International Journal of Dental Hygiene

Official Journal of the International Federation of Dental Hygienists

ORIGINAL ARTICLE

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Professional oral hygiene treatment and detailed oral hygiene instructions in patients affected by mucous membrane pemphigoid with specific gingival localization: a pilot study in 12 patients

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Dates:
Accepted 2 August 2011

To cite this article:
Int J Dent Hygiene **10**, 2012; 138–141
DOI: 10.1111/j.1601-5037.2010.00527.x
Arduino PG, Lopetuso E, Carcieri P, Giacometti S, Carbone M, Tanteri C, Broccoletti R. Professional oral hygiene treatment and detailed oral hygiene instructions in patients affected by mucous membrane pemphigoid with specific gingival localization: a pilot study in 12 patients.

Abstract: *Objectives:* The aim of this prospective case series was to assess the clinical efficiency of an oral hygiene protocol in patients affected by mucous membrane pemphigoid (MMP) with specific gingival localization, before starting any medical treatment. *Methods:* Patients received oral hygiene instruction followed by non-surgical periodontal therapy including oral hygiene instructions in a 3-week cohort study. Clinical outcome variables were recorded at baseline and 5 weeks after intervention and included, as periodontal parameters, full mouth plaque (FMPS) and bleeding (FMBS) scores and patient-related outcomes (visual analogue score of pain). *Results:* A total of 12 patients were recruited. The mean age at presentation was 59.5 ± 14.52 years. Five weeks after finishing the oral hygiene and periodontal therapy protocol, a statistical significant reduction was observed for FMPS ($P = 0.001$), FMBS ($P = 0.022$) and reported pain ($P = 0.0028$). *Conclusions:* Professional oral hygiene procedures and non-surgical periodontal therapy are connected with improvement of gingival status and decrease in gingival-related pain, in female patients affected by MMP with specific gingival localization.

Key words: mucous membrane pemphigoid; non-surgical periodontal treatment; oral hygiene

Introduction

Mucous membrane pemphigoid (MMP) is a rare autoimmune, subepidermal, bullous disease characterized by erosive lesions on the mucous membranes and skin (1). The oral cavity, in particular the gingival tissue, is the most common sites for MMP, accounting for 83% to 100% of all the cases reported (2), sometimes being the only site of commencement and manifestation. Erythematous lesions, blisters and erosions, mainly located on the attached gingiva and palatal mucosa, usually characterize gingival MMP. The presence of epithelial desquamation, erythema and erosive lesions on the gingival tissue is described as 'desquamative gingivitis' (3).

There have been no large-scale, well-controlled studies regarding therapy for MMP; clinical trials are few, often including a small number of patients with heterogeneous entities; moreover, most of the therapeutic experience is from studies on bullous pemphigoid (4).

We recently demonstrated that periodontal status is worse in MMP patients if compared with healthy controls because of substantial difference in oral hygiene (3) probably because of difficult in maintaining a good oral hygiene for related pain. For this reason, the aim of this prospective case series was to evaluate the clinical efficacy of a professional oral hygiene protocol, followed by detailed oral hygiene instructions, in patients affected by MMP with specific gingival localization, before starting any medical treatment.

Study population and methodology

Subjects

Subjects suffering from MMP, with exclusively gingival localization, were selected among individuals who were referred by their general dental practitioner to the Unit of Oral Medicine Section of the University of Turin (Italy), because of gingival disorders of unknown aetiology, between June 2009 and November 2010.

All referrals were clinically examined by a group of experienced oral health care providers (P.G.A., M.C., R.B.), who recorded clinical aspects of the lesions and started the diagnostic procedures. The diagnosis was later confirmed in all cases by histopathological examination and by direct immunofluorescence analysis.

Exclusion criteria included: (i) history of current treatment for desquamative gingival lesions; (ii) history of previous periodontal therapy (surgical and non-surgical); (iii) <18 teeth; (iv) pregnancy; and (v) diabetes mellitus.

All eligible candidates for this study were informed about the experimental protocol and signed a consent form. The ethics review board of the Lingotto Dental School approved the study.

Case series design and clinical outcomes

A prospective case series protocol, with non-surgical periodontal therapy, was designed.

