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LETTER

Leg paralysis after photodynamic therapy for lymphomatoid papulosis: A case report

Dear Editor,

Lymphomatoid papulosis (LyP) is a chronic clonal T-cell disorder being classified as a cutaneous CD30+ lymphoproliferative malignacy. The first-line treatment is based on topical and intralesional steroids, phototherapy and methotrexate. A new therapeutic option is photodynamic therapy (PDT) which showed good response and a better compliance.[1]

We present the case of a 38 year-old male affected by LyP (type F) who developed legs paralysis 48 hours after PDT treatment. He related a 1-year history of itchy papules on his back at the level of the thoracic vertebrae T7-T11 with the absence of systemic symptoms (Figure 1). He had been previously treated with clobetasol propionate for 4 months, then methotrexate 7.5 mg weekly for 12 weeks with inconsistent results. Hence, PDT was started.

The patient practiced five sessions of PDT with red light (635 nm) after 3 h of incubation of topical methylaminolevulinic acid (MAL) 3 g once a month. Light irradiation was progressively increased from 37 J/cm^2 to 43 J/cm^2. After 48 hours from the last session the patient experienced walking difficulties and hyposthenia associated with reduced distal reflexes. The episode lasted for a week.

After 1 month without any symptoms a new session of PDT was performed. In the following 48 h, the patient again experienced the same transitory palsy. Neurological consultation, electromyography, magnetic resonance imaging (MRI) of the spine and brain and positron emission tomography/computed tomography (PET/CT) total body showed no pathological findings. However, PDT was definitively interrupted and methotrexate 10 mg weekly was started with partial regression of skin lesions and no recurrence of paralysis.

Side effects of PDT are distinguished in early and late onset effects. Among the acute ones the main side effect reported are pain, erythema and oedema.[2,3] Palsy has never been reported as side effect of PDT, except for Gemignani et al.[4] that reported a case of peripheral

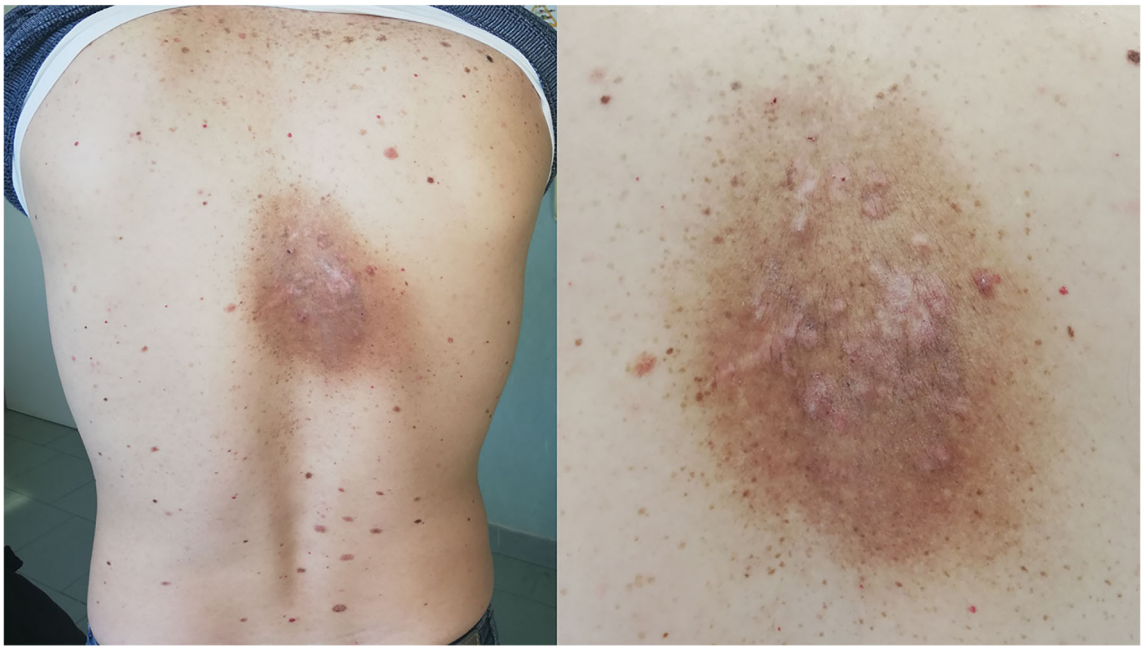

FIGURE 1 Patient at baseline showing nonconfluent brownish red papules and hyperpigmented patch on the trunk (T7-T11)

