J Clin Periodontol 2005; 32: 1029–1033 doi: 10.1111/j.1600-051X.2005.00761.x

Journal of Clinical Periodontology

Gingival involvement of oral lichen planus in a series of 700 patients

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Mignogna MD, Lo Russo L, Fedele S. Gingival involvement of oral lichen planus in a series of 700 patients. J Clin Periodontol 2005; 32: 1029–1033. doi: 10.1111/j.1600-051X.2005.00761.x. © Blackwell Munksgaard, 2005.

Abstract

Background: Oral lichen planus (OLP) is one of the most common oral mucosa disorders. OLP gingival involvement is very frequently observed, and it is characterized by wide variations in clinical appearance and symptoms, leading, in many cases, to misdiagnosis or undiagnosis. This can be potentially harmful since OLP patients require appropriate management in oral and periodontal care, together with an adequate systemic evaluation.

Objective: In this paper, we have analysed the prevalence and clinical aspects of gingival lesions in our series of 700 patients affected by OLP. Furthermore, we have discussed the possible periodontal implications on the basis of the available literature.

Patients and Methods: Data from 700 patients affected by OLP, clinically and histologically assessed, have been studied; the location and morphology of lesions, the symptoms and the progression of the disease have been considered, with particular attention given to gingival involvement.

Results: Gingival lesions have been diagnosed in 48% of cases, usually associated with diffuse oral involvement. Only 7.4% of patients had OLP lesions confined to the gingiva. The morphology of lesions included all the forms originally described for OLP (reticular, papular, plaque, atrophic, erosive and bullous). The symptoms, if present, varied from mild discomfort to severe oral pain, with the general trend increasing from the keratotic to the erosive forms. The gingiva was involved in four out of 21 of our oral cancer cases, which developed from pre-existing OLP lesions.

Conclusion: OLP is a very proteiform disorder; considering the high frequency of gingival involvement and its influence on oral health, it is our opinion that periodontologists should be involved in OLP management and should become familiar with its clinical aspects and related themes.

Key words: desquamative gingivitis; gingiva; gingival involvement; oral lichen planus

Accepted for publication 19 January 2005

Oral lichen planus (OLP) is one of the most common oral mucosa diseases. Its prevalence in the general population is estimated at between 0.5% and 2%, with a female predilection and a peak of incidence in the fourth–fifth decades. It is an immunomediated disorder (Scully et al. 1998) affecting squamous epithelia, histopathologically characterized by hyperkeratosis and acanthosis of the epithelium, degeneration of basal keratinocytes and a band-like subepithelial lymphocytic infiltration. Oral manifestations are very variable; at least six clinical forms have been described (reticular, papular, plaque, atrophic, erosive and bullous) (Andreasen 1968), often coexisting in various combinations. Recently, some authors have suggested more strict criteria for clinical and histological characterization of OLP lesions in order to differentiate them from a general group of oral lichenoid lesions (van der Meij, E. H. & van der Waal, I. 2003). However, there is no general agreement on this.

Every area of the oral mucosa can be affected, including the gingiva. Even if the gingival clinical appearance has often been described as ''desquamative gingivitis'', it can be widely polymorphous both in terms of signs and symptoms, and this can lead, in many cases, to misdiagnosis. In this paper, we have analysed the prevalence and clinical aspects of gingival lesions in our series of 700 patients affected by OLP. Furthermore, we have discussed the possible periodontal implications on the basis of the available literature.

Patients and Methods

To date, in our Oral Medicine Section, 700 patients (280 men and 420 women) affected by OLP, whose ages ranged between 18 and 83 years, have been followed up. The diagnosis has been clinically and histologically assessed. From a clinical point of view, the presence of reticular and/or papular lesions consisting, respectively, of lace-like and pinhead-sized, white, slightly elevated patterns in any location of the oral cavity was considered diagnostic (Thorn et al. 1988). The histological features used as diagnostic criteria, in haematoxylin–eosin-stained sections obtained from 10% neutral-buffered formalin fixed specimens, were: hyperortho-hyperparakeratosis, a subepithelial lymphocytic band-like infiltrate and the focal signs of basal layer degeneration. Medical and serological screening of patients was performed at the time of diagnosis by evaluating routine haematological parameters and testing for liver disease, hepatitis C virus seropositivity and antinuclear antibodies (ANA). At the same time, the categorization of oral lesions in the above-mentioned six forms based on the prevalent clinical morphology took place; clinical factors modifying clinical features (e.g., candidiasis, calculus, local medications, etc.) (Mignogna et al. 2000) were previously removed, and restoration or drug-related lichenoid lesions were ruled out. The locations of lesions, together with the symptoms, have been carefully recorded both at the time of diagnosis and during the follow-up. The follow-up protocol, generally, consisted of clinical examination at least three times a year, according to the activity of the disease and the need for treatment adjustment or histological re-evaluation (Mignogna et al. 2001). The long-term behaviour of the disease was also considered; particular attention was given to gingival involvement.

