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Original Article

Histomorphological Pattern of Oral and Oropharyngeal Lesions: A Study in a Tertiary Care Hospital

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Abstract:

Background: Oral diseases are major public health problem owing to their high prevalence and incidence in all regions of the world. Current report says that 11.9 percent people are affected by oral cancer.

Objective: Therefore this study has been undertaken to evaluate the histopathological spectrum of oral and oropharyngeal lesions.

Methods: A prospective, descriptive cross-sectional study was conducted in the Department of Pathology, Dhaka Medical College (DMC).during a 24 months period from January 2016 to December, 2017. Patients of different age group and both sex were selected for this study according to inclusion and exclusion criteria.

Results: Present study comprised of 203 cases oral and oropharyngeal lesions of which 94 (46%) were male, and 109 (54%) were female. The age range was from 3 to 86 years with an average of 47.3 years, the highest number of patients to be in 5th decade. According to site of involvement, buccal mucosa is the commonest site. Among 203 cases, 18 (9%) were non neoplastic inflammatory lesion, 39 cases (19%) were tumour like condition, 33 cases (16%) were benign tumour, 15 cases (8%) were potentially malignant condition and 98 cases (48%) were malignant tumour.

Conclusion: This small study gives an understanding of the national scenario about histomorphological pattern of oral and oropharyngeal lesions.

Key words: Oral lesion, oropharyngeal lesion, non neoplastic inflammatory lesions, tumour like conditions, potentially malignant disorders

Introduction

The oral cavity is the first part of digestive system and there are many types of tissues like bone of mandible and maxilla, epithelial tissue of oral mucosa, minor salivary glands, and odontogenic tissue; it liable for different types of epithelial, mesenchymal and lymphoid neoplason.[1] Oral cavity is prone for a myriad of changes with advancing age as well as a result of the environmental and life style related factors. Oral lesions can occur as a result of infections, local trauma or irritation, systemic diseases and excessive consumption of tobacco, betel nut and alcohol.[2] Benign tumours and tumour like conditions of oral cavity include eosinophilic granuloma, fibroma, granular cell tumour, lipoma, keratoacanthoma, schwannoma, papilloma, neurofibroma, pyogenic granuloma etc. as well as odontogenic tumours. The usual treatment for these conditions is to remove them surgically since they are unlikely to recur.[3] Early detection and monitoring such potentially malignant lesions and conditions allows clinicians to detect and treat early intraepithelial stages of oral carcinoma. Among these, the most common are leukoplakia, erythroplakia, oral submucous fibrosis, lichen planus etc. There is a wide variation in the incidence of oral cancer in different regions around the world. In the developing world, oral cancer is the third most common cancer after stomach and cervical cancer.[4] Therefore this study have been undertaken to evaluate the histopathological spectrum of oropharyngeal lesions.

Material and Methods

A cross-sectional study was conducted in the Department of Pathology, Dhaka Medical College (DMC) during a 24 months period from January 2016

to December, 2017. Patients of different age group and both sex were selected according to inclusion and exclusion criteria. Inclusion criteria was, all Oral and oropharyngeal lesions for which biopsy is advised for histopathological examination. The exclusion criteria were, major salivary gland lesions, patients receiving chemotherapy and radiotherapy. A total of 203 cases who met the enrolment criteria were included in this study. All obtained specimens were immersed in 10% buffered formalin. Routine tissue processing and Haematoxylin and Eosin staining were done on all 203 cases at the department of Pathology, DMC. Statistical analysis of the results was obtained by (SPSS-15). The results were presented in tables, figures, charts and diagrams. Ethical issue was discussed with the patients; regarding the study and informed written consent were obtained. The research protocol was approved by the Institutional Review Board (I.R.B.) of DMC, Dhaka

Result

Present study comprised of 203 cases oral and oropharyngeal lesions of which 94 (46%) were male, and 109 (54%) were female. The male female ratio was 0.86:1. In the present series female showed higher distribution of non neoplastic inflammatory lesions, tumour like conditions and malignant tumours whereas as male had higher number of benign and potentially malignant disorders. [Table-I]

Table-I: Distribution of the patients according to sex and biologic behavior of the oral and oropharyngeal lesions (n=203)

Biological nature of the lesions	Male	Female	Ratio
Benign Tumours	21	12	1.75:1
Malignant Tumours	44	54	0.81:1
Non neoplastic inflammatory lesions	5	13	0.38:1
Potentially malignant disorders	10	5	2:1
Tumour like conditions	14	25	0.56:1
Total n (%)	**94 (46)**	**109 (54)**	**0.86:1**

The age range was from 3 to 86 years with an average of 47.3 years. The cases were divided into eight age-groups according to decades, the highest number of patients to be in 5th decade. [Table-II]

Table-II: Distribution of study population according to age and biological nature of oral and oropharyngeal lesion