facial palsy after PDT for multiple actinic keratoses of the face. The same authors supposed a reactivation of HSV sine herpete triggered by PDT or a direct nerve damage because of the thin bones overlying the facial nerve.

In our case, all instrumental investigations were negative for multiple sclerosis or myasthenia. We also excluded other leg paralysis causes such as HSV and HZV reactivation for negative serology, Guillan-Barré syndrome for the incongruent clinical presentation, porphyria induced by systemic absorption of m-ALA for the negative blood and urinary levels of porphyrins. Other laboratory tests resulted normal for gender and age. Specialistic consultation excluded any psychiatric disorder.

A preclinic study practiced by Burch et al.[5] reported paralysis in rats when thoracic vertebrae were irradiated. The same data were found in another study conducted by Bisland et al.[6]

The authors underlined that the greater incidence of leg paralysis is inversely proportional to the drug-light time.

According to these data, the timing (short drug-light time) and the specific irradiated region in this patient (the thoracic vertebral area), we hypothesized that PDT-induced free radicals production might have caused transient cytotoxic edema resulting in nerve inflammation.

This phenomenon can be considered an effect of PDT due to the close relationship with the site of the treated lesions, the biological plausibility suggested by preclinical studies, the short time elapsed between treatment and symptoms and finally the reproduction of the phenomenon at the next session.

In conclusion, PDT is generally a safe and non-invasive technique in malignant and inflammatory diseases,[7–9] but this case highlights the possibility that for particular localizations and irradiating power, PDT may also be harmful to noble tissues such as the nervous one.

Further studies are needed to deepen the potential relationship between palsy and PDT and modify accordingly therapeutic protocols.

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest that could be perceived as prejudicing the impartiality of the research reported.

AUTHOR CONTRIBUTIONS

Lucia Genco: conceptualization, validation, visualization, writing—original draft preparation, writing—review and editing. Teresa Battista: conceptualization, validation, visualization, writing-original draft preparation, writing—review and editing. Matteo Noto: conceptualization, validation, visualization, writing—original draft preparation, writing—review and editing. Mario De Lucia: conceptualization, validation, visualization, writing-original draft preparation, writing—review and editing. Eleonora Cinelli: conceptualization, validation, visualization, writing—original draft preparation, writing—review and editing. Massimiliano Scalvenzi: data curation, investigation, methodology, visualization, writing—original draft preparation. Gabriella Fabbrocini: conceptualization, validation, visualization, writing—review and editing, supervision. Matteo Megna: conceptualization, validation, visualization, writing—original draft preparation, writing—review and editing.

PATIENT CONSENT

The authors have obtained the consent of the patient for clinical images.

DATA AVAILABILITY STATEMENT

Data sharing not applicable - no new data generated, or the article describes entirely theoretical research.

Lucia Genco
Teresa Battista
Matteo Noto
Mario De Lucia
Eleonora Cinelli
Massimiliano Scalvenzi
Gabriella Fabbrocini
Matteo Megna

Section of Dermatology, Department of Clinical Medicine and Surgery, University of Naples Federico II, Napoli, Italy

Correspondence
Matteo Megna, Section of Dermatology, Department of Clinical Medicine and Surgery, University of Naples Federico II, Via Pansini 5, 80131 Napoli, Italy.
Email: mat24@libero.it

ORCID

Eleonora Cinelli https://orcid.org/0000-0003-3046-5493
Gabriella Fabbrocini https://orcid.org/0000-0002-0064-1874
Matteo Megna https://orcid.org/0000-0003-1803-2046

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