Results

Three hundred and thirty-six out of our 700 patients (48% of cases) showed gingival involvement. 228 were women (68%) and 108 were men (32%); no age predilection has been observed. The clinical features of OLP gingival lesions are detailed in Table 1. Keratotic (reticular/plaque) and atrophic–erosive forms seemed to occur equally both as single manifestations and simultaneously combined in the mixed forms.

Table 1. Clinical features of gingival oral lichen planus

	Men		Women		Total	
	n.	%	*n.*	%	*n.*	%
Reticular	21	19.4	38	16.7	59	17.5
Plaque	—	—	24	10.5	24	7.2
Atrophic	16	14.8	10	4.4	26	7.7
Erosive	14	12.9	53	23.2	67	19.9
Bullous	—	—	6	2.6	6	1.8
Mixed	57	52.8	97	42.5	154	45.8
Total	108	100	228	100	336	100

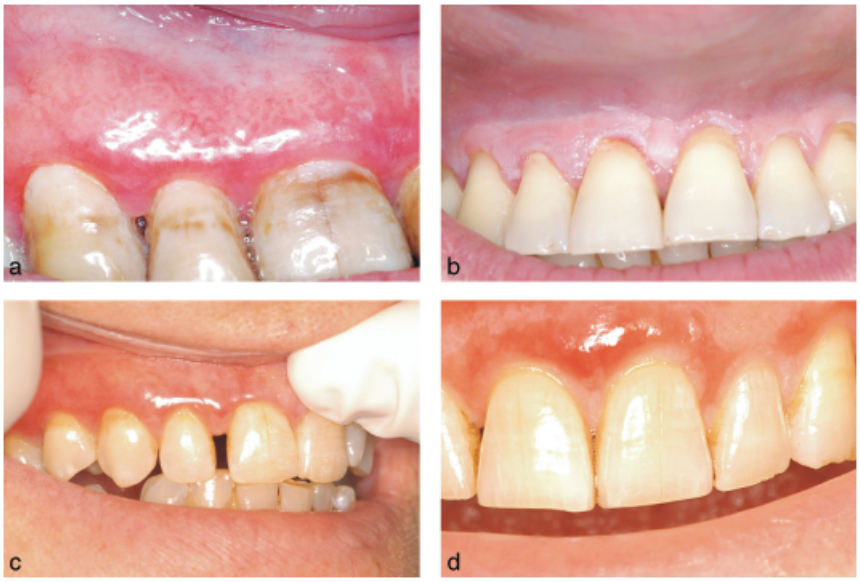

Fig. 1. (a) Reticular form of oral lichen planus (OLP) located on attached gingiva. (b) Smooth plaque lesion involving the whole attached gingiva and the marginal gingiva only partially. (c) Atrophic appearance of the gingiva affected by OLP. (d) Erosive form of OLP: note the integrity of marginal gingiva in the absence of local irritating factors.

Reticular lesions (Fig. 1a), which occurred in 17.5% of cases, had a very characteristic appearance with variable patterns of keratotic ''striae'', namely slightly elevated whitish lines crossing each other and producing an arboriform distribution; they usually involved marginal and attached gingiva, and they were not associated with oral discomfort. A lack of symptoms also characterized plaque forms, affecting 7.2% of patients. In these cases (Fig. 1b), marginal gingiva was generally not involved, while the whole width of the attached gingiva in the involved areas showed a thin and smooth keratotic plaque; conversely, thick or rough plaques in this location were often associated with traumatic injury. Atrophic and erosive (Figs 1c and 1d) forms, with a cumulative incidence of 27.7% of patients, involved wide areas of attached and marginal gingiva, giving rise, in erosive cases, to the typical appearance of the so-called ''desquamative gingivitis''(Fig. 2a); it is important to note that in these cases also, in the absence of local irritating factors, marginal gingiva often had a healthy clinical appearance. In erosive forms of OLP, according to the severity of the case, gingival epithelium thickness was variably reduced until it resulted in the formation of ulcerated lesions, clinically appearing as an intense erythema and producing a wide spectrum of symptoms ranging from mild oral discomfort or burning sensation to severe oral pain. The above-mentioned clinical features were often (45.8% of patients) associated with various combinations in mixed forms (Fig. 2b), in which modifications in the relative extent of the keratotic and atrophic-erosive compo-

