Treatment of transient acantholytic dermatosis with liquid nitrogen

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INTRODUCTION

Transient acantholytic dermatosis is a benign, acquired acantholytic dermatosis of unknown etiology.[1] Frequently reported associations include ultraviolet exposure, excessive heat, perspiration, and occasionally mechanical irritation, irradiation, and certain medications.[2,3] Different treatment modalities have been attempted to manage refractory disease patterns. Here, we present a case of transient acantholytic dermatosis that resolved with cryosurgery via liquid nitrogen therapy.

CASE REPORT

A 53-year-old woman presented to the clinic with a 5-year history of numerous pink, scaly, pruritic papules on her upper abdomen and inframammary folds (Fig 1). The lesions were exacerbated by friction, heat, and sun exposure. The patient self-treated approximately 20 lesions with an over-the-counter freeze-away wart remover (portable cryosurgical system composed of liquid dimethyl ether and propane) on 3 separate occasions. After using the over-the-counter wart remover, she stated her treated lesions did not return. Because of her personal success with the remover, she requested liquid nitrogen therapy for her remaining lesions.

A punch biopsy sample obtained from a papule exhibited suprabasal acantholysis and dyskeratotic keratinocytes consistent with transient acantholytic dermatosis (Fig 2). The liquid nitrogen was delivered to the remaining lesions in pulses to maintain 15 seconds of frost beyond the initial time for formation of the ice field. A second cycle was applied to each lesion after 3 to 5 minutes of complete thawing (Fig 3). The patient was scheduled to return to the clinic for continued care.

The patient was reassessed 3 months later and found to have no new lesions or pruritus. Although her lesions were previously exacerbated by exercise and mechanical irritation, she continued to work out at the gym and use a loofah while showering, with no recurrence of lesions. There had been marked improvement from the previous clinical encounter, with few residual postinflammatory hyperpigmentation macules remaining (Fig 4). During the interim period, no treatment modalities were used. The patient was subsequently prescribed a hydroquinone combination cream (fluocinolone acetonide 0.01%, hydroquinone 4%, and tretinoin 0.05%) to apply on the areas of postinflammatory hyperpigmentation. She reported 1 year after the in-office liquid nitrogen treatment that she had had no recurrence of lesions. She used the prescribed hydroquinone combination cream daily for several weeks to help with the postinflammatory hyperpigmentation.

DISCUSSION

Transient acantholytic dermatosis is typically characterized by pruritic papules or papulovesicles distributed on the trunk of older white men. Patients may present with a self-limited eruption or a chronic and persistent disease course. The current treatment options include avoidance of exacerbating factors, topical agents (eg, corticosteroids, calcineurin inhibitors, vitamin D analogs), and oral antihistamines. Oral retinoids, methotrexate, and psoralen and ultraviolet A have been used in recalcitrant cases, with various degrees of success.[2,4] Other case reports describe success with alternative treatments such as etanercept and trichloroacetic acid.[5,6] Nearly all evidence for treatment comes from clinical experience, case series, and case reports.

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Funding sources: None.
Conflicts of interest: None disclosed.

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JAAD Case Reports 2020;6:341-3.
2352-5126

https://doi.org/10.1016/j.jdcr.2020.02.027

Fig 1. Scaly papules on the upper abdomen and inframammary folds.

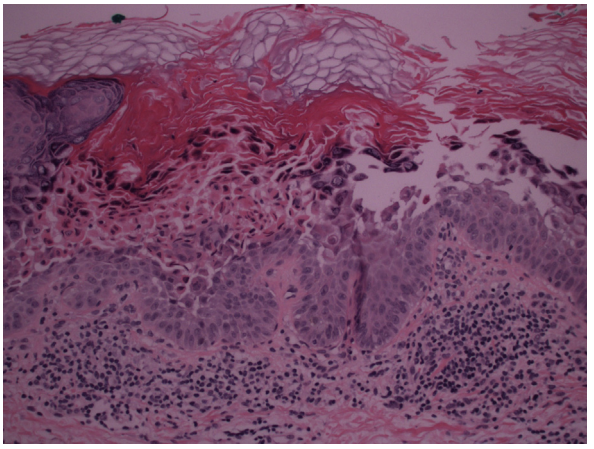

Fig 2. Biopsy showing suprabasal acantholysis and dyskeratosis.

Cryosurgery is currently used for treatment of various benign, premalignant, and malignant skin diseases. The repeated freeze-thaw cycles used in cryosurgery induce injury via tissue necrosis, ischemia, and apoptosis. The advantages of cryosurgery include its low cost, versatility, and relative safety, although the disadvantages include longer healing time with deep freezing and hypo- or hyperpigmentation in patients with darker skin types. The mechanism of cryosurgery for treatment of Grover disease may be from the destruction of the affected epidermis and re-epithelialization of normal epidermis. Liquid nitrogen has been used with success in another acantholytic disorder: Hailey-Hailey disease, or benign familial pemphigus.[7] To our knowledge, there have been no other reported successful cases using cryosurgery or over-the-counter freeze therapy as treatment for transient acantholytic dermatosis.

Fig 3. Scaly papules on the upper abdomen and inframammary folds immediately after liquid nitrogen therapy.

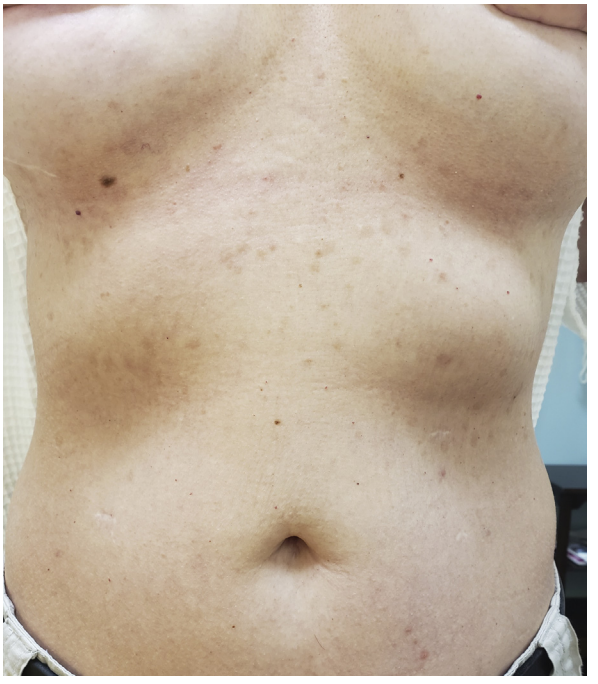

Fig 4. Transient acantholytic dermatosis 3 months after liquid nitrogen therapy. The patient had near-complete clearance of her skin lesions, with no new lesions.

The results in our reported case represent the successful use of liquid nitrogen therapy for transient acantholytic dermatosis. We hope that the present case points toward a simple and easily accessible treatment option for patients with persistent transient acantholytic dermatosis.

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