

# Spectrum of Oral Cavity Lesions Received in Histopathology Department from Dental Section of Lahore Medical and Dental College

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## ABSTRACT

**Aim:** To see the spectrum of different types of oral lesions received from the Department of Dentistry for the purpose of histopathology in the Pathology Laboratory of Lahore Medical and Dental College, Lahore (LM & DC).

**Methodology:** The study was conducted in the Histopathology Section, Department of Pathology, LM & DC in 2019. After taking relevant permissions, the Dental biopsy data was retrieved from the records of Pathology department of Lahore Medical and Dental College. New slides prepared from the tissue blocks were stained with hematoxylin and eosin stains. Age, sex, clinical findings and histopathological diagnosis of all the cases from the year 2015-2018 were collected.

**Results:** A total of 157 cases of oral lesions were studied. One case was disregarded for this study. The most commonly occurring pathologies were reactive in nature (28), followed by cystic lesions (25). They were the third most common pathology.

**Conclusion:** Most of oral cavity lesions were found to be inflammatory or reactive in nature. Histopathology of all such lesion is mandatory to exclude any malignancy which was the third most common pathology in this study.

**Keywords:** Oral cavity. Dental biopsies. Inflammation. Malignancies. Pyogenic granuloma.

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## INTRODUCTION

The oral cavity is the first barrier or opening to the external environment, continuously being exposed to various types of insults such as trauma, infections, different eating habits and carcinogenic agents. Numerous tissues like tongue, gingiva, salivary glands, soft tissues, bones and teeth are involved in various pathological processes like inflammatory, cystic, benign and malignant lesions<sup>1</sup>. Oral cancer is a major problem throughout the world and according to its site, has different prognosis. The definitive diagnosis is made by histopathology of the biopsied material with help of radiological and clinical findings<sup>2,3</sup>. Inflammatory processes are common because of poor oral hygiene but in older people dentures can cause traumatic ulcers and reactive hyperplasia<sup>4</sup>.

Studies regarding precancerous and cancerous oral lesions and their relation to tobacco chewing and smoking have been conducted and published.<sup>5</sup> Different maxillofacial studies carried out in children are also available which show relationship between eating habits and different lesions. Furthermore these lesions in children are different than in adults due to the variation and appearance of unfamiliar habits which are not present in childhood<sup>6</sup>. Demographic studies on oral cavity lesions are available however sparse data exists in our setting<sup>7</sup>. The information will be useful in highlighting common dental diseases requiring biopsy in our community. Knowledge of these diseases will help in counseling patients about oral hygiene. Counseling can include subjects related to substance abuse, nutrition, emotional and psychological factors which play a role in educating the patient about disease, prevention, early diagnosis and treatment<sup>8</sup>.

The retrospective study is therefore conducted to study the frequency and morphological features of oral lesions received in LM&DC over a period of three years.

## METHODOLOGY

A retrospective cross-sectional study was carried out in the department of Histopathology, Lahore Medical and Dental College from the record of biopsy specimens sent from the dental section for histopathological diagnosis from year 2015-2018. The data was retrieved after taking all the necessary permissions from the relevant authorities. A total of 157 cases were sent for biopsy in Pathology department in 3 years. 156 cases were included in the study irrespective of age and gender; one case was disregarded

for this study due to insufficient biopsy material. The information regarding procedure, site of biopsy, clinical diagnosis and histopathological diagnosis was taken from the records. The respective biopsy slides were also examined for confirmation of biopsy diagnosis by two consultants who saw the slides independently. The histopathological diagnosis which was reconfirmed was entered in the collected data. The data was analyzed using Excel 2013. Percentages were calculated to ascertain the prevalence of different types of lesions in the oral cavity.

## RESULTS

A percentage of total number of oral cavity lesions in males and females is given in Table 1 which shows, out of 156 cases, 75(48.1%) were from females while 81(51.9%) were from males. The most commonly occurring lesions were reactive (inflammatory) in nature (28) while the least common were salivary gland tumors (3) 14(9% of total) lesions were diagnosed as odontogenic ameloblastomas with an equal distribution between males and females (7 cases each). With reference to age and gender (Table 2) out of the 156 cases, the age of one patient was unknown. The maximum numbers of cases were from the age group of 20-29 years, which were 39 in number (25% of total) while the minimum number of cases were from the age group ranging from 0-9 years which numbered 3(1.9% of total). Seventy three cases (46.8% of total) were from the ages ranging from 10-29 years. In the age group ranging from 0-29 years, there was a higher percentage of females as compared to males but males were more commonly affected in subsequently higher age groups. The youngest patient with oral lesions was one and half year of age who had a vascular lesion while the oldest patient was 85 years of age who was diagnosed with a pyogenic granuloma.

