



# Compatibility of Clinical and Histopathological Diagnoses of Common Mucocutaneous Lesions in Hamadan University of Medical Sciences

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## Abstract

**Background:** Many oral mucocutaneous lesions have quite similar clinical manifestation. Thus, histopathological assessment plays a pivotal role in the definite diagnosis of these lesions. This study aimed to evaluate the compatibility rate of clinical and histopathological diagnoses in our university hospitals and clinics.

**Methods:** In this retrospective descriptive study, we evaluated the medical records of 168 patients who presented to the departments of oral and general pathology of Hamadan University from 1996 to 2014 with oral mucocutaneous lesions. Patients' data were retrieved from their medical records which included baseline demographic data, lesion characteristics, primary clinical diagnosis, and definite histopathological diagnosis. Statistical analyses were performed using SPSS version 16.0.

**Results:** Lichen planus was the most prevalent oral lesion in our study. The highest rate of agreement between the clinical and histopathological diagnoses was also noted for lichen planus. No agreement was noted for pemphigoid.

**Conclusions:** Both clinical examination and histopathological analysis are required for correct and definite diagnosis of mucocutaneous lesions.

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## Background

A correct diagnosis is the mainstay of successful patient management and should be ascertained by appropriate diagnostic methods before initiating treatment. Mucocutaneous lesions have a relatively high prevalence and encompass a wide range of clinical presentations, characteristics, and complications. Their timely diagnosis, therefore, is of particular importance in preventing the related morbidities and complications and aids in administering correct medications and minimizing side effects. Since the oral cavity can sometimes be the primary site of manifestation of a systemic condition, dentists may play a fundamental role in early diagnosis. For diagnosis of erosive vesiculobullous lesions, a thorough evaluation of the history of the lesion along with a comprehensive physical examination including the eyes, skin, and genitalia and symptoms such as joint pain,

## Highlights

- ▶ Lichen planus was the most prevalent oral lesion. The highest rate of agreement between the clinical and histopathological diagnoses was also noted for lichen planus

muscle fatigue, and dyspnea, can be more helpful than the clinical assessment of the lesion alone (1). The possibility of concomitant infection or malignancy should also be considered. Biopsy is recommended when no clinical improvement is observed after a certain period of time. Treatment of oral lesions is important since they may impair mastication and negatively affect general health (2).

Pathology is the link between the basic and clinical science. Histopathological assessment of mucocutaneous lesions

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can help differentiate them from other lesions with similar clinical manifestations. A correct diagnosis requires a complete history and thorough physical examination. Similar clinical characteristics of mucocutaneous lesions complicate their correct diagnosis and thus histopathological and immunofluorescent studies are highly important for the diagnosis of these lesions (3).

Accurate diagnosis is the most important and often the hardest step in patient management and is a combination of theoretical and practical measures. In most cases, histopathological analysis confirms the diagnosis. In some cases, the microscopic view of the lesion is completely conclusive while in some other cases, histopathological findings may be inconclusive and suggest different lesions (3). Therefore, close cooperation between the physician and pathologist is specifically important in such cases and can help the physician in deciding the best treatment plan.

The compatibility between the clinical and histopathological diagnosis is an important topic of research since by finding the level of disagreement between the two, some solutions and strategies can be suggested for the correct diagnosis of oral lesions (3,4).

### Objectives

This study aimed to evaluate the compatibility and agreement of clinical and histopathological diagnoses of mucocutaneous lesions in medical and dental clinics of Hamadan University of Medical Sciences.

### Materials and Methods

We conducted a retrospective descriptive analytical study using the pathology reports of patients presented to histopathology centers of Hamadan University of Medical Sciences (Shahid Beheshti, Farshchian, and Be'sat hospitals) and faculty of dentistry from 1996 to 2014. All the relevant data were retrieved, which included age, gender, clinical characteristics of the lesion, detailed pathology report, and the attending physician's specialty. Patients with incomplete pathology reports were excluded. The histopathological and clinical diagnoses made by the physician performing the biopsy were compared.

