# CASE REPORT

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# Oral lichen planus and dental hygiene: a case report

**Abstract:** *Background:* The presence of atrophic-erosive lesions among gingival tissues makes oral hygiene procedures difficult for several reasons. Plaque control and rigorous oral hygiene are a fundamental requisite for the treatment of any oromucosal disease. *Case report:* A patient suffering from a mixed atrophicerosive form of oral lichen planus (OLP), with serious gingival involvement, was also treated with the topical application of clobetasol propionate 0.05% using gingival trays. The highest hygiene standards of both patient and trays were of fundamental importance. *Discussion:* The management of the patient suffering from gingival atrophic-erosive OLP requires the synergic treatment of both dentist and dental hygienist, whose contribution supports the corticosteroid and/or immunosuppressive treatment.

Key words: oral hygiene; oral lichen planus

# Background

Oral lichen planus (OLP) is a chronic inflammatory disease characterized by relapses and remissions (1) that affects from 0.1 to about 4% of individuals, depending on the population sampled.

Generally is a disease of the middle-aged and elderly people, and the female-to-male ratio is about 2:1 (2). OLP is rare in children (3).

Currently, the precise trigger of LP remains unknown (4).

It is a cell-mediated immune condition, in which T lymphocytes accumulate beneath the epithelium of the oral mucosa and increase the rate of differentiation of the stratified squamous epithelium, resulting in hyperkeratosis and erythema with or without ulceration (1).

We can distinguish reticular, papular, bullous, plaque-type, atrophic and ulcerative OLP (5).

The main complication of OLP is the reduced quality of life related to soreness or pain, particularly in atrophic or ulcerative/erosive lesions.

Candidosis can also complicate OLP, especially when the more potent topical corticosteroids are used (2).

Topical corticosteroids remain the most widely used treatment in OLP because of OLP; nevertheless, the lack of adherence of the topical drug formulation to the sites affected for a longer duration has been considered as a factor in reducing the efficacy of this treatment (6, 7).

These problems can be overcome by the use of either a flexible splint to cover the gingivae or gingival veneers (2).

The presence of atrophic-erosive lesions makes oral hygiene procedures difficult for several reasons.

Brushing, particularly if performed incorrectly, can lead to pain and gingival bleeding.



Scattarella et al. Oral lichen planus and dental hygiene

Plaque control and rigorous oral hygiene are a fundamental prerequisite for the treatment of any oromucosal disease.

Plaque and calculus deposits are certainly not considered to be exogenous triggers which determine the insurgence of OLP, but contribute to the involvement of the gingival mucosa during the disease (8).

# Case report

We present a male patient who was 52 years old, smoker, periodontopathic, suffering from a mixed atrophic-erosive and hyperkeratosic form of OLP (Fig. 1), with strong gingival involvement as confirmed by the histopathological examination.

No other pathologies were found in either the case history or the requested blood tests.

The initial treatment comprised an intensive individual hygiene programme to establish the most appropriate non-traumatic procedures and to obtain the best possible standard of oral hygiene.

Regarding the medical therapy of OLP, the patient was prescribed application of Clobetasol propionate ointment 0.05%using gingival trays for at least  $\frac{1}{2}$  hour a day, twice a day for 6 weeks and Nystatin (oral suspension) one rinse per day for 4 weeks.

To assure the better topical application of the cortisone ointment, polycarbamate gingival trays were made.

Alginate impressions were taken, moulds were made and from these the gingival trays (Fig. 2), similar to those used for home tooth-whitening treatments.

At the beginning of the treatment, the patients were advised against the use of chlorhexidine and/or alcohol based mouthwashes to avoid caustic damage to the damaged buccal mucosa and prevent interference with normal keratinocyte maturing mechanisms (9). The use of chlorhexidine alcohol free was planned after the mucosal re-epithelization.

The patient was on the other hand advised to mouthwash 2-3 times a day using a solution of  $\frac{1}{2}$  spoon of bicarbonate of



Fig. 2. Gingival trays.

soda dissolved in a glass of water, and to use flavour-free toothpaste with high fluoride content.

The 'colorimetric' brushing technique was also recommended, using a liquid plaque detector, to identify the areas of greatest risk in the mouth and to offer an effective plaque control.

