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A Retrospective Study Of Oral And Maxillofacial Pathology Lesions Diagnosed At The Calcutta National Medical College & Hospital, Kolkata

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Abstract

Background: Oral and maxillofacial lesions (OMFL) encompass a wide range of benign and malignant lesions that affect the oral cavity. However, the count of epidemiological studies that have gauged oral cavity lesions are few and out of them, those focused on oral soft tissue pathology are further scarce.

Materials and Methods: A retrospective study was conducted to identify the prevalence and distribution of OMFL in patients who attended the dental OPD of Calcutta National Medical College & Hospital, Kolkata over a period of 37 months from February 2017 to February 2020.

Results: A total of 418 cases were analysed from the records. Among these, reactive/adaptive lesions were the most common type (n=87; 20.6%) and tooth abnormalities (n=04; 1%) being the least common. Most of the lesions involved the soft tissue and were benign in nature.

Conclusions: The results of the present study provide an idea about the prevalence of OMFL in an area of Kolkata, India. Further multi-centric studies are necessary with a larger sample size to attain proper data about OMFL in this city.

Keywords: Biopsy; Cyst; Fibroma; Malignancy; Oral lesion; Pyogenic granuloma; Tumour

Introduction:

Proper clinical examination and thorough history taking is nevertheless the backbone of diagnosis and treatment planning. This is the absolute truth in case of oral lesions especially when the proper diagnosis at the right time can save the patient's life or at least improve their lifestyle quality. Evaluating the distribution of oral and maxillofacial lesions (OMFL) is vital for appraising their prevalence in the given population; thus identifying the high-risk sub-populations and in turn aiding the formulation of a proper health care policy [1]. Additionally, such information could be useful for epidemiological and teaching purposes. However, the count of epidemiological studies that have gauged oral cavity lesions are few and out of them, those focused on oral soft tissue pathology are further scarce [2-5]. Our study is a small step to bridge the dearth of information on OMFL in this area of the city of Kolkata, India.

Materials and Methods:

This retrospective study was carried out by analysing the archives of the department of Pathology, Calcutta National Medical College & Hospital, Kolkata from where we found 418 samples of those patients who had visited the dental opd of this institute between February 2017 and February 2020. Prior ethical clearance was taken from the institution ethical committee. The slides were reviewed in a blinded manner where the reviewers did not know the

original diagnosis. Based on the histologic findings obtained from the records, the lesions were classified as adaptive/reactive lesions, cysts of the head and neck, bone lesions, odontogenic tumours, epithelial disorders, oral inflammation/infections, benign mesenchymal tumours, malignant tumours, immune-mediated diseases, tooth abnormalities and salivary gland diseases. Here we have followed the classification described by Barnes [6] and Bezroukov [7]. Those cases where the diagnosis was indecisive, was classified under miscellaneous.

Statistical data analysis was carried out using SPSS version 22 software. Descriptive statistics were used to outline the characteristics of the study categorical and nominal variables in the form of counts and percentages, whereas mean and SDs were determined for continuous variables.

Results:

A total of 418 histologic diagnoses over a period of 37 months were analysed in this retrospective study, with males (260) being predominantly more involved than females (158). The age of the patients varied from 20 to 77 years with mean age of 37.7 (SD ±13.9 years). Of the 418 diagnosed cases, 277 (66.3%) were soft tissue lesions and 141 (33.7%) were hard tissue lesions. Among these, reactive/adaptive lesions were the most common type (n=87; 20.6%) followed by cystic lesions (n=74; 17.8%), inflammatory lesions (n=52; 12.4%), epithelial pathology (n=40; 9.5%), benign mesenchymal tumours (n=34; 8.2%), malignant tumours (n=26; 6.3%), immune-mediated diseases (n=21; 5.1%), salivary gland diseases and tumours (n=21; 4.9%), odontogenic tumours (n=15; 3.6%), bone lesions (n=11; 2.5%), pigmented lesions (n=05; 1.3%), tooth abnormalities (n=04; 1%) and miscellaneous(n=28; 6.7%). Descriptive analysis of the results are provided in Tables 1-6.