The results were analyzed using SPSS version 16.0 (Chicago, IL, USA). The correlation between the variables was calculated using the chi-square test and the compatibility of clinical and histopathological diagnoses was analyzed using the Kappa coefficient.  $P < 0.05$  was considered statistically significant.

### Results

A total of 168 patients with pemphigus vulgaris, lichen planus, systemic lupus erythematosus, pemphigoid lesions, and lichenoid reactions were evaluated. Two cases of systemic lupus erythematosus and pemphigoid were not clinically diagnosed in this center; however, similar results were obtained in dental clinics.

Table 1 presents the frequency distribution and

percentage of each lesion. Lichen planus was the most common lesion in our patients while lupus erythematosus was the least common.

Table 2 presents the compatibility rate of clinical and histopathological diagnoses for each lesion. The highest compatibility rate (69 cases, 76.6%) was observed for lichen planus in all hospitals and dental clinics (Table 3). Moreover, the highest rate of compatibility was observed in Farshchian hospital (Kappa = 0.47,  $P < 0.001$ ), while the lowest rates were observed in dental clinics and Beheshti hospital.

### Discussion

Reaching an accurate diagnosis is a systematic scientific effort made by the clinician. Some diseases have pathognomonic characteristics, which direct the physician to a specific diagnosis; many diseases, however, cannot be easily diagnosed by clinical clues alone. Histopathological analysis of biopsy specimens constitutes a major step in this complex process. This highlights the significance of close communication between the physician and the pathologist. Misdiagnosis leads to unnecessary treatments or mismanagement of patients and often has serious consequences.

Compatibility of clinical diagnosis made by the physician and histopathological diagnosis made by the pathologist is important. Therefore, we aimed to assess this compatibility rate in our university hospitals to gain in-depth knowledge about the incompatibilities in order to speculate about possible underlying reasons and ways to address them.

The highest rate of compatibility between the clinical

**Table 1.** Frequency Distribution and Percentage of Oral Lesions

Lesion	Frequency (n)	Percentage (%)
Pemphigus	47	27.6
Lichen planus	90	54.0
Lupus erythematosus	9	5.4
Pemphigoid	10	5.9
Lichenoid reaction	12	7.1

**Table 2.** Compatibility rate of primary clinical and histopathological diagnoses

Lesion	Compatibility N(%)	No compatibility	Kappa coefficient	P value
Pemphigus	29(63)	17(37)	.396	<.001
Lichen Plaus	69(76.6)	21(23.4)		
Lupus Erythematosus	7(63.6)	4(36.4)		
Pemphigoid	0	9(100)		
Lichenoid Reaction	1(33.4)	2(66.6)		

**Table 3.** Compatibility rate of primary clinical and histopathological diagnoses by different university centers

Center	pemphigus	Lichen Planus	Lupus erythematosus	pemphigoid	Lichenoid reaction	P value	Kappa coefficient
Farshchian Hospital	21(77.7%)	28(80%)	6 (100%)	0(0%)	0(0%)	<.001	.47
Beheshti Hospital	2 (50%)	4(66.6%)	0(0%)	0(0%)	-	.081	.297
Besat Hospital	3 (75%)	12(92.3%)	1 (50%)	0(0%)	0(0%)	<.001	.351
Dental School	3 (42.8%)	25(73.5%)	0(0%)	0(0%)	1 (33.3%)	.011	.205

and histopathologic diagnoses belonged to lichen planus. This was consistently true in all centers including Farshchian hospital, where the lowest compatibility rate was observed for pemphigoid and lichenoid reactions. This center had the highest rate of compatibility for all lesions among all centers (Kappa coefficient=0.47,  $P<0.001$ ). Moreover, Farshchian hospital, as the referral skin center in Hamadan, showed the highest compatibility rate for lichen planus. Such a high rate may reflect the close interaction of clinicians and experienced pathologists in this center.

