International Journal of Research in Medical Sciences
Gupta M et al. Int J Res Med Sci. 2016 May;4(5):1506-1510
www.msjonline.org
pISSN 2320-6071 | eISSN 2320-6012
DOI: http://dx.doi.org/10.18203/2320-6012.ijrms20161219

Research Article

Histopathological study of neoplastic lesions of oral cavity and oropharynx

Mohit Gupta[1], Hansa Choudhary[2]*, Neelu Gupta[2], Aahana Gupta[3]

[1]Department of Pathology, Shri Guru Ram Rai Institute of Medical & Health Sciences, Dehradun, Uttrakhand , India
[2]Department of Pathology, Sardar Patel Medical College, Bikaner, Rajasthan, India
[3]Department of Paediatrics, Sardar Patel Medical College, Bikaner, Rajasthan, India

Received: 24 February 2016
Accepted: 22 March 2016

***Correspondence:**
Dr. Hansa Choudhary,
E-mail: drhansa2005@gmail.com

ABSTRACT

Background: Oral cavity and oropharynx is one of the most common sites for tumors and tumor like lesions in males especially in India. Development of lesions in this region is strongly linked with tobacco in form of smoking or chewing and alcohol consumption. Squamous cell carcinoma is single most common malignant lesion of this region.
Methods: This study included 200 cases of neoplastic lesions of oral cavity and oropharynx. The study was carried out in the Department of Pathology of Sardar Patel Medical College, Bikaner, Rajasthan, India during a period of two years from December 2013 to November 2015.
Results: The results of this study showed that the prevalence of malignant lesions was 82.5% (165 out of 200); the males constitute 68.5% of them. Premalignant lesions constitute only 4% (8 out of 200); the males constitute 75 % of them. Benign lesions in 13.5% (27 out of 200); the males constitute 74.1% of them. Smoking was most common habit (31%) and buccal mucosa was most common site (18.8%) for malignant lesions. Squamous cell carcinoma was the most common malignant tumor (found in 98.18% of malignant lesions).
Conclusions: In our study, we concluded that majority of oral cavity and oropharyngeal lesions were malignant. Buccal mucosa was the most common site for neoplastic lesions of oral cavity and oropharynx. Carcinoma was most common, with Squamous cell carcinoma as the commonest histological variety. Any oral cavity lesion should have a tissue diagnosis for rational management of the case and to avoid mutilating surgery.

Keywords: Oral cavity, Oropharynx, Neoplastic, Lesions, Squamous cell carcinoma

INTRODUCTION

Oral cancer is the 8th most common cancer in men and ranks 14th among women worldwide. Two thirds of this burden is borne by developing countries and over 30% by India only.[1] Oral cancer is the most common type of cancer in India in men and actually accounted for 40% of all forms of cancers. In males, oral cancers represent 4% of total body cancers whereas in females in India 2% of all cancers are of oral cavity.[2]

The oral cavity includes: the lips, teeth, and gums, the lining inside the lips and cheeks (buccal mucosa), the floor of the mouth (under the tongue), the top of the mouth (hard palate), the small area behind the wisdom teeth (retromolar trigon). The oropharynx includes: the back one-third of the tongue, the soft palate, the tonsils, and the back of the throat.[3]

Benign tumors and tumor-like conditions of oral cavity include Eosinophilic granuloma, Fibroma, Granular cell tumor, Lipoma, Keratoacanthoma, Schwannoma,

Neurofibroma, Papilloma, Verruciform xanthoma, Pyogenic granuloma etc, as well as Odontogenic tumors. The usual treatment for these conditions is to surgically remove them since they are unlikely to recur.[4]

In malignant lesions, squamous cell carcinoma is the most common cancer. 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.[1]

METHODS

The study was done in Department of pathology, Sardar Patel Medical College, Bikaner, India for a period of two years (December 2013 to November 2015). A total of 200 specimens from oral cavity and oropharynx were processed, sectioned and stained with hematoxylin and eosin stain and examined under light microscope.

Inclusion criteria

Specimen of neoplasms of oral cavity & oropharynx, 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 neoplasms of oral cavity & oropharynx were included.