Among the 76 cases of reactive lesions (Table 3), the most common 24 (31.2% of reactive lesions) were diagnosed as pyogenic granulomas. The least common lesions were cases of focal keratosis, hyperplastic stratified squamous epithelium and granulation tissue. Two of the reactive lesions had evidence of fungal etiology. The bony and cartilaginous tissues received (Table 4) were 14 in number, out of which 3 (21.4% of bony lesions) were bony trabeculae/fragments, giant cell lesions and fibrous lesions while tumors with focal chondroid differentiation was one. Out of the 11 benign lesions (Table 5), there were 5 cases of epulis which were the most commonly occurring followed by benign spindle cell

lesions(2). The rest of the benign lesions were equally distributed and each had only 1 case reported (fibrous dysplasia, fibroma, benign polypoidal vascular lesions and benign gingival lesions). 13 cases of various types of malignant lesions (Table 6) were

reported among which the most prevalent were of squamous cell carcinoma (9) followed by mucoepidermoid carcinoma(2) The epithelioid neoplasm and malignant spindle cell neoplasm both had 1 case each.

Table 1: Percentage of Total Number of Oral Cavity Lesions in Males and Females

Lesions	No. of cases	% of total	Male cases		Female cases	
			No.	%	No.	%
Inflammatory (Reactive)	28	17.9%	16	57.1%	12	42.9%
Cystic lesions	25	16.0%	17	68.0%	8	32.0%
Polyp	13	8.3%	6	46.2%	7	53.8%
Pyogenic Granuloma	24	15.4%	8	33.3%	16	66.7%
Epulis	4	2.6%	0	0.0%	4	100%
Mucocele	12	7.7%	9	75.0%	3	25.0%
Salivary gland lesions/tumors	3	1.9%	1	33.3%	2	66.7%
Ameloblastoma	14	9.0%	7	50.0%	7	50.0%
Malignancies	13	8.3%	9	69.2%	4	30.8%
Bony/Cartilaginous lesions	14	9.0%	7	50.0%	7	50.0%
Undetermined/Miscellaneous	6	3.8%	1	16.7%	5	83.3%

Table 2: Oral Cavity Lesions with Reference to Age and Gender

Age (years)	No. of cases	% of total	Male cases		Female cases	
			No.	%	No.	%
0-9	3	1.9%	1	33.3%	2	66.7%
10-19	34	21.8%	12	35.3%	22	64.7%
20-29	39	25.0%	18	46.2%	21	53.8%
30-39	20	12.8%	13	65.0%	7	35.0%
40-49	21	13.5%	10	47.6%	11	52.4%
50-59	19	12.2%	11	57.9%	8	42.1%
>60	19	12.2%	15	78.9%	4	21.1%
Uncategorized	1	0.6%	1	100%	0	0.0%

Table 3: Percentage of Reactive Lesions in Males and Females

Lesions	No. of cases	% of total	Male cases		Female cases	
			No.	%	No.	%
Pyogenic Granuloma	24	31.2%	8	33.3%	16	66.7%
Mucocele	12	15.6%	9	75.0%	3	25.0%
Polyp	13	16.9%	6	46.2%	7	53.8%
Hyperplastic stratified squamous epithelium	4	5.2%	2	50.0%	2	50.0%
Fibroconnective tissue	7	9.1%	3	42.9%	4	57.1%
Non-specific inflammation	8	10.4%	2	25.0%	6	75.0%
Focal keratosis	1	1.3%	0	0.0%	1	100%
Granulation tissue	5	6.5%	5	100%	0	0.0%
Fungal infection	2	2.6%	2	100%	0	0.0%

Table 4: Percentage of Bony and Cartilaginous Lesions in Males and Females

Lesions	No. of cases	% of total	Male cases		Female cases	
			No.	%	No.	%
Bony fragments/trabeculae	3	21.4%	1	33.3%	2	66.7%
Osteomyelitis	1	7.1%	1	100%	0	0.0%
Fibro-osseous lesions	2	14.3%	0	0.0%	2	100%
Tumor with chondroid differentiation	1	7.1%	1	100%	0	0.0%
Giant cell lesions	3	21.4%	1	33.3%	2	66.7%
Fibrous lesions	3	21.4%	2	66.7%	1	33.3%

Table 5: Benign Lesions in Males and Females

Lesions	No. of cases	% of total	Male cases		Female cases	
			No.	%	No.	%
Benign polypoidal vascular lesions	1	9.1%	0	0.0%	1	100%
Benign spindle cell lesions	2	18.2%	2	100%	0	0.0%
Fibroma	1	9.1%	1	100%	0	0.0%
Epulis	5	45.5%	0	0.0%	5	100%
Benign gingival lesion	1	9.1%	0	0.0%	1	100%
Fibrous Dysplasia	1	9.1%	0	0.0%	1	100%

