

A Clinicopathological Study of Oral Biopsies in Tertiary Care Hospital

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ABSTRACT

Aim: To assess the frequency of oral lesions and their Clinicopathological study after taking oral biopsies in a tertiary care hospital

Study Type: Retrospective Study

Study Place and Duration: Rehmat Dental Hospital Abbottabad, from January 2015 to May 2020

Methods: A total of 187 patients were added to the study after retrospective review of the patient records and data files. Data collected was subjected to statistical analysis using the computer software SPSS version 23. Mean and standard deviation was calculated for quantitative variables while frequency and percentage was calculated for qualitative variables.

Results: Total 86(46%) patients had malignant lesions including squamous cell carcinoma in 70 patients, verrucous cell carcinoma in 9, malignant melanoma 4, and osteosarcoma in 3 patients. Cysts were diagnosed in 21(11.2%) of patients including reticular in 9, Dentigerous in 8, and NOS in 4 patients. Ameloblastoma was diagnosed in 11 (5.9%) of the patients. White lesion were diagnosed in 14 (7.4%) patients, including lichen planus and OSF in 7 patients each. Inflammatory lesions were diagnosed in 33(17.6%) of the patients, including osteomyelitis in 5, plasma cell gingivitis in 2, and non-specified lesions in 24 patients. Salivary gland lesions were diagnosed in 11 (5.9%), including sialadenitis in 4, pleomorphic adenoma in 3, mucoepidermoid carcinoma in 2, and mucocele in 2 patients. Reactionary lesions were diagnosed in 13 (6.9%) patients, including pyogenic granuloma in 11 patients, and central and peripheral giant cell granuloma in one patient each.

Conclusion: Squamous cell carcinomas are most common lesions which are encountered in oral biopsies and thus emphasize the need for public awareness to minimize the risk factors of this life-threatening disease.

Keywords: Clinicopathological, Oral, Biopsy, Malignant, Benign, Tumor, Lesion, Tertiary Care Hospital,

INTRODUCTION

A widespread range of pathological lesions with variant nature including inflammatory, neoplastic, keratotic, cystic, reactionary, and many more occur in oral cavity and maxilla-facial area¹. Oral cavity consists of tongue, teeth, oral mucosa, salivary glands, and gingiva. The related pathological lesions such as odontogenic cysts or tumors and salivary gland disorders were reported in variety of studies done in all over the world²⁻⁴. As there are a large number of lesions, a list of histopathological and clinical presentations is also found simultaneously. For better understanding of the nature, frequency and form of these lesions, proper knowledge of anatomy of specific region and normal histology for certain diagnosis is thus crucial.

Minor salivary gland tumors, either benign or malignant, are not so common however have a potential for diagnosing other oral cavity lesions mainly occurring in the hard palate⁵. Out of total neoplasm of head and neck, salivary gland neoplasms characterize 3% to 5%, with variant frequency of malignancy according to the primary location of origin. Minor salivary gland malignant tumor constitute <0.5% of total malignant neoplasm, while the 14-22% of entire salivary gland tumors are carcinomas⁵.

Unlike submandibular and parotid salivary glands tumors, majority of minor salivary gland tumors are malignant in nature⁵.

Oral pathology is well-known field all over the world with qualified oral pathologists working in their domain, thus a large quantity of studies are published worldwide reporting the enhancing frequency of oral lesions⁶⁻⁸. Though, this is still a developing sub-field in this country, consequently little information on dental and oral mucosal condition is available related to oral health data. However, studies are now often conducted to describe the rate and other considerations of oral lesions stated in population of Pakistan. Current study targets to add up to the pool of research conducted in this area and it is predicted that this will add up to the data of lesions affecting the oro-facial area in this portion of the world.

MATERIAL AND METHOD

Ethical approval for this study was obtained from the ethical board of the hospital. Non probability consecutive type of sampling technique was used to collect the sample size. Sample size was calculated using the reference study conducted by Zaib et al⁹. A total of 187 patients were added to the study after retrospective review of the patient records and data files. All patients belonging to either gender or age with diagnosed malignant tumors after oral

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biopsies were included in this study. Patients with incomplete data regarding age, sex, histopathological tumor diagnosis and site of lesion were excluded from the study. Data collected was subjected to statistical analysis using the computer software SPSS version 23. Mean and standard deviation was calculated for quantitative variables while frequency and percentage was calculated for qualitative variables.

