Depigmentation Therapy for Vitiligo in Patients With Fitzpatrick Skin Type VI

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Vitiligo is a depigmenting disorder characterized by the progressive loss of melanocytes. In cases of extensive vitiligo that is unresponsive to treatment and involves noticeable areas, such as the face and hands, total depigmentation is a clinical option. The choice to depigment is a difficult one for the patient given the irreversible nature of treatment and the psychosocial implications of skin color change. This issue can be particularly complex for black patients. Depigmentation has been practiced for decades and documented in the literature, but the practice in Fitzpatrick skin type VI is not well-documented. We present a case of depigmentation in a patient with Fitzpatrick skin type VI, as well as technical options for depigmentation, the clinical approach, patient preparation, and psychosocial issues involved with this treatment option.

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Vitiligo is an autoimmune disorder characterized by progressive depigmentation of the skin. The disease often causes psychologic distress due to its cosmetic nature, particularly in more darkly pigmented individuals. Repigmentation efforts often are ineffective. In some cases, cosmetic depigmentation may be explored, but the decision to utilize this therapy is complex because of its irreversible nature and societal views regarding race and color, yet it remains a viable option in selected patients. We discuss depigmentation therapy in patients with extensive vitiligo and Fitzpatrick skin type VI. We discuss the clinical approach, patient preparation, and psychosocial issues involved, as well as the technical options for depigmenting the skin.

Case Report

A 53-year-old black man with widespread vitiligo of 30 years' duration presented to the clinic with an interest in depigmentation. The vitiligo lesions started on his hands and face and gradually increased in size and number. He denied any precipitating factors or periods of particularly rapid progression. Treatments had included psoralen plus UVA for several years, sunlight, topical tacrolimus, and topical steroids. No treatments had resulted in substantial repigmentation. He stated he was "tired of fighting an uphill battle." He had no notable medical history and no other history of autoimmune disorders. He had no family history of vitiligo. Review of systems did not reveal any abnormalities. He stated that his thyroid function tests revealed no abnormalities. Physical examination revealed depigmented patches covering more than 50% of his total body surface area, most prominently on the face (Figure, A), hands, and anterior legs (Figure, B). The anterior and posterior trunk and buttocks also were involved.

After extensive discussion with the patient regarding prior treatments and other options including cosmetic cover-up, depigmentation therapy was mentioned. The patient was aware that depigmentation would be permanent and had considered the social implications of turning his skin white. He was prescribed monobenzyl ether of hydroquinone (MBEH) cream 20% (monobenzone) to apply to pigmented patches twice daily, beginning with the face and arms. The importance of photoprotection was discussed with him.

At 1-month follow-up, the patient's hands were almost completely depigmented. His face had become