Discussion:

Oral and maxillofacial lesions (OMFL) incorporate an extensive array of benign and malignant lesions that affect the oral cavity. Often these lesions are an accidental finding by the dentist when the patient has reported for another oral condition like caries or bleeding gums. Habits like smoking and tobacco quilts, ignorance of the disease and lack of motivation/resources for the treatment are the various reasons for which the patients often report late for the treatment. Our study was conducted over a period of 37 months until February 2020 and was cut short by the Covid epidemic.

Of the 418 samples, the majority (260) were of male patients. This was probably due to the prevalence of habits among males and their inclination to seek treatment was more as compared to the females. This finding was also reported by other researchers earlier [1, 5, 8, 9]. However some studies reported of predominance of the lesions in females [10-14]. Male subjects showed more incidences of malignant tumours (like squamous cell carcinoma, SCC), epithelial lesions (papilloma and epithelial dysplasia) and odontogenic tumours (ameloblastoma, odontoma), which is in agreement with a study reported by Guedes et al in 2015 [2]. The age of the patients varied from 20 to 77 years with mean age of 37.7 (SD ±13.9 years). Most of them were in their third, fourth or fifth decade of life, which is consistent with the previous prevalence studies [11-15]. Malignant lesions were commonly seen in the elderly (mean age 51.5 years), with verrucous carcinoma (mean age 62.5 years) and SCC (mean age 56.33 years), as has been previously reported with regard to oral cancers [8].

Of the 418 diagnosed cases, 277 (66.3%) were soft tissue lesions and 141 (33.7%) were hard tissue lesions. This result is similar to the one published by Gambhir et al [1]. This could be one reason why the general practitioners perform biopsies of the soft extra-osseous oral lesions by themselves and refer intra-osseous oral lesion cases to oral maxillofacial surgeons.

In our study, the most common lesions were the reactive/adaptive lesions just like in previous reported studies [5, 9, 12, 16]. Fibro-epithelial polyp was the most common diagnosis in this category (25.5%). Cystic lesions were the second most common (radicular cyst followed by dentigerous cyst) and this is concordant with Fierro-Garibay et al [17]. The third most common lesions diagnosed in our study were the inflammatory lesions (periapical granuloma being the most common). Hyperkeratosis and acanthosis was the most common finding under the heading of epithelial pathology. While fibroma was the most common benign mesenchymal tumour, SCC was the top among malignant tumours. These findings were similar to previous reported studies [5, 11].

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Lichenplanus was the most common lesion under immune-mediated diseases and was more commonly seen in females, just like it has been reported multiple times in the past [18, 19] . Mucocele, pleomorphic adenoma and adenoid cystic carcinoma were the most common diagnoses under the headings of salivary gland disease, benign and malignant tumours respectively. This finding was also in harmony with the previously published literature [3, 13, 15]. Tooth abnormalities was similar to the study by Saha et al 2016 [20].Overall we can comment that the results of the present study are in substantial agreement with reported data in previous studies.

Conclusion:

The present study provided us with data on the frequency of OMFL observed in a medical college in Kolkata, India. This data provides a baseline information concerning the status of OMFL that may be useful in the future when further studies in a larger magnitude in multiple centres all over the city will be carried out. Till then, this data will provide an idea about the epidemiological status of the people in that area and the health care policy decisions that need to be framed.