RESULTS

Mean age of all the patients was 41.42 ± 16.04 years and study group included 124 males and 63 females. Table-I

Total 86 (46%) patients had malignant lesions including squamous cell carcinoma in 70 patients, verrucous cell carcinoma in 9, malignant melanoma 4, and osteosarcoma in 3 patients. Cysts were diagnosed in 21 (11.2%) of patients including reticular in 9, Dentigerous in 8, and NOS in 4 patients. Ameloblastoma was diagnosed in 11 (5.9%) of the patients. White lesion were diagnosed in

14 (7.4%) patients, including lichen planus and OSF in 7 patients each. Inflammatory lesions were diagnosed in 33 (17.6%) of the patients, including osteomyelitis in 5, plasma cell gingivitis in 2, and non-specified lesions in 24 patients. Salivary gland lesions were diagnosed in 11 (5.9%), including sialadenitis in 4, pleomorphic adenoma in 3, mucoepidermoid carcinoma in 2, and mucocele in 2 patients. Reactionary lesions were diagnosed in 13 (6.9%) patients, including pyogenic granuloma in 11 patients, and central and peripheral giant cell granuloma in one patient each. Table-II

Table-I: Demographic details

Variable	Data, mean \pm S.D or number (percentage)
Age, years	41.42 \pm 16.04
Gender	
Male	124 (66.31%)
Female	63 (33.69%)

Table-II: Lesion type, frequency and gender distribution

Lesion	Total, N (%)	Male	Female	
Malignant lesions	Squamous cell carcinoma	70 (37.43)	42	28
	Verrucous cell carcinoma	9 (4.8%)	7	2
	Malignant melanoma	4 (2.1%)	1	3
	Osteosarcoma	3 (1.6%)	3	0
Cysts	Reticular	9 (4.8%)	8	1
	Dentigerous	8 (4.3%)	3	5
	NOS	4 (2.1%)	1	3
Odontogenic tumors	Ameloblastoma	11 (5.9%)	8	3
White lesions	Lichen planus	7 (3.7%)	5	2
	Oral submucous fibrosis	7 (3.7%)	3	4
Inflammatory lesions	Osteomyelitis	5 (2.7%)	1	4
	Plasma cell gingivitis	2 (1.1%)	0	2
	Non specified inflammatory lesions	24 (12.8%)	17	7
Salivary gland lesions	Sialadenitis	4 (2.1%)	3	1
	Pleomorphic adenoma	3 (1.6%)	1	2
	Mucoepidermoid carcinoma	2 (1.1%)	1	1
	Mucocele	2 (1.1%)	2	0
Reactionary lesions	Pyogenic granuloma	11 (5.9%)	3	8
	Central giant cell granuloma	1 (0.5%)	0	1
	Peripheral giant cell granuloma	1 (0.5%)	1	0

DISCUSSION

A variety of pathological lesions occur abundantly in the oral cavity and maxillofacial region. Lesions may occur in various tissues of these regions and nature may also varies; malignant, cystic, inflammatory, or odontogenic lesions with large number of types. Current study reported highest rates of malignant neoplasm and Oral Squamous Cell Carcinoma (OSCC) were $n=86$, 45.98% and $n=70$, 37.43%, respectively and among this 60% males (42) and 40% of females (28) were reported, mainly affecting the lower alveolar ridge subsequently buccal mucosa. As stated by studies 90% of total the oro-facial malignant neoplasm are Oral squamous cell carcinoma (OSCC) which embraces the 8th place in ranking of cancer worldwide, being the 3rd most common malignancy in Asia (south central)¹. According to recent WHO standards the rate of oral cancer differs extremely around the world as cancer registration^{2,3}.

