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DERMATOLOGIC THERAPY WILEY

LETTER

# Koebnerization of acquired reactive perforating collagenosis after wet cupping successfully treated with UVA1 phototherapy

Dear Editor

Perforating dermatoses are a group of rare skin disorders characterized by transepidermal elimination of dermal material such as altered collagen or elastic fibers through the epidermis.[1] In this group reactive perforating collagenosis (RPC) is characterized by transepidermal elimination of altered collagen. It may be inherited or acquired, additionally may be associated with multiple endocrine diseases, autoimmune disorders and malignancies especially diabetes mellitus, chronic renal failure, liver disorders, breast carcinoma, prostate carcinoma and Hodgkin disease.[2,3] The etiopathogenesis of reactive perforating collagenosis is unknown but described to be a distinct entity that occurs in response to superficial trauma by Mehregan et al.[4] Koebnerization of the reactive perforating collagenosis was reported after minor trauma, laser application, arthropod bites, scabies infection, and scratching in the literature.[5,6] Herein we want to present a female patient who presented with multiple, well-bordered, centrally ulcerated papular lesions on the scar of minimal superficial skin cuts that occurred after wet cupping application. Wet cupping is a traditional alternative treatment method that is commonly used in Eastern countries. We want to remind the wet-cupping application as a traditional alternative treatment method is commonly used in Eastern countries and may activate the Koebner phenomenon. Patients who have Koebner positive skin disease should be informed to avoid such as applications.

We conducted our research according to the World Medical Association Declaration of Helsinki. A 54-year-old female presented with a 3-month history of pruritic and ulcerative eruption on trunk and extremities. In dermatological examination multifocal, erythematous, well-bordered, centrally ulcerated papular lesions were detected on scar of minimal superficial skin cuts which occurred after wet cupping application (Figure 1A,B). Histopathologically, a cup-shaped invagination and perforation of the epidermis plugged with necrotic