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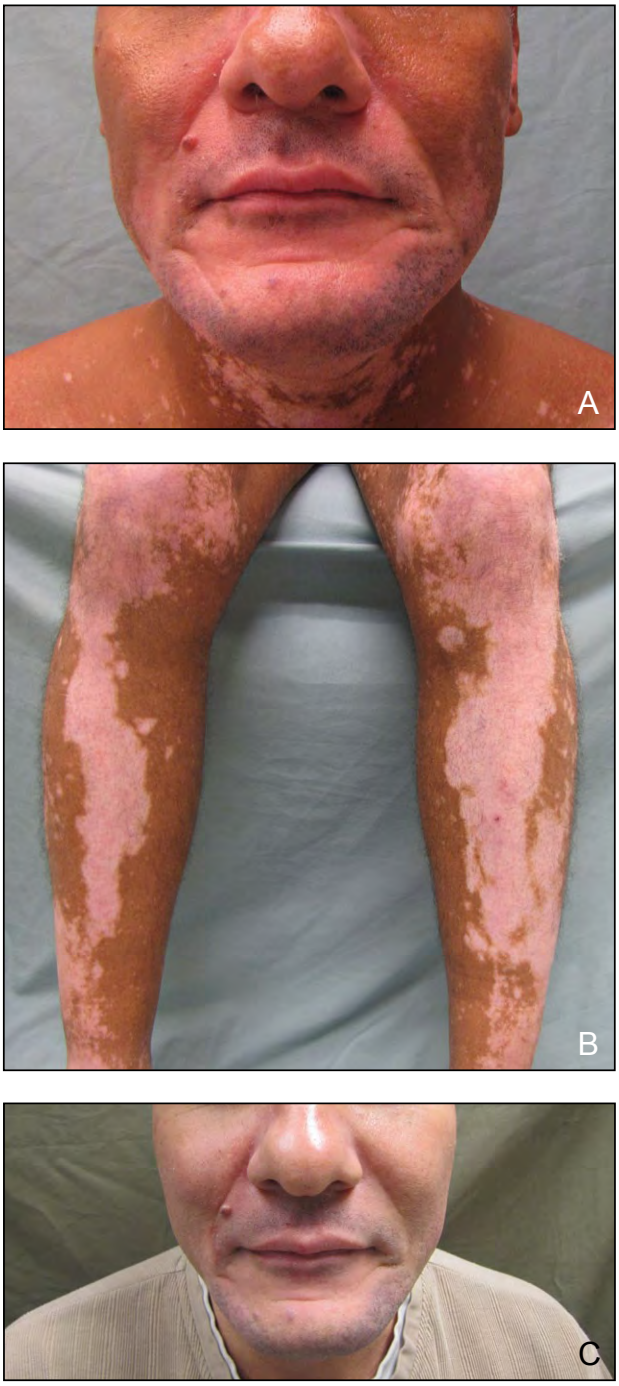
more uniform in color and was approximately 85% depigmented. He was pleased with the cosmetic results. At 4-month follow-up, the depigmentation had progressed and the patient remained pleased with the results (Figure, C). He currently is still being treated.



A vitiligo patient with Fitzpatrick skin type VI before depigmentation therapy (A and B) and 4 months after monobenzyl ether of hydroquinone treatment (C).

As the treated areas became completely depigmented, the patient discontinued application at those treatment sites and moved on to less apparent regions such as the trunk and legs. At the time of writing this manuscript (approximately 12 months after treatment initiation), he has not experienced repigmentation of previously treated areas. The only side effect was slight irritant contact dermatitis of the face, which was treated with a mild topical steroid.

Comment

Vitiligo, an autoimmune disorder in which loss of melanocytes causes enlarging patches of depigmented skin, occurs in 0.5% to 4% of the population. Hypotheses have been suggested regarding the etiopathology, including a genetic component responsible for melanocyte fragility and susceptibility to apoptosis.[1] However, the event that triggers depigmentation and its pathogenesis is not fully understood.[2] The disease has a predilection for the face as well as extensor surfaces of the extremities and hands. It can rapidly progress or remain relatively stable over time. Although equally prevalent in all racial groups, vitiligo is more apparent in Fitzpatrick skin types V and VI due to the greater contrast between the vitiliginous skin and normal skin. The most common therapies are directed at repigmentation and include psoralen plus UVA, narrowband UVB radiation, systemic steroids, pseudocatalase, topical immunomodulators, vitamin D_3 analogues, excimer laser, and surgical transplant.[2] No single therapy for vitiligo can be regarded as the most effective, as the success of each treatment modality depends on the type and location of the disease.

Depigmentation therapy may be considered in patients with more than 40% to 50% depigmentation, extensive depigmentation on the face or hands, or severe psychologic effects from vitiligo. Therapies for depigmentation include MBEH,[3] topical 4-methoxyphenol (4MP), and Q-switched ruby laser (QSRL).[4] The most common therapy is MBEH cream 20%. When applied to areas with residual pigmentation, the cream gradually lightens the skin via destruction of the epidermal melanocytes.[5] Melanocytes are more sensitive than keratinocytes to its cytotoxic effect, as described by Hariharan et al[5] in 2010. Depigmentation may take up to 4 to 12 months with this therapy for noticeable results[6] and may occur at sites beyond where MBEH was applied. Rapid repigmentation after discontinuation of therapy occasionally is seen.[7] Side effects of MBEH include local irritation and contact dermatitis. Hydroquinone has been banned in several European countries for over-the-counter use, largely due to concerns of exogenous ochronosis, which