	NNIL		TLC		BT		PMD		MT		
Age (in year)	n	%	n	%	n	%	n	%	n	%	Total
< 10	-	0	3	8	1	3	-	-	-	-	4
11 -20	-	0	6	15	13	39	-	-	1	1	20
21 -30	3	17	10	26	7	21	-	-	-	-	20
31- 40	1	6	6	15	-	-	2	13	7	7	16
41- 50	6	33	10	26	3	9	5	33	31	32	55
51 - 60	2	11	2	5	8	24	3	20	30	31	45
61-70	5	28	2	5	1	3	4	27	20	20	32
> 70	1	6	-	-	-	-	1	7	9	9	11
Total	18	100	39	100	33	100	15	100	98	100	203
Mean	**52.66**		**34.05**		**31.87**		**54.80**		**55.56**		

NNIL Non neoplastic inflammatory lesions.
TLC Tumour like conditions.
BT Benign Tumours.
PMD Potentially malignant disorders.
MT Malignant Tumours.

According to site of involvement, in female the malignant tumour was more but the difference is not significant. The malignant tumour in female was more in buccal mucosa, lip, tongue, whereas in male common in buccal mucosa, alveolar mucosa, soft palate. In potentially malignant disorder both male and female shows equal distribution in buccal mucosa. [Table-III]

Table-III: Distribution of oral and oropharyngeal lesions of different biological nature according to sex and site.

Site	MT		BT		PMD		TLC		NNIL		
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	
Buccal mucosa	16	25	4	4	8	4	8	11	1	5	86
Tongue	3	7	4	2	0	1	3	5	3	3	31
Lip	4	9	1	1	1	0	0	7			23
Alveolar mucosa	8	3	1	1			3	1			17
Soft plate	7	0	2	0					1	2	12
Retromolar	2	7			1	0					10
Hard plate	2	1	3	0					0	1	7
Mandible	0	0	3	3			0	1			7
Maxilla	2	0	1	0					0	2	5
Gingiva	0	1	2	0							3
Floor of the mouth	0	1	0	0							1
Total	**44**	**54**	**21**	**12**	**10**	**5**	**14**	**25**	**5**	**13**	**203**

NNIL Non neoplastic inflammatory lesions.
TLC Tumour like conditions
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Among 203 cases, 18 (9%) were non neoplastic inflammatory lesion, 39 cases (19%) were tumour like condition, 33 cases (16%) were benign tumour, 15 cases (8%) were potentially malignant condition and 98 cases (48%) were malignant tumour.

In non neoplastic inflammatory lesions, vast majority 14 (72%) cases were chronic nonspecific ulcer and inflammatory lesions. [Table-IV]

Table-IV: Frequencies of non neoplastic inflammatory lesions

Non neoplastic inflammatory lesion	Cases	%
Chronic nonspecific ulcer and inflammatory lesions	14	72
Granulomatous inflammation consistence with tuberculosis	2	11
Pemphigus vulgaris	1	06
Pseudolymphoma	1	06
	18	**100%**

Among the tumour like condition, maximum (44.0%) patients had pyogenic granuloma followed by fibroepithelial polyp (33.0%), traumatic fibroma (8.0%), epulis (5.0%), mucocele (5.0%), fibroma (3.0%) and odontogenic keratocyst (3.0%) [Table-V]

Table V: Frequencies of tumour like condition

Tumour like conditions	Cases	%
Epulis	2	05
Fibroepithelial polyp	13	33
Fibroma	1	03
Mucocele	2	05
Odontogenic keratocyst	1	03
Pyogenic granuloma	17	44
Traumatic Fibroma	3	08
	39	**100%**

Maximum benign tumors were capillary haemangioma (52.0%) and the next is ameloblastoma (15%) [Table-VI]

Table-VI: Frequencies of different Benign Tumours

Benign Tumours	Relative Frequency (n)	Percentage (%)
Ameloblastoma, follicular variant	5	15
Capillary haemangioma	17	52
Cavernous haemangioma	1	03
Cementifying fibroma	2	06
Inflammed haemangioma	1	03
Lymphangioma circumscriptum	2	06
Neurofibroma	1	03
Pleomorphic adenoma of salivary gland	3	09
Squamous papilloma	1	03
Total	**33**	**100%**

Leukoplakia with hyperkeratosis comprises maximum frequency (73%) in potentially malignant disorder. [Table-VII]

Table-VII: Distribution of potentially malignant disorder

Potentially malignant disorder		Cases	%
Leukoplakia with	Hyperkeratosis	11	73%
	Mild Dysplasia	2	13%
	Severe Dysplasia	1	7%
Lichen planus		1	7%
Total		**15**	**100%**

Out of a total of 98 malignant tumours, vast majority 90 cases (94%) were invasive squamous cell carcinoma. [Table-VIII]

Table-VIII: Frequencies of malignant tumours

Malignant Tumours	Frequency (n)	Percentage (%)
Dermatofibrosarcoma protruberance	1	01
Mucoepidermoid carcinoma	1	01
Polymorphous low grade adenocarcinoma	1	01
Squamous cell carcinoma –G-I	57	58
Squamous cell carcinoma –G-II	30	31
Squamous cell carcinoma – G-III	5	05
Verrucous type squamous cell carcinoma	3	03
Total	**98**	**100%**

Discussion:

The diagnosis of a variety of lesions that occuring in the oral cavity and oropharyngeal regionsare essential part

for the evaluation of the oral health of any population. Several studies on oral and oropharyngeal lesions have been conducted in India, Pakistan and many other regions of UK and USA, but not much yet have been done in our country. The purpose of the present study was to record and analyse histomorphological types with the sites of tumour origin.

