

# USE OF LOW-LEVEL LIGHT AND PHOTODYNAMICS THERAPIES IN THE TREATMENT OF Pioderma GANGRENOUS INJURY

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**Introduction:** Pyoderma gangrenosum (PG) is a rare, chronic and often recurrent neutrophilic dermatosis. Its etiology is uncertain, and it is often associated with inflammatory bowel diseases. The clinical presentation of PG is variable, but essentially characterized by multiple or single painful ulcerative skin lesions that progress rapidly and have a mottled, erythematous appearance; and lower limbs are its most common site.

**Objective:** To report the treatment of a patient with pyoderma gangrenous lesion by using low-level light and photodynamic therapies.

**Case report:** Male, 36 years old, attended at a plastic surgery outpatient service, showing a 14x8cm lesion on the inner side of the right leg and a second one of 34.5x17.5cm on the anterior surface of the left leg. He reports that the lesion started from a superficial hemorrhagic pustule, which appeared after skin trauma and evolved into a red-purple ulcerated lesion with the predominance of necrotic tissue, irregular margins, erythematous-violet and high borders, with an intense inflammatory process and complaint of severe pain. Past history includes rheumatoid arthritis and Klinefelter syndrome. The patient was treated by a rheumatology, endocrinology, plastic surgery and nursing team, from 2020/3 to 2021/3 that provided him with the pharmacological needs due to autoimmune disease (infliximab), with analgesic (tramadol hydrochloride and paracetamol/codeine) due to intense pain (Numerical scale pain assessment 0 to 10 = 9 / constant and throbbing), with broad-spectrum antibiotic therapy due to different conditions of infection of the lesions, who in addition required hospitalization and dressings (once a week) by the nursing team and received guidelines for home care. During this period, he had difficulties to adapt himself to the therapy with topical agents and autolytic enzymatic debridement or with hydro-fiber coatings with silver or foam with anti-inflammatory. In one year, there was a reduction in the extent of the lesions to 25x9cm and 9x8cm, of lesions with irregular surface, abundant exudate, intense edema (3+/4+) and the need for three hospitalizations and three debridements in the operating room.

On march 3 of 2021 the adjuvant treatment with 100mw low-intensity laser has started through weekly application of combined therapy of 01 Joule Infrared (808nm) and 01 Joule Red (660 nm), on every 1cm from the edges and in the granulation tissue, followed by application of 1% methylene blue and irradiated with a red LED board for 10 minutes, and the choice of foam cover with silver of adhering silver.

**Results:** After two cycles of 10 laser applications once a week, the following results has been obtained: lesion dimensions decreased to 17.6x4.3cm (left leg) and 3.3x2.3cm (right leg), flat and regular surface, without need for further hospitalization or surgical approach, significant reduction of exudate (medium to small amount), pinkish and hydrated edges, perilesional/scar tissue with positive qualitative assessment regarding elasticity, hydration, and oiliness. The patient presents decreased edema in the legs (+/4+) and pain reduction (from nine to pain 4, when dressings are applied and zero during the day).



**Conclusion:** It stands out the importance of the multidisciplinary approach and the use of adjuvant treatment in the healing of complex injuries.

**Key-words:** Low-Level Light Therapy, Photodynamic therapy, Wounds and Injuries, Pyoderma Gangrenosum.