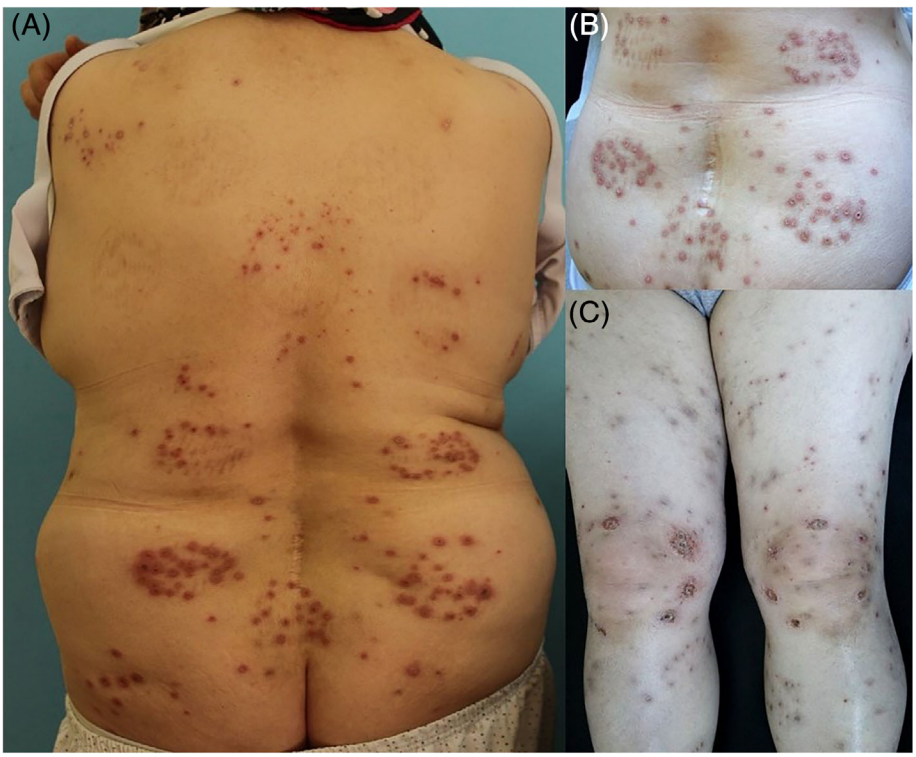


**FIGURE 1** Multifocal, erythematous, well-bordered, centrally ulcerated papular lesions on back and lower extremity

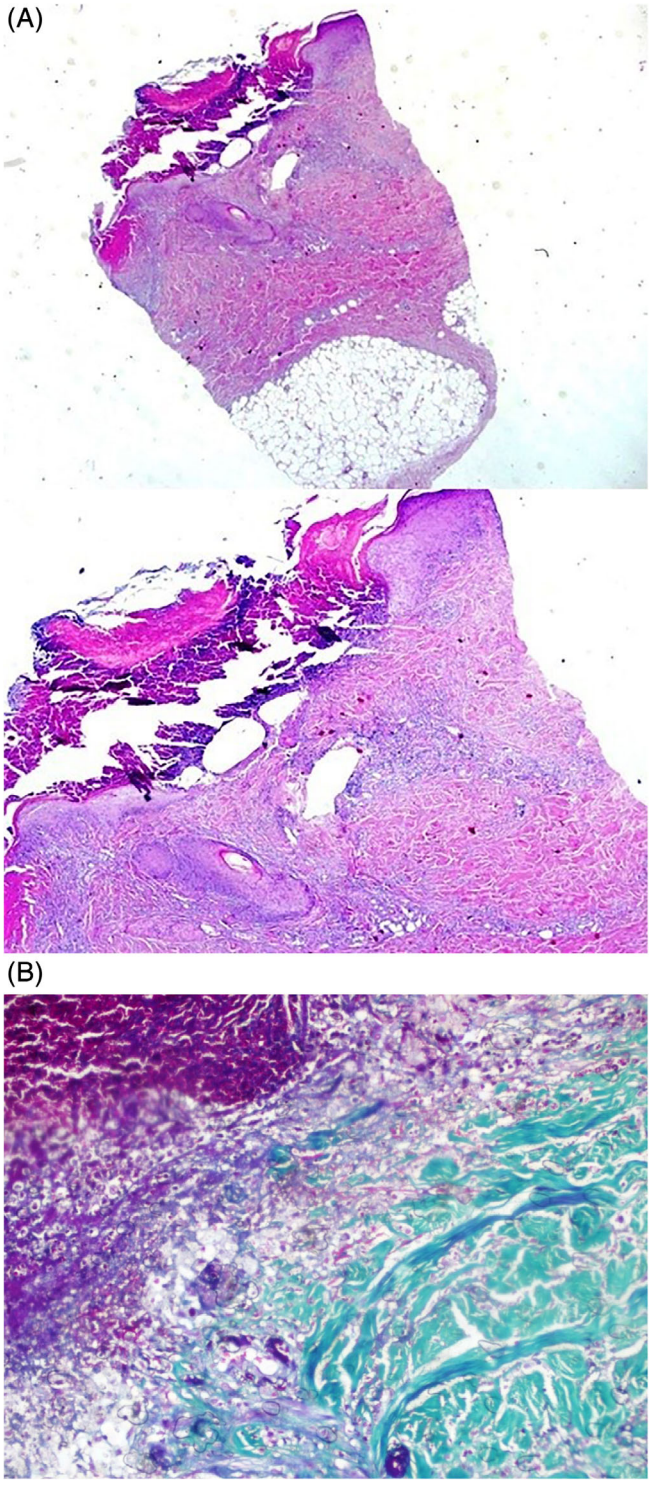


**FIGURE 2** A, Hyperkeratosis, perforation of the epidermis and necrotic inflammatory debris in this area (H&E, ×20 and ×40). B, Transepidermal elimination of the collagen bundles (Masson trichrome, ×200)

inflammatory debris and transepidermal elimination of collagen bundles were seen. There was a mixed type inflammatory infiltration in dermis (Figure 2, ×40). Masson trichrome staining also showed transepidermal elimination of the collagen bundles (Figure 2, ×200). The clinical arrangement of the lesions was consistent with wet cupping applied areas and accepted as positive koebnerization of reactive perforating collagenosis after wet cupping. A marked remission was achieved with systemic 40 mg/d methylprednisolone in tapering doses in 1 month. After systemic corticosteroid treatment was stopped, the lesions were relapsed and there was no response to 30 sessions of narrow-band ultraviolet B (NB-UVB) therapy, three days per week. Ultraviolet A1 (UVA1) therapy 30 j/cm$^2$ per single dose, 5 days/week, a total of 45 sessions was initiated due to the increase in lesions and itching. A significant remission was detected after UVA1 treatment and she is still under follow-up with topical corticosteroids in case of minimal recurrences for almost 2 years (Figure 3A,B). She was also adviced to avoid from traumatic applications for not to trigger her skin disorder.

The Koebner phenomenon (KP) was first described by Heinrich Koebner in 1876 as new formation of skin lesions in the unaffected skin after a minor cutaneous trauma.[7] The new skin lesions usually appear in 2 weeks time after traumatic events and various traumatic application may lead this reaction including bites, itching, laser application, surgical incisions, burns and tattooing.[7] This phenomenon was reported to occur in almost 25% of patients with psoriasis and it is also positive in lichen planus, vitiligo and perforating disorders.[7,8] The pathogenesis of the KP still remains debating and can affect any anatomic site. Inflammatory cytokines, adhesion molecules, or autoantigens translocated from the intracellular area may trigger this reaction.[7]

The treatment of acquired preforating dermatoses is challenging and the most commonly used drugs are topical corticosteroids and oral antihistaminics in daily practice. Allopurinol, topical and systemic retinoids, topical antibiotics, NB-UVB therapy and photodynemic therapy were also reported to be effective in the treatment of perforating dermatoses with conflicting results.[3] In our patient we achieved an effective clinical response with systemic corticosteroids at the beginning of treatment, however, due to dysregulated hyperglycemia in her laboratory tests, we could not continue this treatment. After systemic corticosteroid treatment was stopped, the lesions were relapsed and NB-UVB therapy was not effective in controlling the relapse in our patient. UVA1 therapy was more effective in preventing pruritus and relapses in our patient.

