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Pyoderma Gangrenosum: A Promising Therapeutic Protocol

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Abstract **Case Report**

Pyoderma gangrenosum (PG) is a medical disease characterized by the appearance of a rapidly expanding loss of skin substance in the absence of any infection and aggravated by any form of trauma. The management is difficult and requires the association of a medical treatment and a covering gesture if necessary. Through a clinical observation we will demonstrate the contribution of a therapeutic protocol associating the injection of platelet rich plasma associated with hyaluronic acid with a treatment by negative pressure in the acceleration of the cicatrization of a loss of substance related to a recurrent PG.

Keywords: pyoderma gangrenosum – PRP- hyaluronic acid – treatment- substance loss.

INTRODUCTION

Pyoderma gangrenosum (PG) is one of the neutrophilic dermatoses that group together clinically distinct diseases that share cutaneous infiltration by normal neutrophils without infectious cause. It is a rare dysimmune disease characterized by the appearance of rapidly spreading necrosis, which is a positive and differential diagnostic problem because it can mimic a fulminant infection.

The management of this rare pathology remains unified due to the rarity of cases reported in the literature and the lack of clear recommendations to ensure effective treatment and avoid recurrence.

Using the clinical case of a patient with recurrent PG of the leg, we will describe a treatment protocol developed in our department for the management of loss of substance caused by this disease.

CASE REPORT

A 56-year-old patient with a 10-year history of rheumatoid arthritis who was taking methotrexate and corticosteroids presented a year earlier with pyoderma gangrenosum on the lateral aspect of the left leg, which was treated with vaseline dressings and then grafted with a thin skin graft.

The patient was readmitted to our department because of the presence of a painful, deep ulcer at the site of the thin skin graft, measuring 8 cm x 4 cm, with a pale background and bleeding on contact, surrounded by a well-bounded but irregular and very painful inflammatory bulge (Figure 1).

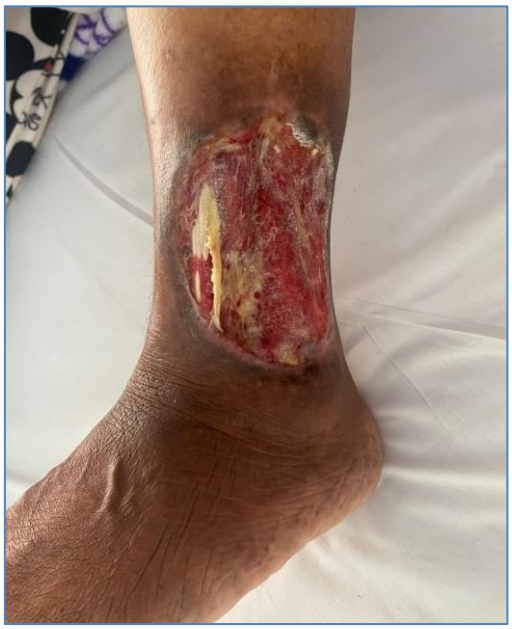

Figure 1: losse of skin substance at D 10 of the fatty dressings

The diagnosis of PG was made by the presence of systemic disease known to be associated with pyoderma gangrenosum and by the patient's medical history. Despite this association, a forceps biopsy was performed and bacteriologic specimens were obtained to rule out tumor graft or bacterial infection before treatment with high- dose corticosteroids was initiated.

The patient received corticosteroids at a dose of 1mg/kg per day, analgesic treatment based on a combination of paracetamol and codeine with fatty dressings at baseline, and no even minimal trimming was performed (Figure 2), Then the patient benefited from a care protocol based on the injection of platelet-rich plasma combined with hyaluronic acid and the performance of negative pressure therapy.

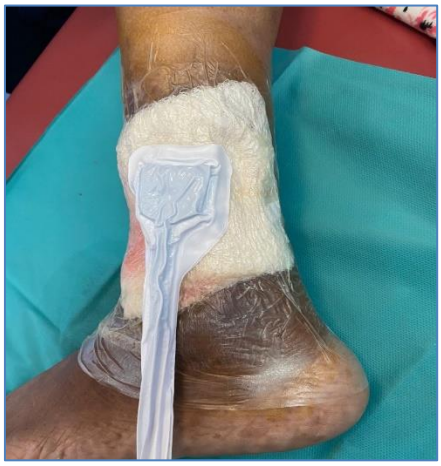

Figure 2: the start of PRP and hyluronic acid protocol and the implementation of negative pressure therapy

Significant improvement was noted at the first dressing change on day 5 (Figure 3), and on day 10 of the treatment protocol, the patient benefited from coverage with a thin skin graft at day 10 of the therapeutic protocol (Figure 4).

