Riehl Melanosis in a 27-Year-Old Bahraini Woman

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Hyperpigmentation usually results from either melanocyte hyperplasia or melanocyte hyperactivity. Diffuse hyperpigmentation should prompt a search for offending medications or chemicals or systemic disease. Riehl melanosis is a nonpruritic pigmented dermatosis characterized by brownish-grey facial pigmentation and is almost synonymous with pigmented contact dermatitis of the face, the most common causes of which are sensitizing chemicals in cosmetics. It produces a type IV cytolytic reaction at the epidermal basal layer. Subsequent damage to the basement membrane leads to leakage of melanin, which is ingested by dermal macrophages. Here, we present a case of a 27-year-old woman with patchy, blue-grey-brown pigmentation on her face and neck. The patient had been using perfumes and cosmetics.

A 27-year-old atopic Bahraini woman presented to the dermatology clinic at Bahrain Specialist Hospital, Juffair, with dark pigmentation of the face and neck of 2 years' duration accompanied by occasional itching. She had been taking thyroxine for 5 years for her hypothyroidism, and she had been diagnosed as having polycystic ovary syndrome with hirsutism 11 years previously. The patient had taken norethisterone over a period of 2 months 8 years prior to her dermatology clinic attendance. There was no other drug history of note and no other medical history—specifically, there was no history of oral ulcers, intake of food supplements, or photosensitivity. The patient did admit to using a variety of perfumes and cosmetics.

CLINICAL EXAMINATION

The patient presented with dark, patchy blue-grey-brown pigmentation on her face and neck, predominantly on her cheeks and forehead, but also on her ears (Figure 1). The neck pigmentation was rippled and reticulate in pattern and more prominent on the anterior aspect (Figure 2). A few spots of hyperpigmentation were seen on the dorsum of the hands. There was no telangiectasia or atrophy, and nails, hair, and mucous membranes were all normal. There was no virilization or hirsutism, and the rest of the cutaneous and general medical examinations were unremarkable. Complete blood count, urea and electrolytes, bone biochemistry, and liver and thyroid function tests were all normal. Serologic tests, namely antinuclear antibody, rheumatoid factor, anti–smooth muscle antibody, and antimitochondrial antibody, were all negative. Blood levels of angiotensin-converting enzyme and calcium were normal. The differential diagnosis included pigmented contact dermatitis, ashy dermatosis, and lichen amyloidosis.

HISTOPATHOLOGIC EXAMINATION

Biopsy of the pigmented neck lesion (Figure 3) showed a lichenoid lymphohistiocytic infiltrate with marked basal epidermal liquefactive degeneration and prominent melanin incontinence. There was thickening of the basement membrane, and direct immunofluorescence studies were negative. There was no spongiosis. A diagnosis of Riehl melanosis (pigmented contact dermatitis, pigmented cosmetic dermatitis) was rendered.

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The authors report no conflicts of interest in relation to this article.

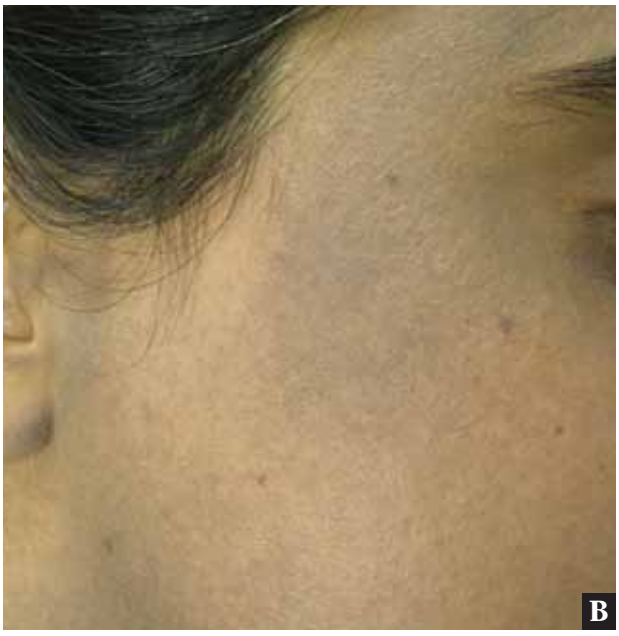
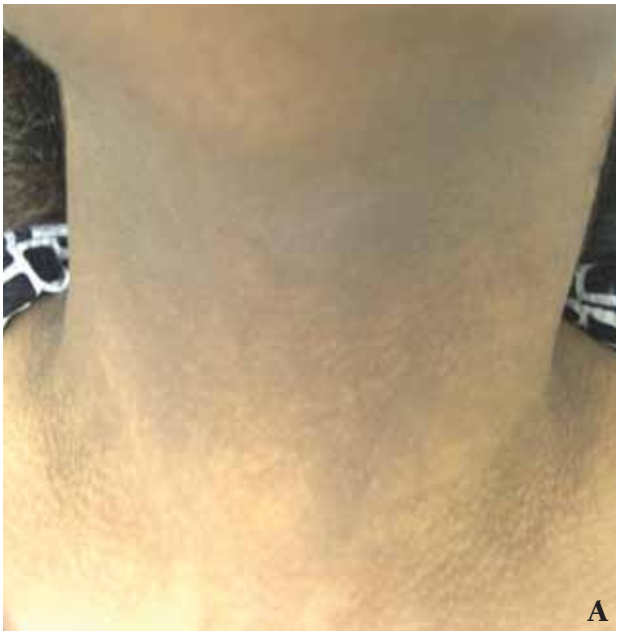


