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## Oral lichen planus and oral lichenoid lesions; a critical appraisal with emphasis on the diagnostic aspects

Isaac van der Waal <sup>1</sup>

<sup>1</sup> Professor, Department of Oral and Maxillofacial Surgery, VU University Medical Center (VUmc)/Academic Centre for Dentistry Amsterdam (ACTA)

### Correspondence:

VU University Medical Center (VUmc)  
Academic Centre for Dentistry Amsterdam (ACTA)  
Department of Oral and Maxillofacial Surgery  
P.O. Box 7057  
1007 MB Amsterdam  
The Netherlands  
i.vanderwaal@vumc.nl

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### Abstract

Oral lichen planus (OLP) has a prevalence of approximately 1%. The etiopathogenesis is poorly understood. The annual malignant transformation is less than 0.5%. There are no effective means to either predict or to prevent such event. Oral lesions may occur that to some extent look like lichen planus but lacking the characteristic features of OLP, or that are indistinguishable from OLP clinically but having a distinct cause, e.g. amalgam restoration associated. Such lesions are referred to as oral lichenoid lesions (OLLs). The management of OLP and the various OLLs may be different. Therefore, accurate diagnosis should be aimed at.

**Key words:** *Oral lichen planus, oral lichenoid lesions.*

### Introduction

There are various white and white-and-red lesions of the oral mucosa. Some of these lesions can be diagnosed clinically, e.g. geographic tongue and pseudomembranous candidiasis. In its characteristic reticular form oral lichen planus (OLP) can be diagnosed clinically in most instances as well. However, the clinician may be confronted with lesions of the oral mucosa that to some extent look like lichen planus clinically, but having a less characteristic morphology, or with lesions that clinically are indistinguishable from OLP but having a distinct etiology. Such lesions are referred to as oral lichenoid reactions or oral lichenoid lesions (OLLs). Since the management of OLP and OLLs is rather different, accurate diagnosis should be aimed at.

The etiopathogenesis of OLP is still poorly understood. In the absence of known etiologic factors one might use the term “idiopathic” OLP. In this treatise reference will be made to just OLP.

### Oral lichen planus

In the majority of patients with OLP there is no associated cutaneous lichen planus or lichen planus at other mucosal sites. This may be called “isolated” OLP. A small subset of patients has simultaneous involvement of the skin and/or involvement of other mucosal sites, such as in the vulvovaginal-gingival syndrome (1). Furthermore, the rare entity of oral lichen planus pemphigoides has been reported (2).

The reported prevalence rates of OLP vary from 0.5%

to 2.2% of the population. The typical age of presentation is between 30-60 years, and the disease is more frequently seen in women. In a study from Japan the incidence rate of OLP in men was 59.7 per 100.000 and 188.0 for women (3).

#### *Clinical aspects*

The clinical presentation is nearly always in a bilateral, more or less symmetrical pattern of various morphologies. The reticular, erythematous (erosive), plaque type and ulcerative type are the most common ones; the atrophic and bullous types are rare, indeed. The various types may coexist in a single patient and may change in time. The oral lesions in patients with simultaneous lichen planus manifestations on the skin or other mucosal surfaces do not differ from those in patients with OLP without associated lesions elsewhere.

The most commonly affected sites in OLP are the buccal mucosa, the tongue and the gingiva. Involvement of the palate and the lips is quite rare, while the palate and even more so the floor of the mouth is rarely affected. Symptoms of burning or etching, painful sensations are particularly present in the erythematous and ulcerative types.

In the absence of typical reticular lichen planus manifestations elsewhere in the mouth, the non-reticular types may be difficult to diagnose clinically with confidence. In such event, the taking of a biopsy should be considered.

It is well accepted that OLP is a chronic, possibly lifelong, disease that is characterized by remissions and exacerbations. Several suggestions for monitoring the severity of OLP have been reported, based on clinical aspects, number of involved oral subsites and severity of symptoms (4-6).

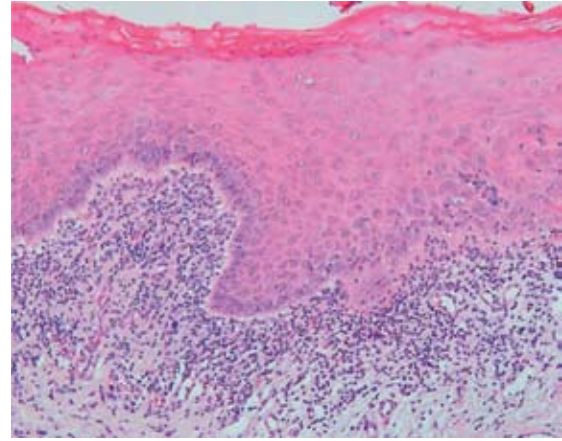
#### *Histopathological aspects*

In 1978 a set of histopathological criteria for oral lichen planus has been provided by the WHO, that probably is still regarded as the authoritative source (7). However, these criteria have not been validated. Furthermore, it is probably well accepted that a final diagnosis of OLP can not be made on histopathological grounds alone and that often clinicopathological judgment is required (Fig.1). Even then, cases may remain unsettled (8,9). The role of immunofluorescence and immunohistochemical stains in the establishment of a diagnosis of OLP is limited.

