

PHOTOBIO-MODULATION AS A CATALYST FOR CHRONIC WOUND HEALING: A CASE REPORT

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INTRODUCTION

Chronic wounds are difficult to manage, especially in patients with comorbidities that impair healing. Conventional dressing may not always reactivate stalled wounds, highlighting the need for adjunctive options. Blue light photobiomodulation therapy (PBMT) has the potential to stimulate granulation, reduce microbial load, and support epithelialization in non-healing wounds.¹ When combined with modern dressing techniques, PBMT may enhance wound recovery outcomes.

AIM

To evaluate the effectiveness of PBMT as an adjunctive approach to promote wound healing in a chronic, non-healing wound of a patient with multiple comorbidities.

CASE DESCRIPTION

A 54-year-old Indian male with a history of hypertension, diabetes mellitus, and dyslipidemia presented with a non-healing wound persisting for three months following a diagnosis of Bullous Cellulitis. Wound assessment using the TIME framework showed:

T (Tissue): Granulation tissue present with minimal slough
I (Infection / Inflammation): Present
M (Moisture): Moderate exudate
E (Edge): Advancing

Additionally, muscle wasting was noted in the affected limb.

METHODOLOGY

PBMT was administered using medical device emitting blue light (400 – 430 nm)², once weekly for five consecutive weeks, each session lasting 120 seconds. The device was positioned 4 cm from the wound bed to ensure uniform illumination of the lesion and periwound tissue. Prior to PBMT, the wound was cleansed with superoxidized solution, and after each session of PBMT, hydrogel dressing was applied to maintain moisture.



Table 1: The images above depicts the progress of wound over the course of 5 weeks using PBMT

RESULTS

At baseline, the wound measured 22–26 cm in length and 25 cm in width, with granulation tissue and slough as depicted in Table 1. Over five weeks, progressive reduction was observed, with the wound decreasing to 13 – 19.5 cm in length and 11 cm in width. The wound bed improved from granulation with slough to granulation with advancing epithelialization, reflecting steady healing progression.

CONCLUSION

PBMT may serve as a valuable adjunct in managing chronic wounds, particularly in patients with slow and impaired healing. By stimulating cellular activity, it enhances wound healing when combined with modern dressings.

KEYWORDS: Photobiomodulation therapy (PBMT); T.I.M.E wound assessment; chronic non-healing wound; Bullous Cellulitis.

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