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Concordance between clinical and histopathological diagnoses of oral lichen planus



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ABSTRACT

Objective: In this study, we investigated the degree of concordance in the histopathological diagnosis among lesions clinically diagnosed with oral lichen planus (OLP) to understand the importance of the histopathological examination.

Methods: In total, 169 patients clinically diagnosed with OLP on their initial visit to our hospital between 2001 and 2012 were experienced. Of them, histopathological examinations were carried out for 77 patients (83 lesions), and they were selected as the subjects of this study. The age, gender, location of the lesion, clinical type of OLP determined via visual inspection, and histopathological findings were investigated.

Results: Of the 77 patients, 12 were male and 65 were female, with a mean age of 63.9 years. Histopathological examinations were performed in 83 lesions, of which 54 were diagnosed as OLP. Among the diagnostically discordant 29 lesions, most were histopathologically diagnosed as leukoplakia (15 lesions, 51.7%), whereas one was diagnosed as squamous cell carcinoma (3.4%). The most frequent location of discordant lesions was the tongue (discordant rate: 77.8%), and the most clinical type was plaque (discordant rate: 90.0%); all of which were atypical types of OLP.

Conclusions: The rate of discordance between the clinical and histopathological diagnoses was 34.9%. These results indicate that histopathological examinations are essential for obtaining the differential diagnosis to distinguish the lesion from other diseases with a clinical presentation similar to that of OLP.

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1. Introduction

Oral lichen planus (OLP) is a refractory mucosal disease that frequently occurs in the oral cavity in middle-aged or older females [1,2]. Although the etiology of OLP has not been elucidated, the involvement of cell mediated immunity has been considered [3]. Cases of OLP have been reported to transform into malignancy, albeit rarely [4]; therefore, OLP is considered to be a potentially malignant oral disorder (PMOD) [5,6]. In general, typical types of OLP present as reticular, bilateral, symmetrical white lesions in the buccal mucosa, gingiva or tongue and may be clinically diagnosed

based on visual inspection in most cases, as occasionally reported in the literature [7]. In the actual clinical setting, however, physicians occasionally encounter atypical cases involving unilateral or erosive lesions, which may make obtaining a diagnosis via visual inspection more difficult. In the published literature, the rate of discordance between the clinical and histopathological diagnoses of OLP ranges from 34.8% to 44.4% [1,8], suggesting that relying on a clinical diagnosis alone without histopathological confirmation may be risky.

The present study, therefore, sought to evaluate the clinical diagnosis of OLP and investigate the rate of concordance between the clinical and histopathological diagnoses, with a particular focus on factors contributing to the discordance. Various insights into the management of OLP are also discussed.

2. Patients and methods

We experienced 338 lesions in 169 patients clinically diagnosed with OLP in our hospital during a 12-year period from 2001 to 2012. Of the 338 lesions, 83 lesions (24.6%) in 77 patients were

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subsequently assessed using histopathological examinations, and they were selected as the subjects of the present study. We also found 28 suspected cases of oral lichenoid lesion (OLL), such as oral lichenoid contact lesions (OLCL) due to dental material allergy, etc., oral lichenoid drug reaction (OLDR) due to drugs and oral lichenoid lesion/Graft-Versus-Host Disease (OLL-GVHD) in the retrospective investigation into medical record description. However, we excluded them from the subjects of this study, because the histopathological examinations were not performed for them. The rate of concordance between the clinical and histopathological diagnoses was determined among the subjects with a known age, gender, lesion location, clinical type and histopathological findings.

In the present study, the location of the lesion was categorized into the following areas: buccal mucosa, gingiva, tongue, lip, palate and other. Regarding the classification proposed by Andreasen [9], OLP was classified into the following clinical types based on visual inspection: reticular, ulcerative, atrophic, plaque, papular and bullous. And then we defined “complex” as their mixed type. For the histopathological examinations, we biopsied the most characteristic lesions while carefully minimizing the occurrence of accidental or concomitant diseases; multiple sites were biopsied when necessary. Regarding the performance of histopathological examinations, we performed them at the time of the patient’s initial visit as far as possible. However, when the patient strongly complains of sharp pain at the lesion site or when further consultation with a physician is necessary in order to evaluate other underlying diseases and thus the performance of a biopsy is delayed, we instead choose conservative therapy consisting of the local application of steroid ointment. Thereafter, when examining such patients a second time within 1 month after start of therapy, we then decided to perform a biopsy. First of all, a total 83 biopsied lesions were blindly analyzed by two experienced oral pathologists in our hospital. Thereafter, we had a third oral pathologist reviewed those specimens for this study again. A lesion was histopathologically diagnosed as OLP when the major pathological characteristics of the modified WHO diagnostic criteria [10] were observed, including subepithelial band-like T lymphocyte dominant infiltration [11], absence of epithelial dysplasia, and signs of liquefaction degeneration in the basal cell layer [12]. When hypha was observed in HE staining, then the pathologist additionally used PAS staining in order to make a final diagnosis.