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is a rare side effect occurring primarily in African countries after use of an unknown concentration of hydroquinone for prolonged time periods.[8] To our knowledge, MBEH has not been reported to cause exogenous ochronosis, though it is a structural relative of hydroquinone. Unlike hydroquinone, MBEH is US Food and Drug Administration approved only for final depigmentation in extensive vitiligo and is contraindicated for any other use. It is not effective for café au lait spots, pigmented nevi, or pigmentation resulting from pigments other than melanin.[9]

4-Methoxyphenol also has been effectively used in depigmentation therapy. Njoo et al[4] described total depigmentation in 11 of 16 patients using 4MP; however, 4 of these patients had a recurrence of pigment after 2 to 36 months. Similar to MBEH, the effect of 4MP also often is delayed until after 4 months, and application may be associated with local irritation.[4]

Laser therapy is another option for depigmentation. The QSRL has been used with quicker results and fewer side effects than topical treatments.[10] It may be preferred for localized areas. In the Njoo et al[4] study, 4 of 5 patients who did not respond to 4MP therapy experienced depigmentation when treated using QSRL. Total depigmentation was achieved in 9 of 13 QSRL-treated patients with onset within 7 to 14 days. No side effects were noted. Four of these patients had recurrence of pigment after 2 to 18 months.[4] There also is a report of the Q-switched alexandrite laser being successfully used for depigmentation.[11]

Approach to Depigmentation in Patients With Fitzpatrick Skin Type VI—The emotional impact caused by the disfigurement from vitiligo is evident,[12] and treatment-resistant disease is not uncommon. Depigmentation sometimes is the only option for providing cosmetically acceptable results. These issues have been discussed in the literature[6]; however, the topic of depigmentation often is avoided as it applies to Fitzpatrick skin types V and VI. For instance, Bolognia et al[13] thoroughly outlined the indications for and methods of depigmenting patients with extensive vitiligo, but the authors did not discuss the issue of depigmentation in patients with Fitzpatrick skin type VI. Granted, a discussion of depigmenting patients with Fitzpatrick skin type VI is fraught with the potential for controversy given the tumultuous racial history of the United States, but these patients have the most striking color contrast from vitiligo and may stand to gain the most cosmetic benefit from depigmentation.

Dr. Robert Stolar pioneered the practice of depigmentation in black individuals in the 1960s when he used MBEH to successfully depigment more than 300 patients who he described as "vitiliginous negroes."[14]

Because of secondary racial features, the decision to become depigmented can be difficult for African Americans. Facial features and hair texture may still make one easily identified as a person of African descent and possibly cause one to be looked on with curiosity within the black community. Despite awareness of the unique problems that depigmentation may create, African American patients may reach a point where depigmentation is preferable to the problems caused by vitiligo. Patients in our practice with Fitzpatrick skin types V and VI who have extensive and refractory vitiligo often have stated that they are emotionally exhausted from fruitless attempts over years to regain a cosmetically significant degree of repigmentation; they feel drained from the stares and repeated explanations.

In counseling vitiligo patients who decide to completely depigment, physicians must emphasize that depigmentation is an irreversible decision. It must be clear to the patient that improved therapies for repigmentation may become available in the future, and he/she will no longer be a candidate for these treatments after depigmentation. This point is especially important for younger patients. Issues of race and social implications of depigmentation also should be discussed. Family members should be present for discussions and part of the patient's ultimate decision.

Conclusion

Total depigmentation is a therapeutic option that can ameliorate the cosmetic concerns and accompanying psychologic stress in selected patients with extensive vitiligo. A uniform skin color, especially of the exposed body parts, is crucial to social interactions; lack of a uniform appearance may constitute a burden at work as well as in social settings. Patients with Fitzpatrick skin type VI may benefit from depigmentation only after careful selection and patient education.

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