Exclusion criteria

- Inadequately preserved specimens with handling artifacts.
- Improper clinical record (history and examination).
- Non neoplastic lesion.
- Neoplasms arising from nasopharynx and hypopharynx.
- Neoplasms arising from bones of jaws and odontogenic tumors.

RESULTS

The present study was not a community based study and hence includes specimens received only in our department of pathology. So a comparison of total oral cavity and oropharyngeal malignancy to all other neoplastic lesions was done to know the rough estimate of incidence. In the present study we observed 6.6% of oral cavity and oropharyngeal cancer to total neoplastic lesions (Table 1).

The results of this study showed that among 200 cases, 165 cases (82.5%) were malignant, 27 cases (13.5%) were benign and 8 cases (4%) were premalignant. The age range was from 3 to 85 years with a mean age of 51.32 years. The most common age group 28% (56 cases out of 200) was 51- 60 years and maximum incidence of oral malignancy was observed in the 6th decade of life 31.5% (52 cases out of 165) (Table 2).

All lesions were more commonly seen in male (139 cases; 69.5%) than in females (61 cases; 30.5%) with M: F of 2.3:1. The male to female ratio for malignant lesion was 2.17:1 (Table 3). The most common site was the buccal mucosa 20.5% (41 out of 200). Also 18.8% of malignant tumors appear on the buccal mucosa (31 out of 165) (Table 4).

In this study smoking was the major habit associated with oral cavity and oropharyngeal neoplastic lesions (total 91 cases). In malignant lesions 31.0% cases were associated with smoking and 23.0% cases were associated with tobacco/pan chewing out of 165 cases (Table 5). Most of the cases were presented with growth (147; 73.5%), followed by ulcer (70; 35%) and only (25; 12.5%) presented with pain in the present study. Majority of malignant lesions (115 out of 165 cases) were also presented with growth (Table 6).

Table 1: Incidence of oral cavity and oropharyngeal biopsies out of all biopsies during December 2013 to November 2015 (2 years).

Total No of biopsies received	Total no. of biopsies found to be neoplastic	Total No of biopsies from oral cavity & oropharynx	Biopsies from neoplastic lesions of oral cavity and oropharynx	Benign	Pre-malignant	Malignant
11000	2499	978	200	27	8	165
	22.72%	8.89%	8.00%	1.08%	0.32%	6.6%

Table 2: The distribution of cases according to their age and nature of lesion.

Age group (in years)	Nature of lesion						Total	
	Malignant		Premalignant		Benign			
	No	%	No	%	No	%	No	%
0-10	0	0	0	0	4	2	4	2.0
11-20	1	0.5	0	0	7	3.5	8	4.0
21-30	8	4	0	0	4	2	12	6.0
31-40	18	9	1	0.5	3	1.5	22	11.0
41-50	41	20.5	3	1.5	4	2	48	24.0
51-60	52	26	1	0.5	3	1.5	56	28.0
61-70	32	16	2	1	2	1	36	18.0
71-80	9	4.5	1	0.5	0	0	10	5.0
81-90	4	2	0	0	0	0	4	2.0
Total	165	82.5	8	4	27	13.5	200	100

Table 3: The distribution of the study cases regarding their sex and nature of lesion.

Sex	Nature of lesion						Total	
	Malignant		Premalignant		Benign			
	No	%	No	%	No	%	No	%
Male	113	56.5	6	3	20	10	139	69.5
Female	52	26	2	1	7	3.5	61	30.5
Total	165	82.5	8	4	27	13.5	200	100

The most common malignant tumor was squamous cell carcinoma 98.18% (162 out of 165 cases), other malignant types include: 1 case of Adenoid cystic carcinoma, two cases of Muco-epidermoid carcinoma. In premalignant lesions 6 cases of dysplasia and 2 cases of carcinoma in situ were noted. The most common benign tumor was pyogenic granuloma 44.4% (12 out of 27 cases), followed by squamous papilloma 18.5% (5 out of 27 cases), pleomorphic salivary adenoma 7.4% (2 out of 27cases), hemangioma 11.1% (3out of 27cases), while one case each of the following basal cell adenoma, fibroma, neurofibroma, schwannoma, lipoma were also noted (Table 7).