The term "lichenoid dysplasia" has been used to describe lichen planuslike histopathological aspects in dysplastic epithelium (10). This term does not imply the presence of dysplastic epithelial changes in lichen planus. Most likely, the term lichenoid dysplasia causes confusion both among pathologists and clinicians.

#### *Management; malignant transformation*

In case of more or less proven OLP, treatment can only be symptomatic. In general, topical ointments or mouth rinses of corticosteroids suffice, although the true effi-



**Fig. 1.** A diagnosis of oral lichen planus can not be made on histopathological grounds only; the presently shown features can not be distinguish from those of the various oral lichenoid lesions (H-E stain; orig.magn. x 100).

cacy is questionable (11). Only in severe cases systemic medication may be considered (12). Surgical treatment or laser treatment may be considered in persistent, painful lesions (13-15).

There is increasing evidence that OLP is a potentially malignant disorder, although the risk is low (16-19). The estimated annual malignant transformation rate is probably less than 0.5%, although in selected patient groups higher percentages have been mentioned. Apparently, such event may occur in all clinical types of OLP, including the reticular type (16). The development of malignancy, i.e. a squamous cell carcinoma, is not restricted to the site of lichen involvement. There are no reliable means to either predict or to prevent such event in an individual patient. The efficacy of frequent follow-up is questionable (20-23).

### **Oral lichenoid lesions**

#### *Classification*

Four types of oral lichenoid lesions (OLLs) can be distinguished, being 1) amalgam restoration, topographically associated lesions, 2) drug related lichenoid lesions, 3) lichenoid lesions in chronic graft versus host disease (cGVHD), and 4) lesions that have a lichen planuslike aspect, but that lack one or more characteristic clinical aspects (Table I). In the absence of "classic" lichen planus involvement elsewhere in the oral cavity a diagnosis of plaque type OLP (Fig.2) or erythematous lichen planus (Fig.3) may be difficult to establish with confidence. In a study from Italy, isolated gingival involvement of lichen planus was recorded in 7.4% of the patients (24), while in a similar study from China only 0.2% of such cases were recognized (25). The differences in these percentages are probably based on different criteria that have been used rather than on geographic differences.

**Table I.** Classification of oral lichenoid lesions (OLLs).

1. Amalgam restoration, topographically associated OLL
2. Drug related OLL
3. OLL in chronic graft versus host disease
4. OLL, unclassified (e.g. erythematous changes limited to the gingiva without signs of "classic" OLP elsewhere in the oral cavity, or lesions that have a lichen planuslike aspect but that lack one or more characteristic clinical features, such as bilateral presentation)



**Fig. 2.** Leukoplakic lesions of the tongue. Only in the presence of manifestations of lichen planus elsewhere in the oral cavity a diagnosis of plaque type lichen planus can be accepted.



**Fig. 3.** Erythematous changes of the gingiva. In the absence of lichen planus manifestations elsewhere in the oral cavity one might hesitate to diagnose these changes with confidence as oral lichen planus.

In addition, lichenoid lesions on the mucosal side of the lip, possibly initiated by microbial plaque precipitated on the buccal surfaces of the anterior teeth, have been reported as a possible entity (26).

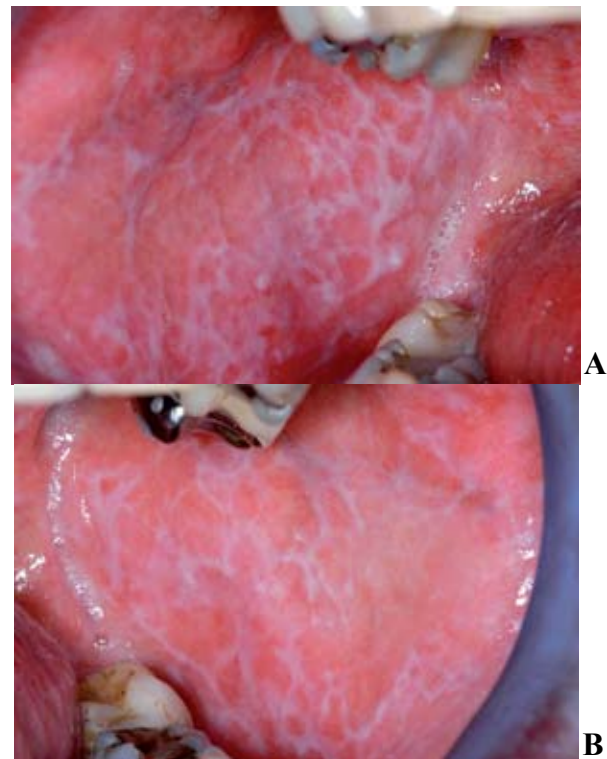
*Clinical aspects*

The clinical aspects of OLLs may be indistinguishable from those of OLP (Fig.4). On the other hand, OLLs may be localized or may occur in oral subsites that are uncommon in OLP. An example of the latter event is the frequent involvement of the palate in OLL in patients with cGVHD.

