Clinicopathological Analysis of Oral Lesions - A hospital based retrospective study

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ABSTRACT

Background

Proper diagnosis plays a key role that determines treatment and prognosis of the disease. To give appropriate clinical diagnosis, clinicians must be well aware of the presentation and demographic information of the lesion including the rare ones. Histopathology is still considered as gold standard in diagnostic pathology but final diagnosis becomes difficult unless detailed clinical and radiological descriptions are given. Hence an interdisciplinary approach is needed which requires correlation between both clinical and pathological details.

Objective

To analyze the clinicopathological details of all the oral lesions diagnosed in Dhulikhel hospital within the period of two years and to assess the concordance between clinical and histopathological diagnosis of these lesions.

Method

Laboratory record file of all the oral lesions diagnosed between January 2016 to December 2017 were retrieved from the department archives and the data were collected. The extracted data were analyzed using SPSS version 23.0.

Result

A total of 237 cases were analysed in the present study. Odontogenic cysts were the most common category followed by benign lesions. However considering the individual lesion, mucocele was the commonest lesion followed by squamous cell carcinoma. Total concordance between clinical and histopathologic diagnosis was found in 56.5% cases. The most clinicopathological agreement was seen for benign lesions followed by malignant lesions.

Conclusion

Mucocele and oral squamous cell carcinoma are the two most common lesions found among the patients visiting our hospital. The cases of oral squamous cell carcinoma are on a rise with each subsequent year. At present, though it is the second most common entity, it can be hypothesized that it may be higher up on the list. Therefore, oral healthcare awareness is paramount and this may be one of the best ways to reduce the oral cancer incidence rates and lowering the healthcare management burden.

KEY WORDS

Agreement, Concordance, Diagnosis, Prevalence, Oral lesions

INTRODUCTION

Oral mucosa is affected by wide varieties of lesions that have variable clinical presentation. Many lesions may clinically mimic one another and sometimes they may present at an unusual site thus creating difficulty in reaching correct diagnosis unless histopathological examination is done.[1] Histopathology is still considered as the gold standard for the diagnosis of the lesion.[2] However this diagnosis is dependent on the clinical information given by the surgeons.[3] Knowing the demographic characteristics of the lesion helps clinician to arrive at an appropriate clinical diagnosis.[4]

Dhulikhel hospital is one of the major tertiary health care center in central east of Nepal and a large number of patients come to visit this hospital.[5] No studies have been reported till now that involves the clinicopathological analysis of the oral lesion in patients visiting this hospital. In this regard, the present study may provide a base line data about the prevalence and clinical presentation of many oral diseases among the population of central Nepal and help clinician to reach the correct diagnosis in early stage and minimize the complications associated with the disease.

Thus our study is an attempt to assess the clinicopathological details of all oral lesions diagnosed in dhulikhel hospital within the period of two years and also to evaluate whether any discrepancy exits between clinical and histopathological diagnosis of these lesions.

METHODS

This retrospective study was carried out in the Department of Oral Pathology, Dhulikhel Hospital. The ethical approval was obtained from Institutional review committee of Kathmandu University School of Medical Sciences prior starting the study. All the oral lesions diagnosed between January 2016 to December 2017 were extracted from the archives and the data were collected. Cases with insufficient clinical details, inconclusive biopsies and salivary gland lesions were excluded from the study. To identify the concordance between clinical and histopathological diagnosis, all the cases were subdivided into four groups as follows.[6]

- Total concordance- if there is total aggreement between clinical and histopathological diagnosis
- Concordance with histopathologic diagnosis but after refinement of clinical diagnosis- eg clinical diagnosis of leukoplakia with histopathological diagnosis of mild, moderate or severe dysplasia.
- Disconcordance- if there is no aggreement between clinical and histopathological diagnosis
- No clinical diagnosis- Clinician had failed to mention clinical diagnosis

We also tried to identify percentage of agreement between clinical and histopathological diagnosis in individual category of lesion. This was done as follows: Percentage of agreement = (total number of compatible diagnosis/ total number of cases in that category) x 100. All the findings obtained were entered into a spreadsheet and analysed using SPSS, version 23.0.