During this 4 year follow-up period, we met a patient with multiple recurrences and hard to manage. Recurrences in the first year were severe, however, they showed mild clinical progress after UVA1 treatment. We still do not know if reactive collagenosis has a spontaneous remission pattern or this progress is associated with previous treatments and/or as a result of avoiding traumatic events such as cupping or scratching.

The wet cupping application is a traditional complementary therapy; that is applied with the assistance of local vacuum instruments. During this application, the blood is constituted by creating milimetric multiple superficial skin cuts.[9] The wet cupping practice is called as cupping (Hijamah) in Eastern countries and it was considered to have both a preventive and therapeutic effect. Wet cupping has been used mainly in treatment of low back pain control, migraine headaches and

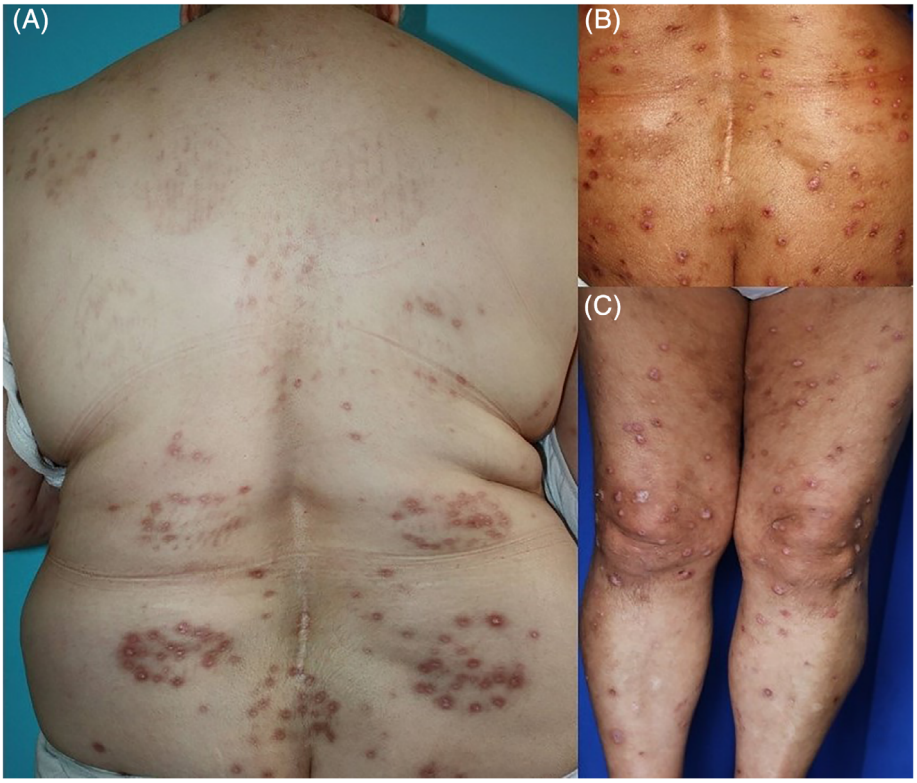


**FIGURE 3** Clinical remission after UVA1 therapy

hypertension.[10] Although no serious adverse effects were reported in clinical trials, the local injury to the epidermis which is necessary for activation of the koebner reaction may trigger clinical lesions of RPC as seen in our patient. In the literature Koebnerization of skin lesions on cupping sites was reported in patients with psoriasis and pemfigus vulgaris.[7,11] To our knowledge this type of Koebnerization in RPC lesions was not reported previously. We want to remind that wet cupping as a widespread used traditional application may trigger the skin disorders that are Koebner positive. Patients who have a Koebner positive skin disorder should be advised to avoid such as applications.

## CONFLICT OF INTEREST

The authors declare no potential conflict of interest.

## AUTHOR CONTRIBUTIONS

**Tugba Kevser Uzuncakmak**, **Filiz Cebeci Kahraman** and **Mehmet Salih Gürel** involved in conception and design of study. **Tugba Kevser Uzuncakmak**, **Zeynep Arslan**, **Filiz Cebeci Kahraman** and **Bengu Cobanoglu Simsek** involved in acquisition of data. **Tugba Kevser Uzuncakmak**, **Filiz Cebeci Kahraman** and **Mehmet Salih Gürel** involved in analysis and/or interpretation of data.

## DATA AVAILABILITY STATEMENT

Data openly available in a public repository that issues datasets with DOIs.

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