Delayed-Onset Prurigo Pigmentosa following Semaglutide induced weight loss: A case report describing a novel association

Jan-Christoph Stadelmann[1,2], Chalid Assaf[1,2], Jannika Dönges[1], Mathias Oymanns[1]

1 Department of Dermatology and Venereology, Helios Klinikum Krefeld, Krefeld, Germany | 2 Health and Medical University Potsdam, Düsseldorf, Germany

BACKGROUND

Prurigo pigmentosa is an uncommon inflammatory dermatosis typically associated with ketosis and rapid metabolic shifts[1–4]. Recent data also indicates that cell-mediated immune mechanisms may be involved in its pathogenesis[5]. Semaglutide, a glucagon-like peptide-1 (GLP-1) receptor agonist widley used for weight management[6,7], does not directly induce ketosis but leads to marked metabolic alterations[8]. This raises questions regarding indirect mechanisms that could trigger prurigo pigmentosa during the treatments with Semaglutide.

OBJECTIVES

To describe a case of prurigo pigmentosa associated with semaglutide-induced weight loss and to discuss possible underlying mechanisms.

METHODS

A 42-year-old woman presented with intensely pruritic, reticulated erythematous papules on the central back, anterior chest and intermammary region which developed over a period of two months. The eruption began approximately five months after initiation of semaglutide therapy, during which time the patient experienced a weight loss of 15 kg. Clinical examination, laboratory investigations, direct and indirect immunofluorescence (DIF/IIF), as well as serial skin biopsies were performed.

RESULTS

DIF and IIF were negative, making immunobullous or autoimmune dermatoses unlikely. Histopathological findings varied according to the state of lesions: Early lesions were characterized by vesiculation with ulceration, vacuolar alteration at the dermoepidermal junction, apoptotic keratinocytes, and a lymphocytic infiltrate admixed with eosinophils and neutrophils. In later stages, epidermal hyperplasia, hyperpigmentation, and discrete pigment incontinence were observed. (black arrow in Fig. 1) In the appropiate clinical context, these findings were consistent with prurigo pigmentosa[9]. No classical triggers, such as a ketogenic diet or relevant systemic disease, could be identified.

Although semaglutide itself is not known to directly induce ketogenesis, its appetite-suppressing effects may lead to substantially reduced caloric intake, occasionally resembling intermittent fasting and leading to secondary relative ketogenic states[10–12]. In addition, gastrointestinal side effects could further reduce food intake or contribute to transient malnutrition, potentially creating a catabolic state similar to known triggers of prurigo pigmentosa[13–15]. The delayed onset observed in this case, however, suggests that additional metabolic or immunologic factors may play a role.

Treatment with doxycycline in an anti-inflammatory dose over six weeks led to a significant clinical improvement, leaving postinflammatory hyperpigmentation. Topical corticosteroids were used as adjunctive therapy during the acute phase.

CONCLUSION

This case highlights a possible novel association between semaglutide-induced weight loss and prurigo pigmentosa. Secondary ketosis related to reduced caloric intake could represent a contributing factor, although mechanisms beyond classical ketosis are likely to play a role. Given the increasig use of GLP-1 receptor agonists[16–20], awareness of this potential link is clinically relevant. Further studies are needed to clarify causality and better understand the underlying pathophysiology.

CORRESPONDING AUTHOR

Jan-Christoph Stadelmann
Health and Medical University Campus Düsseldorf/Krefeld
Kaistraße 16, 40221 Düsseldorf
jan-christoph.stadelmann@hmu-duesseldorf-krefeld.de