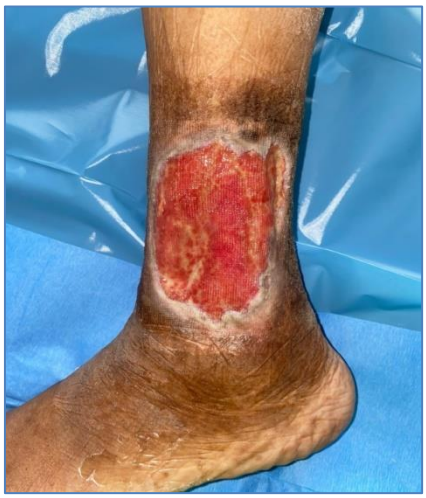

Figure 3: loss of skin substance at D5 of the protocol

Once the thin skin graft was in place, a degression of corticosteroids was started and developed well.

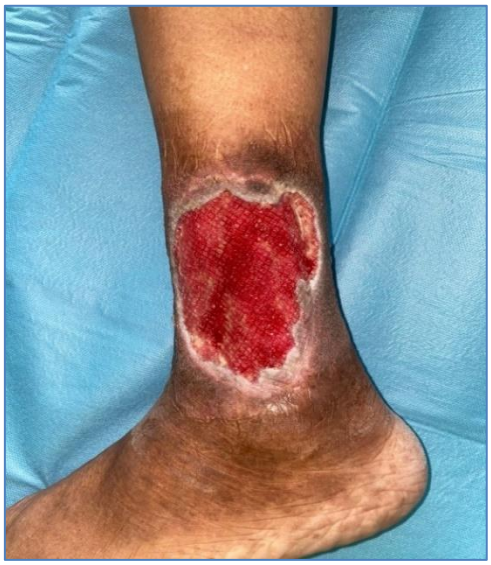

Figure 4: loss of skin substance at D 10 of the protocol

DISCUSSION

Pyoderma gangenosum belongs to the neutrophilic dermatoses, constitute a group of reactive, noninfectious autoinflammatory diseases characterized by infiltration of the epidermis, dermis and hypodermis by neutrophils and by their association with various extracutaneous diseases [1].

The first description of this pathology dates back to 1930 by Brunstig and Goeckermann and the incriminated pathogens were staphylococci and streptococci [2], although the pathophysiology of this disease remains poorly understood, an infectious origin is formally excluded.

Various dysimmune diseases, paraneoplastic phenomena [2], and even familial forms have been cited as etiologies, of which PAPA syndrome is the best known and is associated with: pyoderma gangrenosum, cystic acne and aseptic arthritis, being an autosomal dominant disease [3].

The incidence of PG is difficult to determine because most reports are single cases or small series of patients. It usually affects women between 25 and 55 years of age with a peak incidence between 40 and 50 years of age [4].

Clinically, 4 forms can be described according to the appearance of the initial lesion and its development: The ulcerative form represents the typical case of PG, from an inflammatory pustule to a fully developed necrotic ulcer. Initial lesions are often small discrete pustules surrounded by an inflammatory halo.

Within a few days, some pustules enlarge and the central portion and overlying central skin begin to necrotize. Fully established lesions are single or multiple ulcerations with well-defined blue borders, the pustular form in which some initial pustules may not develop into ulcerative lesions, the bullous form characterized by painful bullae evolving into erosions or superficial ulcerations, and finally the vegetative form that is painless and vegetative [4].

Positive diagnosis is a diagnosis of exclusion made against an epidemiological background: Autoimmune disease, presence of even minimal trauma that sometimes goes unnoticed and the painful and sterile character of the ulcer. Promptness of diagnosis is an important element in the management of the disease, since any invasive gesture on the lesions aggravates them.

Currently, there is no specific therapy for PG. In the absence of clinical trials, treatment is not standardized and is usually based on a combined empiric approach combining minimal surgical intervention, local care and systemic corticosteroid therapy [5]. Any unusual ulcerated lesion or one with an unfavorable course should therefore attract attention and indicate the possibility of PG, especially if the context involves inflammatory or hematologic pathology or if repeated surgical treatment seems to exacerbate the phenomenon. Because of this pathergy phenomenon, surgical debridements should be kept to a minimum, and the risk of new lesions at the donor site should be considered when deciding on a skin graft.

Platelet-rich plasma (PRP) has trophic functions because of its high concentration of growth factors and cytokines, and these properties may be of therapeutic interest in the management of substance loss. This has been confirmed in clinical and preclinical studies in burn patients, showing that the use of PRP as a topical application or subcutaneous injection may be of potential interest for the acute treatment of burns [7]. Recently, the combination of PRP with hyaluronic acid has shown its efficacy in terms of regeneration and healing, a clinical study has shown its superiority over traditional vaseline dressings in chronic ulcers [8], but we have not found a case where this combination has been used for the treatment of PG.

CONCLUSION

Pyoderma gangrenosum is a rare pathology that poses a problem of positive and differential diagnosis in the absence of clinical, biological or specific histopathological signs that makes it a diagnosis of elimination, its management is also not logged and differ from one center to another according to the experience of each practitioner, Our clinical observation shows a great interest of association of a treatment by a combination of PRP and hyaluronic acid associated with negative pressure therapy, but the confirmation of this result requires a clinical study with a large sample, which is difficult to obtain given the rarity of this pathology.

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