3. Results

3.1. Clinical evaluation of the histopathologically examined lesions

The characteristics of the 77 clinically diagnosed OLP patients whose lesions (83 in total) were subsequently assessed using histopathological examinations were as follows. There were 12 males and 65 females (male:female ratio=1:5.42), with an age range of 36–82 years (mean age, 63.9 years). Fifty-five patients had single-focus lesions and 22 had multiple-focus lesions. Fifty patients had bilateral lesions and 27 had unilateral lesions. A histopathological examination was performed in 53 lesions in the buccal mucosa (execution rate: 25.4%), 17 lesions in the gingiva (20.2%), nine lesions in the tongue (37.5%), three lesions in the lip

Table 2
List of lesions diagnosed with dysplasia histopathologically.

Case	Sex	Age	Location	Clinical type	Critical form	Histopathological diagnosis
1	Male	58	Gingiva	Plaque	Multiple	Leukoplakia with mild dysplasia
2	Male	73	Tongue	Complex (reticular–ulcerative)	Multiple	Leukoplakia with mild dysplasia
3	Female	66	Gingiva	Complex (reticular–ulcerative)	Multiple	Leukoplakia with severe dysplasia
4	Female	60	Gingiva	Complex (reticular–ulcerative)	Multiple	Leukoplakia with mild dysplasia

(20%) and one lesion in the palate (16.7%). The clinical type based on a visual inspection of the lesions included 22 reticular lesions (execution rate: 15.0%), 21 ulcerative lesions (28.4%), 21 complex (reticular–ulcerative) lesions (44.7%), nine atrophic lesions (64.3%) and 10 plaque lesions (90.9%).

Most patients (62 of 77) were treated with steroid ointment or mouthwash containing anti-inflammatory agents prior to the histopathological examinations.

3.2. Investigation of the degree of concordance between the clinical and histopathological diagnoses

Among the 83 lesions in the 77 patients clinically diagnosed with OLP on their initial hospital visit, 54 lesions in 50 patients were subsequently diagnosed as OLP on the histopathological examinations, indicating a concordance rate of 65.1%.

Among the 29 lesions in 27 patients with discordant clinical and histopathological diagnoses (hereafter referred to as “discordant cases”), leukoplakia was the most common finding, followed by nonspecific ulceration/erosion, squamous cell carcinoma, candidiasis and granulation (Table 1). Four locations of leukoplakia involved three areas of mild dysplasia and one area of severe dysplasia. All four lesions with dysplasia were multiple-focus, atypical clinical types, such as complex (reticular–ulcerative) or plaque lesions (Table 2). Squamous cell carcinoma was found in a single-focus, unilateral lesion and was diagnosed based on visual inspection as an atypical plaque type lesion. With respect to the lesion location in discordant cases, the tongue was the most common location from the point of discordant rate, followed by the gingiva and buccal mucosa (Table 3). Regarding the clinically observed types of the discordant cases, plaque lesions were the most common types from the same point, followed by ulcerative, complex, reticular and atrophic lesions (Table 4).

Table 1
Breakdown of the 29 lesions excluded from OLP histopathologically.

Histopathological diagnosis	Number of lesions (percentage)
Leukoplakia	15 (51.7%)
Nonspecific ulceration/erosion	11 (37.9%)
Squamous cell carcinoma	1 (3.4%)
Candidiasis	1 (3.4%)
Granulation	1 (3.4%)

Among the 27 discordant cases, most patients ($n=23$) were treated with topical steroids or mouthwashes containing anti-inflammatory agents prior to the histopathological examinations.

4. Discussion

OLP is a chronic disease that involves inflammatory keratotic lesions in the oral cavity, with soreness that often recurs in a worsening and improving cycle. Also, various lesions resemble OLP clinically and histopathologically, and these are widely referred to as OLL [13]. At present, OLL can be classified into four types: OLCL, OLDR, OLL-GVHD, in which were able to identify the etiology, and other lesions that are unclassified [14,15]. This fourth type

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