Original Article

Evaluation of clinical versus pathological difference in 232 cases with oral lesion

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Abstract

Background: *The clinical and pathological evaluation of oral lesions are very important in this field. The purpose of this study was to assess clinico- pathological agreement on 232 cases with oral lesions.*

Methods: *The consecutive files of 232 patients with oral lesions from pathological laboratory archives of Babol Dental faculty and Shahid Beheshti Hospital were reviewed and the data include age, sex and location of lesion, surgeon's specialization, clinical and histopathological diagnosis were recorded. Frequency of oral lesions and rate of correct clinical diagnoses were evaluated in site of lesions and surgeon's specialization.*

Results: *Non neoplastic lesions were more common than neoplastic lesions. Soft tissue reactive lesions were the most common oral lesions. The Correct clinical diagnosis in soft tissue and intra-osseous oral lesions was 66.2% and 66.6% respectively. Clinico-pathological agreement cases were seen in oral and maxillofacial surgeons (68.5%), oral medicine specialists (64.27%) and periodontists (61.9%). From 165 selected oral lesions, the histopathological and clinical diagnoses were in agreement in 110 cases (66.6%).The highest percentage of correct clinical diagnosis was found in mucocele (92.3%) (KS= 0.916, SE=0.59) and the lowest was lymphoproliferative lesions 27.3% (KS= 0.378, SE= 0.16).While in all other groups 36-86% of cases were in agreement.*

Conclusion: *The results of this study show that there is a good agreement between the clinical and pathological diagnosis of oral lesions. The most clinico - pathological agreement was seen in mucocele and the lowest was lymphoproliferative disorders.*

Key words: *Clinical Diagnosis, Histopathology, Oral lesion, Agreement.*

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The oral cavity may be the site of various mucosal lesions. The physical examination must almost always be completed with a pathological study in order to establish the final diagnosis (1). Oral lesions are often detected by dental professionals and oral specialists. It is beneficial for clinicians to be aware of the prevalence and presentation of the most common oral lesions for clinical impression. Naturally, clinicians must know the probability occurrence of rarer oral lesions. The detection and appropriate treatment of oral lesions are very important to minimize the dentoalveolar complications (2).

There are some studies about the prevalence and frequency of oral lesions in different areas of the world. Most studies reported that non-neoplastic lesions are more common than oral neoplastic lesions (3,4). Shamim et al. evaluated 244 oral gingival lesions in India and showed non neoplastic in 75.5% and neoplastic in 24.5%. The most frequent non-neoplastic lesion was pyogenic granuloma and the most frequent of neoplasms were peripheral ossifying fibroma and squamous cell carcinoma (3). Dhanuthati et al. reported that from 8314 oral biopsies in Thailand, the greater number of lesions are cysts followed by reactive and tumoral lesions (5). Only a successful cooperation between an oral surgeon and a pathologist can ensure a reliable diagnosis (6).

Clinical examination of the oral mucosa often leads to an uncertain diagnosis. Therefore, a supplementary biopsy and a histopathological examination of the lesion is necessary to establish a definite diagnosis (7). Removal of grossly affected tissue and subsequent histological examination is recommended to improve diagnosis mucosa which often leads to an uncertain diagnosis, again a supplementary biopsy and the histopathological examination of the lesion is necessary to perform a definite accuracy (8). Agreement of clinical and pathological diagnoses of oral lesions varied in different studies. Some previous studies showed a 69%-70% agreement between clinical and histopathological studies (2,9). Whereas other studies illustrated a weak agreement in cases of dysplasic lesions (10). Other studies reported lack of clinico-pathological correlation in the diagnosis of oral lichen planus (11).

The purpose of this study was to assess the clinical versus the pathological agreement on 232 cases with oral lesions.

Methods

The consecutive files of 268 patients with oral lesions were reviewed through the archives of pathological laboratory of Dental Faculty and Shahid Beheshti University Teaching Hospital.

The files of the 36 cases (13.4%) were not cornpleted and the data from these cases were excluded. The variables like, age, sex and location of lesion, surgeon's specialty, clinical and histopathological diagnoses were gathered. All pathological slides were reassessed. We were aware that the clinical diagnosis in all cases with its pathological report. The cases were subdivided into neoplastic and non neoplastic types and were all categorized according to Neville classification (12). The rate of correct clinical diagnosis (concordance index) was evaluated in the location of lesions in intra- osseous and soft tissue. This parameter was also checked regarding oral and maxillofacial surgeons, oral medicine specialists and periodontists. We also selected 165 from 232 oral lesions, with adequate sample numbers to calculate concordance index and Kappa value between the clinical and histopathological diagnoses of oral lesions.