RESULTS

A total of 237 cases were analysed in this study. Among them 125 (52.7%) were males and 112 (47.3%) were females with male to female ratio of 1.1:1 (Table 1). The mean age of patients was found to be 36.84 ± 18.75 with the age range of 2 years to 85 years. Most of the patients were from 21-30 years age group (fig. 1). 58.6% lesions were located in soft tissue wherein buccal mucosa was found to be the most common site followed by gingiva. 41.4% of lesions were located in hard tissue and the lesions were predominantly seen in mandible compared to maxilla with mandible : maxilla ratio of 1.9:1 (Table 1).

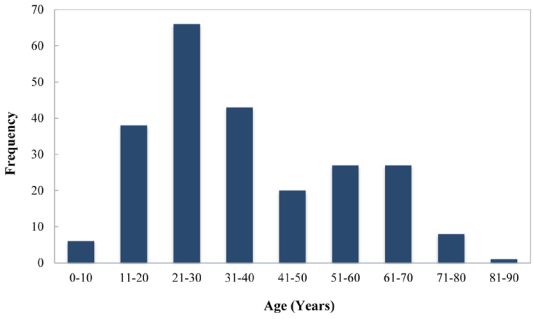

Figure 1. Frequency distribution according to age categories

All the cases were subdivided into non-neoplastic/reactive lesions, potentially malignant oral lesions (PMOL), benign lesions, malignant lesions, nonodontogenic cysts and pseudo cysts, odontogenic cysts, odontogenic tumors and other lesions (fig. 2). Among these categories, odontogenic cysts (20.7%) were the most frequent category followed by benign lesions (17.3%) and malignant lesions (16.9%). Nevertheless, considering the frequency of individual lesion, mucocele (13.1%) was the commonest lesion followed by squamous cell carcinoma (12.7%) as shown in Table 2.

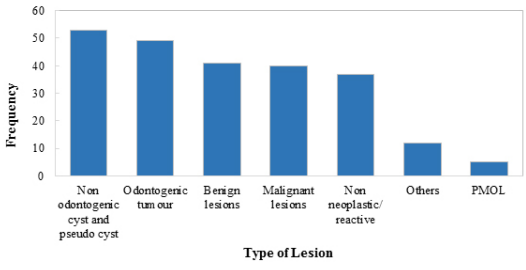

Figure 2. Frequency distribution according to type of lesion

Table 1. Demographic data of the subjects in the study

Variables	N (%)
Gender	
Male	125 (52.7)
Female	112 (47.3)
Location	
Soft tissue	139 (58.6)
Hard tissue	98 (41.4)
Site	
alveolingual sulcus	1 (0.4)
angle of mouth	1 (0.4)
buccal mucosa	31 (13.1)
buccal vestibule	6 (2.5)
floor of mouth	13 (5.5)
gingiva	25 (10.5)
lower lip	21 (8.9)
mandible	63 (26.6)
maxilla	33 (13.9)
palatal mucosa	7 (3.0)
tongue	21 (8.9)
upper lip	15 (6.3)
Origin	
Odontogenic lesions	76 (32.1)
Non Odontogenic lesions	161 (67.9)

Odontogenic lesion accounted for 32.1% cases and nonodontogenic accounted for 67.9% cases (Table 1). Among odontogenic category, radicular cyst (7.6%) was the most common odontogenic cyst and ameloblastoma (4.2%) was the most common odontogenic tumor. Most common malignant lesion was squamous cell carcinoma (12.7%), benign lesion was fibroma (8.0%) and reactive lesion was pyogenic granuloma (7.6%). PMOL comprised of only 2.1% of total lesion (Table 2).

Among all the lesions, total concordance between clinical and histopathologic diagnosis was found in 56.5% cases. 11.4% showed concordance with histopathologic diagnosis but after refinement of clinical diagnosis. Disconcordance between clinical and histopathologic diagnosis was seen in 23.6% cases and in 8.4% cases there was no clinical diagnosis (fig. 3).

Considering the individual category of lesion, the maximum percentage of agreement between clinical and histopathological diagnosis was obtained for benign lesions (73.17%) followed by malignant lesions (72.5%), odontogenic cysts (71.42%), non neoplastic/reactive lesions (67.56%), odontogenic tumors (66.6%), nonodontogenic cysts and pseudocysts (65.71%), other lesions (50.0%) and PMOL (40.0%) as shown in Table 3.

