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Photobiomodulation for Angina Bullosa Haemorrhagica treatment: a case report

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ABSTRACT

Angina Bullosa Haemorrhagica is an alteration causing recurrent hemorrhagic blisters, which rupture easily and are located exclusively in the oropharyngeal or oral mucosa in sites particularly exposed to trauma. These lesions rupture spontaneously to form ragged, often painless, superficial erosions that heal spontaneously within 1-2 weeks without scarring. This case report describes the use of Photobiomodulation by 635nm laser, suggesting its utilization for pain reduction as well as for a faster healing process.

Key words: Angina Bullosa Haemorrhagica, ABH, photobiomodulation, PBM, 635 nm diode laser.

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Introduction

Angina Bullosa Haemorrhagica (ABH), described in 1967 by Badham, is an alteration causing recurrent hemorrhagic blisters, which rupture easily and are located exclusively in the oropharyngeal or oral mucosa in sites particularly exposed to trauma.[1] ABH is also known as "localised oral purpura",[2] "stomatopompholyx haemorrhagica",[3] and "recurrent oral hemophlyctenosis".[4]
These lesions rupture spontaneously to form ragged, often painless, superficial erosions that heal spontaneously within 1-2 weeks without scarring. Known causes include trauma, hot-spicy foods, dental procedures, steroid inhalers, and systemic diseases such as diabetes mellitus, hypertension, and chronic renal failure.[5-7] Food-related injury has been implicated as the most common cause, accounting for 50–100% of cases.[8,2]
Management of the patient with suspected ABH should include a careful history and examination to exclude other conditions where blood blisters are ordinary. The patient should be reassured and prescribed 0.2% chlorhexidine gluconate mouthwash. A topical anesthetic may be used in painful lesions. Long-term follow-up is recommended to assess the lesion healing and exclude other causes of blood blisters.[9]
The term "Photobiomodulation (PBM)" was proposed in 2015 by Juanita Anders to define "a form of light therapy that utilizes non-ionizing forms of light sources, including lasers, LEDs, and broadband light, in the visible and infrared spectrum. It is a nonthermal process involving endogenous chromophores eliciting photophysical (i.e., linear and nonlinear) and photochemical events at various biological scales. This process results in beneficial therapeutic outcomes including but not limited to alleviating pain or inflammation, immunomodulation, and promoting wound healing and tissue regeneration."[10]
This case report aims to show the effectiveness of PBM in accelerating ABH healing.

Case Report

Patient WL, 47 years old, came to our hospital due to the appearance of a blood lesion in the mucosa at the junction of the soft and hard palate on the left side of the upper jaw. He said that he accidentally scratched the mucosa of the upper palate while eating Shaobing, a cake baked on a griddle, at noon. A blood bubble about 1cm x 1.5cm in size was appreciated at clinical observation (Figure 1). Anamnesis did not reveal any particular information, and a clinical diagnosis of ABH was established.
The patient also lamented a high degree of pain localized at the lesion, and, for its reduction, it was decided to use PBM. The device employed was Smart M Pro (Lasotronix, Poland), which may emit in both the infrared (980nm) and in the red (635nm). According to the literature, it was decided to use this last wavelength.
After obtaining informed consent from the patient, the lesion was irradiated five times for 20 sec in continuous mode and non-contact, with an interval between them of 20 sec. The handpiece diameter was 8mm, the output power was 100mW, the total time was 150 sec, and the fluence was 20J/cm^2 (Figure 2 and 3).

Figure 1. The lesion in the palate.

Figure 2. Parameters used.

The patient said he did not feel any discomfort during the irradiation and experienced pain reduction after the session. Two days later, when the patient came for the second PBM session, we noticed that the lesion was quasi-disappeared, and the patient referred the total absence of pain (Figure 4). Follow-up at 1, 2, and 3 weeks was negative.

Discussion

PBM, as an alternative therapy, has potency in reducing pain through several mechanisms targeting peripheral nerves in the target tissue.[11] Moreover, its mechanism is related to physiological neural changes such as blockage of action potential generation and conduction of nociceptive signals in primary afferent neurons. In addition, the pain reduction effect also occurs through modulation of the release of inflammatory mediators and alteration in lymphocyte metabolism.[12,13] The anti-inflammatory and analgesic effect of PBM can be explained in different ways: on one hand, the absorption of laser light by photoacceptors chromophores in mitochondria causes an increase in the synthesis of ATP, growth factors, fibroblasts, and collagen, and on the other hand, the increased micro-vascularity determines tissues repair and also the oxygen free radicals production may reduce inflammation and promote the healing process.[14]
PBM is today considered a non-invasive, safe, drug-free, and side-effect-free treatment that allows for the reduction or avoidance of the use of drugs,[15] and this case report confirms that it may be effective for treating oral lesions, favoring a faster healing process.

Conclusions

With the limitations of a single case report and with the necessity to closer examine the topic, this study suggests that PBM by the red laser may treat the ABH oral lesions, allowing to reduce pain, and promote the healing process.

Contributions: all authors contributed equally to the work. All authors read and approved the final version of the manuscript and agreed to be accountable for all aspects of the work.

Conflict of interest: the authors declare no potential conflict of interest, and all authors confirm accuracy.

Ethics approval and consent to participate: no ethical committee approval was required for this case report by the Department because this article does not contain any studies with human participants or animals. Informed consent was obtained from the patients included in this study.

Informed consent: written informed consent was obtained from the patient for publication of this case report and any accompanying images.

Figure 3. Irradiation of the lesion.

Figure 4. Two days after irradiation.

Availability of data and materials: all data underlying the findings are fully available.

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