World Cancer Research Journal WCRJ 2022; 9: e2392

ORAL LICHEN PLANUS TRISMUS TREATED WITH A RADIOFREQUENCY DEVICE: A NEW INSTRUMENT IN THE TREATMENT OF ORAL POTENTIALLY MALIGNANT DISORDERS?

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Abstract – *Objective:* *To report 2 cases of patients with oral lichen planus (OLP), with involvement of the cheeks, with reduced mouth opening, successfully treated with a single radiofrequency session.*

Cases Presentation: *A 55-year-old and 56-year-old female patients with OLP and trismus were treated with a handpiece that works with a frequency comprised between 500 kHz and 1 MHz. Parameters used were: first case – bi-ostimulation with application of monopolar capacitive technique software muscle hypotonia, at the power of 29%, for 10 minutes; biostimulation with bipolar resistive technique software contractures power 20%, 10 minutes. Second case –biostimulation with application of monopolar capacitive technique software muscle hypotonia, at the power of 17%, for 10 minutes; biostimulation with bipolar resistive technique software contractures power 20%, 10 minutes.*

Results: *Patients increased the mouth opening respectively of 6 mm and 8 mm and pain disappeared.*

Conclusions: *The use of radiofrequency in the treatment of trismus associated with potentially malignant diseases could be a safe and effective tool, although further studies are needed to confirm these preliminary data.*

KEYWORDS: *Oral lichen planus, Potentially malignant disorder, Radiofrequency device, OLP with Radiofrequency de-vice, Trismus from OLP.*

INTRODUCTION

In spite of several articles just described in the literature, the exact etiology of oral lichen planus is still undetermined. It usually presents with recurrences and periods of clinical exacerbations and remissions; in fact, it could be wrongly described as a transient disorder. It is considered a potentially malignant disorder due to its relative association with oral cancer, in more than 1% of cases. Clinical manifestations of OLP include reticular, atrophic and erosive lesions and these could be affected by several degrees of dysplasia[1,2]. A new classification was made on the basis of the progress of the disease: mild, moderate, severe (stages I, II, III)[2]. The prevalence in the general population is 1.01%, with a marked geographical/ethnic difference. On the present, the highest incidence value was reported from Europe (1.43%) and the lowest in India (0.49%) in which tobacco-associ-

DOI: 10.32113/wcrj_20229_2392

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ated keratosis appears to mask oral lichen planus resulting in attenuation of its prevalence. In any case, from the age of 40 years, the prevalence increases significantly and progressively[3].

A very recent study has evaluated a new type of entity strictly related to oral lichen planus: the presence of submucosal fibrotic bands (SFB)[1]. In the 30% of the cases analyzed (73 patients with OLP) authors found SFB and wrote that reported feeling of restriction in mouth opening was significantly associated with SFB in comparison to patients without SFB[1]. However, in the literature there are no previous works about the relationship between width of the mouth opening and the presence of oral lesions from lichen planus in particular in the cheeks, but with surprise we have found this association in our several cases with a histological diagnosis for oral lichen planus.

Myofibrosis is an increase in fibrous connective tissue, and an impairment of muscle regenerative potential, manifested by a replacement of muscle by fibrous connective tissue. Its mechanisms are still incompletely known, but reduced blood supply on muscle fibers and atrophy linked to poor muscle stimulation[4] due for example, to reduced mouth opening activity such as that which occurs in OLP patients with lesions on the cheeks, are involved, and perhaps especially in OLP patient with SFB.

Radiofrequency is documented in the medical field overall to manage the pain, also in head and neck district[5,6]. Medical radiofrequency exploits the use of electromagnetic waves which cause tissue overheating. The thermal energy associated with radiofrequency ablation leads to tissue destruction. This phenomenon contributes to a stimulus in the production of new fibroblasts, functional restoration of muscle fiber cells, activation of microcirculation targets the nerves responsible for transmitting and/or modulating the sensation of pain and determines a vasodilation with a consequent increase in oxygen supply[7]. This could, therefore, also improve an initial picture of myofibrosis, thanks to the increase in blood perfusion, and to the disintegration of the fibrotic areas.

We would like to report 2 cases of patients with oral lichen planus, with involvement of the cheeks, with reduced mouth opening, successfully treated with a single radiofrequency session (Figure 1).

CASES PRESENTATION

The work is an observational study carried out during routinary clinical practice and did not regard uncodified therapeutic protocols from European law. The subject's privacy and confidentiality were never compromised in this study.

Case 1

A 55-year-old woman, with histological diagnosis of erosive lichen planus on the gingival, alveolar and cheek mucosa, treated with topical cortisone and antimycotic therapy (clobetasol 0.05% 2 times

Fig. 1. Patient during a radiofrequency session with the device described.

