When Yellow Isn't Jaundice: Palmar and Plantar Discoloration in Carotenoderma – A Case Report

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ABSTRACT

Carotenoderma is characterized by a yellow-orange discoloration of the skin, typically resulting from the excessive consumption of carotene-rich fruits and vegetables. We report a case involving a patient who developed yellow pigmentation of the palms and soles in the absence of jaundice, secondary to a high intake of carrots, pumpkin, papaya, and green leafy vegetables. Although this condition is benign and does not require medical treatment, it is essential to distinguish it from pathological causes of yellow skin, such as jaundice.

Keywords: β-carotene; Carotenoderma; Jaundice

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INTRODUCTION

Carotenoderma is a phenomenon characterized by yellow-orange pigmentation of the skin that results from carotene deposition in the skin, mainly in the stratum corneum. It is associated with a high blood β-carotene value, and is regarded as a significant physical finding, but is a harmless condition.[1] As it is a benign condition, it seldom requires further investigations. Carotenoderma is not an uncommon presentation, despite the prevalence data being scarce.[2] Awareness of carotenoderma is necessary to avoid confusion with jaundice and unnecessary diagnostic tests.[3]

CASE REPORT

A 36-year-old female presented to the Dermatology Outpatient Department with complaints of yellowish discoloration of palms and soles for 4 months. She initially noticed yellowish discoloration of her palms followed by her soles. She denied pruritus, darkening of the urine, and pale stools. She also gave history of generalized weakness in the past, for which her diet had predominantly consisted of carrots, pumpkin, papaya, and green leafy vegetables. Upon further evaluation, the patient revealed that her dietary pattern had been self-adopted in response to a persistent sense of generalized weakness, which she had attributed to a nutritional deficiency. Subsequent consultation with a psychiatrist led to a diagnosis of moderate depression, which was considered to be the cause of her generalized weakness. There was no history of diabetes mellitus, thyroid disorder, and liver disorder in the past. The general condition of the patient was fair. The patient was conscious, oriented to time, place, and person. All her vital signs were normal. Local examination revealed yellow-orange discolorations on the palmar aspect of both hands, and the plantar aspects of both feet. Her sclera was anicteric. There were no changes detected in the scalp, nail, and mucosa. No significant abnormalities were detected on systemic examination.The patient was sent for a complete blood count, random blood sugar, thyroid function test, and liver function test, which were unremarkable. However, serum β-carotene levels could not be assessed due to the unavailability of necessary testing facilities. The patient was advised to cut down on foods rich in carotenoids, and pigmentation is expected to improve slowly over time.

DISCUSSION

Carotenoderma is a benign and reversible condition characterized by yellow discoloration of the skin and elevated levels of β-carotene in the blood, which occurs secondary to excessive and prolonged ingestion of carotene-rich foods. Carotene serves as the primary precursor of vitamin A in human beings. However, hypervitaminosis A does not occur with excess carotene ingestion as the body converts only a limited quantity of carotene to vitamin A daily.[4,5] A detailed history should be taken, along with dietary history. The focus should be on the history of foods consumption that have high carotene levels,

with the estimation of the amount taken and duration. In addition, screening should be done for other conditions that could present with carotenoderma, such as diabetes, anorexia, hypothyroidism, and liver and kidney diseases.[2] Pigmentation usually involves the palms, dorsum of hands, soles, forehead, tip of the nose and nasolabial folds, but spares the sclera and mucous membranes. A typical sign of carotenoderma is its enhanced appearance under artificial light.[6]

The diagnosis of diet-induced carotenoderma is usually made clinically, and there is typically no need for laboratory confirmation. The mainstay of treatment is the reduction of the amount of carotene in the diet. This ultimately leads to the progressive disappearance of yellow skin coloration. However, the pigmentation could persist for several months, even after carotene levels return to normal due to the lipophilic nature of carotenoids.[7] Reassurance should be given to patients that diet-induced carotenoderma is a reasonably benign condition, and requires no treatment.

Our case highlights the importance of recognizing its clinical presentation, particularly the yellow-orange discoloration of the skin with sparing of the sclera, to differentiate it from more serious conditions like jaundice. Increased awareness among clinicians can help prevent unnecessary investigations and provide reassurance to patients through appropriate dietary counselling.

Figure 1: Carotenoderma of the Palms

Figure 2: Carotenoderma of the Soles

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