Thinking outside the skin: Look at the thyroid for true diagnosis

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ABSTRACT

Keratoderma is a group of disorders characterized by abnormal thickening of skin. Acquired palmar keratoderma has many underlying causes. The association of thyroid disease and palmar keratoderma rarely reported. Hypothyroidism, although very rare association, must be suspected in patients with acquired PPK, particularly when it occurs in setting of systemic symptoms or predisposing conditions.
We report first case of acquired plantar keratoderma associated with undiagnosed hypothyroidism in Down syndrome.

Key words: Plantar keratoderma; Hypothyroidism; Down syndrome.

INTRODUCTION

Keratoderma is a group of disorders characterized by abnormal thickening of skin. Acquired palmar keratoderma has many underlying causes, such as psoriasis, lichen planus, pityriasis rubra pilaris, eczema, Reiter's syndrome, fungal infections, keratoderma climactericum, trauma, drugs, chemicals, malignancies and endocrine abnormalities such as thyroid disorder [1-3]. Thyroid disorders have different cutaneous manifestations such as dry skin, myxedema, purpura, ecchymosis, xantomas, carotenodermia, pruritus and pyodermitis [4]. However the association of thyroid disease and palmar keratoderma rarely reported in the literatures. To the best of our knowledge, less than 15 cases have been reported. [3, 5-8].We report first case of acquired plantar keratoderma associated with undiagnosed hypothyroidism in Down syndrome.

CASE REPORT

A 21-year-old white man presented with a 3-month history of symmetric, focal yellowish hyperkeratosis of plantar surfaces with painful fissures that progressive worsening. There was no sign of any inflammation. The lesions had sharp margin. (Figures 1, 2) .He was known case of Down syndrome case without any other significant positive past medical history. Their personal and family history was negative for any dermatological diseases. The skin lesions had not response to topical corticosteroids and keratolytics. On skin examination, it was dry and she suffers from generalized pruritus. The remainder physical examination (including nails, mucosae and hair) was normal. A complete laboratory evaluation was performed for investigate possible infectious, systemic or malignant conditions. Routine laboratory tests except thyroid function tests (TFT) were normal. TFT revealed an elevated thyroid stimulating hormone (15.5 mu/L; normal range 0.34–4.98) and diminished free triodothyronine (13 ng/dL; normal range 40–200) and free thyroxin (0.33 ng/dL; normal range 0.9–1.7). A thyroid ultrasound was normal.
Treatment with topical keratolytic, emollients and levothyroxine was started. A slow and gradually improvement of skin lesion was seen. After 12 months of follow-up, he has normal thyroid function tests with regular use of levothyroxine and no recurrences of the dermatosis. Diagnosis of plantar keratoderma and hypothyroidism was confirmed by investigations.

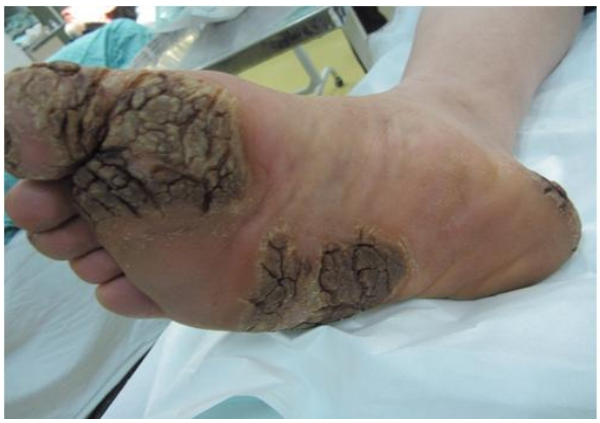

Figure 1. Acquired plantar keratoderma. Multifocal area of keratoderma with painful fissures (Right sole)

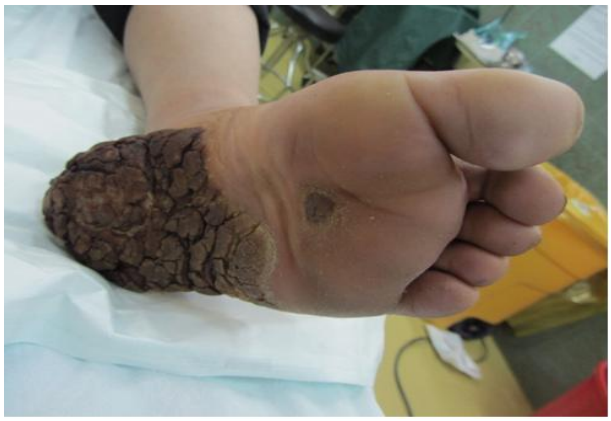

Figure 2. Acquired plantar keratoderma .A rare manifestation of hypothyroidism. (Left sole)

DISCUSSION

This report emphasis the association of plantar keratoderma and hypothyroidism especially in Down syndrome who prone to hypothyroidism . Hypothyroidism, although very rare association, must be suspected in patients with acquired PPK, particularly when it occurs in setting of systemic symptoms or predisposing conditions. In our patient the other differential diagnosis ruled out and the only remaining cause of the lesions considered hypothyroidism. In contrast to most of previous published cases, in which myxedema was present, in our case the clinical examination was normal, except for the presence of plantar keratoderma and dry skin such as report of Lestre S et al [7]. Palmoplantar keratoderma (PPK) in association with myxedema was first reported 1952 [9]. Increased propensity to overkeratinisation could be responsible for PPK[6]. Our patient had taken treatment without acceptable improvement before the initiation of thyroid hormone therapy. This favored the fact that plantar keratoderma was due to underlying thyroid disorder. Also a sustained clinical response to levothyroxine treatment was observed in our patient such as pervious reports, supporting a causal relationship between hypothyroidism and PPK[7].

The systemic complaints of our patient, such as asthenia, constipation and menstrual irregularities were unspecific and could be easily attributed to the aging process and/or to psychological stress. In all previous reports, a lack of response to topical corticosteroids and keratolytics was also observed.

CONCLUSION

In conclusion due to numerous possible underlying causes for acquired palmoplantar PPK evaluation of patients presenting with acquired PPK should be done in order to appropriate diagnosis and treatment.

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