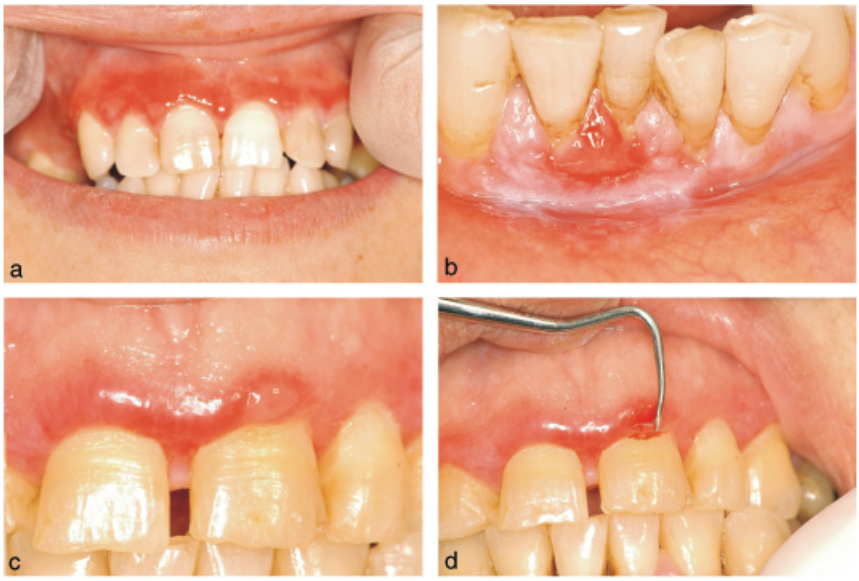

Fig. 2. (a) Extensive erosive lesions of attached gingiva: note the uninvolved marginal gingiva. (b) Mixed form of oral lichen planus: plaque and erosive lesions of the gingiva together with reticular lesion of the alveolar mucosa. Note the higher plaque and calculus deposits in correspondence to erosive lesions. (c) Bullous lesion on the upper left central incisor gingiva. (d) Positive Nicolsky sign of (c) bullous lesion. Note also the presence of whitish keratotic lesions on the other papillas.

nent could be detected during the follow-up, in relation to the activity of the disease and the control of local irritating factors.

In a small percentage of patients (1.8%), gingival OLP lesions assumed a bullous morphology (Fig. 2c) with positive Nicolsky's sign (Fig. 2d), surrounded by a marked inflammatory halo and usually causing severe pain interfering with oral functions. However, the presence of small bullous lesions on attached gingiva was not an uncommon finding, especially in the context of mixed forms and extensive oral involvement.

The gingival location of OLP lesions was generally associated (85% of cases) with diffuse oral involvement; only in 15% of patients showing gingival lesions could no other sites of oral involvement be identified (7.4% of all patients). In these patients, predominantly women (80% of cases), lesions usually appeared mixed or erosive and rarely bullous.

As regards malignant transformation, in our series of patients, the gingiva was involved in four out of the 21 of oral cancer cases that developed from pre-existing OLP lesions (Mignogna et al. 2002); the four patients were women with reticular/plaque gingival lesions associated with diffuse oral involvement.

Discussion

The gingiva is generally one of the oral sites with the greatest incidence of OLP after the buccal mucosa and the tongue. In this study, 48% of patients suffered from gingival lesions. Isolated gingival involvement has been previously reported with a frequency ranging from 8.6% (Eisen 2002) to 10% (Scully & El-Korm 1985) of OLP patients, and in our series it was found in 7.4% of cases. The clinical morphology of gingival lesions, as shown in Table 1, included all the forms originally described for OLP. As a consequence, symptoms in OLP patients with gingival involvement, if present, may vary from mild discomfort to severe oral pain, with the general trend increasing from the keratotic to the erosive forms. Furthermore, the variable clinical appearance and the lack of symptoms may lead to a confusion of the diagnostic pattern and to unawareness of the disease by the patient. This in turn often means that appropriate medical referral is not made, thus causing misdiagnosis and/or undiagnosis. Since gingival involvement in OLP has a high incidence, its recognition during routinely performed periodontal procedures could help both to reduce undiagnosed or misdiagnosed cases and to establish appropriate management. Thus, periodontologists should be involved in OLP diagnosis and become familiar with its clinical aspects as detailed above. In fact, the diagnostic process in OLP should begin with the clinical identification of oral lesions and should proceed with their biopsy in order to obtain histopathological confirmation. Together with histopathology, a valuable diagnostic tool is direct immunofluorescence showing a linear deposition of fibrin and fibrinogen at the basement membrane zone and/or the presence of cytoid-like bodies in the lower epithelial and papillary submucosa (Kolde et al. 2003); in addition, as reported by Helander and Rogers, the gingiva represents the best site for obtaining an immunofluorescence biopsy specimen in OLP (Helander & Rogers 1994). However, in diagnosing isolated gingival OLP, some problems can be encountered because, especially in erosive cases, histopathologic features are often non-diagnostic because of the alteration caused by superimposed gingivitis or periodontitis (Vincent et al. 1990).