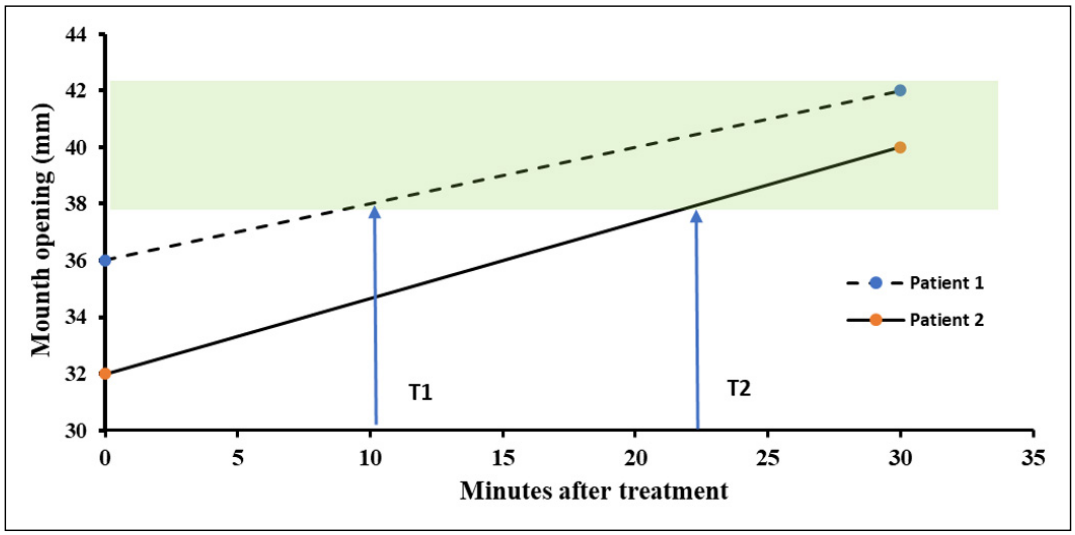

Fig. 2. Mouth opening range after 30 minutes from radiofrequency treatment. The two subjects show different reacting times (T1 and T2) in reaching standard physiological values, from 38 to 42 mm, green area.

a day and Nystatin mouthwashes 3 times a day for 21 days), showed complete regression of the erosive areas. However, she complained of pain and difficulty opening her mouth on her cheeks. The maximum opening registered was 36 mm, and a treatment session with a radiofrequency device was then proposed to the patient, with the aim of reducing pain upon opening the mouth.

A cream with 80% aloe was applied to the lower two thirds of the face before being treated with a dedicated handpiece (Velvet TMJ, Città di Castello, Italy). This device worked with a frequency of 500 kHz and 1 MHz for the treatment of deep or superficial pathologies.

Parameters used were biostimulation with application of monopolar capacitive technique software muscle hypotonia, at the power of 29%, for 10 minutes; biostimulation with bipolar resistive technique software contractures power 20%, 10 minutes. Immediately after the application patient reported disappearance of pain and maximum opening of 42 mm.

Case 2

A 56-year-old woman, with histological diagnosis of erosive lichen planus on the gingival, lingual and cheek mucosa treated with the same cortisone and antimycotic therapy previous described, noticed the healing of oral erosions but with difficult in the opening of the mouth. We observed the presence of fibrotic areas, overall, in the buccal mucosa. The maximum opening registered was 32 mm. Also in this case, a session with a radiofrequency device was proposed. Procedures were very similar to the previous one already described. Biostimulation with application of monopolar capacitive technique software muscle hypotonia, at the power of 17%, for 10 minutes; biostimulation with bipolar resistive technique software contractures power 20%, 10 minutes. After the session the maximum opening mouth was 40 mm. No collateral events were reported by patients. As shown in Figure 2, both patients reached a physiological mouth opening within a 23 minute time range. In fact, they showed little difference in reaching physiological levels, 10 and 23 minutes after the treatment respectively. In this context, the individual positive reaction to radiofrequency appears in a short time.

DISCUSSION

Reduced mouth opening in these patients may lead to a reduction in the ability to clean surfaces and an increased likelihood of developing superinfections in injured areas. It has been confirmed that a worsening of the hygienic-periodontal state of the patient with lichen planus can cause a worsening of the clinical picture[8]. It has been widely demonstrated that poor oral hygiene is a negative prognostic factor and could induce cancerization in subjects with oral lichen planus[9]. The use of radiofrequency to treat trismus unresponsive to other drug therapies has been documented in the scientific literature[10]. However, no cases have yet been presented in which patients with reduced mouth opening linked to the presence of lichen planus lesions in the cheek mucosa have been treated.

CONCLUSIONS

The use of radiofrequency in the treatment of trismus associated with potentially malignant diseases could be a safe and effective tool, although further studies are needed to confirm these preliminary data.

Ethical approval:

The work is an observational study carried out during routinary clinical practice and did not regard uncod-ified therapeutic protocols from European law. The subject's privacy and confidentiality were never com-promised in this study.

Informed consent:

All participants in this study signed the informed consent prior to treatment, including for the publication of data and photos.

Availability of data and material:

All data generated or analyzed during this study are included in this published article.

Conflict of interests:

All authors declare that there are no conflicts of interest.

Funding:

This research received no specific grant from any funding agency in the public, commercial or not-for-profit sectors.

Author contributions:

Case execution, conceptualization and writing of the work; suggestions on the parameters to be used and scientific literature on the subject; final supervision and bibliographic research.

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Acknowledgment:

One of the authors, C. C. performed her activity in the framework of the International PhD in Innovation Sciences and Technologies at the University of Cagliari, Italy.

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