

Carotenemia: Post Hemi - Thyroidectomy

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Abstract: *The condition known as carotenoderma (due to carotenemia) is typified by orange skin pigmentation, which is primarily caused by carotene deposition in the stratum corneum. (1) It was first used in 1919 by Hess and Meyers. (2) Carotenemia is a benign condition and can be reversed easily. (3) Increased blood beta - carotene levels and yellow skin pigmentation (xanthoderma) are two hallmarks of carotenemia, a clinical disorder with several underlying causes. (4) Our daily food habits, if not monitored, can cause negative health repercussions. (5) Here, we report a case of carotenemia in a female caused due to excessive consumption of a high - carotene diet. This condition is underreported. We aim to acknowledge this condition thereby preventing pointless referrals and investigations.*

Keywords: Carotenemia, Skin discoloration, Dietary carotenoids, Chronic gastritis

1. Case Report

A 51 year old female, with a history of left hemi - thyroidectomy post colloid nodules 1 year ago.

She came to the out patient department of Dermatology with chief complains of yellowish - orange discoloration of palms and soles with sparing of sclera and mucosa since 6 months. The discoloration was insidious in onset and progressive in nature. It started from the tips of finger & toes and extended to the palms & soles. Furthermore the axillary area, tip of nose and nasolabial folds were spared. There is no itching, swelling or burning. There is no associated aggravating or relieving factors.

Upper Gastro - intestinal endoscopy was suggestive of gastric erosions and ulcerations. Gastric biopsy was suggestive of severe chronic gastritis.

Patient has no known allergies. There is no history of diabetes mellitus, asthma, hypertension or tuberculosis. She is a non - smoker, non - alcoholic, has a vegetarian diet and her BMI is normal. She is a home - maker and has no history of use of chemical dyes or other chemicals that could cause this discoloration. On investigations, the liver function,

coagulation profile, complete blood count, lipid profile and renal function tests were normal.

After further questioning, the patient reported that fruits and vegetables made up the majority of her diet due to indigestion caused by chronic gastritis. This included daily consumption of papaya, bottle guard and carrot since 7 months.



Figure 1: Comparison of palms of normal subject (left) with respect to Yellowish - orange discoloration of palms of the patient (right)



Figure 2: Yellowish - orange discoloration of soles of patients

2. Discussion

The yellow - orange tint of the skin known as carotenoderma is mostly brought on by an over consumption of food high in

carotenoids. This causes increase in serum carotenoid. The nasolabial folds, soles, axilla and palms are where the yellowish colouring is usually seen. Despite the noticeable outward manifestation, the illness is benign and safe. (6)

Volume 13 Issue 7, July 2024

Fully Refereed | Open Access | Double Blind Peer Reviewed Journal

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Apple, orange, papaya, beans, peach, berries, pineapple, broccoli, brussels sprout, cabbage, pumpkin, carrot, spinach, squash, cucumber, tomato, lettuce, and mango are among the fruits and vegetables high in carotene. Additional sources are egg yolks, beef, milk, cheese, butter, vitamin supplements, and palm oil. (1)

Since adipose tissue are the primarily target of carotenoids, the sclera and buccal mucosa are spared in cases of carotenemia. The stratum corneum layer of skin has a high lipid content, therefore it is has high affinity for carotene. Hence thicker skin parts like the palms and soles are where yellow skin is most noticeable. (5) Over time, skin pigmentation goes away with a balanced diet. (7)

Carotenoids are a broad class of naturally occurring pigments that are responsible for the yellow, orange, and red colours of fruits and plants. Although over six hundred carotenoids have been discovered, lutein, b - carotene, a - carotene, zeaxanthin and lycopene are the main ones found in human blood. (8)

In humans, beta - carotene is the main precursor of vitamin A. But since the body only need a little amount of carotene each day to convert it to vitamin A, excessive carotene consumption does not result in hypervitaminosis of vitamin A. (9)

Rarely, systemic conditions such as diabetes mellitus, hypothyroidism, glomerulonephritis, nephrotic syndrome, and primary liver disease have been linked to carotenemia. (8) It is known that carotenemia has association with hypothyroidism, as in this case. But this is only seen with consumption of foods high in beta - carotene. Thus it is unlikely to be seen during infancy. (10)

Differential diagnosis include lycopenemia, carotenemia, jaundice, drug induced and chemical induced. Diagnosis can be establishment by a detailed physical examination and obtaining a detailed history. This will also avoid needless laboratory testing. (11)



Figure 3: Yellowish - orange discoloration of palms of patients.

3. Conclusion

Organic substances called carotenoids are present in a wide range of plants and foods. The primary carotenoid present in plants, beta - carotene, is the main cause of Carotenemia. Despite being benign, this illness is frequently misdiagnosed as jaundice, which can be easily ruled out by proper history and detailed examination. (2)

Conflict of interest statement:

The authors have declared that no conflict of interests.

References

- [1] Edigin E, Asemota IR, Olisa E, Nwaichi C. Carotenemia: A Case Report. *Cureus*.2019; 11 (7): e5218. doi: 10.7759/cureus.5218
- [2] Al Nasser Y, Jamal Z, Albugeaey M. Carotenemia. *StatPearls [Internet]*: StatPearls Publishing; 2023.
- [3] Makki AY, Bokhari AA. The Case Files: Why is This Girl's Hands Orange? (It's Not Cheetos). *Emergency Medicine News*.2022; 44 (12A): 10.1097.
- [4] Zon EM, Khairudin SNA, Hazlan SNH. An Orange Baby: Benign Carotenemia in an Infant: A Case Report. *IIUM Medical Journal Malaysia*.2023; 22 (4)
- [5] Pant V, Baral S. Lady with yellow palm. *Atención Primaria Práctica*.2020; 2 (3): 100049.
- [6] Tanaka A, Miyauchi T, Kitamura S, Iwata H, Hata H, Ujiie H. Carotenoderma due to lycopenemia: A case report and evaluation of lycopen deposition in the skin. *The Journal of Dermatology*.2022; 49 (12): 1320 - 4.
- [7] Gupta S, Bourke MJ, Burgess NG. Pain and Pigmentation: A Puzzling Presentation. *Gastroenterology*.2021; 160 (4): 1034 - 6.
- [8] Chhiti S, Douhi Z, ELammari S, Soughi M, Elloudi S, Baybay H, et al. Carotenoderma caused by eating habits in the month of Ramadan.
- [9] Gandhi M, Walton S, Wyatt EH. Hypercarotenaemia in a tomato soup faddist. *Bmj*.1988; 297 (6664): 1635. doi: 10.1136/bmj.297.6664.1635
- [10] Josephs HW. The carotenemia of hypothyroidism. *The Journal of Pediatrics*.1952; 41 (6): 784 - 91. doi: https://doi.org/10.1016/S0022 - 3476 (52) 80298 - 7
- [11] Mohammed SR, Teelucksingh S. Not all that's yellow is jaundice. *Journal of the Royal College of Physicians of Edinburgh*.2022; 52 (2): 149 - 50.