Postinflammatory Hyperpigmentation After Skin Prick Testing

To the Editor:

Postinflammatory hyperpigmentation (PIH) is an acquired hypermelanosis, which occurs after inflammation, trauma, or therapeutic interventions. PIH presents as irregular darkly pigmented macules that can persist for months or even years. PIH occurs more frequently in the darker Fitzpatrick skin types IV to VI, for instance, found in individuals from Africa, Asia, and South America.[1] Localized PIH has been found to occur in a few individuals after both patch testing[2,3] and intradermal testing[4] for allergy diagnosis. However, to our knowledge, there are no published reports of PIH after skin prick tests (SPT).

CASE REPORT

We report the case of a 15-year-old girl of African descent (Fitzpatrick skin type VI) who presented to our tertiary allergy clinic. She had a marked allergic reaction to fish when she was an infant, and this allergy has persisted. The patient also experienced seasonal allergic rhinitis in the tree and grass pollen seasons and mild eczema but no asthma or contact dermatitis.

The patient underwent SPT on the volar aspect of her forearm (SPT reagents; Stallergènes S.A., Antony, France) (1-mm lancets; ALK-Abelló A/S, Hørsholm, Denmark) to a number of aeroallergens and for finfish and shellfish at her initial consultation, eliciting positive wheals with no lasting effects. She was prescribed self-injectable adrenaline devices, antihistamines (chlorphenamine, cetirizine), and intranasal steroids (mometasone furoate). She was also considered for immunotherapy for her seasonal allergic rhinitis and returned in the month of October for further SPTs using the same method as before, as part of the workup. She reacted vigorously to all tree and grass pollens tested (wheal size ranged from 10–25 mm at 15 minutes of testing), and the skin inflammation persisted for several days. At her follow-up visit, 7 months after the aeroallergen, SPTs were performed; PIH was present at all sites where the skin prick testing had been performed (Fig. 1). The patient reported that the hyperpigmentation started 48 hours after skin prick testing.

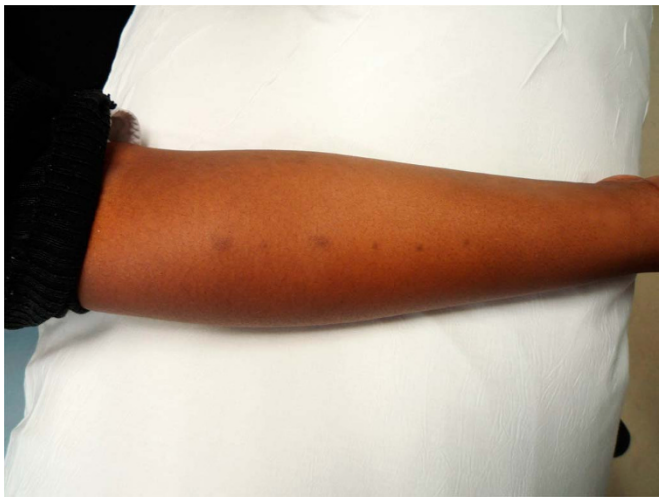

FIGURE 1. PIH was present at all sites where the skin prick testing had been performed 7 months before.

DISCUSSION

SPTs are a common procedure for the diagnosis of atopic disease, and they are generally considered safe with very rare local and systemic complications.[5] PIH can be found in the epidermis or dermis. The pathogenesis involves an upregulation in melanin synthesis by melanocytes triggered by an inflammatory process. In addition, melanin transfer from melanocytes to the surrounding keratinocytes is increased (epidermal PIH). If the basal cell layer is disrupted as part of this process, then the melanin can also be trapped by macrophages in the dermis (dermal PIH), causing deep blue discoloration of the skin.[1] Cutaneous late-phase reactions after an allergen challenge peak at 6 to 8 hours and resolve by 24 to 48 hours. These are common after intradermal tests, but they are rarely reported after SPT.[6] Due to the late onset of the hyperpigmentation in this patient, the possibility of a type IV immune response to the SPT solution base components (sodium chloride, glycerol, phenol, and mannitol) requires further investigations (eg, patch tests), which have been declined by the patient to date. A wide literature search on August 31, 2011, for PIH associated with SPT found no previous reports. Although rare, PIH should be recognized as a potential complication of SPT especially in patients with darker skin and patients counseled as such.

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