Foroughi et al reported a compatibility rate of 91.5% between the primary clinical diagnosis and the histopathological diagnosis (5). Zare Mahmoodabadi et al reported a compatibility rate of 100% for pemphigoid lesions and 90.9% for lichen planus. Our findings were similar to theirs only for lichen planus and not for pemphigoid lesions. Since there were no identical studies regarding these lesions, we hereby discuss some studies evaluating other oral lesions (6).

A study conducted in Shiraz by Hashemipoor et al showed a compatibility rate of 65% (7). Moreover, Deihimi et al reported a compatibility rate of 57% in their study in Isfahan (8).

The high compatibility rate for lichen planus is probably due to its unique appearance with Wickham striae, which aids in its diagnosis by clinicians and dentists (6,9). However, lichen planus lesions resemble other lesions including lichenoid reaction, systemic lupus erythematosus, and graft-versus-host disease in 23.4% of the cases (9). There was not compatibility between clinical and microscopic diagnosis. A possible explanation for this could be inaccurate history taking and physical examination, which could help differentiate between these entities.

Incompatibility between the clinical and histopathological diagnoses was noted in 32% of pemphigus and all pemphigoid lesions. Pemphigus and pemphigoid lesions look very similar in the oral cavity. The clinical presentation of pemphigus includes thin and fragile vesicles evolving into ulcerations and erosions. In pemphigoid, on the other hand, thicker vesicles are more commonly seen, eventually rupturing and causing superficial ulcers. Histopathological assessment, however, can differentiate between these two since pemphigus shows features of intraepithelial bullae while pemphigoid

features subepithelial lesions.

The inclusion of pemphigus and pemphigoid in the list of differential diagnoses of these patients reflects their clinical similarity. However, higher incompatibility rates for pemphigoid suggest that clinicians have a tendency towards the diagnosis of pemphigus. This is of clinical importance and mandates special attention because pemphigoid is more common and can lead to ocular complications and eventual blindness if left untreated.

Systemic lupus erythematosus showed a high incompatibility rate of 36.4% in our study. Systemic lupus erythematosus and chronic cutaneous lupus erythematosus can resemble lichen planus in the oral cavity and thus they can be misdiagnosed as lichen planus. Lichenoid reaction on the other hand, demonstrated an incompatibility rate of 66.6%. This lesion can be caused by dental materials, medications, or foreign bodies in the gums. This lesion is different from previous ones in that it not only resembles lichen planus clinically but also has almost the same histopathological appearance. This further highlights the importance of close communication between the clinician and pathologist to reach the correct diagnosis.

Our findings demonstrated that physicians and dentists face the most difficulty in clinical diagnosis of systemic lupus erythematosus, lichenoid reaction, and pemphigoid lesions, which is in line with the study by Zare Mahmoodabadi et al (6). As Powsner et al suggested, more effective interaction of physicians and pathologists can lower the rate of misdiagnoses and other errors in differentiating oral ulcers (10).

In a study by Musavi et al, the compatibility rate was above 70% for all oral lesions, except for pemphigus and peripheral ossifying fibroma (11). Moreover, similar to our study, they faced difficulty in diagnosis of vesiculobullous lesions (11).

## Conclusions

In order to reach a definite diagnosis, proper use of clinical, radiographic, and pathological findings is necessary. This is particularly true for the diagnosis of lesions with no pathognomonic features, for which a histopathological evaluation is most useful. Our results demonstrated that lichen planus could be most reliably diagnosed clinically, while the lowest compatibility rate between the clinical

and histopathological diagnoses was observed for pemphigoid.

#### Authors' Contribution

SHJ,SSH,SR: study conduct, supervisor, article edition. GHR: study implementation, data analysis.BF ,REP: manuscript preparation.

#### Conflict of Interest Disclosures

The authors declare that they have no conflict of interests.

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