http://dx.doi.org/10.5021/ad.2015.27.4.482

Eccrine Chromhidrosis Resembling Clinical Features of Pompholyx with Bile-Like Greenish Pigmentation on the Right Palm and Soles

Dong In Keum, Hannah Hong, Sang-Hoon Lee[1], Sung Ku Ahn

Department of Dermatology, Yonsei University Wonju College of Medicine, Wonju, [1]Department of Dermatology, Soonchunhyang University Bucheon Hospital, Bucheon, Korea

Dear Editor:

Chromhidrosis is a rare condition characterized by secretion of colored sweat from the eccrine or apocrine glands. Not only is this condition epidemiologically rare, but also its mimicry of eczematous clinical features may lead to misdiagnosis.

A 55-year-old man was examined for abnormal pigmentation on right palm and soles, which lasted a week. He was a local farmer in an apple orchard and he had diabetes, alcoholic liver cirrhosis, and hepatic regenerative nodules as underlying diseases. He was hospitalized due to long-standing diarrhea and fever. On clinical examination, yellow and green papules were observed on his right palm and soles (Fig. 1) and levels of total (19.3 mg/dl) and direct (13.8 mg/dl) bilirubin were elevated. Histological findings revealed hyperkeratosis, diffuse acanthosis, and subcorneal vesicles in the epidermis (Fig. 2A). Homogenous eosinophilic materials were observed surrounding the vesicles and both the number and size of eccrine glands were increased (Fig. 2A, inset). Hence, the patient was diagnosed with eccrine chromhidrosis and treated with emollient. After three weeks, abnormal pigmentation was almost resolved, levels of total (2.18 mg/dl, normal range: 0.3～1.9 mg/dl) and direct (0.71 mg/dl, normal range: 0～0.3 mg/dl) bilirubin were lower and body temperature had decreased (Fig. 2B).

Green pigmentation on the palms and soles in patients with hyperbilirubinemia is a rare condition[1]. While our case presented with eczematous lesions on the right palm and soles (where sweat glands are most abundant), the patient's clinical features resembled pompholyx, a primarily spongiotic dermatitis[2,3]. However, the yellow-green pigmentation in our case appeared to be bile-filled vesicles, which could not be explained by spongiotic changes alone. Two weeks of high fever led to increased sweating and high concentrations of bile components in the sweat may have acted as a sensitizer and induced eczematous lesions, exacerbating the inflammatory spongiosis. Eccrine chromhidrosis is a rare condition in which water-soluble pigments from certain dyes or drugs are excreted via the eccrine sweat glands－in our case, the bile components. It may be caused by chromogenic bacterial or fungal contamination or by extrinsic chemicals on the surface of the skin, which react with eccrine secretions and produce the color transformation. However, results of fungal and pseudomonal tests in this case were negative.

Kanzaki and Tsuda[4] reported two cases of eccrine chromhidrosis with liver disease. In hepatocytes associated with liver disease, bile may become pigmented with brown color; however, no bile pigmentation was observed in this case. The bile pigment may have been washed out during histological fixation if it was located within the spaces of the eccrine ducts and vesicles, and not in the cellular spaces[2]. Possible pathomechanisms of three essential factors that could contribute towards the development of pigmentation: (1) increased plasma level of water-soluble direct bilirubin, (2) high fever with sweating, and (3) a thick

Received May 30, 2014, Revised January 20, 2015, Accepted for publication March 21, 2015

Corresponding author: Sung Ku Ahn, Department of Dermatology, Yonsei University Wonju College of Medicine, 20 Ilsan-ro, Wonju 220-701, Korea. Tel: 82-33-741-0621, Fax: 82-33-748-2650, E-mail: ahnsk@ yonsei.ac.kr