Table 4: The distribution of the cases regarding their site and nature of lesion.

Site of lesion	Nature of lesion						Total	
	Malignant		Premalignant		Benign			
	No	%	No	%	No	%	No	%
Alveolus	16	8	-	0	3	1.5	19	9.5
Buccal mucosa	31	15.6	4	2	6	3	41	20.5
Floor of mouth	12	6	-	0	2	1	14	7.0
Hard palate	6	3	-	0	3	1.5	9	4.5
Lip	1	0.5	-	0	8	4	9	4.5
Retromolar triangle	3	1.5	-	0	-	0	3	1.5
Tongue	25	12.5	1	0.5	4	2	30	15.0
Base of tongue	21	10.5	2	1	-	0	23	11.5
Pharyngeal wall	7	3.5	1	0.5	-	0	8	4.0
Soft palate	10	5	-	0	-	0	10	5.0
Tonsil	21	10.5	-	0	1	0	22	11.0
Vallecula	12	6	-	0	-	0	12	6.0
Total	165	82.5	8	4	27	13.5	200	100

Table 5: The distribution of the cases regarding their nature of lesion and habits of patients.

Habits	Nature of lesion						Total	
	Malignant		Premalignant		Benign			
	No	%	No	%	No	%	No	%
Smoking	51	25.5	4	2	7	3.5	62	31.0
Tobacco/Pan Chewing	38	19	2	1	4	2	44	22.0
Alcohol	4	2	0	0	0	0	4	2.0
Smoking+Tobacco	10	5	0	0	0	0	10	5.0
Smoking+Alcohol	16	8	1	0.5	0	0	17	8.5
Tobacco+Alcohol	8	4	0	0	0	0	8	4.0
Tobacco+Smoking+Alcohol	2	1	0	0	0	0	2	1.0
None	36	18	1	0.5	16	8	53	26.5
Total	165	82.5	8	4	27	13.5	200	100

Table 6: The distribution of the cases regarding their clinical presentation and nature of lesion.

Clinical presentation	Nature of lesion			Total	
	Benign	Premalignant	Malignant	Cases	Percentage
Pain	2	0	23	25	12.5
Ulcer	1	3	66	70	35
Growth	26	6	115	147	73.5

Table 7: The distribution of the cases according to their histopathological diagnosis.

Histopathological diagnosis	No. of cases	Percentage (%)
Basal cell adenoma	1	0.5
Fibroma	1	0.5
Haemangioma	3	1.5
Lipoma	1	0.5
Neurofibroma	1	0.5
Pleomorphic Salivary Adenoma	2	1.0
Pyogenic granuloma	12	6.0
Schwannoma	1	0.5
Squamous Papilloma	5	2.5
Dysplasia	6	3.0
Carcinoma in Situ	2	1.0
Adenoid cystic carcinoma	1	0.5
Mucoepidermoid carcinoma	2	1.0
SCC	162	81.0
Total	200	100.0

DISCUSSION

The study from December 2013 to November 2015 includes a variety of 200 oral cavity and oropharyngeal neoplastic lesions, both benign and malignant which were then analyzed for the purpose of studying the clinical aspects as well as histopathological patterns of all neoplastic lesions. The observations were recorded and compared with work of other reputed study of researchers.

As the present study cannot predict the exact incidence in general population, a comparative analysis of incidence of oral cavity and oropharyngeal cancer to total neoplastic lesions was done. In the present study we observed 6.6% of oral cavity and oropharyngeal cancer to total neoplastic lesions which was comparable to Thakur, B. S. noted 6.23% and Sharma et al[5-6] noted 7% of oral cavity and oropharyngeal cancer to total cancer. The slight variation may be attributed to regional variation in tobacco chewing habits and other lifestyle risk factors.