Once a diagnosis has been established, appropriate management of the patient can be initiated; this includes optimal oral, periodontal and general health care. In fact, a strict relation and a reciprocal influence between OLP and periodontal health or periodontal procedures seem to exist, but in the same way some interference between OLP and general health can be identified if we consider the possibility for other mucosal involvements or the risk of malignant transformation.

From the oral point of view, it is well known that local factors such as dental plaque and calculus cause gingival OLP to worsen (Holmstrup et al. 1990, Ramòn-Fluixà et al. 1999), resulting in erosive disease; in turn, the induced or enhanced severity of symptoms can interfere with the correct performance of daily oral hygiene, leading to increased deposits of these irritating factors. This may be responsible for a potential enhancement and prolongation of the activity of OLP lesions and may increase the long-term risk for periodontal disease. As regards periodontal status in OLP, very few data are available; however, Ramòn-Fluixà et al. (1999) found no statistically significant differences in terms of attachment loss either between a group of OLP patients and a homogeneously matched healthy control group, or between OLP patients with and without gingival involvement. These findings seem to suggest that OLP

per se is not responsible for periodontal tissue damage, but it is possible to speculate that in symptomatic patients, interference with oral hygiene may have a harmful outcome on periodontal health. As regards surgical procedures on affected gingiva, there are some reports concerning gingival graft (Tamizi & Moayedi 1992, Buajeeb et al. 1999) and OLP exacerbation after surgery (Katz et al. 1988), but the data are so scarce that no definitive conclusion can be extrapolated. However, the Koebner phenomenon associated with OLP, i.e. exacerbation of lesions because of mechanical or other trauma, suggests limiting invasive procedures and handling tissues very gently. Thus, the keypoint for periodontal health maintenance in OLP is to achieve an adequate control of plaque and calculus. Therefore, optimization of daily and professional oral hygiene is required, and this is closely related, as we have seen, to the treatment of symptomatic OLP lesions. Even if many medications have been suggested for the treatment of OLP, high-potency topical steroids appear, at present, to be most efficacious in the remission of symptoms with very few adverse effects (Carrozzo & Gandolfo 1999). In treating symptomatic gingival OLP, we utilize, in extensive cases, a custom-made, flexible mouth guard; it acts as a carrier for the steroid agent (i.e. clobetasol) and as an occlusive dressing to enhance the local response. It is applied once or twice a day for 15–20 min; generally, with this treatment we have experienced a great improvement or complete resolution of symptoms within 3 weeks.

For correct general health care management, if isolated gingival OLP lesions are diagnosed, special care should be taken and referral accordingly performed in order to exclude vulvovaginal–gingival syndrome in women, and peno-gingival syndrome in men. These are particular forms of mucous lichen planus affecting gingiva and genital mucosa (Rogers & Eisen 2003). Their treatment could be quite challenging, but, if appropriately recognized, a therapeutic benefit with a significant improvement in the quality of life could be obtained.

As regards progression of OLP lesions towards cancer, even if malignant transformation is negated by a few authors (Krutchkoff et al. 1978, Krutchkoff & Eisenberg 1985), several reports have highlighted a low but significantly increased risk in OLP patients (Holmstrup & Pindborg 1979, Silverman et al. 1985, Holmstrup et al. 1988, Duffey et al. 1996, Rajentheran et al. 1999, Mignogna et al. 2001, 2002, Gandolfo et al. 2004, Rodstrom et al. 2004), and OLP is actually classified among precancerous conditions (Pindborg et al. 1997). So, some authors have found that an intensive clinical follow-up may lead to a diagnosis of malignant transformation at a very early stage (Mignogna et al. 2001). Nevertheless, other authors, underlining the need for further and larger randomized studies, pointed out that such a continuous patient recall does not seem to be justified since it is not demonstrated to reduce mortality and morbidity of oral cancer related to OLP (Mattsson et al. 2002). In general, it is our opinion that referral to or collaboration with an experienced oral medicine specialist is advisable in order to ensure adequate support and optimization of OLP patient management.

In conclusion, OLP is a very proteiform disorder of the oral cavity both for its clinical manifestations and its potential relation with oral and general health; thus, considering its prevalence and the high frequency of gingival involvement, it is our opinion that periodontologists should be involved in OLP management and should become familiar with its clinical aspects detailed above, and related themes.

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