All individuals received a comprehensive periodontal examination at baseline visit (T0), including full mouth plaque scores (FMPS) and full mouth bleeding upon probing scores (FMBS), as previously reported (3). All clinical periodontal measurements were performed on six surfaces on each tooth (mesio-buccal, mid-buccal, disco-buccal, mesio-lingual, mid-lingual and disco-lingual), using a periodontal probe (PCPUNC15; Hu-Friedy®, Chicago, IL, USA) by a single calibrated examiner (P.G.A.). Patient-related outcomes included pain perception assessed at each visit by Visual Analogue Scale (VAS). The VAS consisted of a 10 cm-horizontal line marked with 0 (= no pain) to 10 (= most severe pain experienced). Total resolution of all clinical symptoms was defined as the absence of any discomfort, corresponding to a zero VAS score. Partial response, worsening or persistence of the patient's condition meant a decrease, increase or no change at all in the patient's score, respectively.

Clinical outcomes were also detailed 5 weeks after the last treatment visit (T4).

Clinical protocol

Subjects received non-surgical periodontal therapy, including oral hygiene instructions, supra and subgingival scaling as required (Table 1). Oral hygiene instructions were given by an experienced dental hygienist (P.C.), who also provided thorough supragingival scaling and polishing with removal of all deposits and staining, over three visits, as a separate complete mouth scaling, and completion within 21 days of enrolment.

During each visit, subjects were instructed about oral hygiene maintenance at home. Such instructions were reinforced at each visit and were personalized when necessary. Instructions included: modified Bass technique with soft brushes and a subsequent switch to medium brushes associated with interdental brushes. Patients were advised to change brushes every month and to change interdental brushes every 2 weeks.

Statistical methods

Data are reported as means and standard deviation. Comparative statistics were performed between T0 and T4. Paired samples test was used to test the difference in FMBS and FMPS. Wilcoxon's signed rank was used to calculate the significance of the patient-related outcomes Visual Analogue Scale (VAS). Sample size was not estimated based on the lack of any previously reported data of periodontal therapy in patients with MMP. P-values ≤ 0.05 were considered to be

Table 1. **Clinical protocol used for mucous membrane pemphigoid patients**

Time 0 (T0)
Clinical evaluation and measurements
Scaling and prophylaxis
Time 1_day 07 (T1)
Supragingival scaling and prophylaxis
Oral hygiene instruction
Use a soft toothbrush* for manual brushes, placing the bristles at a 45° angle to the tooth surface at the gum edge and then move the bristles back and forth in short (tooth-wide) strokes or small circular movements
0.20% chlorhexidine mouth rinse, for 1 min, twice daily for 3 weeks
Time 2_day 14 (T2)
Subgingival scaling (upper sextants)
Time 3_day 21 (T3)
Subgingival scaling (lower sextants)
Oral hygiene instruction
Use a medium toothbrush† with a convenient handle
Use a dental floss‡ for interdental plaque removal
Time 4_day 56 (T4)
Clinical evaluation and measurements

*Curasept® soft CS 1560 (Curadent Health Care, Saronno, Varese, Italy).
†Curasept® medium CS 820 (Curadent Health Care).
‡Periofloss curaprox® (Curadent Health Care).

statistically significant. SPSS (SPSS for windows, version 11; SPSS Inc., Chicago, IL, USA) statistical software was utilized.

Results

A total of 12 prospective female patients were recruited. The mean age at presentation was 59.5 ± 14.52 years.

A reduction in FMBS ($P = 0.022$) and FMPS ($P = 0.001$) was observed. Moreover, a statistical significant reduction in patient reported outcome was observed with a reduction in VAS scores ($P = 0.0028$) (Table 2).

No reported complications or therapy side effects were observed in any of the study individuals.

Discussion

To the best of our knowledge, this is the first prospective case series of gingival MMP patients treated with non-surgical periodontal therapy. Despite its limitations, our data propose that non-surgical periodontal therapy and oral hygiene instructions are successful means in reducing clinical gingival inflammation FMBS, dental plaque FMPS and improve patient-related outcomes (VAS pain scores).

To date, no definitive standard of care has been set for MMP patients' and there is no prospective literature on long-term oral care management of these subjects (4). However, for patients with only oral involvement, as initial treatment it has been recommended to use topical corticosteroid of moderate to high potency. Moreover, in conjunction with medical therapy, the elimination of trauma and infection is beneficial for patients with MMP with oral manifestations; in this context, non-surgical periodontal therapy consisting of scaling and effective bacterial plaque control can represent an essential approach for the control of lesions (5).