Table 2. Frequency distribution according to histopathological diagnosis

Type of lesion	Histopathological diagnosis	N (%)
Non neoplastic/reactive	Central giant cell granuloma	5 (2.1)
	Epithelial hyperplasia	5 (2.1)
	Periapical granuloma	8 (3.4)
	Peripheral cementifying fibroma	1 (0.4)
	Pyogenic granuloma	18 (7.6)
Benign lesions	Central ossifying fibroma	1 (0.4)
	Fibrolipoma	2 (0.8)
	Fibroma	19 (8.0)
	Giant cell fibroma	2 (0.8)
	Granular cell tumor	1 (0.4)
	Hemangioma	7 (3.0)
	Lipoma	1 (0.4)
	Lymphangioma	2 (0.8)
	Neuroma	1 (0.4)
	Osteoma	1 (0.4)
	Papilloma	4 (1.7)
Malignant lesions	Basal cell carcinoma	6 (2.5)
	Malignant fibrous histiocytoma	1 (0.4)
	Osteosarcoma	2 (0.8)
	Squamous cell carcinoma	30 (12.7)
	Verrucous carcinoma	1 (0.4)
Odontogenic cysts	Dentigerous cyst	13 (5.5)
	Odontogenic keratocyst	15 (6.3)
	Orthokeratinized odontogenic cyst	1 (0.4)
	Radicular cyst	18 (7.6)
	Residual cyst	2 (0.8)
Odontogenic tumor	Ameloblastic fibrodentinoma	1 (0.4)
	Ameloblastoma	10 (4.2)
	Odontoma	1 (0.4)
Nonodontogenic cyst and pseudocyst	Dermoid cyst	2 (0.8)
	Epidermoid cyst	2 (0.8)
	Mucocele	31 (13.1)
PMOL	Carcinoma in situ	2 (0.8)
	Mild dysplasia	1 (0.4)
	Oral submucous fibrosis	1 (0.4)
	Severe dysplasia	1 (0.4)
Others	Angiolymphoid hyperplasia with eosinophilia	1 (0.4)
	Chronic osteomyelitis	1 (0.4)
	Dental follicle	6 (2.5)
	Granulation tissue	1 (0.4)
	Lepromatous leprosy	1 (0.4)
	Lichen planus	1 (0.4)
	Necrotic tissue	1 (0.4)
	Nonspecific inflammation	6 (2.5)

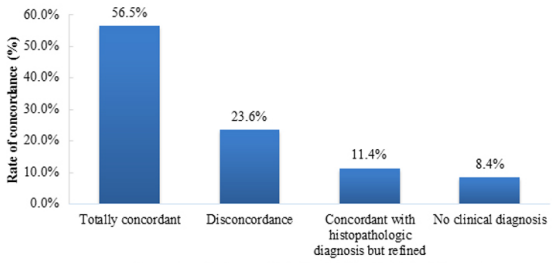

Figure 3. Concordance between clinical and histopathological diagnosis

Table 3. Percentage of agreement between clinical and histopathological diagnosis in individual category of lesion

Type of lesion	Total cases	Total compatible diagnosis	Percentage of agreement
Benign lesions	41	30	73.17
Malignant lesions	40	29	72.5
Odontogenic cysts	49	35	71.42
Non neoplastic/reactive	37	25	67.56
Odontogenic tumors	12	8	66.6
Non odontogenic cysts and pseudo cysts	35	23	65.71
Others	18	9	50.0
PMOL	5	2	40.0

DISCUSSION

There are several lesions that occur in oral cavity. Epidemiological studies have shown that the prevalence of these lesions varies among different countries and areas.[7] Our study was conducted in one of the major tertiary health care center in central east of Nepal. The results of the study showed that males were more commonly affected than females which could be attributed to the oral habits that is more common in males as mentioned by Bajracharya et al.[4] The mean age of the patients was 36 years which is comparable to the findings of several other studies.[7,8] Most of the lesions were located in soft tissue with buccal mucosa being the most common site similar to the findings of other studies from India.[9,10] This could be possibly because buccal mucosa is frequently subjected to chronic irritation and trauma due to deleterious oral habits in this part of the world.