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Category	Number	Percentage	Male	Female
Reactive/adaptive	87	20.6	49	38
Cystic	74	17.8	49	25
Inflammatory	52	12.4	34	18
Epithelial lesions	40	9.5	24	16
Benign mesenchymal tumours	34	8.2	24	10
Malignant tumours	26	6.3	19	07
Immune-mediated diseases	21	5.1	07	14
Salivary gland diseases and tumours	21	4.9	13	08
Odontogenic tumours	15	3.6	09	06
Bone	11	2.5	06	05
Pigmented	05	1.3	02	03
Tooth abnormalities	04	1.0	02	02
Miscellaneous	28	6.7	22	06
Total	418	100	260	158

Table 1- Category wise breakup of the lesions

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Diagnosis	Number	Male	Female
Reactive/adaptive			
a) Fibro-epithelial polyp	27	17	10
b) Pyogenic granuloma	24	10	14
c) Nonspecific inflammation	20	12	08
d) Inflammatory fibrous hyperplasia	05	04	01
e) Peripheral ossifying fibroma	05	04	01
f) Peripheral giant cell granuloma	04	01	03
g) Plasma cell gingivitis	01	00	01
i) Sub-mucous fibrosis	01	01	00
Total	87	49	38
Cystic			
a) Radicular and residual cysts	39	25	14
b) Dentigerous cyst	14	09	05
c) Odontogenic keratocyst	09	07	02
d) Lateral periodontal cyst	03	03	00
e) Traumatic bone cyst	02	01	01
f) Antral cyst	01	01	00
g) Nasolabial cyst	01	00	01
h) Median palatal cyst	01	01	00
i) Sebaceous cyst	01	01	00
j) Nasopalatine duct cyst	01	01	00
k) Thyroglossal tract cyst	01	00	01

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l) Dermoid cyst	01	00	01
Total	74	49	25

Table 2- Histopathologic diagnoses in categories- reactive/adaptive and cystic

Diagnosis	Number	Male	Female
Inflammatory			
Periapical granuloma or abscess	39	26	13
Pulp diseases	06	04	02
Sinus conditions	06	03	03
Osteomyelitis	01	01	00
Total	52	34	18
Epithelial lesions			
Hyperkeratosis and acanthosis	23	15	08
Epithelial dysplasia	13	07	06
Papilloma	03	01	02
Verruca vulgaris	01	01	00
Total	40	24	16

Table 3- Histopathologic diagnoses in categories- inflammatory and epithelial lesions

Diagnosis	Number	Male	Female
Benign mesenchymal tumours			
Fibroma	21	14	07
Vascular	04	03	01

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Lipoma	03	02	01
Neurofibroma	02	02	00
Teratoma	01	01	00
Traumatic neuroma	01	00	01
Osteoma	01	01	00
Myxoma	01	01	00
Total	34	24	10
Malignant tumours			
Squamous cell carcinoma	16	12	04
Langerhans cell histiocytosis	04	02	02
Verrucous carcinoma	03	02	01
Lymphoma	01	01	00
Osteosarcoma	01	01	00
Rhabdomyosarcoma	01	01	00
Total	26	19	07

Table 4- Histopathologic diagnoses in categories- tumours-benign mesenchymal and malignant

Diagnosis	Number	Male	Female
Immune-mediated diseases			
Lichen planus	19	05	14
Pemphigus	01	01	00
Lupus Erythematosus	01	01	00
Total	21	7	14

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Salivary gland diseases and tumours			
Mucocele	11	06	05
Pleomorphic adenoma	02	01	01
Adenoid cystic adenocarcinoma	02	02	00
Ranula	02	02	00
Mucoepidermoid carcinoma	01	00	01
Warthin's tumor	01	01	00
Sialolithiasis	01	00	01
Basal cell adenocarcinoma	01	01	00
Total	21	13	08

Table 5- Histopathologic diagnoses in categories- immune mediated and salivary gland disease

Diagnosis	Number	Male	Female
Odontogenic tumours			
Ameloblastoma	08	06	02
Odontoma	05	02	03
Adenomatoid odontogenic tumour	01	01	00
Calcifying epithelial odontogenic tumour	01	00	01
Total	15	09	06
Bone			
Benign fibro-osseous lesions	08	04	04
Giant cell lesions	02	01	01
Osteonecrosis	01	01	00

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Total	11	06	05
Pigmented			
Nevus	02	01	01
Melanotic macule	02	01	01
Amalgam tattoo	01	00	01
Total	05	02	03

Table 6- Histopathologic diagnoses in categories- odontogenic tumours, bone and pigmented

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