

Case Report

Induction of depigmentation in a universal vitiligo patient with combination of cryotherapy and phenol

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Abstract A 13-year-old boy presented with vitiligo for last 5 years, which had slowly progressed to universal type except for a few macules on face. Topical monobenzylether of hydroquinone (MBEH) 20%, liquid nitrogen cryotherapy, phenol 88% and frequency-doubled Nd:YAG Q-switched laser had been used separately without any benefit. To resolve this problem, a combination of liquid nitrogen cryotherapy along with phenol 88% was planned. After single session, the patient responded to this method with complete depigmentation without any complication. We suggest that the combination of liquid nitrogen cryotherapy and phenol 88% for depigmentation of remaining normal pigmented skin in universal vitiligo, can be safe and cost-effective.

Key words

Universal vitiligo, cryotherapy, phenol

Introduction

Vitiligo is a common, often heritable, acquired disorder characterized by well-circumscribed, milky-white cutaneous macules devoid of identifiable melanocytes.¹ The prevalence ranges from 0.5% to 1%. Clinically four types of vitiligo have been described according to the extent and distribution of the involved area: localized or focal (including segmental), generalized (common symmetric), universal and acrofacial.² Universal vitiligo describes such widespread vitiligo that there are few remaining normal macules of pigmentation.¹ Depigmentation that involves more than half of the integument is an indication that attempts to regain the color will not be successful. For such individuals depigmentation therapy should be considered.³ A few therapeutic modalities are

available for this depigmentation in universal vitiligo with variable therapeutic results.⁴⁻⁷

Case report

A 13-year-old boy was referred to our dermatology clinic on May, 2006 with 5-year history of vitiligo. Firstly the vitiliginous lesions had affected hands and trunk region. He was treated for repigmentation of skin lesions but the disease had gradually progressed and nearly the whole skin surface had been involved. Physical examination in this patient did not reveal anything special, except a few macules and patches of normal skin on right periorbital area; other parts of skin surface were depigmented (**Figure 1**).

Laboratory evaluation including fasting blood sugar and thyroid function tests were normal. Sunscreen cream and topical monobenzyl ether of hydroquinone 20% were prescribed for several months firstly, but the patient did not respond. Then he was treated by liquid nitrogen

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Figure 1 Pigmentary macules and patches before treatment.



Figure 2 One week after treatment.



Figure 3 Six months after treatment.

cryotherapy, phenol 88% and frequency-doubled Nd:YAG Q-switched laser (wave-length 532 nm, fluence 1.2-2 mJ/cm², spot size 3mm) separately, but without any effect. To cope with

this challenge, we tried a combination of liquid nitrogen cryotherapy along with phenol 88% after patient's consent.

In this method, topical anesthesia was used for target macules and patches, then liquid nitrogen cryotherapy was delivered by cryojet; 3 cycles, each of 10 seconds with 5 minutes intervals. After 10 minutes, phenol 88% was applied with cotton tip applicator on the treated area. After completion of procedure, the treated area was dressed with silver sulfadiazine cream and recommended twice daily dressing with rivanol solution 1/1000 along with silver sulfadiazine cream. Erosion, erythema and mild swelling were seen on treated area, one week later (**Figure 2**). Patient was followed up monthly; at the end of 6th month, he showed complete depigmentation without any complications (**Figure 3**).

Discussion

Patients affected with universal vitiligo suffer from cosmetic disfigurement caused by remnant pigmented patches, particularly on the facial skin. All of this patients desire to have a uniform skin color; this necessitates some kind of depigmentation therapy. For this purpose, there are many different treatment modalities with variable cure rate.⁴⁻⁷

The most commonly used agent for further depigmenting the remnant coloured patches in extensive vitiligo is monobenzylether of hydroquinone (MBEH) 20% applied twice daily to the affected areas for 9 to 12 months or more. MBEH is a potent irritant or allergenic compound. Although depigmentation from MBEH is considered permanent, repigmentation following a sunburn or even intense sun exposure may occur.⁴ Contact dermatitis restricted to normally melanized skin occurs in

nearly 15% of users.⁸ Repigmentation occurs within a few weeks of discontinuing successful depigmentation therapy with MBEH.⁹

Depigmentation therapy using a 4-methoxyphenol cream and/or Q-Switched laser therapy is effective and safe method to remove disfiguring residual pigment in patients with vitiligo universalis. Patients should be warned that repigmentation may occur, even after total depigmentation has been achieved.⁵ Ruby laser treatment can be an effective, fast, and safe method for removing cosmetically disturbing remnants of normal pigmentation in vitiligo patients with a positive Koebner phenomenon.⁶ In another study five universal vitiligo patients treated with cryotherapy alone in 1-3 sessions that all of them show complete depigmentation.⁷

Phenol 88% is a medium-depth peeling agent¹⁰ although; depigmentation has been reported as its complication.¹¹ High dose phenol usage is toxic, so it should not be applied over a large area at the same time.¹² Phenol may induce pigmentation in vitiligo, paradoxically.¹³

Our patient was resistant to most of the aforementioned treatments for depigmentation, but complete depigmentation of remnant normal skin was achieved with combination of liquid nitrogen cryotherapy along with phenol 88% during one session without any complication in follow up evaluations. We suggest that this combination could be a safe, cost-effective and fast method for depigmentation remnants of normal skin pigmentation in universal vitiligo, particularly in facial region.

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