As the patient had poor dexterity, the use of a latest-generation electric toothbrush with ultra-soft bristles and a motivational timer was recommended (10, 11).

The patient was placed on a diet with no spicy food or alcohol, and was also registered with an anti-smoking counselling programme.

To control the periodontal disease, the patient underwent oral detoxification through deplaquing, scaling and rootdebridement.

NitrAdineTM tablets were recommended to maintain the hygiene of the gingival trays.

The patient underwent regular check-ups to control both the disease and his oral hygiene every month for the first 3 months, and subsequently every 6 months (Fig. 3).



Fig. 1. Patient before the treatment.



Fig. 3. Control at 9 months.

The patient showed an early remission of gingival lesions. Moreover, the symptoms disappeared after the first month of treatment.

# Discussion and conclusion

Oral lichen planus lesions may result from the induction of keratinocyte apoptosis by cytotoxic CD8+ T cells stimulated by a yet unidentified self-antigen on a genetically predisposed patient (12).

Usually, non-erosive lichen planus is asymptomatic, and in the absence of soreness, treatment is often not warranted.

Patients with erosive lichen planus often present significant management problems, and the need to reduce morbidity perpetuates a continuing search for novel therapies (2).

Oral lichen planus can appear as desquamative gingivitis; an accurate histopathological examination is mandatory to differenziate OLP to mucous-membranous pemphigoides, pemphigus vulgaris and linear IgA disease (13).

Avoidance of potential precipitating drugs, tobacco, alcohol and local trauma, as well as strict oral hygiene, is essential (12).

Follow-up may be particularly important in patients with atrophic/ulcerative/erosive affections of the tongue, the gingiva or the buccal mucosa (2).

Increased plaque and calculus deposits are associated with a significantly higher incidence of atrophic-erosive gingival lesions in patients with OLP (14).

The improvement and control of oral hygiene should be a primary consideration in the management of OLP as this can enhance the healing of the lesions (15).

When atrophic or ulcerative/erosive lesions are present, there are particular problems, because toothbrushing may be complicated by gingival pain and bleeding.

This situation frequently results in the accumulation of dental plaque, which may adversely influence the course of OLP (2).

Oral hygiene procedures in OLP patients must be effective but gentle.

Intensive oral hygiene procedures may produce subjective and objective improvement of the lesions.

Oral lichen can be improved by optimum plaque control and periodontal treatment (16, 17).

There is an increased prevalence of candidal carriage and infection among patients with OLP, and the corticosteroids and other immunomodulators used in therapy predispose to candidosis; furthermore, symptoms may be exacerbated by candidal overgrowth or infection.

Anti-fungal therapy is thus often helpful adjunctive therapy (2).

Recently Gonzalez-Moles *et al.* (18) have published the excellent outcomes of patients with multiple severe, erosive oral lesions treated by topical application of clobetasol propionate in custom tray.

In fact this method offers excellent control over the contact time between the drug and gingival lesions.

Without the use of trays, the clinician cannot be sure that the patient will place the drug on all the gingival lesions or that the desired contact time will be maintained.

It may be useful to use a disinfectant for the maintenance of oral medical devices. In this case NitrAdineTM was used. (19).

Biofilms are *consortia* of micro-organisms that can form on various surfaces, including oral medical devices.

The formation of a biofilm is a multi-stage process in which microbial cells reversibly adhere to the surface, followed by the production of an exopolysaccharide matrix which results in a more irreversible attachment (20, 21).

With the present protocol, however, no side effect was present.

Topical corticosteroid drugs are the 'golden standard' in the treatment of oral auto-immune inflammatory diseases.

The topical application of clobetasol propionate is promoted in oral medicine because it produces a high level of benefit with a minimal level of side effect compared with systemic administration (22, 23) such as fluid and electrolyte disturbances, hyperglycaemia, glycosuria or hypertension.

The management of the patient suffering from atrophic-erosive OLP requires the synergic treatment of both dentist and dental hygienist, whose contribution supports the corticosteroid and/or cyclosporin treatment.

In fact the increased sensitivity of these patients to opportunistic diseases (e.g. candidosis), the discomfort caused by the oral lesions, are considered to be precipitating factors in determining the periodontal disease.

Careful follow-up will assure an increase in the quality of life of these patients. (8).

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