Figure 1. Patient presenting with blue-grey-brown discoloration involving the temple and upper lateral cheek and anterior to the ear (A) and blue-grey-brown pigmentation anterior to the ear and on the upper lateral cheek extending to the temple and lateral forehead (B).

The patient was instructed to avoid perfumes and cosmetics, and the use of sunblock was also recommended. The patch tests with European standard series, fragrance series, and her personal cosmetic products were carried out to identify any provocative agents, but all were negative. Twenty months later, she was given depigmentation creams—4% hydroquinone with steroids for 6 weeks followed by kojic acid for 4 weeks. There was only a 5% improvement on her cheeks (Figure 4), and the patient continues to have faciocervical hyperpigmentation with little improvement. The patch tests were repeated, and, for the second time, they were negative.

COMMENT

Riehl, in 1917, was the first to describe this reticular black to brown-violet pigmentation of the face and



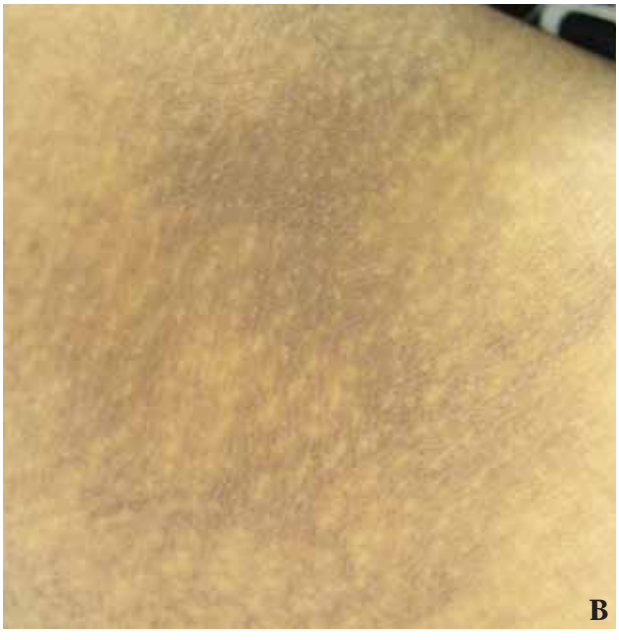


Figure 2. Patient presenting with prominent hyperpigmentation of the anterior neck (A) and rippled and reticulate appearance of the pigmentation on the lateral neck (B).

