



CASE REPORT

Treatment of herpes simplex labialis in macule and vesicle phases with photodynamic therapy. Report of two cases



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Introduction

Herpes Simplex Virus Type 1 (HSV-1) is one of the most widespread infection that affects orofacial region [1]. Following primary oral infection, HSV-1 maintain a life-long latency and reactivate periodically [1]. Up to 40% of individuals who are HSV-1 seropositive are susceptible to viral reactivation [1].

HSV-1 recurrent lesion stages are assessed as follows: (1) Prodrome (symptoms including itching, pain, tingling, and no physical evidence of disease); (2) Macule (erythema); (3) Papule (any elevation of skin without fluid in the application area); (4) Vesicle (blister, fluid filled); (5) Crusted (soft or hard crust) or (6) healed (return to normal skin; residual erythema may be present) [2].

HSV-1 infections are highly contagious [3]. Usually, dentists temporally interrupt dental treatment when patient present HSV-1 vesicles. The recurrence of HSV-1 is considered as a potential occupational hazard for dental workers [4]. The risks associated with the dental treatment of patients with HSV-1, both from the perspective of the clinician and the patient are presented [4], especially considering the aerosol produced during dental practice.

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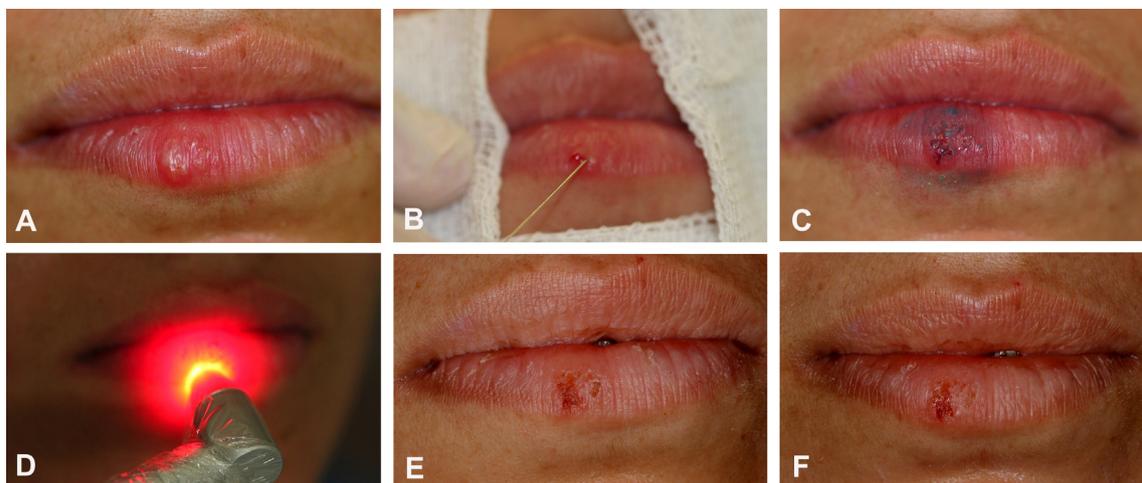


Figure 1 (A) Vesicle phase of Herpes recurrence; (B) Perforation of vesicles; (C) After the application of Methylene Blue solution; (D) 660 nm-laser irradiation; (E) Crust phase of Herpes recurrence, 24 h after PDT; (F) 48 h after PDT.

Additionally, the widespread use of acyclovir (ACV) have raised acyclovir resistant herpes simplex virus [5]. Considering these factors, antimicrobial photodynamic therapy (aPDT) presents several advantages as a local treatment for HSV-1 lesions.

The present manuscript reports the application of aPDT in the treatment of 2 cases of recurrent HSV-1 lesions.