The percentage of cases in which the microscopic diagnosis coincided with one of the three clinical differential diagnosis were calculated using the formula concordance index: percentage of agreement of diagnoses (clinical differential and histopathological were divided by the total number of cases ×100) (13) and Kappa statistics was calculated for concordance index with SPSS 13, t-test and fisher's Exact test were used. Kappa is a measure of agreement that corrects the agreement that would be expected by chance. In general, the following scale was used to rate concordance index or kappa values. (poor= 0.-04, good=0.4-0.7, very good=0.71-0.8, excellent=0.81-1) (14).

Results

Among the 232 cases, 132 subjects were female. The age of the patients ranged from 4to 83 years old. One hundred forty patients were <40 years. Oral lesion in soft tissue was seen in 163 cases and intra-osseous in 69 cases. 59 cases were neoplastic and 173 cases were non-neoplastic. Soft tissue reactive lesions (N=55) and developmental odontogenic and non odontogenic cysts (N=34) were the most common lesions. The sources which the patients were referred are shown in table 1.

The histopathological and clinical diagnoses were in agreement in 110 out of 165 cases. The overall concordance index was 66.6 and discordance was 33.4%. The highest clinico- pathological agreement was found in the diagnosis of mucocele 92.3% (ks=0/916, Se=0/59), followed by lichen plunus 86% (ks=0/871, Se=0/056), while squamous cell carcinoma 36.4% (ks=0/444, Se=0/153) and lymphoproliferative lesions had the least clinico - pathological concordance 27.3% (ks=0/378, se=0/16) (table 2). In all other groups 36%-86% of cases were in agreement. In 163 cases of soft tissue oral lesions, 108 cases had correct clinical diagnoses and the concordance index was 66.2%. From 69 intra-osseous cases of oral lesions, correct clinical diagnosis were found in 46 cases and the concordance index was 66.6%. There were no significant differences in concordance index in soft tissue and intra-osseous lesions ($p>0.05$). The correct clinical diagnoses cases sent by the oral surgeon, oral medicine specialists, periodontists were 129,9,13 cases with concordance index 68.5%, 64.2%, 61.9%, respectively. There were no significant differences in concordance index specially in the speciality of the surgeons. The highest concordance index of soft tissue reactive lesions was found in pyogenic granuloma.In odontogenic cysts, the highest concordance index was seen in radicular cyst and the least concordance index was seen in odontogenic keratocyst. The resuts of the present study was summarized in table1,2.

Table 1: Rate of correct clinical diagnosis, concordance index, in location of oral lesions and surgeon's specialty.

	Number	Correct clinical diagnosis	Concordance index
Location of oral lesions			
Soft tissue	163	108	66.2%
Intra-osseous	69	46	66.6%
Surgeon's specialty			
Oral surgeon	181	124	68.5%
Oral medicine	14	9	64.2%
Periodontist	21	13	61.9%
Other specialists	16	-	-

Table2: Concordance index and kappa value in selected oral lesions (Intra- Osseous and soft tissue).

Type of lesions	Number	Correct clinical diagnosis	Concordance index	KS	SE
Pyogenic granuloma	24	16	66.6%	0.609	0.89
Peripheral giant cell granuloma	16	8	50%	0.508	0.118
Irritation fibroma	10	5	50%	0.607	0.146
Lichen planus	22	19	86.3%	0.871	0.56
Mucocele	13	12	92.3%	0.916	0.59
Squamous cell carcinoma	11	4	36.3%	0.444	0.153
Salivary glad tumors	14	10	71.4%	0.717	0.101
Lymphoproliferative lesions	11	3	27.2%	0.378	0.16
Radicular cyst and periapical granuloma	20	17	85%	0.855	0.07
Dentigerous cyst	14	12	85.7%	0.876	0.89
Odontogenic keratocyst	10	4	40%	0.533	0.161
Total	165	110	66.6%	0.609	0.89

Discussion

This study showed non- neoplastic lesions were more common than neoplastic lesions which was also shown in the results of our study in agreement with the report of other researchers. Reactive lesions were the most common oral lesions. These findings are in agreement with the studies of Shamim and Bateinneh and Layfield (3,4.15) but Dhanuthai et al. reported that the greatest number of lesions were odontogenic cysts in Thailand population (5). There were few different results of the study in comparison to the other studies that may be due to various categorizations of oral lesions. The type of oral lesions were evaluated and the nature of the population was studied (5-7,14).