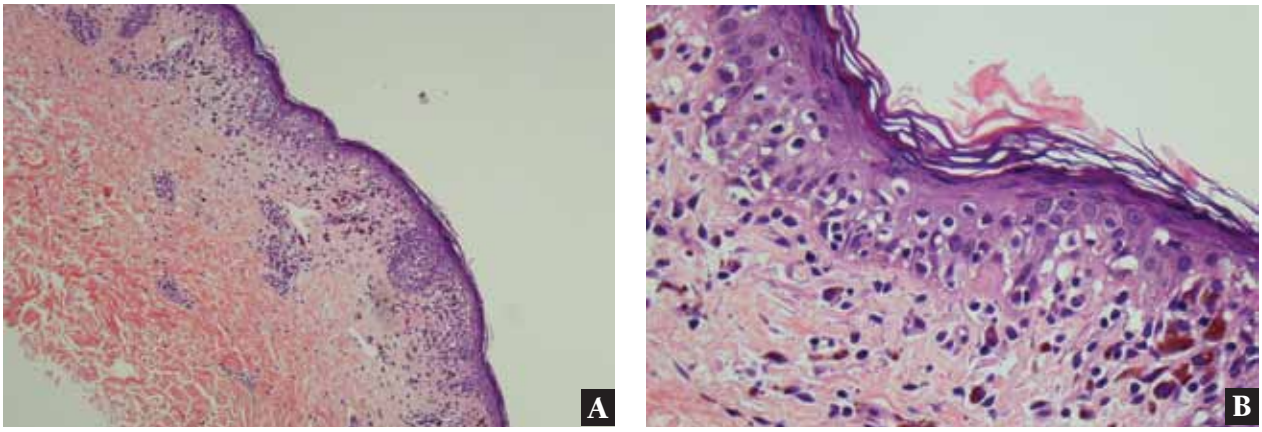


Figure 3. Low-power (H&E stain, original magnification ×40)(A) and high-power (H&E stain, original magnification ×200)(B) biopsy of a pigmented neck lesion showing basal cell degeneration and vacuolation, lichenoid lymphocytic infiltrate, and melanin incontinence. A perivascular inflammatory cell infiltrate is apparent in the superficial dermis of the low-power image.

suggested that it was due to exposure to noxious substances.[1] Although causes can be diverse, Riehl melanosis is a contact dermatitis resulting from contact sensitivity or photocontact dermatitis related to chemicals, particularly fragrances found in cosmetics. Because most patients with Riehl melanosis are middle-aged women, the term "female facial melanosis" has also been used. The pigmentary changes occur not only on the face, but sometimes on the neck, dorsal hands, and forearms. The hyperpigmented lesions in our patient almost certainly arose from a contact hypersensitivity reaction to the fragrances contained in the perfumes and cosmetics she was using. A possible explanation for the negative patch tests is that the patient had been using obscure locally produced fragrances (among all her cosmetics), which she did not present to her dermatologist for patch testing.

A variety of agents have been implicated in the etiology of the condition, including aniline dyes, formaldehyde, geraniol, lemon oil, and the optical whitener tinopal. The low concentrations at which fragrances are used is suggested to explain why they do not provoke spongiosis in the middle of the spinous cell layer but instead accumulate to produce type IV allergic cytolytic reactions at the epidermal basal layer. Subsequent damage to the basement membrane leads to leakage of melanin from the damaged cells into the papillary dermis, which is ingested by dermal macrophages. Histopathologically, this is manifested as interphase dermatitis of the lichenoid type rather than a toxic reaction and, clinically, as sudden onset of patchy brown-grey pigmentation on the cheeks, forehead, and temples, often preceded by pruritus. A reticular pattern of pigmentation is often seen (as on the neck of our patient).

Pierini[2] described 20 cases, all women, in which melanosis was caused by an aniline dye (orange II) in face powder. A number of authors have proposed the name "pigmented cosmetic dermatitis" for the pigmented allergic contact dermatitis caused by cosmetics resembling Riehl melanosis.[3-6] The causative allergens they found in this condition were coal tar dyes—particularly CI 15800 Brilliant Lake Red (an azo dye), which contains Sudan I as a major impurity and other 1-phenylazo-2-naphthol derivatives.[3-6]

Seike et al[7] described the coexistence of Riehl melanosis and lichen planus and suggested that the 2 diseases represent manifestations of specific immune responses and are part of the same spectrum. Miyoshi and Kodama[8]

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Figure 4. Patient with Riehl melanosis on the cheeks after treatment with 4% hydroquinone with steroids for 6 weeks followed by kojic acid for 4 weeks. Improvement was mild (5%).

suggested that a Riehl melanosis–like eruption could be a cutaneous manifestation of Sjögren syndrome with anti-SSA (Ro) antibody.

Imokawa and Kawai[9] have provided clinical evidence that allergic contact dermatitis can stimulate the epidermal pigment cell function in a very specific way. They also demonstrated a melanogenic potential for a limited number of allergens. Pigmented contact dermatitis and pigmented cosmetic dermatitis result from repeated exposure to small amounts of contact allergens, and, in both, usually no eczematous lesions are seen. The differentiating points between these two are the affected sites, causative agents, sex, and race.[3]

A major differential diagnosis considered in cases of Riehl melanosis is chloasmalike pigmentation, which is modified by the use of hydroquinone and is characterized by a brownish pigmentation. It is frequently associated with pregnancy, ingestion of oral contraceptives, and endocrine dysfunction. The other differential diagnoses include contact dermatitis, allergic contact dermatitis, irritant dermatitis, lichen planus, and nevi of Ota and Ito.

SUMMARY

Pigmented contact dermatitis (Riehl melanosis) is mainly a problem of young to middle-aged women, and pruritus may precede the development of the pigmentary changes. It may be associated with a contact sensitivity to cosmetics or to a photocontact dermatitis resulting from fragrances in cosmetics. No drug therapy is effective, and avoidance of the allergen is necessary when it is identified. Riehl melanosis tends to persist.

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