), in 40 cases.Most common cystic lesion was mucus retention cyst(17cases), followed by mucocele (14 cases), ranula (6cases) and dentigerous cyst (3 cases). Other lesions were chronic inflammatory pathology(35.55%), fibrous hyperplasia(15.55%)and fibrosis(4.44%) . Kosam S et al [17] in their study, reported mucocele in 0.57% cases of oral lesions. Mehta NV et

al [18]reported 26%cases in their study as mucocele and one case as hemangioma.

Table 6: Distribution of benign, malignant and non-neoplastic cases according to the site of lesion

Site of lesion	Benign	Malignant	Non neoplastic	Total no. of cases
Tongue	8	121	11	140
Buccal mucosa	16	92	31	139
Gingival	10	-	12	22
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Lip	14	31	16	61
Palate	7	20	8	35
Alveolus	-	16	-	16
Retro molar trigone	-	22	-	22
Floor of mouth	6	17	4	27

Most common site for oral lesion was tongue(140 cases) and buccal mucosa (139cases)in our study followed by lip(61 cases),GB sulcus(35 cases), palate (35 cases), floor of mouth (27 cases), gingival and retro molar region (each 22 cases), and alveolus (16 cases) (table 6). Similar findings were seen in a study done by Modi *et al* [9] who reported buccal mucosa as the most common site of involvement (26.8%) followed by tongue (26.1%), gingiva(2%), lip (6.7%), and hard palate (12.6%). Mehta NV *et al(18)* in his study also observed buccal mucosa (32%) as the most common site of oral lesions followed by tongue (19%), gingiva (3%), lip (22%), and hard palate (2%). Mehrotra R *et al* [19]reported that the buccal mucosa is most frequently involved site followed by the tongue in both benign and premalignant groups.

Conclusion

In this study, most of the oral cavity lesions were malignant with male predominance. Most common malignant lesion was squamous cell carcinoma in this study. Hence, histopathological examination is an indispensable tool to find the nature and origin of oral cavity lesions as these lesions cannot be confirmed with the clinical findings alone. Therefore, it is must to have the histopathological examination and confirmation of oral cavity lesions for their correct identification

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