Relatively, few studies have attempted to determine the correlation between the clinical and histopathological diagnosis of soft tissue and intra - osseous oral lesions, Therefore, the comparison of the findings of the present study with other similar studies is difficult. The different clinical and histopathological diagnoses, may be partly was caused by the fact that the clinical information was not accompanied by the biopsy specimen and the pathologist was not aware of the clinical presentation and the exact location of the lesion (16). The availability of the clinical information was directly proportional to the ability to make an accurate diagnosis (17).

The difficulty in the diagnosis of oral lesions on clinical levels resulted from their rarity and non-specific features, and/ or similar clinical appearance and/ or lack of criteria of correct clinical diagnosis in some oral lesions. Our study suggest, that in the selected oral reactive lesions, the correct clinical diagnosis with calculating kappa value was the same also as reported by Czerninski et al (18). In our study, 12 of 13 mucoceles were in the lower lip. The

excellent kappa value was seen in mucocele which may be due to simple diagnosis of prominent swelling and easily showing lip lesions than other anatomic locations.

In this study, the lowest correct clinical diagnosis was found in oral squamous cell carcinoma (OSCC) 36.4% and lymphoproliferative lesions 27.3%. The latter might be due to less frequency and non specific changes of these lesions. Jakubik reported that in 1185 out-patients who had undergone biopsy, wrong diagnosis was the most frequent in tumors (65.9%) and infected oral mucosa (57.4%) (19). The cause of clinico-pathological diagnosis disgreement in OSCC might be due to polymorphous appearance of the tumor and lack of experience of the dentist who does not see many cases of carcinoma (20,21). In the present study, there was 66.6% overall concordance index. But, in other studies, it was reported to be 81.2%, and 90% of the clinical diagnosis coincided to pathology reports (16,22). The concordance index in our study was compared to the results of the other studies that showed the difference, which could be due to various categorization of oral lesions or different number of cases or might be due to the type of selected oral lesions and different criteria for the evaluation of concordance index of oral lesions.

Our study showed 86.3% clinico-pathological agreement in lichen planus. In Onofre et al. studies, the correlation between clinical and histopathological diagnosis in 45 patients with leukoplakia and oral lichen planus (OLP) found a clinico-pathological discrepancy in a quarter of these lesions (23). Some clinicians include Oral Lichenoid reaction (OLL), under the term OLP, while the others consider OLL as a separate definiable entity (23,24). In our study, 14% disagreement between the clinico-pathological diagnosis of OLP might be due to the lack of criteria diagnostic in clinical and pathological levels in differentiation OLP from oral lichenoid reaction. In the present study, the overall correct clinical diagnosis was 71.4% in salivary gland tumors which have very similar clinical appearance.

Most authorities agree that clear radiographic or even surgical distinction between the periapical granuloma and radicular cyst is unreliable. If clinical diagnosis was periapical granuloma, it was reasonably concordant to histopathological diagnosis for both periapical cyst and periapical granuloma. In our study, there was 85% correct clinical diagnosis of radicular cyst and periapical granuloma. The present study suggest that in 82.4% 40% dentigerous cysts and odontogenic keratocysts, clinical and histopathological diagnosis concurred. 17.6%. 60%, disagreement may be because of similar clinical (radiographical) appearance of cysts. The decrease of KS in odontogenic keratocyst is less than dentigerous cyst are may be because of variations of radiographic appearance (multilocular or unilocular) in this cyst. In our study, the correct clinical diagnosis was higher in intra-osseous lesions (67.9%) than soft tissue lesions (66.4%).

However, the difference was not significant. This finding suggest that the location of lesion by itself is not the only correlating factor. The results of this study show that there is a good agreement between the clinical and pathological diagnosis of oral lesions. The most clinic-pathologic agreement was seen in mucocule and the lowest was lymphoproliferative disorders.

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