Table 6: Percentages of Malignant Lesions in Males and Females

Lesions	n	% of total	Male cases		Female cases	
			No.	%	No.	%
Squamous Cell Carcinoma	9	69.2%	7	77.8%	2	22.2%
Low-grade/Well differentiated	4	30.8%	4	100%	0	0.0%
Moderate grade/Intermediately differentiated	2	15.4%	1	50.0%	1	50.0%
High-grade/Poorly differentiated	3	23.1%	2	66.7%	1	33.3%
Mucoepidermoid Carcinoma	2	15.4%	0	0.0%	2	100%
Malignant Epithelioid Neoplasm	1	7.7%	1	100%	0	0.0%
Malignant Spindle Cell Neoplasm	1	7.7%	1	100%	0	0.0%

## DISCUSSION

This study was conducted to see the spectrum of oral cavity lesions received from the dental department of Lahore Medical and Dental College in the form of biopsy specimens. The age of the patients ranged from one and a half year to 85 years with the mean age of 43 years. In this study, the females having oral lesions were slightly less in number as compared to males (75/81), which is similar to one such study, showing a greater number of males having oral lesions as compared to females (male-female ratio 3.3:1). Another study is in contrast to our results showing equal female to male numbers<sup>5,9</sup>

In this study, the most found lesions were reactive in nature. Pyogenic granuloma is a reactive tumorous lesion commonly affecting the oral cavity, usually presenting as red purplish mass involving the gingiva most frequently, however buccal and lingual sites are also involved. There were 24(15.4%) reported cases of pyogenic granuloma of which 16(66.7%) were from females and 8(33.3%) were from males. This is also the case in one such study by Kosam et al<sup>10</sup> which shows a low incidence of pyogenic granuloma. A study conducted M dilem et al shows that the common lesion was pyogenic granuloma (47%) with a greater number of females as compared to males<sup>11</sup>. In contrast to this, the study conducted by Masanatti et al<sup>12</sup> showed more males with pyogenic granuloma than the females.

Polyps were the second most common reactive lesion with non-specific inflammatory processes being the third most common, most likely due to poor oral hygiene. Only 14 bony and cartilaginous lesions were received, most commonly either bony trabeculae and fragments or giant cell-containing lesions, both likely resulting from a chronic inflammatory process. Among the 25 cystic cases, the most common were inflamed cysts which are commonly associated with dental problems. The second most prevalent lesions were odontogenic cysts. Epulis was the commonest benign lesion followed by fibroma and benign spindle cell lesions. It is different from pyogenic granuloma or lobular capillary hemangioma. Congenital epulis (granular cell tumor) consists of large cells with granular cytoplasm<sup>13</sup>.

In most studies, cases of squamous cell carcinoma were found to be the highest in number and constituted 90 percent of these tumors. In our study, 9(69.2%) cases were of squamous cell carcinoma, the tongue being the most common site, which contrasts another study in which the buccal mucosa was found to be the principal site for Squamous Cell Carcinoma.<sup>14</sup> This study shows a male predominance with a male-to-female ratio of 2.5:1, and the mean age group affected by this lesion was 58 years. Three cases of Pleomorphic adenoma of minor salivary glands were received: 2 taken from the upper lip and 1 from a submandibular gland. Some studies show a slightly higher prevalence of Ameloblastomas as compared to the results in this study (14% in contrast to 8.92%)<sup>15</sup>.

Limitations encountered in this study were due to small number of cases and lack of detailed information about personal history due to unavailability of the data from clinical side.

Such studies, if consistently done, can give a better idea of prevalence of different types of oral pathologies occurring in the areas surrounding this tertiary care hospital with reference to gender and different age groups. Surveys for the practices in eating habits, teaching of good oral hygiene will be helpful to the society as most of the problem is with poor oral hygiene leading to most of the reactive type of lesions. The benign and malignant pathologies can be diagnosed and correlated to the causative agents and any strong correlation informed internationally.

## CONCLUSION

This study was done to see the spectrum of oral pathological lesions presented in the dental section of Lahore Medical and

Dental College so that different types of lesions in different ages, gender and sites could be assessed. In this study the most commonly found oral lesions were reactive in nature and more common in older men which could be due to bad oral hygiene and tobacco and pan chewing. In females the oral lesions were seen at an early age as compared to men maybe due to nutritional deficiencies with reference to menstrual cycles and pregnancies. Other than the reactive lesion, cystic and malignant pathologies were also encountered in the biopsy specimen. The results of this study will give a guideline to dental health care providers about the different types of lesions with their occurrence in different age groups and sites.

