

UC Davis

Dermatology Online Journal

Title

Universal acquired melanosis: carbon baby

Permalink

<https://escholarship.org/uc/item/09t9r68c>

Journal

Dermatology Online Journal, 19(7)

Authors

Niiyama, Shiro
Bando, Yuki
Ishii, Masahiro
[et al.](#)

Publication Date

2013

DOI

10.5070/D3197018961

Copyright Information

Copyright 2013 by the author(s). This work is made available under the terms of a Creative Commons Attribution-NonCommercial-NoDerivatives License, available at <https://creativecommons.org/licenses/by-nc-nd/4.0/>

Peer reviewed

Volume 19 Number 7
July 2013

Case Presentation

Universal acquired melanosis: carbon baby

Shiro Niiyama MD, PhD¹, Yuki Bando MD, PhD², Masahiro Ishii MD, PhD², Kensei Katsuoka MD, PhD¹

Dermatology Online Journal 19 (7): 6

¹Department of Dermatology and ²Department of Pediatrics, Kitasato University School of Medicine, Sagamihara, Japan. sniiyama@aol.com

Correspondence:

Shiro Niiyama, MD, PhD
Department of Dermatology
Kitasato University School of Medicine
1-15-1 Kitasato, Minami-ku
Sagamihara, Kanagawa
252-0374 Japan
Tel. +81-42-778-8468
Fax. +81-42-778-8628
E-Mail sniiyama@aol.com

Abstract

We report a 3-year-old boy born with light brown skin that progressively became much darker. The color change was insidious in onset at the age of 3 months, asymptomatic, and progressive involving the entire body surface. Hyperpigmentation may be congenital or acquired, hereditary or nonhereditary, localized or universal, of known or unknown origin. Universal acquired melanosis is a rare form of hyperpigmentation, which has been synonymously referred to as “carbon baby.”

Introduction

Ruiz-Maldonado *et al.* [1] described a single case of a striking variant of progressive hyperpigmentation in which a child developed pigmentation at the age of three months and was deep-black over this entire body by the age of 4 years, prompting the authors to name him “carbon baby.”

Case synopsis

A 3-year-old male child came to our department because of progressive pigmentation that started on the face and limbs at the age of 3 months (Fig. 1). There was no history of drug intake prior to the onset of skin lesions. The patient was the product of the second uneventful pregnancy of a Japanese mother; his father was Taiwanese. They were in good health, not consanguineous, and had light brown skin. A 5-year-old sister had light brown skin color.

The skin exhibited generalized hyperpigmentation (Fig. 2), sparing areas of the palms and soles (Fig. 3). The face showed mottled areas of normal skin. Pigmentation was present over the tongue. However, the buccal mucosa and gingiva were normal. In addition, the nails were normal. The scalp hair was normally pigmented with fine straight terminal hairs that did not show any shaft abnormalities. The patient's physical and mental development was normal.

A skin biopsy was taken from the hyperpigmented skin on the abdomen and a normal region on the palm. The specimen from the abdomen showed melanophages in the upper dermis, but did not reveal melanin pigmentation of the basal layers. On the other hand, no changes were found in the specimen from the palm. Immunohistochemistry for local alpha-melanocyte stimulating hormone (MSH) expression using anti-alpha-MSH (ARP American Research Product, Inc., MA, USA) revealed negative results for both abdominal and palmar skin.

Laboratory tests (complete blood count, hepatic and renal functions, C-reactive protein) were normal. Serum adrenocorticotropin hormone (ACTH) and thyroid tests were normal. Alpha-MSH was 10.2 pmol/L (5.8-23.3 pmol/L).

No expansion of the normal color region is visible until date, about 1 year after the first visit.

Discussion

The present case and the two previously reported cases showed pigmentation of the skin other than the palm and sole [1, 2]. Appearance of mottled areas on the cheek was characteristic. A similar finding was also reported by Kaviarasan *et al.* [2]. Several conditions, such as dyschromatosis symmetrica hereditaria [3], congenital diffuse melanosis [4], and erythema dyschromicum perstans [5], have been listed as diseases that need to be taken into account in the differential diagnosis. However, with the exception of universal acquired melanosis (carbon baby), thus far we have never come across any cases in which pigmentation of the entire body except the palms and soles occurred in early childhood and in which there were no subsequent changes in the manifestations, no complications other than in the skin, and no family history of a similar condition.

To date, no case of this condition has been reported among Caucasians and the etiology of this condition remains unexplained. A prior case of this condition with normal blood beta-MSH level has been reported [2]. In the present case, the serum alpha-MSH level was also normal and the results of the immunohistochemical study for local alpha-MSH expression were negative. We can speculate that the pigmentation could be the result of abnormal sensitivity of melanocytes towards normal or abnormal endocrine or nervous stimuli. In addition, a genetic mutation that is not detectable at the chromosomal level could be involved.



Figure 1 At the age of 5-months. Hyperpigmentation is not noticeable yet.



Figure 2 Generalized, complete hyperpigmentation.



Figure 3 Normal skin.

References

1. Ruiz-Maldonado R, Tamayo L, Fernández-Diez J. Universal acquired melanosis: The carbon baby. *Arch Dermatol*. 1978 May; 114 (5): 775-8. PMID: 646402
2. Kaviarasan PK, Prasad PVS, Joe JM, Nandana N, Viswanathan P. Universal acquired melanosis (Carbon baby). *Indian J Dermatol Venereol Leprol*. 2008 Jan-Feb; 74 (1): 38-40. PMID: 18187822
3. Miyamura Y, Suzuki T, Kono M, Inagaki K, Ito S, Suzuki N, Tomita Y. Mutations of the RNA-specific adenosine deaminase gene (DSRAD) are involved in dyschromatosis symmetrica hereditaria. *Am J Hum Genet*. 2003 Sep; 73 (3): 693-9. PMID: 12916015
4. Kint A, Oomen C, Geerts ML, Breuillard F. Congenital diffuse melanosis. *Ann Dermatol Venereol*. 1987; 114: 11-6. PMID: 3579125
5. Oiso N, Tsuruta D, Imanishi H, Kobayashi H, Kawada A. Erythema dyschromicum perstans in Japanese child. *Pediatr Dermatol*. 2012 Sep-Oct (5); 29: 637-40. PMID: 22066655