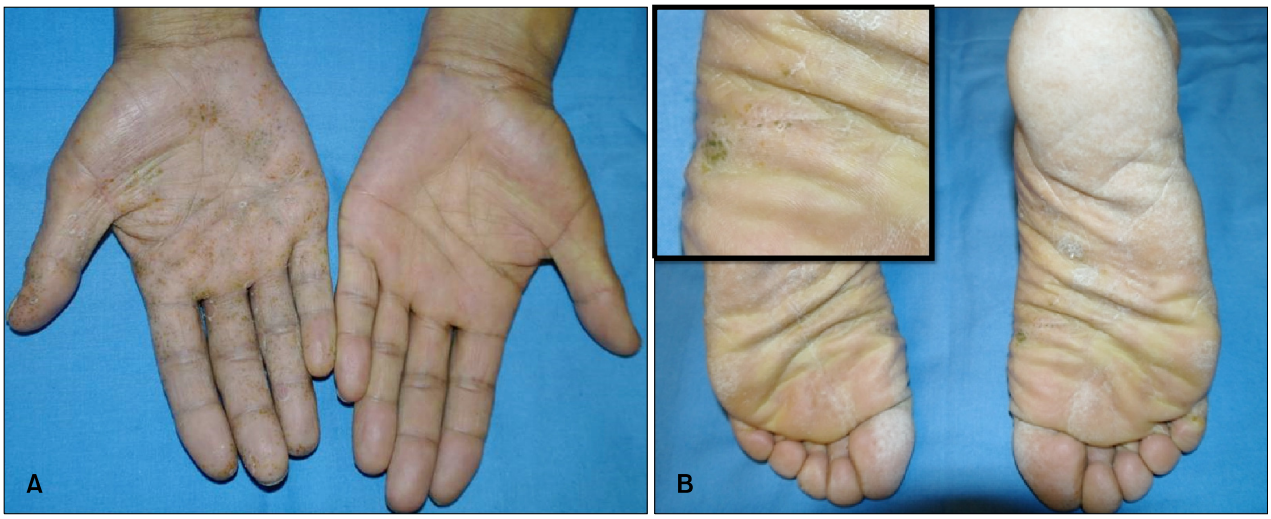

Fig. 1. (A) Multiple yellow and green papules without symptoms on the right hand and (B) soles of both feet. Upper inset: yellow and green pigmentation on the sole.

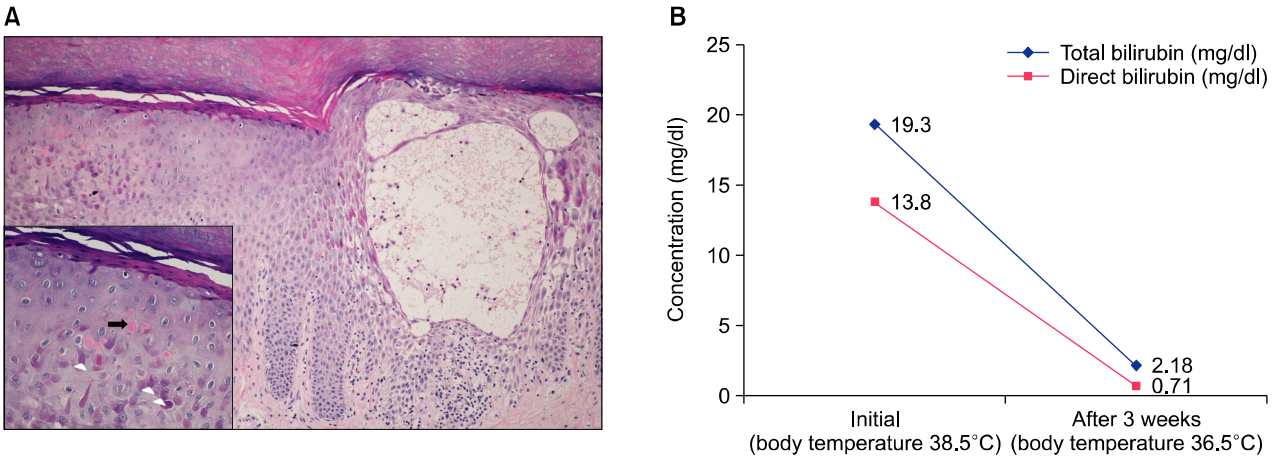

Fig. 2. (A) Upon histopathological examination of a yellow papule, the epidermis showed hyperkeratosis, diffuse acanthosis, and subcorneal vesicles (H&E, ×40). An increased number and size of eccrine glands (lower inset, ×200). Homogenous eosinophilic material (arrow) deposit in the epidermis and subcorneal vesicles (lower inset). (B) Both total and direct bilirubin decreased as clinical improvements are shown after 3 weeks.

horny layer. The green color is attributable to the switch from brown-colored bilirubin to green-colored biliverdin by oxidative processes[5]. We report a case of eccrine chromhidrosis resembling the clinical features of pompholyx with explanation of probable pathomechanism.

REFERENCES

1. Triwongwaranat D, Kasemsarn P, Boonchai W. Green pigmentation on the palms and soles. Acral green pigmentation (eccrine chromhidrosis). JAMA Dermatol 2013;149:1339-1340.
2. Lee WJ, Lee DW, Kim CH, Won CH, Chang SE, Lee MW, et al. Pompholyx with bile-coloured vesicles in a patient with jaundice: are sweat ducts involved in the development of pompholyx? J Eur Acad Dermatol Venereol 2010;24:235-236.
3. Park SH, Kim SW, Noh TW, Hong KC, Kang YS, Lee UH, et al. A case of palmar lichen nitidus presenting as a clinical feature of pompholyx. Ann Dermatol 2010;22:235-237.
4. Kanzaki T, Tsuda J. Bile pigment deposition at sweat pores of patients with liver disease. J Am Acad Dermatol 1992;26:655-656.
5. Allegue F, Hermo JA, Fachal C, Alfonsín N. Localized green pigmentation in a patient with hyperbilirubinemia. J Am Acad Dermatol 1996;35:108-109.