The present study was developed by taking inspiration from the conclusions achieved by previous work that underlined how patients affected by MMP showed a statistically poorer periodontal status when compared to the general population (3). Previous evidence in support of these findings is scarce, as only few studies have detailed the gingival status in patients with MMP (6–8). Patients affected by MMP often experience pain and this leads to a greater discomfort when performing oral hygiene manoeuvres. This is because of pain and also because patients fear to create new lesions and blisters. One has to remember that the simple rubbing of a brush against gums can induce the formation of blisters.

Plaque removal alone cannot induce MMP regression. This is why our work had the aim of evaluating whether a good oral hygiene level can keep the periodontal status stable in MMP patients thus avoiding poor periodontal conditions. Bearing in mind this purpose, each MMP patient underwent professional hygiene appointments. Without any earlier guidelines, the preference of starting with a soft toothbrush was based upon the notion of reduce the pain and discomfort; soon after an initial reduction in the gingival inflammation and increased confidence, each patient was advised to continue with a medium toothbrush (9).

Table 2. **The comparison of selected data at time 0 (T0) and at day 56 (T4)**

	T0	T4	*P*
Pain (Visual Analogue Scale score)	3.5 (0–8)	1.3 (0–6)	0.0028
Full mouth bleeding score (%)	49.6 ± 4.7	36.1 ± 6.4	0.022
Full mouth plaque score (%)	71.1 ± 5.2	39.3 ± 6.1	0.001

Mucous membrane pemphigoid patients tend not to remove plaque adequately in painful areas or in those sites where blisters appears more easily. Such areas, therefore, appear inflamed. This gives rise to the typical gingival inflammation with further plaque deposits and pain increase thus causing a vicious circle. It is, therefore, necessary for these patients to undergo professional oral hygiene appointments every 3–4 months so as to avoid the evolution of gingival inflammation. Simple and non-traumatic gingival manipulation can cause pain and blister formation in MMP patients. This explains why such patients tend to avoid not only periodontal surgery and implantology but even conservative treatments. The key behaviour when approaching these subjects is prevention of both periodontal disease and caries.

Previously, only case reports have been detailed to demonstrate that the periodontal treatment could be effective in reducing the gingival manifestations of MMP, representing a complementary treatment to the use of corticosteroids with the aim of improving lesion conditions (5), highlighting the importance of frequent periodontal support visits (10).

Oral hygiene improved in the vast majority of our patients. This is bound to the time dedicated by the operator to oral hygiene performance and home instructions. Patients were highly motivated to perform their maintenance routine at home, and their cooperation was essential.

The oral hygiene protocol is, therefore, a mean of primary, secondary and tertiary prevention. MMP patients need to be constantly followed by a team of specialists, amongst which we can mention oral hygienists and oral pathologists and all of those who can diagnose and take care of pemphigoid when it gives rise to manifestations in other districts (ophthalmologist, otorhinolaryngologist).

It has been reported that numerous systemic diseases affecting the gingiva most certainly have an inflammatory profile composed of two main causes: one may be a non-specific inflammatory response to plaque, thus a plaque-induced inflammation; another response may be due to a specific disease or agent. The non-specific reaction has a usually quick response to a professional oral hygiene action with a decrease in the inflammatory cell profile in the affected area (11). Based on our clinical preliminary results, we could speculate, therefore, that the removal of dental biofilm in MMP individuals is a useful mean of controlling gingival inflammation and improving patients'-related outcomes. The positive clinical results obtained with a standard professional oral hygiene and non-surgical periodontal protocol could serve as a basis of recommending this as first-line therapeutic intervention, especially in

patients with pure gingival involvement, before starting any medical treatment, to decrease gingival inflammation and related pain and help affected patients in maintaining a good oral hygiene.

However, it is important to remember that the main limitations of our study are the absence of a control group and that there were no intra-reliability analysis of the examiner and no blinding included in the design. For these reasons, further appropriately defined randomized trials with different therapeutic approaches and larger sample size are, however, needed.

Acknowledgements

The authors disclose that they have no conflict of interest related to this study. Authors' own institution funded the study.

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