Highest number of tumors of oral cavity and oropharynx in study by Thakur B. S. et al.[5] 60% and in the present study 52% occur in the age group of 40-60 years. In our study, commonest age group to develop the oral cavity and oropharygeal cancer was 51-60 years (6th decade) which is in accordance with findings observed by Abhinandan.[7]

In our study males were more affected than females with male to female ratio of 2.3:1. For malignant lesions the male to female ratio was 2.17:1 which goes with the results of Abhinandan 2.14:1, Mridu Manjari et al.[7-8] 2.18:1.

In the present study we observed 45.5% cases were smoker, 32% cases had habit of tobacco chewing and 13.5% were alcoholic. Thakur B.S. 1997[5] noted 42.7% were smoker and 89.3% had habit of tobacco chewing. However previous studies showed a much higher consumption of tobacco chewing in patients with oral cavity and oropharygeal tumors. This lower association of tobacco chewing may be due to regional variation in tobacco use and also use of tobacco in the form of smoking.

The present study showed majority of cases occurred in buccal mucosa (20.5%) followed by Tongue (15%), base of tongue (11.5%) which is in accordance with the results

in the study conducted by Thakur B.S. (Buccal mucosa-42.5% and tongue-30.3%).[5]

In our study there were 162 cases of squamous cell carcinoma noted, the age ranging from 20-85 years. The commonest age group was 51-60 years (6th decade) which is in accordance with findings observed by Abhinandan.[7] It can also be noted that there was a lower incidence of oral cancers at extreme of ages and it is also in accordance to all the noted studies. A single case of basaloid squamous cell carcinoma variant was also noted.

In the present study it was found that 98.18% cases had squamous cell carcinoma. The adenoid cystic carcinoma was 0.6% and mucoepidermoid carcinoma was 1.2%. In the study done by Mridu Manjari et al, it was found that the dominant group was squamous cell carcinoma (93.3%), Adenoid cystic carcinoma (1.71%) and mucoepidermoid carcinoma (0.19%).[8]

In our study, we concluded that majority of oral cavity and oropharyngeal lesions were malignant. Buccal mucosa was the most common site for neoplastic lesions of oral cavity and oropharynx. Carcinoma was most common, with Squamous cell carcinoma as the commonest histological variety. Maximum numbers of cases of Squamous cell carcinoma were seen in buccal mucosa. Both benign and malignant salivary gland tumors were also seen. In benign tumors squamous papilloma, lobular capillary haemangioma, lipoma, fibroma, neurofibroma, and schwannoma 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.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: Not Required

REFERENCES

1. Dr. Sankaranarayanan. Oral cancer screening saving lives. Lyon, France. Available from http://www.iarc.fr/ENG/Press_Releases/pr164a.html International agency for research on cancer WHO. Press release 3rd June 2005.
2. EHM News Bureau. India has the highest rate of oral cancer in the world study. Express health care management. 2004;16-31:7.
3. Brad WN, Douglas D, Carl M, Jery E, eds. Oral and maxillofacial pathology. W.B. Sanuders Company, Philadelphia, London, Toronto, Montreal, Sydney, Tokyo. 1995;295-304.
4. American Cancer Society (homepage on the internet). (Cited 2006 Oct. 20). Available http://www/cancer.org/docroot/CRI/content/CRI-2-4-IX.
5. Thakur BS, Makannavar JH. Oral and oropharyngeal tumours, clinicopathological study of 243 tumours (1991-1997), Karnataka. Karnataka University. 1998.
6. Sharma RN. Oral carcinoma - a clinical study of 122 cases. J Ind Med Ass. 1964;43;263.
7. Abhinandan B, Chakraborty A, Purkaystha. Prevalence of head and neck cancer in the north east an institutional study. Ind J. Otolaryngology and head and neck surg. 2006;58(1):15-9.
8. Manjari M, Popli R, Paul S, Gupta VP, Kaholon SK. Prevalence of oral cavity, Pharynx, larynx and nasal cavity malignancies in Amritsar, Punjab. IJO and HNS. 1996;48(3):191-95.

Cite this article as: Gupta M, Choudhary H, Gupta N, Gupta A. Histopathological study of neoplastic lesions of oral cavity and oropharynx. Int J Res Med Sci 2016;4:1506-10.