It is recommended that such type of studies should be done in collaboration with other dental colleges which can give a vast data with more accuracy in results. This in turn will help in better knowledge of lesions and will create awareness in people regarding harmful habits in relation to disease and its outcome.

## REFERENCES

1. Ali M, Joseph B, Sundaram D. Prevalence of oral mucosal lesions in patients of the Kuwait University Dental Centre. *Saudi Dent J*. 2013 July; 25(3):111-118. doi:10.1016/j.sdentj.2013.05.003
2. Ravi M, Pandya S, Chaudhry Kr A, Kumar M, Singh M. Prevalence of oral premalignant and malignant lesions at a tertiary level hospital in alahbadindia *Asian Pacific J Cancer Prev*, 263-266 June 2008
3. Kim T S, Kim J H, Park S I, Park W S, Kim H W, Kim M Y. Chronic, reactive conditions of the oral cavity simulating mucosal carcinomas: CT and MR imaging findings with pathologic correlation in five patients. Presented at the 89th scientific assembly and annual meeting of the Radiological Society of North America, Chicago, IL, 2003
4. Mumcu G, Cimilli H, Sur H, Hayran O, Atalay T. Prevalence and distribution of oral lesions: a cross-sectional study in Turkey. *Oral Dis*. 2005;11(2):81-87. doi:10.1111/j.1601-0825.2004.01062.
5. Agrawal R, Chauhan A, Kumar P. Spectrum of Oral Lesions in a Tertiary Care Hospital. *J Clin Diagn Res*. 2015; 9(6):EC11-EC13. doi:10.7860/JCDDR/2015/13363.6121.
6. Amadori F, Bardellini E, Conti G, Majorana A. Oral mucosal lesions in teenagers: a cross-sectional study. *Ital J Pediatr*. 2017; 43:50. doi:10.1186/s13052-017-0367-7.
7. Alves Alessandro Menna, Correa Marcos Britto, Silva Karine Duarte da, Araújo Lenita Maria Aver de, Vasconcelos Ana Carolina Uchoa, Gomes Ana Paula Neutzling et al . Demographic and Clinical Profile of Oral Squamous Cell Carcinoma from a Service-Based Population. *Braz. Dent. J.* June 2017
8. Hegde S, Shetty P, Vinod Ram K S, Kinikar K. Dynamics of counseling in dentistry: A holistic approach. *J Educ Ethics Dent*. 2015; 5:2-7.
9. El Towm S, Cassia A, Bouchi N, Kassab I. Prevalence and Distribution of Oral Mucosal Lesions by Sex and Age Categories: A Retrospective Study of Patients Attending Lebanese School of Dentistry. *Int J Dent*. 2018; 4(3):134. doi:10.1155/2018/4020134.
10. Kosam S, Kujur P. Pattern of Oral Cavity Lesions: A Retrospective Study of 350 Cases. *Int J Sci Study*. 2016 June;4(3):65-9. doi:10.17354/ijss/2016/320
11. Modi D, Laishram RS, Sharma LD, Debnath K. Pattern of oral cavity lesions in a tertiary care hospital in Manipur, India. *J Med Soc*. 2013; 27:199-202. doi:10.4103/0972-4958.127393
12. Masamatti SS, Gosavi AV, Sulhyan KR. Tumour-like Lesions of Oral Cavity: A Clinicopathological Study of 95 Cases. *PaGe*. 2017 April; 4(2):83-8. doi:10.21276/AABS. 1426.
13. Willies-Jacobo LJ, Isaacs H Jr., Stein MT. Pyogenic granuloma presenting as congenital epulis. *Arch Pediatr Adolesc Med*. 2000; 154(6):603-5. doi:10.1001/archpedi.154.6.603.
14. Shah PY, Patel RG, Prajapati SG. Histopathological study of malignant lesions of oral cavity. *Int J Med Sci Public Health* 2017; 6(3):472-8. doi:10.5455/ijmsph.2017.0848018092016.
15. Effiom OA, Ogundana OM, Akinshipo AO, Akintoye SO. Ameloblastoma: current etiopathological concepts and management. *Ameloblastoma*: 2018; 24(3):307-16. doi:10.1111/odi.12646.
16. Priyanka S, Gupta K, Sunita S, Ajay Y. A study of Clinico-pathological Spectrum of Oral Cavity Lesions at a Tertiary Care Hospital. *JMSCR*. 2018; 6(4):267-76. doi:10.18535/jmscr/v6i4.45.