Case report

Case # 1

A 28-year-old female patient presented recurrent herpes simplex labialis in the vesicle phase in the lower lip (Fig. 1A) Fig. 1. The time interval between prodromic phase symptoms and vesicles appearance was about 7 h. Patient referred no pain and was not submitted to any treatment for herpes lesion before aPDT. The HSV-1 recurrence in the lower lip showed mild edema (Fig. 1A). The vesicles were perforated using a sterilized needle (Fig. 1B). The vesicular content was absorbed using an absorbent paper with caution to avoid spreading the infected fluid to adjacent areas. Methylene Blue solution (MB) was applied topically over the dried empty vesicles as photosensitizer at a concentration of 0.005% (mV) (Chimiolux®, DMC, Sao Carlos, SP, Brazil)(Fig. 1C). Five minutes was considered as pre-irradiation time and one point of irradiation was performed over the lesion using a 660 nm wavelength laser (AlGalnP) (MMOPTICS, Sao Carlos®, SP, Brazil) with the parameters: 100 mW, 120 J/cm²; 4.8 J/point; irradiation time:2 min/point (Fig. 1D). After aPDT the patient reported no pain. The next day after aPDT, crust phase of herpes labialis was already presented (Fig. 1E).

Case # 2

A 30-year-old female patient presented herpes simplex labialis recurrence in the macule phase (Fig. 2A) Fig. 2. The time interval between prodromic phase symptoms and macule appearance was about 2 h. Patient complained of moderate pain before treatment. Patient already applied Acyclovir cream (5%) since the beginning of prodromic

phase. In the macule phase, over the area of erythema, MB was applied topically and after 5 min of pre-irradiation time, one point of irradiation was performed with the same irradiation parameters applied in case#1. Patient was instructed to continue acyclovir therapy, applying the cream over the lesion every 4 h (being suppressed during night period). Twenty-four hours after PDT, the erythema of macule phase was not detectable and the lesion did not develop (Fig. 2B).

Discussion

The present manuscript reported two successful cases of HSV-1 recurrence treatment using aPDT that was applied in two different phases: vesicle (Case 1) and macule (Case 2). Methylene Blue, the photosensitizer applied has been used

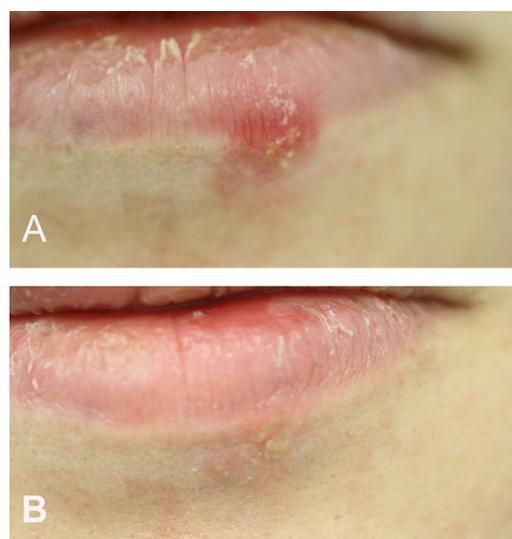


Figure 2 (A) Macule phase of herpes simplex labialis; (B) 24 h after PDT.

in humans for a long time for various treatments [6]. Photoinactivation of viruses shows to be a significant promise because the technology not only offers significant potency but the history of safe MB use in human therapy makes it also attractive [6].

Dental treatment of patients with HSV-1 recurrences is problematic for dentist and for the patient because of the risks of spreading infection and dentist contamination. In the recurrence, viral counts are record and thus risk to the dental team is greatest, especially if the lesion is opened and there is weeping [7]. Dentist is more exposed to contamination, and herpes whitlow has been found to occur more frequently in dentists than in the general population [7]. The idea of an effective local and safe treatment of herpes simplex labialis that dentist could perform in dental office, promoting decontamination, improving healing and decreasing discomfort of patient is attractive. In case #1, PDT shortened infectious vesicle phase. aPDT treatment, once executed with caution by dentist, is a safe treatment, once no aerosol is present, so there is no chance of spreading infection. In case#2, aPDT was performed in the macule phase. In this case, the association of acyclovir cream and aPDT inhibited the evolution of the infection.

Treatment of macule and vesicle phases of herpes labialis with aPDT using Methylene Blue as photosensitizer was effective and showed no side effect.

Conflict of interest

The authors declare that they have no conflict of interest.

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