In the absence of distinct etiological factors, the differential diagnosis may include (leuko)erythroplakia. Therefore, the taking of a biopsy should be considered not so much in an attempt to distinguish OLL from OLP but mainly to look for the presence of epithelial dysplasia or even squamous cell carcinoma.

*Histopathological aspects*

It is well accepted, that the histopathological aspects of the various lichenoid lesions are not discriminative between the various types of OLL nor with regard to OLP (27-31). It has been suggested that the presence of a mixed subepithelial infiltrate, in contrast to the strict lymphohistocytic infiltrate that defines OLP, and a deeper more diffuse distribution within the lamina propria and superficial submucosa is as marker of a drug related lichenoid oral lesion (32). Focal parakeratosis,

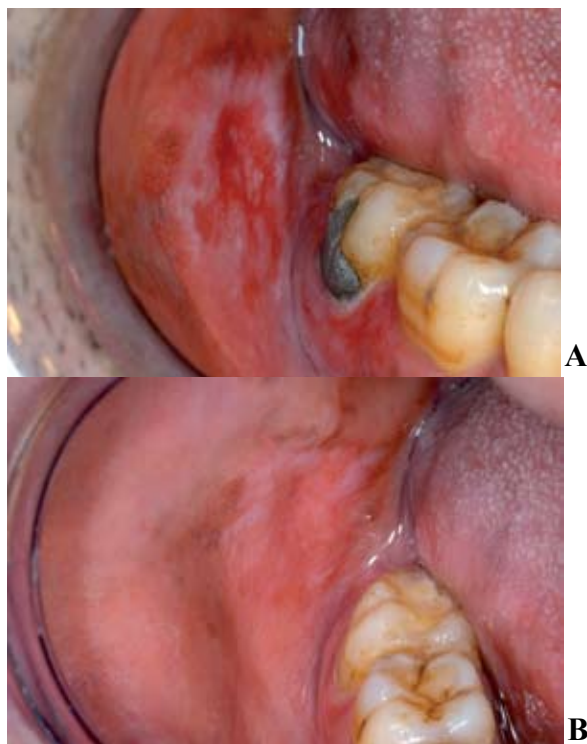


**Fig. 4.** Lichenoid lesions in a patient with chronic graft versus host disease. The clinical aspect is indistinguishable from "idiopathic" oral lichen planus (a and b).

focal interruption of the granular layer, cytooid bodies in the cornified and granular layers are perhaps indicative of a lichenoid drug related lesion (33). It also has been shown that increased numbers of granulated mast cells in areas of basement membrane degeneration, increased vascularity and increased PAS-positive basement membrane thickness in OLP are present as compared with oral lichenoid lesions (34).

#### *Management; malignant transformation*

Management of lichenoid lesions for which a distinct cause can be found (amalgam, drug related, chronic graft versus host disease) depends, indeed, on the etiology. Replacement of amalgam restorations anatomically related to the lichenoid changes, will usually result in regression within several months (Fig.5). In the absence of response, a biopsy should be taken, if not being taken already at the first visit of the patient. The value of patch testing for mercury allergy is somewhat questionable (35). Drug related oral lichenoid lesions are apparently less common than the cutaneous counterparts. Such lesions may persist for a long period following withdrawal of the drug, which may question the causal relationship. Oral lichen lesions in chronic in graft versus host disease are usually managed with local corticosteroids or other drugs such as tacrolimus.



**Fig. 5.** Tentative diagnosis of lichenoid lesion due to prolonged contact with amalgam restoration in 47 (a); result two months after replacement (b).

As in OLP the question arises whether one or all types of OLL are to be considered a potentially malignant disorder. There are actually insufficient data to reliably answer this question. This aspect is particularly relevant in case of a possibly amalgam associated lichenoid lesion (36). It seems safe practice to advise the patient to have the restorations replaced, primarily because of symptoms, if present, and also to further reduce the remote chance of future development of oral cancer. Such discussion does not seem to be relevant in drug related OLL, but may be so in OLL in chronic GVHD (37), and even more in other types of OLLs in which no firm clinicopathological diagnosis can be made. Such patients are probably being best managed as having a potentially malignant disorder.

#### **Conclusion**

There are several oral lesions that resemble lichen planus or that even are indistinguishable from lichen planus clinically and histopathologically, but having a distinct etiology. Occasionally, it is difficult, if not impossible, to arrive at an accurate diagnosis. Since the presently available histopathological criteria of oral lichen planus are not truly reproducible, a final diagnosis of oral lichen planus can not be made on histopathological grounds alone.

In the absence of known etiological factors, the taking of a biopsy should be considered, particularly in case of a non-reticular lesion, in order to exclude the possibility of epithelial dysplasia or even carcinoma in situ or invasive squamous cell carcinoma. The term “lichenoid dysplasia” is confusing and, therefore, should be avoided.

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