In case of hard tissue, most of the lesions were located in mandible compared to maxilla which is similar to the findings of other studies.[11,12] Though most of the lesions were nonodontogenic in origin, odontogenic cysts were found to be the commonest pathology followed by benign lesions. Among odontogenic cysts, radicular cyst was the most common followed by odontogenic keratocyst and dentigerous cyst. Fierro-Garibay et al. also found root cyst to be the most common lesion in their study.[11] The reason behind the higher incidence of radicular cyst could be due to their origin secondary to dental caries and trauma.[9,11] Ameloblastoma was found to be the most common odontogenic tumor. Fibroma and pyogenic granuloma were the most common lesions from the category of benign lesions and reactive lesions respectively. Our findings are in agreement with the study of Marina et al. and Bajracharya et al.[3,4] However considering the frequency of individual lesion, mucocele was the commonest lesion followed by oral squamous cell carcinoma (OSCC) accounting for 13.1% and 12.7% of all cases respectively. Studies have shown that squamous cell carcinoma is the most common form of oral malignancies in South Asia with the 5 year prevalance rate of 12.1%.[13,14] The findings of our study correlates with these studies. In a study conducted on head and neck cancer in central east region of Nepal, oral squamous cell carcinoma was found to be the most common form of cancer with buccal mucosa being the most common site. They reported 138 cases of OSCC during the period of 14 years.[5] Compared to this, our study showed 30 cases of OSCC during the period of two years. This suggests that in this area cases of OSCC are increasing with each passing year. However in a study done in New zealand, out of 3000 oral mucosal biopsies, oral squamous cell carcinoma comprised of only 2% of histopathological diagnosis indicating that OSCC is relatively uncommon in developed countries.[6] One of the reason behind this could be due to excessive use of tobacco that is more common in this part of world compared to developed countries. Studies have also shown that PMOL are also more common in these areas.[15] Nevertheless, only 5 cases in our study were diagnosed with PMOL. This could be due to lack of awarness of people on oral screening and the practice of visiting dental hospital only if there is serious symptoms. Therefore the prevalance of PMOL could be more than what we have documented here.

In the present study we also tried to assess the percentage of agreement between clinical and histopathologic diagnosis. Our findings indicate that in 56.5% cases there was total concordance between clinical and histopathologic diagnosis. 11.4% showed concordance with histopathologic diagnosis but after refinement of clinical diagnosis. In a study done by Patel et al. total concordance and discincordance was found to be 51%, and 30.3% respectively.[6] Compared to their results, our study showed higher percentage of agreement and lower percentage of disagreement between clinical and histopathological diagnosis. The maximum percentage of agreement was obtained for benign lesions which is in contrast to the findings of Ashkavandi et al.[16] They found highest percentage of agreement for non-neoplastic/reactive lesions.[16] The lowest percentage of agreement was obtained for PMOL which could be due to fewer cases in this group. Except PMOL, in all other group of lesions the percentage of agreement was above 50% which indicates that clinicians are good in identifying the oral lesions. However a higher level of agreement still needs to

be achieved. In about 23.6% cases, there was disaggrement between clinical and histopathologic diagnosis which highlights the importance of biopsy in diagnosing the oral lesions. To arrive at an accurate histopathological diagnosis, proper correlation with clinical diagnosis is important. Incomplete biopsy form may create difficulty and delay in diagnosis of lesion. In this study 8.4% cases were found to be without any clinical diagnosis that might have created difficulty in reaching the final diagnosis. Thus clinician should be encouraged to fill the biopsy form completely along with the possible differentials for the lesion.

The findings of our study suggests that various types of oral lesions are seen in this part of Nepal and the cases of OSCC's are increasing every year. At present, though it is the second most common entity, there is no doubt that it could be on the top of the list after few years. Hence awareness on several oral diseases including the oral cancer is must to bring this number down. However this is a single institution based data and further larger studies encompassing multiple institutions is warranted to procure better epidemiological data and improve oral healthcare and outcomes vis-à-vis quality of life.

CONCLUSION

Clinicopathological correlation is one of the most important aspect of reaching a diagnosis along with histopathological. A good clinical diagnosis work up prior to performing biopsy is a valuable assest in determining an accurate and swift diagnosis, thus allowing a favourable treatment plan for the patient. As shown by the results of this study, cases of oral squamous cell carcinoma are on rise hence awareness on oral cancer is paramount. Potentially malignant oral lesions seems to be an important area which requires more clinical scrutiny. Future researches should be aimed at further identifying such lacunae which affects the diagnosis of oral lesion.

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