In present study, the affected age ranges from 03 to 86 years with mean age of 48.6 years. Two different studies done by Modi et al. and Kosam et al. also reported the age group as 3-90 and 8-85 years respectively.[5] Then findings were also found similar to our finding.

The gender distribution shows higher number of females (52.9%) cases, though the difference with male was not significent. The finding was similar to Modi et al.[5] The contributing factor for female predominance in our study may be due to social and cultural practice of "pan" chewing habits.

In the present study, the mean age of non neoplastic inflammatory lesions were 52.66 years , tumour like conditions were 34.05, benign tumours were 31.87, potentially malignant disorders were 54.8 andmalignant tumours were 56.3 years. Among the malignant category, no case was found below 18 years of age. Frequency of malignancy was found high in the following age groups: 51-60(33%), 41-50(29%) and 61-70(21%). Higher number of malignancy were observed over 40 years of age and only 7% cases were younger than 41 years. Fewer number of patients were over 60 years can be explained by life expectancy of our population is 72 years (BBS, 2018).

Out of total 203 patients,malignant neoplastic lesions 98(48%) occurring in maximum number of cases. Similar observations were also reported by Modi et al., (53.4%); Gupta et al., (82.5%); Kosam et al., (74%); Bhattacharjee et al., (85%); Khandekar et al., (72%); Dias et al., (93%) and Brandizzi et al., (98%).[5,6,7] Remaining 30(17%) cases were diagnosed as tumour like conditions, 28 (16%) as benign tumours, 15(7%) nonneoplastic inflammatory lesions and potentially malignant disorders in 15 (15%) cases. The predominance of malignant tumours may be due to the fact that many clinically benign tumours, tumour like conditions and non neoplastic lesions were not sent for histological examination. The study place DMC is a tertiary care hospital, which receives mostly referred suspected cases of malignant lesions from various regions of the country. Other than these, in Bangladesh the most common habit of non smoking and smoking tobacco and betel nut with jorda or shada pata may be the predisposing cause of predominance of malignant tumours in the study.

Among the oral and oropharyngeal lesions about 86 (42%) cases were originated from buccal mucosa followed by 31 (15%) from tongue, 23(11%) from lip and 17 (8%) from alveolar mucosa. In our study buccal mucosa was most common site (42%) of lesions which was concordant with the studies of Ahluwalia et al. and Sankaranarayanar et al.[8,9] The buccal mucosa, retromolar trigon, tongue and floor of the mouth were also found the most frequent sites by Rahman in Bangladesh.[10] It was observed in various published literature that oral malignancies were anatomically more frequent in the anterior parts (buccal mucosa, anterior 2/3 of the tongue, alveolus, lips and base of tongue).

Difference in the distribution of the tumours at different sites in male and female may be due to predominance of smoking habit in male and pan with betel nut in female.

Squamous cell carcinoma with varying differentiation ranked first in this study among the histopathological types of malignant tumours. In present study well differentiated squamous cell carcinoma was most common histologic variety (58%). It was in concordance with the studies done by Patel and Pandya, and Ahluwalia et al. The mean age of squamous cell carcinoma was 56.3 years with male to female ratio 1:1.3. In this study verrucous carcinoma ranked in second position. One case of dermatofibrosarcoma protruberance and one case of polymorphous low grade adenocarcinoma were also reported. There was a case of mucoepidermoid carcinoma in our study which was similar to a study done by Mehta et al.[11]

Leukoplakia was the most common among the histopathological type of potentially malignant disorders, which comprises 14 cases out of 15 cases. It comprises hyperkeratosis11 (73%) cases with mild dysplasia 2 (13%) cases and severe dysplasia 1 (7%) case. Only one lichen planus was found in this present study. The other pre malignant lesions such as erythroplakia and oral submucosal fibrosis were not found may be due to short study period and small sample size.

Capillary haemangioma was found to be the most frequent benign tumour arising commonly from buccal mucosa. Next frequency were ameloblastoma and pleomorphic adenoma of minor salivay gland were found to be the second and third common benign tumour.

Pyogenic granuloma ranked first in the present study among the histopathological type of tumour-like condition. This was accordance with finding observed by Gupta et al.[12] Next frequency finding was fibroepithelilal polyp.

Conclusion: This small study gives an understanding of the national scenario about histomorphological pattern of oral and oropharyngeal lesions. The potentially malignant disorders are also not uncommon and many of them may be aggressive or appear malignant.

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