Current study showed similar findings to several national studies executed in main cities of Pakistan, all of

which proposed OSCC as one of the top three cancers including mostly the buccal mucosa and lower alveolar ridge, affecting mainly males with increasing rate of female patients as well⁴⁻⁷. Similarly, as reported in the studies done in different countries Brazil, Kenya, Sri Lanka, and Ghana similar results were also found in the recent study with high rates of OSCC⁸⁻¹¹. Although, there is no variation between males and females prognostic, previous studies reported a high preference of males suffering from OSCC. The association of prognosis and age seems at issue and some authors reported no association between them, while others show poor prognosis in elderly patients^{12,13}. Verrucous carcinoma was reported to be next most common lesion found mostly in oral mucosa.

In this study we observed that the most common malignant neoplasm was verrucous carcinoma a variant of squamous cell carcinoma often presenting very rarely. The site most commonly involved in this type of lesion in oral mucosa was the mucosa of the buccal cavity while lesser incidence was found on other sites such as gingiva,

alveolar cyst of the mandible and tongue. The common incidence of this lesion is found among males in their 60s^{14,15}. In our study we had 7 male cases of verrucous carcinoma and 2 female cases which is in accord to the previous observations. Malignant melanoma was the 2nd most common neoplasm in our study and is regarded as the 3rd most common malignancy of the skin worldwide and often recognized as silent killer but is rarely found in the oral cavity with an incidence rate of 0.2 to 8% of the all malignant tumors. Male predominance is also seen with this lesion especially those who are aged between 40 to 70 years^{16,17}. In our study 4 patients were found to have malignant melanoma but surprisingly out of these 4, 3 were females, which is in contrast to the previous studies. However this is a very small number and cannot be considered to be significantly different.

Inflammatory lesions were the second most common finding in our study as 45 cases of inflammatory lesions were reported out of which 24 were of non-specific nature. Other than non-specific lesions, osteomyelitis was reported in 5 cases while plasma cell gingivitis was reported in 2 cases. Osteomyelitis can affect any age group and has high incidence among men with mandible as most commonly affected site¹⁸. Reactionary and reparative lesions were 3rd in terms of frequency and incidence. Among these lesions, giant cell lesions, pyogenic granuloma, epulis and fibroepithelial lesions are known as reactionary lesions. Most common site affected by these lesions are gingiva. There were 11 cases of pyogenic granuloma in our study which has higher frequency in females. This observation has also been made by some studies of the past literature^{19,20}.

Odontogenic cysts were 4th most common lesions in our study. Of these cysts predominance radicular cysts was of highest frequency and similar observations have been made in past studies as well²¹⁻²³. Of the tumors of the oral cavity, tumors of salivary glands are of rare nature as these tumors account for 3 to 10% of all the tumors of the head and neck region²⁴. Pleomorphic adenoma is the most common tumor of salivary glands followed by Mucoepidermoid carcinoma which are most commonly present in the parotid gland²⁵. Mucoepidermoid tumors are most commonly seen in women in their 40s and 50s²⁶. In the current study there were 4 sialadenitis cases, 2 Mucoepidermoid cases and 3 Pleomorphic adenoma cases.

The most common lesions which are often encountered during the routine examination of the oral cavity are white lesions which had frequency of 6.1% in the current study i.e. 14 cases. Out of these 14 cases, 7 were of lichen planus. Lichen planus is considered as risk carrier for malignant transformation and has frequency among people of 30 to 60 years²⁷⁻²⁹. Of the 14 white lesions 7 were with bilateral involvement of mucosa of the buccal cavity with sub mucous fibrosis. This condition is often characterized by burning sensation, their ability to transform into malignant conditions and is often seen in people of sub-continent of South Asia³⁰⁻³². Other lesions reported in this study were odontogenic tissues giving rise to cysts such as ameloblastoma, and have higher incidence among male as compared to female and similar results have been reported by the past studies³³⁻³⁶.

CONCLUSION

It can be concluded from this study that squamous cell carcinomas are most common lesions which are encountered in oral biopsies and thus emphasizes the need for public awareness to minimize the risk factors of this life-threatening disease. Routine oral examination should be encouraged in order to make early detection of the lesions to prevent detrimental effects of later stages.

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