FIGURE 1

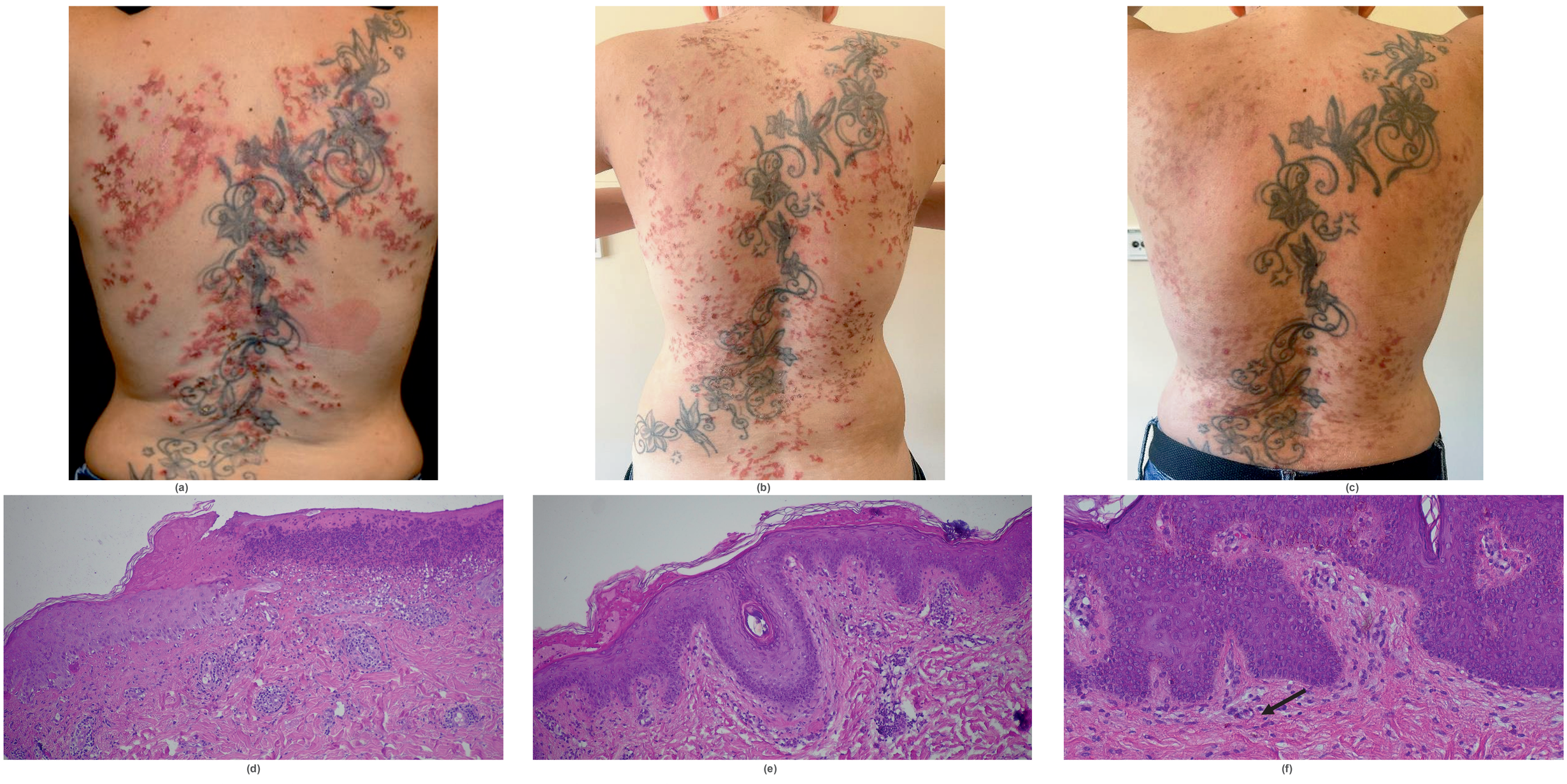


Fig. 1: Clinical (a–c) and histopathological (d–f) findings across different stages of prurigo pigmentosa associated with semaglutide induced weight loss, demonstrating clinicopathological correlation.

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HMU Health and Medical University Campus Düsseldorf/Krefeld